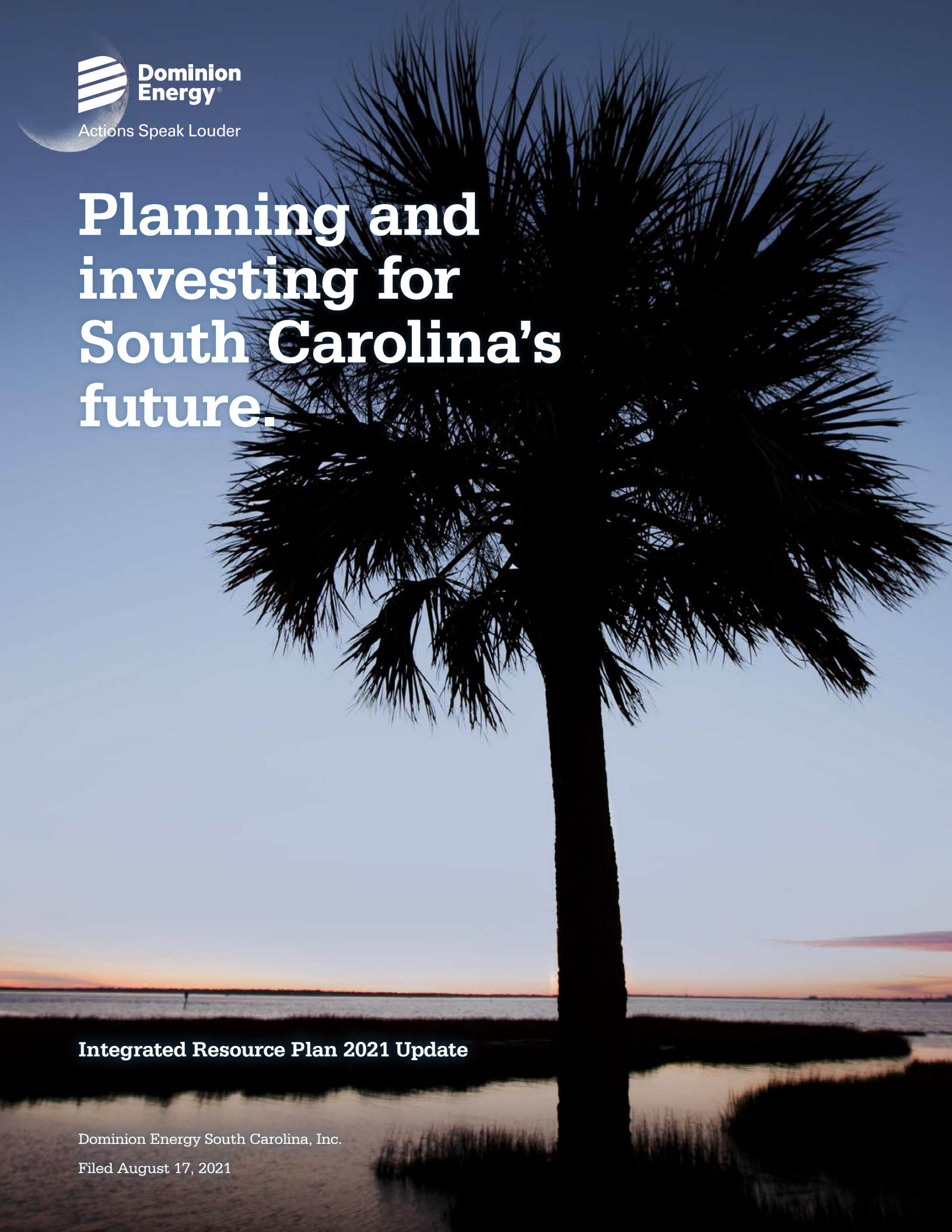

Planning and investing for South Carolina's future.

Integrated Resource Plan 2021 Update

Dominion Energy South Carolina, Inc.

Filed August 17, 2021

Dominion Energy

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South Carolina's state flower: Yellow Jessamine.

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Intake towers at Lake Murray.

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Introduction

Since the 1980s, integrated resource plans (IRPs) have been used in South Carolina to identify when growth in customer demands required the addition of new generation resources.

Dominion Energy South Carolina corporate campus.

Introduction

Since the 1980s, integrated resource plans (IRPs) have been used in South Carolina to identify when customer demands required the addition of new generation resources and what generating units and technologies would be the most cost effective for customers over the long term. Past IRPs traditionally involved relatively few variables and reflected the limited range of generation technologies in use at the time. In recent years, the scope of the IRP process has expanded to reflect growing societal demands for cleaner energy and the dramatic reductions in the cost of renewable generation and storage generation technologies. Prioritizing clean energy has also increased the emphasis on demand side management (DSM) and energy efficiency (EE) programs as a way to limit demand and consumption.

This 2021 IRP Update is the first of two annual updates of Dominion Energy South Carolina, Inc.'s (DESC's) Modified 2020 Integrated Resource Plan, or IRP, which it filed with the Public Service Commission of South Carolina (Commission) on February 19, 2021. In Order No. 2021-429, the Commission affirmed that with the addition of certain generation performance data[1] the Modified 2020 IRP fulfilled all statutory and regulatory requirements under South Carolina law. ***Appendix A*** cross references the sections of this report to the requirements of the IRP statute and the Commission mandates in Orders 2020-832 and 2021-429.

By law, South Carolina electric utilities must prepare a new IRP every three years and update that IRP during each intervening year. DESC's next IRP is due in 2023.

DESC's most important objectives as an electric utility are to provide its customers with safe and reliable energy that is clean and affordable. DESC is well positioned to achieve these objectives while creating a sustainable, low carbon energy future.

This 2021 IRP Update presents the modeling results for seventeen plans for meeting these objectives along with updates on IRP-related processes and utility operations. In its initial sections, it reports on the IRP ***Stakeholder Process***, DESC's ***Combustion Turbine (CT) Replacement Plan***, and the creation of the ***South Eastern Energy Exchange Market (SEEM)***. It then provides a ***Generation and Transmission Operating Report Update*** that presents a report on 2020 system operations and storm response. Next, the ***Resource Plan Analysis*** presents the modeling and evaluation results for seventeen resource plans modeled using updated 2020 data, and the ***Ranking of Resource Plans Against All Scenarios*** that identifies the preferred generation plan for this update. The report then provides the ***Forecasts of Renewable Generation*** levels and ***Bill and Rate Impacts*** under each of the seventeen plans. It concludes with an update of the ***Short Term Action Plan (STAP)*** for next steps in planning and implementation.

[1] The required data was filed on May 24, 2021, and can be found at https://dms.psc.sc.gov/Attachments/Matter/ffefd520-b949-4174-a082-cafc35b92d56.

Dominion Energy

Our Company

Executive Summary

To identify the best path forward for its system over the coming decades, DESC has analyzed seventeen different generation resource plans.

Dominion Energy lineman ensuring reliable service.

Executive Summary

Key Points of the Filing:

1. In 2020, DESC achieved top-of-class results in safety, reliability, storm resiliency, speed of restoration, and generation unit reliability.
2. In 2021, DESC initiated a robust stakeholder process, facilitated by a recognized third-party professional consulting firm, that provides an open and transparent process for multiple stakeholders to explore how DESC can best transition to a cleaner energy future.
3. As the stakeholder primarily responsible for safety and reliability, DESC intends to retain a primary role to ensure that safety, reliability and affordability are preserved in the current transition and that South Carolina does not experience reliability disasters similar to the recent reliability failures in Texas and earlier outages in California.
4. Resource Plan (RP) 8 remains the preferred resource plan under the updated modeling. RP8 assumes the retirement of DESC's three remaining coal-only units in 2028. Analyses are underway to determine the specific timing for replacing those units and to identify the assets needed to reliably meet customer demands when they are retired.
5. DESC also modeled alternative versions of RP8 which include the near-term addition of 400 megawatts (MW) of solar and 100 MW of battery storage. The modeling shows these plans to be potentially beneficial to customers if the assumed prices for solar and battery capacity are correct.

Operational Summary

Safety. Despite the risks inherent in utility operations, DESC continues to earn top-rated safety scores while earning equally impressive scores for customer reliability, storm restoration and generation reliability. DESC's 2020 accident frequency rate (AFR), system average duration of customer interruptions, average duration of storm interruptions, and generation unit forced outage rates (FOR) demonstrate that DESC operates efficiently, effectively, and reliably.

Coal Plant Retirements. DESC continues to press forward in reducing carbon emissions and restructuring its electric utility system to achieve the corporate-wide goal of net-zero carbon and methane emissions by 2050 from its direct electric and gas operations. Substantial reductions in carbon emissions have been achieved. DESC has retired or repowered eight coal generation units since 2002 and by 2020 had reduced carbon emission by 50% compared to 2005 levels. DESC is currently undertaking retirement studies to determine when to retire its three remaining coal-only units and to identify the generation and transmission resources needed to replace them. These decisions will be made in conformance with the corporate commitment to reliability and affordability and will be subject to Commission review.

Stakeholder Process. As DESC transitions to a cleaner energy future, it must continue to serve a growing service territory reliably and affordably. Doing so will require careful planning and supportive regulation within a transparent framework that allows stakeholders' perspectives to be explored and considered. Accordingly, DESC has retained a skilled third-party facilitator, Charles River Associates (CRA), to facilitate its IRP stakeholder process. CRA's mandate includes promoting transparency and engagement around the issues of decarbonization, reliability, and affordability.

The IRP Stakeholder Advisory Group includes representatives of the South Carolina Office of Regulatory Staff (ORS), the South Carolina Energy Office, environmental groups, solar industry groups, and all major stakeholder segments. It is up and running and functioning well.

In June of this year, DESC retained CRA as the project manager for the coal retirement analyses as well. CRA was chosen based on its experience in managing other retirement evaluations and its existing role and familiarity within the IRP stakeholder process in South Carolina.

Stakeholder processes are an effective means to exchange information, resolve concerns outside of regulatory hearings, and ensure that multiple perspectives are considered in the planning process. But DESC is ultimately accountable to customers and the Commission for ensuring that customers receive safe, reliable and affordable electric service. DESC's accountability is backed by real-world experience in building, maintaining, and operating the assets that ensure reliable service to its more than 700,000 customers. DESC's paramount commitment to the safety, reliability and affordability of the service that it provides to its customers will guide its decisions as a utility.

Federal Greenhouse Gas (GHG) Developments

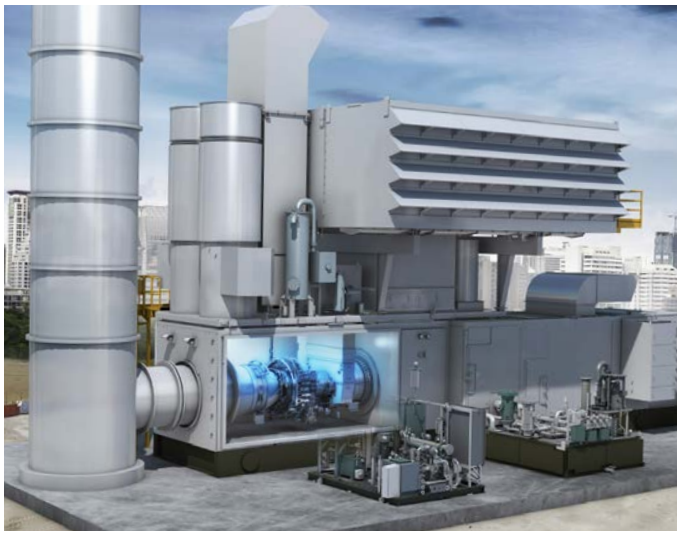
- February 2021, the U.S. rejoined the Paris Agreement, which established a multinational framework for addressing GHG emissions.
- April 2021, President Biden announced a target for the United States to achieve a 50 to 52 percent reduction from 2005 levels in GHG emissions by 2030.
- On August 5, 2021, President Biden announced a target of electric vehicles representing 50% of new car sales by 2030 (see Biden's 8/5 announcements) which will impact the load forecast.

CT Replacement. South Carolina's transition to a low or no carbon future will succeed only if grid operators have the resources they need to respond to solar intermittency and the energy limits that currently apply to battery storage while maintaining a stable and reliable grid. Currently, modern aeroderivative CTs are uniquely positioned to meet these challenges. They provide quick-start capacity, load – following capability, and voltage and VAR support[2] that are critically necessary to maintain grid reliability, particularly on a system increasingly supplied by intermittent renewables and short-duration batteries. Aeroderivative CTs also provide critically important black-start capability that is necessary for restoring power after a blackout.[3]

Most of DESC's current CTs are 50-year-old plus units that are operationally limited, difficult to maintain, and approaching the end of their ability to operate safely and reliably. The regulatory process of retiring thirteen of these units is underway. These units will be replaced with state-of-the-art, fuel-efficient aeroderivative CTs with best-in-class control systems, fuel efficiency and air emission controls. DESC intends to have these units in service by the winter 2023 peak season.

As delivered, the new CT units will be capable of burning up to 30% zero-carbon hydrogen and are designed so that they can be upgraded to burn hydrogen exclusively when that fuel becomes available in sufficient quantities. Because these units can operate entirely on green hydrogen, they support a zero-carbon future.

Nuclear Relicensing. Dominion Energy, Inc., has been actively lowering its CO_2 and methane emissions by extending the licenses of its zero-carbon nuclear fleet; rapidly expanding wind and solar resources; continuing to rely on low-carbon natural gas; investing in renewable natural gas; and promoting the use of electric vehicles and energy efficiency. Nuclear energy is an essential component in achieving net zero. V.C. Summer Nuclear Station is expected to provide critical support for these goals well into the future. V.C. Summer's current operating license expires in 2042. DESC plans to request approval of a license renewal to extend V.C. Summer license to 2062.



General Electric LM6000 Aeroderivative Combustion Turbine.

V.C. Summer Nuclear Facility; Jenkinsville, South Carolina.

[2] VARs represent energy in the form of the electromagnetic field that causes electrons to flow, creating current. Certain electric load consumes VARs which must be replaced on that part of the system to prevent voltage from degrading.

[3] Black-start capability is the ability of a generating resource to start up in blackout conditions and provide power to restart the grid and other generating units that lack black-start capability. Not all resources can do this. Black-start resources must have the ability to ramp up and down instantly as loads swing up and down during the black-start process. In the recent winter storm in Texas, it became apparent that the Texas system lacked effective black-start capacity. The transmission system operator prevented a full grid collapse by using extended controlled blackouts. Had the grid collapsed entirely, it is estimated that the restoration effort would have taken weeks or months due to the lack of sufficient black-start units. https://www.wsj.com/articles/texas-electrical-grid-bigger-disaster-february-freeze-black-starts-11622124896.

Batteries have a limited usefulness for black-start capability. Because of the unplanned nature of outages, batteries that are dedicated to black-start service must be kept charged at all times. This means those batteries cannot be used for providing energy or capacity to the grid at other times. This makes dedicating batteries for black-start service very expensive since those batteries can provide little or no other value to the grid.

Modeling Summary

In this 2021 IRP Update, DESC has modeled seventeen potential resource plans with different assumptions about the timing of the retirement of coal units and the pace and sequencing of adding renewables and other low-carbon dispatchable resources. Fourteen of the seventeen resource plans were modeled in the Modified 2020 IRP. The three new plans (RP8a-3), assume that near-term renewable assets are added while retiring the three coal-only units.

As in the Modified 2020 IRP, all resource plans were modeled here under twenty-seven different sets of assumptions as to future fuel costs, demand reductions due to demand side management programs (DSM), and costs imposed on carbon emissions. This resulted in DESC modeling 459 specific scenarios across which the seventeen resource plans were scored. As with the Modified 2020 IRP, the planning horizon for identifying generation additions and retirements was from 2021 through 2035 and costs of each portfolio were modeled from 2021 through 2060.

Pending the results of the coal plant retirement studies, the modeling affirmed that RP8 remains the preferred resource plan. In RP8, DESC's two remaining coal-only generating stations, A.M. Williams Station (Williams), and Wateree Station (Wateree), are retired in 2028 and replaced with a combined-cycle natural gas plant and large-frame natural gas CTs followed by 1,900 to 2,000 MW of solar and 700 MW to 900 MW of battery storage which is added from 2026 to 2048.[4] The sole remaining coal plant, Cope Station, is converted to natural gas only in 2030.

Base Planning Assumptions Required under South Carolina Law to be Updated Annually

Base Planning Updates are required by law concerning:

- Energy and demand forecasts,
- Commodity fuel price inputs,
- Renewable energy forecasts,
- Energy efficiency and DSM forecasts,
- Changes to projected retirement dates of existing units, and
- The other inputs that the Commission has deemed to be for the public interest (see Order No. 2020-832 and Order No. 2021-429)

Urquhart Station.

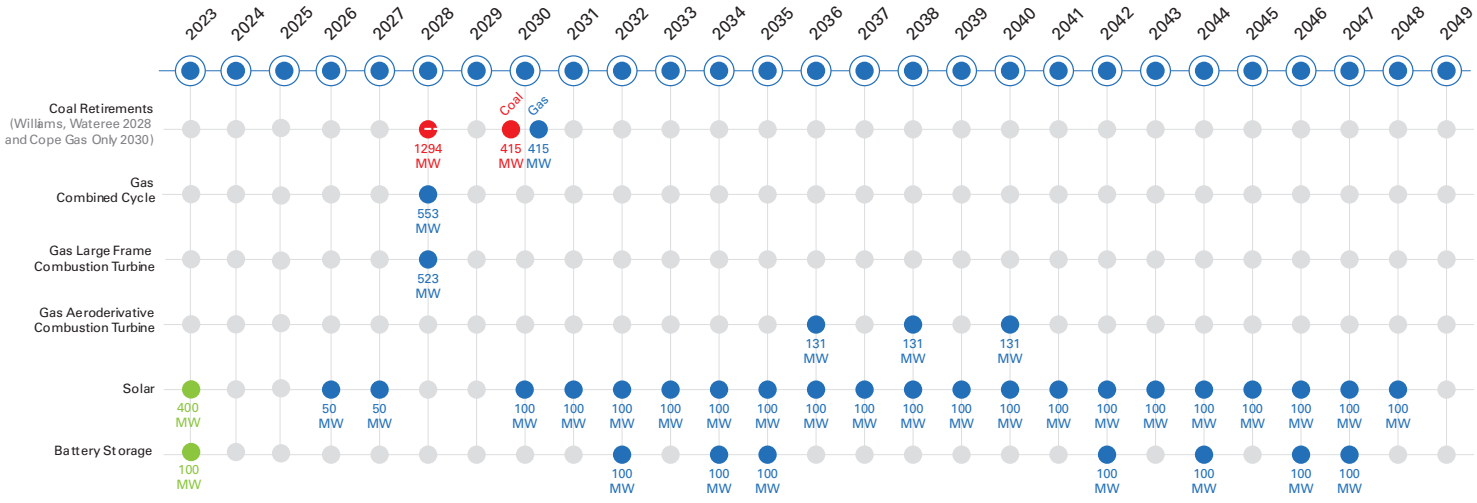
Executive Summary

RP8a is essentially the same as RP8 with 400 MW of flexible solar[5] power purchase agreements (PPAs) plus 100 MW battery storage PPAs added in 2023. Modeling indicates that if the solar and battery prices assumed for the three RP8a scenarios can be achieved, adding 500 MW of near-term combined solar and battery storage assets in addition to the 1,046 MW of solar already installed could be cost effective for customers.

Cost analyses show that RP8 and RP8a may contribute to an approximate 2.1% compound annual growth in rates through 2035, with much of the increase resulting from the new resources required to replace the energy and capacity from the Wateree and Williams units in the 2028-2030 time frame. Communications around rate increases in this time frame will be an important part of retiring these units. Increases in rates during this period are counterbalanced by lower rates in later years and result in significantly increased levels of renewable generation and significantly lower carbon emissions early in the planning period.

Over the long term, achieving the clean energy goals of South Carolina and the Company will also require supportive legislative and regulatory policies. This includes support for the testing and deployment of technologies such as large-scale energy storage, hydrogen, advanced nuclear, and carbon capture and sequestration, all of which have the potential to significantly reduce carbon emissions.

Resource Additions under Resource Plan 8 and 8a by Year



[4] The amount of solar generation added depends on the DSM assumption being modeled. Low DSM results in faster load growth which results in more generation assets being added.
[5] Flexible solar is solar generation that system control can curtail from then-current maximum achievable output when doing so would support system needs, or having been curtailed, can increase output level to maximum achievable if requested by system control.

Our Company

The Dynamic Nature of Resource Planning

Resource planning is conducted throughout the year by the Company for multiple planning and resource procurement purposes.

Dominion Energy lineman preparing material for service.

Resource planning is conducted throughout the year by the Company for multiple planning and resource procurement purposes. Given the pace of change in customer expectations, technological advances, and environmental policies, it is important that the Company remain flexible with respect to resource plans and asset procurements, retirements, up-ratings, and improvements. Resource plans will be updated to reflect current needs and the timing when future procurement or retirement decisions are considered based on these needs. The fact that DESC modeled the procurement or retirement of any resource in this 2021 IRP Update does not mean that DESC has made the decision to procure or retire any such resource or that such a decision has been approved by the Commission where such approval is required. These decisions will be presented to the Commission as appropriate at the time they are made or proposed, in accordance with the relevant aspects of the Utility Facility Siting and Environmental Protection Act.

Urquhart Generation Plant.

Dominion Energy

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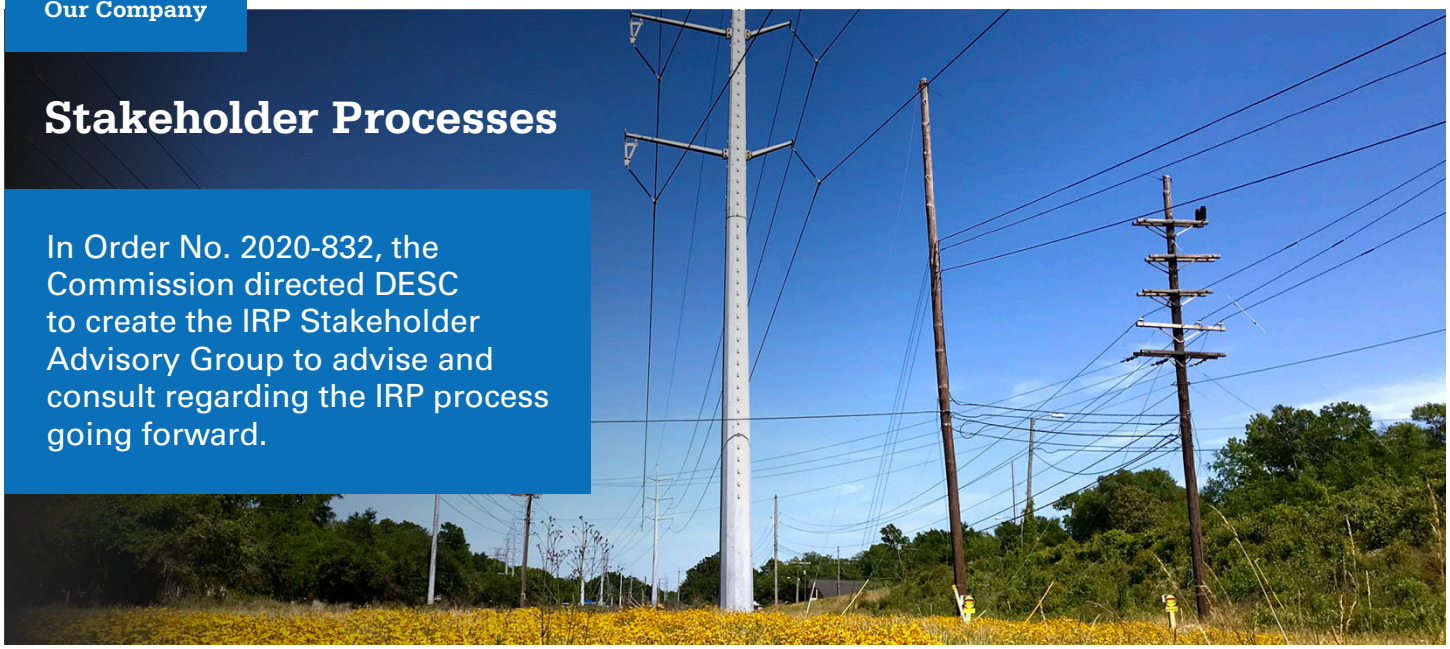
Stakeholder Processes

In Order No. 2020-832, the Commission directed DESC to create the IRP Stakeholder Advisory Group to advise and consult regarding the IRP process going forward.



In Order No. 2020-832, the Commission directed DESC to create the IRP Stakeholder Advisory Group to advise and consult regarding the IRP process going forward. The Commission also required the Company to provide updates on the stakeholder process beginning with this 2021 IRP Update and then every six months following.

The Commission further required DESC to report on the stakeholder process regarding the implementation of resource optimization software within ninety (90) days of Order No. 2020-832. In response, on June 11, 2021, DESC provided a comprehensive review of the stakeholder meetings of February 16, 2021, and April 12, 2021, and the work that preceded and followed them.[6] These were the first two meetings of the IRP Stakeholder Advisory Group. A summary of the information reported in that letter is provided here as well as a report on the follow up to those meetings and the third meeting, which took place on June 21, 2021.

Convening the IRP Stakeholders Group

In late 2020, DESC retained CRA to design and implement an IRP Stakeholder Advisory Group process. CRA is a consulting firm with extensive experience nationwide in designing and facilitating stakeholder processes in the utility industry.

On February 16, 2021, CRA facilitated the initial IRP Stakeholder Advisory Group with invitees that included the ORS, the South Carolina Energy Office, and eleven other groups representing environmental and renewable energy interests and multiple customer groups.

The Thirteen Invited Members of the IRP Stakeholder Advisory Group

- Office of Regulatory Staff
- SC Energy Office
- Coastal Conservation League
- SC Small Business Chamber of Commerce
- SC Office of Economic Opportunity
- SC Energy Users Committee
- SC Community Action Partnership
- Southern Alliance for Clean Energy
- Johnson Development Associates, Inc.
- South Carolina Solar Business Alliance
- Sierra Club
- AARP South Carolina
- Walmart, Inc.

[6] The June 11, 2021, letter includes copies of the agendas, presentation material and CRA's meeting minutes for those meetings. See also https://dms.psc.sc.gov/Attachments/Matter/b1384c7c-9955-4236-817d-0cba93f432c9. Materials and minutes from the later IRP Stakeholder Advisory Group meetings can be found at https://dms.psc.sc.gov/Attachments/Matter/b8c303bf-4f7f-46cd-aa84-fdd528be3794; https://dms.psc.sc.gov/Attachments/Matter/c6bcd3c0-e3c1-455b-b20d-96c637aae659; and https://dms.psc.sc.gov/Attachments/Matter/05c43aff-602a-435c-85eb-50f79a2575c0.

IRP Stakeholders Advisory Group Meetings

The IRP Stakeholder Advisory Group Meetings of February and April 2021. CRA designs stakeholder processes that provide for a transparent exchange of information.

Participants' Principal Roles in Stakeholder Proceedings under CRA's Approach

- Identifying, prioritizing and sequencing the issues and topics to be evaluated,
- Reviewing agendas and meeting schedules and suggesting changes or other additions to them, and
- Raising concerns and supplying feedback during meetings, and between meetings, in response to "homework" assigned at the close of each meeting or otherwise.

Leeds Avenue Solar Facility; North Charleston, South Carolina.

Topics are identified, prioritized, and scheduled based on stakeholder feedback. Each major topic is discussed twice to give stakeholders time to identify concerns or questions between meetings. Comments and questions are solicited at all stages of the process: before, during and after meetings. The two initial IRP Stakeholder Advisory Group meetings focused on organizing and sequencing the work of the group.

Establishing Norms for the Stakeholder Process

In the meetings of February and April 2021,

CRA worked with stakeholders to establish:

- A schedule and cadence for future meetings;
- Mechanisms for raising and responding to questions and information requests between meetings;
- Rules for the conduct of meetings;
- The prioritized list of agenda topics to be discussed in the upcoming meetings;
- The process for researching and presenting information on those topics; and
- Expectations regarding mechanisms to allow stakeholders to raise questions and receive responses between meetings and post-meeting homework questions.

The two initial meetings involved the presentation of information and the solicitation of comments concerning:

- The inclusion of additional DSM savings in future IRP load forecasts based on the DSM Rapid Assessment;
- The scoping of 2022 Market Potential Study to identify maximum achievable DSM savings;
- The terms of licenses to allow intervenors' access to PLEXOS resource optimization software;

- Inputs to be used in modeling resources plans in the 2021 IRP Update with specific emphasis on the recent changes required by the Commission;
- Risk metrics and the mini-max regrets analysis;
- Solar capacity contributions to meeting winter and summer peaks; and
- The Transmission Impact Analysis of coal plant retirements.

At the close of the April 21, 2021 session, CRA assigned homework in the form of feedback on the issues discussed in that meeting and issues to be considered in the upcoming session.

Homework assigned for the IRP Stakeholder Advisory Group the Meeting of June 28

- **Topical Feedback:** What other issues should be addressed in Session III?
- **Model Evaluation Feedback:** Did we achieve consensus that PLEXOS performs all required functions?
- **2021 IRP Inputs:** Is the approach consistent with Commission Order No. 2020-832, are there any gaps?
- **Risk Metrics Feedback:** What metrics, in addition to Mini-Max Regrets, should DESC evaluate with the expected outputs?
- **Retirement Analysis:** What other considerations should DESC study in addition to transmission impacts?
- **Solar Winter Capacity:** Does DESC's approach to measuring solar winter capacity contribution to the IRP make sense? What other approaches or values would you recommend that DESC should adopt?

The IRP Stakeholder Advisory Group Meeting of June 28, 2021. CRA's agenda for the meeting, the presentation material and the minutes of the meeting have been filed with the Commission in this docket.[7]

PLEXOS Software

CRA noted that DESC responded to all of the issues that stakeholders raised and had negotiated resolutions to their principal concerns with the PLEXOS provider.

None of the stakeholders raised any additional concerns related to PLEXOS software at the meeting or afterward.

DESC made changes responsive to Stakeholder feedback:

The intervenor license now clearly states that the scope includes the evaluative data or information needed to accurately access the DESC IRP, and that Stakeholders will have the same version of PLEXOS that DESC uses.

The intervenor license includes unlimited online training and access to the solver at no cost to the intervenor. Intervenors may purchase additional live training from Energy Exemplar if desired.

The intervenor license allows for Stakeholders to collaborate with their consultants, and have their consultants serve as the operators of PLEXOS when reviewing the DESC IRP.

The intervenor license allows for one seat with access to the solver and unlimited online training at no cost to the Intervenor and the terms have been updated accordingly.

The first seat with unlimited online training is provided at no cost to Intervenors. Intervenors may purchase additional seats from Energy Exemplar if more users are desired.

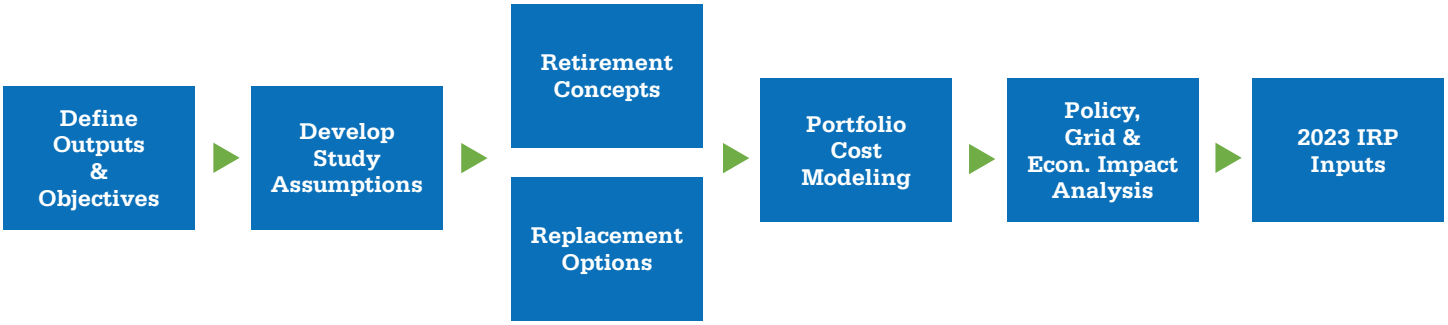
The default duration of the license agreement was increased from 12 to 24 months to allow for longer IRP proceedings and can be further extended if needed.

Source: CRA, Presentation Materials, IRP Stakeholder Advisory Group Meeting of June 28, 2021.

[7] https://dms.psc.sc.gov/Attachments/Matter/c6bcd3c0-e3c1-455b-b20d-96c637aae659; and https://dms.psc.sc.gov/Attachments/Matter/05c43aff-602a-435c-85eb-50f79a2575c0

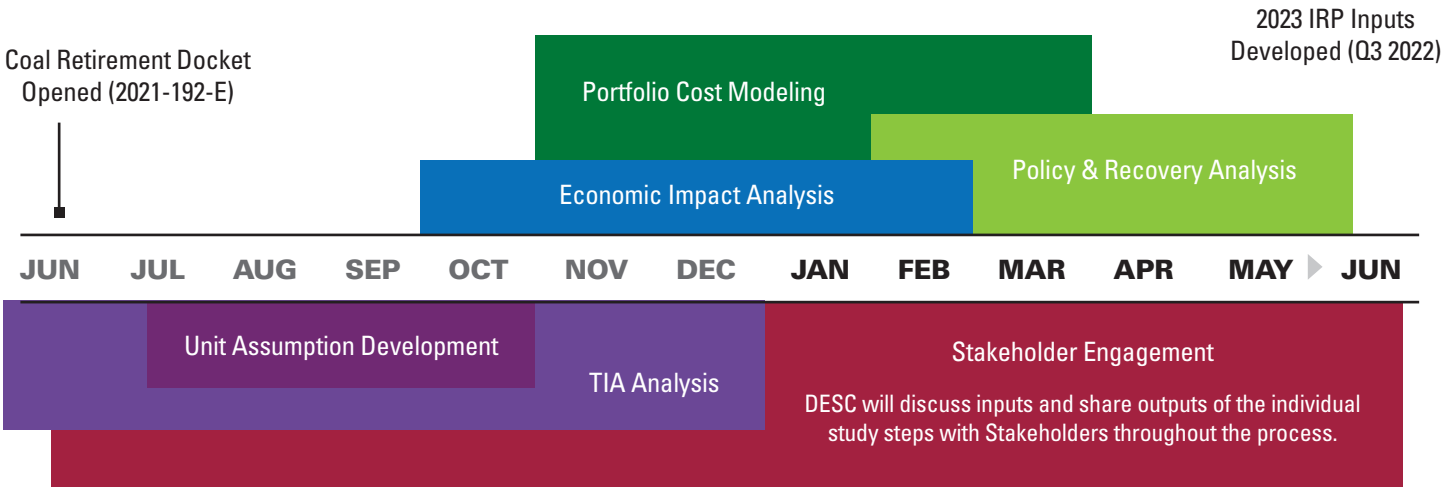
Coal Plant Retirements Update

CRA and DESC presented a high-level process diagram for the coal retirement analysis.



Next, CRA presented a detailed schedule of the required inputs that must be identified for coal plant retirement plans to be modeled in the 2023 IRP.

Retirement Analysis Outputs are needed for the 2023 IRP
(June 2021 - June 2022)



The Company's Transmission Planning Group is preparing a single Transmission Impact Analysis (TIA) for the retirement of both Wateree and Williams with alternative options for sequencing the retirements. The Company initially intended to complete retirement studies for two plants in sequence but modified its approach in response to valid schedule concerns raised by stakeholders. In response to their concerns, DESC assured stakeholders that the cases contained in the TIA provide benchmarks for planning purposes, and do not limit what can be considered in a future IRP.

Sources: CRA, Presentation Materials, IRP Stakeholder Advisory Group Meeting of June 28, 2021.

2021 IRP Update Process

DESC presented its plans for complying with recent Commission orders regarding modeling inputs in future IRPs and IRP Updates and asked stakeholders to identify any gaps or deficiencies. The issues raised and responses to them were documented in the Appendix to the meeting minutes which have been filed with the Commission in this docket.[8]

At the June 2021 meeting, the Company discussed several resource portfolio concepts:

- New Resource Plans (RP) 8a-3.
- A potential low carbon portfolio to be included in future IRPs.
- Inclusion in the base assumptions of the 2021 IRP Update of the planned replacement of aged, existing CTs with approximately 400 MW of modern aeroderivative CT capacity (the CT Plan).

Solar Effective Load Carrying Capacity. In this update, the Commission directed DESC to treat the effective load carrying capacity (ELCC) of solar generation as equivalent to the ability of solar generation to provide capacity during the winter and summer peaks. The Company explained to stakeholders that the ELCC is an average of daily capacity contributions by a generation resource and is not an accurate measure of capacity available during winter and summer peaks. Specifically, winter peaks occur in early morning hours when solar resources generate no meaningful amounts of power. Using solar ELCC to measure winter peak capacity for solar overstates system capacity at the time when the risk of outage is greatest and customers depend on the system most, i.e., during extreme winter weather events. This was shown during the 2014 Polar Vortex when critical generation shortages occurred before sunrise.

DESC is complying with the Commission's directive, but requested input from stakeholders on how they would propose to more accurately measure solar contribution to winter and summer peak capacity in future IRPs and IRP Updates.

Risk Metrics and Reliability Weighting. The Commission has directed the Company to present the results of weighting the reliability of competing generation sources using assumptions proposed by intervenors in the 2020 IRP proceedings. Reliability is a core commitment that the Company makes to the its customers and the public. The Company's generation planners and operating personnel understand how the system operates and how reliability demands can be met by different generation technologies. They have concluded that the intervenors' reliability weightings are materially inaccurate in ways that can jeopardize reliability over time. The intervenors' weightings assume that solar and battery resources can provide reliability reserves to the grid in levels that greatly exceed the capabilities of these technologies as deployed. If these weightings are accepted for planning purposes, over time they could put the reliability of the system at risk.

Through the IRP Stakeholder Advisory Group, the Company is soliciting stakeholder input on how to refine reliability weightings in future proceedings. The Commission has indicated that it will expect a new and more refined set of reliability metrics in the 2023 IRP.

The Seven Statutory Factors for Evaluating IRPs

(S.C. Code Ann. § 58-37-40)

- Resource Adequacy;
- Compliance;
- Cost;
- Reliability;
- Commodity;
- Diversity; and
- Other foreseeable conditions that the Commission determines to be for the public interest.

DSM Inputs: Levelized Cost of Saved Energy. The Commission directed the Company to employ a calculation of the levelized cost of saved energy, or LCSE, in conducting its upcoming DSM Market Potential Study and in developing future IRPs which is compatible with industry standards. The Company reviewed the LCSE presented in its Modified 2020 IRP and showed that it was calculated according to the standard definition of LCSE that is accepted in the industry. DESC asked the stakeholders if they disagreed, and no changes to the LCSE were proposed.

[8] https://dms.psc.sc.gov/Web/Dockets/Detail/117183

Line Losses. The Commission ordered the Company to use marginal line losses in computing avoided energy costs beginning with the 2021 IRP Update. The Company explained to stakeholders that, consistent with industry standards, it used the marginal line loss factor to compute capacity savings from DSM programs and the average line loss factor to compute energy savings. This was appropriate since marginal line losses capture the savings in capacity during system peaks, when capacity savings are realized, while average line losses are used to capture energy savings, which occur throughout the year. Use of marginal line losses to calculate energy savings overstates DSM savings by inflating lost revenue and the shared savings incentive to be recovered under the DSM rider. This unnecessarily increases costs to all residential customers and to commercial and industrial customers who do not opt out.

The Company is complying with the Commission's directive, but sought input from stakeholders concerning how they believe marginal line losses should be considered in future filings.

Concluding Requests and Homework

At the close of the June 2021 meeting, CRA requested comments and feedback concerning the scope, schedule and assumptions for the coal plant retirement analysis and inputs for the 2021 IRP Update:

Cope Station; Cope, South Carolina.

The Homework Assigned at the Conclusion of the June 2021 Meeting

- Retirement Analysis: DESC has provided a list of assumptions to be considered in the retirement analysis. In your view, is this consistent with the order and if not, what additional assumptions need to be considered?
- Retirement Analysis: DESC is considering a consistent but limited set of technologies as replacement options for each of the retirement dates including CCs, CTs and storage. What 3 to 4 options do you suggest be considered (please recognize that we are evaluating the retirement dates only here not the optimal portfolio as in an IRP)?
- 2021 IRP Update Inputs: Is the approach consistent with Order No. 2021-429, are there any gaps in the updates proposed by DESC?
- EE Integration: How should DSM be modeled as a resource? Please provide examples of approaches.
- Solar ELCC: Does DESC's approach to measuring solar winter capacity contribution to the IRP make sense? What other approach or value would you recommend that DESC should adopt?

Conclusion Concerning the Stakeholder Process to Date

DESC and CRA have successfully engaged the members of the IRP Stakeholder Advisory Group to create a stakeholder process that supports a meaningful and substantive exchange of information and perspectives. The discussions to date have been productive. The fourth session was held on August 9, 2021, and a copy of the agenda, and presentation material have been filed with the Commission.[9] Principal topics discussed during Session IV included the TIA inputs and the process for completing the coal retirement study analyses.

[9] https://dms.psc.sc.gov/Attachments/Matter/b8c303bf-4f7f-46cd-aa84-fdd528be3794.

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Coal Retirement Analysis

DESC initiated the coal retirement analyses to identify the feasibility, timing, and sequencing for retiring Wateree and Williams as it committed to do in the 2020 IRP proceeding in response to testimony from ORS.

Williams Plant.

DESC initiated the coal retirement analyses to identify the feasibility, timing, and sequencing for retiring Wateree and Williams as it committed to do in the 2020 IRP proceeding in response to testimony from ORS. The TIA will provide important reliability and transmission cost sensitivities to inform follow-up analyses including resource optimization modeling and indicative all-source procurement RFPs to establish market prices for replacement resources as required by the Commission. The results of these efforts are anticipated to be presented as part of DESC's 2023 IRP and the Commission's recently opened coal retirement docket (Docket No. 2021-192-E).

The Wateree and Williams coal units represent 1,294 MW of net dependable, dispatchable, generation capacity which today is critically necessary to meet customers' winter peak demands and other reliability needs, especially the challenge of maintaining reliability in the Charleston area where generation resources and natural gas pipeline capacity are limited and demand is growing. Maintaining system reliability, particularly during winter peaks, and specifically in the Charleston area, will require careful planning and evaluation of the grid impacts of coal retirements. The TIA will assess the technical feasibility, prudence, and cost-effectiveness of alternative retirement dates for Wateree and Williams considering reliability issues. This in turn will inform modeling in the 2023 IRP to identify the optimal generation resources to replace these units.

DESC has also engaged CRA to lead its coal plant retirement analyses and to help lead the process to establish the planned retirement dates for Wateree and Williams. CRA is experienced in managing plant retirement studies. In addition, CRA's skill, insights and experience concerning stakeholder processes will be particularly valuable considering the level of stakeholder involvement that DESC intends to make a part of this process.

Inputs and Limitations of the TIA

The TIA will model post-retirement power flows on DESC's transmission grid under five sets of assumptions concerning the sequencing of the Wateree and Williams retirements and the portfolio of resources to replace them. The replacement resource portfolios include different combinations of solar, battery storage, CTs, combined-cycle gas generation and off-system purchases. As a placeholder to allow full power flow modeling, the Company's Transmission Planning Group has been authorized to assume that any generation shortfalls that occur after the specified replacement resources are added to the system can be supplied using aeroderivative CTs located at the Williams Station site. This is a power flow modeling convention only and is not intended to imply bias towards any potential future generating resources.

The TIA will identify the transmission system improvements needed to support grid reliability when Wateree and Williams

are taken out of service and replacement generation is added. The TIA will not result in the selection of any new resources. That selection will require resource optimization modeling to assess the specific mix of renewable, storage and lower-carbon emitting assets that would most benefit customers and the system long term. DESC plans to present this resource optimization modeling in the 2023 IRP. The 2023 IRP will be informed by a non-binding, indicative, all-source RFP to validate prices and market data for the potential replacement options as required by the Commission. This RFP process is planned for early 2022 to provide timely data for the 2023 IRP. Detailed transmission interconnection studies and siting proceedings before the Commission will also be required before new large-scale generation resources can be procured and constructed.

A copy of the most current TIA request, dated May 13, 2021, is is available at https://dms.psc.sc.gov/Web/Dockets/Detail/117183.

Wateree Station Flue Gas Desulphurization Unit (Scrubber).

The Five Retirement Cases Guiding the TIA Analysis

Case 1:

- Retire Wateree in 2025
- Add a 200 MW battery Energy Storage System (ESS) and 200 MW PV solar generation at Wateree
- Contract for 200 MW off-system purchased power beginning late in 2025
- Retire Williams in 2028
- Build a 534 MW 1X1 CC at Jasper
- Add a 200MW ESS and 200 MW PV solar generation at DESC's former Canadys Station

Case 2:

- Retire Wateree and Williams in 2028
- Build a 534 MW 1X1 CC at Jasper
- Build 523 MW 2X0 pair of frame CTs at Jasper

Case 3:

- Retire Wateree and Williams in 2028
- Build a 534 MW 1X1 CC at DESC's former Canadys Station
- Build 523 MW 2X0 pair of frame CTs at DESC's former Canadys Station

Case 4:

- Retire Wateree and Williams in 2028
- Build a 534MW 1X1 CC at DESC's former Canadys Station
- Add a 200 MW ESS and 200 MW PV solar generation at Wateree
- Contract for 400 MW off-system purchased power

Case 5:

- Retire Wateree and Williams in 2028
- Contract for 1,100 MW off-system long-term power purchase

All Cases:

- Add 117 MW winter rating dual-fuel aeroderivative CTs, incrementally, as needed, at the Williams Station site to maintain system reliability or to economically overcome transmission system contingencies

Coal Retirement Analysis

The Transmission Planning Group anticipates completing the TIA by the end of 2021. Progress on the TIA and related retirement analyses will be reviewed with the IRP Stakeholder Advisory Group throughout the process and the results will be presented to the Commission in the 2023 IRP and the Commission's coal retirement docket, if the procedural schedule in that docket allows.

Engineering, Environmental and Other Components of the Coal Retirement Analyses. In addition to the TIA, the coal retirement planning will also include analyses of the engineering, demolition, site closure and environmental remediation requirements for the retirements, the employee impacts, and an evaluation of economic impact and environmental justice concerns. DESC has also retained CRA to serve as project manager to provide oversight and coordination of these studies.

All-Source Procurement for Replacement Assets. The Commission has ordered the Company to develop and implement an all-source procurement plan to inform future IRPs. Accordingly, in early 2022, DESC plans to issue a non-binding, indicative all-source RFP for replacement resources based on the anticipated retirement dates for Wateree and Williams identified in the TIA. The responses will inform resource optimization modeling to be presented in the 2023 IRP. It should be noted that non-binding RFPs do not commit resource developers to definitive project attributes, costs, and schedules. For that reason, they may produce resource bids that are artificially low and result in misleading planning inputs. The Company will strive to reduce this risk by the design of its questions and by comparing the bid prices against independent sources of market information. But non-binding RFPs are not a replacement for firm, binding RFPs backed by potential contractual commitments.

In its 2023 IRP filing, the Company intends to outline the process for a robust, binding, competitive all-source solicitation to procure future generation resource needs identified. If the coal retirement analyses support the near-term retirement of Wateree or Williams, a procurement action is expected following the 2023 IRP.

Wateree Station.

Dominion Energy

Our Company

The CT Replacement Plan

DESC operates sixteen simple-cycle internal CTs that provide peaking capacity, spinning reserves and local voltage support to the electric grid as needed.

Parr Combustion Turbine.

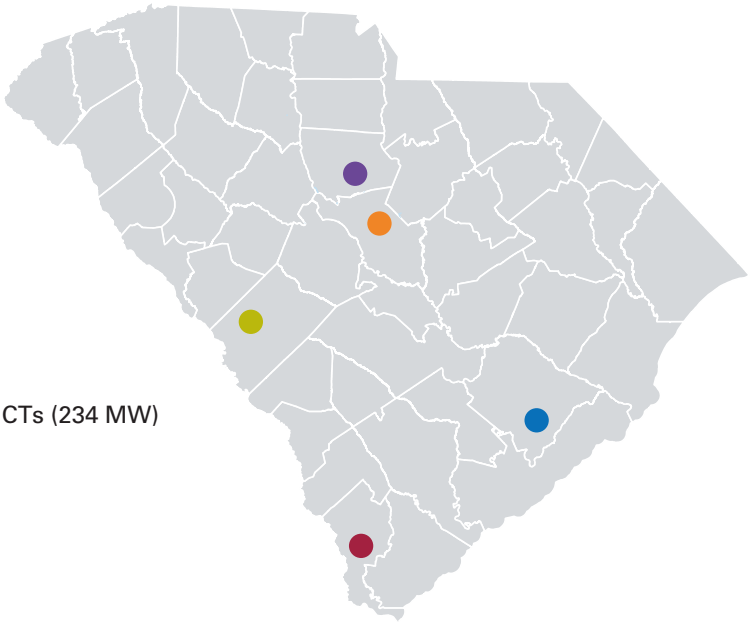
DESC operates sixteen simple-cycle internal CTs that provide peaking capacity, spinning reserves and local voltage support to the electric grid as needed. Many of these units provide black-start capability which is critically important to restoring service to customers if part of the transmission system loses power and must be restarted and resynchronized to the grid. The CTs located at Parr Station and Urquhart Station also fill a nuclear safety role by providing emergency backup power and black-start capability for the V.C. Summer Nuclear Station and the Department of Energy's Savannah River Site to which they are directly connected by dedicated transmission lines.

Most of these CT are more than 50 years old. Because of their fast-start capabilities and operational flexibility, these units have been placed under increasing operating pressure to follow loads in response to the intermittency of solar generation which varies hour to hour depending on localized cloud cover and weather conditions. Many of these CTs were originally constructed for intra-day peaking use on an infrequent, seasonal basis, during times of significant capacity shortfalls on the system, and for standby black-start capabilities. They were not designed to be started up and run daily to respond to solar intermittency and system balancing as required today. Their age, coupled with their challenging operational profile, has resulted in maintenance and reliability issues. Three of the sixteen units are currently out of service due to mechanical or major electrical failures. Repairing them would mean investing millions of dollars into units that are at or near the end of their useful lives and have fuel efficiency, environmental controls and operating capabilities that pale in comparison to modern units. Additionally, replacement parts, technical expertise, and craft labor trained to repair these units is increasingly hard to find. Units of this vintage were constructed largely in response to the Northeast Blackout of 1965 and most other utilities have long since retired and replaced them with more modern resources. Relatively few units of this vintage are left in service in the United States.

Because of the important role that these CT units serve in maintaining system reliability and their increasing importance in managing solar intermittency, DESC is ready to immediately replace ten of the sixteen older units, and one associated natural gas-fired conventional steam boiler and generating set, with five new, high-efficiency, fast-start aeroderivative CT units. These new units will remain strategically placed at sites in the Southern District (north of Charleston), Northern District (near V.C. Summer Station) and Western District (near the Savannah River Site) to provide black-start capability, voltage support and fully dispatchable generation capacity to those areas. The Company will retire and decommission three aging CTs at other less strategic locations without replacement.

Locations of Assets in the CT Replacement Plan

- **Parr**
  Replaces 4 CTs (72 MW) with 2 new CTs (114 MW)
- **Coit**
  Retire 2 CTs (36 MW)
- **Urquhart**
  Replaces 3 CTs and one Boiler (193 MW) with 2 new CTs (234 MW)
- **Williams**
  Replace 2 CTs (52MW) with 1 new CT (57 MW)
- **Hardeeville**
  Retire 1 CT (9 MW)



DESC's peaking generation replacement program, or CT Plan, is critical to the continued reliability of DESC's system, voltage support, black-start capability, outage recovery and nuclear safety. The CT Plan supports grid reliability in response to the continued integration of intermittent, solar resources. The new units also have improved operating capabilities compared to the units that they will replace and will be better able to respond to unanticipated fluctuation in solar generation caused by changing weather conditions. In addition, these newer units are significantly more fuel efficient than the units that they will replace, and will significantly lower fuel costs for DESC and its customers as well as well as system carbon emissions. The new units will have state-of-the-art air emissions controls which the current units lack. Because of their fuel efficiency, the new units are expected to immediately begin displacing coal generation in the Company's merit dispatch rankings, which will further reduce system carbon emissions. The new CTs are not energy-limited as is the case with battery storage today. Further, the new CTs are compatible with DESC's net-zero carbon and methane commitments. They can be fueled with a 30% hydrogen fuel mix today and are designed to be upgraded to burn 100% hydrogen in the future. Hydrogen has the potential to be produced at a reasonable cost in quantities sufficient to fuel peaking generation across the electric industry. When available, it will allow the new CTs procured to provide the instantaneously dispatchable, non-energy limited generation that is needed to maintain grid reliability at reduced or zero carbon emissions levels.

In 2020, DESC began conducting competitive procurements to identify the appropriate technology and suppliers to replace these aging CTs. This process concluded in 2021 and the appropriate generation technology was identified after the filing of the Company's Modified 2020 IRP. To allow this plan to proceed, DESC requested that the Commission issue an order approving DESC's peaking generation replacement plan as facility replacement of existing facilities with like-facilities, and to waive any applicable requirements for an all-source procurement.

The CT Replacement Plan and Required Regulatory Authorizations

- **Bushy Park – Waiver of the mandatory RFP requirement –** Currently, there are two 1972 vintage CTs located at Bushy Park in Berkeley County with a combined capacity of 52 MW in winter and 40 MW in summer. They will be replaced by a single combustion turbine with an expected winter output capability of approximately 57 MW. If timely regulatory approval is provided, the replacement unit is expected to be able to enter commercial operation in 2023.

- **Parr – Waiver of the mandatory RFP requirement –** Currently, there are four 1970 vintage CTs at Parr in Fairfield County with a combined capacity of 72 MW in the winter and 60 MW in the summer. They will be replaced by two modern CTs, with an expected winter output capability of 57 MW each. If timely regulatory approval is provided, the replacement units are expected to be able to enter commercial operation in 2023 or 2024.

- **Urquhart – Like Facility Determination and Request for Waiver if the Commission determines that replacement is "new peaking generation requirement" –** Currently, at Urquhart there are three 1969 vintage CTs, one 1997 vintage CT (that was purchased by the Company as used equipment), and a 1955 vintage conventional natural gas boiler and turbine-generator set. The total capacity of the four CT units is 97 MW; the capacity of the natural gas boiler is 96 MW. They will be replaced by two modern CTs with a combined winter capacity of 234 MW (117 MW each). If timely regulatory approval is provided, the replacement units are expected to be able to enter commercial operation in 2024 or 2025.

- **Hardeeville and Coit – retirements –**There is one 1968 vintage 9 MW oil-fired CT at the Hardeeville site in Jasper County and the two 1969 vintage CTs at the Coit site in Richland County with a combined capacity of 36 MW in winter capacity and 26 MW in summer capacity. These three units will be retired without on-site replacements if modern CTs are put in service at the other locations.

All told, the CT plan retires 363 MW of winter capacity and replaces it with 405 MW of new aeroderivative CTs. Ten older units will be replaced by only five new units which will have slightly more capacity than the ten units they replace. The nominal increase in capacity is because, for reasons of cost and operating efficiency, the newer units come in larger capacity sizes than the existing units that they will replace. The Company has included the replacement of the CTs in its base assumptions in this 2021 IRP Update to its Modified 2020 IRP.

In the near future, the Company intends to issue a binding, all-source RFP related to its need to modify its combustion turbines to ensure that it has chosen the most cost-effective resources to meet its dispatchable peaking, black-start and system operation requirements and to further promote transparency in the Company's resource planning activities. The Company intends to issue a binding, all-source RFP related to its CT Plan to confirm that it has selected the most cost-effective resources and to further promote transparency in the Company's resource planning activities. The Company expects for the RFP to be issued in the fall of 2021 and concluded before the end of the year so that procurement and construction can begin soon.

Bushy Park Combustion Turbine.

Dominion Energy

Our Company

Combined-Cycle Uprates

Following the merger with Dominion Energy, Inc., DESC began working collaboratively with its sister utilities to identify and benchmark best generation practices to reduce costs to customers.

Jasper Station; Hardeeville, South Carolina.

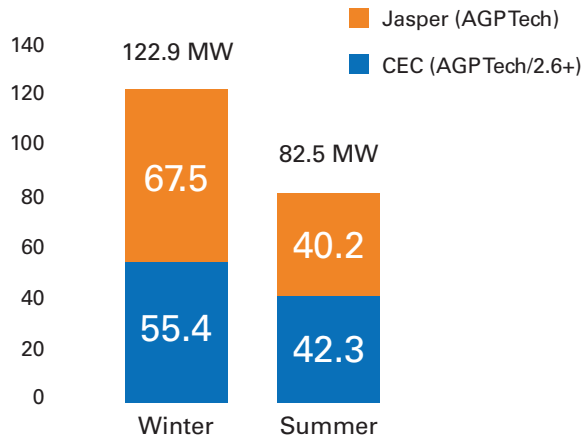
Following the merger with Dominion Energy, Inc., DESC began working collaboratively with its sister utilities to identify and benchmark best generation practices to reduce costs to customers. One outcome was a coordinated approach to long-term services agreements for turbine-generator equipment covering both planned and unplanned maintenance and operational support. DESC negotiated new agreements for its CC units that include hardware upgrades, advanced gas path (AGP) upgrades to extend the maintenance intervals for turbine components, lower fuel consumption, and increased net generation output all while reducing turbine maintenance expense.

The AGP upgrades increase the fuel efficiency and capacity of the units by incorporating technological advances in sealing the flow of combustion gases through the turbine, installing replacement turbine blades with more efficient aerodynamic surfaces, and improving the efficiency of the combustion process to extract more usable heat from fuel. Many of the upgraded components need to be replaced or refurbished as part of routine turbine maintenance. For that reason, the upgrade in capacity and fuel efficiency comes at a small incremental cost and benefits from an exceptionally high cost-benefit ratio.

DESC completed its first major overhaul and AGP upgrade under the new agreement on Jasper Station (Jasper) Unit 3 in the Spring of 2021. Jasper Units 1 and 2 will be overhauled and upgraded in Spring 2022 and Fall 2021, respectively. The Columbia Energy Center (CEC) units will be overhauled and upgraded in 2022. In addition, ultra-low sulfur fuel oil firing capability will be restored to the second CEC CT as part of the overhaul, enhancing the Company's winter reliability and resiliency.

Collectively, the upgrades accomplished in these overhauls are expected to provide almost 123 MW of net additional winter capacity and almost 83 MW of net additional summer capacity from existing units. This increase has been modeled in this 2021 IRP Update.

CEC & Jasper Combined Total Additional Plant Output



Dominion Energy

Our Company

The Southeast Energy Exchange Market

On February 12, 2021, a group of utilities filed a request for FERC to authorize SEEM, which will be a new Southeast energy exchange market for short-term transactions.

On February 12, 2021, a group of utilities filed a request for FERC to authorize SEEM, which will be a new Southeast energy exchange market for short-term transactions. SEEM will provide an automated, intra-hour trading platform and secure software system allowing electric utilities in the Southeast to buy and sell energy and deliver it using unused transmission capacity. While there is an active market for the sale of economy power today, SEEM will automate transactions and extend the market to sub-hourly schedules. The trading platform will match bids and offers submitted by participants for the upcoming 15-minute interval. All bids and offers are voluntary. Unused available non-firm transmission resources will be used to deliver the power with no charge except for losses. Transactions will be priced at the midpoint between the offer price and bid price creating value for customers on both sides of the transaction.

SEEM is an extension of the existing bilateral market and will not replace any bilateral market or existing agreements or obligations. Utilities can still buy and sell economy energy and other resources as they always have.

DESC will be a founding member, along with subsidiaries of Southern Company, Duke Energy, AECI, LG&E and KU Energy, TVA and numerous public power and electric cooperative entities. These utilities collectively own approximately 160,000 MW of generating capacity and serve about 640 Terawatt hours (TWh) of energy across ten balancing authority areas and two time zones.

On May 4, 2021, FERC issued a deficiency letter seeking additional information on pricing, transparency and market benefits. SEEM members have responded by providing clarifications of some items, improvements to the proposal to increase price transparency and data reporting for FERC and the future independent SEEM auditor, and responses to intervenors' claims regarding benefits. However, the structure of the proposal did not change. FERC staff issued a follow up letter requesting additional information by August 16, 2021. An anticipated start date for trading is in the second quarter of 2022.

Our Company

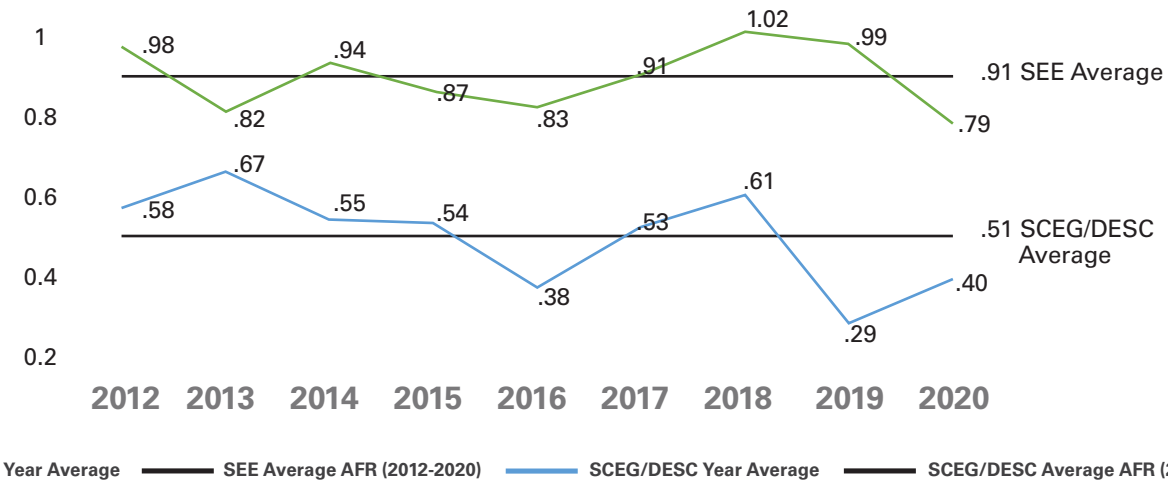
Operating Report Update

Gas Journeyman; Columbia South Carolina.

Safety

Safety is the Company's number one core value. At DESC, safety is in part measured through the accident frequency rate (AFR). In 2020, the average AFR on DESC's electric system was approximately half the southeastern utility average:

DESC & SEE Final Average AFRs



In 2020, DESC's OSHA recordable incident rate was 0.40, DART rate[10] was 0.20, and DART severity rate[11] was 15.28. This cultural strength extends in DESC's commitment to protecting the safety of the public as well.

[10] DART is the rate of incidents involving days away from work, restricted work activities or job transfers.
[11] Dart severity rate is equal to (the number of work days lost + light duty days lost) x 200,000 / total hours worked.

Dominion Energy

Our Company

Generation Operation Report Update

Springfield Solar Facility; Orangeburg, South Carolina.

Environmental Compliance

Dominion Energy is subject to a number of federal, state and local laws and regulations designed to protect human health and the environment. These laws and regulations affect future planning and existing operations. They can result in increased capital, operating and other costs as a result of compliance, remediation, containment and monitoring obligations. Additional emerging regulations are discussed below.

Greenhouse Gas Emissions. In April 2021, the U.S. Court of Appeals for the D.C. Circuit granted an unopposed motion by the EPA to vacate and remand the greenhouse gas emission rule, the Affordable Clean Energy Rule, issued in January 2021 by the prior Administration under the federal Clean Air Act. That rule would have required steam generating plants to implement certain operating and maintenance practices to comply with the Federal greenhouse gas emissions standards. The EPA is preparing a replacement rule, the terms of which have not been made public. The proposed revision remains pending. Until the EPA takes final action on this rulemaking, the utilities cannot predict the impact to their results of operations.

Effluent Limitation Guidelines. On January 20, 2021, President Biden signed Executive Order 13990 directing federal agencies to review rules issued in the prior four years that are, or may be, inconsistent with Biden's stated environmental policy. On July 26, 2021, the EPA announced that it is initiating a rulemaking process to determine whether to adopt more stringent limitations than those in the rule finalized in 2020 concerning Effluent Limitations Guidelines (ELG) for steam electric generating units. The agency intends to issue a proposed rule for public comment in the fall of 2022. The current 2020 rules remain in effect until EPA concludes this new rulemaking activity. The Company is closely monitoring developments in the ELG rulemaking process due to the potential impacts on the Wateree and Williams coal units and the on-going Retirement Study.

Other aspects of environmental compliance remain largely unchanged since the filing of the Modified 2020 IRP earlier in February 2021.

Solar and Other Renewable Generation

Since 2019, DESC has connected eight new solar farms and increased its installed solar capacity by approximately 327 megawatts.

PURPA PPAs	Nameplate Capacity (MW-AC)	Actual COD
Lily Solar LLC (Allendale County)	70.00	2/28/20
Huntley Solar, LLC (Orangeburg County)	75.00	4/30/20
TWE Bowman Solar Project, LLC (Orangeburg County)	74.97	5/15/20
Midlands Solar LLC (Calhoun County)	72.10	8/7/20
Denmark Solar, LLC (Bamberg County)	6.00	12/2/20
Blackville Solar Farm, LLC (Barnwell County)	7.20	12/7/20
Yemassee Solar, LLC (Hampton County)	10.00	1/8/21
Trask East Solar, LLC (Beaufort County)	12.00	3/17/21

All resource plans modeled in this IRP Update assume that a paired solar and energy storage unit will go into commercial operation in 2022; this facility is expected to be the first utility-scale battery storage project on the DESC system. This facility is under PPA contract with a 73.6 MW solar generating capacity and 72 MWh battery designed for a four-hour energy supply duration at 18 MW. The battery charging and discharging is dispatchable and will respond to signals from DESC System Control.

In 2020, solar and other renewable generation produced 8.86% of DESC's energy needs as non-carbon emitting energy. Solar and other renewables represented 876 MW of installed capacity in 2020.

Nuclear Operating Report

In 2020, V.C. Summer Station produced over 8,000 GWh of non-carbon emitting base-load energy, representing 21.73% of DESC's energy needs. Energy produced by V.C. Summer Station during 2020 displaced approximately 4.5 million tons of CO_2 that would have been emitted if replaced by fossil resources.

In 2020, V.C. Summer Station met or exceeded all Nuclear Regulatory Commission safety and environmental requirements and has received favorable ratings from the Institute of Nuclear Power Operations (INPO) operational standards assessment. V.C. Summer Station's' INPO rating was upgraded from "strong" to "exemplary" in 2020.

In 2020, V.C. Summer Station's net capacity factor, based on reasonable excludable nuclear system reductions, computed under the provisions of S.C. Code Ann. § 58-27-865, was 102.70%, indicating a high degree of reliability. The 2020 gross (undivided) generation output from V.C. Summer Station was 8,041,633 MWh. Nuclear generation provided 652 MW of summer capacity and 663 MW of winter capacity (based on DESC's two-thirds share in the capacity of the station).

V.C. Summer Station completed a scheduled maintenance outage for refueling (RF25) that began on April 10, 2020. The outage concluded with the unit synchronizing to the grid on May 10, 2020. The total outage duration of 33 days was the shortest refueling outage in the history of the station. The 2020 forced outage rate for V.C. Summer Unit 1 was 0.73%.

Since the filing of the Modified 2020 IRP, DESC has established early to mid-fourth quarter 2021 as the target date for filing its notice of intent to file with the Nuclear Regulatory Commission a Subsequent License Renewal (SLR) application to relicense the V.C. Summer Nuclear Unit. The requested license extension would allow DESC to operate the unit from 2042, when the current license expires, to 2062. The 2062 date is consistent with useful life of the unit as reflected in the ORS's depreciation testimony in DESC's most recent retail electric rate proceeding.

Combined Cycle Gas Plants Operating Report

In 2020, DESC's combined-cycle units produced 42.12% of DESC's energy needs. The combined-cycle units provide 1,829 MW of capacity in the summer and 1,994 MW of capacity in the winter. DESC's Combined Cycle Units' Forced Outage Rate for 2020 was 0.61%.

Combustion Turbines Operating Report

In 2020, combustion turbine (simple-cycle) units produced 0.22% of DESC's energy needs, reflecting their use as peaking generation sources. DESC's combustion turbine units provided 339 MW of capacity at 2020 summer peak and 399 MW of capacity at winter peak. DESC's combustion turbines' Forced Outage Rate for 2020 was 8.82%.

Hydro-electric Power Plants Operating Report

In 2020, Fairfield Pumped Storage returned to the system 427 GWh of stored energy and provided 576 MW of capacity in both summer and winter. In 2020, the Fairfield Pumped Storage Forced Outage Rate was 0.42%

Spring and Fall maintenance outages were conducted on Fairfield Pumped Storage Units 1, 2, 3, and 4. In the Fall of 2020, the generator excitation systems were replaced on these units. Maintenance outages also occurred on Fairfield Units 7 and 8 for general maintenance work.

In 2020, other hydroelectric plants provided 3.67% of DESC's energy needs and provided 208 MW of capacity in the summer and 224 MW of capacity in the winter.

DESC is awaiting FERC's decision concerning the relicensing application for the Saluda Hydro Project. The relicensing of the Stevens Creek Project is under active review by FERC staff.

Fossil-Steam Units Operating Report

In 2020, fossil steam units provided 23.40% of DESC's energy needs and provide 2,049 MW of capacity in the summer and 2,055 MW of capacity in the winter.

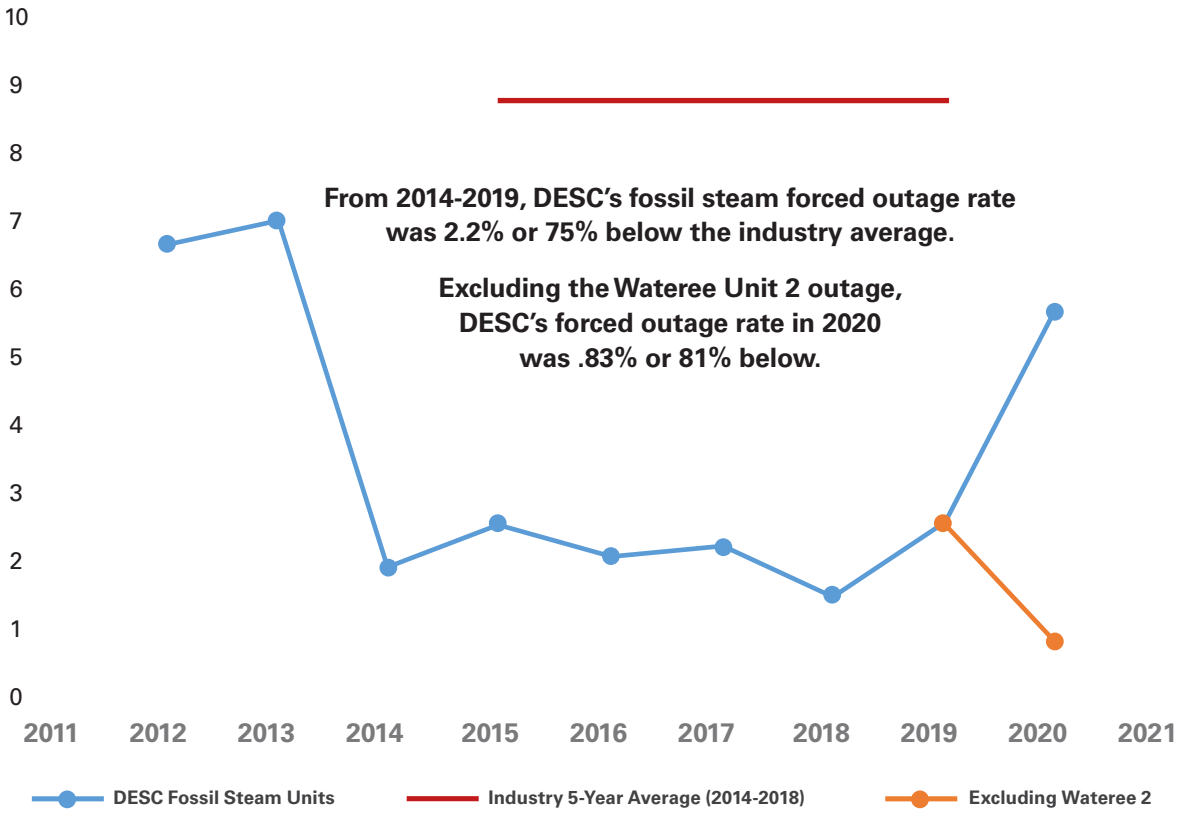
Fossil steam units are baseload-capable units which are designed and built to run for hundreds of thousands of hours a year for multiple decades. If carefully operated and maintained, they can provide reliable service over an extended useful life. The median age of DESC's coal generation units is 51 years and its gas-fired steam units is 65 years.

The 2020 Forced Outage Rate for fossil steam units was 5.67%. Wateree 2 was off line for all of 2020 due for long duration repairs. Notwithstanding the age of DESC's fossil steam fleet, when Wateree 2 is excluded from the calculation, the forced outage rate was 0.83% for the remaining units.

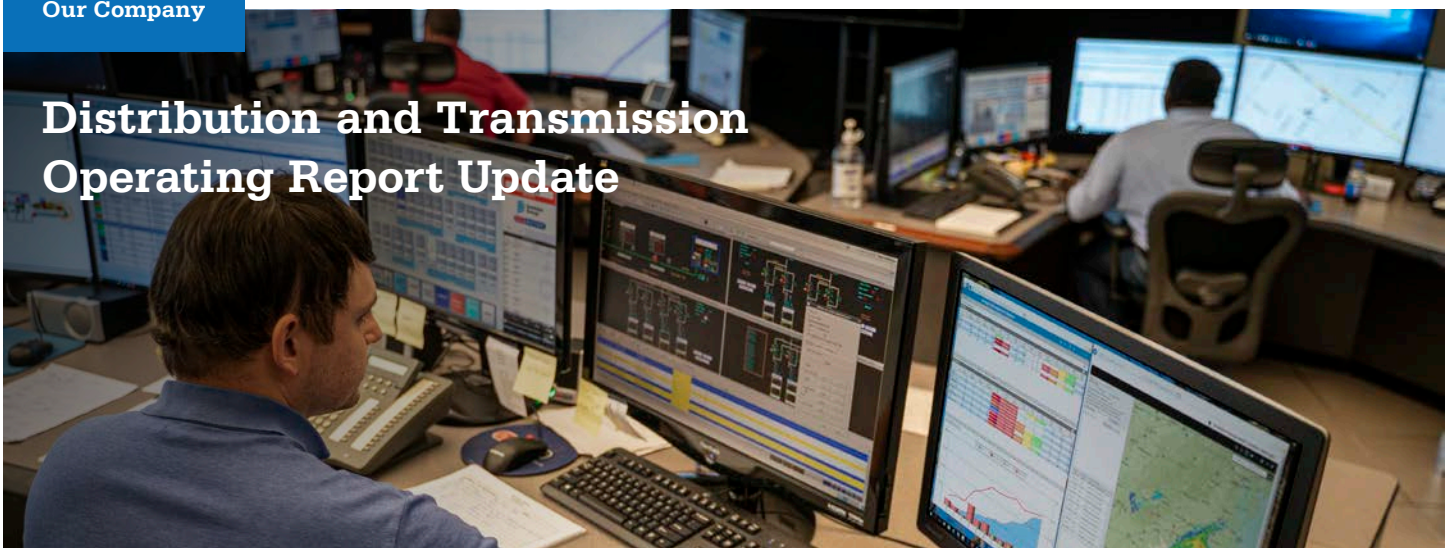
Wateree Unit 2 Generator Stator Repairs

The replacement of the generator stator mid-section for Wateree Unit 2 continues to progress on-schedule and on-budget. The fabricator of the replacement generator stator (Mitsubishi Power) has completed the final hydrostatic testing of the stator frame and is proceeding with the fabrication of the stator bars and core iron for the unit. The replacement stator is on track to ship from Japan in mid-November 2021 and the unit remains on track to return to service in the second quarter of 2022.

DESC Forced Outage Rate - All Fossil Steam Units (2012-2020)



Distribution and Transmission Operating Report Update

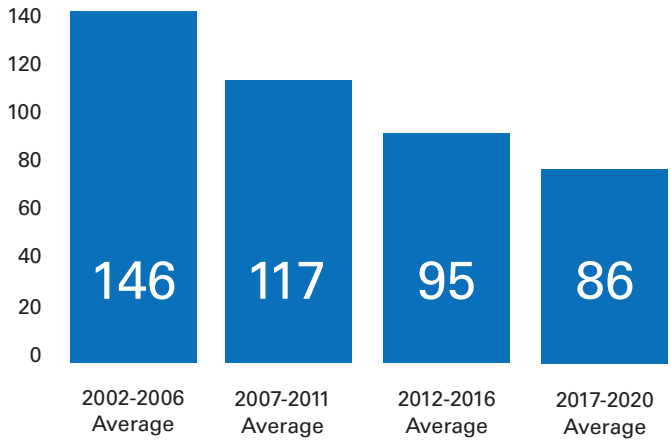


Dedicated employees at 24/7 System Control; Cayce, South Carolina.

Distribution Update

SAIDI. The industry benchmark for measuring operational effectiveness in transmission and distribution operations is the number of minutes on average a customer is without power. This benchmark is called the System Average Interruption Duration Index, or SAIDI score. A lower SAIDI score indicates more reliable transmission and distribution systems. DESC's 2020 SAIDI score was 88.23 minutes which is an historically low level. As reported by the State Energy Office, DESC provided its customers a level of reliability in 2019 that was forty-nine percent better than the other regional investor-owned utilities evaluated by that office.[12]

System Average Disruption Index (SAIDI)



Storm Response. The only major storm event to affect DESC's service territory in 2020 occurred on April 13, 2020, when 21 tornadoes touched down in South Carolina. Four were classified as EF3-strength with winds up to 165 miles per hour and one which was classified as an EF4 tornado with winds up to 200 miles per hour. It was the most prolific day of tornado activity in South Carolina in the last 35 years. Within 24 hours DESC crews had restored power to 96% of the 117,000 customers who lost service at one point or another during that storm. There were 65,800 customers without power after the storm system had passed. Within two days, storm restoration was complete.

Major Storm Outages and Restoration 2011-2020

Event	Dates	Total Customers Out	Days to Restore Service
2014 Winter Storm Pax	2/12/14 - 2/19/14	151,700	7
Hurricane Matthew	10/07/16 - 10/16/16	313,300	9
Hurricane Irma	9/11/17 - 9/14/17	173,300	3
Hurricane Florence	10/11/18 - 10/12/18	7,500	1
Hurricane Michael	10/11/18 - 10/12/18	68,800	2
Hurricane Dorian	9/04/19 - 9/08/19	186,400	4
April 2020 Tornadoes	4/13/20	65,800	1

[12] http://energy.sc.gov/node/3065.
This is the most current year for which data was reported at the time of writing.

In 2020, only one other significant storm events (i.e., a storm causing more than 10,000 customer outages) affected DESC's service territory. It was a windstorm that occurred on February 7, 2020 and affected 51,532 customers, 17,627 of whom were without power at the end of the storm. Restoration was completed that day. The Customer Average Interruption Duration Index was 128.7 minutes.

AMI. As reported in the Modified 2020 IRP, 74,180 Advanced Metering Infrastructure (AMI) meters were installed through the end of 2020. On July 20, 2021, DESC's meter vendor, Itron, invoked the force majeure clause in their supply contract due to limited semiconductor deliveries from their vendor Texas Instruments. DESC and Dominion Energy are working with Itron and other North American utilities requesting Texas Instruments give priority treatment to contracts for semiconductors used in the AMI meters.

As of late July 2021, DESC had meters on hand to support continued AMI roll out in the near term, but due to the chip shortage the schedule is anticipated to slip by approximately three months, from a completion date of March 2023 to a completion date of June 2023. As a result, DESC has adjusted its 2021 target installs from 534,000 to 425,000.

Transmission Update

The following new transmission projects were begun or completed in 2020:

Thomas Island – Jack Primus 115kV New Transmission Line. Due to the commercial and residential growth along Clements Ferry Road near Thomas Island, DESC acquired a new right of way and built a 3.8-mile 115kV transmission line to a new 115kV/23kV distribution substation.

Church Creek – Faber Place 230kV& 115kV Ashely River Crossing Rebuild. The 230kV and 115kV transmission lines crossing the Ashley River in Charleston were aging wooden structures with operational concerns associated with potential high winds in the area. The wooden structures were replaced with galvanized steel structures meeting all modern electric codes and providing increased reliability and resiliency.

Summerville – Pepperhill 230kV New Transmission Line. This 8-mile project was required to meet the growth in the Summerville and Charleston areas. An existing 230kV line with wooden structures was rebuilt double circuit to accommodate the new 230kV line on single galvanized steel poles.

Canadys 230kV Upgrade Bus and add Back – Back Breakers and Re-terminate 230kV lines. The Canadys 230kV substation is located at a critical junction between the Northern and Southern Operating areas of DESC. A single bus failure at this location would remove critical 230kV infrastructure from service. A new bus was constructed, and back-to-back breakers were installed to separate the two busses providing operational resiliency. Three of the 230kV lines were rerouted to the new bus.

Church Creek – St. Andrews 115kV Replace poles on the Greenway. This project is a 2.7-mile 115kV transmission line along the West Ashley Greenway in Charleston. The integrity of the laminated wood poles along this line was challenged by multiple woodpecker holes. DESC worked with the City of Charleston to improve the reliability of this line by replacing the existing poles with more resilient ductile iron poles.

Batesburg – Gilbert 115kV Rebuild. The Batesburg – Gilbert 115kV line was constructed of wooden structures installed over 40 years ago. The rebuild of this line is needed to replace aging infrastructure and to provide a tie line between the Aiken area and Columbia for transmission system flows. The wooden structures were replaced with galvanized steel structures meeting all modern electric codes and providing increased reliability and resiliency.

Stevens Creek - Briggs Rd 115kV New Tie. To accommodate strong electrical sources in the Aiken area associated with Solar Generation and the two new Nuclear Units at Vogtle, the Stevens Creek – Ward 115kV line was rebuilt to Santee Cooper's Briggs Road Substation. This project replaced single circuit wooden structures with double circuit lines on single galvanized steel poles. The new transmission line provided a new tie-line to Santee Cooper.

Load Forecasts

Charleston, South Carolina.

Load Forecasts

DESC typically updates its load forecast early in the first quarter of each year for use in multiple planning functions during the year. The Modified 2020 IRP was filed in February of 2021 and presented the 2021 updates to DESC's load forecast which had recently been completed. There has been no subsequent update to the load forecast. DESC will present a new 2022 load forecast in the 2022 IRP Update.

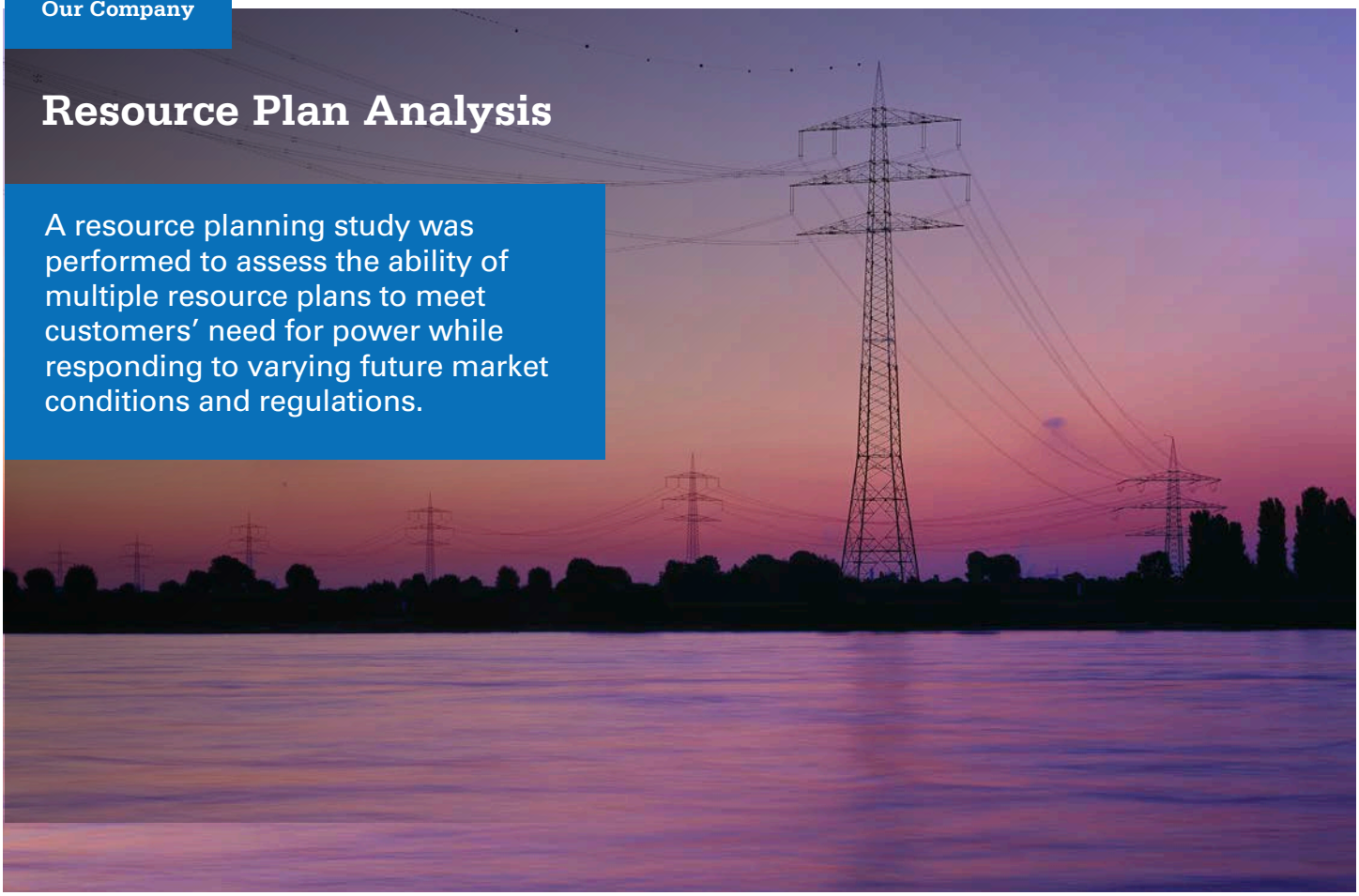
State Capitol Building; Columbia, South Carolina.

Dominion Energy

Our Company

Resource Plan Analysis

A resource planning study was performed to assess the ability of multiple resource plans to meet customers' need for power while responding to varying future market conditions and regulations.



Overview

This Resource Plan Analysis documents the assessment of the ability of a diverse set of resource plans to meet customers' needs for power while responding to varying future market conditions and the Company's commitment to a reliable, clean, and affordable energy future. In the previous Modified 2020 IRP filing, fourteen resource plans were studied using three natural gas prices and three CO_2 cost scenarios using three DSM cases. In this 2021 IRP Update, three additional plans were added resulting in nine of the seventeen plans having near-term solar and six cases having near-term energy storage. The seventeen plans were evaluated under three levels of natural gas prices, three CO_2 emission cost prices, and three DSM cases—twenty-seven different sensitivities. The Company's base forecast of energy and demand has been updated for this analysis to include marginal line losses for DSM.

The expected case load forecast is called the High DSM case. The High DSM case assumes that the Company achieves a 1% reduction in forecasted load through its DSM programs. This reflects the expectation that a cost-effective suite of DSM programs can be formulated to reach a 1% reduction in forecasted load.

The Medium DSM case is based on the expected program levels identified in the recent 2019 Potential Study and achieves a 0.735 reduction. The low DSM case assumes that the Company achieves 90% of the DSM levels described in the 2019 Potential Study or a 0.61% reduction.

Resource portfolios were developed to evaluate the range of demand-side, supply-side, storage, and other technologies and services available to meet the Company's service obligations. The individual resource plans were created around retirements, environmental regulations, and additional renewable resources. These scenarios create a large array of output data. The following pages provide data that highlights the key features of each resource plan in terms of cost, CO_2 emissions, renewable energy, fuel cost sensitivity, and related metrics.

Reserve Margin

All plans were built to meet a minimum 21% winter reserve margin and a minimum 14% summer reserve margin as specified in Order No. 2020-832. A single integrated reserve margin was used for each season.

Meeting the Base Resource Need

DESC identified eight generating resources to be used as building blocks in creating resource plans. Not only are these resources indicative of the relevant technologies available, but each capacity/configuration was chosen with the DESC system characteristics in mind.

Load growth rates in future years are anticipated to be modest. Even with retirements, relatively modestly-sized units at or below 500 MW are suitable for most circumstances in these plans. Given the size of DESC's system, even 100 MW additions have a significant physical and financial impact on this system. In addition, the resource plans either assumed that Wateree and Williams were retired when they reached their end of useful life, which are years 2044 and 2047 respectively, or if retired earlier, in 2028. In RP8, Cope Station was converted to gas-fired only status by 2030. Resource plans were also created to model the early retirement of older fossil-steam gas-fired units.

Supply Technology Characteristics				
Available Resources	**Capital Cost 2020 $/kW**	**Escalation Rate**	**Capacity**	**Source of Data**
Annual Purchases	N/A	2%	50 MW	• Prior experience with market purchases • Gas is assumed to be the fuel at 11,700 heat rate, $1.54/MWh O&M costs, $4.5/kW-month capacity costs, $2400 start cost
Battery Storage	$1,349	Annual escalation per NREL 2020-ATB	100 MW with 4 hour duration	• CAPEX is from NREL Mid Technology Cost Scenario nominal forecast of CAPEX from 2019 Annual Technology Baseline • CAPEX Escalation is from NREL Advanced Technology Cost Scenario nominal forecast of CAPEX from 2020 Annual Technology Baseline
Solar	$1,151	Annual escalation per NREL 2020-ATB	50, 100 or 400 MW	• Dominion Energy Services - Generation Construction Financial Management & Controls • CAPEX Escalation is from NREL Advanced Technology Cost Scenario nominal forecast of CAPEX from 2020 Annual Technology Baseline
CC 1-on-1	$1,406	3.75%	553 MW	• Dominion Energy Services - Generation Construction Financial Management & Controls • CAPEX Escalation is from Handy Whitman July 2019 15 year Average – Total Plant
CT Large Frame (2x)	$714	3.75%	523 MW	• U.S. Energy Information Administration's (EIA) Annual Energy Outlook 2020 (AEO2020) • CAPEX Escalation is from Handy Whitman July 2019 15 year Average – Total Plant
CT Aero (2x)	$970	3.75%	131 MW	• Dominion Energy Services - Generation Construction Financial Management & Controls • CAPEX Escalation is from Handy Whitman July 2019 15 year Average – Total Plant
Battery PPA	N/A	N/A	100 MW with 4 hour duration	• NREL 2020, Advanced Technology Cost Scenario from 2020 Annual Technology Baseline
Solar PPA	N/A	N/A	400 MW	• NREL 2020, Advanced Technology Cost Scenario from 2020 Annual Technology Baseline • An integration charge of $0.96/MWh is netted to the PPA price. • For RP7a, RP7b and RP8a three costs were modeled as specified by Order No. 2020-832, $38.94/MWh, $36/MWh, $34/MWh

For candidate resources, the capital costs of the resources modeled in each plan have been escalated or de-escalated from 2020 to the year that the generator is installed. The installation year varies by resource plan to reflect the size of the increments of generation capacity that are added. In addition, even within a single resource plan, the installation year for resources varies based on the DSM sensitivities modeled because of the different levels of demand growth these DSM sensitivities assume. The capacity used in the resource plan schedule for combined-cycle and CT resources is their winter capacity.

Resource Plans

A collection of generation resources and technologies were identified with the purpose of fairly evaluating a range of supply-side resources that are currently available to meet the Company's service obligations. These included:

- Utility-owned solar and third-party solar PPA
- Combined-cycle and CT resources
- Storage and third-party PPA storage
- Annual Power Purchase Agreement
- Fossil unit retirement

These resources and assumptions concerning facility retirements were combined into seventeen groups of potential resources. Next, a set of low, medium and high demand side scenarios were identified that included customer energy efficiency and demand response. The base load forecast combined with each of the three DSM scenarios created three forecasts of summer and winter peaks and annual utility energy sales.

Using the peak forecasts, the seventeen groups of resources were configured and resource additions were scheduled to ensure that DESC could meet its reserve margin requirements in summer and winter of each year. The scheduling of resource additions was determined by capacity needs on the system as they evolve in sequential years. These resulting schedules of resource additions produced the seventeen resource plans covering a wide range of options. In all,

a. Three different retirement plans were modeled.

b. Thirteen plans included additional renewables.

c. All plans included 1,046 MW of existing solar PPAs.

d. All plans include a paired solar and energy storage PPA modeled with commercial operation in 2022. This facility is under contract with a 73.6 MW interconnection and 18 MW four-hour duration battery.

e. All plans include the implementation of the CT Plan which replaces existing CTs that are at or near the end of life.

f. All plans include the recent or scheduled AGP upgrades at CEC combined-cycle facilities which increases the generating capacity of those units.

g. RP8, RP8a, RP8a2, and RP8a3 included approximately 1,900 MW of solar and 700 MW of energy storage.

h. Three different sized solar generators were modeled at 400 MW, 100 MW and 50 MW.

i Two different types of solar generation were modeled, Company-owned and third-party owned generators covered under PPAs.

j. Three different gas generators were modeled—combined-cycle, large frame CT, and aeroderivative CT.

Description of Resource Plans		
Resource Plan ID	**Resource Plan Name**	**Resource Plan Description**
RP1	CC	An initial combined-cycle followed by large frame CTs
RP2	CT	Large frame CTs
RP3	Retire Wateree	Wateree 1 & 2 retirement (2028), combined-cycle, large frame CTs
RP4	Retire Steam Gas	McMeekin and Urquhart 3 retirement, large frame CTs
RP5	Solar + Storage 2026	Flexible Solar + Battery Storage, combined-cycle, large frame CTs
RP6	Solar 2026	Flexible Solar, large frame CTs
RP7	Solar PPA 2026 + Storage 2026	Flexible Solar PPA (400 MW) + Battery Storage (100 MW), large frame CTs
RP7a	Solar PPA 2023	Flexible Solar PPA (400 MW) $38.94/MWh + large frame CTs
RP7a2	Solar PPA 2023	Flexible Solar PPA (400 MW) $36/ MWh + large frame CTs
RP7a3	Solar PPA 2023	Flexible Solar PPA (400 MW) $34/ MWh + large frame CTs
RP7b	Solar PPA 2023 + Storage 2023	Flexible Solar PPA (400 MW) $38.94/MWh + Battery Storage PPA (100 MW), large frame CTs
RP7b2	Solar PPA 2023 + Storage 2023	Flexible Solar PPA (400 MW) $36/MWh + Battery Storage PPA (100 MW), large frame CTs
RP7b3	Solar PPA 2023 + Storage 2023	Flexible Solar PPA (400MW) $34/MWh + Battery Storage PPA (100 MW), large frame CTs
RP8	Replace Coal with Gas and Renewables	Wateree and Williams retirements (2028) with combined-cycle, Solar and Battery Storage, large frame and aeroderivative CTs
RP8a	Replace Coal with Gas and Renewables. Solar PPA 2023 + Storage 2023	Flexible Solar PPA (400 MW) $38.94/MWh + Battery Storage PPA (100MW), large frame CTs
RP8a2	Replace Coal with Gas and Renewables. Solar PPA 2023 + Storage 2023	Flexible Solar PPA (400 MW) $36/MWh + Battery Storage PPA (100MW), large frame CTs
RP8a3	Replace Coal with Gas and Renewables. Solar PPA 2023 + Storage 2023	Flexible Solar PPA (400MW) $34/MWh + Battery Storage PPA (100 MW), large frame CTs

In each resource plan, several years of annual PPAs for firm capacity are typically added to meet the 21% reserve margin prior to building new gas generation. This serves to delay the need to build new capacity without compromising reliability and allows the new resource to be optimally utilized at the time of commissioning. Existing solar PPAs are credited with 11.8% summer and winter capacity while new solar is credited with 4.25% summer and winter capacity. (See **Appendix C** for a discussion and calculation of solar ELCC required by Order No. 2020-832.). DESC maintains that this assumption overestimates the contribution of solar to meeting customers' winter peak demands.

Order No. 2020-832 required RP7a, RP7a2, RP7a3, RP7b, RP7b2, RP7b3 to assess the reasonableness of procuring solar generation via a solar PPA in 2023. Carolinas Clean Energy Business Alliance proposed these plans and envisioned adding renewable resources in time to earn a 22% Federal ITC, which was then anticipated to require construction to be started by 2021. In the H.R. 133, the Consolidated Appropriations Act, 2021, adopted on December 28, 2020, these deadlines were extended by two full years. This allows for projects beginning during 2022 to access the 26% ITC if in service by January 1, 2026.

Order No. 2021-429 required RP8a, RP8a2, and RP8a3 to assess the reasonableness of procuring near term renewables. Each of these plans adds solar and storage in 2023 to the planned build of RP8.

Resource Plan 1: In this resource plan, a 553 MW (winter capacity) combined-cycle gas-fired generator is added after the winter reserve margin drops below 21%. 523 MW blocks of CTs are added to maintain the 21% winter reserve margin during the modeling period.

Resource Plan 2: In this resource plan, 523 MW (winter capacity) of CTs are added when the winter reserve margin drops below 21% during the modeling period.

Resource Plan 3: In this resource plan, Wateree 1 and 2 are retired in 2028 and a combined-cycle gas-fired generator is added in 2028. Five-hundred twenty-three (523) MW blocks of CTs are added to maintain the 21% winter reserve margin during the modeling period.

Resource Plan 4: In this resource plan, McMeekin 1 and 2 are retired in 2028. Their 500 MW of capacity are replaced by a 523 MW block of CTs. Thereafter, five hundred twenty-three (523) MW blocks of CTs are added to maintain the 21% winter reserve margin during the modeling period.

Resource Plan 5: In this resource plan, 400 MW of Company-owned flexible solar generation plus 100 MW of battery storage are added in 2026. The next increment of capacity necessary to maintain a 21% winter reserve margin is a 553 MW combined cycle gas generator. After the CC, 523 MW blocks of CTs are added to maintain the 21% winter reserve margin during the modeling period.

Resource Plan 6: In this resource plan, 400 MW of Company-owned flexible solar generation is added in 2026. Five hundred twenty-three (523) MW blocks of CTs are added to maintain the 21% winter reserve margin during the modeling period.

Resource Plan 7: In this resource plan, 400 MW of flexible solar PPA generation plus 100 MW of battery storage are added in 2026. Five hundred twenty-three (523) MW blocks of CTs are added to maintain the 21% winter reserve margin during the modeling period.

Resource Plan 7a: In this resource plan, 400 MW of flexible solar PPA at $38.94/MWh is added in 2023. Five hundred twenty-three (523) MW blocks of CTs are added to maintain the 21% winter reserve margin during the modeling period.

Resource Plan 7a2: In this resource plan, 400 MW of flexible solar PPA at $36/MWh is added in 2023. Five hundred twenty-three (523) MW blocks (523) of CTs are added to maintain the 21% winter reserve margin during the modeling period.

Resource Plan 7a3: In this resource plan 400 MW of flexible solar PPA at $34/MWh is added in 2023. Five hundred twenty-three (523) MW blocks of CTs are added to maintain the 21% winter reserve margin during the modeling period.

Resource Plan 7b: In this resource plan, 400 MW of flexible solar PPA at $38.94/MWh plus 100 MW of battery storage PPA are added in 2023. Five hundred twenty-three (523) MW blocks of CTs are added to maintain the 21% winter reserve margin during the modeling period.

Resource Plan 7b2: In this resource plan, 400 MW of flexible solar PPA at $36/MWh plus 100 MW of battery storage PPA are added in 2023. Five hundred twenty-three (523) MW blocks of CTs are added to maintain the 21% winter reserve margin during the modeling period.

Resource Plan 7b3: In this resource plan, 400 MW of flexible solar PPA at $34/MWh plus 100 MW of battery storage PPA are added in 2023. Five hundred twenty-three (523) MW blocks of CTs are added to maintain the 21% winter reserve margin during the modeling period.

Resource Plan 8: In this resource plan, Wateree and Williams are retired in 2028 and replaced with a 553 MW 1X1 combined cycle plant and 523 MW of CTs. Dual-fuel capability is eliminated at Cope, so Cope burns only natural gas starting in 2030. Additional tranches of 100 MW of battery storage and 131 MW CTs are added to maintain the 21% winter reserve margin during the modeling period. Solar is added in 2026, 2027 and each year from 2029 to 2048. In this plan 1,900 to 2,000 MW of solar are added with 700 MW to 900 MW of storage.[13] Generally, the RP8 and RP8a group are the lowest carbon plans.

Resource Plan 8a: This plan is essentially the same as RP8 except 400 MW flexible solar PPA at $38.94/MWh plus 100 MW battery storage PPA are added in 2023.

Resource Plan 8a2: This plan is essentially the same as RP8 except 400 MW flexible solar PPA at $36/MWh plus 100 MW battery storage PPA are added in 2023.

Resource Plan 8a3: This plan is essentially the same as RP8 except 400 MW flexible solar PPA at $34/MWh plus 100 MW battery storage PPA are added in 2023.

The timing and nature of resource additions and the resulting capacities and reserve margins for each of the 30 years of the model horizon are set forth in the tables attached as **Appendix D** to this document. Please note that winter and summer net dependable capacities are different for most resources and nameplate capacity and net dependable capacity will also be different. The net dependable capacity of each addition is reflected for summer and winter periods.

[13] The amount of solar generation added depends on the DSM assumption being modeled. Low DSM results in faster load growth which results in more generation assets being added.

Methodology

The incremental revenue requirements associated with each of the seventeen resource plans was computed using the Energy Exemplar PLEXOS computer program to estimate production costs and a Microsoft Office® Excel revenue requirements model to calculate the associated capital costs. The PLEXOS model creates production costs values over a 30-year modeling period. The production cost values are added to the Excel file and the production costs are extrapolated for another 10 years to get 40 years of production costs values. Capital costs and DSM costs are calculated over 40 years. The Excel revenue requirements model combines the capital costs, DSM costs and production costs to estimate total incremental revenue requirements over a 40-year planning horizon. A levelized net present value (NPV) is calculated for all costs over the 40-year period. Ongoing capital costs are included in PLEXOS as part of the fixed operating and maintenance costs.

Demand Side Management Assumptions

Three DSM cases were created. The low DSM is equivalent to 90% of the 2019 Potential Study, which results in a reduction of 0.61% of retail sales. The medium DSM used the results of the 2019 Potential Study updated and described in Part IV of the Modified 2020 IRP, and results in a reduction of 0.73% of retail sales. The High DSM assumed DSM growth to 1% of retail sales by 2022.

The three DSM cases created three demand and energy forecasts. A low level of DSM creates higher demands and energy needs. A high level of DSM creates lower demands and energy needs. The cost for each DSM case was calculated over a 40-year period and applied to the appropriate scenarios. Assuming no early coal unit retirements, the first need for additional capacity occurs in the winter of 2032 when using the Medium DSM demands, in 2033 when using the Low DSM demands and 2037 when using the High DSM demands.

The use of the Low, Medium and High DSM demands results in scenarios that measure the sensitivity of the resource plans to variations in future load growth. Low, Medium, and High economic load growth sensitivities are also a measure of potential variation in future load growth and are largely duplicative of the DSM sensitivities. The economic load growth sensitivities were not modeled in order to hold the number of scenarios modeled to a manageable group. If all six economic load growth sensitivity combinations were modeled (i.e., low, medium, high load growth, as well as two electric vehicle sensitives), the number of scenarios presented would be 2,295 scenarios, which is not practical to model. The three DSM cases provide a range of load growth assumptions that show the sensitivity of the resource plans to load growth variations and meet the statutory requirements. The DSM cases are expected to be updated following the results of the 2022 DSM Market Potential Study and those updated results will be included in the 2023 IRP.

Emissions, DSM and Fuel Sensitivity

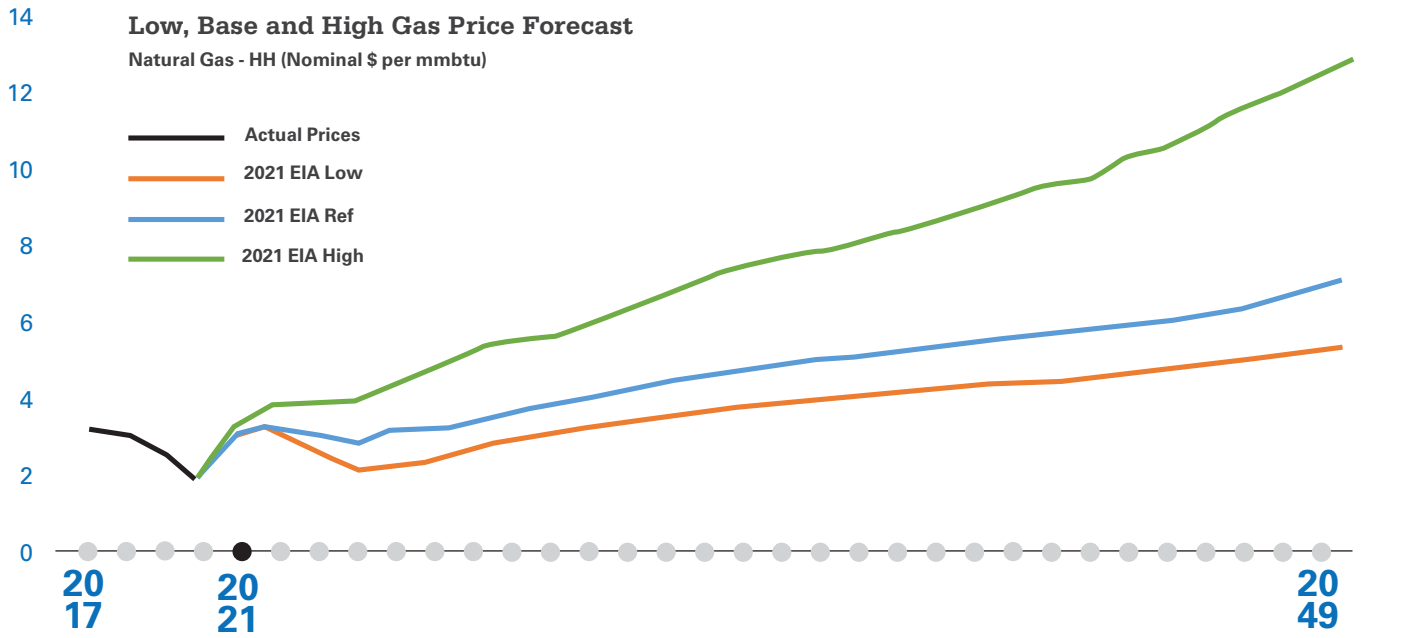
The three DSM cases were evaluated using three gas price assumptions plus three CO_2 cost assumptions. The combination of the three DSM assumptions, three gas price assumptions and three CO_2 cost assumptions created 27 different sensitivities. All plans include assumptions about expenses that will be required to meet ELG requirements for Wateree and Williams if those units are assumed to operate after 2028. The seventeen resource plans multiplied by the 27 sensitivities equal 459 different scenarios.

The chart that follows below shows the three gas price forecasts used and, consistent with Order No. 2020-832, are based on the 2021 EIA Annual Energy Outlook that was published in March of 2021. The high gas price forecast assumes that national gas markets experience a significant reduction in available gas supplies going forward, while the low gas price forecast assumes an increase in available gas during the forecast period.

Three CO_2 price assumptions were modeled. Zero ($0) dollars/ton is the low CO_2 assumption. This is consistent with current prices and provides a no-action baseline to measure the sensitivity of generation plans to CO_2 emissions regulations.

The medium CO_2 price case assumes a price of $12/short ton beginning in 2030 and is based on the CO_2 price forecast provided by IHS Market in November 2020. IHS is a leading forecasting and consulting firm with a global reputation for reasonable forecasts. The assumptions behind the $12 CO_2 forecast are as follows:

"Compelled by the courts and the [prior regulatory findings that CO_2 emissions constitute health and environmental endangerment], the EPA implements the Affordable Clean Energy rule, a modest and narrowly focused power sector



CO_2 regulation under the Clean Air Act (CAA). The US plan to withdraw from the Paris Agreement in 2020 stalls in the face of growing political backlash, and is reversed in 2021. The combination of broad domestic and international pressure for further action (beyond CAA regulations), return to the Paris Agreement, and US business desire for greater long-term policy certainty than CAA regulations provide, prompt legislative action in the early 2020s to establish a CO_2 price for the power sector outside California (which continues its own economy wide program). Political negotiations yield a modest CO_2 price that begins in 2030 and escalates annually."

The $12/short ton in nominal dollars begins in 2030 and escalates at 10%/year.

The high CO_2 price scenario is $35/metric ton beginning in 2021 and escalates at 7.5%/year. This case was specified as a case to be modeled in Order No. 2020-832. However, there are substantial reasons to question its validity for use as a forecasted sensitivity. The basis for the $35/ton high CO_2 case is the EIA reference document "AEO 2020 Alternative Policies, Carbon Fees, March 2020." Unlike the IHS Markit CO_2 price data, the reference document does not provide a forecast of potential CO_2 costs, but uses seemingly randomly selected CO_2 cost values ($15/ton, $25/ton and $35/ton) as sensitivities chosen to stress the EIA models forecasts of future energy markets. The EIA makes no claims that the sensitivities it modeled reflect reasonable forecasts of future CO_2 costs and made no attempt to justify the reasonableness of any of these levels of CO_2 cost. As EIA states, *"the assumptions used in the alternative cases should not be construed as EIA opinion regarding how laws or regulations should, or are likely to, be changed." (p. 3) Further comments by EIA state, "[I]n the area of policies that target emissions reduction, history has demonstrated that there is significant uncertainty in this assumption."* (p. 16)

The $35/ton and 7.5% escalation case does not represent a likely CO_2 price forecast. Escalation at 7.5% results in a CO_2 price of $285 per metric ton by 2050. Under the $35/ton scenario which begins in 2021, costs to DESC customers would be over $400 million this year and could increase to $2 billion per year by 2050 for CO_2 alone. This level of customer impact is indicative of impacts that would be experienced throughout the economy from CO_2 prices at this level; therefore, imposing CO_2 prices of this magnitude are not reasonably foreseeable.

Results

This section of the 2021 IRP Update shows the result of using eight metrics for the comparative evaluation of the seventeen resource plans. As required in Commission Order 2020-832, those eight metrics are:

- Levelized Cost
- CO_2 Emissions
- Clean Energy
- Fuel Cost Resiliency
- Generation Diversity
- Reliability Factors
- Mini-Max Regret Analysis
- Cost Range Analysis

The evaluation of the seventeen resource plans across these eight metrics provides a systematic and quantitative assessment of the factors relevant to the selection of a preferred resource plan. As discussed below, the value of that assessment depends on the quality of the assumptions upon which the resource plans have been based or which they have modeled, and the likelihood that those specific sensitivity cases or something close to them will occur. Applying these metrics to a set of scenarios that includes highly unlikely cost forecasts is methodologically incorrect. As noted below, certain of the cost forecasts that DESC is required to model involve forecasts that are not supported (e.g., \$35/ton CO_2 costs imposed in 2021 and escalating at 7.5% from that point forward) or cost forecasts for renewable energy projects that are excessively low and do not lead to meaningful results.

Utility Partners of America, contractor for Dominion Energy, installing new smart meters for customers.

The resource plans are modeled against 27 sensitivities. They include three sensitivities each for DSM, CO_2 Cost and Gas Price.

Three of the eight metrics (Clean Energy, Generation Diversity, and Reliability Factors) vary according to the resource plan being evaluated, but do not materially change with the DSM level, CO_2 Cost or Gas Price sensitivity being modeled. For that reason, only a single evaluation table is provided for each of these three metrics.

Two of the metrics, Mini-Max Regret Analysis and Cost Range Analysis, measure variation in the modeling results across all 27 sensitivities. By their nature, only a single ranking of the results across all sensitivities is produced.

In ranking the resource plans, ties were assigned the average score within the tie. Rankings among scenarios were compared, and those rankings were averaged to present a singular ranking for each of the seventeen resource plans under each metric. These results are presented in the table: Resource Plan Rankings Over All Scenarios. It should be noted that in accordance with Order No. 2020-832, this evaluation weighs highly unlikely forecast scenarios and highly likely scenarios equally, making the results potentially misleading to the degree that they treat rankings equally from all 27 sensitivities.

The seventeen resource plans are also evaluated against the most reasonable and likely set of sensitivities. The results of that ranking are presented at the conclusion of the analysis. These most reasonable and likely sensitivities constitute the Expected Case in DESC's judgement. They are the level of demand reduction produced by the High DSM case; the $12/ton CO_2 Price sensitivity, and the Low Gas Price forecast. In DESC's judgement, this set of sensitivities presents the most likely future conditions under which the plans will have to function.

As discussed below, the same resource plans, RP8 and its modified RP8a versions, consistently emerge as the most reasonable resource plan across the largest number of scenarios. This is true regardless of whether the evaluation is conducted against all 27 sensitivities or the Expected Case.

The following table maps each of the eight metrics with the IRP Statute or a directive in Order No. 2020-832, or both:

IRP Evaluation Standards and Metrics

Levelized Cost
Section 58-37-40(C)(2)(b) requires the Commission to consider, in its discretion, whether an IRP appropriately balanced the factor of consumer affordability and least cost. Order No. 2020-832 also required the costs of all candidate resource plans be included.

CO_2 Emissions
Section 58-37-40(C)(2)(c) requires the Commission to consider, in its discretion, whether an IRP appropriately balanced the factor of compliance with applicable state and federal environmental regulations.

Clean Energy
Section 58-37-40(C)(2)(c) requires the Commission to consider, in its discretion, whether an IRP appropriately balanced the factor of compliance with applicable state and federal environmental regulations..

Fuel Cost Resiliency
Section 58-37-40(C)(2)(e) requires the Commission to consider, in its discretion, whether an IRP appropriately balanced the factor of commodity price risks, which includes fuel cost resiliency.

Generation Diversity
Section 58-37-40(C)(2)(f) requires the Commission to consider, in its discretion, whether an IRP appropriately balanced the factor of diversity of generation supply.

Reliability Factors
Section 58-37-40(C)(2)(d) requires the Commission to consider, in its discretion, whether an IRP appropriately balanced the factor of power supply reliability.

Mini-Max Regret
Order No. 2020-832 required DESC to implement a Mini-Max regret analyses in the Modified 2020 IRP.

Cost Range Analysis
Section 58-37-40(C)(2)(b) requires the Commission to consider, in its discretion, whether an IRP appropriately balanced the factor of consumer affordability and least cost. Order No. 2020-832 also required DESC to implement a Cost Range analysis in the Modified 2020 IRP.

Levelized Cost

The Levelized Cost metric is a comprehensive measure of the relative costs to customers of each of the seventeen resource plans over the 40-year period from 2020-2059. The comparison is based on the forty-year levelized NVP of the incremental costs of each resource plan. The incremental costs include incremental operating costs, capital costs for new generation, incremental capital costs for ongoing operation and maintenance, and DSM costs. The incremental costs do not yet include incremental electric transmission needs associated with coal plant retirements.

The following tables summarize rankings of all seventeen resource plans under the three different DSM scenarios, three different gas price cases and three different CO_2 price cases. The results are color coded: 1. Green = Least cost, 2. Blue = Second lowest cost, and 17. Orange = Highest cost. Each of the three tables shows the rankings of the plans under one of the three DSM scenarios and provides the rankings under that DSM scenario for three CO_2 price scenarios and three Gas Price scenarios. Between the three tables, the rankings for all seventeen resource plans are provided for all 27 CO_2, Natural Gas and DSM scenarios.

Levelized NPV Cost Results for the High DSM Scenario

RP ID	Resource Plan Name	$0/ton CO_2			$12/ton CO_2			$35/ton CO_2		
		Low Gas	Medium Gas	High Gas	Low Gas	Medium Gas	High Gas	Low Gas	Medium Gas	High Gas
RP1	CC	11	11	11	16	13	11	17	17	15
RP2	CT	2	3	8	7	8	9	16	16	17
RP3	Retire Wateree	12	12	13	15	16	13	12	12	14
RP4	Retire McMeekin	9	9	10	10	10	10	15	15	16
RP5	Solar + Storage	13	13	12	17	17	12	14	14	12
RP6	Solar	10	10	9	13	9	8	13	13	13
RP7	Solar PPA + Storage 2026	4	4	4	4	4	3	11	11	11
RP7a	Solar $38.94 PPA 2023	5	5	3	3	3	2	7	7	7
RP7a2	Solar $36 PPA 2023	3	2	2	2	2	1	6	6	6
RP7a3	Solar $34 PPA 2023	1	1	1	1	1	6	5	5	5
RP7b	Solar $38.94 PPA + Storage 2023	8	8	7	8	7	7	10	10	10
RP7b2	Solar $36 PPA + Storage 2023	7	7	6	6	6	5	9	9	9
RP7b3	Solar $34 PPA + Storage 2023	6	6	5	5	5	4	8	8	8
RP8	Replace Coal	14	14	17	9	11	17	4	4	4
RP8a	Replace Coal + $38.94 PPA	17	17	16	14	15	16	3	3	3
RP8a2	Replace Coal + $36 PPA	16	16	15	12	14	15	2	2	2
RP8a3	Replace Coal + $34 PPA	15	15	14	11	12	14	1	1	1

Levelized NPV Cost Results for the Medium DSM Scenario										
RP ID	Resource Plan Name	$0/ton CO_2			$12/ton CO_2			$35/ton CO_2		
		Low Gas	Medium Gas	High Gas	Low Gas	Medium Gas	High Gas	Low Gas	Medium Gas	High Gas
RP1	CC	11	11	12	16	16	12	17	17	15
RP2	CT	3	5	8	8	8	9	16	16	17
RP3	Retire Wateree	12	13	13	15	17	13	12	14	14
RP4	Retire McMeekin	5	7	9	7	9	10	15	15	16
RP5	Solar + Storage	13	12	11	17	15	11	13	12	12
RP6	Solar	10	10	10	14	12	8	14	13	13
RP7	Solar PPA + Storage 2026	4	3	4	3	3	3	8	8	10
RP7a	Solar $38.94 PPA 2023	6	4	3	4	4	4	7	7	7
RP7a2	Solar $36 PPA 2023	2	2	2	2	2	2	6	6	6
RP7a3	Solar $34 PPA 2023	1	1	1	1	1	1	5	5	5
RP7b	Solar $38.94 PPA + Storage 2023	9	9	7	9	7	7	11	11	11
RP7b2	Solar $36 PPA + Storage 2023	8	8	6	6	6	6	10	10	9
RP7b3	Solar $34 PPA + Storage 2023	7	6	5	5	5	5	9	9	8
RP8	Replace Coal	14	16	17	13	14	17	4	4	4
RP8a	Replace Coal + $38.94 PPA	17	17	16	12	13	16	3	3	3
RP8a2	Replace Coal + $36 PPA	16	15	15	11	11	15	2	2	2
RP8a3	Replace Coal + $34 PPA	15	14	14	10	10	14	1	1	1

Levelized NPV Cost Results for the Low DSM Scenario										
RP ID	Resource Plan Name	$0/ton CO_2			$12/ton CO_2			$35/ton CO_2		
		Low Gas	Medium Gas	High Gas	Low Gas	Medium Gas	High Gas	Low Gas	Medium Gas	High Gas
RP1	CC	11	11	11	15	14	11	17	16	15
RP2	CT	3	5	8	8	8	9	16	17	17
RP3	Retire Wateree	12	12	13	14	16	13	12	13	14
RP4	Retire McMeekin	9	9	10	16	10	10	15	15	16
RP5	Solar + Storage	13	13	12	17	17	12	14	14	12
RP6	Solar	10	10	9	11	9	8	13	12	13
RP7	Solar PPA + Storage 2026	4	3	4	4	4	4	10	11	11
RP7a	Solar $38.94 PPA 2023	5	4	3	3	3	3	7	7	7
RP7a2	Solar $36 PPA 2023	2	2	2	2	2	2	6	6	6
RP7a3	Solar $34 PPA 2023	1	1	1	1	1	1	5	5	5
RP7b	Solar $38.94 PPA + Storage 2023	8	8	7	7	7	7	11	10	10
RP7b2	Solar $36 PPA + Storage 2023	7	7	6	6	6	6	9	9	9
RP7b3	Solar $34 PPA + Storage 2023	6	6	5	5	5	5	8	8	8
RP8	Replace Coal	14	15	17	12	15	17	4	4	4
RP8a	Replace Coal + $38.94 PPA	17	17	16	13	13	16	3	3	3
RP8a2	Replace Coal + $36 PPA	16	16	15	10	12	15	2	2	2
RP8a3	Replace Coal + $34 PPA	15	14	14	9	11	14	1	1	1

Using this measure, RP7a3 is the least cost resource plan in most scenarios. RP8a3 is the least cost plan in most of the scenarios where RP7a3 is not. The plans make it extremely close and it takes very little change in the results to affect the rankings.

The following table provides the data upon which rankings were made, specifically levelized costs in millions of dollars per year for each of the seventeen resource plans. In the interest of brevity, only the results for nine scenarios under the High DSM sensitivity, are presented. DESC has committed to pursue the high DSM path. Similar charts for the Low and Medium DSM scenarios are attached at **Appendix E.**

Levelized Costs in the High DSM Scenario ($M)

RP ID	Resource Plan Name	$0/ton CO_2			$12/ton CO_2			$35/ton CO_2		
		Low Gas	Medium Gas	High Gas	Low Gas	Medium Gas	High Gas	Low Gas	Medium Gas	High Gas
RP1	CC	1,371	1,441	1,614	1,558	1,640	1,836	2,363	2,462	2,752
RP2	CT	1,353	1,423	1,601	1,544	1,628	1,826	2,360	2,460	2,758
RP3	Retire Wateree	1,380	1,458	1,670	1,556	1,644	1,868	2,332	2,431	2,728
RP4	Retire McMeekin	1,362	1,433	1,609	1,550	1,635	1,834	2,358	2,458	2,758
RP5	Solar + Storage	1,393	1,459	1,622	1,571	1,651	1,838	2,350	2,444	2,724
RP6	Solar	1,371	1,439	1,606	1,554	1,635	1,825	2,340	2,437	2,724
RP7	Solar PPA + Storage 2026	1,356	1,423	1,591	1,539	1,620	1,810	2,330	2,426	2,711
RP7a	Solar $38.94 PPA 2023	1,356	1,424	1,590	1,539	1,620	1,809	2,321	2,417	2,703
RP7a2	Solar $36 PPA 2023	1,354	1,422	1,588	1,537	1,618	1,807	2,319	2,415	2,701
RP7a3	Solar $34 PPA 2023	1,352	1,420	1,587	1,535	1,617	1,813	2,318	2,413	2,700
RP7b	Solar $38.94 PPA + Storage 2023	1,361	1,429	1,596	1,545	1,626	1,815	2,329	2,424	2,710
RP7b2	Solar $36 PPA + Storage 2023	1,359	1,427	1,594	1,543	1,623	1,813	2,327	2,422	2,708
RP7b3	Solar $34 PPA + Storage 2023	1,358	1,425	1,592	1,541	1,622	1,811	2,325	2,421	2,706
RP8	Replace Coal	1,416	1,508	1,774	1,547	1,639	1,907	2,198	2,296	2,597
RP8a	Replace Coal + $38.94 PPA	1,429	1,518	1,772	1,555	1,643	1,900	2,179	2,273	2,561
RP8a2	Replace Coal + $36 PPA	1,427	1,516	1,770	1,553	1,641	1,898	2,177	2,271	2,559
RP8a3	Replace Coal + $34 PPA	1,426	1,514	1,768	1,552	1,640	1,896	2,176	2,270	2,557

2050 CO_2 Emissions

The seventeen resource plans are structured to comply with current environmental regulations on the operations of electric generating stations, which are among the most stringent that apply to any industry in the United States. Going forward, the single most important environmental challenge for electric generation will be limiting carbon emissions. This is a particularly important consideration for DESC's customers and for DESC considering Dominion Energy's net-zero carbon and methane emissions commitment. The following tables summarize the CO_2 Emissions of all seventeen resource plans as forecasted at the end of 40-year period ending in 2050. The tables below rank the seventeen resource plans under each of the 27 scenarios that have been modeled. For CO_2, the scale is 1. Lowest emissions, 2. Second lowest emissions and 17. Highest emissions. Note that in some cases, plans have identical or nearly identical emissions and so are tied.

2050 CO_2 Emissions Rankings in the High DSM Scenario

RP ID	$0/ton CO_2			$12/ton CO_2			$35/ton CO_2		
	Low Gas	Medium Gas	High Gas	Low Gas	Medium Gas	High Gas	Low Gas	Medium Gas	High Gas
RP1	14	14	15	14	15	15	15	15	14
RP2	17	17	17	17	17	17	16	16	16
RP3	15	15	14	15	14	14	14	14	15
RP4	16	16	16	16	16	16	17	17	17
RP5	5	5	5	5	5	5	5	5	5
RP6	9	12	12	12	9	9	9	13	6
RP7	10	13	13	13	10	13	13	12	13
RP7a	12	10	7	10	12	7	11	7	8
RP7a2	12	10	7	10	12	7	11	7	8
RP7a3	12	10	7	10	12	7	11	7	8
RP7b	7	7	10	7	7	11	7	10	11
RP7b2	7	7	10	7	7	11	7	10	11
RP7b3	7	7	10	7	7	11	7	10	11
RP8	4	4	4	4	4	4	4	4	4
RP8a	2	2	2	2	2	2	2	2	2
RP8a2	2	2	2	2	2	2	2	2	2
RP8a3	2	2	2	2	2	2	2	2	2

The resource plans with the greatest CO_2 emissions reduction are RP8a, RP8a2, and RP8a3. This results from retiring two large coal stations in 2028 and placing the third and last such station to gas-fired only status in 2030. In addition, the RP8a plans envision the addition of between 1,900 and 2,400 MW of new solar capacity and between 500 and 900 MW of battery storage. The resource plan with the second highest reduction in CO_2 emissions is RP8. This plan is similar to the RP8a plans, but does not include the early PPA for solar and storage.

2050 CO_2 Emissions Rankings in the Medium DSM Scenario

RP ID	$0/ton CO_2			$12/ton CO_2			$35/ton CO_2		
	Low Gas	Medium Gas	High Gas	Low Gas	Medium Gas	High Gas	Low Gas	Medium Gas	High Gas
RP1	14	14	14	14	14	15	15	15	14
RP2	17	17	17	17	17	17	17	17	17
RP3	13	13	13	15	15	14	14	14	15
RP4	16	16	16	16	16	16	16	16	16
RP5	5	5	5	5	5	5	5	5	5
RP6	9	9	9	10	13	7	10	13	10
RP7	15	15	15	6	6	6	6	6	6
RP7a	11	11	11	12	11	9	12	11	12
RP7a2	11	11	11	12	11	9	12	11	12
RP7a3	11	11	11	12	11	9	12	11	12
RP7b	7	7	7	8	8	12	8	8	8
RP7b2	7	7	7	8	8	12	8	8	8
RP7b3	7	7	7	8	8	12	8	8	8
RP8	4	4	4	4	4	4	4	4	4
RP8a	2	2	2	2	2	2	2	2	2
RP8a2	2	2	2	2	2	2	2	2	2
RP8a3	2	2	2	2	2	2	2	2	2

2050 CO_2 Emissions Rankings in the Low DSM Scenario									
RP ID	$0/ton CO_2			$12/ton CO_2			$35/ton CO_2		
	Low Gas	Medium Gas	High Gas	Low Gas	Medium Gas	High Gas	Low Gas	Medium Gas	High Gas
RP1	14	15	15	14	14	15	15	15	14
RP2	17	17	17	17	17	17	17	17	17
RP3	15	14	14	15	15	14	14	14	15
RP4	16	16	16	16	16	16	16	16	16
RP5	5	5	5	5	5	5	5	5	5
RP6	9	13	9	10	13	10	9	12	13
RP7	10	12	13	9	9	9	13	13	9
RP7a	7	10	11	12	11	12	11	10	11
RP7a2	7	10	11	12	11	12	11	10	11
RP7a3	7	10	11	12	11	12	11	10	11
RP7b	12	7	7	7	7	7	7	7	7
RP7b2	12	7	7	7	7	7	7	7	7
RP7b3	12	7	7	7	7	7	7	7	7
RP8	4	4	4	4	4	4	4	4	4
RP8a	2	2	2	2	2	2	2	2	2
RP8a2	2	2	2	2	2	2	2	2	2
RP8a3	2	2	2	2	2	2	2	2	2

The next table shows the specific tons of CO_2 emitted by power generation on DESC's system in 2050. The chart shows the performance of the seventeen resource plans in tons of CO_2 against six combinations of sensitivities for CO_2 costs and for Gas Prices. However, in the interest of brevity, only the results under the High DSM scenario are presented. Similar charts for the Low and Medium DSM scenarios are attached at **Appendix F.**

The CO_2 emissions for the plans other than RP8 are tightly grouped together. Among all plans other than RP8, there is little CO_2 reduction in the early years. As the CO_2 price grows, a small reduction in total CO_2 occurs under these plans by 2050.

The modeling also showed that neither changes in the assumed CO_2 price nor in the assumed gas price had a significant impact on the CO_2 level emitted. The $35/ton CO_2 case grows to $285/short ton by 2050 whereas the $12/ton CO_2 case grows to $80/short ton by 2050. The 250% increase in CO_2 price in 2050 under the $35/ton sensitivity only results in about a 10% reduction in CO_2 emissions when low or medium gas prices are assumed. However, under that $35/ton sensitivity, DESC's customers would pay approximately $2 billion per year in carbon cost payments for that 10% CO_2 reduction.

A table with cumulative tons of CO_2 for each Resource Plan is included in **Appendix L.**

2050 CO_2 Emissions in the High DSM Scenario (000 tons)

RP ID	$0/ton CO_2			$12/ton CO_2			$35/ton CO_2		
	Low Gas	Medium Gas	High Gas	Low Gas	Medium Gas	High Gas	Low Gas	Medium Gas	High Gas
RP1	11,653	11,806	11,761	10,489	10,521	11,680	10,432	10,434	10,417
RP2	11,970	12,152	12,120	10,746	10,754	11,939	10,675	10,675	10,662
RP3	11,653	11,817	11,755	10,507	10,519	11,666	10,421	10,416	10,432
RP4	11,770	12,059	12,014	10,741	10,736	11,907	10,693	10,688	10,690
RP5	11,227	11,384	11,347	10,028	10,058	11,247	9,982	9,989	9,983
RP6	11,555	11,735	11,703	10,446	10,440	11,601	10,385	10,387	10,374
RP7	11,556	11,741	11,712	10,449	10,450	11,618	10,396	10,386	10,395
RP7a	11,560	11,734	11,701	10,440	10,458	11,600	10,392	10,379	10,378
RP7a2	11,560	11,734	11,701	10,440	10,458	11,600	10,392	10,379	10,378
RP7a3	11,560	11,734	11,701	10,440	10,458	11,600	10,392	10,379	10,378
RP7b	11,552	11,730	11,702	10,437	10,439	11,610	10,383	10,384	10,391
RP7b2	11,552	11,730	11,702	10,437	10,439	11,610	10,383	10,384	10,391
RP7b3	11,552	11,730	11,702	10,437	10,439	11,610	10,383	10,384	10,391
RP8	8,848	8,762	8,717	8,597	8,595	8,625	8,553	8,552	8,544
RP8a	8,518	8,437	8,382	8,379	8,369	8,363	8,356	8,357	8,345
RP8a2	8,518	8,437	8,382	8,379	8,369	8,363	8,356	8,357	8,345
RP8a3	8,518	8,437	8,382	8,379	8,369	8,363	8,356	8,357	8,345

Clean Energy

The Clean Energy metric compares the seventeen resources plans based on how much energy they produced with non-emitting generation to meet customers' energy needs over each five-year period during the forty-year planning horizon, 2021-2050. Clean Energy includes energy generated by nuclear, solar, and hydro facilities. The modeling shows that all resource plans include between 26% and 39% Clean Energy at the end of the forecast period. But while the amount of clean energy varies by resource plan, it does not vary significantly by DSM, CO_2, or Gas Price sensitivity modeled. This is because the models assume economic dispatch, and under economic dispatch, the system will use as much solar, nuclear and hydro energy to meet customers' needs as is possible. The values in the table show the total Clean Energy by resource plan by five-year period for the High DSM, Low Gas, and $12/ton CO_2 scenarios only.

Using the 2050 Clean Energy metric, RP8a, RP8a2, and RP8a3 performed best in all of the six five-year periods assessed. At the end of the period, these plans resulted in 9% more Clean Energy than the next highest scoring plan, which was RP8.

Clean Energy by Resource Plan – High DSM (GWh)

Resource Plan ID	Resource Plan Name	2021-2025	2026-2030	2031-2035	2036-2040	2041-2045	2045-2050
RP1	CC	38,120	38,102	38,010	37,803	37,350	37,756
RP2	CT	38,121	38,103	38,010	37,805	37,349	37,751
RP3	Retire Wateree	38,120	38,103	38,008	37,805	37,354	37,754
RP4	Retire McMeekin	38,122	38,100	38,015	37,804	37,352	37,745
RP5	Solar + Storage	38,123	42,282	58,232	41,990	41,536	41,941
RP6	Solar	38,124	42,270	42,186	41,988	41,536	41,930
RP7	Solar PPA + Storage 2026	38,123	42,276	42,187	41,987	41,537	41,932
RP7a	Solar $38.94 PPA 2023	40,620	42,268	42,188	41,987	41,536	41,934
RP7a2	Solar $36 PPA 2023	40,620	42,268	42,188	41,987	41,536	41,934
RP7a3	Solar $34 PPA 2023	40,620	42,268	42,188	41,987	41,536	41,934
RP7b	Solar $38.94 PPA + Storage 2023	40,634	42,283	42,187	41,990	41,536	41,929
RP7b2	Solar $36 PPA + Storage 2023	40,634	42,283	42,187	41,990	41,536	41,929
RP7b3	Solar $34 PPA + Storage 2023	40,634	42,283	42,187	41,990	41,536	41,929
RP8	Replace Coal	37,221	38,350	42,339	47,366	52,119	57,072
RP8a	Replace Coal + $38.94 PPA	40,630	43,431	47,424	52,422	57,096	61,932
RP8a2	Replace Coal + $36 PPA	40,630	43,431	47,424	52,422	57,096	61,932
RP8a3	Replace Coal + $34 PPA	40,630	43,431	47,424	52,422	57,096	61,932

Fuel Cost Analysis

An appropriate consideration in evaluating generation plans is their resiliency in the face of fuel cost risks. The Levelized Cost of generation plans as modeled in this 2021 IRP Update fully captures fuel costs and anticipated changes in fuel costs over a 40-year planning horizon for each plan. As a result, the Levelized Cost metric provides important data about how plans perform in the face of fuel price changes. In addition, three sets of natural gas price forecasts have been modeled as part of the 27 sensitivities. These natural gas price sensitivities further capture the resiliency of the generation plans in the face of fuel price risk.

Measuring fuel price sensitivities through the use of natural gas price sensitivities is logical and appropriate under current conditions. Coal is declining rapidly as a generation fuel. Nuclear fuel is only a small component of the cost of nuclear generation. The use of fuel oil on DESC's system is minimal. It is used only as a backup fuel to natural gas and for startup of large steam units. As a result, until new fuels (like hydrogen) mature as fuels suitable for electricity generation, natural gas will be the predominant fuel going forward.

In the interest of providing an additional systematic and quantitative assessment of fuel price risk, the following table focuses on fuel costs only as a component of cost under the seventeen resource plans. The fuel cost incurred under each of the seventeen plans was calculated under each of the 27 sensitivities modeled, and the plans were then ranked as shown below:

Fuel Costs Rankings in the High DSM Scenario

RP ID	Resource Plan Name	$0/ton CO_2			$12/ton CO_2			$35/ton CO_2		
		Low Gas	Medium Gas	High Gas	Low Gas	Medium Gas	High Gas	Low Gas	Medium Gas	High Gas
RP1	CC	15	15	10	15	15	10	15	15	15
RP2	CT	17	17	12	17	17	12	17	17	16
RP3	Retire Wateree	14	14	16	12	14	16	12	12	14
RP4	Retire McMeekin	16	16	11	16	16	11	16	16	17
RP5	Solar + Storage	5	5	1	5	5	1	5	5	5
RP6	Solar	12	12	8	13	12	8	13	13	12
RP7	Solar PPA + Storage 2026	13	13	9	14	13	9	14	14	13
RP7a	Solar $38.94 PPA 2023	10	10	6	10	10	7	10	10	10
RP7a2	Solar $36 PPA 2023	10	10	6	10	10	7	10	10	10
RP7a3	Solar $34 PPA 2023	10	10	6	10	10	4	10	10	10
RP7b	Solar $38.94 PPA + Storage 2023	7	7	3	7	7	4	7	7	7
RP7b2	Solar $36 PPA + Storage 2023	7	7	3	7	7	4	7	7	7
RP7b3	Solar $34 PPA + Storage 2023	7	7	3	7	7	4	7	7	7
RP8	Replace Coal	4	4	17	4	4	17	4	4	4
RP8a	Replace Coal + $38.94 PPA	2	2	14	2	2	14	2	2	2
RP8a2	Replace Coal + $36 PPA	2	2	14	2	2	14	2	2	2
RP8a3	Replace Coal + $34 PPA	2	2	14	2	2	14	2	2	2

Fuel Costs Rankings in the Medium DSM Scenario										
RP ID	Resource Plan Name	$0/ton CO_2			$12/ton CO_2			$35/ton CO_2		
		Low Gas	Medium Gas	High Gas	Low Gas	Medium Gas	High Gas	Low Gas	Medium Gas	High Gas
RP1	CC	15	15	10	15	15	10	15	15	15
RP2	CT	17	17	12	17	17	12	17	17	17
RP3	Retire Wateree	14	14	16	12	14	16	9	13	14
RP4	Retire McMeekin	16	16	11	16	16	11	16	16	16
RP5	Solar + Storage	5	5	1	5	5	1	5	5	4
RP6	Solar	12	12	8	14	13	9	14	14	13
RP7	Solar PPA + Storage 2026	13	13	9	13	12	8	13	12	9
RP7a	Solar $38.94 PPA 2023	10	10	6	7	7	6	7	7	7
RP7a2	Solar $36 PPA 2023	10	10	6	7	7	6	7	7	7
RP7a3	Solar $34 PPA 2023	10	10	6	7	7	6	7	7	7
RP7b	Solar $38.94 PPA + Storage 2023	7	7	3	10	10	3	11	10	11
RP7b2	Solar $36 PPA + Storage 2023	7	7	3	10	10	3	11	10	11
RP7b3	Solar $34 PPA + Storage 2023	7	7	3	10	10	3	11	10	11
RP8	Replace Coal	4	4	17	4	4	17	4	4	5
RP8a	Replace Coal + $38.94 PPA	2	2	14	2	2	14	2	2	2
RP8a2	Replace Coal + $36 PPA	2	2	14	2	2	14	2	2	2
RP8a3	Replace Coal + $34 PPA	2	2	14	2	2	14	2	2	2

Fuel Costs Rankings in the Low DSM Scenario										
RP ID	Resource Plan Name	$0/ton CO_2			$12/ton CO_2			$35/ton CO_2		
		Low Gas	Medium Gas	High Gas	Low Gas	Medium Gas	High Gas	Low Gas	Medium Gas	High Gas
RP1	CC	15	15	10	15	15	10	15	15	15
RP2	CT	17	17	12	17	17	12	17	17	17
RP3	Retire Wateree	14	14	16	12	14	16	9	12	14
RP4	Retire McMeekin	16	16	11	16	16	11	16	16	16
RP5	Solar + Storage	5	5	1	5	5	1	5	5	5
RP6	Solar	12	12	8	13	12	8	13	13	12
RP7	Solar PPA + Storage 2026	13	13	9	14	13	9	14	14	13
RP7a	Solar $38.94 PPA 2023	10	10	6	7	7	6	7	7	7
RP7a2	Solar $36 PPA 2023	10	10	6	7	7	6	7	7	7
RP7a3	Solar $34 PPA 2023	10	10	6	7	7	6	7	7	7
RP7b	Solar $38.94 PPA + Storage 2023	7	7	3	10	10	3	11	10	10
RP7b2	Solar $36 PPA + Storage 2023	7	7	3	10	10	3	11	10	10
RP7b3	Solar $34 PPA + Storage 2023	7	7	3	10	10	3	11	10	10
RP8	Replace Coal	4	4	17	4	4	17	4	4	4
RP8a	Replace Coal + $38.94 PPA	2	2	14	2	2	14	2	2	2
RP8a2	Replace Coal + $36 PPA	2	2	14	2	2	14	2	2	2
RP8a3	Replace Coal + $34 PPA	2	2	14	2	2	14	2	2	2

In all of the scenarios, RP5, RP8a, RP8a2, and RP8a3 produce the lowest total fuel costs. These resource plans add combined-cycle gas generation with the additional fixed gas transportation costs associated with them. Despite this, these plans have the lowest total fuel costs in most of the scenarios due to the fuel efficiency of combined cycle generation. The highest fuel cost plan varies by scenario. But this analysis of fuel cost resiliency under multiple sensitivities shows that RP5, RP8a, RP8a2, and RP8a3 have better performance in terms of fuel cost resiliency. RP8 and RP8a are the most affected by high gas prices except when CO_2 price is also high.

The next table shows the actual fuel costs in millions of dollars per year for each of the seventeen resource plans as evaluated against nine combinations of sensitivities for CO_2 costs and for Gas Prices. In the interest of brevity, only the results under the High DSM scenario are presented. Charts for the Low and Medium DSM scenarios are attached at **Appendix G**. The results for the other eighteen scenarios are similar.

Levelized Fuel Costs in the High DSM Scenario ($M)

RP ID	Resource Plan Name	$0/ton CO_2			$12/ton CO_2			$35/ton CO_2		
		Low Gas	Medium Gas	High Gas	Low Gas	Medium Gas	High Gas	Low Gas	Medium Gas	High Gas
RP1	CC	679	749	912	681	758	916	692	785	1,034
RP2	CT	686	757	924	688	767	926	700	794	1,045
RP3	Retire Wateree	668	745	944	668	752	946	677	771	1,032
RP4	Retire McMeekin	684	755	922	686	766	926	699	794	1,046
RP5	Solar + Storage	660	728	882	662	736	886	672	761	1,000
RP6	Solar	666	735	893	669	745	897	680	771	1,014
RP7	Solar PPA + Storage 2026	667	736	894	670	746	898	681	771	1,015
RP7a	Solar $38.94 PPA 2023	663	731	889	666	742	893	676	766	1,010
RP7a2	Solar $36 PPA 2023	663	731	889	666	742	893	676	766	1,010
RP7a3	Solar $34 PPA 2023	663	731	889	666	742	892	676	766	1,010
RP7b	Solar $38.94 PPA + Storage 2023	663	731	889	665	741	892	676	766	1,009
RP7b2	Solar $36 PPA + Storage 2023	663	731	889	665	741	892	676	766	1,009
RP7b3	Solar $34 PPA + Storage 2023	663	731	889	665	741	892	676	766	1,009
RP8	Replace Coal	626	714	967	622	712	967	628	723	993
RP8a	Replace Coal + $38.94 PPA	604	689	931	601	688	932	606	697	957
RP8a2	Replace Coal + $36 PPA	604	689	931	601	688	932	606	697	957
RP8a3	Replace Coal + $34 PPA	604	689	931	601	688	932	606	697	957

Generation Diversity

Apart from RP7a-RP7a3, RP7b-RP7b3 and RP8a-RP8a3 (which model identical resource plans with alternative solar PPA price assumptions), each of the resource plans modeled here assumes the addition or retirement of different suites of generation sources. For that reason, each of the plans results in a different level of generation diversity at the close of the planning period.

Generation Diversity for High DSM, Low Gas, $12/ton CO_2			
Resource Plan	**Name**	**Diversity Score**	**Rank**
RP1	CC	0.259	7
RP2	CT	0.279	16
RP3	Retire Wateree	0.259	7
RP4	Retire McMeekin	0.336	17
RP5	Solar + Storage	0.243	5
RP6	Solar	0.265	14
RP7	Solar PPA + Storage 2026	0.261	8
RP7a	Solar $38.94 PPA 2023	0.265	14
RP7a2	Solar $36 PPA 2023	0.265	14
RP7a3	Solar $34 PPA 2023	0.265	14
RP7b	Solar $38.94 PPA + Storage 2023	0.261	10
RP7b2	Solar $36 PPA + Storage 2023	0.261	10
RP7b3	Solar $34 PPA + Storage 2023	0.261	10
RP8	Replace Coal	0.210	1
RP8a	Replace Coal + $38.94 PPA	0.235	3
RP8a2	Replace Coal + $36 PPA	0.235	3
RP8a3	Replace Coal + $34 PPA	0.235	3

To provide a systematic and quantitative assessment of generation diversity, the following chart ranks the generation diversity of each resource plan according to the percentage that the generation mix it creates is concentrated in any one type of generation asset. Under this analysis, a plan that leads to a generation system with a single type of generation asset representing 35% of its generation mix would have less generation diversity than a plan where no generation resource type represented more than 25% of its generation mix.

Ranking the resource plans based on this metric shows that across all plans, the level of concentration in a single type of generation resource varies between a high of 34% for RP4 to a low of 21% for RP8. In RP4, the generation type representing the greatest source of concentration was large-frame combustion turbines. In RP8, the generation type representing the greatest source of concentration was solar. RP8 is the plan that scores best on this metric by a significant margin. The MW of each generation type for each resource plan by year is provided in **Appendix H**. This exhibit provides the data used for the ranking.

While this is a valid approach to measuring diversity, DESC will continue to evaluate other potential approaches and engage with the IRP Stakeholders Advisory Group to ensure that future IRPs and IRP updates continue to appropriately capture this factor.

Reliability Analysis

As indicated in the Modified 2020 IRP, all of DESC's resource plans are formulated to meet a common reliability standard and therefore to ensure that the resources included in each resource plan collectively meet the system reliability goal by providing a seasonal peak hour reserve margin that is common to all plans. All plans are designed with reliability as a priority. No plans are formulated to provide greater or less resources than are necessary to meet the reliability criteria.

To provide a more systematic and more comprehensive assessment of reliability, DESC devised a means of scoring the reliability contribution of the available generation technologies and included that scoring in the Modified 2020 IRP.

Reliability Factor	Able to generate or become a load, shift energy, and complement renewables.
Energy Storage	The unit has the ability to shift supplies of energy between high and low load periods which aids reliability.
Limited Energy Source	The unit is able to function as a source of energy whose output normalizes to 16 hours/day of full load production but has limited abilities to replace 24-hour resources.
Dispatchability	The unit will respond to directives from system operators regarding its status, output, and timing. The Dispatchability of intermittent resources is limited and so their score is subject to a deduction. They cannot be counted as firm and require additional reserves.
Operational Flexibility	The unit is able to cycle and ramp up and down with little or no adverse impact on fuel costs or physical damage to the unit. Deductions are made if the units have a minimum operating load below which it cannot be dispatched.
Coincident Peak Output	The unit has the ability to provide energy and capacity to meet customer requirements during the winter peak demand period.
AGC	The unit has the ability to be placed on Automatic Generation Control allowing its output to be ramped up or down automatically to respond immediately to changes on the system.
Fast Start	The unit can respond from an offline condition and serve load in less than 10 minutes.
Inertia (non-inverter)	The unit operates using large rotating machinery (turbines, shafts, stators, exciters, etc.) that provide an inertial energy reservoir or a sink to stabilize the system. The rotation of this mass of machinery (inertia) provides frequency support. This consideration has been removed consistent with Commission Order No. 2021-429 and Appendix A of the Joint Comments from several intervenors dated April 20, 2021. Future IRPs are likely to include frequency response as a more suitable criterion.
VAR support	The unit can be used to send VARs out onto the system or consume excess VARs and so can be used to control voltage
Geographic Diversity	The unit can be located in diverse locations and is not restricted by fuel infrastructure.
Proximity to Load	The unit has a compact footprint and low impact outside of the fence. It can often be sited near load centers.
Synchronous Condensing	The unit can provide voltage support (VARS) even when not producing energy.
Black Start	A generating unit which has the ability to be started without support from the System, with the ability to energize a bus, meeting the Transmission Operator's restoration plan needs for Real and Reactive Power capability, frequency and voltage control, and that has been included in the Transmission Operator's restoration plan.

In response to intervenors' comments, the Commission ordered in this 2021 IRP Update for DESC to compute reliability metrics using reliability weightings proposed by intervenors. DESC has done so and the results are presented in the table below. In several cases, the reliability weightings presented do not reflect DESC's engineering judgement concerning the reliability contributions of the resources in question. Instead, they weight the reliability values of solar and battery storage in ways that do not accurately reflect the operating limitation on those resources today and the practical needs of the system. In the context of this 2021 IRP Update, these weightings do not materially change the outcome of the analysis, or the selection of a preferred resource plan. However, reliability is the principal expectation of customers, and after safety, is DESC's most important goal in managing the system. DESC will continue to evaluate metrics for quantifying the effects on system reliability from different resource plans. This will be a topic for consultation with the IRP Stakeholder Advisory Group and presentations in future IRP updates.

Reliability Factors by Resource Type									
Unit Type	**Coal Unit**	**Gas-fired Boiler**	**CC**	**Large Frame CT**	**Aero CT**	**Battery**	**Battery PPA**	**Flexible Solar**	**Solar PPA**
Scale 1 - 4 used to convey both relative importance of each attribute and how well the resource provides that attribute									
Reliability Factor									
Energy Storage						1	1		
Energy Duration	3	3	3	3	3	2	2	1	1
Dispatchability	2	2	2	2	2	2	2	2	
Op Flexibility	1	1	2	2	3	4	4		
Coincident Peak Output	4	4	4	4	4	3	3		
Automatic Generation Control	1	3	4	2	2	4	4	4	1
Fast Start					3	4	4		
Inertia (non-inverter)									
VAR support	2	2	2	2	2	2	2	1	1
Geographic Diversity						1	1	1	1
Proximity to Load		1			1	1	1		
Synchronous Condensing					1				
Blackstart					1	1	1		
Total	13	16	17	15	22	25	25	9	4
Comparative Size*	6.0	1.0	5.5	5.2	1.3	1.0	1.0	1.0	1.0
Total Points	78	16	94	78	29	25	25	9	4

** Normalizes the comparison to standard value per 100MWs*

With the comparative size adjustment in place, the reliability factors for all new and retired resources are accounted by resource type within each resource plan. The units to be added or retired in each plan are as follows:

Units Added/Retired by Resource Plan									
	Coal Unit	Gas-fired Fossil-Steam	CC	Large Frame CT	Aero CT	Battery	Battery PPA	Flexible Solar	Solar PPA
RP1	-2		1	4					
RP2	-2			5					
RP3	-2		1	4					
RP4	-2	-2		5					
RP5	-2		1	3		1		4	
RP6	-2			4				4	
RP7	-2			4		1			4
RP7a1-3	-2			5					4
RP7b	-2			4			1		4
RP8	-2		1	1	3	7		19	
RP8a1-3	-2		1	1	3	7	1	19	4

By tracking the changes in generation assets by resource type in the plans over the planning horizon and accounting for the sum of those individual changes over almost 30 years, this metric provides an estimate of the cumulative reliability impact for each plan. This provides a systematic and quantitative approach to consider the performance of each plan under many scenarios. The sum of reliability factors in each resource plan is calculated, and the plans are ranked as follows:

Net Change in Reliability Factors in each Resource Plan as of Plan Year 2050												
	Coal Unit	Gas-fired Boiler	CC	Large Frame CT	Aero CT	Battery	Battery PPA	Flexible Solar	Solar PPA	Reserve Margin **	Combined Factors	Ranking
RP1	-156	0	93.5	312	0	0	0	0	0	1	249.5	8.5
RP2	-156	0	0	390	0	0	0	0	0	1	234	10
RP3	-156	0	93.5	312	0	0	0	0	0	1	249.5	8.5
RP4	-156	-32	0	390	0	0	0	0	0	1	202	12
RP5	-156	0	93.5	234	0	25	0	36	0	1	232.5	11
RP6	-156	0	0	312	0	0	0	36	0	1	192	17
RP7	-156	0	0	312	0	25	0	0	16	1	197	14.5
RP7a	-156	0	0	390	0	0	0	0	16	1	250	6
RP7a2	-156	0	0	390	0	0	0	0	16	1	250	6
RP7a3	-156	0	0	390	0	0	0	0	16	1	250	6
RP7b	-156	0	0	312	0	0	25	0	16	1	197	14.5
RP7b2	-156	0	0	312	0	0	25	0	16	1	197	14.5
RP7b3	-156	0	0	312	0	0	25	0	16	1	197	14.5
RP8	-156	0	93.5	78	85.8	175	0	171	0	1	447.3	4
RP8a	-156	0	93.5	78	85.8	175	25	171	16	1	488.3	2
RP8a2	-156	0	93.5	78	85.8	175	25	171	16	1	488.3	2
RP8a3	-156	0	93.5	78	85.8	175	25	171	16	1	488.3	2

The rankings show that, net of retirements, the resources added under RP8 and RP8a make the greatest contribution to system reliability of any set of resources modeled. Having retired existing coal generation early in the planning period, RP8 and RP8a provide for the addition of combined cycle generation, large-frame CTs, aeroderivative CTs, battery storage and flexible solar. The evaluation shows that this diverse and well-balanced set of resource additions makes a uniquely valuable contribution to system reliability.

DESC will continue to evaluate metrics for quantifying the effects on system reliability from different resource plans. This will be a topic for consultation with the IRP Stakeholders Advisory Group and presentations in future IRP updates.

Mini-Max Regret

A Mini-Max Regret measure has been computed as required by Order No. 2020-832. The Mini-Max Regret analysis evaluates each resource plan against the lowest cost plan in each scenario and calculates the difference in the 40-year levelized NPV between the plans. The maximum change from the best plan in each scenario sets the max regret score for each resource plan. Using this metric RP7a3 received the best score with RP7a2 being the second best.

There are several caveats that apply to the Mini-Max Regret analysis. The first is that this analysis weights the results under all scenarios and sensitivities equally and so assumes that all scenarios and the sensitivities are equally likely. This approach gives the unlikely outcomes more influence over the results than is reasonable or appropriate.

Specifically, in this example, the $35/ton CO_2 plus Low Gas scenario sets the max regret level for every scenario except RP8 and RP8a. As discussed above, the EIA used the $35/ton CO_2 case to stress-run its analysis and disclaimed any inference that it assumed CO_2 costs should be considered a reasonably probable forecast. Making that highly improbable scenario the standard against which other scenarios are judged is a serious methodological flaw in the Mini-Max Regret measure. In this case, the Mini-Max Regret measure does not drive a change in the selection of a preferred plan so the issue is not material to the outcome of the analysis. The benefits of RP8 and RP8a plans are too great across multiple measures for that to occur. The Company will propose alternatives in future filings

Cost Range Analysis

A Cost Range Analysis has been computed as required by Order No. 2020-832. The Cost Range Analysis evaluates the variation in the 40-year levelized NPV for each plan across the 27 scenarios that were modeled. The cumulative variation sets the raw score.

This analysis has the same methodological flaw as the Mini-Max Regret analysis because it weights the results under all scenarios and sensitivities equally. Despite its methodological flaws, this measure supports the selection of RP8 and RP8a as the preferred plans. The Company will propose alternatives in future filings.

Mini-Max Regret Analysis

RP ID	Resource Plan	Ranking	Max Regret
RP1	CC	15	$195
RP2	CT	17	$201
RP3	Retire Wateree	10	$176
RP4	Retire McMeekin	16	$200
RP5	Solar + Storage	9	$174
RP6	Solar	8	$168
RP7	Solar PPA + Storage 2026	7	$155
RP7a	Solar $38.94 PPA 2023	3	$148
RP7a2	Solar $36 PPA 2023	2	$146
RP7a3	Solar $34 PPA 2023	1	$144
RP7b	Solar $38.94 PPA + Storage 2023	7	$155
RP7b2	Solar $36 PPA + Storage 2023	5	$153
RP7b3	Solar $34 PPA + Storage 2023	4	$152
RP8	Replace Coal	15	$195
RP8a	Replace Coal + $38.94 PPA	13	$186
RP8a2	Replace Coal + $36 PPA	12	$184
RP8a3	Replace Coal + $34 PPA	11	$182

Cost Range Analysis

RP ID	RP Name	Rank	Max-Min
RP1	CC	15.0	$1,432
RP2	CT	17.0	$1,460
RP3	Retire Wateree	12.5	$1,405
RP4	Retire McMeekin	16.0	$1,446
RP5	Solar + Storage	5.0	$1,382
RP6	Solar	12.5	$1,405
RP7	Solar PPA + Storage 2026	14.0	$1,407
RP7a	Solar $38.94 PPA 2023	7.0	$1,398
RP7a2	Solar $36 PPA 2023	7.0	$1,398
RP7a3	Solar $34 PPA 2023	7.0	$1,398
RP7b	Solar $38.94 PPA + Storage 2023	10.0	$1,400
RP7b2	Solar $36 PPA + Storage 2023	10.0	$1,400
RP7b3	Solar $34 PPA + Storage 2023	10.0	$1,400
RP8	Replace Coal	4.0	$1,245
RP8a	Replace Coal + $38.94 PPA	2.0	$1,187
RP8a2	Replace Coal + $36 PPA	2.0	$1,187
RP8a3	Replace Coal + $34 PPA	2.0	$1,187

Resource Plans Ranked Across All Scenarios

As directed by Order No. 2020-832, DESC has evaluated the seventeen resource plans against all 27 scenarios without distinguishing between those scenarios which are within reasonable possibility and those which are not. This presents the same methodological concerns in this context as the Mini-Max Regret and the Cost Range analysis. Unlikely outcomes assert a level of influence over the results that has the potential to skew results.

Risk and Uncertainty - All Scenarios									
RP ID	Resource Plan Name	40 Year Levelized NPV	2050 CO_2 (Tons Emitted)	2050 Clean Energy	Average Fuel Costs	Generation Diversity	Reliability	Mini-Max Regret	Cost Range
RP1	CC	14	14	14	14	7	6	15	15
RP2	CT	10	17	17	16	16	10	17	17
RP3	Retire Wateree	13	14	16	14	7	6	10	13
RP4	Retire McMeekin	12	16	15	15	17	16	16	16
RP5	Solar + Storage	14	5	5	4	5	11	9	5
RP6	Solar	11	10	10	12	14	17	8	13
RP7	Solar PPA + Storage 2026	6	11	10	12	9	14	7	14
RP7a	Solar $38.94 PPA 2023	5	10	10	8	14	8	3	7
RP7a2	Solar $36 PPA 2023	3	10	10	8	14	8	2	7
RP7a3	Solar $34 PPA 2023	2	10	10	8	14	8	1	7
RP7b	Solar $38.94 PPA + Storage 2023	9	8	8	7	10	14	7	10
RP7b2	Solar $36 PPA + Storage 2023	7	8	8	7	10	14	5	10
RP7b3	Solar $34 PPA + Storage 2023	6	8	8	7	10	14	4	10
RP8	Replace Coal	11	4	4	7	1	4	15	4
RP8a	Replace Coal + $38.94 PPA	11	2	2	5	3	2	13	2
RP8a2	Replace Coal + $36 PPA	10	2	2	5	3	2	12	2
RP8a3	Replace Coal + $34 PPA	9	2	2	5	3	2	11	2

The RP8a cases rank first in four of eight of the evaluation metrics considered here and second in two others. No other plan scores nearly as well. Each of these metrics has a different value to the analysis. And while mathematical calculations can never solely take the place of informed judgment and the appropriate balancing of multiple factors, these results point to the RP8a-a3 plans as the most reasonable and prudent plans for DESC to pursue at this time assuming the cost assumptions underlying them are achievable.

When comparing RP5 to RP6 and RP7a to RP7b it becomes obvious that adding battery storage increases the value of the plan. Other than RP8 and RP8a resource plans RP5 ranks better in average fuel costs and RP7a3 ranks better in "40 Year Levelized NPV" and "Mini-Max Regret." Resource plans that include solar and battery storage frequently outscore those that include only solar. This is an expected outcome of adding more solar to a system that already has solar capacity greater than 20% of its retail load and where incremental solar generation has negligible if any capacity value.

The Expected Case Scenario

DESC has also prepared what it believes to be a potentially more suitable comparative ranking of the resource plans given the challenges noted with respect to the required scenarios to be run, some of which are highly unlikely. This ranking focuses on the most likely set of scenarios, which assume High DSM, $12/ton CO_2 and Low Gas.

- High DSM reflects the Company's expectation that DSM programs can be designed to achieve a 1% reduction in load growth among eligible customers.
- The $12/ton CO_2 assumption is based on a carefully researched and reasoned forecast from a globally respected economic forecasting firm (IHS). The low alternative, $0/ton, is unlikely given societal expectations and the expected policies of the Biden Administration. The $35/ton EIA assumption is not a true forecast but a parameter chosen to stress the EIA reference case. Through compounding, the 7.5% escalation rate, which begins in 2021, leads to CO_2 costs for customers of $255 per short ton by the end of the period, a level that is excessively high and outside of what would be likely be supported as reasonable. The $35/ton case assumes that this CO_2 price is imposed beginning in 2021, which is not likely. Coupling a high initial cost, early imposition and robust escalation results in CO_2 costs over the planning period that are unreasonably high.
- The EIA Low Gas case most closely aligns with current markets, which are significantly below the alternatives. The High and Medium EIA gas scenarios are based on gas prices that posit restrictions on the availability of natural gas supplies that appear to be inconsistent with the extraordinary volume of natural gas that is available to be produced from private lands, and the value to the national economy of maintaining low cost, abundant supplies of natural gas.

The Expected Case Scenario Results

DESC calculated the results under the Expected Case scenario across six metrics, Levelized Cost, CO_2 Emissions, Clean Energy, Fuel Costs, Generation Diversity and Reliability. Mini-Max Regret and Cost Range were omitted because of their methodological flaws and because by nature they measure results across multiple scenarios and do not apply where a single scenario is evaluated. The result of this evaluation of the performance of the plans is as follows:

Risk and Uncertainty - High DSM, Low gas, $12 CO_2							
RP ID	Resource Plan Name	40 Year Levelized NPV	2050 CO_2 (Tons Emitted)	2050 Clean Energy	Average Fuel Costs	Generation Diversity	Reliability
RP1	CC	16	14	14	16	7	6
RP2	CT	7	17	16	7	16	10
RP3	Retire Wateree	15	15	15	15	7	6
RP4	Retire McMeekin	10	16	17	10	17	16
RP5	Solar + Storage	17	5	5	17	5	11
RP6	Solar	13	12	10	13	14	17
RP7	Solar PPA + Storage 2026	4	13	9	4	10	14
RP7a	Solar $38.94 PPA 2023	3	10	7	3	14	8
RP7a2	Solar $36 PPA 2023	2	10	7	2	14	8
RP7a3	Solar $34 PPA 2023	1	10	7	1	14	8
RP7b	Solar $38.94 PPA + Storage 2023	8	7	12	8	10	14
RP7b2	Solar $36 PPA + Storage 2023	6	7	12	6	10	14
RP7b3	Solar $34 PPA + Storage 2023	5	7	12	5	10	14
RP8	Replace Coal	9	4	4	9	1	4
RP8a	Replace Coal + $38.94 PPA	14	2	2	14	3	2
RP8a2	Replace Coal + $36 PPA	12	2	2	12	3	2
RP8a3	Replace Coal + $34 PPA	11	2	2	11	3	2

Out of seventeen resource plans, RP8 and RP8a have the top rating under four of these six metrics: CO_2 reduction, clean energy, generation diversity and reliability. The RP8 plans outscore all other plans by a large margin. RP7a3 is the only plan that has more than one first or second place ranking. It ranks first in average fuel cost, and first in 40-Year Levelized NPV.

The Preferred Plan

Mathematical calculations such as those presented here can be properly used to inform the evaluation of potential resource plans. But they do not take the place of the careful consideration and balancing of multiple factors using sound utility judgement and knowledge of an individual utilities' operating characteristics and service territory.

RP8 and RP8a assume that Wateree and Williams are retired in 2028 and the sole remaining coal unit, the dual-fuel Cope Station, is dispatched on natural gas only beginning in 2030. For this reason, RP8 and RP8a do especially well in those scenarios that assume regulatory costs are imposed on CO_2 emissions, which is an increasingly likely possibility. They also insulate the system against the risk of other regulatory and environmental changes affecting coal generation. These are important considerations because RP8 and RP8a reflect by far the greatest reduction in CO_2 emissions of any resource plan (approximately 60% compared to 2005 emissions). RP8 and RP8a are the plans that are most consistent with a net-zero carbon emissions future.

RP8 and RP8a also perform well under the assumption that natural gas markets are not unduly constrained in future years and natural gas prices remain in the low or moderate forecasted range during the planning period. This seems to be a reasonable assumption given the current levels of natural gas supplies.

By retiring coal units earlier than other plans, RP8 and RP8a cause the system to increase its reliance on natural gas earlier than other plans. This is a potential weakness in a high-gas cost environment. However, the alternative is to assume continued reliance on coal which may be an even riskier assumption. Although RP8 and RP8a require earlier additions of gas resources to support coal retirements, its total gas requirement over the long term is lower than all other plans given the quantity of renewable resources they envision adding to the system.

DESC determined that RP8 or RP8a represent the most cost effective means of meeting the electrical utility's energy and capacity needs for the 15-year IRP planning period as of the time the plan is filed. But RP8a is based on prices for solar PPA which DESC has not encountered in the market and are further subject to question given the recent rise in costs for solar panels and associated equipment. Until the assumptions underlying the RP8a plans are validated, RP8 is DESC's preferred plan. RP8's superior scores on multiple key metrics clearly supports that conclusion.

However, the costs and reliability impacts of coal plant retirements envisioned under RP8 are yet to be fully quantified through the on-going station-specific retirement studies. RP8 will be reevaluated following the coal retirement analyses that is being undertaken in 2021 through 2023 and considering conditions in natural gas markets and climate policy as they evolve. No definitive decisions concerning large new resource procurements are required in the immediate time frame; thus, allowing time for further data collection and thoughtful study of these alternatives. The design of potential ELG solutions for Wateree and Williams is ongoing and will inform the retirement studies for each facility.

Forecast of Renewable Generation

All resource plans include a significant amount of renewables—between 7% and 19% of total generation at the end of the forecast period. The values in the table show the total renewable generation by resource plan by five-year period for the High DSM, Low Gas, and $12/ton CO_2 scenarios only. Similar data for the Low and Medium DSM scenarios are provided in **Appendix I**.

Energy from Renewable Generation by Five-Year Period (High DSM, Low Gas, and $12/ton CO_2) (GWh)							
RP ID	**Resource Plan Name**	**2021-2025**	**2026-2030**	**2031-2035**	**2036-2040**	**2041-2045**	**2046-2050**
RP1	CC	10,081	10,484	9,885	9,634	9,629	9,627
RP2	CT	10,084	10,409	9,884	9,634	9,629	9,627
RP3	Retire Wateree	10,082	10,484	9,885	9,634	9,629	9,627
RP4	Retire McMeekin	10,082	10,484	9,885	9,634	9,629	9,627
RP5	Solar + Storage	10,028	11,440	10,921	10,670	10,655	10,631
RP6	Solar	10,082	14,677	14,069	13,819	13,816	13,814
RP7	Solar PPA + Storage 2026	10,028	14,580	14,065	13,817	13,815	13,815
RP7a	Solar $38.94 PPA 2023	12,592	14,668	14,067	13,815	13,815	13,815
RP7a2	Solar $36 PPA 2023	12,592	14,668	14,067	13,815	13,815	13,815
RP7a3	Solar $34 PPA 2023	12,592	14,668	14,067	13,815	13,815	13,815
RP7b	Solar $38.94 PPA + Storage 2023	12,759	14,961	14,442	14,195	14,189	14,188
RP7b2	Solar $36 PPA + Storage 2023	12,759	14,961	14,442	14,195	14,189	14,188
RP7b3	Solar $34 PPA + Storage 2023	12,759	14,961	14,442	14,195	14,189	14,188
RP8	Replace Coal	10,028	11,560	15,271	20,481	26,142	31,705
RP8a	Replace Coal + $38.94 PPA	12,534	15,741	19,830	25,023	30,655	36,196
RP8a2	Replace Coal + $36 PPA	12,534	15,741	19,830	25,023	30,655	36,196
RP8a3	Replace Coal + $34 PPA	12,534	15,741	19,830	25,023	30,655	36,196

Rate and Bill Impacts

Section 58-37-40(C)(2)(b) requires the Commission to consider, in its discretion, whether an IRP appropriately balanced the factors of consumer affordability and least cost. Order No. 2020-832 further required DESC to calculate rate and bill impacts of its various portfolios in the 2021 Update. In compliance with Order No. 2020-832, DESC has created an estimate of the Retail Rate Impact for each plan. This analysis uses the same incremental cost data that DESC used in preparing the Levelized Cost for each resource plan. Rate impacts were computed using the load growth forecasts and fuel cost forecasts embedded in the various scenarios. The analysis then combined that data with data concerning existing rates and cost of service allocators between rate classes. This made it possible to compute the impacts of resource plans on the monthly bill for a typical 1,000 kWh residential customer for each year from 2021 to 2035. The rate impact analysis is not a forecast of future rates, but a calculation for comparative purposes of the incremental dollar impact of each resource plan on a residential customers' monthly bill, all other things being equal. The analysis does not attempt to model other changes to residential rates or bills.

Both the Levelized Cost metric and Retail Rate Impact analysis measure costs that would be borne by customers. However, they differ because the Levelized Cost metric measures costs over a 40-year asset life, not fifteen years like the rate impact analysis presented here. In resource planning, 40-year impacts are the more appropriate impacts to be considered in evaluating and ranking resource plans. Long-lived generation assets reduce costs and provide customer benefits over decades. A 40-year period more closely matches the useful lives of most traditional generating assets and ensures that the full cost and benefits of investing in them are captured.

Bill impacts for the typical residential customer for each of the seventeen resource plans are provided in the chart below in dollar terms. The rate impacts in dollars are given for the High DSM, $12/ton CO_2 and Low Gas price case. Rate impacts for the other cases are provided in **Appendix J.**

Typical Residential Bill @1000 kWh/month (High DSM, $12/ton CO_2, Low Gas)															
	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
RP1	125.92	126.90	131.12	128.27	127.98	132.39	133.95	135.14	137.35	144.90	145.80	149.69	152.96	154.99	158.40
RP2	125.92	126.88	131.13	128.27	127.97	132.39	133.89	135.13	137.35	144.85	145.80	149.67	152.95	154.97	158.35
RP3	125.92	126.90	131.14	128.27	127.97	131.11	132.66	133.93	144.60	151.37	152.12	155.53	158.13	159.91	162.88
RP4	125.92	126.85	131.14	128.27	127.97	132.41	133.94	135.15	136.33	143.79	144.69	148.50	151.81	153.73	157.10
RP5	125.92	126.87	131.15	128.25	127.96	136.93	138.12	139.21	141.18	148.29	149.18	152.68	155.81	157.73	160.95
RP6	125.92	126.91	131.15	128.26	127.97	135.85	137.09	138.20	140.21	147.34	148.20	151.78	154.91	156.81	160.17
RP7	125.92	126.89	131.13	128.27	127.99	133.98	135.38	136.58	138.68	145.89	146.84	150.41	153.59	155.55	158.94
RP7a	125.92	126.91	132.12	129.26	128.96	133.34	134.80	136.04	138.16	145.39	146.37	149.96	153.11	155.09	158.42
RP7a2	125.92	126.91	131.98	129.12	128.83	133.21	134.67	135.91	138.03	145.26	146.24	149.83	152.98	154.96	158.29
RP7a3	125.92	126.91	131.88	129.02	128.73	133.11	134.57	135.81	137.93	145.17	146.15	149.74	152.89	154.87	158.20
RP7b	125.92	126.87	132.71	129.86	129.58	133.95	135.41	136.66	138.77	146.00	146.96	150.57	153.72	155.72	159.03
RP7b2	125.92	126.87	132.56	129.71	129.43	133.80	135.26	136.51	138.62	145.85	146.81	150.42	153.57	155.57	158.88
RP7b3	125.92	126.87	132.46	129.61	129.33	133.70	135.16	136.41	138.52	145.75	146.71	150.32	153.47	155.47	158.78
RP8	125.92	126.88	131.16	128.28	127.98	129.99	131.97	133.23	146.78	154.94	156.03	159.75	162.45	165.11	168.13
RP8a	125.92	126.91	132.68	129.83	129.55	131.50	133.44	134.75	148.18	156.15	157.20	160.79	163.47	166.07	169.06
RP8a2	125.92	126.91	132.53	129.68	129.40	131.35	133.29	134.60	148.03	156.00	157.05	160.64	163.32	165.92	168.91
RP8a3	125.92	126.91	132.44	129.59	129.31	131.26	133.20	134.51	147.94	155.91	156.96	160.55	163.23	165.83	168.82

The following charts provide the retail rate impact of each of the seventeen resource plans. Retail rate impacts show the impact on retail rates collectively for all customers on a cents/kWh basis. The rate impacts are given for the High DSM, $12/ton CO_2 and Low Gas price case. Rate impacts for the remaining cases are provided in **Appendix K**.

Retail Rate Impact (cents/ kWh) High DSM, $12/ton CO_2, Low Gas															
	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
RP1	0.10107	0.10149	0.10447	0.10212	0.10183	0.10551	0.10698	0.10800	0.11008	0.11757	0.11848	0.12218	0.12536	0.12727	0.13059
RP2	0.10107	0.10147	0.10448	0.10212	0.10182	0.10551	0.10692	0.10798	0.11007	0.11751	0.11846	0.12213	0.12532	0.12722	0.13051
RP3	0.10107	0.10149	0.10449	0.10213	0.10183	0.10455	0.10600	0.10708	0.11530	0.12208	0.12290	0.12618	0.12875	0.13048	0.13341
RP4	0.10107	0.10144	0.10448	0.10212	0.10182	0.10552	0.10696	0.10800	0.10929	0.11669	0.11760	0.12123	0.12446	0.12626	0.12955
RP5	0.10107	0.10146	0.10450	0.10211	0.10182	0.10869	0.10985	0.11081	0.11268	0.11976	0.12067	0.12398	0.12703	0.12885	0.13199
RP6	0.10107	0.10150	0.10450	0.10212	0.10183	0.10788	0.10908	0.11005	0.11195	0.11904	0.11992	0.12331	0.12636	0.12815	0.13143
RP7	0.10107	0.10148	0.10447	0.10212	0.10184	0.10648	0.10780	0.10884	0.11081	0.11796	0.11891	0.12228	0.12537	0.12721	0.13052
RP7a	0.10107	0.10150	0.10499	0.10264	0.10235	0.10599	0.10736	0.10843	0.11041	0.11758	0.11857	0.12196	0.12502	0.12688	0.13012
RP7a2	0.10107	0.10150	0.10489	0.10254	0.10225	0.10589	0.10726	0.10833	0.11031	0.11748	0.11847	0.12186	0.12492	0.12678	0.13002
RP7a3	0.10107	0.10150	0.10481	0.10246	0.10217	0.10581	0.10718	0.10825	0.11023	0.11740	0.11839	0.12178	0.12484	0.12670	0.12994
RP7b	0.10107	0.10146	0.10542	0.10308	0.10280	0.10643	0.10780	0.10888	0.11086	0.11802	0.11898	0.12239	0.12545	0.12732	0.13054
RP7b2	0.10107	0.10146	0.10531	0.10297	0.10269	0.10632	0.10769	0.10877	0.11075	0.11791	0.11887	0.12228	0.12534	0.12721	0.13043
RP7b3	0.10107	0.10146	0.10524	0.10290	0.10262	0.10625	0.10762	0.10870	0.11068	0.11784	0.11880	0.12221	0.12527	0.12714	0.13036
RP8	0.10107	0.10147	0.10450	0.10213	0.10184	0.10368	0.10543	0.10651	0.11684	0.12431	0.12531	0.12875	0.13125	0.13347	0.13632
RP8a	0.10107	0.10150	0.10539	0.10305	0.10277	0.10454	0.10624	0.10737	0.11758	0.12486	0.12582	0.12913	0.13162	0.13378	0.13659
RP8a2	0.10107	0.10150	0.10528	0.10294	0.10266	0.10443	0.10613	0.10726	0.11747	0.12475	0.12571	0.12902	0.13151	0.13367	0.13648
RP8a3	0.10107	0.10150	0.10521	0.10287	0.10259	0.10436	0.10606	0.10719	0.11740	0.12468	0.12564	0.12895	0.13144	0.13360	0.13641

The lowest retail impacts are widely scattered with RP1, RP2, RP4, RP7a2, RP7a3 and RP8 having the lowest rate impacts under different scenarios. This reflects the fact that the results are tightly bunched, and the resource plans result in broadly similar rates. Under most of these analyses, the difference in retail rates at the end of fifteen years is on the order of 10% or less between the highest and lowest rate plans.

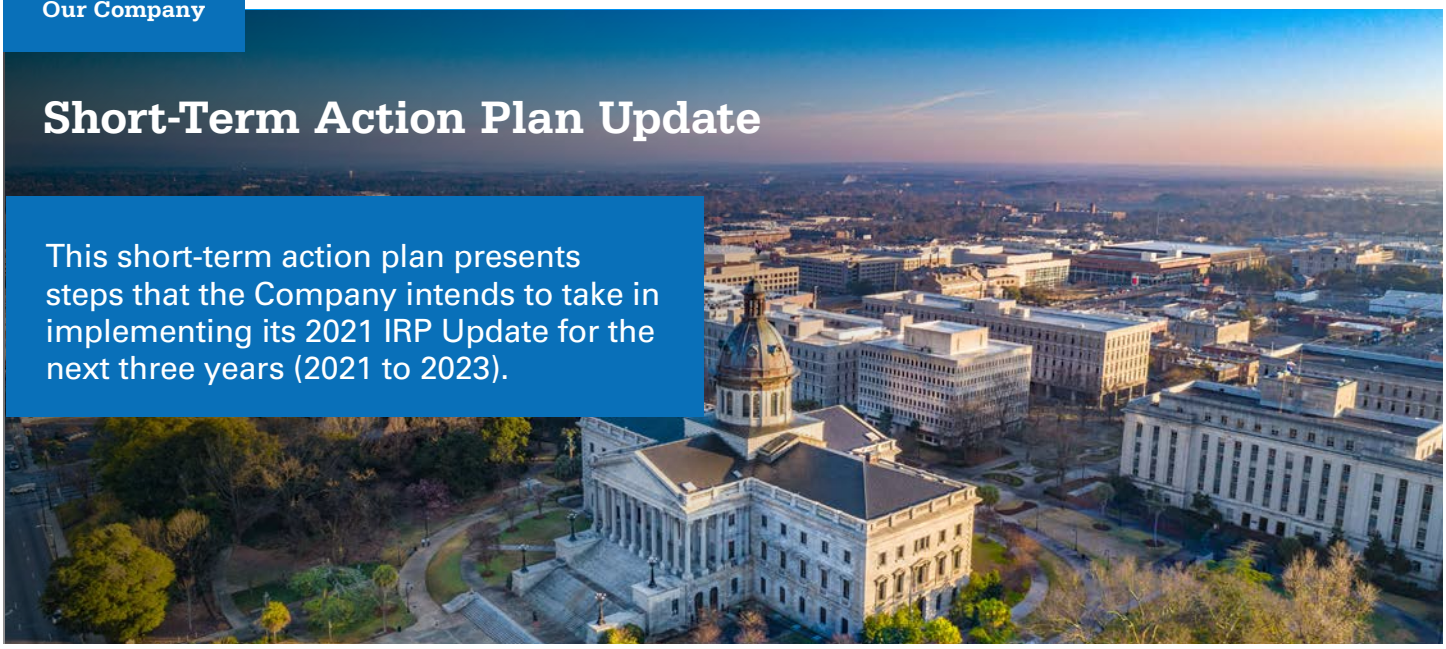
However, it is important to note that under the reference case (high DSM, $12/ton CO_2 and low gas prices), RP8 and RP8a result in significant rate increases in the 2028-2030 period. This is a result of retiring and replacing highly depreciated coal units at Wateree and Williams with new, undepreciated, assets. The retirement of Wateree and Williams would otherwise take place in 2044 and 2047, which delays the rate impacts of those retirements by more than sixteen years. However, the nearer-term rate impacts from RP8 and RP8a are balanced by significantly increased renewable generation and significantly lower carbon emissions in the intervening period. Overall, however, the CAGR (Compound Annual Growth Rate for these plans) is ~2% which is less than the projected inflation rate over the 15 year period.

Dominion Energy

Our Company

Short-Term Action Plan Update

This short-term action plan presents steps that the Company intends to take in implementing its 2021 IRP Update for the next three years (2021 to 2023).



Columbia, South Carolina.

Monitoring of Supply Side Decision Points

During the three-year scope of this plan, the Company will carefully monitor changes affecting generation. These changes can include changes in natural gas prices, regulatory and legislative requirements regarding CO_2 emissions, the costs of renewable and energy storage technologies, access to natural gas supplies and transmission, changing environmental policies and the emergence of novel generating technologies. The Company intends to track changes in these conditions to inform its planning accordingly.

At present, the Company's reserve margins are fully sufficient to meet customers' capacity needs in the near term. Replacement of existing simple cycle combustion turbines contributes to maintaining the Company's reserve margin while retirement studies for coal and fossil-steam units are underway. They will be conducted using resource optimization software after developing cost estimates and other inputs reviewed with the IRP Stakeholder Advisory Group. Early retirement of the assets would accelerate the need to add generation to the system. In addition, the modeling of the RP8a scenarios using updated natural gas price projections, solar and battery costs and load forecasts indicate that the acquisition of near-term solar and battery resources may be cost effective depending on the prices that can be achieved in the market.

In the very near-term, it is in customers' best interest for the Company to:

- Continue to fully engage the IRP Stakeholder Advisory Group in consultations regarding system supply needs and potential coal retirements;
- Continue with the CT plan implementation; finalize the implementation of the PLEXOS resource optimization model for use in future IRPs, IRP Updates, and coal plant retirement studies;
- Continue to evaluate key planning inputs including natural gas prices, future customer demands, electric vehicle adoption, carbon emission costs and limitations and other environmental constraints, and the cost of renewables and storage in consultation with the IRP Stakeholder Advisory Group;
- Implement changes in its DSM portfolio to increase reductions in sales growth and proceed with the DSM Market Potential Study to determine maximum achievable demand and energy reductions; and
- Continue to implement AMI and prepare to implement new demand reduction programs made possible by AMI.

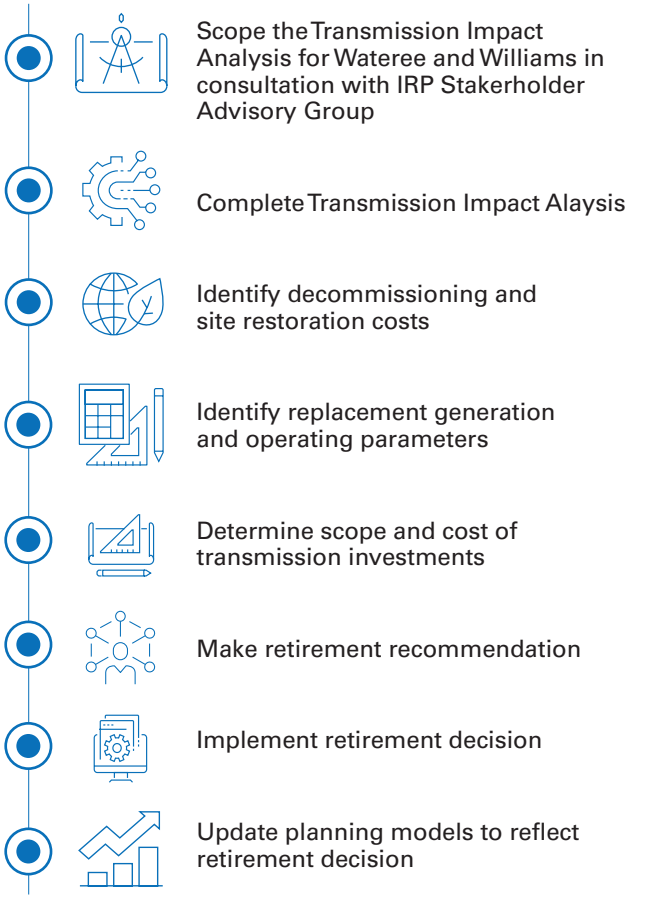
The results of these efforts will feed into the retirement studies for Wateree, Williams, the other fossil-steam units and Cope. They will also help shape the 2022 IRP Update and the 2023 IRP.

The Company will update or revise its IRP annually to reassess its designation of the preferred resource plan in light of potentially changing market conditions and state or federal environmental laws and regulations. At the core of this short-term action plan is the Company's intention to monitor changes in these variables and update the IRP annually to reflect those changes.

Generation Retirement Planning

The Company has retired or repowered eight of its twelve coal units in the last eighteen years and recommissioned dual-fuel natural gas-firing capability at one of the remaining four stations. After discussions with the stakeholders, retirement studies for the Wateree and Williams coal-fired stations are underway with the goal of presenting their conclusions in the 2022 IRP Update. CRA is coordinating the studies.

After receiving stakeholders' input, DESC determined that the TIA for Wateree and Williams should be scheduled for completion by the end of 2021 with the other retirement planning analyses to follow. The Company plans to retire Urquhart Steam Unit 3 in 2022 as part of the CT Plan.

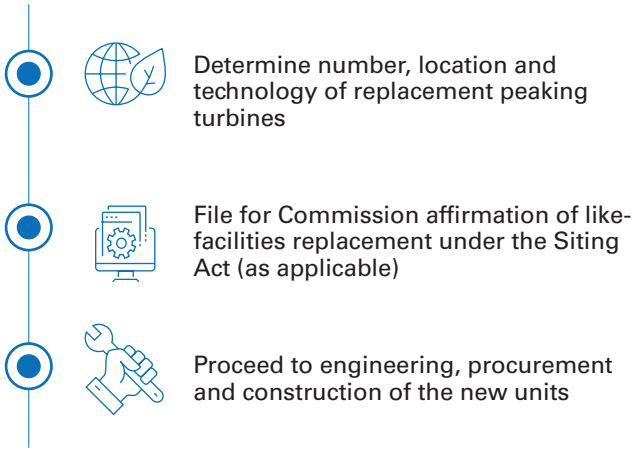


- Scope the Transmission Impact Analysis for Wateree and Williams in consultation with IRP Stakerholder Advisory Group
- Complete Transmission Impact Alaysis
- Identify decommissioning and site restoration costs
- Identify replacement generation and operating parameters
- Determine scope and cost of transmission investments
- Make retirement recommendation
- Implement retirement decision
- Update planning models to reflect retirement decision

Peaking Turbine Modernization Program

The inclusion of approximately 1,046 MW of intermittent solar generation on the Company's system and normal operational contingencies has placed additional demands on its aging, outdated fleet of simple cycle combustion turbines.

Earlier in 2021, the Company finalized a plan to replace or retire thirteen of its sixteen CT units with modern aeroderivative replacements equipped with state-of-the-art grid support capabilities, fuel efficiency, and emissions controls. The Company has filed an application with the Commission for a ruling affirming that these replacements can proceed under the provisions of the South Carolina Facility Siting and Environmental Compliance Act that apply to the replacement of existing resources and to exempt the replacement plan from certain existing procurement requirements. Competitive procurement has been conducted by the Company to identify the vendors for the new CT equipment and for the construction work to place them in service. Procurement and construction of the new units can begin upon issuance of an affirmative ruling on the Company's petition. The Company desires to aggressively move forward with the replacement of these critical reliability assets.



- Determine number, location and technology of replacement peaking turbines
- File for Commission affirmation of like-facilities replacement under the Siting Act (as applicable)
- Proceed to engineering, procurement and construction of the new units

Demand-Side Management

Rapid Assessment

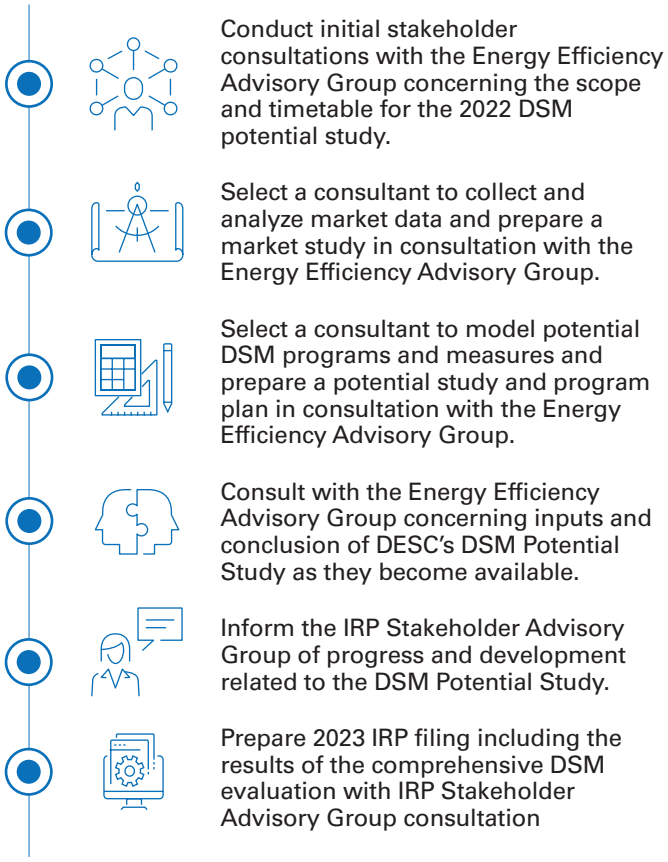
At DESC's request, its DSM consultant, ICF, completed the rapid assessment of DSM expansion potential as directed by Order No. 2020-382. This assessment determined that achieving a 1% reduction in demand growth from eligible customers is possible. DESC filed the Rapid Assessment its' Modified 2020 IRP. The Company and ICF continue to implement the plan and modifications have been made in response to the Commission's ruling in the 2021 DSM rate rider review proceeding. The COVID-19 pandemic has delayed or limited the implementation of certain programs involving on-premises consultations and may affect the achievement of certain goals.

- Initiate a Rapid DSM Expansion for Implementation in 2021
- Finalize Plan in in Consultation with IRP Advisory Group and in Conformity with Commission Directives in the Annual DSM Review
- Implement Planned Expansions

The 2023 DSM Market Potential Study

DESC has taken the initial steps in completing a new DSM Market Potential Study to determine the cost-effectiveness and achievability of savings levels of 1.25%, 1.5%, 1.75% and 2%. The results are planned for inclusion in the 2023 IRP.[14] DESC is consulting with the Energy Efficiency Advisory Group throughout this process. New to the Energy Efficiency Advisory Group for this process are the Energy Futures Group, an environmental group, and the SC Association of Community Action Partnerships, which represents low-income residents.

In early 2021, the Energy Efficiency Advisory Group provided input on the scope and timetable for conducting the potential study. After consultation with the Energy Efficiency Advisory Group, DESC selected Opinion Dynamics Corporation (ODC) to complete the market assessment portion of the new potential study, which will begin in August 2021. By the end of the third quarter of 2021, DESC plans to select a vendor and initiate the forecasting and modeling portion of the study and evaluation of programs and measures, again in consultation with the Energy Efficiency Advisory Group. The Energy Efficiency Advisory Group will receive status reports on the progress of the study and will receive a final draft for input prior to the finalization of the potential study.

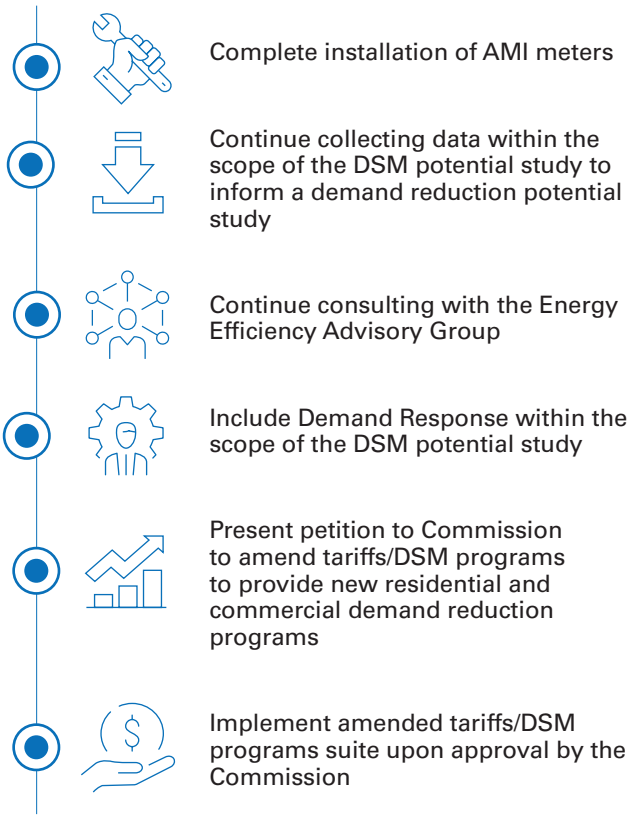


- Conduct initial stakeholder consultations with the Energy Efficiency Advisory Group concerning the scope and timetable for the 2022 DSM potential study.
- Select a consultant to collect and analyze market data and prepare a market study in consultation with the Energy Efficiency Advisory Group.
- Select a consultant to model potential DSM programs and measures and prepare a potential study and program plan in consultation with the Energy Efficiency Advisory Group.
- Consult with the Energy Efficiency Advisory Group concerning inputs and conclusion of DESC's DSM Potential Study as they become available.
- Inform the IRP Stakeholder Advisory Group of progress and development related to the DSM Potential Study.
- Prepare 2023 IRP filing including the results of the comprehensive DSM evaluation with IRP Stakeholder Advisory Group consultation

[14] DESC would note that Order No. 2020-832 provides both a 2022 and 2023 deadline for the comprehensive DSM evaluation. Given that the next full IRP is to be filed in 2023, DESC assumes that the 2023 deadline applies, and the 2022 deadline was misstated. Additionally, to complete a comprehensive DSM evaluation with stakeholder involvement, 2023 is the more practical deadline.

Complete AMI Roll-Out and Implement Residential and Commercial Demand Reduction Programs

Before the end of this three-year period, the Company expects to have completed the installation of sufficient AMI meters on its system so that the 2022 DSM Market Potential study can include new residential and commercial demand reduction programs.



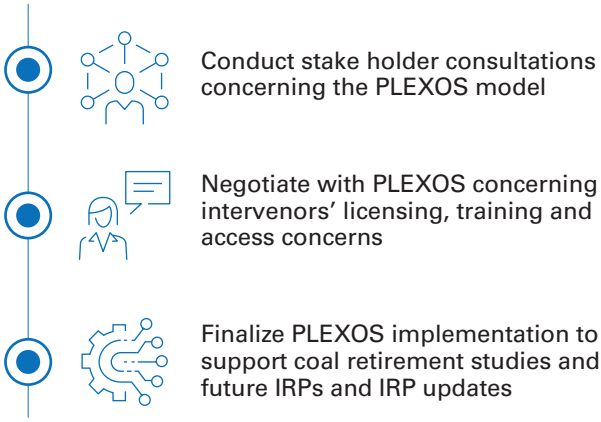
- Complete installation of AMI meters
- Continue collecting data within the scope of the DSM potential study to inform a demand reduction potential study
- Continue consulting with the Energy Efficiency Advisory Group
- Include Demand Response within the scope of the DSM potential study
- Present petition to Commission to amend tariffs/DSM programs to provide new residential and commercial demand reduction programs
- Implement amended tariffs/DSM programs suite upon approval by the Commission

Implement Resource Optimization Software

With the assistance of personnel from other Dominion Energy subsidiaries, PLEXOS resource optimization software has been configured to model the DESC system, and the relevant data and inputs have been included. Quality assurance testing is complete and the software is ready for use. PLEXOS will enable DESC to select a single optimal set of resources for each scenario instead of comparing non-optimal resource plans in several scenarios. The inputs in question are distinct from the fuel cost forecasts, CO_2 cost assumptions, capital cost assumption, and other modeling inputs discussed elsewhere in this 2021 IRP Update.

The Commission directed DESC to consult with stakeholders concerning the use of PLEXOS software compared to alternatives and present its determination to the Commission for review. DESC began consulting with its IRP Stakeholder Advisory Group on February 16, 2021. No stakeholders responded with objections to PLEXOS' technical capability. However, stakeholders raised concerns regarding the terms of the intervenor licenses and in response DESC has negotiated intervenor licenses for PLEXOS that resolve concerns raised by stakeholders.

DESC will continue to consult with the IRP Stakeholder Advisory Group throughout the implementation process. Determining the optimal date for resource retirement will require the PLEXOS resource optimization software to be fully implemented. As reported in the June meeting of the IRP Stakeholder Advisory Group, DESC is proceeding with full PLEXOS implementation.



- Conduct stake holder consultations concerning the PLEXOS model
- Negotiate with PLEXOS concerning intervenors' licensing, training and access concerns
- Finalize PLEXOS implementation to support coal retirement studies and future IRPs and IRP updates

Reevaluate Key Model Assumption and Forecasts

In parallel with implementing the PLEXOS software, the Company has reevaluated key forecasts, assumptions, and inputs to the planning model based on comments received from IRP Stakeholder Advisory Group. Among the inputs the Company evaluated in light of stakeholder comments are its approaches:

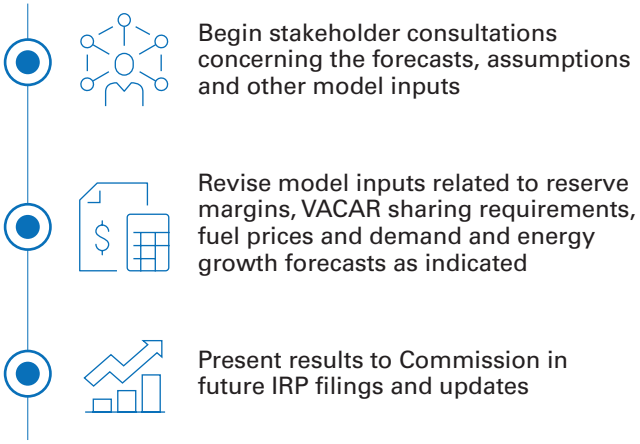
a) To summer and winter reserve policy;

b) To reflect VACAR reserve sharing requirements in its capacity reserve margin calculation;

c) To forecast natural gas prices;

d) To forecast demand and energy growth on its system; and

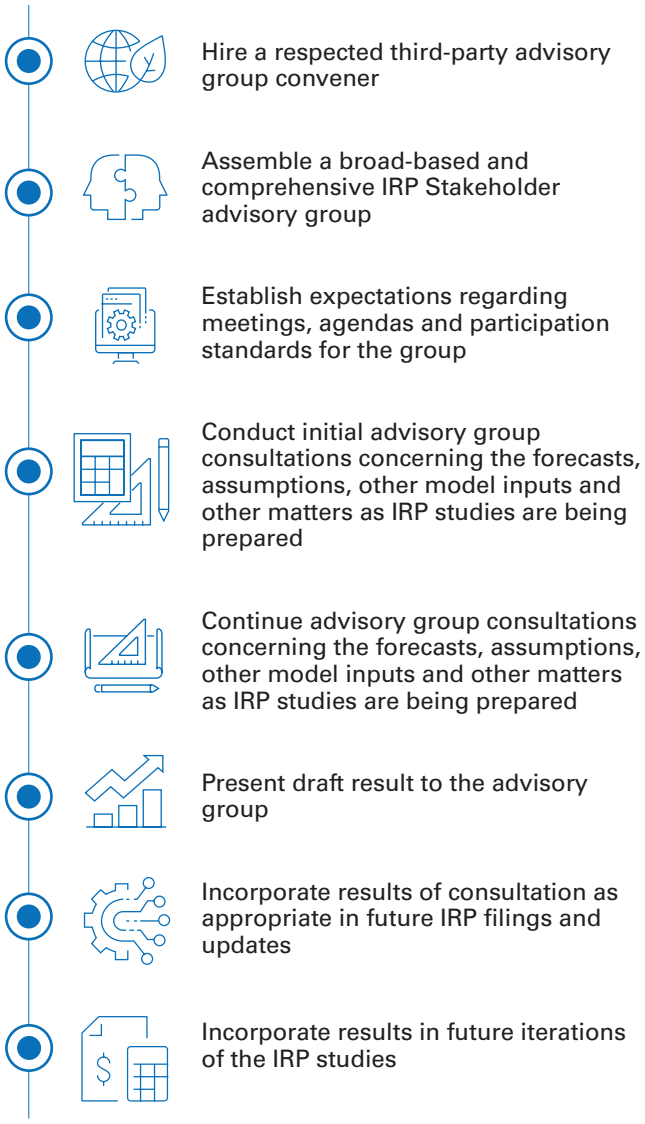
e) To capacity contribution of PV solar toward the Reserve Margin.



- Begin stakeholder consultations concerning the forecasts, assumptions and other model inputs
- Revise model inputs related to reserve margins, VACAR sharing requirements, fuel prices and demand and energy growth forecasts as indicated
- Present results to Commission in future IRP filings and updates

Continue the IRP Stakeholder Advisory Group Process

DESC and CRA have has designed and implemented a robust stakeholder advisory group process. The advisory group process has been used to consult on the selection and implementation of resource optimization software, on changes to model inputs, forecasts and assumptions, and on changes in DSM assumptions and programs. In the months prior to an IRP filing or update, this process is contemplated to involve meetings every six to eight weeks to review model inputs and scoping and draft model runs.



- Hire a respected third-party advisory group convener
- Assemble a broad-based and comprehensive IRP Stakeholder advisory group
- Establish expectations regarding meetings, agendas and participation standards for the group
- Conduct initial advisory group consultations concerning the forecasts, assumptions, other model inputs and other matters as IRP studies are being prepared
- Continue advisory group consultations concerning the forecasts, assumptions, other model inputs and other matters as IRP studies are being prepared
- Present draft result to the advisory group
- Incorporate results of consultation as appropriate in future IRP filings and updates
- Incorporate results in future iterations of the IRP studies

Conclusion

Three Palmetto palm trees stand against rustic brick wall in downtown Columbia, South Carolina.

In preparing this 2021 IRP Update, DESC modeled seventeen potential resource plans including three new resource plans, the RP8a plans, that envision near-term renewable assets to the system while retiring coal units. The seventeen resource plans were modeled under twenty-seven different sets of assumptions resulting in 459 specific scenarios across which the seventeen resource plans are evaluated and scored.

Under the updated modeling, the RP8 and RP8a plans score best on multiple metrics and under multiple scenarios, just as RP8 scored best in the 2020 modeling. The RP8 and RP8a plans involve the early retirement of Wateree and Williams, which may result in significant rate increases when the Wateree and Williams units are replaced by new, undepreciated assets in the 2028-2030 period. However, the compound average growth in rates under these plans is 2.1% for the 2021-2035 time frame. These near-term rate impacts are counterbalanced by lower rates in later years and result in significantly increased levels of renewable generation and significantly lower carbon emissions early in the planning period. Communicating with customers and stakeholders regarding these 2028-2030 rate increases will be an important part of the plan for retiring these units.

This 2021 IRP Update affirms that RP8 remains the preferred plan. But the full costs and schedule implication of retiring and replacing Wateree and Williams early as assumed in RP8 and RP8a may change depending on the findings of the coal plant retirement studies now underway. In addition, the cost implication of adding near-term solar and battery capacity to DESC's system, as envisioned under the RP8a plans, depends on whether the assumed costs of those assets can be achieved in the market.

The data reported in this 2021 IRP Update also affirms that DESC continues to operate its electric system in a safe, reliable and efficient manner. A robust and effective stakeholder IRP process has been implemented and the studies required to determine the sequencing and timing of coal unit retirements are well underway with meaningful stakeholder input. Maintaining reliability, supporting renewable resource integration, maintaining black-start capability, improving fuel efficiency and limiting air emissions all support proceeding to replace thirteen aged and increasingly difficult to maintain CTs on DESC's system.

DESC's fundamental objectives remain protecting safety, maintaining reliability, and delivering clean, affordable energy to its customers. Achieving these objectives while transitioning to a net-zero carbon future will require investment by the Company, support from the Commission, and coordination and consensus-building across all stakeholder groups.

Appendix A: Act 62 Requirements and Commission Orders Nos. 2020-832 and 2021-429 Requirements

The details of the IRP requirements under Act No. 62 are shown in the following table along with a reference to each section of the Company's 2021 IRP Update demonstrating compliance:

Act No. 62 58-37-40	Requirement	2021 IRP Update Section
(B)(1)(a)	a long-term forecast of the utility's sales and peak demand under various reasonable scenarios;	Modified 2020 IRP?
(B)(1)(b)	the type of generation technology proposed for a generation facility contained in the plan and the proposed capacity of the generation facility, including fuel cost sensitivities under various reasonable scenarios;	XI.C
(B)(1)(c)	projected energy purchased or produced by the utility from a renewable energy resource;	XIII
(B)(1)(d)	a summary of the electrical transmission investments planned by the utility;	VIII.I
(B)(1)(e)	several resource portfolios developed with the purpose of fairly evaluating the range of demand-side, supply-side, storage, and other technologies and services available to meet the utility's service obligations. Such portfolios and evaluations must include an evaluation of low, medium, and high cases for the adoption of renewable energy and cogeneration, energy efficiency, and demand response measures, including consideration of the following: (i) customer energy efficiency and demand response programs; (ii) facility retirement assumptions; and (iii) sensitivity analyses related to fuel costs, environmental regulations, and other uncertainties or risks;	XI.C XI.D
(B)(1)(f)	data regarding the utility's current generation portfolio, including the age, licensing status, and remaining estimated life of operation for each facility in the portfolio;	IX
(B)(1)(g)	plans for meeting current and future capacity needs with the cost estimates for all proposed resource portfolios in the plan;	XI
(B)(1)(h)	an analysis of the cost and reliability impacts of all reasonable options available to meet projected energy and capacity needs; and	XI
(B)(1)(i)	a forecast of the utility's peak demand, details regarding the amount of peak demand reduction the utility expects to achieve, and the actions the utility proposes to take in order to achieve that peak demand reduction.	XI.F XV
(B)(2)	An integrated resource plan may include distribution resource plans or integrated system operation plans.	XV IX.H

The requirements of this 2021 IRP Update pursuant to Orders Nos. 2020-832 and 2021-429 are shown in the following tables along with a reference to each section of the Company's 2021 IRP Update demonstrating compliance:

Order 2020-832 Page Number	Ordered Requirements	2021 IRP Update Section
16 (Finding of Fact 2)	It is reasonable that, at the time of the filing of Dominion's Modified IRP, Dominion shall be able [to] indicate to the Commission the composition of current and prospective stakeholders [for the IRP Stakeholder Process], and report on any stakeholder meetings that have occurred prior to the filing date.	III
16-17 (Finding of Fact 4)	It is reasonable to require DESC to model a limited set of additional resource plans as specified by SCSBA and to include them in a Modified 2020 IRP filed in this docket within 60 days of the Order.	VI.D XI.D
17 (Finding of Fact 6) 43-44 (Commission Conclusion)	DESC is required to include DSM and purchased power as resource options in its 2022 IRP Update DESC should include DSM and purchased power as a resource option in the 2021 IRP Update, if achievable.	XI.D
17 (Finding of Fact 7) 46 (Commission Conclusion)	It is reasonable to require DESC, in its Modified 2020 IRP, to build candidate resource plans to meet its full peaking reserve margin target, and the resource plan analysis should determine what type of resources best meet the peaking increment. It is appropriate for DESC, starting with its 2021 IRP Update, to systematically compare resource options for meeting its peaking reserve margin increment, including all available resources, rather than limiting available resources to a narrow subset.	XI XI.B
18 (Finding of Fact 8)	It is reasonable to require DESC to re-run its IRP modeling using the set of assumptions recommended in SCSBA Witness Sercy's Rebuttal Testimony and Sierra Club Witness Derek Stenclik's Rebuttal Testimony, and to include the results of that modeling in its Modified 2020 IRP.	XI
18 (Finding of Fact 9) 58 (Commission Conclusion)	It is appropriate to require Dominion to work with stakeholders regarding fair inclusion of solar PV's winter capacity value in the 2021 and 2022 IRP Updates.	III.b
18-19 (Finding of Fact 11) 64 90 (Ordering Paragraph 6.c)	Cost range and minimax regret analyses are simple, appropriate methodologies that can feasibly be implemented in a Modified 2020 IRP. It is reasonable to require DESC to submit a Modified 2020 IRP including a comparison of candidate resource plans employing simple quantitative risk metrics, including cost ranges and regret scores, as recommended by SCSBA Witness Sercy in his direct and rebuttal testimony. The Commission will require DESC to implement the cost range and minimax regret analyses in the Modified 2020 IRP and subsequent updates and will consider more refined and sophisticated risk-adjusted metrics in its 2022 IRP Update. Conduct and include in the Modified 2020 IRP an analysis and comparison of all candidate resource plans using the simple quantitative risk metrics recommended by SCSBA Witness Sercy in his direct and rebuttal testimony, including cost ranges and minimax regret scores.	XI. O XI.P
19 (Finding of Fact 12)	It is reasonable to require DESC to conduct a revised scenario analysis based on modeling that reflects a wider range of possibilities, as proposed by SCSBA. It is also reasonable to require DESC to include the results of this analysis in a Modified 2020 IRP filed in this docket.	XI

19 (Finding of Fact 13) 75-76 91 (Ordering Paragraph 6.e) 91 (Ordering Paragraph 6.d)	Accordingly, the Commission finds it is reasonable to require that DESC work with the DSM Advisory Group ("Advisory Group") to conduct a rapid assessment of the cost-effectiveness and achievability of ramping up its current DSM portfolio, such as by expanding programs or increasing spending, to achieve at least a 1% level of savings in the years 2022, 2023, and 2024, and to require that DESC include this analysis in its Modified 2020 IRP. It is also reasonable to require DESC to include in the Modified 2020 IRP action steps it will take to complete the comprehensive DSM evaluation …. The Commission adopts the recommendation in Step 1 of Witness Hill's Late-Filed Exhibit, which directs DESC to conduct a "rapid assessment" of the cost-effectiveness and achievability of ramping up its current portfolio to achieve at least a 1% level of savings in the years 2022, 2023, and 2024. As outlined in step 2 of that exhibit, DESC must work with the Advisory Group in conducting this "rapid assessment" and must include the results of this "rapid assessment" in its Modified 2020 IRP. The Modified 2020 IRP must also include steps the Company will take to complete the "comprehensive evaluation" discussed below in preparation for including such an evaluation in its 2022 IRP. Consistent with step 1 as identified in Hearing Exhibit 16, conduct a "rapid assessment" of the cost-effectiveness and achievability of ramping up its current portfolio to achieve at least a 1% level of savings in the years 2022, 2023, and 2024, and include the results of this rapid assessment in its Modified 2020 IRP. The Company will work with the DSM Advisory Group and, if desired, a contractor selected with input from the Advisory Group, in preparing this assessment. Develop and include in the Modified 2020 IRP a set of modifications to the Company's existing DSM portfolio that would achieve at least a 1% level of savings in the years 2022, 2023, and 2024, and screen such measures for cost-effectiveness and achievability	XI.F XV
20 (Finding of Fact 15) 91 (Ordering Paragraph 6.f)	It is reasonable to require that DESC include in its Modified 2020 IRP a DSM Action Plan that includes its plans to undertake a comprehensive evaluation of the cost-effectiveness and achievability of DSM portfolios reaching 1% and higher savings, including savings levels of 1.25%, 1.5%, 1.75% and 2%, and to work with the Advisory Group to develop and characterize these levels of DSM savings. Include in its Modified 2020 IRP action steps the Company will take to complete a comprehensive evaluation of the cost-effectiveness and achievability of DSM portfolios ranging from 1% to 2% savings, as identified in steps 3 through 4 of Hearing Exhibit 16.	XI.F XV
21 (Finding of Fact 21)	The Proposed IRP does not provide sufficient information for the Commission to evaluate the plain in light of "power supply reliability." It is reasonable to require that DESC include recent generator performance and other reliability data in its Modified 2020 IRP and future IRPs. It is also reasonable to require DESC to include in its Modified 2020 IRP additional information regarding storm and hurricane-related outages and their impact on resource planning.	IX.H
21-22 (Finding of Fact 23) 88 94 (Ordering Paragraph 11)	It is reasonable to require DESC to include a three-year Action Plan in its Modified 2020 IRP and in future IRPs. The three-year Action Plan should identify and describe the steps DESC will take to implement its IRP during that three-year period. This Action Plan should include a graphical representation of the planned sequence of actions. Accordingly, DESC shall include in its Modified 2020 IRP and in future IRPs a three-year Action Plan identifying and describing the steps it will take to implement its IRP during that three-year period, including but not limited to additional analyses, changes to its methodology, issuance of Requests for Proposals, modifications to its DSM portfolio, and applications for new generating facilities under the Siting Act. The Action Plan shall include a graphic representation of the sequencing of its actions. The Action Plan in the Modified 2020 IRP shall include, at a minimum, the DSM Action Plan discussed elsewhere in this Order; the Company's process for selecting a capacity expansion model, in collaboration with stakeholders; the Company's plans to conduct retirement studies required by this Order; as well as any actions related to competitive procurement of renewable energy resources that may be indicated based on the additional production cost modeling that the Commission is requiring in this Order. DESC shall include in its Modified 2020 IRP and in future IRPs a three-year Action Plan identifying and describing the steps it will take to implement its IRP during that three-year period, including but not limited to additional analyses, changes to its methodology, issuance of Requests for Proposals, modifications to its DSM portfolio, and applications for new generating facilities under the Siting Act. The Action Plan in the Modified 2020 IRP shall include, at a minimum, the DSM Action Plan discussed elsewhere in this Order; the Company's process for selecting a capacity expansion model, in collaboration with stakeholders; the Company's plans to conduct retirement studies required by this Order; as well as any actions related to competitive procurement of renewable energy resources that may be indicated based on the additional production cost modeling that the Commission is requiring in this Order.	XV

33-34 86 89 (Ordering Paragraph 6.a) 89-90 (Ordering Paragraph 6.b.i)	The Commission will therefore require DESC, in its Modified 2020 IRP, to model the additional resource plans (RP7-A and RP7-B) proposed by SCSBA Witness Sercy, and to re-model resource plan RP2 for comparison purposes. In modeling the costs of those plans, DESC must incorporate all the other modeling and other adjustments discussed elsewhere in this Order. As discussed below, the Commission will also direct DESC to model those resource plans with the cost sensitivities proposed by Mr. Sercy. Accordingly, the Commission will direct DESC to conduct additional production cost modeling and analysis, as recommended by SCSBA, on an expedited basis (within 30 days of this Order) in order to inform decisions regarding the possible conduct of near-term competitive solicitations. The modeling shall include the RP2 resource plan (as modified using the same input and methodological changes the Commission is Ordering for the Revised 2020 IRP), as well as SCSBA's proposed RP7-A and RP7-B resource plans. DESC shall model price sensitivities for flexible solar PPAs at price points of $38.94/MWh, $36/MWh, and $34/MWh. For the reasons discussed in Section V.D.6, supra, that modeling shall include an assumption that the addition of solar PPAs will result in integration costs equivalent to $0.96/MWh. That modeling shall be filed in this docket as well as for informational purposes in the pending generic competitive solicitation proceeding, Docket No. 2019-365-E. Include additional candidate resource plans, representing the near-term deployment of renewables as described in the testimony of SCSBA Witness Sercy (specifically, the resource plans identified as RP7-A and RP7-B) Use the flexible solar PPA cost assumptions recommended by SCSBA in the Rebuttal Testimony of Witness Sercy, and model 400 MW of Flexible Solar PPAs starting in 2023 with 20-year PPA prices of $34/MWh, $36/MWh, and $38.94/MWh.	XI.D
52 90 (Ordering Paragraph 6.b.ii)	The Commission finds that in modeling the cost of battery storage PPAs in the Modified 2020 IRP, DESC shall use the NREL ATB's low storage cost case (including capital and fixed O&M costs) with the same 22% ITC safe harbor assumptions discussed above for solar PV PPAs. DESC shall also adopt Mr. Sercy's recommended approach to modeling battery storage PPA costs, as described herein. For battery storage PPAs, use the NREL ATB's low storage cost case (including capital and fixed O&M 13 costs) with the same 22% ITC safe harbor assumptions employed for solar PV PPAs.	XI.D
53 90 (Ordering Paragraph 6.b.ii)	While the Company responded to ORS' recommendation to reassess its long-term continuing capital cost –de-escalation in its Supplemental IRP, we are persuaded by the testimony of Sierra Club Witness Stenclik that the Company implemented the two different escalation rates incorrectly which led to a spike in capital costs for both solar PV and BESS in 2031 and onwards. The Company is required to correct this error in a Modified 2020 IRP. For its long-term continuing capital cost de-escalation for both solar PV and BESS, correct its implementation of the two different escalation rates consistent with Mr. Stenclik's surrebuttal testimony.	XI.D
56 90 (Ordering Paragraph 6.b.v)	For purposes of the IRP, we agree with the recommendation of Sierra Club Witness Stenclik and ORS Witnesses Sandonato and Hayet that the Company should include in a Modified 202 IRP industry accepted ICT capital cost assumptions, such as NREL. We would also note that the Company relied on data from NREL for determining its future cost of renewable energy projects, so it should do the same for the ICT. For ICT, use industry accepted ICT capital cost assumptions, such as NREL.	XI.D
58 90 (Ordering Paragraph 6.b.iii)	In its Modified 2020 IRP, DESC shall calculate the current ELCC capacity value for solar based on the current level of operational solar on DESC's system, and DESC shall apply that value in its modeling of PV resources. Correct the incremental flexible solar PPA capacity value assumptions to reflect the ELCC value specific to the existing system penetration level of incremental flexible solar PV.	Appendix C
60 90 (Ordering Paragraph 6.b.iv)	Under the circumstances of this IRP, the Commission concludes that consistent with its finding in Order No. 2020-244 at 4, a solar integration cost of $0.96/MWh should be used by DESC when performing the updated resource portfolio modeling required herein, both in the Modified 2020 IRP and in the additional modeling to be produced within thirty (30) days (discussed further below). Assume integration costs of $0.96/MWh for solar PV, until an updated, Commission-approved methodology for calculating solar integration costs is available.	XI

71 90 (Ordering Paragraph 6.b.vii)	The Commission will therefore direct DESC, in the production cost modeling conducted for the Modified 2020 IRP, to use the AEO low, reference, and high gas prices described by Mr. Sercy in place of DESC's low, base, and high gas prices. Re-run its production cost modeling using the AEO low, reference, and high gas prices described by SCSBA Witness Sercy in his direct testimony, and using the AEO High CO2 case, also as detailed in Mr. Sercy's direct testimony.	XI
81	For that reason, the Commission adopts Witness Sommer's recommendation that DESC be required to calculate the rate and bill impacts of its various portfolios in the IRP, rather than just a levelized NPV of revenue requirements. DESC must include such an evaluation in its Modified 2020 IRP and in future IRPs and IRP Updates.	XIV
81	DESC is directed to revise its 2020 IRP to include further analysis and consideration for how state or federal environmental regulations, including the Coal Combustion Residuals rule, the Steam Electric Power Generating Effluent Guidelines and Standards, National Ambient Air Quality Standards, and current and potential future greenhouse gas-related rules, might affect DESC's generating units and resource choices.	XIV
88	In addition to the Action Plan, Dominion shall explain how the IRP is integrated into other planning at the company by subdivision, division, and department within the Company.	No Change in Modified 2020 IRP
93-94 (Ordering Paragraph 10)	In its Modified 2020 IRP, 2021 IRP Update, and subsequent annual Updates prepared pursuant to S.C. Code Ann. § 58-37-41(D)(1), DESC shall update its planning assumptions relating to the energy and demand forecast, commodity fuel price inputs, renewable energy forecast, energy efficiency and demand-side management forecasts, and changes to projected retirement dates of existing units.	XI

Order 2021-429 Page Number	Ordered Requirements	2021 IRP Update Section
18 (Order Paragraph 2)	DESC is ordered to include near term solar and storage in its 2021 IRP Update	XI.D
18 (Order Paragraph 3)	DESC is ordered to provide substantive details of the CT Plan and include the CT Plan in its revised modeling.	V.A XI.D
18 (Order Paragraph 4)	DESC shall include resource plans that represent "the range of demand-side, supply-side, storage, and other technologies and services available" to meet the utility's obligations. DESC shall also include "plans for meeting current and future capacity needs with cost estimates for all proposed resource portfolios in the plan."	XI.B-D
18-19 (Order Paragraph 5)	DESC is ordered to adjust its Reliability Factors consistent with Appendix A of the filed "Joint Comments of South Carolina Coastal Conservation League, Southern Alliance for Clean Energy, Carolinas Clean Energy Business Alliance and Sierra Club." DESC is required to adhere to Order No. 2020-832 in its application of the approved Minimax regrets and cost range analyses, as well as the plan selection criteria required by the Commission in its 2021 IRP Update as well as in all future IRPs. In its 2021 IRP Update as well as in all future IRPs, DESC shall use Dr. Sercy's Minimax Regrets and Cost Range methodologies in addition to using the "average ranking" approach in order to provide information related to risk using these various approaches.	XI.N XI.O-P XII
19 (Ordering Paragraph 7) 19 (Ordering Paragraph 8) 19 (Ordering Paragraph 9) 20 (Ordering Paragraph 10)	DESC is directed to employ a reasonable levelized cost of saved energy(LCSE) which is comparable with industry standards in conducting its upcoming Market Potential Study and in developing future IRPs starting with the 2021 IRP Update. DESC is also ordered to include load forecasts and the integration of Energy Efficiency impacts with its stakeholders as part of the 2021 IRP Update. DESC is also required to present realistic and levelized DSM costs in all future IRPs starting with the 2021 IRP Update. DESC is directed to use marginal line losses in the calculation of avoided costs and in the translation of energy savings from the Market Potential Study to energy savings in future IRP modeling beginning with the 2021 IRP Update. DESC is required to use "cost effective, reasonable and achievable" as the standard going forward for evaluating the potential for higher savings portfolios in future IRPs and updates beginning with the 2021 IRP Update.	XI.I X XI.A XI.D XI.H XII

Appendix B: Glossary of Terms

Table of Abbreviations			
Abbreviation	**Name**	**Abbreviation**	**Name**
ACE	Affordable Clean Energy	CT	Combustion Turbine
ATW	Ash Transport Water	kW	Kilowatt
BAA	Balancing Authority Area	kWh	Kilowatt Hour
BEV	Battery Electric Vehicles	MW	Megawatt
BSER	Best System of Emissions Reduction	MWh	Megawatt Hour
CC	Combined Cycle Power Plant	NEEP	Neighborhood Energy Efficiency Program
CO_2	Carbon Dioxide	NERC	North American Electric Reliability Corporation
DER	Distributed Energy Resource	NPV	Net Present Value
DR	Demand Response	ORS	Office of Regulatory Staff
DSM	Demand Side Management	PHEV	Plug-in Hybrid Electric Vehicles
EE	Energy Efficiency	PPA	Power Purchase Agreement
EIA	Energy Information Administration	PV	Photovoltaic
EIPC	Eastern Interconnection Planning Collaborative	SCADA	Supervisory Control and Data Acquisition
ELG	Effluent Limitation Guidelines	SEPA	Southeastern Power Administration
EPA	Environmental Protection Agency	STAP	Short-Term Action Plan
ERO	Electric Reliability Organization		
FERC	Federal Energy Regulatory Commission		
FGD	Flue Gas Desulphurization		
GWh	Gigawatt Hour		
HVAC	Heating, Ventilation, and Air Conditioning		

Appendix C: Effective Load Carrying Capacity Calculations

Background

In Order No. 2020-832 in Docket No. 2019-226-E the South Carolina Public Service Commission required the Company to update its calculation of an ELCC capacity value for solar of 11.8%. The order stated the following:

> *In Order No. 2020-244, the Commission ordered DESC to apply an ELCC value of 11.8% based on existing levels of solar on the DESC system at that time. In its Modified 2020 IRP, DESC shall calculate the current ELCC capacity value for solar based on the current level of operational solar on DESC's system, and DESC shall apply that value in its modeling of PV resources.*

The calculation of the 11.8% ELCC value was presented in direct testimony in Docket No. 2019-184-E in Table 3b on page 10. The link to access this testimony is:

https://dms.psc.sc.gov/Attachments/Matter/f5f9bb34-d3e8-4db7-9ca5-e949ad51e70a

Table 3b showing the ELCC calculation of 11.8% is reproduced below:

ELCC Results				
Step	**Case**	**Description**	**Capacity**	**LOLH**
1	Base	500 MW Solar	5,125 MW	2.86
2	Change	1,000 MW Solar	5,125 MW	2.13
3	Adjusted	1,000 MW Solar	5,066 MW	2.86
		ELCC Value	59 MW	11.8%

This calculation assumes that there is 500 MWs of solar capacity already existing on the system and that the ELCC methodology is being used to place a capacity value on an additional 500 MWs of solar capacity. The ELCC methodology assigns a capacity value by equating reliability as measured by a reliability index in a before and after situation. The reliability index used here is the Loss of Load Hours ("LOLH") index and the before and after situation is with and without the incremental 500 MWs of solar capacity. In Step 1 in the table the base is shown already having 500 MW of solar and 5,125 MW of capacity with a LOLH index of 2.86 hours per year of expected capacity shortfall. In Step 2 the impact of adding another 500 MWs of solar is shown. The LOLH index decreases to 2.13 implying an increase in reliability. The goal of Step 3 is to return the LOLH index back to the base setting of 2.86 hours by either increasing the system loads or equivalently decreasing the system capacity. Since there are 8,760 hours of system loads, it is easier to simply reduce the system capacity which is what is done here. In Step 3 then the system capacity is reduced by 59 MWs which decreases system reliability to the point where the LOLH index returns to the base level of 2.86 hours. Therefore, the ELCC capacity value of the additional 500 MWs is 59 MWs of firm capacity because the two changes to the system produce equal changes in system reliability as measured by the LOLH index.

Updated ELCC Calculation

In the context of the Company's Modified 2020 IRP, the system already includes 973 MWs of solar capacity and the ELCC methodology will be used to place a capacity value on an additional 400 MWs of solar which is a part of one or more of the potential resource plans under study. The following table shows the results of the 3-step ELCC evaluation process.

ELCC Results				
Step	**Case**	**Description**	**Capacity**	**LOLH**
1	Base	973 MW Solar	5,067 MW	2.86
2	Change	1,373 MW Solar	5,067 MW	2.63
3	Adjusted	1,373 MW Solar	5,050 MW	2.86
		ELCC Value	17 MW	4.25%

The table shows that when adding 400 MWs of solar capacity to the existing 973 MWs producing a total of 1,373 MWs of solar capacity, the system becomes more reliable as indicated by the decrease in the LOLH index to 2.63 hours. In Step 3 the system capacity is decreased by 17 MWs thereby decreasing reliability and bringing the LOLH index back to the base level of 2.86 hours. Therefore, the ELCC capacity value of the incremental 400 MWs of solar capacity is 17 MWs or about 4% of solar nameplate.

Appendix D:
Timing and Nature of Resource Additions and Resulting Capacities and Reserve Margins

Resource Plan 1 Low DSM														
	Solar ELCC Capacity (Solar >500 MW) 11.8%				Solar ELCC Capacity (Solar >1000 MW) 4.25%				Summer Reserve Margin 14%			Winter Reserve Margin 21%		
Year	Gross Summer Peak (MW)	Gross Winter Peak (MW)	Summer Demand Response (MW)	Winter Demand Response (MW)	Annual Capacity Purchase (MW)	Summer Long Term (MW)	Winter Long Term (MW)	Description	Summer Capacity (MW)	Summer Reserve (MW)	Summer Reserve %	Winter Capacity (MW)	Winter Reserve (MW)	Winter Reserve %
2019	4701	4087	0	0	0	41	67	Solar PPAs	5,772	1,071	22.8%	5,982	1,895	46.4%
2020	4418	4890	227	222	0	-289	-306	Solar PPAs, Wateree 2 outage	5,710	1,292	29.2%	5,898	1,008	20.6%
2021	4814	4939	226	223	0	13	3	Solar PPAs	5,721	907	18.8%	5,902	963	19.5%
2022	4855	4980	227	224	0	351	351	Solar PPA, Wateree 2 Online	6,073	1,218	25.1%	6,254	1,274	25.6%
2023	4899	5010	228	225	0	83	123	Jasper, CEC upgrade	6,157	1,258	25.7%	6,378	1,368	27.3%
2024	4923	5021	229	226	0	-5	9	Replace Parr & BP, Retire Coit	6,153	1,230	25.0%	6,388	1,367	27.2%
2025	4928	5053	230	227	0	19	40	Replace Urq3, Urq CT 1-4	6,173	1,245	25.3%	6,429	1,376	27.2%
2026	4954	5083	231	228	0	0	0		6,174	1,220	24.6%	6,430	1,347	26.5%
2027	4981	5114	232	229	0	0	0		6,175	1,194	24.0%	6,431	1,317	25.8%
2028	5005	5140	233	230	0	0	0		6,176	1,171	23.4%	6,432	1,292	25.1%
2029	5024	5166	234	231	0	0	0		6,177	1,153	22.9%	6,433	1,267	24.5%
2030	5044	5221	235	232	0	0	0		6,178	1,134	22.5%	6,434	1,213	23.2%
2031	5102	5278	236	233	0	0	0		6,179	1,077	21.1%	6,435	1,157	21.9%
2032	5160	5332	237	234	50	0	0		6,230	1,070	20.7%	6,486	1,154	21.6%
2033	5218	5387	238	235	100	0	0		6,281	1,063	20.4%	6,537	1,150	21.4%
2034	5278	5441	239	236	0	0	553	CC(553)	6,182	904	17.1%	6,991	1,550	28.5%
2035	5335	5494	240	237	0	534	0		6,717	1,382	25.9%	6,992	1,498	27.3%
2036	5389	5546	241	238	0	0	0		6,718	1,329	24.7%	6,993	1,447	26.1%
2037	5444	5597	242	239	0	0	0		6,719	1,275	23.4%	6,994	1,397	25.0%
2038	5499	5648	243	240	0	0	0		6,720	1,221	22.2%	6,995	1,347	23.9%
2039	5553	5699	244	241	0	0	0		6,721	1,168	21.0%	6,996	1,297	22.8%
2040	5608	5753	245	242	0	0	0		6,722	1,114	19.9%	6,997	1,244	21.6%
2041	5665	5808	246	243	50	0	0		6,773	1,107	19.5%	7,048	1,240	21.4%
2042	5723	5863	247	244	100	0	0		6,824	1,100	19.2%	7,099	1,236	21.1%
2043	5782	5919	248	245	0	0	523	CT(523)	6,725	943	16.3%	7,523	1,604	27.1%
2044	5841	5975	249	246	0	485	-161	Wateree(-684), CT(523)	7,211	1,370	23.5%	7,363	1,388	23.2%
2045	5900	6032	250	247	0	-199	0		7,013	1,112	18.9%	7,364	1,332	22.1%
2046	5960	6089	251	248	50	0	0		7,064	1,103	18.5%	7,415	1,326	21.8%
2047	6021	6147	252	249	0	0	436	Williams(-610), CT(523x2)	7,015	993	16.5%	7,802	1,655	26.9%
2048	6083	6206	253	250	0	360	0		7,376	1,293	21.3%	7,804	1,598	25.7%
2049	6145	6265	254	251	0	0	0		7,377	1,232	20.0%	7,805	1,540	24.6%

Resource Plan 2 Low DSM														
	Solar ELCC Capacity (Solar >500 MW) 11.8%				Solar ELCC Capacity (Solar >1000 MW) 4.25%				Summer Reserve Margin 12%			Winter Reserve Margin 21%		
Year	Gross Summer Peak (MW)	Gross Winter Peak (MW)	Summer Demand Response (MW)	Winter Demand Response (MW)	Annual Capacity Purchase (MW)	Summer Long Term (MW)	Winter Long Term (MW)	Description	Summer Capacity (MW)	Summer Reserve (MW)	Summer Reserve %	Winter Capacity (MW)	Winter Reserve (MW)	Winter Reserve %
2019	4701	4087	0	0	0	41	67	Solar PPAs	5,772	1,071	22.8%	5,982	1,895	46.4%
2020	4418	4890	227	222	0	-289	-306	Solar PPAs, Wateree 2 outage	5,710	1,292	29.2%	5,898	1,008	20.6%
2021	4814	4939	226	223	0	13	3	Solar PPAs	5,721	907	18.8%	5,902	963	19.5%
2022	4855	4980	227	224	0	351	351	Solar PPA, Wateree 2 Online	6,073	1,218	25.1%	6,254	1,274	25.6%
2023	4899	5010	228	225	0	83	123	Jasper, CEC upgrade	6,157	1,258	25.7%	6,378	1,368	27.3%
2024	4923	5021	229	226	0	-5	9	Replace Parr & BP, Retire Coit	6,153	1,230	25.0%	6,388	1,367	27.2%
2025	4928	5053	230	227	0	19	40	Replace Urq3, Urq CT 1-4	6,173	1,245	25.3%	6,429	1,376	27.2%
2026	4954	5083	231	228	0	0	0		6,174	1,220	24.6%	6,430	1,347	26.5%
2027	4981	5114	232	229	0	0	0		6,175	1,194	24.0%	6,431	1,317	25.8%
2028	5005	5140	233	230	0	0	0		6,176	1,171	23.4%	6,432	1,292	25.1%
2029	5024	5166	234	231	0	0	0		6,177	1,153	22.9%	6,433	1,267	24.5%
2030	5044	5221	235	232	0	0	0		6,178	1,134	22.5%	6,434	1,213	23.2%
2031	5102	5278	236	233	0	0	0		6,179	1,077	21.1%	6,435	1,157	21.9%
2032	5160	5332	237	234	50	0	0		6,230	1,070	20.7%	6,486	1,154	21.6%
2033	5218	5387	238	235	100	0	0		6,281	1,063	20.4%	6,537	1,150	21.4%
2034	5278	5441	239	236	0	0	523		6,182	904	17.1%	6,961	1,520	27.9%
2035	5335	5494	240	237	0	485	0		6,668	1,333	25.0%	6,962	1,468	26.7%
2036	5389	5546	241	238	0	0	0		6,669	1,280	23.7%	6,963	1,417	25.6%
2037	5444	5597	242	239	0	0	0		6,670	1,226	22.5%	6,964	1,367	24.4%
2038	5499	5648	243	240	0	0	0		6,671	1,172	21.3%	6,965	1,317	23.3%
2039	5553	5699	244	241	0	0	0		6,672	1,119	20.1%	6,966	1,267	22.2%
2040	5608	5752	245	242	0	0	0		6,673	1,065	19.0%	6,967	1,215	21.1%
2041	5664	5806	246	243	100	0	0		6,774	1,109	19.6%	7,068	1,263	21.7%
2042	5721	5860	247	244	150	0	0		6,825	1,103	19.3%	7,119	1,260	21.5%
2043	5778	5914	248	245	0	0	523	CT(523)	6,676	897	15.5%	7,493	1,579	26.7%
2044	5836	5969	249	246	0	485	-161	Wateree(-684), CT(523x1)	7,162	1,325	22.7%	7,333	1,364	22.9%
2045	5895	6025	250	247	0	-199	0		6,964	1,069	18.1%	7,334	1,310	21.7%
2046	5954	6081	251	248	50	0	0		7,015	1,061	17.8%	7,385	1,305	21.5%
2047	6014	6137	252	249	0	0	436	Williams(-610), CT(523x2)	6,966	952	15.8%	7,772	1,635	26.6%
2048	6074	6195	253	250	0	365	0		7,332	1,258	20.7%	7,774	1,579	25.5%
2049	6135	6252	254	251	0	0	0		7,333	1,198	19.5%	7,775	1,522	24.3%

Resource Plan 3 Low DSM														
	Solar ELCC Capacity (Solar >500 MW) 11.8%				Solar ELCC Capacity (Solar >1000 MW) 4.25%				Summer Reserve Margin 14%			Winter Reserve Margin 21%		
Year	Gross Summer Peak (MW)	Gross Winter Peak (MW)	Summer Demand Response (MW)	Winter Demand Response (MW)	Annual Capacity Purchase (MW)	Summer Long Term (MW)	Winter Long Term (MW)	Description	Summer Capacity (MW)	Summer Reserve (MW)	Summer Reserve %	Winter Capacity (MW)	Winter Reserve (MW)	Winter Reserve %
2019	4701	4087	0	0	0	41	67	Solar PPAs	5,772	1,071	22.8%	5,982	1,895	46.4%
2020	4418	4890	227	222	0	-289	-306	Solar PPAs, Wateree 2 outage	5,710	1,292	29.2%	5,898	1,008	20.6%
2021	4814	4939	226	223	0	13	3	Solar PPAs	5,721	907	18.8%	5,902	963	19.5%
2022	4855	4980	227	224	0	351	351	Solar PPA, Wateree 2 Online	6,073	1,218	25.1%	6,254	1,274	25.6%
2023	4899	5010	228	225	0	83	123	Jasper, CEC upgrade	6,157	1,258	25.7%	6,378	1,368	27.3%
2024	4923	5021	229	226	0	-5	9	Replace Parr & BP, Retire Coit	6,153	1,230	25.0%	6,388	1,367	27.2%
2025	4928	5053	230	227	0	19	40	Replace Urq3, Urq CT 1-4	6,173	1,245	25.3%	6,429	1,376	27.2%
2026	4954	5083	231	228	0	0	0		6,174	1,220	24.6%	6,430	1,347	26.5%
2027	4981	5114	232	229	0	0	0		6,175	1,194	24.0%	6,431	1,317	25.8%
2028	5005	5140	233	230	50	0	-131	Wateree(-684), CC(553)	6,176	1,171	23.4%	6,301	1,161	22.6%
2029	5024	5166	234	231	0	-150	0		6,027	1,003	20.0%	6,302	1,136	22.0%
2030	5044	5221	235	232	50	0	0		6,078	1,034	20.5%	6,353	1,132	21.7%
2031	5102	5278	236	233	100	0	0		6,129	1,027	20.1%	6,404	1,126	21.3%
2032	5160	5332	237	234	0	0	523	CT(523)	6,030	870	16.9%	6,828	1,496	28.1%
2033	5218	5387	238	235	0	485	0		6,516	1,298	24.9%	6,829	1,442	26.8%
2034	5278	5441	239	236	0	0	0		6,517	1,239	23.5%	6,830	1,389	25.5%
2035	5335	5494	240	237	0	0	0		6,518	1,183	22.2%	6,831	1,337	24.3%
2036	5389	5546	241	238	0	0	0		6,519	1,130	21.0%	6,832	1,286	23.2%
2037	5444	5597	242	239	0	0	0		6,520	1,076	19.8%	6,833	1,236	22.1%
2038	5499	5648	243	240	0	0	0		6,521	1,022	18.6%	6,834	1,186	21.0%
2039	5553	5699	244	241	100	0	0		6,622	1,069	19.2%	6,935	1,236	21.7%
2040	5608	5752	245	242	150	0	0		6,673	1,065	19.0%	6,986	1,234	21.5%
2041	5664	5806	246	243	0	0	523	CT(523)	6,524	859	15.2%	7,360	1,555	26.8%
2042	5721	5860	247	244	0	485	0		7,010	1,288	22.5%	7,361	1,502	25.6%
2043	5778	5914	248	245	0	0	0		7,011	1,232	21.3%	7,362	1,448	24.5%
2044	5836	5969	249	246	0	0	0		7,012	1,175	20.1%	7,363	1,394	23.4%
2045	5895	6025	250	247	0	0	0		7,013	1,118	19.0%	7,364	1,340	22.2%
2046	5954	6081	251	248	0	0	0		7,014	1,060	17.8%	7,365	1,285	21.1%
2047	6014	6137	252	249	0	0	436	Williams(-610), CT(523x2)	7,015	1,001	16.6%	7,802	1,665	27.1%
2048	6074	6195	253	250	0	360	0		7,376	1,302	21.4%	7,804	1,609	26.0%
2049	6135	6252	254	251	0	0	0		7,377	1,242	20.2%	7,805	1,552	24.8%

Resource Plan 4 Low DSM														
	Solar ELCC Capacity (Solar >500 MW) 11.8%				Solar ELCC Capacity (Solar >1000 MW) 4.25%				Summer Reserve Margin 14%			Winter Reserve Margin 21%		
Yr.	Gross Summer Peak (MW)	Gross Winter Peak (MW)	Summer Demand Response (MW)	Winter Demand Response (MW)	Annual Capacity Purchase (MW)	Summer Long Term (MW)	Winter Long Term (MW)	Description	Summer Capacity (MW)	Summer Reserve (MW)	Summer Reserve %	Winter Capacity (MW)	Winter Reserve (MW)	Winter Reserve %
2019	4701	4087	0	0	0	41	67	Solar PPAs	5,772	1,071	22.8%	5,982	1,895	46.4%
2020	4418	4890	227	222	0	-289	-306	Solar PPAs, Wateree 2 outage	5,710	1,292	29.2%	5,898	1,008	20.6%
2021	4814	4939	226	223	0	13	3	Solar PPAs	5,721	907	18.8%	5,902	963	19.5%
2022	4855	4980	227	224	0	351	351	Solar PPA, Wateree 2 Online	6,073	1,218	25.1%	6,254	1,274	25.6%
2023	4899	5010	228	225	0	83	123	Jasper, CEC upgrade	6,157	1,258	25.7%	6,378	1,368	27.3%
2024	4923	5021	229	226	0	-5	9	Replace Parr & BP, Retire Coit	6,153	1,230	25.0%	6,388	1,367	27.2%
2025	4928	5053	230	227	0	19	40	Replace Urq3, Urq CT 1-4	6,173	1,245	25.3%	6,429	1,376	27.2%
2026	4954	5083	231	228	0	0	0		6,174	1,220	24.6%	6,430	1,347	26.5%
2027	4981	5114	232	229	0	0	0		6,175	1,194	24.0%	6,431	1,317	25.8%
2028	5005	5140	233	230	0	0	273	Retire MCM CT(523x1)	6,176	1,171	23.4%	6,705	1,565	30.5%
2029	5024	5166	234	231	0	235	0		6,412	1,388	27.6%	6,706	1,540	29.8%
2030	5044	5221	235	232	0	0	0		6,413	1,369	27.1%	6,707	1,486	28.5%
2031	5102	5278	236	233	0	0	0		6,414	1,312	25.7%	6,708	1,430	27.1%
2032	5160	5332	237	234	0	0	0		6,415	1,255	24.3%	6,709	1,377	25.8%
2033	5218	5387	238	235	0	0	0		6,416	1,198	22.9%	6,710	1,323	24.6%
2034	5278	5441	239	236	0	0	0		6,417	1,139	21.6%	6,711	1,270	23.3%
2035	5335	5494	240	237	0	0	0		6,418	1,083	20.3%	6,712	1,218	22.2%
2036	5389	5546	241	238	0	0	0		6,419	1,030	19.1%	6,713	1,167	21.0%
2037	5444	5597	242	239	100	0	0		6,520	1,076	19.8%	6,814	1,217	21.7%
2038	5499	5648	243	240	150	0	0		6,571	1,072	19.5%	6,865	1,217	21.6%
2039	5553	5699	244	241	0	0	523	CT(523)	6,422	869	15.6%	7,239	1,540	27.0%
2040	5608	5752	245	242	0	485	0		6,908	1,300	23.2%	7,240	1,488	25.9%
2041	5664	5806	246	243	0	0	0		6,909	1,244	22.0%	7,241	1,436	24.7%
2042	5721	5860	247	244	0	0	0		6,910	1,188	20.8%	7,242	1,383	23.6%
2043	5778	5914	248	245	0	0	0		6,911	1,132	19.6%	7,243	1,329	22.5%
2044	5836	5969	249	246	0	0	362	Wateree(-684), CT(523x2)	6,912	1,075	18.4%	7,606	1,637	27.4%
2045	5895	6025	250	247	0	286	0		7,199	1,304	22.1%	7,607	1,583	26.3%
2046	5954	6081	251	248	0	0	0		7,200	1,246	20.9%	7,608	1,528	25.1%
2047	6014	6137	252	249	0	0	-87	Williams(-610), CT(523x1)	7,201	1,187	19.7%	7,522	1,385	22.6%
2048	6074	6195	253	250	0	-125	0		7,077	1,003	16.5%	7,524	1,329	21.5%
2049	6135	6252	254	251	50	0	0		7,128	993	16.2%	7,575	1,322	21.1%

Resource Plan 5 Low DSM														
	Solar ELCC Capacity (Solar >500 MW) 11.8%				Solar ELCC Capacity (Solar >1000 MW) 4.25%				Summer Reserve Margin 14%			Winter Reserve Margin 21%		
Year	Gross Summer Peak (MW)	Gross Winter Peak (MW)	Summer Demand Response (MW)	Winter Demand Response (MW)	Annual Capacity Purchase (MW)	Summer Long Term (MW)	Winter Long Term (MW)	Description	Summer Capacity (MW)	Summer Reserve (MW)	Summer Reserve %	Winter Capacity (MW)	Winter Reserve (MW)	Winter Reserve %
2019	4701	4087	0	0	0	41	67	Solar PPAs	5,772	1,071	22.8%	5,982	1,895	46.4%
2020	4418	4890	227	222	0	-289	-306	Solar PPAs, Wateree 2 outage	5,710	1,292	29.2%	5,898	1,008	20.6%
2021	4814	4939	226	223	0	13	3	Solar PPAs	5,721	907	18.8%	5,902	963	19.5%
2022	4855	4980	227	224	0	351	351	Wateree 2 Online	6,073	1,218	25.1%	6,254	1,274	25.6%
2023	4899	5010	228	225	0	83	123	Jasper, CEC upgrade	6,157	1,258	25.7%	6,378	1,368	27.3%
2024	4923	5021	229	226	0	-5	9	Replace Parr & BP, Retire Coit	6,153	1,230	25.0%	6,388	1,367	27.2%
2025	4928	5053	230	227	0	19	40	Replace Urq3, Urq CT 1-4	6,173	1,245	25.3%	6,429	1,376	27.2%
2026	4954	5083	231	228	0	117	117	Flexible Solar(400), Storage(100)	6,291	1,337	27.0%	6,547	1,464	28.8%
2027	4981	5114	232	229	0	0	0		6,292	1,311	26.3%	6,548	1,434	28.0%
2028	5005	5140	233	230	0	0	0		6,293	1,288	25.7%	6,549	1,409	27.4%
2029	5024	5166	234	231	0	0	0		6,294	1,270	25.3%	6,550	1,384	26.8%
2030	5044	5221	235	232	0	0	0		6,295	1,251	24.8%	6,551	1,330	25.5%
2031	5102	5278	236	233	0	0	0		6,296	1,194	23.4%	6,552	1,274	24.1%
2032	5160	5332	237	234	0	0	0		6,297	1,137	22.0%	6,553	1,221	22.9%
2033	5218	5387	238	235	0	0	0		6,298	1,080	20.7%	6,554	1,167	21.7%
2034	5278	5441	239	236	50	0	0		6,349	1,071	20.3%	6,605	1,164	21.4%
2035	5335	5494	240	237	100	0	0		6,400	1,065	20.0%	6,656	1,162	21.2%
2036	5389	5546	241	238	0	0	553	CC(553)	6,301	912	16.9%	7,110	1,564	28.2%
2037	5444	5597	242	239	0	534	0		6,836	1,392	25.6%	7,111	1,514	27.1%
2038	5499	5648	243	240	0	0	0		6,837	1,338	24.3%	7,112	1,464	25.9%
2039	5553	5699	244	241	0	0	0		6,838	1,285	23.1%	7,113	1,414	24.8%
2040	5608	5752	245	242	0	0	0		6,839	1,231	21.9%	7,114	1,362	23.7%
2041	5664	5806	246	243	0	0	0		6,840	1,175	20.7%	7,115	1,310	22.6%
2042	5721	5860	247	244	0	0	0		6,841	1,119	19.6%	7,116	1,257	21.4%
2043	5778	5914	248	245	50	0	0		6,892	1,113	19.3%	7,167	1,253	21.2%
2044	5836	5969	249	246	0	0	362	Wateree(-684), CT(523x2)	6,843	1,006	17.2%	7,480	1,511	25.3%
2045	5895	6025	250	247	0	286	0		7,130	1,235	20.9%	7,481	1,457	24.2%
2046	5954	6081	251	248	0	0	0		7,131	1,177	19.8%	7,482	1,402	23.0%
2047	6014	6137	252	249	0	0	436	Retire Williams, CT(523x2)	7,132	1,118	18.6%	7,919	1,782	29.0%
2048	6074	6195	253	250	0	360	0		7,493	1,419	23.4%	7,921	1,726	27.9%
2049	6135	6252	254	251	0	0	0		7,494	1,359	22.1%	7,922	1,669	26.7%

Resource Plan 6 Low DSM														
	Solar ELCC Capacity (Solar >500 MW) 11.8%				Solar ELCC Capacity (Solar >1000 MW) 4.25%				Summer Reserve Margin 14%			Winter Reserve Margin 21%		
Year	Gross Summer Peak (MW)	Gross Winter Peak (MW)	Summer Demand Response (MW)	Winter Demand Response (MW)	Annual Capacity Purchase (MW)	Summer Long Term (MW)	Winter Long Term (MW)	Description	Summer Capacity (MW)	Summer Reserve (MW)	Summer Reserve %	Winter Capacity (MW)	Winter Reserve (MW)	Winter Reserve %
2019	4701	4087	0	0	0	41	67	Solar PPAs	5,772	1,071	22.8%	5,982	1,895	46.4%
2020	4418	4890	227	222	0	-289	-306	Solar PPAs, Wateree 2 outage	5,710	1,292	29.2%	5,898	1,008	20.6%
2021	4814	4939	226	223	0	13	3	Solar PPAs	5,721	907	18.8%	5,902	963	19.5%
2022	4855	4980	227	224	0	351	351	Solar PPA, Wateree 2 Online	6,073	1,218	25.1%	6,254	1,274	25.6%
2023	4899	5010	228	225	0	83	123	Jasper, CEC upgrade	6,157	1,258	25.7%	6,378	1,368	27.3%
2024	4923	5021	229	226	0	-5	9	Replace Parr & BP, Retire Coit	6,153	1,230	25.0%	6,388	1,367	27.2%
2025	4928	5053	230	227	0	19	40	Replace Urq3, Urq CT 1-4	6,173	1,245	25.3%	6,429	1,376	27.2%
2026	4954	5083	231	228	0	17	17	Flexible Solar (400MW)	6,191	1,237	25.0%	6,447	1,364	26.8%
2027	4981	5114	232	229	0	0	0		6,192	1,211	24.3%	6,448	1,334	26.1%
2028	5005	5140	233	230	0	0	0		6,193	1,188	23.7%	6,449	1,309	25.5%
2029	5024	5166	234	231	0	0	0		6,194	1,170	23.3%	6,450	1,284	24.9%
2030	5044	5221	235	232	0	0	0		6,195	1,151	22.8%	6,451	1,230	23.6%
2031	5102	5278	236	233	0	0	0		6,196	1,094	21.4%	6,452	1,174	22.2%
2032	5160	5332	237	234	0	0	0		6,197	1,037	20.1%	6,453	1,121	21.0%
2033	5218	5387	238	235	100	0	0		6,298	1,080	20.7%	6,554	1,167	21.7%
2034	5278	5441	239	236	150	0	0		6,349	1,071	20.3%	6,605	1,164	21.4%
2035	5335	5494	240	237	0	0	523	CT(523)	6,200	865	16.2%	6,979	1,485	27.0%
2036	5389	5546	241	238	0	485	0		6,686	1,297	24.1%	6,980	1,434	25.9%
2037	5444	5597	242	239	0	0	0		6,687	1,243	22.8%	6,981	1,384	24.7%
2038	5499	5648	243	240	0	0	0		6,688	1,189	21.6%	6,982	1,334	23.6%
2039	5553	5699	244	241	0	0	0		6,689	1,136	20.4%	6,983	1,284	22.5%
2040	5608	5752	245	242	0	0	0		6,690	1,082	19.3%	6,984	1,232	21.4%
2041	5664	5806	246	243	50	0	0		6,741	1,076	19.0%	7,035	1,230	21.2%
2042	5721	5860	247	244	150	0	0		6,842	1,120	19.6%	7,136	1,277	21.8%
2043	5778	5914	248	245	0	0	523	CT(523)	6,693	914	15.8%	7,510	1,596	27.0%
2044	5836	5969	249	246	0	485	-161	Retire Wateree, CT(523)	7,179	1,342	23.0%	7,350	1,381	23.1%
2045	5895	6025	250	247	0	-199	0		6,981	1,086	18.4%	7,351	1,327	22.0%
2046	5954	6081	251	248	50	0	0		7,032	1,078	18.1%	7,402	1,322	21.7%
2047	6014	6137	252	249	0	0	436	Retire Williams, CT(523X2)	6,983	969	16.1%	7,789	1,652	26.9%
2048	6074	6195	253	250	0	365	0		7,349	1,275	21.0%	7,791	1,596	25.8%
2049	6135	6252	254	251	0	0	0		7,350	1,215	19.8%	7,792	1,539	24.6%

Resource Plan 7 Low DSM														
	Solar ELCC Capacity (Solar >500 MW) 11.8%				Solar ELCC Capacity (Solar >1000 MW) 4.25%				Summer Reserve Margin 14%			Winter Reserve Margin 21%		
Year	Gross Summer Peak (MW)	Gross Winter Peak (MW)	Summer Demand Response (MW)	Winter Demand Response (MW)	Annual Capacity Purchase (MW)	Summer Long Term (MW)	Winter Long Term (MW)	Description	Summer Capacity (MW)	Summer Reserve (MW)	Summer Reserve %	Winter Capacity (MW)	Winter Reserve (MW)	Winter Reserve %
2019	4701	4087	0	0	0	41	67	Solar PPAs	5,772	1,071	22.8%	5,982	1,895	46.4%
2020	4418	4890	227	222	0	-289	-306	Solar PPAs, Wateree 2 outage	5,710	1,292	29.2%	5,898	1,008	20.6%
2021	4814	4939	226	223	0	13	3	Solar PPAs	5,721	907	18.8%	5,902	963	19.5%
2022	4855	4980	227	224	0	351	351	Solar PPA, Wateree 2 Online	6,073	1,218	25.1%	6,254	1,274	25.6%
2023	4899	5010	228	225	0	83	123	Jasper, CEC upgrade	6,157	1,258	25.7%	6,378	1,368	27.3%
2024	4923	5021	229	226	0	-5	9	Replace Parr & BP, Retire Coit	6,153	1,230	25.0%	6,388	1,367	27.2%
2025	4928	5053	230	227	0	19	40	Replace Urq3, Urq CT 1-4	6,173	1,245	25.3%	6,429	1,376	27.2%
2026	4954	5083	231	228	0	117	117	Flexible Solar PPA (400), Storage (100)	6,291	1,337	27.0%	6,547	1,464	28.8%
2027	4981	5114	232	229	0	0	0		6,292	1,311	26.3%	6,548	1,434	28.0%
2028	5005	5140	233	230	0	0	0		6,293	1,288	25.7%	6,549	1,409	27.4%
2029	5024	5166	234	231	0	0	0		6,294	1,270	25.3%	6,550	1,384	26.8%
2030	5044	5221	235	232	0	0	0		6,295	1,251	24.8%	6,551	1,330	25.5%
2031	5102	5278	236	233	0	0	0		6,296	1,194	23.4%	6,552	1,274	24.1%
2032	5160	5332	237	234	0	0	0		6,297	1,137	22.0%	6,553	1,221	22.9%
2033	5218	5387	238	235	0	0	0		6,298	1,080	20.7%	6,554	1,167	21.7%
2034	5278	5441	239	236	50	0	0		6,349	1,071	20.3%	6,605	1,164	21.4%
2035	5335	5494	240	237	100	0	0		6,400	1,065	20.0%	6,656	1,162	21.2%
2036	5389	5546	241	238	0	0	523	CT(523)	6,301	912	16.9%	7,080	1,534	27.7%
2037	5444	5597	242	239	0	485	0		6,787	1,343	24.7%	7,081	1,484	26.5%
2038	5499	5648	243	240	0	0	0		6,788	1,289	23.4%	7,082	1,434	25.4%
2039	5553	5699	244	241	0	0	0		6,789	1,236	22.2%	7,083	1,384	24.3%
2040	5608	5752	245	242	0	0	0		6,790	1,182	21.1%	7,084	1,332	23.2%
2041	5664	5806	246	243	0	0	0		6,791	1,126	19.9%	7,085	1,280	22.0%
2042	5721	5860	247	244	50	0	0		6,842	1,120	19.6%	7,136	1,277	21.8%
2043	5778	5914	248	245	100	0	0		6,893	1,114	19.3%	7,187	1,273	21.5%
2044	5836	5969	249	246	0	0	362	Wateree(-684), CT(523X2)	6,794	957	16.4%	7,450	1,481	24.8%
2045	5895	6025	250	247	0	286	0		7,081	1,186	20.1%	7,451	1,427	23.7%
2046	5954	6081	251	248	0	0	0		7,082	1,128	18.9%	7,452	1,372	22.6%
2047	6014	6137	252	249	0	0	436	Williams(-610), CT(523)	7,083	1,069	17.8%	7,889	1,752	28.5%
2048	6074	6195	253	250	0	398	0		7,482	1,408	23.2%	7,891	1,696	27.4%
2049	6135	6252	254	251	0	0	0		7,483	1,348	22.0%	7,892	1,639	26.2%

Resource Plan 7a Low DSM														
	Solar ELCC Capacity (Solar >500 MW) 11.8%				Solar ELCC Capacity (Solar >1000 MW) 4.25%				Summer Reserve Margin 14%			Winter Reserve Margin 21%		
Year	Gross Summer Peak (MW)	Gross Winter Peak (MW)	Summer Demand Response (MW)	Winter Demand Response (MW)	Annual Capacity Purchase (MW)	Summer Long Term (MW)	Winter Long Term (MW)	Description	Summer Capacity (MW)	Summer Reserve (MW)	Summer Reserve %	Winter Capacity (MW)	Winter Reserve (MW)	Winter Reserve %
2019	4701	4087	0	0	0	41	67	Solar PPAs	5,772	1,071	22.8%	5,982	1,895	46.4%
2020	4418	4890	227	222	0	-289	-306	Solar PPAs, Wateree 2 outage	5,710	1,292	29.2%	5,898	1,008	20.6%
2021	4814	4939	226	223	0	13	3	Solar PPAs	5,721	907	18.8%	5,902	963	19.5%
2022	4855	4980	227	224	0	351	351	Solar PPA, Wateree 2 Online	6,073	1,218	25.1%	6,254	1,274	25.6%
2023	4899	5010	228	225	0	100	140	PPA Solar (400), Jasper, CEC upgrade	6,174	1,275	26.0%	6,395	1,385	27.6%
2024	4923	5021	229	226	0	-5	9	Replace Parr & BP, Retire Coit	6,170	1,247	25.3%	6,405	1,384	27.6%
2025	4928	5053	230	227	0	19	40	Replace Urq3, Urq CT 1-4	6,190	1,262	25.6%	6,446	1,393	27.6%
2026	4954	5083	231	228	0	0	0		6,191	1,237	25.0%	6,447	1,364	26.8%
2027	4981	5114	232	229	0	0	0		6,192	1,211	24.3%	6,448	1,334	26.1%
2028	5005	5140	233	230	0	0	0		6,193	1,188	23.7%	6,449	1,309	25.5%
2029	5024	5166	234	231	0	0	0		6,194	1,170	23.3%	6,450	1,284	24.9%
2030	5044	5221	235	232	0	0	0		6,195	1,151	22.8%	6,451	1,230	23.6%
2031	5102	5278	236	233	0	0	0		6,196	1,094	21.4%	6,452	1,174	22.2%
2032	5160	5332	237	234	0	0	0		6,197	1,037	20.1%	6,453	1,121	21.0%
2033	5218	5387	238	235	100	0	0		6,298	1,080	20.7%	6,554	1,167	21.7%
2034	5278	5441	239	236	150	0	0		6,349	1,071	20.3%	6,605	1,164	21.4%
2035	5335	5494	240	237	0	0	523	CT(523)	6,200	865	16.2%	6,979	1,485	27.0%
2036	5389	5546	241	238	0	485	0		6,686	1,297	24.1%	6,980	1,434	25.9%
2037	5444	5597	242	239	0	0	0		6,687	1,243	22.8%	6,981	1,384	24.7%
2038	5499	5648	243	240	0	0	0		6,688	1,189	21.6%	6,982	1,334	23.6%
2039	5553	5699	244	241	0	0	0		6,689	1,136	20.4%	6,983	1,284	22.5%
2040	5608	5752	245	242	0	0	0		6,690	1,082	19.3%	6,984	1,232	21.4%
2041	5664	5806	246	243	50	0	0		6,741	1,076	19.0%	7,035	1,230	21.2%
2042	5721	5860	247	244	150	0	0		6,842	1,120	19.6%	7,136	1,277	21.8%
2043	5778	5914	248	245	0	0	523	CT(523)	6,693	914	15.8%	7,510	1,596	27.0%
2044	5836	5969	249	246	0	485	-161	Wateree(-684), CT(523)	7,179	1,342	23.0%	7,350	1,381	23.1%
2045	5895	6025	250	247	0	-199	0		6,981	1,086	18.4%	7,351	1,327	22.0%
2046	5954	6081	251	248	50	0	0		7,032	1,078	18.1%	7,402	1,322	21.7%
2047	6014	6137	252	249	0	0	436	Williams(-610), CT(523x2)	6,983	969	16.1%	7,789	1,652	26.9%
2048	6074	6195	253	250	0	365	0		7,349	1,275	21.0%	7,791	1,596	25.8%
2049	6135	6252	254	251	0	0	0		7,350	1,215	19.8%	7,792	1,539	24.6%

Resource Plan 7b Low DSM														
	Solar ELCC Capacity (Solar >500 MW) 11.8%				Solar ELCC Capacity (Solar >1000 MW) 4.25%				Summer Reserve Margin 14%			Winter Reserve Margin 21%		
Year	Gross Summer Peak (MW)	Gross Winter Peak (MW)	Summer Demand Response (MW)	Winter Demand Response (MW)	Annual Capacity Purchase (MW)	Summer Long Term (MW)	Winter Long Term (MW)	Description	Summer Capacity (MW)	Summer Reserve (MW)	Summer Reserve %	Winter Capacity (MW)	Winter Reserve (MW)	Winter Reserve %
2019	4701	4087	0	0	0	41	67	Solar PPAs	5,772	1,071	22.8%	5,982	1,895	46.4%
2020	4418	4890	227	222	0	-289	-306	Solar PPAs, Wateree 2 outage	5,710	1,292	29.2%	5,898	1,008	20.6%
2021	4814	4939	226	223	0	13	3	Solar PPAs	5,721	907	18.8%	5,902	963	19.5%
2022	4855	4980	227	224	0	351	351	Solar PPA, Wateree 2 Online	6,073	1,218	25.1%	6,254	1,274	25.6%
2023	4899	5010	228	225	0	200	240	PPA Solar (400) w/ Storage (100), Jasper, CEC upgrade	6,274	1,375	28.1%	6,495	1,485	29.6%
2024	4923	5021	229	226	0	-5	9	Replace Parr & BP, Retire Coit	6,270	1,347	27.4%	6,505	1,484	29.6%
2025	4928	5053	230	227	0	19	40	Replace Urq3, Urq CT 1-4	6,290	1,362	27.6%	6,546	1,493	29.6%
2026	4954	5083	231	228	0	0	0		6,291	1,337	27.0%	6,547	1,464	28.8%
2027	4981	5114	232	229	0	0	0		6,292	1,311	26.3%	6,548	1,434	28.0%
2028	5005	5140	233	230	0	0	0		6,293	1,288	25.7%	6,549	1,409	27.4%
2029	5024	5166	234	231	0	0	0		6,294	1,270	25.3%	6,550	1,384	26.8%
2030	5044	5221	235	232	0	0	0		6,295	1,251	24.8%	6,551	1,330	25.5%
2031	5102	5278	236	233	0	0	0		6,296	1,194	23.4%	6,552	1,274	24.1%
2032	5160	5332	237	234	0	0	0		6,297	1,137	22.0%	6,553	1,221	22.9%
2033	5218	5387	238	235	0	0	0		6,298	1,080	20.7%	6,554	1,167	21.7%
2034	5278	5441	239	236	50	0	0		6,349	1,071	20.3%	6,605	1,164	21.4%
2035	5335	5494	240	237	100	0	0		6,400	1,065	20.0%	6,656	1,162	21.2%
2036	5389	5546	241	238	0	0	523	CT(523)	6,301	912	16.9%	7,080	1,534	27.7%
2037	5444	5597	242	239	0	485	0		6,787	1,343	24.7%	7,081	1,484	26.5%
2038	5499	5648	243	240	0	0	0		6,788	1,289	23.4%	7,082	1,434	25.4%
2039	5553	5699	244	241	0	0	0		6,789	1,236	22.2%	7,083	1,384	24.3%
2040	5608	5752	245	242	0	0	0		6,790	1,182	21.1%	7,084	1,332	23.2%
2041	5664	5806	246	243	0	0	0		6,791	1,126	19.9%	7,085	1,280	22.0%
2042	5721	5860	247	244	50	0	0		6,842	1,120	19.6%	7,136	1,277	21.8%
2043	5778	5914	248	245	100	0	0		6,893	1,114	19.3%	7,187	1,273	21.5%
2044	5836	5969	249	246	0	0	362	Wateree(-684), CT(523x2)	6,794	957	16.4%	7,450	1,481	24.8%
2045	5895	6025	250	247	0	286	0		7,081	1,186	20.1%	7,451	1,427	23.7%
2046	5954	6081	251	248	0	0	0		7,082	1,128	18.9%	7,452	1,372	22.6%
2047	6014	6137	252	249	0	0	436	Williams(-610), CT(523x1)	7,083	1,069	17.8%	7,889	1,752	28.5%
2048	6074	6195	253	250	0	-120	0		6,964	890	14.6%	7,891	1,696	27.4%
2049	6135	6252	254	251	0	0	0		6,965	830	13.5%	7,892	1,639	26.2%

Resource Plan 8 Low DSM														
	Solar ELCC Capacity (Solar >500 MW) 11.8%				Solar ELCC Capacity (Solar >1000 MW) 4.25%				Summer Reserve Margin 14%			Winter Reserve Margin 21%		
Year	Gross Summer Peak (MW)	Gross Winter Peak (MW)	Summer Demand Response (MW)	Winter Demand Response (MW)	Annual Capacity Purchase (MW)	Summer Long Term (MW)	Winter Long Term (MW)	Description	Summer Capacity (MW)	Summer Reserve (MW)	Summer Reserve %	Winter Capacity (MW)	Winter Reserve (MW)	Winter Reserve %
2019	4701	4198	0	0	0	41	67	Solar PPAs	5,772	1,071	22.8%	5,982	1,784	42.5%
2020	4701	4890	227	222	0	-289	-306	Solar PPAs, Wateree 2 outage	5,710	1,009	21.5%	5,898	1,008	20.6%
2021	4814	4939	226	223	0	13	3	Solar PPAs	5,721	907	18.8%	5,902	963	19.5%
2022	4855	4980	227	224	0	351	351	Wateree 2 Online	6,073	1,218	25.1%	6,254	1,274	25.6%
2023	4899	5010	228	225	0	83	123	Jasper, CEC upgrade	6,157	1,258	25.7%	6,378	1,368	27.3%
2024	4923	5021	229	226	0	-5	9	Replace Parr & BP, Retire Coit	6,153	1,230	25.0%	6,388	1,367	27.2%
2025	4928	5053	230	227	0	19	40	Replace Urq3, Urq CT 1-4	6,173	1,245	25.3%	6,429	1,376	27.2%
2026	4954	5083	231	228	0	2	2	Solar (50)	6,176	1,222	24.7%	6,432	1,349	26.5%
2027	4981	5114	232	229	0	2	2	Solar (50)	6,179	1,198	24.0%	6,435	1,321	25.8%
2028	5005	5140	233	230	50	0	-218	Wateree(-684), Williams (-610), CC(553) CT(523)	6,230	1,225	24.5%	6,268	1,128	22.0%
2029	5024	5166	234	231	50	-270	0		5,961	937	18.6%	6,269	1,103	21.4%
2030	5044	5221	235	232	0	104	104	Solar (100) w/ Storage (100)	6,016	972	19.3%	6,325	1,104	21.1%
2031	5102	5278	236	233	0	104	104	Solar (100) w/ Storage (100)	6,121	1,019	20.0%	6,430	1,152	21.8%
2032	5160	5332	237	234	0	104	104	Solar (100) w/ Storage (100)	6,227	1,067	20.7%	6,535	1,203	22.6%
2033	5218	5387	238	235	0	104	104	Solar (100) w/ Storage (100)	6,332	1,114	21.3%	6,640	1,253	23.3%
2034	5278	5441	239	236	0	104	104	Solar (100) w/ Storage (100)	6,437	1,159	22.0%	6,746	1,305	24.0%
2035	5335	5494	240	237	0	4	4	Solar (100)	6,442	1,107	20.8%	6,751	1,257	22.9%
2036	5389	5546	241	238	0	4	135	CT (131), Solar (100)	6,448	1,059	19.6%	6,887	1,341	24.2%
2037	5444	5597	242	239	0	135	4	Solar (100)	6,584	1,140	20.9%	6,892	1,295	23.1%
2038	5499	5648	243	240	0	4	135	CT (131), Solar (100)	6,589	1,090	19.8%	7,029	1,381	24.4%
2039	5553	5699	244	241	0	135	4	Solar (100)	6,725	1,172	21.1%	7,034	1,335	23.4%
2040	5608	5752	245	242	0	4	135	CT (131), Solar (100)	6,731	1,123	20.0%	7,170	1,418	24.7%
2041	5664	5806	246	243	0	135	4	Solar (100)	6,867	1,203	21.2%	7,175	1,370	23.6%
2042	5721	5860	247	244	0	104	104	Solar (100) w/ Storage (100)	6,972	1,251	21.9%	7,281	1,421	24.3%
2043	5778	5914	248	245	0	4	4	Solar (100)	6,977	1,199	20.7%	7,286	1,372	23.2%
2044	5836	5969	249	246	0	104	104	Solar (100) w/ Storage (100)	7,083	1,246	21.4%	7,391	1,422	23.8%
2045	5895	6025	250	247	0	4	4	Solar (100)	7,088	1,193	20.2%	7,397	1,372	22.8%
2046	5954	6081	251	248	0	104	104	Solar (100) w/ Storage (100)	7,193	1,239	20.8%	7,502	1,421	23.4%
2047	6014	6137	252	249	0	104	104	Solar (100) w/ Storage (100)	7,298	1,285	21.4%	7,607	1,470	23.9%
2048	6074	6195	253	250	0	4	135	CT (131), Solar (100)	7,304	1,230	20.2%	7,744	1,549	25.0%
2049	6135	6252	254	251	0	131	0		7,436	1,301	21.2%	7,745	1,492	23.9%

Resource Plan 8a Low DSM														
	Solar ELCC Capacity (Solar >500 MW) 11.8%				Solar ELCC Capacity (Solar >1000 MW) 4.25%				Summer Reserve Margin 14%			Winter Reserve Margin 21%		
Year	Gross Summer Peak (MW)	Gross Winter Peak (MW)	Summer Demand Response (MW)	Winter Demand Response (MW)	Annual Capacity Purchase (MW)	Summer Long Term (MW)	Winter Long Term (MW)	Description	Summer Capacity (MW)	Summer Reserve (MW)	Summer Reserve %	Winter Capacity (MW)	Winter Reserve (MW)	Winter Reserve %
2019	4701	4198	0	0	0	41	67	Solar PPAs	5,772	1,071	22.8%	5,982	1,784	42.5%
2020	4701	4890	227	222	0	-289	-306	Solar PPAs, Wateree 2 outage	5,710	1,009	21.5%	5,898	1,008	20.6%
2021	4814	4939	226	223	0	13	3	Solar PPAs	5,721	907	18.8%	5,902	963	19.5%
2022	4855	4980	227	224	0	351	351	Wateree 2 Online	6,073	1,218	25.1%	6,254	1,274	25.6%
2023	4899	5010	228	225	0	200	240	Solar (400) w/ Storage (100), Jasper, CEC upgrade	6,274	1,375	28.1%	6,495	1,485	29.6%
2024	4923	5021	229	226	0	-5	9	Replace Parr & BP, Retire Coit	6,270	1,347	27.4%	6,505	1,484	29.6%
2025	4928	5053	230	227	0	19	40	Replace Urq3, Urq CT 1-4	6,290	1,362	27.6%	6,546	1,493	29.6%
2026	4954	5083	231	228	0	2	2	Solar (50)	6,293	1,339	27.0%	6,549	1,466	28.8%
2027	4981	5114	232	229	0	2	2	Solar (50)	6,296	1,315	26.4%	6,552	1,438	28.1%
2028	5005	5140	233	230	0	0	-218	Wateree(-684), Williams (-610), CC(553) CT(523)	6,297	1,292	25.8%	6,335	1,195	23.3%
2029	5024	5166	234	231	0	-270	0		6,028	1,004	20.0%	6,336	1,170	22.7%
2030	5044	5221	235	232	0	4	4	Solar (100)	6,033	989	19.6%	6,342	1,121	21.5%
2031	5102	5278	236	233	0	104	104	Solar (100) w/ Storage (100)	6,138	1,036	20.3%	6,447	1,169	22.1%
2032	5160	5332	237	234	0	104	104	Solar (100) w/ Storage (100)	6,244	1,084	21.0%	6,552	1,220	22.9%
2033	5218	5387	238	235	0	104	104	Solar (100) w/ Storage (100)	6,349	1,131	21.7%	6,657	1,270	23.6%
2034	5278	5441	239	236	0	104	104	Solar (100) w/ Storage (100)	6,454	1,176	22.3%	6,763	1,322	24.3%
2035	5335	5494	240	237	0	4	4	Solar (100)	6,459	1,124	21.1%	6,768	1,274	23.2%
2036	5389	5546	241	238	0	4	135	CT (131), Solar (100)	6,465	1,076	20.0%	6,904	1,358	24.5%
2037	5444	5597	242	239	0	135	4	Solar (100)	6,601	1,157	21.2%	6,909	1,312	23.4%
2038	5499	5648	243	240	0	4	135	CT (131), Solar (100)	6,606	1,107	20.1%	7,046	1,398	24.7%
2039	5553	5699	244	241	0	135	4	Solar (100)	6,742	1,189	21.4%	7,051	1,352	23.7%
2040	5608	5752	245	242	0	4	135	CT (131), Solar (100)	6,748	1,140	20.3%	7,187	1,435	25.0%
2041	5664	5806	246	243	0	135	4	Solar (100)	6,884	1,220	21.5%	7,192	1,387	23.9%
2042	5721	5860	247	244	0	104	104	Solar (100) w/ Storage (100)	6,989	1,268	22.2%	7,298	1,438	24.5%
2043	5778	5914	248	245	0	4	4	Solar (100)	6,994	1,216	21.0%	7,303	1,389	23.5%
2044	5836	5969	249	246	0	104	104	Solar (100) w/ Storage (100)	7,100	1,263	21.6%	7,408	1,439	24.1%
2045	5895	6025	250	247	0	4	4	Solar (100)	7,105	1,210	20.5%	7,414	1,389	23.1%
2046	5954	6081	251	248	0	104	104	Solar (100) w/ Storage (100)	7,210	1,256	21.1%	7,519	1,438	23.6%
2047	6014	6137	252	249	0	104	104	Solar (100) w/ Storage (100)	7,315	1,302	21.6%	7,624	1,487	24.2%
2048	6074	6195	253	250	0	4	135	CT (131), Solar (100)	7,321	1,247	20.5%	7,761	1,566	25.3%
2049	6135	6252	254	251	0	131	0		7,453	1,318	21.5%	7,762	1,509	24.1%

Resource Plan 1 Medium DSM														
	Solar ELCC Capacity (Solar >500 MW) 11.8%				Solar ELCC Capacity (Solar >973 MW) 4.25%				Summer Reserve Margin 14%			Winter Reserve Margin 21%		
Year	Gross Summer Peak (MW)	Gross Winter Peak (MW)	Summer Demand Response (MW)	Winter Demand Response (MW)	Annual Capacity Purchase (MW)	Summer Long Term (MW)	Winter Long Term (MW)	Description	Summer Capacity (MW)	Summer Reserve (MW)	Summer Reserve %	Winter Capacity (MW)	Winter Reserve (MW)	Winter Reserve %
2019	4701	4087	0	0	0	41	67	Solar PPAs	5,772	1,071	22.8%	5,982	1,895	46.4%
2020	4418	4890	227	222	0	-289	-306	Solar PPAs, Wateree 2 outage	5,710	1,292	29.2%	5,899	1,009	20.6%
2021	4814	4939	226	223	0	13	3	Solar PPAs	5,721	907	18.8%	5,902	963	19.5%
2022	4855	4975	227	225	0	351	351	Solar PPA, Wateree 2 Online	6,073	1,218	25.1%	6,255	1,280	25.7%
2023	4893	5002	228	227	0	83	123	Jasper, CEC upgrade	6,157	1,264	25.8%	6,379	1,377	27.5%
2024	4915	5008	229	229	0	-5	9	Replace Parr & BP, Retire Coit	6,153	1,238	25.2%	6,391	1,383	27.6%
2025	4918	5037	230	233	0	19	40	Replace Urq3, Urq CT 1-4	6,173	1,255	25.5%	6,435	1,398	27.8%
2026	4939	5065	231	238	0	0	0		6,174	1,235	25.0%	6,441	1,376	27.2%
2027	4965	5094	232	248	0	0	0		6,175	1,210	24.4%	6,450	1,356	26.6%
2028	4987	5117	233	260	0	0	0		6,176	1,189	23.8%	6,462	1,345	26.3%
2029	5003	5139	234	274	0	0	0		6,177	1,174	23.5%	6,477	1,338	26.0%
2030	5021	5193	235	275	0	0	0		6,178	1,157	23.0%	6,478	1,285	24.7%
2031	5079	5251	236	276	0	0	0		6,179	1,100	21.6%	6,479	1,228	23.4%
2032	5137	5305	237	277	0	0	0		6,180	1,043	20.3%	6,480	1,175	22.1%
2033	5194	5360	238	278	50	0	0		6,231	1,037	20.0%	6,531	1,171	21.8%
2034	5255	5414	239	279	100	0	0		6,282	1,027	19.5%	6,582	1,168	21.6%
2035	5312	5467	240	280	0	0	553	CC(553)	6,183	871	16.4%	7,036	1,569	28.7%
2036	5366	5519	241	281	0	534	0		6,718	1,352	25.2%	7,037	1,518	27.5%
2037	5421	5570	242	282	0	0	0		6,719	1,298	23.9%	7,038	1,468	26.3%
2038	5476	5621	243	283	0	0	0		6,720	1,244	22.7%	7,039	1,418	25.2%
2039	5530	5672	244	284	0	0	0		6,721	1,191	21.5%	7,040	1,368	24.1%
2040	5585	5725	245	285	0	0	0		6,722	1,137	20.3%	7,041	1,316	23.0%
2041	5641	5779	246	286	0	0	0		6,723	1,081	19.2%	7,042	1,263	21.9%
2042	5698	5833	247	287	50	0	0		6,774	1,075	18.9%	7,093	1,260	21.6%
2043	5755	5887	248	288	100	0	0		6,825	1,069	18.6%	7,144	1,256	21.3%
2044	5813	5942	249	289	0	0	362	Wateree(-684), CT(523)	6,726	912	15.7%	7,407	1,464	24.6%
2045	5872	5998	250	291	0	286	0		7,013	1,141	19.4%	7,408	1,410	23.5%
2046	5931	6054	251	292	0	0	0		7,014	1,083	18.3%	7,409	1,355	22.4%
2047	5991	6111	252	293	0	0	436	Williams(-610), CT(523x2)	7,015	1,024	17.1%	7,846	1,735	28.4%
2048	6051	6168	253	294	0	365	0		7,381	1,329	22.0%	7,847	1,679	27.2%
2049	6112	6225	254	295	0	0	0		7,382	1,270	20.8%	7,848	1,622	26.1%

Resource Plan 2 Medium DSM														
	Solar ELCC Capacity (Solar >500 MW) 11.8%				Solar ELCC Capacity (Solar >973 MW) 4.25%				Summer Reserve Margin 14%			Winter Reserve Margin 21%		
Year	Gross Summer Peak (MW)	Gross Winter Peak (MW)	Summer Demand Response (MW)	Winter Demand Response (MW)	Annual Capacity Purchase (MW)	Summer Long Term (MW)	Winter Long Term (MW)	Description	Summer Capacity (MW)	Summer Reserve (MW)	Summer Reserve %	Winter Capacity (MW)	Winter Reserve (MW)	Winter Reserve %
2019	4701	4087	0	0	0	41	67	Solar PPAs	5,772	1,071	22.8%	5,982	1,895	46.4%
2020	4418	4890	227	222	0	-289	-306	Solar PPAs, Wateree 2 outage	5,710	1,292	29.2%	5,899	1,009	20.6%
2021	4814	4939	226	223	0	13	3	Solar PPAs	5,721	907	18.8%	5,902	963	19.5%
2022	4855	4975	227	225	0	351	351	Wateree 2 Online	6,073	1,218	25.1%	6,255	1,280	25.7%
2023	4893	5002	228	227	0	83	123	Jasper, CEC upgrade	6,157	1,264	25.8%	6,379	1,377	27.5%
2024	4915	5008	229	229	0	-5	9	Replace Parr & BP, Retire Coit	6,153	1,238	25.2%	6,391	1,383	27.6%
2025	4918	5037	230	233	0	19	40	Replace Urq3, Urq CT 1-4	6,173	1,255	25.5%	6,435	1,398	27.8%
2026	4939	5065	231	238	0	0	0		6,174	1,235	25.0%	6,441	1,376	27.2%
2027	4965	5094	232	248	0	0	0		6,175	1,210	24.4%	6,450	1,356	26.6%
2028	4987	5117	233	260	0	0	0		6,176	1,189	23.8%	6,462	1,345	26.3%
2029	5003	5139	234	274	0	0	0		6,177	1,174	23.5%	6,477	1,338	26.0%
2030	5021	5193	235	275	0	0	0		6,178	1,157	23.0%	6,478	1,285	24.7%
2031	5079	5251	236	276	0	0	0		6,179	1,100	21.6%	6,479	1,228	23.4%
2032	5137	5305	237	277	0	0	0		6,180	1,043	20.3%	6,480	1,175	22.1%
2033	5194	5360	238	278	50	0	0		6,231	1,037	20.0%	6,531	1,171	21.8%
2034	5255	5414	239	279	100	0	0		6,282	1,027	19.5%	6,582	1,168	21.6%
2035	5312	5467	240	280	0	0	523	CT(523)	6,183	871	16.4%	7,006	1,539	28.1%
2036	5366	5519	241	281	0	485	0		6,669	1,303	24.3%	7,007	1,488	27.0%
2037	5421	5570	242	282	0	0	0		6,670	1,249	23.0%	7,008	1,438	25.8%
2038	5476	5621	243	283	0	0	0		6,671	1,195	21.8%	7,009	1,388	24.7%
2039	5530	5672	244	284	0	0	0		6,672	1,142	20.6%	7,010	1,338	23.6%
2040	5585	5725	245	285	0	0	0		6,673	1,088	19.5%	7,011	1,286	22.5%
2041	5641	5779	246	286	0	0	0		6,674	1,032	18.3%	7,012	1,233	21.3%
2042	5698	5833	247	287	50	0	0		6,725	1,026	18.0%	7,063	1,230	21.1%
2043	5755	5887	248	288	150	0	0		6,826	1,070	18.6%	7,164	1,276	21.7%
2044	5813	5942	249	289	0	0	362	Wateree(-684), CT(523x2)	6,677	863	14.8%	7,377	1,434	24.1%
2045	5872	5998	250	291	0	286	0		6,964	1,092	18.6%	7,378	1,380	23.0%
2046	5931	6054	251	292	0	0	0		6,965	1,034	17.4%	7,379	1,325	21.9%
2047	5991	6111	252	293	0	0	436	Williams(-610), CT(523x2)	6,966	975	16.3%	7,816	1,705	27.9%
2048	6051	6168	253	294	0	365	0		7,332	1,280	21.2%	7,817	1,649	26.7%
2049	6112	6225	254	295	0	0	0		7,333	1,221	20.0%	7,818	1,592	25.6%

Resource Plan 3 Medium DSM														
	Solar ELCC Capacity (Solar >500 MW) 11.8%				Solar ELCC Capacity (Solar >973 MW) 4.25%				Summer Reserve Margin 14%			Winter Reserve Margin 21%		
Year	Gross Summer Peak (MW)	Gross Winter Peak (MW)	Summer Demand Response (MW)	Winter Demand Response (MW)	Annual Capacity Purchase (MW)	Summer Long Term (MW)	Winter Long Term (MW)	Description	Summer Capacity (MW)	Summer Reserve (MW)	Summer Reserve %	Winter Capacity (MW)	Winter Reserve (MW)	Winter Reserve %
2019	4701	4087	0	0	0	41	67	Solar PPAs	5,772	1,071	22.8%	5,982	1,895	46.4%
2020	4418	4890	227	222	0	-289	-306	Solar PPAs, Wateree 2 outage	5,710	1,292	29.2%	5,899	1,009	20.6%
2021	4814	4939	226	223	0	13	3	Solar PPAs	5,721	907	18.8%	5,902	963	19.5%
2022	4855	4975	227	225	0	351	351	Solar PPA, Wateree 2 Online	6,073	1,218	25.1%	6,255	1,280	25.7%
2023	4893	5002	228	227	0	83	123	Jasper, CEC upgrade	6,157	1,264	25.8%	6,379	1,377	27.5%
2024	4915	5008	229	229	0	-5	9	Replace Parr & BP, Retire Coit	6,153	1,238	25.2%	6,391	1,383	27.6%
2025	4918	5037	230	233	0	19	40	Replace Urq3, Urq CT 1-4	6,173	1,255	25.5%	6,435	1,398	27.8%
2026	4939	5065	231	238	0	0	0		6,174	1,235	25.0%	6,441	1,376	27.2%
2027	4965	5094	232	248	0	0	0		6,175	1,210	24.4%	6,450	1,356	26.6%
2028	4987	5117	233	260	0	0	-131	Wateree(-684), CC(553)	6,176	1,189	23.8%	6,331	1,214	23.7%
2029	5003	5139	234	274	0	-150	0		6,027	1,024	20.5%	6,346	1,207	23.5%
2030	5021	5193	235	275	0	0	0		6,028	1,007	20.0%	6,347	1,154	22.2%
2031	5079	5251	236	276	50	0	0		6,079	1,000	19.7%	6,398	1,147	21.8%
2032	5137	5305	237	277	100	0	0		6,130	993	19.3%	6,449	1,144	21.6%
2033	5194	5360	238	278	0	0	523	CT(523)	6,031	837	16.1%	6,873	1,513	28.2%
2034	5255	5414	239	279	0	485	0		6,517	1,262	24.0%	6,874	1,460	27.0%
2035	5312	5467	240	280	0	0	0		6,518	1,206	22.7%	6,875	1,408	25.7%
2036	5366	5519	241	281	0	0	0		6,519	1,153	21.5%	6,876	1,357	24.6%
2037	5421	5570	242	282	0	0	0		6,520	1,099	20.3%	6,877	1,307	23.5%
2038	5476	5621	243	283	0	0	0		6,521	1,045	19.1%	6,878	1,257	22.4%
2039	5530	5672	244	284	0	0	0		6,522	992	17.9%	6,879	1,207	21.3%
2040	5585	5725	245	285	50	0	0		6,573	988	17.7%	6,930	1,205	21.0%
2041	5641	5779	246	286	150	0	0		6,674	1,032	18.3%	7,031	1,252	21.7%
2042	5698	5833	247	287	0	0	523	CT(523)	6,525	826	14.5%	7,405	1,572	27.0%
2043	5755	5887	248	288	0	485	0		7,011	1,255	21.8%	7,406	1,518	25.8%
2044	5813	5942	249	289	0	0	0		7,012	1,198	20.6%	7,407	1,464	24.6%
2045	5872	5998	250	291	0	0	0		7,013	1,141	19.4%	7,408	1,410	23.5%
2046	5931	6054	251	292	0	0	0		7,014	1,083	18.3%	7,409	1,355	22.4%
2047	5991	6111	252	293	0	0	436	Williams(-610), CT(523x2)	7,015	1,024	17.1%	7,846	1,735	28.4%
2048	6051	6168	253	294	0	365	0		7,381	1,329	22.0%	7,847	1,679	27.2%
2049	6112	6225	254	295	0	0	0		7,382	1,270	20.8%	7,848	1,622	26.1%

Resource Plan 4 Medium DSM														
	Solar ELCC Capacity (Solar >500 MW) 11.8%				Solar ELCC Capacity (Solar >973 MW) 4.25%				Summer Reserve Margin 14%			Winter Reserve Margin 21%		
Year	Gross Summer Peak (MW)	Gross Winter Peak (MW)	Summer Demand Response (MW)	Winter Demand Response (MW)	Annual Capacity Purchase (MW)	Summer Long Term (MW)	Winter Long Term (MW)	Description	Summer Capacity (MW)	Summer Reserve (MW)	Summer Reserve %	Winter Capacity (MW)	Winter Reserve (MW)	Winter Reserve %
2019	4701	4087	0	0	0	41	67	Solar PPAs	5,772	1,071	22.8%	5,982	1,895	46.4%
2020	4418	4890	227	222	0	-289	-306	Solar PPAs, Wateree 2 outage	5,710	1,292	29.2%	5,899	1,009	20.6%
2021	4814	4939	226	223	0	13	3	Solar PPAs	5,721	907	18.8%	5,902	963	19.5%
2022	4855	4975	227	225	0	351	351	Solar PPA, Wateree 2 Online	6,073	1,218	25.1%	6,255	1,280	25.7%
2023	4893	5002	228	227	0	83	123	Jasper, CEC upgrade	6,157	1,264	25.8%	6,379	1,377	27.5%
2024	4915	5008	229	229	0	-5	9	Replace Parr & BP, Retire Coit	6,153	1,238	25.2%	6,391	1,383	27.6%
2025	4918	5037	230	233	0	19	40	Replace Urq3, Urq CT 1-4	6,173	1,255	25.5%	6,435	1,398	27.8%
2026	4939	5065	231	238	0	0	0		6,174	1,235	25.0%	6,441	1,376	27.2%
2027	4965	5094	232	248	0	0	0		6,175	1,210	24.4%	6,450	1,356	26.6%
2028	4987	5117	233	260	0	0	-250	Retire MCM, CT(523x1)	6,176	1,189	23.8%	6,212	1,095	21.4%
2029	5003	5139	234	274	0	235	0		6,412	1,409	28.2%	6,227	1,088	21.2%
2030	5021	5193	235	275	100	0	0		6,513	1,492	29.7%	6,328	1,135	21.8%
2031	5079	5251	236	276	150	0	0		6,564	1,485	29.2%	6,379	1,128	21.5%
2032	5137	5305	237	277	0	0	523	CT(523)	6,415	1,278	24.9%	6,753	1,448	27.3%
2033	5194	5360	238	278	0	485	0		6,901	1,707	32.9%	6,754	1,394	26.0%
2034	5255	5414	239	279	0	0	0		6,902	1,647	31.3%	6,755	1,341	24.8%
2035	5312	5467	240	280	0	0	0		6,903	1,591	29.9%	6,756	1,289	23.6%
2036	5366	5519	241	281	0	0	0		6,904	1,538	28.7%	6,757	1,238	22.4%
2037	5421	5570	242	282	0	0	0		6,905	1,484	27.4%	6,758	1,188	21.3%
2038	5476	5621	243	283	50	0	0		6,956	1,480	27.0%	6,809	1,188	21.1%
2039	5530	5672	244	284	150	0	0		7,057	1,527	27.6%	6,910	1,238	21.8%
2040	5585	5725	245	285	0	0	523	CT(523)	6,908	1,323	23.7%	7,284	1,559	27.2%
2041	5641	5779	246	286	0	485	0		7,394	1,752	31.1%	7,285	1,506	26.1%
2042	5698	5833	247	287	0	0	0		7,395	1,696	29.8%	7,286	1,453	24.9%
2043	5755	5887	248	288	0	0	0		7,396	1,640	28.5%	7,287	1,399	23.8%
2044	5813	5942	249	289	0	0	362	Wateree(-684), CT(523X2)	7,397	1,583	27.2%	7,650	1,707	28.7%
2045	5872	5998	250	291	0	286	0		7,684	1,812	30.9%	7,651	1,653	27.6%
2046	5931	6054	251	292	0	0	0		7,685	1,754	29.6%	7,652	1,598	26.4%
2047	5991	6111	252	293	0	0	-87	Williams(-610), CT(523x1)	7,686	1,695	28.3%	7,566	1,455	23.8%
2048	6051	6168	253	294	0	-125	0		7,562	1,510	25.0%	7,567	1,399	22.7%
2049	6112	6225	254	295	0	0	0		7,563	1,451	23.7%	7,568	1,342	21.6%

Resource Plan 5 Medium DSM														
	Solar ELCC Capacity (Solar >500 MW) 11.8%				Solar ELCC Capacity (Solar >973 MW) 4.25%				Summer Reserve Margin 14%			Winter Reserve Margin 21%		
Year	Gross Summer Peak (MW)	Gross Winter Peak (MW)	Summer Demand Response (MW)	Winter Demand Response (MW)	Annual Capacity Purchase (MW)	Summer Long Term (MW)	Winter Long Term (MW)	Description	Summer Capacity (MW)	Summer Reserve (MW)	Summer Reserve %	Winter Capacity (MW)	Winter Reserve (MW)	Winter Reserve %
2019	4701	4087	0	0	0	41	67	Solar PPAs	5,772	1,071	22.8%	5,982	1,895	46.4%
2020	4418	4890	227	222	0	-289	-306	Solar PPAs, Wateree 2 outage	5,710	1,292	29.2%	5,899	1,009	20.6%
2021	4814	4939	226	223	0	13	3	Solar PPAs	5,721	907	18.8%	5,902	963	19.5%
2022	4855	4975	227	225	0	351	351	Wateree 2 Online	6,073	1,218	25.1%	6,255	1,280	25.7%
2023	4893	5002	228	227	0	83	123	Jasper, CEC upgrade	6,157	1,264	25.8%	6,379	1,377	27.5%
2024	4915	5008	229	229	0	-5	9	Replace Parr & BP, Retire Coit	6,153	1,238	25.2%	6,391	1,383	27.6%
2025	4918	5037	230	233	0	19	40	Replace Urq3, Urq CT 1-4	6,173	1,255	25.5%	6,435	1,398	27.8%
2026	4939	5065	231	238	0	117	117	Flexible Solar(400), Storage(100)	6,291	1,352	27.4%	6,558	1,493	29.5%
2027	4965	5094	232	248	0	0	0		6,292	1,327	26.7%	6,567	1,473	28.9%
2028	4987	5117	233	260	0	0	0		6,293	1,306	26.2%	6,579	1,462	28.6%
2029	5003	5139	234	274	0	0	0		6,294	1,291	25.8%	6,594	1,455	28.3%
2030	5021	5193	235	275	0	0	0		6,295	1,274	25.4%	6,595	1,402	27.0%
2031	5079	5251	236	276	0	0	0		6,296	1,217	24.0%	6,596	1,345	25.6%
2032	5137	5305	237	277	0	0	0		6,297	1,160	22.6%	6,597	1,292	24.3%
2033	5194	5360	238	278	0	0	0		6,298	1,104	21.2%	6,598	1,238	23.1%
2034	5255	5414	239	279	0	0	0		6,299	1,044	19.9%	6,599	1,185	21.9%
2035	5312	5467	240	280	50	0	0		6,350	1,038	19.5%	6,650	1,183	21.6%
2036	5366	5519	241	281	100	0	0		6,401	1,035	19.3%	6,701	1,182	21.4%
2037	5421	5570	242	282	0	0	553	CC(553)	6,302	881	16.2%	7,155	1,585	28.4%
2038	5476	5621	243	283	0	534	0		6,837	1,361	24.8%	7,156	1,535	27.3%
2039	5530	5672	244	284	0	0	0		6,838	1,308	23.6%	7,157	1,485	26.2%
2040	5585	5725	245	285	0	0	0		6,839	1,254	22.4%	7,158	1,433	25.0%
2041	5641	5779	246	286	0	0	0		6,840	1,198	21.2%	7,159	1,380	23.9%
2042	5698	5833	247	287	0	0	0		6,841	1,142	20.1%	7,160	1,327	22.8%
2043	5755	5887	248	288	0	0	0		6,842	1,086	18.9%	7,161	1,273	21.6%
2044	5813	5942	249	289	0	0	362	Wateree(-684), CT(523x2)	6,843	1,029	17.7%	7,524	1,581	26.6%
2045	5872	5998	250	291	0	286	0		7,130	1,258	21.4%	7,525	1,527	25.5%
2046	5931	6054	251	292	0	0	0		7,131	1,200	20.2%	7,526	1,472	24.3%
2047	5991	6111	252	293	0	0	-87	Retire Williams, CT(523)	7,132	1,141	19.0%	7,440	1,329	21.8%
2048	6051	6168	253	294	50	-125	0		7,058	1,006	16.6%	7,491	1,323	21.5%
2049	6112	6225	254	295	100	0	0		7,109	997	16.3%	7,542	1,316	21.1%

Resource Plan 6 Medium DSM														
	Solar ELCC Capacity (Solar >500 MW) 11.8%				Solar ELCC Capacity (Solar >973 MW) 4.25%				Summer Reserve Margin 14%			Winter Reserve Margin 21%		
Year	Gross Summer Peak (MW)	Gross Winter Peak (MW)	Summer Demand Response (MW)	Winter Demand Response (MW)	Annual Capacity Purchase (MW)	Summer Long Term (MW)	Winter Long Term (MW)	Description	Summer Capacity (MW)	Summer Reserve (MW)	Summer Reserve %	Winter Capacity (MW)	Winter Reserve (MW)	Winter Reserve %
2019	4701	4087	0	0	0	41	67	Solar PPAs	5,772	1,071	22.8%	5,982	1,895	46.4%
2020	4418	4890	227	222	0	-289	-306	Solar PPAs, Wateree 2 outage	5,710	1,292	29.2%	5,899	1,009	20.6%
2021	4814	4939	226	223	0	13	3	Solar PPAs	5,721	907	18.8%	5,902	963	19.5%
2022	4855	4975	227	225	0	351	351	Solar PPA, Wateree 2 Online	6,073	1,218	25.1%	6,255	1,280	25.7%
2023	4893	5002	228	227	0	83	123	Jasper, CEC upgrade	6,157	1,264	25.8%	6,379	1,377	27.5%
2024	4915	5008	229	229	0	-5	9	Replace Parr & BP, Retire Coit	6,153	1,238	25.2%	6,391	1,383	27.6%
2025	4918	5037	230	233	0	19	40	Replace Urq3, Urq CT 1-4	6,173	1,255	25.5%	6,435	1,398	27.8%
2026	4939	5065	231	238	0	17	17	Flexible Solar (400MW)	6,191	1,252	25.3%	6,458	1,393	27.5%
2027	4965	5094	232	248	0	0	0		6,192	1,227	24.7%	6,467	1,373	27.0%
2028	4987	5117	233	260	0	0	0		6,193	1,206	24.2%	6,479	1,362	26.6%
2029	5003	5139	234	274	0	0	0		6,194	1,191	23.8%	6,494	1,355	26.4%
2030	5021	5193	235	275	0	0	0		6,195	1,174	23.4%	6,495	1,302	25.1%
2031	5079	5251	236	276	0	0	0		6,196	1,117	22.0%	6,496	1,245	23.7%
2032	5137	5305	237	277	0	0	0		6,197	1,060	20.6%	6,497	1,192	22.5%
2033	5194	5360	238	278	0	0	0		6,198	1,004	19.3%	6,498	1,138	21.2%
2034	5255	5414	239	279	100	0	0		6,299	1,044	19.9%	6,599	1,185	21.9%
2035	5312	5467	240	280	150	0	0		6,350	1,038	19.5%	6,650	1,183	21.6%
2036	5366	5519	241	281	0	0	523	CT(523)	6,201	835	15.6%	7,024	1,505	27.3%
2037	5421	5570	242	282	0	485	0		6,687	1,266	23.3%	7,025	1,455	26.1%
2038	5476	5621	243	283	0	0	0		6,688	1,212	22.1%	7,026	1,405	25.0%
2039	5530	5672	244	284	0	0	0		6,689	1,159	20.9%	7,027	1,355	23.9%
2040	5585	5725	245	285	0	0	0		6,690	1,105	19.8%	7,028	1,303	22.8%
2041	5641	5779	246	286	0	0	0		6,691	1,049	18.6%	7,029	1,250	21.6%
2042	5698	5833	247	287	50	0	0		6,742	1,043	18.3%	7,080	1,247	21.4%
2043	5755	5887	248	288	100	0	0		6,793	1,037	18.0%	7,131	1,243	21.1%
2044	5813	5942	249	289	0	485	362	Retire Wateree, CT(523x2)	7,179	1,365	23.5%	7,394	1,451	24.4%
2045	5872	5998	250	291	0	286	0		7,466	1,594	27.1%	7,395	1,397	23.3%
2046	5931	6054	251	292	0	0	0		7,467	1,536	25.9%	7,396	1,342	22.2%
2047	5991	6111	252	293	0	0	436	Retire Williams, CT(523X2)	7,468	1,477	24.7%	7,833	1,722	28.2%
2048	6051	6168	253	294	0	365	0		7,834	1,782	29.5%	7,834	1,666	27.0%
2049	6112	6225	254	295	0	0	0		7,835	1,723	28.2%	7,835	1,609	25.9%

Resource Plan 7 Medium DSM														
	Solar ELCC Capacity (Solar >500 MW) 11.8%				Solar ELCC Capacity (Solar >973 MW) 4.25%				Summer Reserve Margin 14%			Winter Reserve Margin 21%		
Year	Gross Summer Peak (MW)	Gross Winter Peak (MW)	Summer Demand Response (MW)	Winter Demand Response (MW)	Annual Capacity Purchase (MW)	Summer Long Term (MW)	Winter Long Term (MW)	Description	Summer Capacity (MW)	Summer Reserve (MW)	Summer Reserve %	Winter Capacity (MW)	Winter Reserve (MW)	Winter Reserve %
2019	4701	4087	0	0	0	41	67	Solar PPAs	5,772	1,071	22.8%	5,982	1,895	46.4%
2020	4418	4890	227	222	0	-289	-306	Solar PPAs, Wateree 2 outage	5,710	1,292	29.2%	5,899	1,009	20.6%
2021	4814	4939	226	223	0	13	3	Solar PPAs	5,721	907	18.8%	5,902	963	19.5%
2022	4855	4975	227	225	0	351	351	Solar PPA, Wateree 2 Online	6,073	1,218	25.1%	6,255	1,280	25.7%
2023	4893	5002	228	227	0	83	123	Jasper, CEC upgrade	6,157	1,264	25.8%	6,379	1,377	27.5%
2024	4915	5008	229	229	0	-5	9	Replace Parr & BP, Retire Coit	6,153	1,238	25.2%	6,391	1,383	27.6%
2025	4918	5037	230	233	0	19	40	Replace Urq3, Urq CT 1-4	6,173	1,255	25.5%	6,435	1,398	27.8%
2026	4939	5065	231	238	0	117	117	Flexible Solar PPA (400), Storage (100)	6,291	1,352	27.4%	6,558	1,493	29.5%
2027	4965	5094	232	248	0	0	0		6,292	1,327	26.7%	6,567	1,473	28.9%
2028	4987	5117	233	260	0	0	0		6,293	1,306	26.2%	6,579	1,462	28.6%
2029	5003	5139	234	274	0	0	0		6,294	1,291	25.8%	6,594	1,455	28.3%
2030	5021	5193	235	275	0	0	0		6,295	1,274	25.4%	6,595	1,402	27.0%
2031	5079	5251	236	276	0	0	0		6,296	1,217	24.0%	6,596	1,345	25.6%
2032	5137	5305	237	277	0	0	0		6,297	1,160	22.6%	6,597	1,292	24.3%
2033	5194	5360	238	278	0	0	0		6,298	1,104	21.2%	6,598	1,238	23.1%
2034	5255	5414	239	279	0	0	0		6,299	1,044	19.9%	6,599	1,185	21.9%
2035	5312	5467	240	280	50	0	0		6,350	1,038	19.5%	6,650	1,183	21.6%
2036	5366	5519	241	281	100	0	0		6,401	1,035	19.3%	6,701	1,182	21.4%
2037	5421	5570	242	282	0	0	523	CT(523)	6,302	881	16.2%	7,125	1,555	27.9%
2038	5476	5621	243	283	0	485	0		6,788	1,312	24.0%	7,126	1,505	26.8%
2039	5530	5672	244	284	0	0	0		6,789	1,259	22.8%	7,127	1,455	25.6%
2040	5585	5725	245	285	0	0	0		6,790	1,205	21.6%	7,128	1,403	24.5%
2041	5641	5779	246	286	0	0	0		6,791	1,149	20.4%	7,129	1,350	23.4%
2042	5698	5833	247	287	0	0	0		6,792	1,093	19.2%	7,130	1,297	22.2%
2043	5755	5887	248	288	0	0	0		6,793	1,037	18.0%	7,131	1,243	21.1%
2044	5813	5942	249	289	0	0	362	Wateree(-684), CT(523X2)	6,794	980	16.9%	7,494	1,551	26.1%
2045	5872	5998	250	291	0	286	0		7,081	1,209	20.6%	7,495	1,497	25.0%
2046	5931	6054	251	292	0	0	0		7,082	1,151	19.4%	7,496	1,442	23.8%
2047	5991	6111	252	293	0	0	-87	Williams(-610), CT(523x1)	7,083	1,092	18.2%	7,410	1,299	21.3%
2048	6051	6168	253	294	100	-120	0		7,064	1,012	16.7%	7,511	1,343	21.8%
2049	6112	6225	254	295	150	0	0		7,115	1,003	16.4%	7,562	1,336	21.5%

Resource Plan 7a Medium DSM														
	Solar ELCC Capacity (Solar >500 MW) 11.8%				Solar ELCC Capacity (Solar >973 MW) 4.25%				Summer Reserve Margin 12%			Winter Reserve Margin 21%		
Year	Gross Summer Peak (MW)	Gross Winter Peak (MW)	Summer Demand Response (MW)	Winter Demand Response (MW)	Annual Capacity Purchase (MW)	Summer Long Term (MW)	Winter Long Term (MW)	Description	Summer Capacity (MW)	Summer Reserve (MW)	Summer Reserve %	Winter Capacity (MW)	Winter Reserve (MW)	Winter Reserve %
2019	4701	4087	0	0	0	41	67	Solar PPAs	5,772	1,071	22.8%	5,982	1,895	46.4%
2020	4418	4890	227	222	0	-289	-306	Solar PPAs, Wateree 2 outage	5,710	1,292	29.2%	5,899	1,009	20.6%
2021	4814	4939	226	223	0	13	3	Solar PPAs	5,721	907	18.8%	5,902	963	19.5%
2022	4855	4975	227	225	0	351	351	Solar PPA, Wateree 2 Online	6,073	1,218	25.1%	6,255	1,280	25.7%
2023	4893	5002	228	227	0	100	140	PPA Solar (400),	6,174	1,281	26.2%	6,396	1,394	27.9%
2024	4915	5008	229	229	0	-5	9	Replace Parr & BP, Retire Coit	6,170	1,255	25.5%	6,408	1,400	28.0%
2025	4918	5037	230	233	0	19	40	Replace Urq3, Urq CT 1-4	6,190	1,272	25.9%	6,452	1,415	28.1%
2026	4939	5065	231	238	0	0	0		6,191	1,252	25.4%	6,457	1,392	27.5%
2027	4965	5094	232	248	0	0	0		6,192	1,227	24.7%	6,467	1,373	26.9%
2028	4987	5117	233	260	0	0	0		6,193	1,206	24.2%	6,479	1,362	26.6%
2029	5003	5139	234	274	0	0	0		6,194	1,191	23.8%	6,493	1,354	26.4%
2030	5021	5193	235	275	0	0	0		6,195	1,174	23.4%	6,494	1,301	25.1%
2031	5079	5251	236	276	0	0	0		6,196	1,117	22.0%	6,495	1,244	23.7%
2032	5137	5305	237	277	0	0	0		6,197	1,060	20.6%	6,496	1,191	22.5%
2033	5194	5360	238	278	0	0	0		6,198	1,004	19.3%	6,497	1,137	21.2%
2034	5255	5414	239	279	100	0	0		6,299	1,044	19.9%	6,598	1,184	21.9%
2035	5312	5467	240	280	150	0	0		6,350	1,038	19.5%	6,649	1,182	21.6%
2036	5366	5519	241	281	0	0	523	CT(523)	6,201	835	15.6%	7,023	1,504	27.3%
2037	5421	5570	242	282	0	485	0		6,687	1,266	23.4%	7,024	1,454	26.1%
2038	5476	5621	243	283	0	0	0		6,688	1,212	22.1%	7,025	1,404	25.0%
2039	5530	5672	244	284	0	0	0		6,689	1,159	21.0%	7,026	1,354	23.9%
2040	5585	5725	245	285	0	0	0		6,690	1,105	19.8%	7,027	1,302	22.7%
2041	5641	5779	246	286	0	0	0		6,691	1,050	18.6%	7,028	1,250	21.6%
2042	5698	5833	247	287	50	0	0		6,742	1,044	18.3%	7,079	1,247	21.4%
2043	5755	5887	248	288	100	0	0		6,793	1,038	18.0%	7,130	1,243	21.1%
2044	5813	5942	249	289	0	0	362	Wateree(-684), CT(523*2)	6,694	881	15.2%	7,393	1,451	24.4%
2045	5872	5998	250	291	0	286	0		6,981	1,109	18.9%	7,394	1,396	23.3%
2046	5931	6054	251	292	0	0	0		6,982	1,051	17.7%	7,395	1,341	22.2%
2047	5991	6111	252	293	0	0	436	Williams(-610), CT(523x2)	6,983	992	16.6%	7,832	1,722	28.2%
2048	6051	6168	253	294	0	365	0		7,349	1,298	21.5%	7,833	1,666	27.0%
2049	6112	6225	254	295	0	0	0		7,350	1,238	20.3%	7,834	1,609	25.8%

Resource Plan 7b Medium DSM														
	Solar ELCC Capacity (Solar >500 MW) 11.8%				Solar ELCC Capacity (Solar >973 MW) 4.25%				Summer Reserve Margin 14%			Winter Reserve Margin 21%		
Year	Gross Summer Peak (MW)	Gross Winter Peak (MW)	Summer Demand Response (MW)	Winter Demand Response (MW)	Annual Capacity Purchase (MW)	Summer Long Term (MW)	Winter Long Term (MW)	Description	Summer Capacity (MW)	Summer Reserve (MW)	Summer Reserve %	Winter Capacity (MW)	Winter Reserve (MW)	Winter Reserve %
2019	4701	4087	0	0	0	41	67	Solar PPAs	5,772	1,071	22.8%	5,982	1,895	46.4%
2020	4418	4890	227	222	0	-289	-306	Solar PPAs, Wateree 2 outage	5,710	1,292	29.2%	5,899	1,009	20.6%
2021	4814	4939	226	223	0	13	3	Solar PPAs	5,721	907	18.8%	5,902	963	19.5%
2022	4855	4975	227	225	0	351	351	Solar PPA, Wateree 2 Online	6,073	1,218	25.1%	6,255	1,280	25.7%
2023	4893	5002	228	227	0	200	240	PPA Solar (400) w/ Storage (100), Jasper, CEC upgrade	6,274	1,381	28.2%	6,496	1,494	29.9%
2024	4915	5008	229	229	0	-5	9	Replace Parr & BP, Retire Coit	6,270	1,355	27.6%	6,508	1,500	30.0%
2025	4918	5037	230	233	0	19	40	Replace Urq3, Urq CT 1-4	6,290	1,372	27.9%	6,552	1,515	30.1%
2026	4939	5065	231	238	0	0	0		6,291	1,352	27.4%	6,558	1,493	29.5%
2027	4965	5094	232	248	0	0	0		6,292	1,327	26.7%	6,567	1,473	28.9%
2028	4987	5117	233	260	0	0	0		6,293	1,306	26.2%	6,579	1,462	28.6%
2029	5003	5139	234	274	0	0	0		6,294	1,291	25.8%	6,594	1,455	28.3%
2030	5021	5193	235	275	0	0	0		6,295	1,274	25.4%	6,595	1,402	27.0%
2031	5079	5251	236	276	0	0	0		6,296	1,217	24.0%	6,596	1,345	25.6%
2032	5137	5305	237	277	0	0	0		6,297	1,160	22.6%	6,597	1,292	24.3%
2033	5194	5360	238	278	0	0	0		6,298	1,104	21.2%	6,598	1,238	23.1%
2034	5255	5414	239	279	0	0	0		6,299	1,044	19.9%	6,599	1,185	21.9%
2035	5312	5467	240	280	50	0	0		6,350	1,038	19.5%	6,650	1,183	21.6%
2036	5366	5519	241	281	100	0	0		6,401	1,035	19.3%	6,701	1,182	21.4%
2037	5421	5570	242	282	0	0	523	CT(523)	6,302	881	16.2%	7,125	1,555	27.9%
2038	5476	5621	243	283	0	485	0		6,788	1,312	24.0%	7,126	1,505	26.8%
2039	5530	5672	244	284	0	0	0		6,789	1,259	22.8%	7,127	1,455	25.6%
2040	5585	5725	245	285	0	0	0		6,790	1,205	21.6%	7,128	1,403	24.5%
2041	5641	5779	246	286	0	0	0		6,791	1,149	20.4%	7,129	1,350	23.4%
2042	5698	5833	247	287	0	0	0		6,792	1,093	19.2%	7,130	1,297	22.2%
2043	5755	5887	248	288	0	0	0		6,793	1,037	18.0%	7,131	1,243	21.1%
2044	5813	5942	249	289	0	0	362	Wateree(-684), CT(523x2)	6,794	980	16.9%	7,494	1,551	26.1%
2045	5872	5998	250	291	0	286	0		7,081	1,209	20.6%	7,495	1,497	25.0%
2046	5931	6054	251	292	0	0	0		7,082	1,151	19.4%	7,496	1,442	23.8%
2047	5991	6111	252	293	0	0	-87	Williams(-610), CT(523x1)	7,083	1,092	18.2%	7,410	1,299	21.3%
2048	6051	6168	253	294	0	-120	523	CT(523)	6,964	912	15.1%	7,934	1,766	28.6%
2049	6112	6225	254	295	0	485	0		7,450	1,338	21.9%	7,935	1,709	27.5%

Resource Plan 8 Medium DSM														
	Solar ELCC Capacity (Solar >500 MW) 11.8%				Solar ELCC Capacity (Solar >973 MW) 4.25%				Summer Reserve Margin 14%			Winter Reserve Margin 21%		
Year	Gross Summer Peak (MW)	Gross Winter Peak (MW)	Summer Demand Response (MW)	Winter Demand Response (MW)	Annual Capacity Purchase (MW)	Summer Long Term (MW)	Winter Long Term (MW)	Description	Summer Capacity (MW)	Summer Reserve (MW)	Summer Reserve %	Winter Capacity (MW)	Winter Reserve (MW)	Winter Reserve %
2019	4701	4087	0	0	0	41	67	Solar PPAs	5,772	1,071	22.8%	5,982	1,895	46.4%
2020	4418	4890	227	222	0	-289	-306	Solar PPAs, Wateree 2 outage	5,710	1,292	29.2%	5,899	1,009	20.6%
2021	4814	4939	226	223	0	13	3	Solar PPAs	5,721	907	18.8%	5,902	963	19.5%
2022	4855	4975	227	225	0	351	351	Wateree 2 Online	6,073	1,218	25.1%	6,255	1,280	25.7%
2023	4893	5002	228	227	0	83	123	Jasper, CEC upgrade	6,157	1,264	25.8%	6,379	1,377	27.5%
2024	4915	5008	229	229	0	-5	9	Replace Parr & BP, Retire Coit	6,153	1,238	25.2%	6,391	1,383	27.6%
2025	4918	5037	230	233	0	19	40	Replace Urq3, Urq CT 1-4	6,173	1,255	25.5%	6,435	1,398	27.8%
2026	4939	5065	231	238	0	2.125	2.125	Solar (50)	6,176	1,237	25.0%	6,443	1,378	27.2%
2027	4965	5094	232	248	0	2.125	2.125	Solar (50)	6,179	1,214	24.4%	6,454	1,360	26.7%
2028	4987	5117	233	260	0	0	-218	Wateree(-684), Williams (-610),	6,180	1,193	23.9%	6,249	1,132	22.1%
2029	5003	5139	234	274	0	-270	0		5,911	908	18.1%	6,263	1,124	21.9%
2030	5021	5193	235	275	0	104.25	104.25	Solar (100) w/ Storage (100)	6,016	995	19.8%	6,368	1,175	22.6%
2031	5079	5251	236	276	0	104.25	104.25	Solar (100) w/ Storage (100)	6,121	1,042	20.5%	6,473	1,222	23.3%
2032	5137	5305	237	277	0	4.25	4.25	Solar (100)	6,127	990	19.3%	6,479	1,174	22.1%
2033	5194	5360	238	278	0	104.25	104.25	Solar (100) w/ Storage (100)	6,232	1,038	20.0%	6,584	1,224	22.8%
2034	5255	5414	239	279	0	104.25	104.25	Solar (100) w/ Storage (100)	6,337	1,082	20.6%	6,689	1,275	23.6%
2035	5312	5467	240	280	0	4.25	4.25	Solar (100)	6,342	1,030	19.4%	6,694	1,227	22.4%
2036	5366	5519	241	281	0	4.25	135.25	CT (131), Solar (100)	6,348	982	18.3%	6,831	1,312	23.8%
2037	5421	5570	242	282	0	135.25	4.25	Solar (100)	6,484	1,063	19.6%	6,836	1,266	22.7%
2038	5476	5621	243	283	0	4.25	135.25	CT (131), Solar (100)	6,489	1,013	18.5%	6,972	1,351	24.0%
2039	5530	5672	244	284	0	135.25	4.25	Solar (100)	6,625	1,095	19.8%	6,977	1,305	23.0%
2040	5585	5725	245	285	0	4.25	135.25	CT (131), Solar (100)	6,631	1,046	18.7%	7,114	1,389	24.3%
2041	5641	5779	246	286	0	135.25	4.25	Solar (100)	6,767	1,126	20.0%	7,119	1,340	23.2%
2042	5698	5833	247	287	0	104.25	104.25	Solar (100) w/ Storage (100)	6,872	1,174	20.6%	7,224	1,391	23.9%
2043	5755	5887	248	288	0	4.25	4.25	Solar (100)	6,877	1,122	19.5%	7,229	1,342	22.8%
2044	5813	5942	249	289	0	104.25	104.25	Solar (100) w/ Storage (100)	6,983	1,169	20.1%	7,335	1,392	23.4%
2045	5872	5998	250	291	0	4.25	4.25	Solar (100)	6,988	1,116	19.0%	7,340	1,342	22.4%
2046	5931	6054	251	292	0	104.25	104.25	Solar (100) w/ Storage (100)	7,093	1,162	19.6%	7,445	1,391	23.0%
2047	5991	6111	252	293	0	104.25	104.25	Solar (100) w/ Storage (100)	7,198	1,208	20.2%	7,551	1,440	23.6%
2048	6051	6168	253	294	0	0	0		7,200	1,148	19.0%	7,552	1,384	22.4%
2049	6112	6225	254	295	0	0	0		7,201	1,088	17.8%	7,553	1,327	21.3%

Resource Plan 8a Medium DSM														
	Solar ELCC Capacity (Solar >500 MW) 11.8%				Solar ELCC Capacity (Solar >973 MW) 4.25%				Summer Reserve Margin 14%			Winter Reserve Margin 21%		
Year	Gross Summer Peak (MW)	Gross Winter Peak (MW)	Summer Demand Response (MW)	Winter Demand Response (MW)	Annual Capacity Purchase (MW)	Summer Long Term (MW)	Winter Long Term (MW)	Description	Summer Capacity (MW)	Summer Reserve (MW)	Summer Reserve %	Winter Capacity (MW)	Winter Reserve (MW)	Winter Reserve %
2019	4701	4087	0	0	0	41	67	Solar PPAs	5,772	1,071	22.8%	5,982	1,895	46.4%
2020	4418	4890	227	222	0	-289	-306	Solar PPAs, Wateree 2 outage	5,710	1,292	29.2%	5,899	1,009	20.6%
2021	4814	4939	226	223	0	13	3	Solar PPAs	5,721	907	18.8%	5,902	963	19.5%
2022	4855	4975	227	225	0	351	351	Wateree 2 Online	6,073	1,218	25.1%	6,255	1,280	25.7%
2023	4893	5002	228	227	0	200	240	Solar (400) w/ Storage (100), Jasper, CEC upgrade	6,274	1,381	28.2%	6,496	1,494	29.9%
2024	4915	5008	229	229	0	-5	9	Replace Parr & BP, Retire Coit	6,270	1,355	27.6%	6,508	1,500	30.0%
2025	4918	5037	230	233	0	19	40	Replace Urq3, Urq CT 1-4	6,290	1,372	27.9%	6,552	1,515	30.1%
2026	4939	5065	231	238	0	2.125	2.125	Solar (50)	6,293	1,354	27.4%	6,560	1,495	29.5%
2027	4965	5094	232	248	0	2.125	2.125	Solar (50)	6,296	1,331	26.8%	6,571	1,477	29.0%
2028	4987	5117	233	260	0	0	-218	Wateree(-684), Williams (-610),	6,297	1,310	26.3%	6,366	1,249	24.4%
2029	5003	5139	234	274	0	-270	0		6,028	1,025	20.5%	6,380	1,241	24.1%
2030	5021	5193	235	275	0	4.25	4.25	Solar (100)	6,033	1,012	20.2%	6,385	1,192	23.0%
2031	5079	5251	236	276	0	4.25	4.25	Solar (100)	6,038	959	18.9%	6,390	1,139	21.7%
2032	5137	5305	237	277	0	104.25	104.25	Solar (100) w/ Storage (100)	6,144	1,007	19.6%	6,496	1,191	22.4%
2033	5194	5360	238	278	0	4.25	4.25	Solar (100)	6,149	955	18.4%	6,501	1,141	21.3%
2034	5255	5414	239	279	0	104.25	104.25	Solar (100) w/ Storage (100)	6,254	999	19.0%	6,606	1,192	22.0%
2035	5312	5467	240	280	0	104.25	104.25	Solar (100) w/ Storage (100)	6,359	1,047	19.7%	6,711	1,244	22.8%
2036	5366	5519	241	281	0	104.25	135.25	CT (131), Solar (100)	6,465	1,099	20.5%	6,848	1,329	24.1%
2037	5421	5570	242	282	0	135.25	4.25	Solar (100)	6,601	1,180	21.8%	6,853	1,283	23.0%
2038	5476	5621	243	283	0	4.25	135.25	CT (131), Solar (100)	6,606	1,130	20.6%	6,989	1,368	24.3%
2039	5530	5672	244	284	0	135.25	4.25	Solar (100)	6,742	1,212	21.9%	6,994	1,322	23.3%
2040	5585	5725	245	285	0	4.25	135.25	CT (131), Solar (100)	6,748	1,163	20.8%	7,131	1,406	24.6%
2041	5641	5779	246	286	0	135.25	4.25	Solar (100)	6,884	1,243	22.0%	7,136	1,357	23.5%
2042	5698	5833	247	287	0	104.25	104.25	Solar (100) w/ Storage (100)	6,989	1,291	22.7%	7,241	1,408	24.1%
2043	5755	5887	248	288	0	4.25	4.25	Solar (100)	6,994	1,239	21.5%	7,246	1,359	23.1%
2044	5813	5942	249	289	0	104.25	104.25	Solar (100) w/ Storage (100)	7,100	1,286	22.1%	7,352	1,409	23.7%
2045	5872	5998	250	291	0	4.25	4.25	Solar (100)	7,105	1,233	21.0%	7,357	1,359	22.7%
2046	5931	6054	251	292	0	104.25	104.25	Solar (100) w/ Storage (100)	7,210	1,279	21.6%	7,462	1,408	23.3%
2047	5991	6111	252	293	0	104.25	104.25	Solar (100) w/ Storage (100)	7,315	1,325	22.1%	7,568	1,457	23.8%
2048	6051	6168	253	294	0	0	0		7,317	1,265	20.9%	7,569	1,401	22.7%
2049	6112	6225	254	295	0	0	0		7,318	1,205	19.7%	7,570	1,344	21.6%

Resource Plan 1 High DSM														
	Solar ELCC Capacity (Solar >500 MW) 11.8%				Solar ELCC Capacity (Solar >973 MW) 4.25%				Summer Reserve Margin 14%			Winter Reserve Margin 21%		
Year	Gross Summer Peak (MW)	Gross Winter Peak (MW)	Summer Demand Response (MW)	Winter Demand Response (MW)	Annual Capacity Purchase (MW)	Summer Long Term (MW)	Winter Long Term (MW)	Description	Summer Capacity (MW)	Summer Reserve (MW)	Summer Reserve %	Winter Capacity (MW)	Winter Reserve (MW)	Winter Reserve %
2019	4701	4087	0	0	0	41	67	Solar PPAs	5,772	1,071	22.8%	5,982	1,895	46.4%
2020	4418	4890	227	263	0	-289	-306	Solar PPAs, Wateree 2 outage	5,710	1,292	29.2%	5,939	1,049	21.5%
2021	4814	4939	226	264	0	13	3	Solar PPAs	5,721	907	18.8%	5,943	1,004	20.3%
2022	4855	4961	227	267	0	351	351	Solar PPA, Wateree 2 Online	6,073	1,218	25.1%	6,297	1,336	26.9%
2023	4881	4973	228	271	0	83	123	Jasper, CEC upgrade	6,157	1,276	26.1%	6,424	1,451	29.2%
2024	4888	4967	229	276	0	-5	9	Replace Parr & BP, Retire Coit	6,153	1,265	25.9%	6,438	1,471	29.6%
2025	4876	4984	230	284	0	19	40	Replace Urq3, Urq CT 1-4	6,173	1,297	26.6%	6,486	1,502	30.1%
2026	4885	4998	231	297	0	0	0		6,174	1,289	26.4%	6,499	1,501	30.0%
2027	4897	5013	232	318	0	0	0		6,175	1,278	26.1%	6,520	1,507	30.1%
2028	4905	5024	233	347	0	0	0		6,176	1,271	25.9%	6,549	1,525	30.4%
2029	4908	5031	234	381	0	0	0		6,177	1,269	25.8%	6,583	1,552	30.8%
2030	4912	5086	235	382	0	0	0		6,178	1,266	25.8%	6,584	1,498	29.4%
2031	4970	5143	236	383	0	0	0		6,179	1,209	24.3%	6,585	1,442	28.0%
2032	5028	5197	237	384	0	0	0		6,180	1,152	22.9%	6,586	1,389	26.7%
2033	5086	5252	238	385	0	0	0		6,181	1,095	21.5%	6,587	1,335	25.4%
2034	5146	5306	239	386	0	0	0		6,182	1,036	20.1%	6,588	1,282	24.2%
2035	5203	5360	240	387	0	0	0		6,183	980	18.8%	6,589	1,229	22.9%
2036	5257	5411	241	388	0	0	0		6,184	927	17.6%	6,590	1,179	21.8%
2037	5312	5462	242	389	50	0	0		6,235	923	17.4%	6,641	1,179	21.6%
2038	5367	5514	243	390	100	0	0		6,286	919	17.1%	6,692	1,178	21.4%
2039	5421	5564	244	391	0	0	553	CC(553)	6,187	766	14.1%	7,146	1,582	28.4%
2040	5476	5617	245	392	0	534	0		6,722	1,246	22.7%	7,147	1,530	27.2%
2041	5532	5671	246	393	0	0	0		6,723	1,190	21.5%	7,148	1,477	26.0%
2042	5589	5725	247	394	0	0	0		6,724	1,134	20.3%	7,149	1,424	24.9%
2043	5647	5779	248	395	0	0	0		6,725	1,078	19.1%	7,150	1,370	23.7%
2044	5705	5835	249	396	0	0	362	Wateree(-684), CT(523x2)	6,726	1,021	17.9%	7,513	1,678	28.8%
2045	5763	5890	250	397	0	286	0		7,013	1,249	21.7%	7,514	1,624	27.6%
2046	5823	5946	251	398	0	0	0		7,014	1,191	20.5%	7,515	1,568	26.4%
2047	5882	6003	252	399	0	0	-87	Williams(-610), CT(523x1)	7,015	1,132	19.2%	7,429	1,426	23.8%
2048	5943	6060	253	400	0	-120	0		6,896	953	16.0%	7,430	1,370	22.6%
2049	6004	6118	254	401	0	0	0		6,897	893	14.9%	7,431	1,313	21.5%

Resource Plan 2 High DSM														
	Solar ELCC Capacity (Solar >500 MW) 11.8%				Solar ELCC Capacity (Solar >1000 MW) 4.25%				Summer Reserve Margin 14%			Winter Reserve Margin 21%		
Year	Gross Summer Peak (MW)	Gross Winter Peak (MW)	Summer Demand Response (MW)	Winter Demand Response (MW)	Annual Capacity Purchase (MW)	Summer Long Term (MW)	Winter Long Term (MW)	Description	Summer Capacity (MW)	Summer Reserve (MW)	Summer Reserve %	Winter Capacity (MW)	Winter Reserve (MW)	Winter Reserve %
2019	4701	4087	0	0	0	41	67	Solar PPAs	5,772	1,071	22.8%	5,982	1,895	46.4%
2020	4418	4890	227	263	0	-289	-306	Solar PPAs, Wateree 2 outage	5,710	1,292	29.2%	5,939	1,049	21.5%
2021	4814	4939	226	264	0	13	3	Solar PPAs	5,721	907	18.8%	5,943	1,004	20.3%
2022	4855	4961	227	267	0	351	351	Solar PPA, Wateree 2 Online	6,073	1,218	25.1%	6,297	1,336	26.9%
2023	4881	4973	228	271	0	83	123	Jasper, CEC upgrade	6,157	1,276	26.1%	6,424	1,451	29.2%
2024	4888	4967	229	276	0	-5	9	Replace Parr & BP, Retire Coit	6,153	1,265	25.9%	6,438	1,471	29.6%
2025	4876	4984	230	284	0	19	40	Replace Urq3, Urq CT 1-4	6,173	1,297	26.6%	6,486	1,502	30.1%
2026	4885	4998	231	297	0	0	0		6,174	1,289	26.4%	6,499	1,501	30.0%
2027	4897	5013	232	318	0	0	0		6,175	1,278	26.1%	6,520	1,507	30.1%
2028	4905	5024	233	347	0	0	0		6,176	1,271	25.9%	6,549	1,525	30.4%
2029	4908	5031	234	381	0	0	0		6,177	1,269	25.8%	6,583	1,552	30.8%
2030	4912	5086	235	382	0	0	0		6,178	1,266	25.8%	6,584	1,498	29.4%
2031	4970	5143	236	383	0	0	0		6,179	1,209	24.3%	6,585	1,442	28.0%
2032	5028	5197	237	384	0	0	0		6,180	1,152	22.9%	6,586	1,389	26.7%
2033	5086	5252	238	385	0	0	0		6,181	1,095	21.5%	6,587	1,335	25.4%
2034	5146	5306	239	386	0	0	0		6,182	1,036	20.1%	6,588	1,282	24.2%
2035	5203	5360	240	387	0	0	0		6,183	980	18.8%	6,589	1,229	22.9%
2036	5257	5411	241	388	0	0	0		6,184	927	17.6%	6,590	1,179	21.8%
2037	5312	5462	242	389	50	0	0		6,235	923	17.4%	6,641	1,179	21.6%
2038	5367	5514	243	390	100	0	0		6,286	919	17.1%	6,692	1,178	21.4%
2039	5421	5564	244	391	0	0	523	CT(523)	6,187	766	14.1%	7,116	1,552	27.9%
2040	5476	5617	245	392	0	485	0		6,673	1,197	21.9%	7,117	1,500	26.7%
2041	5532	5671	246	393	0	0	0		6,674	1,141	20.6%	7,118	1,447	25.5%
2042	5589	5725	247	394	0	0	0		6,675	1,085	19.4%	7,119	1,394	24.4%
2043	5647	5779	248	395	0	0	0		6,676	1,029	18.2%	7,120	1,340	23.2%
2044	5705	5835	249	396	0	0	362	Wateree(-684), CT(523x2)	6,677	972	17.0%	7,483	1,648	28.3%
2045	5763	5890	250	397	0	286	0		6,964	1,200	20.8%	7,484	1,594	27.1%
2046	5823	5946	251	398	0	0	0		6,965	1,142	19.6%	7,485	1,538	25.9%
2047	5882	6003	252	399	0	0	-87	Williams(-610), CT(523x1)	6,966	1,083	18.4%	7,399	1,396	23.3%
2048	5943	6060	253	400	0	-125	0		6,842	899	15.1%	7,400	1,340	22.1%
2049	6004	6118	254	401	50	0	0		6,893	889	14.8%	7,451	1,333	21.8%

Resource Plan 3 High DSM														
	Solar ELCC Capacity (Solar >500 MW) 11.8%				Solar ELCC Capacity (Solar >1000 MW) 4.25%				Summer Reserve Margin 14%			Winter Reserve Margin 21%		
Year	Gross Summer Peak (MW)	Gross Winter Peak (MW)	Summer Demand Response (MW)	Winter Demand Response (MW)	Annual Capacity Purchase (MW)	Summer Long Term (MW)	Winter Long Term (MW)	Description	Summer Capacity (MW)	Summer Reserve (MW)	Summer Reserve %	Winter Capacity (MW)	Winter Reserve (MW)	Winter Reserve %
2019	4701	4087	0	0	0	41	67	Solar PPAs	5,772	1,071	22.8%	5,982	1,895	46.4%
2020	4418	4890	227	263	0	-289	-306	Solar PPAs, Wateree 2 outage	5,710	1,292	29.2%	5,939	1,049	21.5%
2021	4814	4939	226	264	0	13	3	Solar PPAs	5,721	907	18.8%	5,943	1,004	20.3%
2022	4855	4961	227	267	0	351	351	Solar PPA, Wateree 2 Online	6,073	1,218	25.1%	6,297	1,336	26.9%
2023	4881	4973	228	271	0	83	123	Jasper, CEC upgrade	6,157	1,276	26.1%	6,424	1,451	29.2%
2024	4888	4967	229	276	0	-5	9	Replace Parr & BP, Retire Coit	6,153	1,265	25.9%	6,438	1,471	29.6%
2025	4876	4984	230	284	0	19	40	Replace Urq3, Urq CT 1-4	6,173	1,297	26.6%	6,486	1,502	30.1%
2026	4885	4998	231	297	0	0	0		6,174	1,289	26.4%	6,499	1,501	30.0%
2027	4897	5013	232	318	0	0	0		6,175	1,278	26.1%	6,520	1,507	30.1%
2028	4905	5024	233	347	0	0	-131	Wateree(-684), CC(553)	6,176	1,271	25.9%	6,418	1,394	27.7%
2029	4908	5031	234	381	0	-150	0		6,027	1,119	22.8%	6,452	1,421	28.2%
2030	4912	5086	235	382	0	0	0		6,028	1,116	22.7%	6,453	1,367	26.9%
2031	4970	5143	236	383	0	0	0		6,029	1,059	21.3%	6,454	1,311	25.5%
2032	5028	5197	237	384	0	0	0		6,030	1,002	19.9%	6,455	1,258	24.2%
2033	5086	5252	238	385	0	0	0		6,031	945	18.6%	6,456	1,204	22.9%
2034	5146	5306	239	386	0	0	0		6,032	886	17.2%	6,457	1,151	21.7%
2035	5203	5360	240	387	50	0	0		6,083	880	16.9%	6,508	1,148	21.4%
2036	5257	5411	241	388	100	0	0		6,134	877	16.7%	6,559	1,148	21.2%
2037	5312	5462	242	389	0	0	523	CT(523)	6,035	723	13.6%	6,983	1,521	27.8%
2038	5367	5514	243	390	0	485	0		6,521	1,154	21.5%	6,984	1,470	26.7%
2039	5421	5564	244	391	0	0	0		6,522	1,101	20.3%	6,985	1,421	25.5%
2040	5476	5617	245	392	0	0	0		6,523	1,047	19.1%	6,986	1,369	24.4%
2041	5532	5671	246	393	0	0	0		6,524	991	17.9%	6,987	1,316	23.2%
2042	5589	5725	247	394	0	0	0		6,525	935	16.7%	6,988	1,263	22.1%
2043	5647	5779	248	395	50	0	0		6,576	929	16.5%	7,039	1,259	21.8%
2044	5705	5835	249	396	100	0	0		6,627	922	16.2%	7,090	1,255	21.5%
2045	5763	5890	250	397	0	0	523	CT(523)	6,528	764	13.3%	7,514	1,624	27.6%
2046	5823	5946	251	398	0	485	0		7,014	1,191	20.5%	7,515	1,568	26.4%
2047	5882	6003	252	399	0	0	-87	Williams(-610), CT(523x1)	7,015	1,132	19.2%	7,429	1,426	23.8%
2048	5943	6060	253	400	0	-120	0		6,896	953	16.0%	7,430	1,370	22.6%
2049	6004	6118	254	401	0	0	0		6,897	893	14.9%	7,431	1,313	21.5%

Resource Plan 4 High DSM														
	Solar ELCC Capacity (Solar >500 MW) 11.8%				Solar ELCC Capacity (Solar >1000 MW) 4.25%				Summer Reserve Margin 14%			Winter Reserve Margin 21%		
Year	Gross Summer Peak (MW)	Gross Winter Peak (MW)	Summer Demand Response (MW)	Winter Demand Response (MW)	Annual Capacity Purchase (MW)	Summer Long Term (MW)	Winter Long Term (MW)	Description	Summer Capacity (MW)	Summer Reserve (MW)	Summer Reserve %	Winter Capacity (MW)	Winter Reserve (MW)	Winter Reserve %
2019	4701	4087	0	0	0	41	67	Solar PPAs	5,772	1,071	22.8%	5,982	1,895	46.4%
2020	4418	4890	227	263	0	-289	-306	Solar PPAs, Wateree 2 outage	5,710	1,292	29.2%	5,939	1,049	21.5%
2021	4814	4939	226	264	0	13	3	Solar PPAs	5,721	907	18.8%	5,943	1,004	20.3%
2022	4855	4961	227	267	0	351	351	Solar PPA, Wateree 2 Online	6,073	1,218	25.1%	6,297	1,336	26.9%
2023	4881	4973	228	271	0	83	123	Jasper, CEC upgrade	6,157	1,276	26.1%	6,424	1,451	29.2%
2024	4888	4967	229	276	0	-5	9	Replace Parr & BP, Retire Coit	6,153	1,265	25.9%	6,438	1,471	29.6%
2025	4876	4984	230	284	0	19	40	Replace Urq3, Urq CT 1-4	6,173	1,297	26.6%	6,486	1,502	30.1%
2026	4885	4998	231	297	0	0	0		6,174	1,289	26.4%	6,499	1,501	30.0%
2027	4897	5013	232	318	0	0	0		6,175	1,278	26.1%	6,520	1,507	30.1%
2028	4905	5024	233	347	0	0	0		6,176	1,271	25.9%	6,549	1,525	30.4%
2029	4908	5031	234	381	0	0	-250	Retire MCM	6,177	1,269	25.8%	6,333	1,302	25.9%
2030	4912	5086	235	382	0	-250	0		5,928	1,016	20.7%	6,334	1,248	24.5%
2031	4970	5143	236	383	0	0	0		5,929	959	19.3%	6,335	1,192	23.2%
2032	5028	5197	237	384	0	0	0		5,930	902	17.9%	6,336	1,139	21.9%
2033	5086	5252	238	385	50	0	0		5,981	895	17.6%	6,387	1,135	21.6%
2034	5146	5306	239	386	100	0	0		6,032	886	17.2%	6,438	1,132	21.3%
2035	5203	5360	240	387	0	0	523	CT(523x1)	5,933	730	14.0%	6,862	1,502	28.0%
2036	5257	5411	241	388	0	485	0		6,419	1,162	22.1%	6,863	1,452	26.8%
2037	5312	5462	242	389	0	0	0		6,420	1,108	20.8%	6,864	1,402	25.7%
2038	5367	5514	243	390	0	0	0		6,421	1,054	19.6%	6,865	1,351	24.5%
2039	5421	5564	244	391	0	0	0		6,422	1,001	18.5%	6,866	1,302	23.4%
2040	5476	5617	245	392	0	0	0		6,423	947	17.3%	6,867	1,250	22.2%
2041	5532	5671	246	393	0	0	0		6,424	891	16.1%	6,868	1,197	21.1%
2042	5589	5725	247	394	0	0	523	CT(523)	6,425	835	14.9%	7,392	1,667	29.1%
2043	5647	5779	248	395	0	485	0		6,911	1,264	22.4%	7,393	1,613	27.9%
2044	5705	5835	249	396	0	0	-161	Wateree(-684), CT(523x1)	6,912	1,207	21.2%	7,233	1,398	24.0%
2045	5763	5890	250	397	0	-199	0		6,714	950	16.5%	7,234	1,344	22.8%
2046	5823	5946	251	398	0	0	0		6,715	892	15.3%	7,235	1,288	21.7%
2047	5882	6003	252	399	0	0	436	Williams(-610), CT(523x2)	6,716	833	14.2%	7,672	1,669	27.8%
2048	5943	6060	253	400	0	360	0		7,077	1,134	19.1%	7,673	1,613	26.6%
2049	6004	6118	254	401	0	0	0		7,078	1,074	17.9%	7,674	1,556	25.4%

Resource Plan 5 High DSM														
	Solar ELCC Capacity (Solar >500 MW) 11.8%				Solar ELCC Capacity (Solar >1000 MW) 4.25%				Summer Reserve Margin 14%			Winter Reserve Margin 21%		
Year	Gross Summer Peak (MW)	Gross Winter Peak (MW)	Summer Demand Response (MW)	Winter Demand Response (MW)	Annual Capacity Purchase (MW)	Summer Long Term (MW)	Winter Long Term (MW)	Description	Summer Capacity (MW)	Summer Reserve (MW)	Summer Reserve %	Winter Capacity (MW)	Winter Reserve (MW)	Winter Reserve %
2019	4701	4087	0	0	0	41	67	Solar PPAs	5,772	1,071	22.8%	5,982	1,895	46.4%
2020	4418	4890	227	263	0	-289	-306	Solar PPAs, Wateree 2 outage	5,710	1,292	29.2%	5,939	1,049	21.5%
2021	4814	4939	226	264	0	13	3	Solar PPAs	5,721	907	18.8%	5,943	1,004	20.3%
2022	4855	4961	227	267	0	351	351	Wateree 2 Online	6,073	1,218	25.1%	6,297	1,336	26.9%
2023	4881	4973	228	271	0	83	123	Jasper, CEC upgrade	6,157	1,276	26.1%	6,424	1,451	29.2%
2024	4888	4967	229	276	0	-5	9	Replace Parr & BP, Retire Coit	6,153	1,265	25.9%	6,438	1,471	29.6%
2025	4876	4984	230	284	0	19	40	Replace Urq3, Urq CT 1-4	6,173	1,297	26.6%	6,486	1,502	30.1%
2026	4885	4998	231	297	0	117	117	Flexible Solar(400), Storage(100)	6,291	1,406	28.8%	6,616	1,618	32.4%
2027	4897	5013	232	318	0	0	0		6,292	1,395	28.5%	6,637	1,624	32.4%
2028	4905	5024	233	347	0	0	0		6,293	1,388	28.3%	6,666	1,642	32.7%
2029	4908	5031	234	381	0	0	0		6,294	1,386	28.2%	6,700	1,669	33.2%
2030	4912	5086	235	382	0	0	0		6,295	1,383	28.1%	6,701	1,615	31.7%
2031	4970	5143	236	383	0	0	0		6,296	1,326	26.7%	6,702	1,559	30.3%
2032	5028	5197	237	384	0	0	0		6,297	1,269	25.2%	6,703	1,506	29.0%
2033	5086	5252	238	385	0	0	0		6,298	1,212	23.8%	6,704	1,452	27.6%
2034	5146	5306	239	386	0	0	0		6,299	1,153	22.4%	6,705	1,399	26.4%
2035	5203	5360	240	387	0	0	0		6,300	1,097	21.1%	6,706	1,346	25.1%
2036	5257	5411	241	388	0	0	0		6,301	1,044	19.9%	6,707	1,296	23.9%
2037	5312	5462	242	389	0	0	0		6,302	990	18.6%	6,708	1,246	22.8%
2038	5367	5514	243	390	0	0	0		6,303	936	17.4%	6,709	1,195	21.7%
2039	5421	5564	244	391	50	0	0		6,354	933	17.2%	6,760	1,196	21.5%
2040	5476	5617	245	392	100	0	0		6,405	929	17.0%	6,811	1,194	21.3%
2041	5532	5671	246	393	0	0	553	CC(553)	6,306	773	14.0%	7,265	1,594	28.1%
2042	5589	5725	247	394	0	534	0		6,841	1,251	22.4%	7,266	1,541	26.9%
2043	5647	5779	248	395	0	0	0		6,842	1,195	21.2%	7,267	1,487	25.7%
2044	5705	5835	249	396	0	0	-161	Wateree(-684), CT(523x1)	6,843	1,138	19.9%	7,107	1,272	21.8%
2045	5763	5890	250	397	50	-199	0		6,695	931	16.2%	7,158	1,268	21.5%
2046	5823	5946	251	398	0	0	523	CT(523)	6,646	823	14.1%	7,632	1,685	28.3%
2047	5882	6003	252	399	0	485	-87	Retire Williams, CT(523)	7,132	1,249	21.2%	7,546	1,543	25.7%
2048	5943	6060	253	400	0	-120	0		7,013	1,070	18.0%	7,547	1,487	24.5%
2049	6004	6118	254	401	0	0	0		7,014	1,010	16.8%	7,548	1,430	23.4%

Resource Plan 6 High DSM														
	Solar ELCC Capacity (Solar >500 MW) 11.8%				Solar ELCC Capacity (Solar >1000 MW) 4.25%				Summer Reserve Margin 14%			Winter Reserve Margin 21%		
Year	Gross Summer Peak (MW)	Gross Winter Peak (MW)	Summer Demand Response (MW)	Winter Demand Response (MW)	Annual Capacity Purchase (MW)	Summer Long Term (MW)	Winter Long Term (MW)	Description	Summer Capacity (MW)	Summer Reserve (MW)	Summer Reserve %	Winter Capacity (MW)	Winter Reserve (MW)	Winter Reserve %
2019	4701	4087	0	0	0	41	67	Solar PPAs	5,772	1,071	22.8%	5,982	1,895	46.4%
2020	4418	4890	227	263	0	-289	-306	Solar PPAs, Wateree 2 outage	5,710	1,292	29.2%	5,939	1,049	21.5%
2021	4814	4939	226	264	0	13	3	Solar PPAs	5,721	907	18.8%	5,943	1,004	20.3%
2022	4855	4961	227	267	0	351	351	Solar PPA, Wateree 2 Online	6,073	1,218	25.1%	6,297	1,336	26.9%
2023	4881	4973	228	271	0	83	123	Jasper, CEC upgrade	6,157	1,276	26.1%	6,424	1,451	29.2%
2024	4888	4967	229	276	0	-5	9	Replace Parr & BP, Retire Coit	6,153	1,265	25.9%	6,438	1,471	29.6%
2025	4876	4984	230	284	0	19	40	Replace Urq3, Urq CT 1-4	6,173	1,297	26.6%	6,486	1,502	30.1%
2026	4885	4998	231	297	0	17	17	Flexible Solar (400MW)	6,191	1,306	26.7%	6,516	1,518	30.4%
2027	4897	5013	232	318	0	0	0		6,192	1,295	26.4%	6,537	1,524	30.4%
2028	4905	5024	233	347	0	0	0		6,193	1,288	26.2%	6,566	1,542	30.7%
2029	4908	5031	234	381	0	0	0		6,194	1,286	26.2%	6,600	1,569	31.2%
2030	4912	5086	235	382	0	0	0		6,195	1,283	26.1%	6,601	1,515	29.8%
2031	4970	5143	236	383	0	0	0		6,196	1,226	24.7%	6,602	1,459	28.4%
2032	5028	5197	237	384	0	0	0		6,197	1,169	23.2%	6,603	1,406	27.0%
2033	5086	5252	238	385	0	0	0		6,198	1,112	21.9%	6,604	1,352	25.7%
2034	5146	5306	239	386	0	0	0		6,199	1,053	20.5%	6,605	1,299	24.5%
2035	5203	5360	240	387	0	0	0		6,200	997	19.2%	6,606	1,246	23.2%
2036	5257	5411	241	388	0	0	0		6,201	944	17.9%	6,607	1,196	22.1%
2037	5312	5462	242	389	50	0	0		6,252	940	17.7%	6,658	1,196	21.9%
2038	5367	5514	243	390	100	0	0		6,303	936	17.4%	6,709	1,195	21.7%
2039	5421	5564	244	391	0	0	523	CT(523)	6,204	783	14.4%	7,133	1,569	28.2%
2040	5476	5617	245	392	0	485	0		6,690	1,214	22.2%	7,134	1,517	27.0%
2041	5532	5671	246	393	0	0	0		6,691	1,158	20.9%	7,135	1,464	25.8%
2042	5589	5725	247	394	0	0	0		6,692	1,102	19.7%	7,136	1,411	24.6%
2043	5647	5779	248	395	0	0	0		6,693	1,046	18.5%	7,137	1,357	23.5%
2044	5705	5835	249	396	0	0	362	Retire Wateree, CT(523x2)	6,694	989	17.3%	7,500	1,665	28.5%
2045	5763	5890	250	397	0	286	0		6,981	1,217	21.1%	7,501	1,611	27.3%
2046	5823	5946	251	398	0	0	0		6,982	1,159	19.9%	7,502	1,555	26.2%
2047	5882	6003	252	399	0	0	-87	Retire Williams, CT(523x1)	6,983	1,100	18.7%	7,416	1,413	23.5%
2048	5943	6060	253	400	0	-120	0		6,864	921	15.5%	7,417	1,357	22.4%
2049	6004	6118	254	401	0	0	0		6,865	861	14.3%	7,418	1,300	21.2%

Resource Plan 7 High DSM														
	Solar ELCC Capacity (Solar >500 MW) 11.8%				Solar ELCC Capacity (Solar >1000 MW) 4.25%				Summer Reserve Margin 14%			Winter Reserve Margin 21%		
Year	Gross Summer Peak (MW)	Gross Winter Peak (MW)	Summer Demand Response (MW)	Winter Demand Response (MW)	Annual Capacity Purchase (MW)	Summer Long Term (MW)	Winter Long Term (MW)	Description	Summer Capacity (MW)	Summer Reserve (MW)	Summer Reserve %	Winter Capacity (MW)	Winter Reserve (MW)	Winter Reserve %
2019	4701	4087	0	0	0	41	67	Solar PPAs	5,772	1,071	22.8%	5,982	1,895	46.4%
2020	4418	4890	227	263	0	-289	-306	Solar PPAs, Wateree 2 outage	5,710	1,292	29.2%	5,939	1,049	21.5%
2021	4814	4939	226	264	0	13	3	Solar PPAs	5,721	907	18.8%	5,943	1,004	20.3%
2022	4855	4961	227	267	0	351	351	Solar PPA, Wateree 2 Online	6,073	1,218	25.1%	6,297	1,336	26.9%
2023	4881	4973	228	271	0	83	123	Jasper, CEC upgrade	6,157	1,276	26.1%	6,424	1,451	29.2%
2024	4888	4967	229	276	0	-5	9	Replace Parr & BP, Retire Coit	6,153	1,265	25.9%	6,438	1,471	29.6%
2025	4876	4984	230	284	0	19	40	Replace Urq3, Urq CT 1-4	6,173	1,297	26.6%	6,486	1,502	30.1%
2026	4885	4998	231	297	0	117	117	Flexible Solar PPA (400), Storage (100)	6,291	1,406	28.8%	6,616	1,618	32.4%
2027	4897	5013	232	318	0	0	0		6,292	1,395	28.5%	6,637	1,624	32.4%
2028	4905	5024	233	347	0	0	0		6,293	1,388	28.3%	6,666	1,642	32.7%
2029	4908	5031	234	381	0	0	0		6,294	1,386	28.2%	6,700	1,669	33.2%
2030	4912	5086	235	382	0	0	0		6,295	1,383	28.1%	6,701	1,615	31.7%
2031	4970	5143	236	383	0	0	0		6,296	1,326	26.7%	6,702	1,559	30.3%
2032	5028	5197	237	384	0	0	0		6,297	1,269	25.2%	6,703	1,506	29.0%
2033	5086	5252	238	385	0	0	0		6,298	1,212	23.8%	6,704	1,452	27.6%
2034	5146	5306	239	386	0	0	0		6,299	1,153	22.4%	6,705	1,399	26.4%
2035	5203	5360	240	387	0	0	0		6,300	1,097	21.1%	6,706	1,346	25.1%
2036	5257	5411	241	388	0	0	0		6,301	1,044	19.9%	6,707	1,296	23.9%
2037	5312	5462	242	389	0	0	0		6,302	990	18.6%	6,708	1,246	22.8%
2038	5367	5514	243	390	0	0	0		6,303	936	17.4%	6,709	1,195	21.7%
2039	5421	5564	244	391	50	0	0		6,354	933	17.2%	6,760	1,196	21.5%
2040	5476	5617	245	392	100	0	0		6,405	929	17.0%	6,811	1,194	21.3%
2041	5532	5671	246	393	0	0	523	CT(523)	6,306	773	14.0%	7,235	1,564	27.6%
2042	5589	5725	247	394	0	485	0		6,792	1,202	21.5%	7,236	1,511	26.4%
2043	5647	5779	248	395	0	0	0		6,793	1,146	20.3%	7,237	1,457	25.2%
2044	5705	5835	249	396	0	0	362	Wateree(-684), CT(523X2)	6,794	1,089	19.1%	7,600	1,765	30.3%
2045	5763	5890	250	397	0	286	0		7,081	1,317	22.9%	7,601	1,711	29.0%
2046	5823	5946	251	398	0	0	0		7,082	1,259	21.6%	7,602	1,655	27.8%
2047	5882	6003	252	399	0	0	-87	Williams(-610), CT(523)	7,083	1,200	20.4%	7,516	1,513	25.2%
2048	5943	6060	253	400	0	-125	0		6,959	1,016	17.1%	7,517	1,457	24.0%
2049	6004	6118	254	401	0	0	0		6,960	956	15.9%	7,518	1,400	22.9%

Resource Plan 7a High DSM														
	Solar ELCC Capacity (Solar >500 MW) 11.8%				Solar ELCC Capacity (Solar >1000 MW) 4.25%				Summer Reserve Margin 14%			Winter Reserve Margin 21%		
Year	Gross Summer Peak (MW)	Gross Winter Peak (MW)	Summer Demand Response (MW)	Winter Demand Response (MW)	Annual Capacity Purchase (MW)	Summer Long Term (MW)	Winter Long Term (MW)	Description	Summer Capacity (MW)	Summer Reserve (MW)	Summer Reserve %	Winter Capacity (MW)	Winter Reserve (MW)	Winter Reserve %
2019	4701	4087	0	0	0	41	67	Solar PPAs	5,772	1,071	22.8%	5,982	1,895	46.4%
2020	4418	4890	227	263	0	-289	-306	Solar PPAs, Wateree 2 outage	5,710	1,292	29.2%	5,939	1,049	21.5%
2021	4814	4939	226	264	0	13	3	Solar PPAs	5,721	907	18.8%	5,943	1,004	20.3%
2022	4855	4961	227	267	0	351	351	Solar PPA, Wateree 2 Online	6,073	1,218	25.1%	6,297	1,336	26.9%
2023	4881	4973	228	271	0	100	140	PPA Solar (400),	6,174	1,293	26.5%	6,441	1,468	29.5%
2024	4888	4967	229	276	0	-5	9	Replace Parr & BP, Retire Coit	6,170	1,282	26.2%	6,455	1,488	30.0%
2025	4876	4984	230	284	0	19	40	Replace Urq3, Urq CT 1-4	6,190	1,314	26.9%	6,503	1,519	30.5%
2026	4885	4998	231	297	0	0	0		6,191	1,306	26.7%	6,516	1,518	30.4%
2027	4897	5013	232	318	0	0	0		6,192	1,295	26.4%	6,537	1,524	30.4%
2028	4905	5024	233	347	0	0	0		6,193	1,288	26.2%	6,566	1,542	30.7%
2029	4908	5031	234	381	0	0	0		6,194	1,286	26.2%	6,600	1,569	31.2%
2030	4912	5086	235	382	0	0	0		6,195	1,283	26.1%	6,601	1,515	29.8%
2031	4970	5143	236	383	0	0	0		6,196	1,226	24.7%	6,602	1,459	28.4%
2032	5028	5197	237	384	0	0	0		6,197	1,169	23.2%	6,603	1,406	27.0%
2033	5086	5252	238	385	0	0	0		6,198	1,112	21.9%	6,604	1,352	25.7%
2034	5146	5306	239	386	0	0	0		6,199	1,053	20.5%	6,605	1,299	24.5%
2035	5203	5360	240	387	0	0	0		6,200	997	19.2%	6,606	1,246	23.2%
2036	5257	5411	241	388	0	0	0		6,201	944	17.9%	6,607	1,196	22.1%
2037	5312	5462	242	389	50	0	0		6,252	940	17.7%	6,658	1,196	21.9%
2038	5367	5514	243	390	100	0	0		6,303	936	17.4%	6,709	1,195	21.7%
2039	5421	5564	244	391	0	0	523	CT(523)	6,204	783	14.4%	7,133	1,569	28.2%
2040	5476	5617	245	392	0	485	0		6,690	1,214	22.2%	7,134	1,517	27.0%
2041	5532	5671	246	393	0	0	0		6,691	1,158	20.9%	7,135	1,464	25.8%
2042	5589	5725	247	394	0	0	0		6,692	1,102	19.7%	7,136	1,411	24.6%
2043	5647	5779	248	395	0	0	0		6,693	1,046	18.5%	7,137	1,357	23.5%
2044	5705	5835	249	396	0	0	362	Wateree(-684), CT(523X2)	6,694	989	17.3%	7,500	1,665	28.5%
2045	5763	5890	250	397	0	286	0		6,981	1,217	21.1%	7,501	1,611	27.3%
2046	5823	5946	251	398	0	0	0		6,982	1,159	19.9%	7,502	1,555	26.2%
2047	5882	6003	252	399	0	0	-87	Williams(-610), CT(523x1)	6,983	1,100	18.7%	7,416	1,413	23.5%
2048	5943	6060	253	400	0	-120	0		6,864	921	15.5%	7,417	1,357	22.4%
2049	6004	6118	254	401	0	0	0		6,865	861	14.3%	7,418	1,300	21.2%

Resource Plan 7b High DSM														
	Solar ELCC Capacity (Solar >500 MW) 11.8%				Solar ELCC Capacity (Solar >1000 MW) 4.25%				Summer Reserve Margin 14%			Winter Reserve Margin 21%		
Year	Gross Summer Peak (MW)	Gross Winter Peak (MW)	Summer Demand Response (MW)	Winter Demand Response (MW)	Annual Capacity Purchase (MW)	Summer Long Term (MW)	Winter Long Term (MW)	Description	Summer Capacity (MW)	Summer Reserve (MW)	Summer Reserve %	Winter Capacity (MW)	Winter Reserve (MW)	Winter Reserve %
2019	4701	4087	0	0	0	41	67	Solar PPAs	5,772	1,071	22.8%	5,982	1,895	46.4%
2020	4418	4890	227	263	0	-289	-306	Solar PPAs, Wateree 2 outage	5,710	1,292	29.2%	5,939	1,049	21.5%
2021	4814	4939	226	264	0	13	3	Solar PPAs	5,721	907	18.8%	5,943	1,004	20.3%
2022	4855	4961	227	267	0	351	351	Solar PPA, Wateree 2 Online	6,073	1,218	25.1%	6,297	1,336	26.9%
2023	4881	4973	228	271	0	200	240	PPA Solar (400) w/ Storage (100),	6,274	1,393	28.5%	6,541	1,568	31.5%
2024	4888	4967	229	276	0	-5	9	Replace Parr & BP, Retire Coit	6,270	1,382	28.3%	6,555	1,588	32.0%
2025	4876	4984	230	284	0	19	40	Replace Urq3, Urq CT 1-4	6,290	1,414	29.0%	6,603	1,619	32.5%
2026	4885	4998	231	297	0	0	0		6,291	1,406	28.8%	6,616	1,618	32.4%
2027	4897	5013	232	318	0	0	0		6,292	1,395	28.5%	6,637	1,624	32.4%
2028	4905	5024	233	347	0	0	0		6,293	1,388	28.3%	6,666	1,642	32.7%
2029	4908	5031	234	381	0	0	0		6,294	1,386	28.2%	6,700	1,669	33.2%
2030	4912	5086	235	382	0	0	0		6,295	1,383	28.1%	6,701	1,615	31.7%
2031	4970	5143	236	383	0	0	0		6,296	1,326	26.7%	6,702	1,559	30.3%
2032	5028	5197	237	384	0	0	0		6,297	1,269	25.2%	6,703	1,506	29.0%
2033	5086	5252	238	385	0	0	0		6,298	1,212	23.8%	6,704	1,452	27.6%
2034	5146	5306	239	386	0	0	0		6,299	1,153	22.4%	6,705	1,399	26.4%
2035	5203	5360	240	387	0	0	0		6,300	1,097	21.1%	6,706	1,346	25.1%
2036	5257	5411	241	388	0	0	0		6,301	1,044	19.9%	6,707	1,296	23.9%
2037	5312	5462	242	389	0	0	0		6,302	990	18.6%	6,708	1,246	22.8%
2038	5367	5514	243	390	0	0	0		6,303	936	17.4%	6,709	1,195	21.7%
2039	5421	5564	244	391	50	0	0		6,354	933	17.2%	6,760	1,196	21.5%
2040	5476	5617	245	392	100	0	0		6,405	929	17.0%	6,811	1,194	21.3%
2041	5532	5671	246	393	0	0	523	CT(523)	6,306	773	14.0%	7,235	1,564	27.6%
2042	5589	5725	247	394	0	485	0		6,792	1,202	21.5%	7,236	1,511	26.4%
2043	5647	5779	248	395	0	0	0		6,793	1,146	20.3%	7,237	1,457	25.2%
2044	5705	5835	249	396	0	0	362	Wateree(-684), CT(523x2)	6,794	1,089	19.1%	7,600	1,765	30.3%
2045	5763	5890	250	397	0	286	0		7,081	1,317	22.9%	7,601	1,711	29.0%
2046	5823	5946	251	398	0	0	0		7,082	1,259	21.6%	7,602	1,655	27.8%
2047	5882	6003	252	399	0	0	-87	Williams(-610), CT(523x1)	7,083	1,200	20.4%	7,516	1,513	25.2%
2048	5943	6060	253	400	0	-120	0		6,964	1,021	17.2%	7,517	1,457	24.0%
2049	6004	6118	254	401	0	0	0		6,965	961	16.0%	7,518	1,400	22.9%

Resource Plan 8 High DSM														
	Solar ELCC Capacity (Solar >500 MW) 11.8%				Solar ELCC Capacity (Solar >1000 MW) 4.25%				Summer Reserve Margin 14%			Winter Reserve Margin 21%		
Year	Gross Summer Peak (MW)	Gross Winter Peak (MW)	Summer Demand Response (MW)	Winter Demand Response (MW)	Annual Capacity Purchase (MW)	Summer Long Term (MW)	Winter Long Term (MW)	Description	Summer Capacity (MW)	Summer Reserve (MW)	Summer Reserve %	Winter Capacity (MW)	Winter Reserve (MW)	Winter Reserve %
2019	4701	4087	0	0	0	41	67	Solar PPAs	5,772	1,071	22.8%	5,982	1,895	46.4%
2020	4418	4890	227	263	0	-289	-306	Solar PPAs, Wateree 2 outage	5,710	1,292	29.2%	5,939	1,049	21.5%
2021	4814	4939	226	264	0	13	3	Solar PPAs	5,721	907	18.8%	5,943	1,004	20.3%
2022	4855	4961	227	267	0	351	351	Wateree 2 Online	6,073	1,218	25.1%	6,297	1,336	26.9%
2023	4881	4973	228	271	0	83	123	Jasper, CEC upgrade	6,157	1,276	26.1%	6,424	1,451	29.2%
2024	4888	4967	229	276	0	-5	9	Replace Parr & BP, Retire Coit	6,153	1,265	25.9%	6,438	1,471	29.6%
2025	4876	4984	230	284	0	19	40	Replace Urq3, Urq CT 1-4	6,173	1,297	26.6%	6,486	1,502	30.1%
2026	4885	4998	231	297	0	2	2	Solar (50)	6,176	1,291	26.4%	6,501	1,503	30.1%
2027	4897	5013	232	318	0	2	2	Solar (50)	6,179	1,282	26.2%	6,524	1,511	30.1%
2028	4905	5024	233	347	0	0	-218	Wateree(-684), Williams (-610),	6,180	1,275	26.0%	6,335	1,311	26.1%
2029	4908	5031	234	381	0	-270	0		5,911	1,003	20.4%	6,369	1,338	26.6%
2030	4912	5086	235	382	0	4	4	Solar (100)	5,916	1,004	20.4%	6,374	1,288	25.3%
2031	4970	5143	236	383	0	4	4	Solar (100)	5,921	951	19.1%	6,379	1,236	24.0%
2032	5028	5197	237	384	0	4	4	Solar (100)	5,927	899	17.9%	6,385	1,188	22.9%
2033	5086	5252	238	385	0	4	4	Solar (100)	5,932	846	16.6%	6,390	1,138	21.7%
2034	5146	5306	239	386	0	104	104	Solar (100) w/ Storage (100)	6,037	891	17.3%	6,495	1,189	22.4%
2035	5203	5360	240	387	0	4	4	Solar (100)	6,042	839	16.1%	6,500	1,140	21.3%
2036	5257	5411	241	388	0	4	135	CT (131), Solar (100)	6,048	791	15.0%	6,637	1,226	22.7%
2037	5312	5462	242	389	0	135	4	Solar (100)	6,184	872	16.4%	6,642	1,180	21.6%
2038	5367	5514	243	390	0	4	135	CT (131), Solar (100)	6,189	822	15.3%	6,778	1,264	22.9%
2039	5421	5564	244	391	0	135	4	Solar (100)	6,325	904	16.7%	6,783	1,219	21.9%
2040	5476	5617	245	392	0	4	135	CT (131), Solar (100)	6,331	855	15.6%	6,920	1,303	23.2%
2041	5532	5671	246	393	0	135	4	Solar (100)	6,467	934	16.9%	6,925	1,254	22.1%
2042	5589	5725	247	394	0	104	104	Solar (100) w/ Storage (100)	6,572	983	17.6%	7,030	1,306	22.8%
2043	5647	5779	248	395	0	4	4	Solar (100)	6,577	931	16.5%	7,036	1,256	21.7%
2044	5705	5835	249	396	0	104	104	Solar (100) w/ Storage (100)	6,683	978	17.1%	7,141	1,306	22.4%
2045	5763	5890	250	397	0	4	4	Solar (100)	6,688	925	16.0%	7,146	1,256	21.3%
2046	5823	5946	251	398	0	104	104	Solar (100) w/ Storage (100)	6,793	971	16.7%	7,251	1,305	21.9%
2047	5882	6003	252	399	0	104	104	Solar (100) w/ Storage (100)	6,898	1,016	17.3%	7,357	1,354	22.5%
2048	5943	6060	253	400	0	4	4	Solar (100)	6,904	961	16.2%	7,362	1,302	21.5%
2049	6004	6118	254	401	50	0			6,955	951	15.8%	7,413	1,295	21.2%

Resource Plan 8a High DSM														
	Solar ELCC Capacity (Solar >500 MW) 11.8%				Solar ELCC Capacity (Solar >1000 MW) 4.25%				Summer Reserve Margin 14%			Winter Reserve Margin 21%		
Year	Gross Summer Peak (MW)	Gross Winter Peak (MW)	Summer Demand Response (MW)	Winter Demand Response (MW)	Annual Capacity Purchase (MW)	Summer Long Term (MW)	Winter Long Term (MW)	Description	Summer Capacity (MW)	Summer Reserve (MW)	Summer Reserve %	Winter Capacity (MW)	Winter Reserve (MW)	Winter Reserve %
2019	4701	4087	0	0	0	41	67	Solar PPAs	5,772	1,071	22.8%	5,982	1,895	46.4%
2020	4418	4890	227	263	0	-289	-306	Solar PPAs, Wateree 2 outage	5,710	1,292	29.2%	5,939	1,049	21.5%
2021	4814	4939	226	264	0	13	3	Solar PPAs	5,721	907	18.8%	5,943	1,004	20.3%
2022	4855	4961	227	267	0	351	351	Wateree 2 Online	6,073	1,218	25.1%	6,297	1,336	26.9%
2023	4881	4973	228	271	0	200	240	Solar (400) w/ Storage (100), Jasper, CEC upgrade	6,274	1,393	28.5%	6,541	1,568	31.5%
2024	4888	4967	229	276	0	-5	9	Replace Parr & BP, Retire Coit	6,270	1,382	28.3%	6,555	1,588	32.0%
2025	4876	4984	230	284	0	19	40	Replace Urq3, Urq CT 1-4	6,290	1,414	29.0%	6,603	1,619	32.5%
2026	4885	4998	231	297	0	2	2	Solar (50)	6,293	1,408	28.8%	6,618	1,620	32.4%
2027	4897	5013	232	318	0	2	2	Solar (50)	6,296	1,399	28.6%	6,641	1,628	32.5%
2028	4905	5024	233	347	0	0	-218	Wateree(-684), Williams (-610), CC(553) CT(523)	6,297	1,392	28.4%	6,452	1,428	28.4%
2029	4908	5031	234	381	0	-270	0		6,028	1,120	22.8%	6,486	1,455	28.9%
2030	4912	5086	235	382	0	4	4	Solar (100)	6,033	1,121	22.8%	6,491	1,405	27.6%
2031	4970	5143	236	383	0	4	4	Solar (100)	6,038	1,068	21.5%	6,496	1,353	26.3%
2032	5028	5197	237	384	0	4	4	Solar (100)	6,044	1,016	20.2%	6,502	1,305	25.1%
2033	5086	5252	238	385	0	4	4	Solar (100)	6,049	963	18.9%	6,507	1,255	23.9%
2034	5146	5306	239	386	0	104	104	Solar (100) w/ Storage (100)	6,154	1,008	19.6%	6,612	1,306	24.6%
2035	5203	5360	240	387	0	4	4	Solar (100)	6,159	956	18.4%	6,617	1,257	23.5%
2036	5257	5411	241	388	0	4	135	CT (131), Solar (100)	6,165	908	17.3%	6,754	1,343	24.8%
2037	5312	5462	242	389	0	135	4	Solar (100)	6,301	989	18.6%	6,759	1,297	23.7%
2038	5367	5514	243	390	0	4	135	CT (131), Solar (100)	6,306	939	17.5%	6,895	1,381	25.0%
2039	5421	5564	244	391	0	135	4	Solar (100)	6,442	1,021	18.8%	6,900	1,336	24.0%
2040	5476	5617	245	392	0	4	135	CT (131), Solar (100)	6,448	972	17.7%	7,037	1,420	25.3%
2041	5532	5671	246	393	0	135	4	Solar (100)	6,584	1,051	19.0%	7,042	1,371	24.2%
2042	5589	5725	247	394	0	104	104	Solar (100) w/ Storage (100)	6,689	1,100	19.7%	7,147	1,423	24.8%
2043	5647	5779	248	395	0	4	4	Solar (100)	6,694	1,048	18.6%	7,153	1,373	23.8%
2044	5705	5835	249	396	0	104	104	Solar (100) w/ Storage (100)	6,800	1,095	19.2%	7,258	1,423	24.4%
2045	5763	5890	250	397	0	4	4	Solar (100)	6,805	1,042	18.1%	7,263	1,373	23.3%
2046	5823	5946	251	398	0	104	104	Solar (100) w/ Storage (100)	6,910	1,088	18.7%	7,368	1,422	23.9%
2047	5882	6003	252	399	0	104	104	Solar (100) w/ Storage (100)	7,015	1,133	19.3%	7,474	1,471	24.5%
2048	5943	6060	253	400	0	4	4	Solar (100)	7,021	1,078	18.1%	7,479	1,419	23.4%
2049	6004	6118	254	401	0	0			7,022	1,018	17.0%	7,480	1,362	22.3%

Appendix E: Levelized Costs for the Low and Medium DSM Scenario

Levelized Costs in the Medium DSM Scenario ($M)										
RP ID	Resource Plan Name	$0/ton CO_2			$12/ton CO_2			$35/ton CO_2		
($M)		Low Gas	Medium Gas	High Gas	Low Gas	Medium Gas	High Gas	Low Gas	Medium Gas	High Gas
RP1	CC	1,399	1,470	1,648	1,585	1,669	1,873	2,395	2,495	2,793
RP2	CT	1,375	1,446	1,629	1,567	1,653	1,857	2,392	2,494	2,799
RP3	Retire Wateree	1,406	1,486	1,702	1,585	1,674	1,903	2,371	2,471	2,775
RP4	Retire McMeekin	1,376	1,448	1,631	1,566	1,654	1,858	2,382	2,485	2,794
RP5	Solar + Storage	1,408	1,477	1,645	1,587	1,669	1,863	2,371	2,467	2,753
RP6	Solar	1,392	1,461	1,633	1,577	1,660	1,854	2,373	2,471	2,766
RP7	Solar PPA + Storage 2026	1,375	1,445	1,618	1,560	1,644	1,839	2,356	2,455	2,750
RP7a	Solar $38.94 PPA 2023	1,377	1,445	1,617	1,562	1,644	1,839	2,353	2,451	2,745
RP7a2	Solar $36 PPA 2023	1,375	1,443	1,615	1,560	1,642	1,837	2,351	2,449	2,743
RP7a3	Solar $34 PPA 2023	1,373	1,442	1,614	1,558	1,641	1,835	2,350	2,448	2,741
RP7b	Solar $38.94 PPA + Storage 2023	1,382	1,450	1,622	1,567	1,650	1,844	2,361	2,459	2,751
RP7b2	Solar $36 PPA + Storage 2023	1,380	1,448	1,620	1,565	1,648	1,842	2,359	2,457	2,749
RP7b3	Solar $34 PPA + Storage 2023	1,378	1,447	1,619	1,564	1,646	1,840	2,357	2,455	2,748
RP8	Replace Coal	1,436	1,530	1,803	1,572	1,665	1,940	2,239	2,340	2,648
RP8a	Replace Coal + $38.94 PPA	1,442	1,532	1,793	1,571	1,661	1,925	2,210	2,306	2,602
RP8a2	Replace Coal + $36 PPA	1,440	1,530	1,791	1,569	1,659	1,923	2,208	2,304	2,599
RP8a3	Replace Coal + $34 PPA	1,438	1,529	1,790	1,568	1,658	1,922	2,207	2,303	2,598

Levelized Costs in the Low DSM Scenario ($M)										
RP ID	Resource Plan Name	$0/ton CO_2			$12/ton CO_2			$35/ton CO_2		
($M)		Low Gas	Medium Gas	High Gas	Low Gas	Medium Gas	High Gas	Low Gas	Medium Gas	High Gas
RP1	CC	1,403	1,475	1,655	1,590	1,675	1,881	2,403	2,504	2,804
RP2	CT	1,378	1,450	1,635	1,573	1,659	1,864	2,401	2,505	2,813
RP3	Retire Wateree	1,410	1,490	1,709	1,589	1,679	1,910	2,378	2,479	2,785
RP4	Retire McMeekin	1,387	1,459	1,644	1,591	1,665	1,872	2,392	2,496	2,809
RP5	Solar + Storage	1,424	1,493	1,662	1,603	1,686	1,881	2,390	2,487	2,775
RP6	Solar	1,395	1,464	1,638	1,581	1,664	1,861	2,379	2,479	2,776
RP7	Solar PPA + Storage 2026	1,379	1,449	1,623	1,566	1,649	1,845	2,368	2,467	2,763
RP7a	Solar $38.94 PPA 2023	1,380	1,449	1,623	1,565	1,649	1,845	2,360	2,459	2,755
RP7a2	Solar $36 PPA 2023	1,378	1,447	1,621	1,563	1,647	1,843	2,358	2,457	2,753
RP7a3	Solar $34 PPA 2023	1,376	1,445	1,619	1,562	1,645	1,842	2,356	2,455	2,751
RP7b	Solar $38.94 PPA + Storage 2023	1,385	1,454	1,627	1,571	1,654	1,850	2,368	2,467	2,762
RP7b2	Solar $36 PPA + Storage 2023	1,383	1,452	1,625	1,569	1,652	1,848	2,366	2,465	2,760
RP7b3	Solar $34 PPA + Storage 2023	1,381	1,450	1,624	1,568	1,651	1,847	2,365	2,463	2,759
RP8	Replace Coal	1,446	1,540	1,815	1,582	1,676	1,953	2,251	2,353	2,662
RP8a	Replace Coal + $38.94 PPA	1,452	1,543	1,806	1,582	1,673	1,937	2,224	2,320	2,617
RP8a2	Replace Coal + $36 PPA	1,450	1,541	1,803	1,580	1,671	1,935	2,222	2,318	2,615
RP8a3	Replace Coal + $34 PPA	1,449	1,540	1,802	1,579	1,669	1,934	2,220	2,317	2,613

Appendix F: CO_2 Emissions in the Low and Medium DSM Scenario

2050 CO_2 Emissions in the Medium DSM Scenario (000 tons)									
RP ID	$0/ton CO_2			$12/ton CO_2			$35/ton CO_2		
	Low Gas	Medium Gas	High Gas	Low Gas	Medium Gas	High Gas	Low Gas	Medium Gas	High Gas
RP1	11,680	11,927	11,877	10,557	10,547	11,783	10,513	10,509	10,492
RP2	12,014	12,270	12,239	10,950	10,957	12,139	10,899	10,894	10,902
RP3	11,680	11,912	11,872	10,567	10,564	11,762	10,504	10,500	10,494
RP4	11,996	12,263	12,233	10,947	10,950	12,120	10,885	10,883	10,890
RP5	11,424	11,590	11,568	10,011	10,039	11,319	9,933	9,925	9,913
RP6	11,579	11,854	11,817	10,523	10,529	11,674	10,477	10,477	10,465
RP7	11,778	11,935	11,917	10,266	10,290	11,548	10,154	10,148	10,155
RP7a	11,586	11,863	11,818	10,524	10,511	11,676	10,479	10,476	10,468
RP7a2	11,586	11,863	11,818	10,524	10,511	11,676	10,479	10,476	10,468
RP7a3	11,586	11,863	11,818	10,524	10,511	11,676	10,479	10,476	10,468
RP7b	11,566	11,842	11,811	10,499	10,497	11,682	10,448	10,455	10,436
RP7b2	11,566	11,842	11,811	10,499	10,497	11,682	10,448	10,455	10,436
RP7b3	11,566	11,842	11,811	10,499	10,497	11,682	10,448	10,455	10,436
RP8	9,140	9,057	9,010	9,007	9,001	8,995	8,985	8,980	8,977
RP8a	8,803	8,709	8,659	8,666	8,655	8,640	8,635	8,630	8,626
RP8a2	8,803	8,709	8,659	8,666	8,655	8,640	8,635	8,630	8,626
RP8a3	8,803	8,709	8,659	8,666	8,655	8,640	8,635	8,630	8,626

2050 CO_2 Emissions in the Low DSM Scenario (000 tons)									
RP ID	$0/ton CO_2			$12/ton CO_2			$35/ton CO_2		
	Low Gas	Medium Gas	High Gas	Low Gas	Medium Gas	High Gas	Low Gas	Medium Gas	High Gas
RP1	11,747	11,999	11,952	10,655	10,651	11,855	10,607	10,600	10,590
RP2	12,100	12,371	12,320	11,065	11,052	12,226	11,016	11,014	11,004
RP3	11,770	11,997	11,941	10,655	10,654	11,850	10,602	10,594	10,593
RP4	12,039	12,327	12,295	10,888	10,886	12,079	10,803	10,798	10,805
RP5	11,345	11,560	11,520	10,174	10,174	11,415	10,132	10,127	10,119
RP6	11,657	11,923	11,881	10,617	10,620	11,765	10,541	10,535	10,554
RP7	11,665	11,921	11,889	10,592	10,585	11,763	10,553	10,551	10,538
RP7a	11,642	11,913	11,884	10,618	10,611	11,771	10,546	10,534	10,552
RP7a2	11,642	11,913	11,884	10,618	10,611	11,771	10,546	10,534	10,552
RP7a3	11,642	11,913	11,884	10,618	10,611	11,771	10,546	10,534	10,552
RP7b	11,668	11,905	11,874	10,565	10,572	11,753	10,523	10,519	10,505
RP7b2	11,668	11,905	11,874	10,565	10,572	11,753	10,523	10,519	10,505
RP7b3	11,668	11,905	11,874	10,565	10,572	11,753	10,523	10,519	10,505
RP8	9,109	9,019	8,971	8,971	8,966	8,959	8,946	8,940	8,937
RP8a	8,770	8,685	8,631	8,631	8,625	8,610	8,598	8,596	8,589
RP8a2	8,770	8,685	8,631	8,631	8,625	8,610	8,598	8,596	8,589
RP8a3	8,770	8,685	8,631	8,631	8,625	8,610	8,598	8,596	8,589

Appendix G: Fuel Costs in the Low and Medium DSM Scenario

Levelized Fuel Costs in the Medium DSM Scenario ($M)										
RP ID	Resource Plan Name	$0/ton CO_2			$12/ton CO_2			$35/ton CO_2		
($M)		Low Gas	Medium Gas	High Gas	Low Gas	Medium Gas	High Gas	Low Gas	Medium Gas	High Gas
RP1	CC	686	759	927	687	767	931	699	793	1,049
RP2	CT	696	768	941	698	779	944	711	807	1,064
RP3	Retire Wateree	678	756	961	678	763	963	686	782	1,048
RP4	Retire McMeekin	694	766	939	695	777	943	708	805	1,063
RP5	Solar + Storage	668	738	898	668	745	900	679	769	1,013
RP6	Solar	676	746	909	678	756	913	690	782	1,030
RP7	Solar PPA + Storage 2026	678	747	911	678	755	910	689	781	1,026
RP7a	Solar $38.94 PPA 2023	673	743	905	675	752	909	686	778	1,026
RP7a2	Solar $36 PPA 2023	673	743	905	675	752	909	686	778	1,026
RP7a3	Solar $34 PPA 2023	673	743	905	675	752	909	686	778	1,026
RP7b	Solar $38.94 PPA + Storage 2023	672	742	905	675	753	908	687	779	1,026
RP7b2	Solar $36 PPA + Storage 2023	672	742	905	675	753	908	687	779	1,026
RP7b3	Solar $34 PPA + Storage 2023	672	742	905	675	753	908	687	779	1,026
RP8	Replace Coal	637	727	987	634	727	988	641	738	1,016
RP8a	Replace Coal + $38.94 PPA	615	702	951	612	701	952	618	710	978
RP8a2	Replace Coal + $36 PPA	615	702	951	612	701	952	618	710	978
RP8a3	Replace Coal + $34 PPA	615	702	951	612	701	952	618	710	978

Levelized Fuel Costs in the Low DSM Scenario ($M)										
RP ID	Resource Plan Name	$0/ton CO_2			$12/ton CO_2			$35/ton CO_2		
($M)		Low Gas	Medium Gas	High Gas	Low Gas	Medium Gas	High Gas	Low Gas	Medium Gas	High Gas
RP1	CC	688	762	932	689	770	936	701	796	1,054
RP2	CT	699	772	947	702	782	950	714	811	1,070
RP3	Retire Wateree	681	759	966	680	766	968	689	785	1,053
RP4	Retire McMeekin	696	770	944	697	780	947	710	808	1,069
RP5	Solar + Storage	670	741	901	671	749	906	682	773	1,021
RP6	Solar	679	750	914	681	760	918	692	786	1,036
RP7	Solar PPA + Storage 2026	680	750	915	683	761	919	694	787	1,037
RP7a	Solar $38.94 PPA 2023	676	746	911	677	756	914	689	781	1,031
RP7a2	Solar $36 PPA 2023	676	746	911	677	756	914	689	781	1,031
RP7a3	Solar $34 PPA 2023	676	746	911	677	756	914	689	781	1,031
RP7b	Solar $38.94 PPA + Storage 2023	676	746	910	678	756	914	690	783	1,032
RP7b2	Solar $36 PPA + Storage 2023	676	746	910	678	756	914	690	783	1,032
RP7b3	Solar $34 PPA + Storage 2023	676	746	910	678	756	914	690	783	1,032
RP8	Replace Coal	639	730	991	637	729	992	643	740	1,019
RP8a	Replace Coal + $38.94 PPA	617	705	955	615	704	956	620	713	981
RP8a2	Replace Coal + $36 PPA	617	705	955	615	704	956	620	713	981
RP8a3	Replace Coal + $34 PPA	617	705	955	615	704	956	620	713	981

Appendix H: Generation by Type for Each Resource Plan by Year - High DSM

Additions under Resource Plan 1 (RP1)							
Year	Coal Retirements	Steam Gas Retirements	Gas Frame CT	Gas Combined Cycle	Gas Aeroderivative	Solar	Storage
2023							
2024							
2025							
2026							
2027							
2028							
2029							
2030							
2031							
2032							
2033							
2034							
2035							
2036							
2037							
2038							
2039				553 MW			
2040							
2041							
2042							
2043							
2044	684		1046				
2045							
2046							
2047	610		523				
2048							
2049							

Additions under Resource Plan 2 (RP2)							
Year	Coal Retirements	Steam Gas Retirements	Gas Frame CT	Gas Combined Cycle	Gas Aeroderivative	Solar	Storage
2023							
2024							
2025							
2026							
2027							
2028							
2029							
2030							
2031							
2032							
2033							
2034							
2035							
2036							
2037							
2038							
2039			523				
2040							
2041							
2042							
2043							
2044	684		1046				
2045							
2046							
2047	610		523				
2048							
2049							

Additions under Resource Plan 3 (RP3)							
Year	Coal Retirements	Steam Gas Retirements	Gas Frame CT	Gas Combined Cycle	Gas Aeroderivative	Solar	Storage
2023							
2024							
2025							
2026							
2027							
2028	684			553			
2029							
2030							
2031							
2032							
2033							
2034							
2035							
2036							
2037			523				
2038							
2039							
2040							
2041							
2042							
2043							
2044			523				
2045							
2046							
2047	610		523				
2048							
2049							

Additions under Resource Plan 4 (RP4)							
Year	Coal Retirements	Steam Gas Retirements	Gas Frame CT	Gas Combined Cycle	Gas Aeroderivative	Solar	Storage
2023							
2024							
2025							
2026							
2027							
2028		250					
2029							
2030							
2031							
2032							
2033							
2034							
2035			532				
2036							
2037							
2038							
2039							
2040							
2041							
2042			523				
2043							
2044	684		523				
2045							
2046							
2047	610		1046				
2048							
2049							

Additions under Resource Plan 5 (RP5)							
Year	Coal Retirements	Steam Gas Retirements	Gas Frame CT	Gas Combined Cycle	Gas Aeroderivative	Solar	Storage
2023							
2024							
2025							
2026						400	100
2027							
2028							
2029							
2030							
2031							
2032							
2033							
2034							
2035							
2036							
2037							
2038							
2039							
2040							
2041			523				
2042							
2043							
2044	684		523				
2045							
2046			523				
2047	610		523				
2048							
2049							

Additions under Resource Plan 6 (RP6)							
Year	Coal Retirements	Steam Gas Retirements	Gas Frame CT	Gas Combined Cycle	Gas Aeroderivative	Solar	Storage
2023							
2024							
2025							
2026						400	
2027							
2028							
2029							
2030							
2031							
2032							
2033							
2034							
2035							
2036							
2037							
2038							
2039			523				
2040							
2041							
2042							
2043							
2044	684		1046				
2045							
2046							
2047	610		523				
2048							
2049							

Additions under Resource Plan 7 (RP7)							
Year	Coal Retirements	Steam Gas Retirements	Gas Frame CT	Gas Combined Cycle	Gas Aeroderivative	Solar	Storage
2023							
2024							
2025							
2026						400	100
2027							
2028							
2029							
2030							
2031							
2032							
2033							
2034							
2035							
2036							
2037							
2038							
2039							
2040							
2041			523				
2042							
2043							
2044	684		1046				
2045							
2046							
2047	610		523				
2048							
2049							

Additions under Resource Plan 7a (RP7a)							
Year	Coal Retirements	Steam Gas Retirements	Gas Frame CT	Gas Combined Cycle	Gas Aeroderivative	Solar	Storage
2023						400	
2024							
2025							
2026							
2027							
2028							
2029							
2030							
2031							
2032							
2033							
2034							
2035							
2036							
2037							
2038							
2039			523				
2040							
2041							
2042							
2043							
2044	684		1046				
2045							
2046							
2047	610		523				
2048							
2049							

Additions under Resource Plan 7b (RP7b)							
Year	Coal Retirements	Steam Gas Retirements	Gas Frame CT	Gas Combined Cycle	Gas Aeroderivative	Solar	Storage
2023						400	100
2024							
2025							
2026							
2027							
2028							
2029							
2030							
2031							
2032							
2033							
2034							
2035							
2036							
2037							
2038							
2039							
2040							
2041			523				
2042							
2043							
2044	684		1046				
2045							
2046							
2047	610		523				
2048							
2049							

Additions under Resource Plan 8 (RP8)							
Year	Coal Retirements	Steam Gas Retirements	Gas Frame CT	Gas Combined Cycle	Gas Aeroderivative	Solar	Storage
2023							
2024							
2025							
2026						50 MW	
2027						50 MW	
2028	1294 MW		523 MW	553 MW			
2029							
2030	415 MW*					100 MW	
2031						100 MW	
2032						100 MW	
2033						100 MW	
2034						100 MW	100 MW
2035						100 MW	
2036					131 MW	100 MW	
2037						100 MW	
2038					131 MW	100 MW	
2039						100 MW	
2040					131 MW	100 MW	
2041						100 MW	
2042						100 MW	100 MW
2043						100 MW	
2044						100 MW	100 MW
2045						100 MW	
2046						100 MW	100 MW
2047						100 MW	100 MW
2048						100 MW	
2049							

* Cope Station is converted to natural gas firing only in 2030

Additions under Resource Plan 8a (RP8a)							
Year	Coal Retirements	Steam Gas Retirements	Gas Frame CT	Gas Combined Cycle	Gas Aeroderivative	Solar	Storage
2023						400 MW	100 MW
2024							
2025							
2026						50 MW	
2027						50 MW	
2028	1294 MW		523 MW	553 MW			
2029							
2030	415 MW*					100 MW	
2031						100 MW	
2032						100 MW	
2033						100 MW	
2034						100 MW	100 MW
2035						100 MW	
2036					131 MW	100 MW	
2037						100 MW	
2038					131 MW	100 MW	
2039						100 MW	
2040					131 MW	100 MW	
2041						100 MW	
2042						100 MW	100 MW
2043						100 MW	
2044						100 MW	100 MW
2045						100 MW	
2046						100 MW	100 MW
2047						100 MW	100 MW
2048						100 MW	
2049							

* Cope Station is converted to natural gas firing only in 2030

Appendix I: Energy from Renewable Generation Summed by Five-Year Period for Low and Medium DSM

Energy from Renewable Generation Summed by Five-Year Period (Low DSM, Low Gas, and $12/ton CO_2) (GWh)							
RP ID	**Resource Plan Name**	**2021-2025**	**2026-2030**	**2031-2035**	**2036-2040**	**2041-2045**	**2046-2050**
RP1	CC	10,082	10,483	9,885	9,634	9,629	9,627
RP2	CT	10,084	10,409	9,884	9,634	9,629	9,627
RP3	Retire Wateree	10,082	10,484	9,885	9,634	9,629	9,627
RP4	Retire McMeekin	10,083	10,484	9,885	9,634	9,629	9,627
RP5	Solar + Storage	10,028	11,439	10,921	10,669	10,656	10,631
RP6	Solar	10,082	14,678	14,070	13,821	13,817	13,815
RP7	Solar PPA + Storage 2026	10,029	14,580	14,066	13,820	13,816	13,815
RP7a	Solar $38.94 PPA 2023	12,592	14,673	14,067	13,819	13,816	13,815
RP7a2	Solar $36 PPA 2023	12,592	14,673	14,067	13,819	13,816	13,815
RP7a3	Solar $34 PPA 2023	12,592	14,673	14,067	13,819	13,816	13,815
RP7b	Solar $38.94 PPA + Storage 2023	12,758	14,961	14,443	14,195	14,190	14,189
RP7b2	Solar $36 PPA + Storage 2023	12,758	14,961	14,443	14,195	14,190	14,189
RP7b3	Solar $34 PPA + Storage 2023	12,758	14,961	14,443	14,195	14,190	14,189
RP8	Replace Coal	10,029	11,560	15,273	20,481	26,155	31,718
RP8a	Replace Coal + $38.94 PPA	12,535	15,743	19,834	25,043	30,697	36,240
RP8a2	Replace Coal + $36 PPA	12,535	15,743	19,834	25,043	30,697	36,240
RP8a3	Replace Coal + $34 PPA	12,535	15,743	19,834	25,043	30,697	36,240

Energy from Renewable Generation Summed by Five-Year Period (Medium DSM, Low Gas, and $12/ton CO_2) (GWh)							
RP ID	**Resource Plan Name**	**2021-2025**	**2026-2030**	**2031-2035**	**2036-2040**	**2041-2045**	**2046-2050**
RP1	CC	10,081	10,484	9,885	9,634	9,629	9,627
RP2	CT	10,084	10,410	9,884	9,634	9,629	9,627
RP3	Retire Wateree	10,082	10,485	9,885	9,634	9,629	9,627
RP4	Retire McMeekin	10,083	10,484	9,885	9,634	9,629	9,627
RP5	Solar + Storage	10,028	11,440	10,922	10,670	10,656	10,625
RP6	Solar	10,082	14,677	14,070	13,818	13,817	13,815
RP7	Solar PPA + Storage 2026	10,029	14,579	14,067	13,817	13,816	13,815
RP7a	Solar $38.94 PPA 2023	12,589	14,670	14,067	13,817	13,816	13,815
RP7a2	Solar $36 PPA 2023	12,589	14,670	14,067	13,817	13,816	13,815
RP7a3	Solar $34 PPA 2023	12,589	14,670	14,067	13,817	13,816	13,815
RP7b	Solar $38.94 PPA + Storage 2023	12,759	14,961	14,442	14,195	14,191	14,189
RP7b2	Solar $36 PPA + Storage 2023	12,759	14,961	14,442	14,195	14,191	14,189
RP7b3	Solar $34 PPA + Storage 2023	12,759	14,961	14,442	14,195	14,191	14,189
RP8	Replace Coal	10,028	11,560	15,272	20,482	26,154	31,090
RP8a	Replace Coal + $38.94 PPA	12,536	15,739	19,834	25,033	30,692	35,612
RP8a2	Replace Coal + $36 PPA	12,536	15,739	19,834	25,033	30,692	35,612
RP8a3	Replace Coal + $34 PPA	12,536	15,739	19,834	25,033	30,692	35,612

Appendix J: Typical Residential Bill for Low and Medium DSM

Typical Residential Bill @1000 kWh/month (Low DSM, $0/ton CO_2, Low Gas)															
	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
RP1	125.92	126.12	131.10	128.45	128.32	132.99	134.49	135.78	138.07	139.95	140.60	143.26	145.58	147.19	162.05
RP2	125.92	126.12	131.06	128.46	128.31	132.95	134.49	135.77	138.04	139.94	140.59	143.24	145.56	147.18	155.78
RP3	125.92	126.14	131.10	128.46	128.31	131.70	133.26	134.57	145.07	146.92	147.50	149.97	158.05	159.06	160.82
RP4	125.92	126.13	131.08	128.42	128.32	132.94	134.46	135.76	143.01	144.84	145.41	147.89	149.88	151.06	153.18
RP5	125.92	126.14	131.09	128.47	128.33	137.46	138.71	139.78	141.83	143.62	144.21	146.72	148.77	150.19	152.29
RP6	125.92	126.12	131.05	128.42	128.30	136.34	137.65	138.73	140.84	142.60	143.20	145.74	147.80	149.44	151.58
RP7	125.92	126.10	131.07	128.43	128.30	134.51	135.96	137.15	139.34	141.20	141.86	144.46	146.55	147.99	150.12
RP7a	125.92	126.12	132.03	129.41	129.27	133.88	135.38	136.60	138.83	140.71	141.39	143.95	146.08	147.76	149.96
RP7a2	125.92	126.12	131.88	129.26	129.12	133.73	135.23	136.45	138.68	140.56	141.24	143.80	145.93	147.61	149.81
RP7a3	125.92	126.12	131.78	129.16	129.02	133.63	135.13	136.35	138.58	140.46	141.14	143.70	145.83	147.51	149.71
RP7b	125.92	126.12	132.61	130.02	129.88	134.48	135.99	137.25	139.41	141.32	142.00	144.59	146.68	148.16	150.30
RP7b2	125.92	126.12	132.46	129.86	129.72	134.32	135.83	137.09	139.25	141.16	141.84	144.43	146.52	148.00	150.14
RP7b3	125.92	126.12	132.37	129.77	129.63	134.23	135.74	137.00	139.16	141.07	141.75	144.34	146.43	147.91	150.05
RP8	125.92	126.14	131.11	128.46	128.33	130.59	132.58	133.83	147.38	152.77	154.58	158.33	161.29	163.56	165.76
RP8a	125.92	126.10	132.62	130.02	129.88	132.10	134.04	135.35	148.64	153.09	155.02	158.69	161.67	163.91	166.11
RP8a2	125.92	126.10	132.48	129.88	129.74	131.96	133.90	135.21	148.50	152.95	154.88	158.55	161.53	163.77	165.97
RP8a3	125.92	126.10	132.38	129.78	129.64	131.86	133.80	135.11	148.40	152.85	154.78	158.45	161.43	163.67	165.87

Typical Residential Bill @1000 kWh/month (Low DSM, $0/ton CO_2, Medium Gas)															
	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
RP1	125.92	126.72	132.46	130.54	130.90	135.86	137.09	138.36	140.62	142.37	142.88	145.63	148.04	149.63	165.24
RP2	125.92	126.74	132.49	130.58	130.90	135.89	137.10	138.41	140.63	142.38	142.91	145.66	148.05	149.65	158.39
RP3	125.92	126.74	132.49	130.58	130.94	134.60	135.88	137.18	148.35	150.09	150.43	153.23	161.44	162.52	164.60
RP4	125.92	126.72	132.47	130.47	130.87	135.88	137.11	138.41	145.82	147.32	147.75	150.35	152.42	153.61	155.81
RP5	125.92	126.72	132.48	130.47	130.90	140.32	141.26	142.42	144.44	146.02	146.48	149.00	151.10	152.56	154.70
RP6	125.92	126.75	132.51	130.58	130.91	139.22	140.26	141.41	143.47	145.09	145.55	148.10	150.18	151.88	154.08
RP7	125.92	126.74	132.49	130.47	130.90	137.37	138.54	139.83	141.95	143.59	144.16	146.79	148.90	150.42	152.61
RP7a	125.92	126.75	133.45	131.49	131.84	136.78	137.99	139.32	141.45	143.14	143.69	146.30	148.47	150.20	152.51
RP7a2	125.92	126.75	133.31	131.35	131.70	136.64	137.85	139.18	141.31	143.00	143.55	146.15	148.32	150.05	152.36
RP7a3	125.92	126.75	133.21	131.25	131.60	136.54	137.75	139.08	141.21	142.90	143.45	146.05	148.22	149.95	152.26
RP7b	125.92	126.73	134.02	132.08	132.42	137.35	138.54	139.91	142.05	143.77	144.24	146.91	149.07	150.54	152.73
RP7b2	125.92	126.73	133.88	131.94	132.28	137.21	138.40	139.77	141.91	143.63	144.10	146.77	148.93	150.40	152.59
RP7b3	125.92	126.73	133.78	131.83	132.17	137.10	138.29	139.66	141.80	143.52	143.99	146.66	148.82	150.29	152.48
RP8	125.92	126.76	132.47	130.47	130.91	133.48	135.18	136.47	151.38	157.24	158.80	162.96	166.11	168.48	171.18
RP8a	125.92	126.71	134.00	132.07	132.40	134.94	136.61	138.01	152.45	157.37	159.05	163.08	166.24	168.60	171.31
RP8a2	125.92	126.71	133.86	131.93	132.26	134.80	136.47	137.87	152.31	157.23	158.91	162.94	166.10	168.46	171.17
RP8a3	125.92	126.71	133.76	131.83	132.16	134.70	136.37	137.77	152.21	157.13	158.81	162.84	166.00	168.36	171.07

Typical Residential Bill @1000 kWh/month (Low DSM, $0/ton CO_2, High Gas)															
	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
RP1	125.92	127.60	133.99	132.86	133.64	138.99	140.55	141.76	144.23	146.19	147.02	150.33	153.31	154.92	171.13
RP2	125.92	127.59	134.00	132.85	133.61	139.00	140.57	141.77	144.24	146.20	147.00	150.31	153.30	154.90	164.32
RP3	125.92	127.61	133.97	132.85	133.60	137.69	139.29	140.54	154.55	156.86	157.52	161.26	170.12	171.49	174.49
RP4	125.92	127.59	133.98	132.86	133.64	139.01	140.59	141.79	149.45	151.26	151.81	155.02	157.66	158.86	161.76
RP5	125.92	127.59	133.99	132.83	133.63	143.25	144.47	145.44	147.69	149.47	150.10	153.18	155.81	157.22	160.10
RP6	125.92	127.55	133.94	132.83	133.61	142.15	143.42	144.43	146.69	148.49	149.18	152.28	154.90	156.57	159.53
RP7	125.92	127.60	134.03	132.87	133.62	140.33	141.78	142.89	145.23	147.12	147.86	151.00	153.67	155.10	158.05
RP7a	125.92	127.56	134.85	133.74	134.37	139.68	141.16	142.31	144.66	146.55	147.33	150.47	153.16	154.88	157.87
RP7a2	125.92	127.56	134.71	133.60	134.23	139.54	141.02	142.17	144.52	146.41	147.19	150.33	153.02	154.74	157.73
RP7a3	125.92	127.56	134.61	133.50	134.13	139.44	140.92	142.07	144.42	146.31	147.09	150.23	152.92	154.64	157.63
RP7b	125.92	127.56	135.52	134.34	135.02	140.28	141.75	142.90	145.26	147.15	147.92	151.07	153.76	155.22	158.15
RP7b2	125.92	127.56	135.38	134.20	134.88	140.14	141.61	142.76	145.12	147.01	147.78	150.93	153.62	155.08	158.01
RP7b3	125.92	127.56	135.28	134.10	134.79	140.05	141.52	142.67	145.03	146.92	147.69	150.84	153.53	154.99	157.92
RP8	125.92	127.56	133.98	132.84	133.59	136.55	138.57	139.77	160.08	168.67	170.89	176.24	180.47	183.16	186.91
RP8a	125.92	127.56	135.46	134.32	135.04	137.87	139.76	140.95	160.55	168.23	170.52	175.70	179.88	182.59	186.22
RP8a2	125.92	127.56	135.32	134.18	134.90	137.73	139.62	140.81	160.41	168.09	170.38	175.56	179.74	182.45	186.08
RP8a3	125.92	127.56	135.22	134.08	134.80	137.63	139.52	140.71	160.31	167.99	170.28	175.46	179.64	182.35	185.98

Typical Residential Bill @1000 kWh/month (Low DSM, $12/ton CO_2, Low Gas)															
	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
RP1	125.92	126.12	131.10	128.45	128.32	132.98	134.50	135.76	138.04	145.76	146.92	150.47	153.76	155.89	171.08
RP2	125.92	126.12	131.06	128.46	128.31	132.95	134.48	135.75	138.02	145.77	146.87	150.50	153.73	155.90	165.43
RP3	125.92	126.14	131.10	128.46	128.33	131.70	133.25	134.54	145.05	152.05	153.05	156.30	165.08	166.64	169.46
RP4	125.92	126.89	131.23	128.48	128.32	132.76	134.35	135.72	143.04	150.36	151.17	154.86	157.83	159.61	162.87
RP5	125.92	126.12	131.09	128.45	128.32	137.43	138.71	139.77	141.84	149.20	150.11	153.51	156.55	158.60	161.81
RP6	125.92	126.12	131.07	128.43	128.32	136.35	137.66	138.76	140.85	148.22	149.15	152.58	155.66	157.76	161.02
RP7	125.92	126.10	131.07	128.43	128.30	134.49	135.96	137.14	139.31	146.77	147.75	151.20	154.33	156.41	159.73
RP7a	125.92	126.16	132.02	129.41	129.27	133.87	135.38	136.62	138.82	146.28	147.33	150.74	153.89	156.07	159.37
RP7a2	125.92	126.16	131.88	129.27	129.13	133.73	135.24	136.48	138.68	146.14	147.19	150.60	153.75	155.93	159.23
RP7a3	125.92	126.16	131.78	129.17	129.03	133.63	135.14	136.38	138.58	146.04	147.09	150.50	153.65	155.83	159.13
RP7b	125.92	126.10	132.58	129.99	129.85	134.45	135.98	137.22	139.41	146.89	147.87	151.39	154.47	156.56	159.86
RP7b2	125.92	126.10	132.43	129.84	129.70	134.30	135.83	137.07	139.26	146.74	147.72	151.24	154.32	156.41	159.71
RP7b3	125.92	126.10	132.34	129.75	129.61	134.21	135.74	136.98	139.17	146.65	147.63	151.15	154.23	156.32	159.62
RP8	125.92	126.14	131.11	128.46	128.33	130.59	132.58	133.83	147.38	156.60	158.69	163.05	166.49	169.12	172.07
RP8a	125.92	126.15	132.61	130.00	129.89	132.12	134.05	135.35	148.64	156.74	158.94	163.16	166.58	169.19	172.11
RP8a2	125.92	126.15	132.46	129.85	129.74	131.97	133.90	135.20	148.49	156.59	158.79	163.01	166.43	169.04	171.96
RP8a3	125.92	126.15	132.37	129.76	129.65	131.88	133.81	135.11	148.40	156.50	158.70	162.92	166.34	168.95	171.87

Typical Residential Bill @1000 kWh/month (Low DSM, $12/ton CO_2, Medium Gas)															
	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
RP1	125.92	126.72	132.46	130.54	130.90	135.86	137.09	138.36	140.62	148.63	149.70	153.63	157.04	159.28	175.19
RP2	125.92	126.71	132.48	130.47	130.91	135.88	137.13	138.38	140.66	148.67	149.73	153.63	157.06	159.35	169.35
RP3	125.92	126.74	132.49	130.58	130.94	134.60	135.88	137.18	148.35	155.45	156.31	159.88	168.86	170.61	173.82
RP4	125.92	126.72	132.47	130.47	130.87	135.88	137.11	138.41	145.79	153.46	154.39	158.03	161.15	163.09	166.68
RP5	125.92	126.72	132.48	130.48	130.89	140.30	141.26	142.41	144.45	151.92	152.85	156.55	159.67	161.78	165.34
RP6	125.92	126.74	132.50	130.45	130.90	139.19	140.22	141.41	143.43	150.96	151.90	155.60	158.77	161.06	164.67
RP7	125.92	126.74	132.50	130.48	130.91	137.39	138.56	139.86	141.97	149.58	150.57	154.36	157.53	159.64	163.27
RP7a	125.92	126.76	133.44	131.40	131.84	136.76	138.01	139.29	141.44	149.08	150.08	153.89	157.02	159.37	163.02
RP7a2	125.92	126.76	133.29	131.25	131.69	136.61	137.86	139.14	141.29	148.93	149.93	153.74	156.87	159.22	162.87
RP7a3	125.92	126.76	133.19	131.15	131.59	136.51	137.76	139.04	141.19	148.83	149.83	153.64	156.77	159.12	162.77
RP7b	125.92	126.73	134.02	132.08	132.42	137.35	138.54	139.95	142.02	149.65	150.67	154.45	157.62	159.75	163.38
RP7b2	125.92	126.73	133.88	131.94	132.28	137.21	138.40	139.81	141.89	149.52	150.54	154.32	157.49	159.62	163.25
RP7b3	125.92	126.73	133.78	131.83	132.17	137.10	138.29	139.70	141.78	149.41	150.43	154.21	157.38	159.51	163.14
RP8	125.92	126.76	132.47	130.47	130.91	133.48	135.18	136.47	151.38	161.04	162.90	167.63	171.28	174.01	177.43
RP8a	125.92	126.71	134.00	132.07	132.40	134.95	136.60	138.00	152.45	161.06	162.94	167.52	171.14	173.84	177.22
RP8a2	125.92	126.71	133.86	131.93	132.26	134.81	136.46	137.86	152.31	160.92	162.80	167.38	171.00	173.70	177.08
RP8a3	125.92	126.71	133.76	131.83	132.16	134.71	136.36	137.76	152.21	160.82	162.70	167.28	170.90	173.60	176.98

Typical Residential Bill @1000 kWh/month (Low DSM, $12/ton CO_2, High Gas)															
	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
RP1	125.92	127.60	134.00	132.84	133.59	138.95	140.53	141.75	144.23	153.60	155.08	159.46	163.43	165.97	183.36
RP2	125.92	127.53	133.95	132.84	133.62	138.95	140.54	141.75	144.21	153.58	155.09	159.42	163.41	165.96	176.60
RP3	125.92	127.61	133.97	132.85	133.61	137.70	139.28	140.55	154.54	162.75	163.92	168.51	178.16	180.21	184.26
RP4	125.92	127.59	133.98	132.86	133.65	139.02	140.58	141.78	149.44	158.61	159.88	164.13	167.74	169.90	174.04
RP5	125.92	127.60	133.99	132.83	133.62	143.25	144.48	145.45	147.71	156.64	157.98	162.06	165.71	168.02	172.21
RP6	125.92	127.55	133.99	132.83	133.62	142.14	143.43	144.45	146.70	155.69	157.05	161.15	164.80	167.37	171.59
RP7	125.92	127.60	134.03	132.86	133.66	140.34	141.77	142.88	145.23	154.29	155.73	159.87	163.56	165.89	170.15
RP7a	125.92	127.58	134.86	133.73	134.40	139.67	141.14	142.29	144.68	153.72	155.18	159.34	163.03	165.66	169.94
RP7a2	125.92	127.58	134.71	133.58	134.25	139.52	140.99	142.14	144.53	153.57	155.03	159.19	162.88	165.51	169.79
RP7a3	125.92	127.58	134.61	133.48	134.15	139.42	140.89	142.04	144.43	153.47	154.93	159.09	162.78	165.41	169.69
RP7b	125.92	127.54	135.49	134.36	135.02	140.30	141.80	142.90	145.27	154.33	155.79	159.94	163.62	165.99	170.21
RP7b2	125.92	127.54	135.34	134.21	134.87	140.15	141.65	142.75	145.12	154.18	155.64	159.78	163.46	165.83	170.05
RP7b3	125.92	127.54	135.24	134.11	134.77	140.05	141.55	142.65	145.02	154.08	155.54	159.68	163.36	165.73	169.95
RP8	125.92	127.56	133.98	132.84	133.59	136.55	138.57	139.77	160.08	172.58	175.06	181.00	185.76	188.76	193.27
RP8a	125.92	127.56	135.46	134.32	135.02	137.88	139.78	140.95	160.56	171.92	174.46	180.22	184.91	187.92	192.27
RP8a2	125.92	127.56	135.32	134.18	134.88	137.74	139.64	140.81	160.42	171.78	174.32	180.08	184.77	187.78	192.13
RP8a3	125.92	127.56	135.22	134.08	134.78	137.64	139.54	140.71	160.32	171.68	174.22	179.98	184.67	187.68	192.03

Typical Residential Bill @1000 kWh/month (Low DSM, $35/ton CO_2, Low Gas)															
	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
RP1	125.92	126.32	132.37	131.01	131.64	138.83	142.12	144.85	149.93	154.87	156.93	163.70	169.27	172.28	188.83
RP2	125.92	126.29	132.37	130.99	131.61	138.81	142.12	144.85	149.92	154.85	156.91	163.68	169.27	172.28	184.53
RP3	125.92	126.33	132.38	131.03	131.63	137.53	140.87	143.63	154.34	158.59	160.45	165.93	176.96	180.00	185.84
RP4	125.92	126.31	132.41	131.03	131.68	138.84	142.13	144.87	153.38	157.91	159.93	166.18	171.91	175.15	181.75
RP5	125.92	126.30	132.38	131.00	131.64	142.08	144.98	147.45	152.14	156.88	158.79	165.04	170.89	174.31	180.53
RP6	125.92	126.32	132.40	131.02	131.64	141.08	144.03	146.50	151.25	156.00	157.91	164.23	170.04	172.45	178.65
RP7	125.92	126.32	132.40	131.04	131.65	139.21	142.35	144.91	149.73	154.57	156.54	162.89	168.78	172.27	178.56
RP7a	125.92	126.34	132.32	131.02	131.59	138.58	141.75	144.38	149.19	154.09	156.04	162.43	168.28	170.75	176.97
RP7a2	125.92	126.34	132.18	130.88	131.45	138.44	141.61	144.24	149.05	153.95	155.90	162.29	168.14	170.61	176.83
RP7a3	125.92	126.34	132.08	130.78	131.35	138.34	141.51	144.13	148.94	153.84	155.79	162.18	168.03	170.50	176.72
RP7b	125.92	126.30	132.89	131.60	132.16	139.10	142.27	144.90	149.73	154.60	156.58	162.93	168.80	172.28	178.52
RP7b2	125.92	126.30	132.74	131.45	132.01	138.95	142.12	144.75	149.58	154.45	156.43	162.78	168.65	172.13	178.37
RP7b3	125.92	126.30	132.65	131.36	131.93	138.87	142.04	144.67	149.50	154.37	156.35	162.70	168.57	172.05	178.29
RP8	125.92	126.31	132.39	131.03	131.64	136.26	139.85	142.58	151.82	158.14	161.12	167.53	172.51	175.94	181.26
RP8a	125.92	126.31	132.87	131.62	132.16	136.61	140.10	142.71	152.24	157.68	160.41	166.54	171.48	174.89	180.04
RP8a2	125.92	126.31	132.72	131.47	132.01	136.46	139.95	142.56	152.09	157.53	160.26	166.39	171.33	174.74	179.89
RP8a3	125.92	126.31	132.63	131.38	131.92	136.37	139.86	142.47	152.00	157.44	160.17	166.30	171.24	174.65	179.80

Typical Residential Bill @1000 kWh/month (Low DSM, $35/ton CO_2, Medium Gas)															
	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
RP1	125.92	127.28	134.33	133.70	134.89	142.54	145.68	148.67	153.91	158.67	160.58	167.70	173.55	176.83	193.77
RP2	125.92	127.27	134.34	133.68	134.89	142.54	145.70	148.74	153.91	158.67	160.57	167.69	173.57	176.82	189.61
RP3	125.92	127.27	134.30	133.69	134.87	141.23	144.45	147.43	158.36	162.45	164.14	170.09	181.27	184.47	190.79
RP4	125.92	127.27	134.33	133.66	134.88	142.52	145.70	148.69	157.52	161.85	163.73	170.38	176.32	179.70	186.80
RP5	125.92	127.31	134.37	133.71	134.87	145.69	148.41	151.07	155.98	160.50	162.33	168.90	174.98	178.52	185.23
RP6	125.92	127.27	134.36	133.70	134.88	144.66	147.46	150.13	155.06	159.63	161.43	168.08	174.13	176.74	183.43
RP7	125.92	127.26	134.35	133.69	134.88	142.78	145.72	148.55	153.55	158.20	160.06	166.72	172.81	176.41	183.18
RP7a	125.92	127.27	134.19	133.53	134.70	142.15	145.13	147.97	152.98	157.64	159.55	166.23	172.34	175.00	181.77
RP7a2	125.92	127.27	134.05	133.39	134.56	142.01	144.99	147.83	152.84	157.50	159.41	166.09	172.20	174.86	181.63
RP7a3	125.92	127.27	133.95	133.29	134.46	141.91	144.89	147.73	152.74	157.40	159.31	165.99	172.10	174.76	181.53
RP7b	125.92	127.28	134.76	134.13	135.27	142.73	145.68	148.54	153.58	158.23	160.10	166.78	172.86	176.48	183.22
RP7b2	125.92	127.28	134.62	133.99	135.13	142.59	145.54	148.40	153.44	158.09	159.96	166.64	172.72	176.34	183.08
RP7b3	125.92	127.28	134.52	133.89	135.03	142.49	145.44	148.30	153.34	157.99	159.86	166.54	172.62	176.24	182.98
RP8	125.92	127.29	134.35	133.70	134.89	139.99	143.39	146.43	156.65	162.70	165.43	172.21	177.38	180.96	186.73
RP8a	125.92	127.28	134.77	134.10	135.24	140.16	143.38	146.26	156.73	161.98	164.48	170.98	176.08	179.56	185.17
RP8a2	125.92	127.28	134.62	133.95	135.09	140.01	143.23	146.11	156.58	161.83	164.33	170.83	175.93	179.41	185.02
RP8a3	125.92	127.28	134.52	133.85	134.99	139.91	143.13	146.01	156.48	161.73	164.23	170.73	175.83	179.31	184.92

Typical Residential Bill @1000 kWh/month (Low DSM, $35/ton CO_2, High Gas)															
	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
RP1	125.92	128.64	137.18	137.49	139.86	148.72	153.01	156.08	161.83	167.12	169.96	177.98	184.98	189.08	207.22
RP2	125.92	128.70	137.20	137.50	139.88	148.71	153.01	156.08	161.85	167.15	169.97	177.96	184.99	189.04	203.22
RP3	125.92	128.62	137.15	137.45	139.83	147.40	151.75	154.80	166.90	171.64	174.16	181.32	193.59	197.25	204.61
RP4	125.92	128.71	137.20	137.48	139.87	148.72	153.00	156.06	166.10	170.96	173.59	181.46	188.28	192.32	200.54
RP5	125.92	128.64	137.17	137.45	139.86	151.59	155.40	158.18	163.60	168.57	171.31	178.83	185.81	189.86	197.64
RP6	125.92	128.67	137.19	137.47	139.87	150.57	154.44	157.22	162.67	167.78	170.47	177.97	184.95	188.60	196.32
RP7	125.92	128.66	137.18	137.48	139.86	148.73	152.74	155.58	161.14	166.29	169.10	176.63	183.63	187.82	195.64
RP7a	125.92	128.64	136.90	137.11	139.41	148.05	152.11	155.00	160.58	165.75	168.48	176.09	183.16	186.78	194.56
RP7a2	125.92	128.64	136.76	136.97	139.27	147.91	151.97	154.86	160.44	165.61	168.34	175.95	183.02	186.64	194.42
RP7a3	125.92	128.64	136.66	136.87	139.17	147.81	151.87	154.76	160.35	165.52	168.25	175.86	182.93	186.55	194.33
RP7b	125.92	128.65	137.44	137.69	139.96	148.58	152.67	155.61	161.14	166.29	169.11	176.66	183.69	187.79	195.75
RP7b2	125.92	128.65	137.29	137.54	139.81	148.43	152.52	155.46	160.99	166.14	168.96	176.50	183.54	187.64	195.60
RP7b3	125.92	128.65	137.19	137.44	139.71	148.33	152.42	155.36	160.89	166.04	168.85	176.39	183.43	187.53	195.49
RP8	125.92	128.66	137.18	137.47	139.85	146.11	150.61	153.62	166.97	174.28	177.69	185.68	192.05	195.90	202.74
RP8a	125.92	128.68	137.47	137.69	139.96	146.05	150.36	153.26	166.52	172.90	176.08	183.78	190.00	193.78	200.42
RP8a2	125.92	128.68	137.33	137.55	139.82	145.91	150.22	153.12	166.38	172.76	175.94	183.64	189.86	193.65	200.29
RP8a3	125.92	128.68	137.23	137.45	139.72	145.81	150.11	153.01	166.27	172.65	175.83	183.53	189.75	193.54	200.18

Typical Residential Bill @1000 kWh/month (Medium DSM, $0/ton CO_2, Low Gas)															
	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
RP1	125.92	126.49	131.34	128.60	128.38	132.91	134.44	135.72	138.03	139.93	140.56	143.46	145.60	147.15	149.34
RP2	125.92	126.51	131.32	128.58	128.37	132.93	134.47	135.77	138.02	139.94	140.57	143.43	145.60	147.09	149.27
RP3	125.92	126.50	131.33	128.59	128.38	131.63	133.21	134.58	145.12	146.95	147.40	150.04	151.83	159.30	161.03
RP4	125.92	126.53	131.37	128.61	128.43	132.98	134.50	135.79	137.05	138.90	139.82	142.72	151.17	152.13	154.21
RP5	125.92	126.51	131.33	128.61	128.39	137.43	138.69	139.81	141.86	143.63	144.18	146.86	148.89	150.25	152.21
RP6	125.92	126.53	131.33	128.60	128.39	136.32	137.64	138.78	140.87	142.68	143.23	145.95	147.99	149.34	151.59
RP7	125.92	126.95	131.21	128.45	128.25	134.23	135.72	137.01	139.22	141.09	141.60	144.48	146.61	147.99	149.98
RP7a	125.92	126.53	132.34	129.57	129.31	133.84	135.35	136.64	138.84	140.75	141.39	144.15	146.22	147.63	149.95
RP7a2	125.92	126.53	132.20	129.43	129.17	133.70	135.21	136.50	138.70	140.61	141.25	144.01	146.08	147.49	149.81
RP7a3	125.92	126.53	132.10	129.33	129.07	133.60	135.11	136.40	138.60	140.51	141.15	143.91	145.98	147.39	149.71
RP7b	125.92	126.50	132.90	130.19	129.95	134.47	135.97	137.24	139.44	141.38	142.00	144.77	146.84	148.25	150.25
RP7b2	125.92	126.50	132.76	130.05	129.81	134.33	135.83	137.10	139.30	141.24	141.86	144.63	146.70	148.11	150.11
RP7b3	125.92	126.50	132.66	129.95	129.71	134.23	135.73	137.00	139.20	141.14	141.76	144.53	146.60	148.01	150.01
RP8	125.92	126.50	131.34	128.60	128.38	130.53	132.55	133.87	147.35	152.74	154.64	157.60	160.61	162.85	165.06
RP8a	125.92	126.54	132.94	130.20	129.97	132.10	134.05	135.39	148.76	153.18	154.17	158.02	160.09	162.35	165.54
RP8a2	125.92	126.54	132.79	130.05	129.82	131.95	133.90	135.24	148.61	153.03	154.02	157.87	159.94	162.20	165.39
RP8a3	125.92	126.54	132.69	129.95	129.72	131.85	133.80	135.14	148.51	152.93	153.92	157.77	159.84	162.10	165.29

Typical Residential Bill @1000 kWh/month (Medium DSM, $0/ton CO_2, Medium Gas)															
	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
RP1	125.92	127.14	132.80	130.74	130.97	135.87	137.11	138.45	140.68	142.37	142.89	145.83	148.05	149.64	151.84
RP2	125.92	127.13	132.77	130.64	130.98	135.84	137.09	138.42	140.68	142.42	142.91	145.85	148.09	149.60	151.81
RP3	125.92	127.10	132.79	130.72	130.97	134.57	135.83	137.24	148.40	150.09	150.29	153.25	155.18	162.78	164.83
RP4	125.92	127.13	132.75	130.66	130.96	135.84	137.12	138.44	139.63	141.27	142.09	145.10	153.64	154.66	156.76
RP5	125.92	127.12	132.76	130.62	130.95	140.31	141.24	142.51	144.51	146.10	146.47	149.22	151.26	152.65	154.64
RP6	125.92	127.13	132.76	130.73	130.96	139.22	140.24	141.45	143.57	145.14	145.54	148.28	150.32	151.75	154.05
RP7	125.92	127.51	132.60	130.55	130.80	137.09	138.29	139.68	141.82	143.45	143.87	146.76	148.91	150.37	152.45
RP7a	125.92	127.16	133.71	131.66	131.90	136.73	137.94	139.31	141.47	143.09	143.65	146.47	148.57	150.05	152.39
RP7a2	125.92	127.16	133.56	131.51	131.75	136.58	137.79	139.16	141.32	142.94	143.50	146.32	148.42	149.90	152.24
RP7a3	125.92	127.16	133.47	131.42	131.66	136.49	137.70	139.07	141.23	142.85	143.41	146.23	148.33	149.81	152.15
RP7b	125.92	127.13	134.31	132.25	132.50	137.31	138.54	139.93	142.07	143.73	144.27	147.07	149.19	150.64	152.72
RP7b2	125.92	127.13	134.17	132.11	132.36	137.17	138.40	139.79	141.93	143.59	144.13	146.93	149.05	150.50	152.58
RP7b3	125.92	127.13	134.07	132.01	132.26	137.07	138.30	139.69	141.83	143.49	144.03	146.83	148.95	150.40	152.48
RP8	125.92	127.12	132.75	130.63	130.95	133.43	135.15	136.51	151.35	157.23	158.84	162.23	165.43	167.81	170.48
RP8a	125.92	127.15	134.32	132.26	132.53	134.92	136.61	138.02	152.56	157.46	158.17	162.41	164.66	167.03	170.68
RP8a2	125.92	127.15	134.17	132.11	132.38	134.77	136.46	137.87	152.41	157.31	158.02	162.26	164.51	166.88	170.53
RP8a3	125.92	127.15	134.08	132.02	132.29	134.68	136.37	137.78	152.32	157.22	157.93	162.17	164.42	166.79	170.44

Typical Residential Bill @1000 kWh/month (Medium DSM, $0/ton CO_2, High Gas)															
	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
RP1	125.92	127.94	134.23	133.00	133.68	138.92	140.50	141.73	144.21	146.14	146.90	150.39	153.22	154.77	157.77
RP2	125.92	127.97	134.26	133.00	133.67	138.93	140.53	141.75	144.23	146.14	146.91	150.41	153.23	154.75	157.77
RP3	125.92	127.94	134.24	132.99	133.68	137.65	139.27	140.52	154.59	156.84	157.37	161.23	164.00	171.75	174.73
RP4	125.92	127.94	134.25	133.01	133.70	138.94	140.53	141.76	143.20	145.12	146.14	149.69	158.76	159.78	162.64
RP5	125.92	127.95	134.28	133.02	133.69	143.23	144.47	145.45	147.69	149.43	150.08	153.32	155.91	157.25	159.98
RP6	125.92	127.93	134.21	132.96	133.63	142.07	143.38	144.42	146.68	148.43	149.08	152.36	154.96	156.30	159.37
RP7	125.92	128.30	134.08	132.82	133.50	140.02	141.49	142.65	145.03	146.86	147.47	150.91	153.59	155.00	157.78
RP7a	125.92	127.97	135.14	133.87	134.48	139.66	141.15	142.33	144.70	146.53	147.30	150.61	153.26	154.66	157.77
RP7a2	125.92	127.97	135.00	133.73	134.34	139.52	141.01	142.19	144.56	146.39	147.16	150.47	153.12	154.52	157.63
RP7a3	125.92	127.97	134.90	133.63	134.24	139.42	140.91	142.09	144.46	146.29	147.06	150.37	153.02	154.42	157.53
RP7b	125.92	127.99	135.73	134.53	135.08	140.26	141.74	142.92	145.28	147.11	147.89	151.18	153.83	155.23	158.02
RP7b2	125.92	127.99	135.59	134.39	134.94	140.12	141.60	142.78	145.15	146.98	147.76	151.05	153.70	155.10	157.89
RP7b3	125.92	127.99	135.49	134.29	134.84	140.02	141.50	142.67	145.04	146.87	147.65	150.94	153.59	154.99	157.78
RP8	125.92	128.01	134.27	133.02	133.68	136.54	138.52	139.74	159.94	168.59	170.88	175.48	179.78	182.39	186.15
RP8a	125.92	127.97	135.73	134.50	135.07	137.79	139.72	140.91	160.59	168.22	169.55	174.96	178.23	180.92	185.52
RP8a2	125.92	127.97	135.59	134.36	134.93	137.65	139.58	140.77	160.45	168.08	169.41	174.82	178.09	180.78	185.38
RP8a3	125.92	127.97	135.49	134.26	134.83	137.55	139.48	140.67	160.35	167.98	169.31	174.72	177.99	180.68	185.28

Typical Residential Bill @1000 kWh/month (Medium DSM, $12/ton CO_2, Low Gas)															
	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
RP1	125.92	126.49	131.34	128.58	128.39	132.93	134.47	135.78	138.07	145.75	146.85	150.60	153.81	155.96	159.33
RP2	125.92	126.51	131.32	128.58	128.39	132.94	134.45	135.74	138.04	145.74	146.81	150.61	153.79	155.65	158.69
RP3	125.92	126.50	131.33	128.59	128.38	131.63	133.21	134.55	145.12	152.10	152.97	156.38	158.98	166.93	169.70
RP4	125.92	126.52	131.34	128.61	128.39	132.95	134.46	135.76	137.00	144.65	145.84	149.62	158.89	160.47	163.74
RP5	125.92	126.55	131.33	128.61	128.38	137.43	138.70	139.80	141.84	149.19	150.06	153.61	156.70	158.67	161.88
RP6	125.92	126.53	131.33	128.60	128.40	136.34	137.67	138.78	140.90	148.23	149.14	152.72	155.77	157.73	161.04
RP7	125.92	126.95	131.21	128.45	128.25	134.23	135.72	137.01	139.22	146.64	147.53	151.24	154.39	156.41	159.67
RP7a	125.92	126.53	132.34	129.57	129.31	133.84	135.36	136.62	138.84	146.29	147.29	150.89	154.02	156.04	159.39
RP7a2	125.92	126.53	132.20	129.43	129.17	133.70	135.22	136.48	138.70	146.15	147.15	150.75	153.88	155.90	159.25
RP7a3	125.92	126.53	132.10	129.33	129.08	133.61	135.13	136.39	138.61	146.06	147.06	150.66	153.79	155.81	159.16
RP7b	125.92	126.53	132.90	130.18	129.94	134.46	135.99	137.27	139.44	146.88	147.86	151.50	154.60	156.64	159.89
RP7b2	125.92	126.53	132.75	130.03	129.79	134.31	135.84	137.12	139.29	146.73	147.71	151.35	154.45	156.49	159.74
RP7b3	125.92	126.53	132.65	129.93	129.69	134.21	135.74	137.02	139.20	146.64	147.62	151.26	154.36	156.40	159.65
RP8	125.92	126.50	131.34	128.60	128.38	130.54	132.52	133.83	147.33	156.56	158.71	162.30	165.76	168.38	171.33
RP8a	125.92	126.54	132.94	130.20	129.98	132.10	134.04	135.39	148.75	156.84	158.06	162.49	165.01	167.62	171.51
RP8a2	125.92	126.54	132.79	130.05	129.83	131.95	133.89	135.24	148.60	156.69	157.91	162.34	164.86	167.47	171.36
RP8a3	125.92	126.54	132.69	129.95	129.73	131.85	133.79	135.14	148.50	156.59	157.81	162.24	164.76	167.37	171.26

Typical Residential Bill @1000 kWh/month (Medium DSM, $12/ton CO_2, Medium Gas)															
	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
RP1	125.92	127.14	132.80	130.74	130.97	135.87	137.11	138.45	140.68	148.64	149.68	153.79	157.08	159.31	163.03
RP2	125.92	127.13	132.77	130.64	130.98	135.84	137.09	138.42	140.67	148.66	149.69	153.81	157.09	159.14	162.66
RP3	125.92	127.10	132.79	130.72	130.97	134.57	135.83	137.24	148.40	155.46	156.22	159.96	162.70	170.88	174.04
RP4	125.92	127.13	132.75	130.66	130.96	135.85	137.09	138.47	139.64	147.60	148.81	152.92	162.39	164.09	167.71
RP5	125.92	127.12	132.76	130.62	130.95	140.31	141.24	142.51	144.51	151.94	152.84	156.70	159.81	161.85	165.32
RP6	125.92	127.13	132.76	130.73	130.96	139.22	140.24	141.45	143.56	150.99	151.92	155.81	158.93	160.94	164.62
RP7	125.92	127.51	132.60	130.55	130.80	137.09	138.29	139.68	141.82	149.35	150.25	154.28	157.50	159.58	163.12
RP7a	125.92	127.12	133.68	131.65	131.89	136.73	137.94	139.34	141.46	149.04	150.05	153.99	157.13	159.22	162.96
RP7a2	125.92	127.12	133.53	131.50	131.74	136.58	137.79	139.19	141.31	148.89	149.90	153.84	156.98	159.07	162.81
RP7a3	125.92	127.12	133.44	131.41	131.65	136.49	137.70	139.10	141.22	148.80	149.81	153.75	156.89	158.98	162.72
RP7b	125.92	127.13	134.31	132.25	132.50	137.31	138.54	139.93	142.07	149.65	150.64	154.56	157.73	159.83	163.36
RP7b2	125.92	127.13	134.17	132.11	132.36	137.17	138.40	139.79	141.93	149.51	150.50	154.42	157.59	159.69	163.22
RP7b3	125.92	127.13	134.07	132.01	132.26	137.07	138.30	139.69	141.83	149.41	150.40	154.32	157.49	159.59	163.12
RP8	125.92	127.12	132.75	130.63	130.95	133.43	135.15	136.51	151.35	161.07	162.94	166.89	170.57	173.29	176.74
RP8a	125.92	127.15	134.33	132.26	132.51	134.93	136.59	138.02	152.55	161.11	162.05	166.84	169.56	172.29	176.61
RP8a2	125.92	127.15	134.18	132.11	132.36	134.78	136.44	137.87	152.40	160.96	161.90	166.69	169.41	172.14	176.46
RP8a3	125.92	127.15	134.09	132.02	132.27	134.69	136.35	137.78	152.31	160.87	161.81	166.60	169.32	172.05	176.37

Typical Residential Bill @1000 kWh/month (Medium DSM, $12/ton CO_2, High Gas)															
	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
RP1	125.92	127.97	134.23	133.00	133.68	138.93	140.51	141.75	144.20	153.58	155.03	159.56	163.37	165.88	170.18
RP2	125.92	127.96	134.26	133.02	133.69	138.92	140.52	141.73	144.22	153.60	155.04	159.56	163.38	165.81	170.07
RP3	125.92	127.94	134.24	132.99	133.68	137.65	139.27	140.52	154.59	162.73	163.76	168.52	172.06	180.49	184.47
RP4	125.92	127.97	134.23	133.00	133.70	138.92	140.54	141.76	143.22	152.53	154.24	158.81	168.91	170.88	174.98
RP5	125.92	127.95	134.24	133.01	133.66	143.20	144.45	145.43	147.69	156.58	157.95	162.18	165.81	168.03	172.11
RP6	125.92	128.02	134.23	133.04	133.70	142.16	143.44	144.47	146.74	155.68	157.03	161.30	164.92	167.15	171.49
RP7	125.92	128.36	134.12	132.87	133.52	140.04	141.52	142.68	145.05	154.07	155.38	159.80	163.50	165.77	169.90
RP7a	125.92	127.96	135.11	133.90	134.49	139.65	141.14	142.31	144.70	153.72	155.16	159.45	163.13	165.41	169.84
RP7a2	125.92	127.96	134.97	133.76	134.35	139.51	141.00	142.17	144.56	153.58	155.02	159.31	162.99	165.27	169.70
RP7a3	125.92	127.96	134.87	133.66	134.25	139.41	140.90	142.07	144.46	153.48	154.92	159.21	162.89	165.17	169.60
RP7b	125.92	127.99	135.73	134.54	135.09	140.24	141.74	142.89	145.26	154.30	155.72	160.05	163.69	166.01	170.09
RP7b2	125.92	127.99	135.59	134.40	134.95	140.10	141.60	142.75	145.13	154.17	155.59	159.92	163.56	165.88	169.96
RP7b3	125.92	127.99	135.49	134.30	134.85	140.00	141.50	142.65	145.03	154.07	155.49	159.82	163.46	165.78	169.86
RP8	125.92	127.99	134.19	133.01	133.66	136.52	138.50	139.72	159.92	172.44	175.00	180.18	184.97	187.96	192.44
RP8a	125.92	127.97	135.76	134.52	135.08	137.82	139.72	140.91	160.62	171.90	173.48	179.43	183.21	186.24	191.53
RP8a2	125.92	127.97	135.61	134.37	134.93	137.67	139.57	140.76	160.47	171.75	173.33	179.28	183.06	186.09	191.38
RP8a3	125.92	127.97	135.51	134.27	134.83	137.57	139.47	140.66	160.37	171.65	173.23	179.18	182.96	185.99	191.28

Typical Residential Bill @1000 kWh/month (Medium DSM, $35/ton CO_2, Low Gas)															
	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
RP1	125.92	126.68	132.60	131.11	131.60	138.68	141.97	144.68	149.73	154.66	156.68	163.56	169.75	172.64	179.12
RP2	125.92	126.70	132.61	131.12	131.62	138.67	141.98	144.71	149.72	154.65	156.65	163.59	169.75	172.11	177.92
RP3	125.92	126.66	132.56	131.11	131.59	137.36	140.69	143.45	154.25	158.43	160.52	166.24	170.76	180.06	185.90
RP4	125.92	126.69	132.59	131.12	131.62	138.68	141.99	144.66	148.65	153.59	154.85	161.01	172.88	175.81	182.48
RP5	125.92	126.68	132.60	131.13	131.62	141.97	144.87	147.33	152.01	156.66	158.61	164.99	170.75	174.17	180.97
RP6	125.92	126.70	132.62	131.12	131.63	140.90	143.86	146.36	151.07	155.74	157.67	164.12	169.89	173.28	178.96
RP7	125.92	127.09	132.49	130.98	131.48	138.84	141.96	144.62	149.39	154.21	156.04	162.66	168.53	171.97	178.88
RP7a	125.92	126.70	132.52	131.11	131.59	138.43	141.58	144.19	149.01	153.84	155.83	162.33	168.13	171.60	177.31
RP7a2	125.92	126.70	132.38	130.97	131.45	138.29	141.44	144.05	148.87	153.70	155.69	162.19	167.99	171.46	177.17
RP7a3	125.92	126.70	132.28	130.87	131.35	138.19	141.34	143.95	148.77	153.60	155.59	162.09	167.89	171.36	177.07
RP7b	125.92	126.73	133.12	131.71	132.15	138.97	142.15	144.78	149.59	154.35	156.39	162.88	168.70	172.10	179.02
RP7b2	125.92	126.73	132.97	131.56	132.00	138.82	142.00	144.63	149.45	154.21	156.25	162.74	168.56	171.96	178.88
RP7b3	125.92	126.73	132.87	131.46	131.90	138.72	141.90	144.53	149.35	154.11	156.15	162.64	168.47	171.87	178.79
RP8	125.92	126.69	132.61	131.12	131.63	136.09	139.69	142.41	151.95	158.22	161.01	166.61	171.66	175.13	180.42
RP8a	125.92	126.68	133.10	131.68	132.14	136.46	139.91	142.53	152.11	157.53	159.35	165.66	169.70	173.13	179.21
RP8a2	125.92	126.68	132.95	131.53	131.99	136.31	139.76	142.38	151.96	157.38	159.20	165.51	169.55	172.98	179.06
RP8a3	125.92	126.68	132.86	131.44	131.90	136.22	139.67	142.29	151.87	157.29	159.11	165.42	169.46	172.89	178.97

Typical Residential Bill @1000 kWh/month (Medium DSM, $35/ton CO_2, Medium Gas)															
	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
RP1	125.92	127.66	134.55	133.78	134.85	142.40	145.52	148.50	153.70	158.39	160.27	167.53	173.89	177.05	183.99
RP2	125.92	127.66	134.59	133.81	134.86	142.40	145.51	148.53	153.70	158.38	160.29	167.53	173.89	176.41	182.56
RP3	125.92	127.65	134.56	133.80	134.89	141.10	144.28	147.29	158.29	162.32	164.20	170.34	175.15	184.53	190.83
RP4	125.92	127.68	134.60	133.83	134.91	142.45	145.56	148.58	152.68	157.39	158.63	165.28	177.35	180.41	187.60
RP5	125.92	127.66	134.56	133.79	134.87	145.53	148.23	150.93	155.86	160.24	162.09	168.79	174.81	178.33	185.54
RP6	125.92	127.63	134.54	133.77	134.87	144.49	147.24	149.96	154.91	159.39	161.16	168.02	173.91	177.48	183.67
RP7	125.92	128.05	134.45	133.65	134.73	142.42	145.34	148.22	153.25	157.78	159.55	166.46	172.60	176.14	183.46
RP7a	125.92	127.63	134.38	133.62	134.66	142.00	144.93	147.82	152.85	157.44	159.29	166.18	172.16	175.78	181.96
RP7a2	125.92	127.63	134.23	133.47	134.51	141.85	144.78	147.67	152.70	157.29	159.14	166.03	172.01	175.63	181.81
RP7a3	125.92	127.63	134.14	133.38	134.42	141.76	144.69	147.58	152.61	157.20	159.05	165.94	171.92	175.54	181.72
RP7b	125.92	127.67	134.96	134.21	135.22	142.56	145.47	148.37	153.39	157.93	159.86	166.69	172.68	176.25	183.54
RP7b2	125.92	127.67	134.82	134.07	135.08	142.42	145.33	148.23	153.25	157.79	159.72	166.55	172.54	176.11	183.40
RP7b3	125.92	127.67	134.72	133.96	134.97	142.31	145.22	148.12	153.14	157.68	159.61	166.44	172.43	176.00	183.29
RP8	125.92	127.65	134.57	133.79	134.85	139.81	143.19	146.17	156.76	162.72	165.25	171.29	176.49	180.04	185.81
RP8a	125.92	127.68	135.01	134.23	135.25	140.00	143.23	146.10	156.63	161.85	163.43	170.14	174.34	177.85	184.36
RP8a2	125.92	127.68	134.86	134.08	135.10	139.85	143.08	145.95	156.48	161.70	163.28	169.99	174.19	177.70	184.21
RP8a3	125.92	127.68	134.76	133.98	135.00	139.75	142.98	145.85	156.38	161.60	163.18	169.89	174.09	177.60	184.11

Typical Residential Bill @1000 kWh/month (Medium DSM, $35/ton CO_2, High Gas)															
	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
RP1	125.92	129.03	137.39	137.54	139.82	148.50	152.81	155.81	161.62	166.79	169.67	177.77	185.08	189.06	197.13
RP2	125.92	129.01	137.38	137.54	139.81	148.50	152.82	155.81	161.62	166.85	169.60	177.78	185.09	188.22	195.21
RP3	125.92	129.04	137.39	137.52	139.81	147.24	151.56	154.59	166.77	171.44	174.03	181.42	187.45	197.30	204.63
RP4	125.92	129.03	137.40	137.56	139.83	148.52	152.83	155.85	160.56	165.62	168.27	176.03	189.23	192.95	201.27
RP5	125.92	129.05	137.39	137.56	139.82	151.45	155.25	157.98	163.39	168.31	170.96	178.68	185.64	189.65	197.80
RP6	125.92	129.05	137.39	137.55	139.84	150.42	154.24	157.03	162.46	167.38	170.02	177.83	184.78	188.89	196.36
RP7	125.92	129.41	137.26	137.41	139.64	148.31	152.36	155.24	160.81	165.87	168.51	176.34	183.43	187.54	195.64
RP7a	125.92	129.05	137.13	137.23	139.41	147.90	151.95	154.85	160.40	165.53	168.13	175.98	183.02	187.10	194.69
RP7a2	125.92	129.05	136.98	137.08	139.26	147.75	151.80	154.70	160.25	165.38	167.98	175.83	182.87	186.95	194.54
RP7a3	125.92	129.05	136.89	136.99	139.17	147.66	151.71	154.61	160.16	165.29	167.89	175.74	182.78	186.86	194.45
RP7b	125.92	129.01	137.67	137.78	139.93	148.47	152.49	155.42	160.96	166.05	168.77	176.51	183.49	187.59	195.80
RP7b2	125.92	129.01	137.52	137.63	139.78	148.32	152.34	155.27	160.81	165.90	168.62	176.35	183.33	187.43	195.64
RP7b3	125.92	129.01	137.43	137.54	139.69	148.23	152.25	155.18	160.72	165.81	168.53	176.26	183.24	187.34	195.55
RP8	125.92	129.00	137.38	137.54	139.82	145.95	150.39	153.42	166.90	174.21	177.39	184.66	191.03	194.88	201.74
RP8a	125.92	129.06	137.70	137.80	139.96	145.89	150.19	153.07	166.38	172.69	174.94	182.84	188.17	192.02	199.53
RP8a2	125.92	129.06	137.55	137.65	139.81	145.74	150.04	152.92	166.23	172.54	174.79	182.69	188.02	191.87	199.38
RP8a3	125.92	129.06	137.46	137.56	139.72	145.65	149.95	152.83	166.14	172.45	174.70	182.60	187.93	191.78	199.29

Typical Residential Bill @1000 kWh/month (High DSM, $0/ton CO_2, Low Gas)															
	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
RP1	125.92	126.89	131.15	128.27	127.98	132.43	133.92	135.16	137.35	139.18	139.73	142.68	144.93	146.29	148.42
RP2	125.92	126.87	131.13	128.25	127.95	132.39	133.91	135.12	137.33	139.15	139.70	142.67	144.86	146.27	148.34
RP3	125.92	126.90	131.14	128.28	127.98	131.13	132.68	133.94	144.61	146.31	146.64	149.25	150.98	152.20	154.10
RP4	125.92	126.85	131.14	128.27	127.97	132.41	133.94	135.15	136.33	138.10	138.63	141.58	143.80	145.15	147.34
RP5	125.92	126.87	131.15	128.25	127.96	136.94	138.12	139.21	141.21	142.92	143.36	146.13	148.26	149.55	151.57
RP6	125.92	126.91	131.13	128.25	127.96	135.84	137.09	138.19	140.19	141.92	142.39	145.18	147.30	148.61	150.59
RP7	125.92	126.87	131.12	128.24	127.95	133.97	135.36	136.56	138.68	140.47	141.01	143.84	146.02	147.36	149.41
RP7a	125.92	126.91	132.12	129.26	128.98	133.35	134.79	136.04	138.16	140.01	140.57	143.40	145.56	146.93	148.98
RP7a2	125.92	126.91	131.98	129.12	128.84	133.21	134.65	135.90	138.02	139.87	140.43	143.26	145.42	146.79	148.84
RP7a3	125.92	126.91	131.88	129.02	128.74	133.11	134.55	135.80	137.92	139.77	140.33	143.16	145.32	146.69	148.74
RP7b	125.92	126.87	132.71	129.86	129.56	133.95	135.39	136.66	138.77	140.61	141.14	144.01	146.17	147.52	149.59
RP7b2	125.92	126.87	132.56	129.71	129.41	133.80	135.24	136.51	138.62	140.46	140.99	143.86	146.02	147.37	149.44
RP7b3	125.92	126.87	132.46	129.61	129.31	133.70	135.14	136.41	138.52	140.36	140.89	143.76	145.92	147.27	149.34
RP8	125.92	126.88	131.16	128.28	128.00	130.00	131.98	133.25	146.80	151.15	152.01	155.14	157.37	159.67	161.97
RP8a	125.92	126.91	132.68	129.83	129.55	131.50	133.44	134.75	148.18	152.53	153.37	156.41	158.59	160.88	163.16
RP8a2	125.92	126.91	132.53	129.68	129.40	131.35	133.29	134.60	148.03	152.38	153.22	156.26	158.44	160.73	163.01
RP8a3	125.92	126.91	132.44	129.59	129.31	131.26	133.20	134.51	147.94	152.29	153.13	156.17	158.35	160.64	162.92

Typical Residential Bill @1000 kWh/month (High DSM, $0/ton CO_2, Medium Gas)															
	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
RP1	125.92	127.49	132.55	130.32	130.57	135.33	136.52	137.85	139.99	141.56	142.00	145.10	147.31	148.73	150.87
RP2	125.92	127.46	132.54	130.29	130.56	135.33	136.52	137.85	139.98	141.62	142.00	145.06	147.26	148.72	150.85
RP3	125.92	127.48	132.56	130.31	130.58	134.03	135.28	136.63	147.83	149.40	149.50	152.44	154.27	155.61	157.77
RP4	125.92	127.50	132.56	130.39	130.58	135.32	136.53	137.87	138.93	140.55	140.92	143.91	146.17	147.64	149.91
RP5	125.92	127.52	132.57	130.32	130.59	139.84	140.71	141.92	143.85	145.37	145.64	148.54	150.56	151.92	154.02
RP6	125.92	127.50	132.54	130.38	130.56	138.68	139.65	140.84	142.83	144.36	144.67	147.57	149.60	150.97	153.06
RP7	125.92	127.50	132.57	130.32	130.58	136.84	137.99	139.29	141.33	142.94	143.28	146.25	148.33	149.75	151.86
RP7a	125.92	127.47	133.48	131.33	131.49	136.18	137.36	138.71	140.77	142.42	142.80	145.74	147.88	149.29	151.44
RP7a2	125.92	127.47	133.34	131.19	131.36	136.05	137.23	138.58	140.64	142.29	142.67	145.60	147.74	149.15	151.30
RP7a3	125.92	127.47	133.24	131.09	131.26	135.95	137.13	138.48	140.54	142.19	142.57	145.50	147.64	149.05	151.20
RP7b	125.92	127.50	134.08	131.93	132.09	136.77	137.95	139.31	141.36	142.99	143.33	146.35	148.45	149.85	152.02
RP7b2	125.92	127.50	133.94	131.79	131.95	136.63	137.81	139.17	141.23	142.86	143.20	146.22	148.32	149.72	151.89
RP7b3	125.92	127.50	133.84	131.69	131.85	136.53	137.71	139.07	141.13	142.76	143.10	146.12	148.22	149.62	151.79
RP8	125.92	127.48	132.53	130.31	130.57	132.88	134.58	135.96	150.69	155.49	156.12	159.64	162.02	164.46	167.20
RP8a	125.92	127.49	134.06	131.91	132.09	134.38	135.96	137.35	151.88	156.72	157.29	160.70	163.09	165.46	168.20
RP8a2	125.92	127.49	133.92	131.77	131.95	134.24	135.82	137.21	151.74	156.58	157.15	160.56	162.95	165.32	168.06
RP8a3	125.92	127.49	133.82	131.67	131.85	134.14	135.72	137.11	151.64	156.48	157.05	160.46	162.85	165.22	167.96

Typical Residential Bill @1000 kWh/month (High DSM, $0/ton CO_2, High Gas)															
	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
RP1	125.92	128.35	134.03	132.65	133.27	138.38	139.86	140.99	143.37	145.14	145.78	149.34	152.17	153.56	156.43
RP2	125.92	128.36	134.02	132.67	133.27	138.37	139.87	140.99	143.35	145.13	145.79	149.34	152.18	153.60	156.46
RP3	125.92	128.35	134.04	132.67	133.30	137.07	138.61	139.77	153.84	155.86	156.28	160.10	162.74	164.32	167.46
RP4	122.31	124.64	130.08	128.85	129.43	134.44	135.94	137.04	138.43	140.13	140.79	144.29	147.13	148.63	151.67
RP5	125.92	128.29	134.03	132.66	133.25	142.67	143.82	144.71	146.87	148.45	148.95	152.32	154.91	156.22	158.99
RP6	125.92	128.32	134.01	132.68	133.27	141.61	142.79	143.72	145.93	147.51	148.03	151.40	153.99	155.34	158.13
RP7	125.92	128.34	134.07	132.70	133.26	139.72	141.09	142.13	144.41	146.06	146.67	150.07	152.71	154.10	156.89
RP7a	125.92	128.34	134.91	133.58	134.11	139.11	140.49	141.56	143.85	145.56	146.19	149.59	152.25	153.62	156.50
RP7a2	125.92	128.34	134.77	133.44	133.97	138.97	140.35	141.42	143.71	145.42	146.05	149.45	152.11	153.48	156.36
RP7a3	125.92	128.34	134.67	133.34	133.87	138.87	140.25	141.32	143.61	145.32	145.95	149.35	152.01	153.38	156.26
RP7b	125.92	128.32	135.52	134.22	134.70	139.70	141.09	142.16	144.46	146.16	146.78	150.18	152.83	154.23	157.03
RP7b2	125.92	128.32	135.38	134.08	134.56	139.56	140.95	142.02	144.32	146.02	146.64	150.04	152.69	154.09	156.89
RP7b3	125.92	128.32	135.28	133.98	134.46	139.46	140.85	141.92	144.22	145.92	146.54	149.94	152.59	153.99	156.79
RP8	125.92	128.36	134.03	132.69	133.27	135.91	137.83	138.98	159.08	166.67	167.94	172.67	176.13	178.87	182.63
RP8a	125.92	128.32	135.56	134.24	134.68	137.27	139.09	140.18	159.81	167.27	168.48	173.06	176.41	179.16	182.87
RP8a2	125.92	128.32	135.42	134.10	134.54	137.13	138.95	140.04	159.67	167.13	168.34	172.92	176.27	179.02	182.73
RP8a3	125.92	128.32	135.32	134.00	134.44	137.03	138.85	139.94	159.57	167.03	168.24	172.82	176.17	178.92	182.63

Typical Residential Bill @1000 kWh/month (High DSM, $12/ton CO_2, Low Gas)															
	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
RP1	125.92	126.90	131.12	128.27	127.98	132.39	133.95	135.14	137.35	144.90	145.80	149.69	152.96	154.99	158.40
RP2	125.92	126.88	131.13	128.27	127.97	132.39	133.89	135.13	137.35	144.85	145.80	149.67	152.95	154.97	158.35
RP3	125.92	126.90	131.14	128.27	127.97	131.11	132.66	133.93	144.60	151.37	152.12	155.53	158.13	159.91	162.88
RP4	125.92	126.85	131.14	128.27	127.97	132.41	133.94	135.15	136.33	143.79	144.69	148.50	151.81	153.73	157.10
RP5	125.92	126.87	131.15	128.25	127.96	136.93	138.12	139.21	141.18	148.29	149.18	152.68	155.81	157.73	160.95
RP6	125.92	126.91	131.15	128.26	127.97	135.85	137.09	138.20	140.21	147.34	148.20	151.78	154.91	156.81	160.17
RP7	125.92	126.89	131.13	128.27	127.99	133.98	135.38	136.58	138.68	145.89	146.84	150.41	153.59	155.55	158.94
RP7a	125.92	126.91	132.12	129.26	128.96	133.34	134.80	136.04	138.16	145.39	146.37	149.96	153.11	155.09	158.42
RP7a2	125.92	126.91	131.98	129.12	128.83	133.21	134.67	135.91	138.03	145.26	146.24	149.83	152.98	154.96	158.29
RP7a3	125.92	126.91	131.88	129.02	128.73	133.11	134.57	135.81	137.93	145.17	146.15	149.74	152.89	154.87	158.20
RP7b	125.92	126.87	132.71	129.86	129.58	133.95	135.41	136.66	138.77	146.00	146.96	150.57	153.72	155.72	159.03
RP7b2	125.92	126.87	132.56	129.71	129.43	133.80	135.26	136.51	138.62	145.85	146.81	150.42	153.57	155.57	158.88
RP7b3	125.92	126.87	132.46	129.61	129.33	133.70	135.16	136.41	138.52	145.75	146.71	150.32	153.47	155.47	158.78
RP8	125.92	126.88	131.16	128.28	127.98	129.99	131.97	133.23	146.78	154.94	156.03	159.75	162.45	165.11	168.13
RP8a	125.92	126.91	132.68	129.83	129.55	131.50	133.44	134.75	148.18	156.15	157.20	160.79	163.47	166.07	169.06
RP8a2	125.92	126.91	132.53	129.68	129.40	131.35	133.29	134.60	148.03	156.00	157.05	160.64	163.32	165.92	168.91
RP8a3	125.92	126.91	132.44	129.59	129.31	131.26	133.20	134.51	147.94	155.91	156.96	160.55	163.23	165.83	168.82

Typical Residential Bill @1000 kWh/month (High DSM, $12/ton CO_2, Medium Gas)															
	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
RP1	125.92	127.49	132.55	130.32	130.57	135.33	136.52	137.85	139.99	147.75	148.67	152.86	156.15	158.32	161.93
RP2	125.92	127.50	132.59	130.32	130.60	135.35	136.55	137.87	139.99	147.77	148.68	152.84	156.19	158.32	161.96
RP3	125.92	127.49	132.55	130.32	130.57	134.03	135.26	136.63	147.81	154.63	155.28	159.02	161.73	163.74	166.98
RP4	125.92	127.50	132.56	130.39	130.58	135.32	136.53	137.87	138.93	146.66	147.55	151.68	155.01	157.14	160.85
RP5	125.92	127.52	132.57	130.33	130.60	139.82	140.72	141.91	143.86	151.11	151.94	155.81	158.99	161.01	164.46
RP6	125.92	127.47	132.56	130.40	130.56	138.67	139.67	140.89	142.86	150.13	150.93	154.85	158.06	160.08	163.56
RP7	125.92	127.52	132.55	130.32	130.59	136.84	137.95	139.26	141.32	148.71	149.55	153.54	156.77	158.82	162.35
RP7a	125.92	127.49	133.48	131.33	131.49	136.18	137.34	138.71	140.80	148.20	149.04	153.05	156.28	158.37	161.91
RP7a2	125.92	127.49	133.34	131.19	131.35	136.04	137.20	138.57	140.66	148.06	148.90	152.91	156.14	158.23	161.77
RP7a3	125.92	127.49	133.24	131.09	131.25	135.94	137.10	138.46	140.55	147.95	148.79	152.80	156.03	158.12	161.66
RP7b	125.92	127.48	134.08	131.93	132.09	136.78	137.97	139.32	141.37	148.76	149.64	153.65	156.85	158.93	162.47
RP7b2	125.92	127.48	133.93	131.78	131.94	136.63	137.82	139.17	141.22	148.61	149.49	153.50	156.70	158.78	162.32
RP7b3	125.92	127.48	133.83	131.68	131.84	136.53	137.72	139.07	141.12	148.51	149.39	153.40	156.60	158.68	162.22
RP8	125.92	127.47	132.54	130.37	130.54	132.88	134.53	135.89	150.68	159.25	160.12	164.21	167.10	169.87	173.38
RP8a	125.92	127.49	134.06	131.91	132.09	134.38	135.96	137.35	151.88	160.26	161.09	165.08	167.91	170.65	174.06
RP8a2	125.92	127.49	133.92	131.77	131.95	134.24	135.82	137.21	151.74	160.12	160.95	164.94	167.77	170.51	173.92
RP8a3	125.92	127.49	133.82	131.67	131.85	134.14	135.72	137.11	151.64	160.02	160.85	164.84	167.67	170.41	173.82

Typical Residential Bill @1000 kWh/month (High DSM, $12/ton CO_2, High Gas)															
	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
RP1	125.92	128.35	134.04	132.69	133.29	138.36	139.86	140.98	143.35	152.56	153.90	158.50	162.30	164.66	168.85
RP2	125.92	128.34	134.05	132.67	133.27	138.37	139.86	140.99	143.34	152.54	153.89	158.48	162.29	164.62	168.82
RP3	125.92	128.35	134.04	132.69	133.29	137.06	138.60	139.76	153.82	161.73	162.67	167.39	170.82	173.17	177.29
RP4	125.92	128.34	134.00	132.67	133.25	138.35	139.84	140.97	142.33	151.49	152.81	157.32	161.12	163.54	167.90
RP5	125.92	128.29	134.01	132.66	133.25	142.69	143.84	144.72	146.89	155.59	156.84	161.17	164.77	166.96	171.10
RP6	125.92	128.31	134.02	132.66	133.27	141.59	142.76	143.69	145.89	154.63	155.89	160.27	163.83	166.08	170.15
RP7	125.92	128.34	134.07	132.69	133.27	139.74	141.07	142.12	144.41	153.23	154.54	158.95	162.58	164.85	168.94
RP7a	125.92	128.32	134.88	133.56	134.08	139.07	140.49	141.56	143.83	152.70	154.02	158.47	162.09	164.36	168.52
RP7a2	125.92	128.32	134.74	133.42	133.94	138.93	140.35	141.42	143.70	152.57	153.89	158.34	161.96	164.23	168.39
RP7a3	125.92	128.28	135.21	133.85	134.35	139.36	140.74	141.81	144.10	152.95	154.32	158.76	162.41	164.72	168.83
RP7b	125.92	128.33	135.55	134.19	134.69	139.70	141.08	142.15	144.44	153.29	154.66	159.05	162.66	164.97	169.08
RP7b2	125.92	128.33	135.41	134.05	134.55	139.56	140.94	142.01	144.30	153.15	154.52	158.91	162.52	164.83	168.94
RP7b3	125.92	128.33	135.31	133.95	134.45	139.46	140.84	141.91	144.20	153.05	154.42	158.81	162.42	164.73	168.84
RP8	125.92	128.34	134.03	132.68	133.26	135.91	137.84	138.98	159.07	170.48	171.98	177.30	181.27	184.37	188.88
RP8a	125.92	128.35	135.54	134.18	134.70	137.25	139.10	140.17	159.82	170.86	172.31	177.45	181.30	184.38	188.77
RP8a2	125.92	128.35	135.40	134.04	134.56	137.11	138.96	140.03	159.68	170.72	172.17	177.31	181.16	184.24	188.63
RP8a3	125.92	128.35	135.30	133.94	134.46	137.01	138.86	139.93	159.58	170.62	172.07	177.21	181.06	184.14	188.53

Typical Residential Bill @1000 kWh/month (High DSM, $35/ton CO_2, Low Gas)															
	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
RP1	125.92	127.09	132.30	130.65	130.97	137.78	140.94	143.48	148.27	152.94	154.92	161.76	167.86	171.34	178.53
RP2	125.92	127.07	132.31	130.66	131.00	137.79	140.95	143.49	148.27	152.91	154.89	161.76	167.86	171.39	178.48
RP3	125.92	127.06	132.32	130.66	130.98	136.48	139.67	142.23	153.14	157.13	159.06	165.08	169.98	173.27	179.32
RP4	125.92	127.03	132.30	130.65	130.98	137.78	140.91	143.48	147.16	151.85	153.74	160.61	166.75	169.47	175.91
RP5	125.92	127.06	132.33	130.65	131.00	141.17	143.89	146.20	150.64	155.08	156.95	163.25	169.07	172.39	179.14
RP6	125.92	127.07	132.31	130.64	131.01	140.10	142.87	145.20	149.69	154.20	156.07	162.34	168.19	171.53	178.35
RP7	125.92	127.06	132.31	130.65	130.98	138.20	141.15	143.57	148.16	152.71	154.66	161.02	166.92	170.25	177.09
RP7a	125.92	127.06	132.25	130.67	130.98	137.58	140.55	143.01	147.63	152.17	154.14	160.53	166.43	169.78	176.58
RP7a2	125.92	127.06	132.10	130.51	130.82	137.42	140.39	142.85	147.47	152.01	153.98	160.37	166.27	169.62	176.42
RP7a3	125.92	127.06	132.00	130.41	130.72	137.32	140.29	142.75	147.37	151.91	153.88	160.26	166.16	169.51	176.31
RP7b	125.92	127.06	132.83	131.22	131.53	138.13	141.12	143.60	148.17	152.76	154.73	161.06	166.93	170.34	177.14
RP7b2	125.92	127.06	132.68	131.07	131.38	137.98	140.97	143.45	148.02	152.61	154.58	160.91	166.78	170.19	176.99
RP7b3	125.92	127.06	132.59	130.98	131.29	137.89	140.88	143.36	147.93	152.52	154.49	160.82	166.69	170.10	176.90
RP8	125.92	127.08	132.31	130.69	131.00	135.23	138.65	141.22	150.77	156.03	157.76	163.49	167.74	171.22	176.57
RP8a	125.92	127.08	132.81	131.22	131.53	135.61	138.89	141.34	150.92	156.25	157.92	163.42	167.53	170.97	176.10
RP8a2	125.92	127.08	132.67	131.08	131.39	135.47	138.75	141.20	150.78	156.11	157.78	163.28	167.39	170.83	175.96
RP8a3	125.92	127.08	132.57	130.98	131.29	135.37	138.65	141.10	150.68	156.01	157.68	163.18	167.29	170.73	175.86

Typical Residential Bill @1000 kWh/month (High DSM, $35/ton CO_2, Medium Gas)															
	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
RP1	125.92	128.03	134.27	133.28	134.21	141.47	144.43	147.24	152.20	156.59	158.47	165.60	171.98	175.68	183.16
RP2	125.92	128.05	134.29	133.31	134.23	141.48	144.44	147.24	152.21	156.61	158.46	165.64	171.98	175.69	183.20
RP3	125.92	127.99	134.24	133.26	134.19	140.16	143.15	146.00	157.07	160.86	162.63	169.06	174.18	177.59	184.10
RP4	125.92	128.01	134.25	133.28	134.18	141.45	144.41	147.24	151.12	155.52	157.34	164.54	170.90	173.83	180.72
RP5	125.92	128.02	134.26	133.30	134.20	144.70	147.20	149.72	154.37	158.59	160.33	167.08	173.09	176.42	183.61
RP6	125.92	128.04	134.25	133.28	134.21	143.67	146.17	148.74	153.44	157.70	159.43	166.21	172.20	175.58	182.83
RP7	125.92	128.03	134.29	133.28	134.21	141.79	144.47	147.15	151.94	156.26	158.03	164.91	170.93	174.35	181.58
RP7a	125.92	128.02	134.12	133.17	134.03	141.15	143.86	146.59	151.40	155.73	157.55	164.41	170.46	173.89	181.15
RP7a2	125.92	128.02	133.98	133.03	133.89	141.01	143.72	146.45	151.26	155.59	157.41	164.27	170.32	173.75	181.01
RP7a3	125.92	128.02	133.88	132.93	133.79	140.91	143.62	146.35	151.16	155.49	157.31	164.17	170.22	173.65	180.91
RP7b	125.92	128.05	134.72	133.73	134.57	141.69	144.43	147.13	151.97	156.27	158.13	164.92	170.92	174.45	181.65
RP7b2	125.92	128.05	134.58	133.59	134.43	141.55	144.29	146.99	151.83	156.13	157.99	164.78	170.78	174.31	181.51
RP7b3	125.92	128.05	134.48	133.49	134.33	141.45	144.19	146.89	151.73	156.03	157.89	164.68	170.68	174.21	181.41
RP8	125.92	128.03	134.31	133.29	134.20	138.88	142.08	144.88	155.40	160.40	161.90	168.06	172.49	176.07	181.86
RP8a	125.92	128.03	134.72	133.73	134.60	139.14	142.13	144.88	155.36	160.44	161.91	167.76	172.04	175.58	181.20
RP8a2	125.92	128.03	134.57	133.58	134.45	138.99	141.98	144.73	155.21	160.29	161.76	167.61	171.89	175.43	181.05
RP8a3	125.92	128.03	134.47	133.48	134.35	138.89	141.88	144.63	155.11	160.19	161.66	167.51	171.79	175.33	180.95

Typical Residential Bill @1000 kWh/month (High DSM, $35/ton CO_2, High Gas)															
	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
RP1	125.92	129.41	137.12	137.08	139.16	147.61	151.68	154.50	160.06	164.95	167.61	175.80	183.12	187.33	195.76
RP2	125.92	129.41	137.09	137.07	139.15	147.61	151.69	154.50	160.02	165.00	167.62	175.88	183.13	187.34	195.79
RP3	125.92	129.41	137.12	137.08	139.10	146.30	150.39	153.28	165.45	169.82	172.23	179.84	186.05	189.97	197.44
RP4	125.92	129.40	137.10	137.11	139.15	147.60	151.67	154.49	159.01	163.80	166.47	174.69	181.91	185.74	193.79
RP5	125.92	129.43	137.12	137.07	139.15	150.64	154.23	156.75	161.95	166.59	169.08	176.91	183.68	187.70	195.78
RP6	125.92	129.41	137.10	137.07	139.15	149.53	153.20	155.70	160.97	165.64	168.15	175.96	182.80	186.83	194.98
RP7	125.92	129.47	137.14	137.09	139.14	147.70	151.50	154.13	159.45	164.27	166.80	174.63	181.56	185.60	193.76
RP7a	125.92	129.41	136.89	136.74	138.73	147.01	150.86	153.52	158.90	163.72	166.31	174.09	181.06	185.09	193.27
RP7a2	125.92	129.41	136.75	136.60	138.59	146.87	150.72	153.38	158.76	163.58	166.17	173.95	180.92	184.95	193.13
RP7a3	125.92	129.41	136.65	136.50	138.49	146.77	150.62	153.28	158.66	163.48	166.07	173.85	180.82	184.85	193.03
RP7b	125.92	129.45	137.37	137.29	139.25	147.56	151.42	154.14	159.45	164.20	166.80	174.62	181.56	185.60	193.74
RP7b2	125.92	129.45	137.23	137.15	139.11	147.42	151.28	154.00	159.31	164.06	166.66	174.48	181.42	185.46	193.60
RP7b3	125.92	129.45	137.13	137.05	139.01	147.32	151.18	153.90	159.22	163.97	166.57	174.39	181.33	185.37	193.51
RP8	125.92	129.44	137.11	137.05	139.13	144.97	149.25	152.10	165.49	171.59	173.81	181.19	186.72	190.64	197.53
RP8a	125.92	129.37	137.34	137.26	139.25	144.93	149.03	151.76	164.89	170.96	173.04	180.09	185.49	189.37	196.00
RP8a2	125.92	129.37	137.20	137.12	139.11	144.79	148.89	151.62	164.75	170.82	172.90	179.95	185.35	189.23	195.86
RP8a3	125.92	129.37	137.10	137.02	139.01	144.69	148.79	151.52	164.65	170.72	172.80	179.85	185.25	189.13	195.76

Appendix K: Retail Rate Impact for Low and Medium DSM

Retail Rate Impact (cents/kWh) Low DSM, $0/ton CO_2, Low Gas															
	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
RP1	0.10107	0.10090	0.10449	0.10233	0.10219	0.10608	0.10750	0.10864	0.11081	0.11255	0.11316	0.11567	0.11788	0.11935	0.13079
RP2	0.10107	0.10090	0.10445	0.10233	0.10217	0.10603	0.10749	0.10861	0.11076	0.11252	0.11313	0.11563	0.11784	0.11931	0.12615
RP3	0.10107	0.10092	0.10449	0.10233	0.10217	0.10509	0.10656	0.10770	0.11577	0.11755	0.11817	0.12055	0.12699	0.12794	0.12965
RP4	0.10107	0.10092	0.10448	0.10230	0.10219	0.10603	0.10748	0.10862	0.11446	0.11618	0.11674	0.11910	0.12101	0.12207	0.12409
RP5	0.10107	0.10092	0.10448	0.10234	0.10219	0.10918	0.11042	0.11138	0.11333	0.11500	0.11557	0.11794	0.11989	0.12117	0.12315
RP6	0.10107	0.10091	0.10444	0.10230	0.10216	0.10834	0.10962	0.11058	0.11260	0.11424	0.11482	0.11722	0.11918	0.12068	0.12270
RP7	0.10107	0.10089	0.10447	0.10231	0.10216	0.10697	0.10835	0.10939	0.11146	0.11317	0.11379	0.11623	0.11820	0.11949	0.12148
RP7a	0.10107	0.10090	0.10494	0.10280	0.10265	0.10649	0.10792	0.10898	0.11109	0.11282	0.11346	0.11587	0.11788	0.11942	0.12149
RP7a2	0.10107	0.10090	0.10483	0.10269	0.10254	0.10638	0.10781	0.10887	0.11098	0.11271	0.11335	0.11576	0.11777	0.11931	0.12138
RP7a3	0.10107	0.10090	0.10476	0.10262	0.10247	0.10631	0.10774	0.10880	0.11091	0.11264	0.11328	0.11569	0.11770	0.11924	0.12131
RP7b	0.10107	0.10090	0.10536	0.10325	0.10310	0.10692	0.10836	0.10947	0.11151	0.11327	0.11391	0.11634	0.11832	0.11964	0.12165
RP7b2	0.10107	0.10090	0.10526	0.10314	0.10299	0.10681	0.10825	0.10936	0.11140	0.11316	0.11380	0.11623	0.11821	0.11953	0.12154
RP7b3	0.10107	0.10090	0.10518	0.10306	0.10291	0.10673	0.10817	0.10928	0.11132	0.11308	0.11372	0.11615	0.11813	0.11945	0.12146
RP8	0.10107	0.10092	0.10450	0.10233	0.10218	0.10422	0.10599	0.10708	0.11744	0.12185	0.12331	0.12660	0.12915	0.13099	0.13301
RP8a	0.10107	0.10088	0.10538	0.10326	0.10311	0.10511	0.10683	0.10798	0.11808	0.12179	0.12336	0.12657	0.12914	0.13094	0.13295
RP8a2	0.10107	0.10088	0.10527	0.10315	0.10300	0.10500	0.10672	0.10787	0.11797	0.12168	0.12325	0.12646	0.12903	0.13083	0.13284
RP8a3	0.10107	0.10088	0.10519	0.10307	0.10292	0.10492	0.10664	0.10779	0.11789	0.12160	0.12317	0.12638	0.12895	0.13075	0.13276

Retail Rate Impact (cents/kWh) Low DSM, $0/ton CO_2, Medium Gas															
	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
RP1	0.10107	0.10150	0.10584	0.10439	0.10473	0.10891	0.11006	0.11118	0.11331	0.11491	0.11538	0.11798	0.12028	0.12172	0.13393
RP2	0.10107	0.10152	0.10587	0.10444	0.10474	0.10895	0.11009	0.11124	0.11334	0.11494	0.11542	0.11801	0.12029	0.12174	0.12873
RP3	0.10107	0.10152	0.10587	0.10443	0.10477	0.10797	0.10917	0.11031	0.11906	0.12073	0.12110	0.12382	0.13039	0.13141	0.13345
RP4	0.10107	0.10150	0.10585	0.10432	0.10470	0.10893	0.11008	0.11122	0.11722	0.11861	0.11904	0.12152	0.12350	0.12457	0.12667
RP5	0.10107	0.10150	0.10586	0.10432	0.10473	0.11201	0.11294	0.11399	0.11592	0.11738	0.11782	0.12020	0.12220	0.12352	0.12554
RP6	0.10107	0.10152	0.10588	0.10443	0.10474	0.11119	0.11220	0.11323	0.11519	0.11669	0.11713	0.11954	0.12152	0.12309	0.12517
RP7	0.10107	0.10152	0.10587	0.10433	0.10474	0.10981	0.11091	0.11205	0.11405	0.11555	0.11608	0.11855	0.12054	0.12191	0.12397
RP7a	0.10107	0.10152	0.10635	0.10487	0.10520	0.10936	0.11050	0.11168	0.11369	0.11523	0.11574	0.11819	0.12024	0.12183	0.12400
RP7a2	0.10107	0.10152	0.10624	0.10476	0.10509	0.10925	0.11039	0.11157	0.11358	0.11512	0.11563	0.11808	0.12014	0.12173	0.12390
RP7a3	0.10107	0.10152	0.10617	0.10469	0.10502	0.10918	0.11032	0.11150	0.11351	0.11505	0.11556	0.11801	0.12007	0.12166	0.12383
RP7b	0.10107	0.10150	0.10676	0.10529	0.10562	0.10977	0.11089	0.11211	0.11413	0.11570	0.11613	0.11865	0.12070	0.12202	0.12407
RP7b2	0.10107	0.10150	0.10665	0.10518	0.10551	0.10966	0.11078	0.11200	0.11402	0.11559	0.11602	0.11854	0.12059	0.12191	0.12396
RP7b3	0.10107	0.10150	0.10658	0.10511	0.10544	0.10959	0.11071	0.11193	0.11395	0.11552	0.11595	0.11847	0.12052	0.12184	0.12389
RP8	0.10107	0.10153	0.10584	0.10432	0.10474	0.10709	0.10857	0.10970	0.12143	0.12631	0.12752	0.13123	0.13397	0.13591	0.13843
RP8a	0.10107	0.10148	0.10674	0.10529	0.10560	0.10792	0.10937	0.11061	0.12187	0.12606	0.12738	0.13095	0.13370	0.13562	0.13815
RP8a2	0.10107	0.10148	0.10663	0.10518	0.10549	0.10781	0.10926	0.11050	0.12176	0.12595	0.12727	0.13084	0.13359	0.13551	0.13804
RP8a3	0.10107	0.10148	0.10656	0.10511	0.10542	0.10774	0.10919	0.11043	0.12169	0.12588	0.12720	0.13077	0.13352	0.13544	0.13797

Retail Rate Impact (cents/kWh) Low DSM, $0/ton CO_2, High Gas															
	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
RP1	0.10107	0.10237	0.10735	0.10669	0.10745	0.11202	0.11350	0.11456	0.11690	0.11872	0.11951	0.12267	0.12555	0.12702	0.13984
RP2	0.10107	0.10235	0.10736	0.10668	0.10742	0.11203	0.11352	0.11457	0.11691	0.11873	0.11949	0.12265	0.12554	0.12699	0.13468
RP3	0.10107	0.10238	0.10734	0.10669	0.10742	0.11105	0.11256	0.11365	0.12526	0.12750	0.12820	0.13187	0.13910	0.14042	0.14341
RP4	0.10107	0.10236	0.10735	0.10670	0.10745	0.11204	0.11355	0.11459	0.12084	0.12254	0.12308	0.12617	0.12873	0.12981	0.13263
RP5	0.10107	0.10235	0.10735	0.10667	0.10745	0.11493	0.11614	0.11700	0.11916	0.12083	0.12145	0.12440	0.12694	0.12821	0.13099
RP6	0.10107	0.10232	0.10731	0.10667	0.10743	0.11411	0.11536	0.11625	0.11841	0.12008	0.12075	0.12372	0.12624	0.12778	0.13064
RP7	0.10107	0.10236	0.10738	0.10669	0.10742	0.11273	0.11411	0.11507	0.11730	0.11905	0.11976	0.12275	0.12532	0.12661	0.12944
RP7a	0.10107	0.10233	0.10775	0.10711	0.10772	0.11225	0.11365	0.11465	0.11688	0.11863	0.11937	0.12236	0.12494	0.12651	0.12938
RP7a2	0.10107	0.10233	0.10764	0.10700	0.10761	0.11214	0.11354	0.11454	0.11677	0.11852	0.11926	0.12225	0.12483	0.12640	0.12927
RP7a3	0.10107	0.10233	0.10757	0.10693	0.10754	0.11207	0.11347	0.11447	0.11670	0.11845	0.11919	0.12218	0.12476	0.12633	0.12920
RP7b	0.10107	0.10233	0.10825	0.10755	0.10822	0.11270	0.11410	0.11509	0.11733	0.11907	0.11980	0.12280	0.12539	0.12670	0.12952
RP7b2	0.10107	0.10233	0.10815	0.10745	0.10812	0.11260	0.11400	0.11499	0.11723	0.11897	0.11970	0.12270	0.12529	0.12660	0.12942
RP7b3	0.10107	0.10233	0.10807	0.10737	0.10804	0.11252	0.11392	0.11491	0.11715	0.11889	0.11962	0.12262	0.12521	0.12652	0.12934
RP8	0.10107	0.10233	0.10734	0.10667	0.10740	0.11014	0.11194	0.11297	0.13013	0.13777	0.13965	0.14457	0.14842	0.15068	0.15429
RP8a	0.10107	0.10233	0.10820	0.10753	0.10823	0.11084	0.11251	0.11354	0.12999	0.13696	0.13890	0.14364	0.14743	0.14971	0.15318
RP8a2	0.10107	0.10233	0.10809	0.10742	0.10812	0.11073	0.11240	0.11343	0.12988	0.13685	0.13879	0.14353	0.14732	0.14960	0.15307
RP8a3	0.10107	0.10233	0.10801	0.10734	0.10804	0.11065	0.11232	0.11335	0.12980	0.13677	0.13871	0.14345	0.14724	0.14952	0.15299

Retail Rate Impact (cents/kWh) Low DSM, $12/ton CO_2, Low Gas															
	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
RP1	0.10107	0.10090	0.10449	0.10233	0.10219	0.10608	0.10753	0.10864	0.11080	0.11843	0.11956	0.12297	0.12616	0.12815	0.13992
RP2	0.10107	0.10090	0.10445	0.10233	0.10217	0.10603	0.10748	0.10860	0.11074	0.11840	0.11947	0.12296	0.12609	0.12812	0.13593
RP3	0.10107	0.10092	0.10449	0.10233	0.10218	0.10509	0.10655	0.10767	0.11576	0.12274	0.12377	0.12695	0.13410	0.13561	0.13841
RP4	0.10107	0.10149	0.10459	0.10234	0.10218	0.10589	0.10738	0.10858	0.11448	0.12175	0.12260	0.12611	0.12901	0.13069	0.13388
RP5	0.10107	0.10091	0.10449	0.10233	0.10218	0.10915	0.11041	0.11136	0.11333	0.12063	0.12152	0.12479	0.12774	0.12966	0.13278
RP6	0.10107	0.10090	0.10446	0.10230	0.10218	0.10835	0.10963	0.11061	0.11260	0.11990	0.12081	0.12411	0.12711	0.12908	0.13224
RP7	0.10107	0.10089	0.10447	0.10231	0.10217	0.10696	0.10836	0.10939	0.11144	0.11881	0.11976	0.12307	0.12610	0.12805	0.13126
RP7a	0.10107	0.10094	0.10494	0.10281	0.10265	0.10647	0.10790	0.10898	0.11106	0.11842	0.11943	0.12270	0.12576	0.12781	0.13100
RP7a2	0.10107	0.10094	0.10483	0.10270	0.10254	0.10636	0.10779	0.10887	0.11095	0.11831	0.11932	0.12259	0.12565	0.12770	0.13089
RP7a3	0.10107	0.10094	0.10476	0.10263	0.10247	0.10629	0.10772	0.10880	0.11088	0.11824	0.11925	0.12252	0.12558	0.12763	0.13082
RP7b	0.10107	0.10089	0.10534	0.10323	0.10308	0.10690	0.10835	0.10944	0.11151	0.11889	0.11984	0.12321	0.12619	0.12814	0.13133
RP7b2	0.10107	0.10089	0.10524	0.10313	0.10298	0.10680	0.10825	0.10934	0.11141	0.11879	0.11974	0.12311	0.12609	0.12804	0.13123
RP7b3	0.10107	0.10089	0.10516	0.10305	0.10290	0.10672	0.10817	0.10925	0.11132	0.11870	0.11965	0.12302	0.12600	0.12795	0.13114
RP8	0.10107	0.10092	0.10450	0.10233	0.10218	0.10422	0.10599	0.10708	0.11744	0.12571	0.12745	0.13136	0.13440	0.13661	0.13939
RP8a	0.10107	0.10093	0.10536	0.10323	0.10310	0.10511	0.10682	0.10796	0.11806	0.12545	0.12729	0.13106	0.13408	0.13625	0.13900
RP8a2	0.10107	0.10093	0.10526	0.10313	0.10300	0.10501	0.10672	0.10786	0.11796	0.12535	0.12719	0.13096	0.13398	0.13615	0.13890
RP8a3	0.10107	0.10093	0.10518	0.10305	0.10292	0.10493	0.10664	0.10778	0.11788	0.12527	0.12711	0.13088	0.13390	0.13607	0.13882

Retail Rate Impact (cents/kWh) Low DSM, $12/ton CO_2, Medium Gas															
	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
RP1	0.10107	0.10150	0.10584	0.10439	0.10473	0.10891	0.11006	0.11118	0.11332	0.12124	0.12228	0.12608	0.12940	0.13150	0.14402
RP2	0.10107	0.10148	0.10585	0.10432	0.10474	0.10893	0.11010	0.11120	0.11336	0.12128	0.12231	0.12607	0.12941	0.13156	0.13984
RP3	0.10107	0.10152	0.10587	0.10443	0.10477	0.10797	0.10917	0.11031	0.11906	0.12614	0.12703	0.13053	0.13789	0.13960	0.14280
RP4	0.10107	0.10150	0.10585	0.10432	0.10470	0.10893	0.11008	0.11122	0.11719	0.12481	0.12574	0.12927	0.13233	0.13417	0.13769
RP5	0.10107	0.10150	0.10586	0.10434	0.10474	0.11201	0.11296	0.11399	0.11594	0.12335	0.12427	0.12784	0.13088	0.13287	0.13634
RP6	0.10107	0.10152	0.10588	0.10431	0.10474	0.11117	0.11217	0.11324	0.11516	0.12262	0.12354	0.12711	0.13020	0.13237	0.13589
RP7	0.10107	0.10151	0.10587	0.10433	0.10474	0.10982	0.11092	0.11208	0.11408	0.12160	0.12256	0.12621	0.12929	0.13127	0.13481
RP7a	0.10107	0.10153	0.10634	0.10478	0.10520	0.10934	0.11051	0.11163	0.11366	0.12121	0.12218	0.12585	0.12888	0.13110	0.13465
RP7a2	0.10107	0.10153	0.10623	0.10467	0.10509	0.10923	0.11040	0.11152	0.11355	0.12110	0.12207	0.12574	0.12877	0.13099	0.13454
RP7a3	0.10107	0.10153	0.10616	0.10460	0.10502	0.10916	0.11033	0.11145	0.11348	0.12103	0.12200	0.12567	0.12870	0.13092	0.13447
RP7b	0.10107	0.10150	0.10676	0.10529	0.10562	0.10977	0.11089	0.11214	0.11409	0.12163	0.12261	0.12625	0.12933	0.13132	0.13485
RP7b2	0.10107	0.10150	0.10665	0.10518	0.10551	0.10966	0.11078	0.11203	0.11398	0.12152	0.12250	0.12614	0.12922	0.13121	0.13474
RP7b3	0.10107	0.10150	0.10658	0.10511	0.10544	0.10959	0.11071	0.11196	0.11391	0.12145	0.12243	0.12607	0.12915	0.13114	0.13467
RP8	0.10107	0.10153	0.10584	0.10432	0.10474	0.10709	0.10857	0.10970	0.12143	0.13015	0.13166	0.13595	0.13920	0.14150	0.14477
RP8a	0.10107	0.10148	0.10674	0.10529	0.10560	0.10793	0.10936	0.11059	0.12185	0.12976	0.13129	0.13542	0.13864	0.14091	0.14413
RP8a2	0.10107	0.10148	0.10663	0.10518	0.10549	0.10782	0.10925	0.11048	0.12174	0.12965	0.13118	0.13531	0.13853	0.14080	0.14402
RP8a3	0.10107	0.10148	0.10656	0.10511	0.10542	0.10775	0.10918	0.11041	0.12167	0.12958	0.13111	0.13524	0.13846	0.14073	0.14395

Retail Rate Impact (cents/kWh) Low DSM, $12/ton CO_2, High Gas															
	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
RP1	0.10107	0.10237	0.10737	0.10668	0.10741	0.11199	0.11350	0.11457	0.11692	0.12621	0.12766	0.13191	0.13580	0.13821	0.15224
RP2	0.10107	0.10230	0.10732	0.10668	0.10744	0.11199	0.11350	0.11455	0.11689	0.12618	0.12766	0.13186	0.13577	0.13819	0.14713
RP3	0.10107	0.10238	0.10734	0.10669	0.10743	0.11106	0.11255	0.11366	0.12524	0.13344	0.13465	0.13919	0.14722	0.14924	0.15330
RP4	0.10107	0.10236	0.10735	0.10670	0.10747	0.11206	0.11354	0.11459	0.12084	0.12997	0.13125	0.13540	0.13895	0.14101	0.14509
RP5	0.10107	0.10237	0.10736	0.10668	0.10745	0.11494	0.11616	0.11702	0.11918	0.12806	0.12939	0.13335	0.13693	0.13912	0.14324
RP6	0.10107	0.10232	0.10735	0.10667	0.10743	0.11409	0.11536	0.11626	0.11842	0.12736	0.12870	0.13267	0.13624	0.13869	0.14284
RP7	0.10107	0.10236	0.10738	0.10668	0.10745	0.11273	0.11409	0.11505	0.11728	0.12627	0.12768	0.13169	0.13529	0.13749	0.14167
RP7a	0.10107	0.10235	0.10775	0.10709	0.10774	0.11223	0.11363	0.11463	0.11690	0.12586	0.12729	0.13131	0.13491	0.13742	0.14162
RP7a2	0.10107	0.10235	0.10764	0.10698	0.10763	0.11212	0.11352	0.11452	0.11679	0.12575	0.12718	0.13120	0.13480	0.13731	0.14151
RP7a3	0.10107	0.10235	0.10757	0.10691	0.10756	0.11205	0.11345	0.11445	0.11672	0.12568	0.12711	0.13113	0.13473	0.13724	0.14144
RP7b	0.10107	0.10231	0.10822	0.10756	0.10820	0.11270	0.11413	0.11508	0.11733	0.12631	0.12774	0.13175	0.13534	0.13758	0.14172
RP7b2	0.10107	0.10231	0.10811	0.10745	0.10809	0.11259	0.11402	0.11497	0.11722	0.12620	0.12763	0.13164	0.13523	0.13747	0.14161
RP7b3	0.10107	0.10231	0.10804	0.10738	0.10803	0.11253	0.11396	0.11491	0.11716	0.12614	0.12757	0.13158	0.13517	0.13741	0.14155
RP8	0.10107	0.10233	0.10734	0.10667	0.10740	0.11014	0.11194	0.11297	0.13013	0.14171	0.14385	0.14937	0.15376	0.15634	0.16072
RP8a	0.10107	0.10233	0.10820	0.10753	0.10820	0.11084	0.11251	0.11351	0.12997	0.14065	0.14284	0.14816	0.15247	0.15505	0.15926
RP8a2	0.10107	0.10233	0.10809	0.10742	0.10809	0.11073	0.11240	0.11340	0.12986	0.14054	0.14273	0.14805	0.15236	0.15494	0.15915
RP8a3	0.10107	0.10233	0.10801	0.10734	0.10801	0.11065	0.11232	0.11332	0.12978	0.14046	0.14265	0.14797	0.15228	0.15486	0.15907

Retail Rate Impact (cents/kWh) Low DSM, $35/ton CO_2, Low Gas															
	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
RP1	0.10107	0.10110	0.10575	0.10486	0.10547	0.11187	0.11509	0.11767	0.12264	0.12746	0.12950	0.13618	0.14170	0.14459	0.15776
RP2	0.10107	0.10108	0.10576	0.10486	0.10546	0.11187	0.11510	0.11768	0.12264	0.12745	0.12949	0.13617	0.14170	0.14459	0.15518
RP3	0.10107	0.10111	0.10576	0.10488	0.10546	0.11089	0.11414	0.11675	0.12504	0.12925	0.13116	0.13660	0.14604	0.14907	0.15497
RP4	0.10107	0.10109	0.10579	0.10488	0.10551	0.11188	0.11510	0.11769	0.12480	0.12924	0.13127	0.13745	0.14316	0.14632	0.15293
RP5	0.10107	0.10108	0.10575	0.10485	0.10547	0.11376	0.11664	0.11900	0.12362	0.12827	0.13018	0.13634	0.14216	0.14549	0.15169
RP6	0.10107	0.10110	0.10578	0.10487	0.10547	0.11304	0.11597	0.11833	0.12299	0.12764	0.12955	0.13578	0.14156	0.14385	0.15002
RP7	0.10107	0.10110	0.10578	0.10490	0.10549	0.11165	0.11472	0.11714	0.12186	0.12659	0.12854	0.13479	0.14064	0.14402	0.15027
RP7a	0.10107	0.10112	0.10524	0.10441	0.10496	0.11116	0.11425	0.11672	0.12142	0.12620	0.12813	0.13442	0.14022	0.14257	0.14875
RP7a2	0.10107	0.10112	0.10513	0.10430	0.10485	0.11105	0.11414	0.11661	0.12131	0.12609	0.12802	0.13431	0.14011	0.14246	0.14864
RP7a3	0.10107	0.10112	0.10506	0.10423	0.10478	0.11098	0.11407	0.11654	0.12124	0.12602	0.12795	0.13424	0.14004	0.14239	0.14857
RP7b	0.10107	0.10108	0.10564	0.10482	0.10537	0.11153	0.11463	0.11710	0.12183	0.12658	0.12853	0.13477	0.14060	0.14397	0.15018
RP7b2	0.10107	0.10108	0.10553	0.10471	0.10526	0.11142	0.11452	0.11699	0.12172	0.12647	0.12842	0.13466	0.14049	0.14386	0.15007
RP7b3	0.10107	0.10108	0.10546	0.10464	0.10519	0.11135	0.11445	0.11692	0.12165	0.12640	0.12835	0.13459	0.14042	0.14379	0.15000
RP8	0.10107	0.10109	0.10577	0.10488	0.10547	0.10986	0.11323	0.11580	0.12182	0.12717	0.12982	0.13582	0.14043	0.14346	0.14867
RP8a	0.10107	0.10109	0.10562	0.10484	0.10536	0.10959	0.11285	0.11530	0.12162	0.12633	0.12871	0.13442	0.13898	0.14197	0.14700
RP8a2	0.10107	0.10109	0.10552	0.10474	0.10526	0.10949	0.11275	0.11520	0.12152	0.12623	0.12861	0.13432	0.13888	0.14187	0.14690
RP8a3	0.10107	0.10109	0.10544	0.10466	0.10518	0.10941	0.11267	0.11512	0.12144	0.12615	0.12853	0.13424	0.13880	0.14179	0.14682

Retail Rate Impact (cents/kWh) Low DSM, $35/ton CO_2, Medium Gas															
	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
RP1	0.10107	0.10205	0.10769	0.10753	0.10870	0.11556	0.11862	0.12146	0.12660	0.13123	0.13311	0.14014	0.14594	0.14910	0.16267
RP2	0.10107	0.10205	0.10771	0.10752	0.10870	0.11556	0.11864	0.12153	0.12660	0.13124	0.13311	0.14014	0.14597	0.14911	0.16025
RP3	0.10107	0.10204	0.10766	0.10752	0.10868	0.11457	0.11771	0.12053	0.12904	0.13308	0.13481	0.14073	0.15032	0.15351	0.15990
RP4	0.10107	0.10204	0.10769	0.10749	0.10869	0.11554	0.11865	0.12149	0.12892	0.13317	0.13506	0.14165	0.14758	0.15089	0.15800
RP5	0.10107	0.10208	0.10773	0.10754	0.10868	0.11735	0.12005	0.12260	0.12744	0.13187	0.13370	0.14018	0.14623	0.14968	0.15638
RP6	0.10107	0.10204	0.10771	0.10752	0.10867	0.11658	0.11935	0.12191	0.12676	0.13123	0.13303	0.13959	0.14560	0.14810	0.15478
RP7	0.10107	0.10203	0.10770	0.10751	0.10868	0.11518	0.11806	0.12075	0.12565	0.13018	0.13202	0.13858	0.14463	0.14813	0.15488
RP7a	0.10107	0.10204	0.10709	0.10689	0.10804	0.11470	0.11760	0.12029	0.12520	0.12974	0.13162	0.13820	0.14427	0.14681	0.15356
RP7a2	0.10107	0.10204	0.10698	0.10678	0.10793	0.11459	0.11749	0.12018	0.12509	0.12963	0.13151	0.13809	0.14416	0.14670	0.15345
RP7a3	0.10107	0.10204	0.10691	0.10671	0.10786	0.11452	0.11742	0.12011	0.12502	0.12956	0.13144	0.13802	0.14409	0.14663	0.15338
RP7b	0.10107	0.10205	0.10750	0.10734	0.10845	0.11513	0.11800	0.12071	0.12564	0.13017	0.13201	0.13859	0.14462	0.14814	0.15486
RP7b2	0.10107	0.10205	0.10739	0.10723	0.10834	0.11502	0.11789	0.12060	0.12554	0.13007	0.13191	0.13849	0.14453	0.14805	0.15477
RP7b3	0.10107	0.10205	0.10732	0.10716	0.10827	0.11495	0.11782	0.12053	0.12547	0.13000	0.13184	0.13842	0.14446	0.14798	0.15470
RP8	0.10107	0.10206	0.10771	0.10753	0.10870	0.11357	0.11674	0.11962	0.12663	0.13170	0.13409	0.14046	0.14526	0.14843	0.15411
RP8a	0.10107	0.10205	0.10750	0.10730	0.10842	0.11311	0.11611	0.11883	0.12609	0.13061	0.13276	0.13884	0.14356	0.14663	0.15214
RP8a2	0.10107	0.10205	0.10740	0.10720	0.10832	0.11301	0.11601	0.11873	0.12599	0.13051	0.13266	0.13874	0.14346	0.14653	0.15204
RP8a3	0.10107	0.10205	0.10732	0.10712	0.10824	0.11293	0.11593	0.11865	0.12591	0.13043	0.13258	0.13866	0.14338	0.14645	0.15196

Retail Rate Impact (cents/kWh) Low DSM, $35/ton CO_2, High Gas															
	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
RP1	0.10107	0.10339	0.11050	0.11127	0.11361	0.12168	0.12590	0.12882	0.13447	0.13964	0.14247	0.15041	0.15738	0.16138	0.17618
RP2	0.10107	0.10346	0.11053	0.11130	0.11364	0.12168	0.12590	0.12882	0.13448	0.13966	0.14247	0.15038	0.15738	0.16133	0.17390
RP3	0.10107	0.10338	0.11049	0.11125	0.11360	0.12070	0.12497	0.12786	0.13754	0.14223	0.14480	0.15195	0.16265	0.16631	0.17376
RP4	0.10107	0.10346	0.11052	0.11126	0.11361	0.12167	0.12588	0.12879	0.13743	0.14221	0.14486	0.15269	0.15951	0.16348	0.17175
RP5	0.10107	0.10339	0.11050	0.11125	0.11363	0.12321	0.12700	0.12967	0.13501	0.13989	0.14264	0.15009	0.15706	0.16102	0.16881
RP6	0.10107	0.10342	0.11052	0.11127	0.11364	0.12247	0.12631	0.12897	0.13434	0.13936	0.14205	0.14948	0.15645	0.16001	0.16774
RP7	0.10107	0.10341	0.11051	0.11128	0.11363	0.12110	0.12505	0.12774	0.13321	0.13825	0.14105	0.14850	0.15547	0.15957	0.16740
RP7a	0.10107	0.10340	0.10978	0.11046	0.11273	0.12058	0.12457	0.12731	0.13279	0.13785	0.14057	0.14810	0.15514	0.15866	0.16644
RP7a2	0.10107	0.10340	0.10967	0.11035	0.11262	0.12047	0.12446	0.12720	0.13268	0.13774	0.14046	0.14799	0.15503	0.15855	0.16633
RP7a3	0.10107	0.10340	0.10960	0.11028	0.11255	0.12040	0.12439	0.12713	0.13261	0.13767	0.14039	0.14792	0.15496	0.15848	0.16626
RP7b	0.10107	0.10341	0.11015	0.11086	0.11310	0.12093	0.12494	0.12773	0.13316	0.13819	0.14099	0.14845	0.15546	0.15947	0.16744
RP7b2	0.10107	0.10341	0.11005	0.11076	0.11300	0.12083	0.12484	0.12763	0.13306	0.13809	0.14089	0.14835	0.15536	0.15937	0.16734
RP7b3	0.10107	0.10341	0.10997	0.11068	0.11292	0.12075	0.12476	0.12755	0.13298	0.13801	0.14081	0.14827	0.15528	0.15929	0.16726
RP8	0.10107	0.10342	0.11052	0.11127	0.11362	0.11965	0.12393	0.12678	0.13694	0.14329	0.14637	0.15397	0.15999	0.16344	0.17021
RP8a	0.10107	0.10343	0.11018	0.11087	0.11311	0.11897	0.12305	0.12579	0.13586	0.14152	0.14435	0.15165	0.15751	0.16089	0.16745
RP8a2	0.10107	0.10343	0.11007	0.11076	0.11300	0.11886	0.12294	0.12568	0.13575	0.14141	0.14424	0.15154	0.15740	0.16078	0.16734
RP8a3	0.10107	0.10343	0.10999	0.11068	0.11292	0.11878	0.12286	0.12560	0.13567	0.14133	0.14416	0.15146	0.15732	0.16070	0.16726

Retail Rate Impact (cents/kWh) Medium DSM, $0/ton CO_2, Low Gas															
	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
RP1	0.10107	0.10118	0.10466	0.10242	0.10220	0.10597	0.10742	0.10854	0.11072	0.11247	0.11306	0.11576	0.11778	0.11919	0.12125
RP2	0.10107	0.10120	0.10464	0.10241	0.10220	0.10601	0.10746	0.10860	0.11071	0.11248	0.11308	0.11574	0.11780	0.11915	0.12120
RP3	0.10107	0.10119	0.10465	0.10241	0.10220	0.10501	0.10649	0.10769	0.11578	0.11754	0.11802	0.12054	0.12228	0.12806	0.12975
RP4	0.10107	0.10121	0.10467	0.10241	0.10223	0.10602	0.10745	0.10857	0.10993	0.11164	0.11254	0.11526	0.12201	0.12286	0.12485
RP5	0.10107	0.10120	0.10465	0.10243	0.10222	0.10913	0.11037	0.11137	0.11331	0.11496	0.11550	0.11800	0.11993	0.12117	0.12300
RP6	0.10107	0.10122	0.10464	0.10241	0.10221	0.10830	0.10959	0.11060	0.11258	0.11427	0.11480	0.11733	0.11927	0.12049	0.12262
RP7	0.10107	0.10154	0.10456	0.10231	0.10211	0.10673	0.10814	0.10927	0.11135	0.11307	0.11358	0.11624	0.11825	0.11949	0.12134
RP7a	0.10107	0.10121	0.10518	0.10291	0.10265	0.10642	0.10785	0.10897	0.11103	0.11279	0.11339	0.11595	0.11791	0.11918	0.12137
RP7a2	0.10107	0.10121	0.10507	0.10280	0.10255	0.10632	0.10775	0.10887	0.11093	0.11269	0.11329	0.11585	0.11781	0.11908	0.12127
RP7a3	0.10107	0.10121	0.10500	0.10273	0.10248	0.10625	0.10768	0.10880	0.11086	0.11262	0.11322	0.11578	0.11774	0.11901	0.12120
RP7b	0.10107	0.10118	0.10558	0.10337	0.10313	0.10689	0.10830	0.10941	0.11147	0.11326	0.11384	0.11642	0.11837	0.11964	0.12150
RP7b2	0.10107	0.10118	0.10547	0.10326	0.10302	0.10678	0.10819	0.10930	0.11136	0.11315	0.11373	0.11630	0.11825	0.11952	0.12138
RP7b3	0.10107	0.10118	0.10540	0.10319	0.10295	0.10671	0.10812	0.10923	0.11129	0.11308	0.11366	0.11623	0.11819	0.11946	0.12132
RP8	0.10107	0.10119	0.10466	0.10242	0.10220	0.10415	0.10594	0.10708	0.11734	0.12174	0.12330	0.12599	0.12859	0.13040	0.13242
RP8a	0.10107	0.10122	0.10561	0.10337	0.10314	0.10507	0.10678	0.10794	0.11809	0.12176	0.12263	0.12597	0.12785	0.12966	0.13243
RP8a2	0.10107	0.10122	0.10550	0.10326	0.10303	0.10496	0.10667	0.10783	0.11798	0.12165	0.12252	0.12586	0.12774	0.12955	0.13232
RP8a3	0.10107	0.10122	0.10543	0.10319	0.10296	0.10489	0.10660	0.10776	0.11791	0.12158	0.12245	0.12579	0.12767	0.12948	0.13225

Retail Rate Impact (cents/kWh) Medium DSM, $0/ton CO_2, Medium Gas															
	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
RP1	0.10107	0.10118	0.10466	0.10242	0.10220	0.10597	0.10742	0.10854	0.11072	0.11247	0.11306	0.11576	0.11778	0.11919	0.12125
RP2	0.10107	0.10181	0.10607	0.10443	0.10476	0.10886	0.11003	0.11120	0.11332	0.11491	0.11536	0.11810	0.12023	0.12160	0.12368
RP3	0.10107	0.10177	0.10608	0.10451	0.10476	0.10792	0.10909	0.11033	0.11904	0.12066	0.12089	0.12373	0.12562	0.13153	0.13355
RP4	0.10107	0.10180	0.10604	0.10444	0.10474	0.10886	0.11006	0.11121	0.11250	0.11400	0.11479	0.11762	0.12445	0.12537	0.12738
RP5	0.10107	0.10180	0.10606	0.10442	0.10475	0.11198	0.11289	0.11403	0.11593	0.11740	0.11775	0.12032	0.12226	0.12353	0.12540
RP6	0.10107	0.10181	0.10606	0.10453	0.10476	0.11117	0.11215	0.11322	0.11523	0.11668	0.11706	0.11962	0.12156	0.12286	0.12504
RP7	0.10107	0.10209	0.10593	0.10438	0.10463	0.10956	0.11068	0.11191	0.11392	0.11540	0.11582	0.11849	0.12052	0.12184	0.12378
RP7a	0.10107	0.10184	0.10654	0.10498	0.10522	0.10929	0.11042	0.11162	0.11365	0.11511	0.11564	0.11826	0.12024	0.12158	0.12379
RP7a2	0.10107	0.10184	0.10643	0.10487	0.10511	0.10918	0.11031	0.11151	0.11354	0.11500	0.11553	0.11815	0.12013	0.12147	0.12368
RP7a3	0.10107	0.10184	0.10636	0.10480	0.10504	0.10911	0.11024	0.11144	0.11347	0.11493	0.11546	0.11808	0.12006	0.12140	0.12361
RP7b	0.10107	0.10181	0.10698	0.10542	0.10567	0.10972	0.11087	0.11209	0.11409	0.11560	0.11610	0.11870	0.12071	0.12202	0.12396
RP7b2	0.10107	0.10181	0.10687	0.10531	0.10556	0.10961	0.11076	0.11198	0.11399	0.11550	0.11600	0.11860	0.12061	0.12192	0.12386
RP7b3	0.10107	0.10181	0.10680	0.10524	0.10549	0.10954	0.11069	0.11191	0.11392	0.11543	0.11593	0.11853	0.12054	0.12185	0.12379
RP8	0.10107	0.10180	0.10605	0.10442	0.10473	0.10701	0.10850	0.10968	0.12130	0.12620	0.12746	0.13059	0.13337	0.13532	0.13782
RP8a	0.10107	0.10183	0.10699	0.10543	0.10570	0.10789	0.10935	0.11059	0.12191	0.12606	0.12665	0.13038	0.13244	0.13437	0.13761
RP8a2	0.10107	0.10183	0.10688	0.10532	0.10559	0.10778	0.10924	0.11048	0.12180	0.12595	0.12654	0.13027	0.13233	0.13426	0.13750
RP8a3	0.10107	0.10183	0.10681	0.10525	0.10552	0.10771	0.10917	0.11041	0.12173	0.12588	0.12647	0.13020	0.13226	0.13419	0.13743

Retail Rate Impact (cents/kWh) Medium DSM, $0/ton CO_2, High Gas															
	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
RP1	0.10107	0.10261	0.10751	0.10677	0.10744	0.11191	0.11341	0.11447	0.11682	0.11860	0.11933	0.12263	0.12536	0.12677	0.12966
RP2	0.10107	0.10264	0.10755	0.10679	0.10745	0.11195	0.11346	0.11451	0.11685	0.11862	0.11936	0.12267	0.12539	0.12677	0.12968
RP3	0.10107	0.10261	0.10753	0.10677	0.10745	0.11098	0.11251	0.11358	0.12522	0.12740	0.12797	0.13172	0.13446	0.14053	0.14350
RP4	0.10107	0.10261	0.10753	0.10678	0.10746	0.11194	0.11344	0.11450	0.11605	0.11783	0.11883	0.12220	0.12958	0.13050	0.13328
RP5	0.10107	0.10262	0.10756	0.10679	0.10745	0.11486	0.11608	0.11693	0.11907	0.12069	0.12133	0.12439	0.12689	0.12810	0.13073
RP6	0.10107	0.10260	0.10749	0.10673	0.10740	0.11399	0.11526	0.11617	0.11832	0.11995	0.12058	0.12368	0.12619	0.12740	0.13037
RP7	0.10107	0.10287	0.10739	0.10663	0.10731	0.11247	0.11385	0.11484	0.11709	0.11877	0.11937	0.12260	0.12517	0.12644	0.12911
RP7a	0.10107	0.10264	0.10796	0.10718	0.10779	0.11221	0.11361	0.11462	0.11686	0.11855	0.11928	0.12240	0.12495	0.12621	0.12921
RP7a2	0.10107	0.10264	0.10785	0.10707	0.10768	0.11210	0.11350	0.11451	0.11675	0.11844	0.11917	0.12229	0.12484	0.12610	0.12910
RP7a3	0.10107	0.10264	0.10777	0.10699	0.10760	0.11202	0.11342	0.11443	0.11667	0.11836	0.11909	0.12221	0.12476	0.12602	0.12902
RP7b	0.10107	0.10266	0.10838	0.10767	0.10822	0.11264	0.11403	0.11504	0.11727	0.11896	0.11970	0.12279	0.12534	0.12660	0.12928
RP7b2	0.10107	0.10266	0.10828	0.10757	0.10812	0.11254	0.11393	0.11494	0.11717	0.11886	0.11960	0.12269	0.12524	0.12650	0.12918
RP7b3	0.10107	0.10266	0.10820	0.10749	0.10804	0.11246	0.11385	0.11486	0.11709	0.11878	0.11952	0.12261	0.12516	0.12642	0.12910
RP8	0.10107	0.10268	0.10755	0.10679	0.10745	0.11012	0.11187	0.11292	0.12994	0.13763	0.13958	0.14394	0.14785	0.15003	0.15364
RP8a	0.10107	0.10264	0.10839	0.10765	0.10822	0.11075	0.11245	0.11347	0.12996	0.13687	0.13809	0.14300	0.14610	0.14836	0.15258
RP8a2	0.10107	0.10264	0.10828	0.10754	0.10811	0.11064	0.11234	0.11336	0.12985	0.13676	0.13798	0.14289	0.14599	0.14825	0.15247
RP8a3	0.10107	0.10264	0.10821	0.10747	0.10804	0.11057	0.11227	0.11329	0.12978	0.13669	0.13791	0.14282	0.14592	0.14818	0.15240

Retail Rate Impact (cents/kWh) Medium DSM, $12/ton CO_2, Low Gas															
	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
RP1	0.10107	0.10117	0.10465	0.10239	0.10220	0.10599	0.10744	0.10858	0.11074	0.11833	0.11940	0.12296	0.12608	0.12810	0.13136
RP2	0.10107	0.10120	0.10464	0.10241	0.10222	0.10601	0.10744	0.10856	0.11073	0.11834	0.11938	0.12299	0.12607	0.12780	0.13073
RP3	0.10107	0.10119	0.10465	0.10241	0.10220	0.10501	0.10649	0.10766	0.11578	0.12273	0.12364	0.12693	0.12950	0.13577	0.13853
RP4	0.10107	0.10121	0.10465	0.10243	0.10221	0.10601	0.10743	0.10856	0.10991	0.11747	0.11864	0.12224	0.12982	0.13130	0.13451
RP5	0.10107	0.10123	0.10464	0.10242	0.10219	0.10912	0.11036	0.11134	0.11327	0.12055	0.12142	0.12480	0.12781	0.12967	0.13279
RP6	0.10107	0.10122	0.10464	0.10241	0.10221	0.10830	0.10959	0.11057	0.11258	0.11984	0.12074	0.12415	0.12712	0.12896	0.13218
RP7	0.10107	0.10154	0.10456	0.10231	0.10211	0.10673	0.10814	0.10927	0.11135	0.11868	0.11957	0.12307	0.12611	0.12800	0.13116
RP7a	0.10107	0.10121	0.10518	0.10291	0.10266	0.10643	0.10787	0.10896	0.11104	0.11839	0.11936	0.12277	0.12581	0.12770	0.13095
RP7a2	0.10107	0.10121	0.10507	0.10280	0.10255	0.10632	0.10776	0.10885	0.11093	0.11828	0.11925	0.12266	0.12570	0.12759	0.13084
RP7a3	0.10107	0.10121	0.10500	0.10273	0.10248	0.10625	0.10769	0.10878	0.11086	0.11821	0.11918	0.12259	0.12563	0.12752	0.13077
RP7b	0.10107	0.10121	0.10557	0.10335	0.10311	0.10687	0.10831	0.10942	0.11146	0.11881	0.11976	0.12321	0.12622	0.12813	0.13128
RP7b2	0.10107	0.10121	0.10546	0.10324	0.10300	0.10676	0.10820	0.10931	0.11135	0.11870	0.11965	0.12310	0.12611	0.12802	0.13117
RP7b3	0.10107	0.10121	0.10539	0.10317	0.10293	0.10669	0.10813	0.10924	0.11128	0.11863	0.11958	0.12303	0.12604	0.12795	0.13110
RP8	0.10107	0.10119	0.10466	0.10242	0.10220	0.10416	0.10591	0.10705	0.11733	0.12561	0.12742	0.13075	0.13380	0.13600	0.13878
RP8a	0.10107	0.10122	0.10561	0.10337	0.10315	0.10507	0.10678	0.10796	0.11810	0.12547	0.12658	0.13051	0.13285	0.13502	0.13850
RP8a2	0.10107	0.10122	0.10550	0.10326	0.10304	0.10496	0.10667	0.10785	0.11799	0.12536	0.12647	0.13040	0.13274	0.13491	0.13839
RP8a3	0.10107	0.10122	0.10543	0.10319	0.10297	0.10489	0.10660	0.10778	0.11792	0.12529	0.12640	0.13033	0.13267	0.13484	0.13832

Retail Rate Impact (cents/kWh) Medium DSM, $12/ton CO_2, Medium Gas															
	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
RP1	0.10107	0.10182	0.10610	0.10454	0.10477	0.10891	0.11007	0.11124	0.11334	0.12121	0.12222	0.12615	0.12935	0.13146	0.13509
RP2	0.10107	0.10181	0.10607	0.10443	0.10476	0.10886	0.11003	0.11120	0.11331	0.12121	0.12221	0.12615	0.12933	0.13125	0.13467
RP3	0.10107	0.10177	0.10608	0.10451	0.10476	0.10792	0.10909	0.11033	0.11904	0.12607	0.12687	0.13050	0.13321	0.13971	0.14287
RP4	0.10107	0.10180	0.10604	0.10444	0.10474	0.10887	0.11003	0.11124	0.11252	0.12040	0.12159	0.12553	0.13332	0.13493	0.13850
RP5	0.10107	0.10180	0.10606	0.10442	0.10475	0.11198	0.11289	0.11403	0.11593	0.12329	0.12418	0.12787	0.13090	0.13283	0.13622
RP6	0.10107	0.10181	0.10606	0.10453	0.10476	0.11117	0.11215	0.11322	0.11522	0.12258	0.12350	0.12722	0.13026	0.13216	0.13576
RP7	0.10107	0.10209	0.10593	0.10438	0.10463	0.10956	0.11068	0.11191	0.11392	0.12136	0.12226	0.12609	0.12921	0.13116	0.13460
RP7a	0.10107	0.10180	0.10651	0.10498	0.10522	0.10930	0.11042	0.11166	0.11365	0.12114	0.12212	0.12588	0.12893	0.13090	0.13455
RP7a2	0.10107	0.10180	0.10640	0.10487	0.10511	0.10919	0.11031	0.11155	0.11354	0.12103	0.12201	0.12577	0.12882	0.13079	0.13444
RP7a3	0.10107	0.10180	0.10633	0.10480	0.10504	0.10912	0.11024	0.11148	0.11347	0.12096	0.12194	0.12570	0.12875	0.13072	0.13437
RP7b	0.10107	0.10181	0.10698	0.10542	0.10567	0.10972	0.11087	0.11209	0.11410	0.12159	0.12255	0.12629	0.12936	0.13133	0.13476
RP7b2	0.10107	0.10181	0.10687	0.10531	0.10556	0.10961	0.11076	0.11198	0.11399	0.12148	0.12244	0.12618	0.12925	0.13122	0.13465
RP7b3	0.10107	0.10181	0.10680	0.10524	0.10549	0.10954	0.11069	0.11191	0.11392	0.12141	0.12237	0.12611	0.12918	0.13115	0.13458
RP8	0.10107	0.10180	0.10605	0.10442	0.10473	0.10701	0.10850	0.10968	0.12131	0.13008	0.13160	0.13530	0.13857	0.14087	0.14416
RP8a	0.10107	0.10183	0.10700	0.10542	0.10567	0.10790	0.10933	0.11059	0.12191	0.12976	0.13058	0.13487	0.13742	0.13972	0.14365
RP8a2	0.10107	0.10183	0.10689	0.10531	0.10556	0.10779	0.10922	0.11048	0.12180	0.12965	0.13047	0.13476	0.13731	0.13961	0.14354
RP8a3	0.10107	0.10183	0.10682	0.10524	0.10549	0.10772	0.10915	0.11041	0.12173	0.12958	0.13040	0.13469	0.13724	0.13954	0.14347

Retail Rate Impact (cents/kWh) Medium DSM, $12/ton CO_2, High Gas															
	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
RP1	0.10107	0.10264	0.10752	0.10678	0.10746	0.11195	0.11345	0.11453	0.11685	0.12615	0.12757	0.13192	0.13565	0.13805	0.14227
RP2	0.10107	0.10263	0.10754	0.10679	0.10745	0.11192	0.11344	0.11449	0.11685	0.12615	0.12757	0.13192	0.13566	0.13797	0.14215
RP3	0.10107	0.10261	0.10753	0.10677	0.10745	0.11098	0.11251	0.11358	0.12522	0.13335	0.13443	0.13909	0.14262	0.14938	0.15338
RP4	0.10107	0.10263	0.10751	0.10677	0.10746	0.11192	0.11345	0.11451	0.11608	0.12532	0.12702	0.13143	0.13985	0.14173	0.14578
RP5	0.10107	0.10262	0.10753	0.10680	0.10745	0.11486	0.11609	0.11695	0.11910	0.12794	0.12931	0.13337	0.13693	0.13904	0.14305
RP6	0.10107	0.10268	0.10750	0.10680	0.10745	0.11406	0.11530	0.11620	0.11836	0.12724	0.12858	0.13268	0.13623	0.13835	0.14262
RP7	0.10107	0.10293	0.10744	0.10668	0.10733	0.11249	0.11389	0.11489	0.11713	0.12608	0.12739	0.13161	0.13521	0.13736	0.14141
RP7a	0.10107	0.10262	0.10792	0.10720	0.10778	0.11218	0.11359	0.11460	0.11686	0.12580	0.12722	0.13133	0.13493	0.13709	0.14144
RP7a2	0.10107	0.10262	0.10781	0.10709	0.10767	0.11207	0.11348	0.11449	0.11675	0.12569	0.12711	0.13122	0.13482	0.13698	0.14133
RP7a3	0.10107	0.10262	0.10774	0.10702	0.10760	0.11200	0.11341	0.11442	0.11668	0.12562	0.12704	0.13115	0.13475	0.13691	0.14126
RP7b	0.10107	0.10266	0.10839	0.10769	0.10824	0.11263	0.11405	0.11503	0.11727	0.12623	0.12763	0.13178	0.13534	0.13754	0.14154
RP7b2	0.10107	0.10266	0.10828	0.10758	0.10813	0.11252	0.11394	0.11492	0.11716	0.12612	0.12752	0.13167	0.13523	0.13743	0.14143
RP7b3	0.10107	0.10266	0.10821	0.10751	0.10806	0.11245	0.11387	0.11485	0.11709	0.12605	0.12745	0.13160	0.13516	0.13736	0.14136
RP8	0.10107	0.10267	0.10750	0.10679	0.10744	0.11010	0.11185	0.11290	0.12992	0.14152	0.14374	0.14868	0.15309	0.15566	0.16001
RP8a	0.10107	0.10264	0.10841	0.10766	0.10821	0.11075	0.11242	0.11344	0.12996	0.14055	0.14202	0.14749	0.15111	0.15371	0.15863
RP8a2	0.10107	0.10264	0.10830	0.10755	0.10810	0.11064	0.11231	0.11333	0.12985	0.14044	0.14191	0.14738	0.15100	0.15360	0.15852
RP8a3	0.10107	0.10264	0.10823	0.10748	0.10803	0.11057	0.11224	0.11326	0.12978	0.14037	0.14184	0.14731	0.15093	0.15353	0.15845

Retail Rate Impact (cents/kWh) Medium DSM, $35/ton CO_2, Low Gas															
	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
RP1	0.10107	0.10136	0.10589	0.10490	0.10538	0.11169	0.11489	0.11744	0.12237	0.12718	0.12918	0.13592	0.14207	0.14485	0.15130
RP2	0.10107	0.10138	0.10591	0.10491	0.10541	0.11169	0.11491	0.11747	0.12236	0.12717	0.12915	0.13595	0.14207	0.14431	0.15008
RP3	0.10107	0.10134	0.10586	0.10491	0.10539	0.11071	0.11395	0.11654	0.12489	0.12902	0.13117	0.13681	0.14133	0.14898	0.15488
RP4	0.10107	0.10137	0.10589	0.10492	0.10542	0.11171	0.11493	0.11744	0.12155	0.12638	0.12762	0.13364	0.14387	0.14674	0.15343
RP5	0.10107	0.10137	0.10591	0.10493	0.10541	0.11363	0.11650	0.11884	0.12343	0.12799	0.12995	0.13620	0.14193	0.14527	0.15207
RP6	0.10107	0.10138	0.10592	0.10491	0.10542	0.11284	0.11576	0.11814	0.12276	0.12734	0.12927	0.13558	0.14132	0.14463	0.15028
RP7	0.10107	0.10168	0.10583	0.10482	0.10532	0.11132	0.11436	0.11686	0.12151	0.12621	0.12805	0.13451	0.14032	0.14366	0.15056
RP7a	0.10107	0.10138	0.10536	0.10444	0.10492	0.11099	0.11405	0.11649	0.12119	0.12590	0.12787	0.13423	0.13999	0.14336	0.14903
RP7a2	0.10107	0.10138	0.10525	0.10433	0.10481	0.11088	0.11394	0.11638	0.12108	0.12579	0.12776	0.13412	0.13988	0.14325	0.14892
RP7a3	0.10107	0.10138	0.10518	0.10426	0.10474	0.11081	0.11387	0.11631	0.12101	0.12572	0.12769	0.13405	0.13981	0.14318	0.14885
RP7b	0.10107	0.10141	0.10579	0.10488	0.10532	0.11137	0.11446	0.11693	0.12163	0.12627	0.12829	0.13463	0.14041	0.14371	0.15061
RP7b2	0.10107	0.10141	0.10568	0.10476	0.10520	0.11125	0.11434	0.11681	0.12151	0.12615	0.12817	0.13451	0.14029	0.14359	0.15049
RP7b3	0.10107	0.10141	0.10561	0.10469	0.10513	0.11118	0.11427	0.11674	0.12144	0.12608	0.12810	0.13444	0.14022	0.14352	0.15042
RP8	0.10107	0.10138	0.10592	0.10492	0.10543	0.10969	0.11306	0.11561	0.12190	0.12720	0.12965	0.13502	0.13969	0.14275	0.14793
RP8a	0.10107	0.10137	0.10578	0.10485	0.10531	0.10943	0.11265	0.11510	0.12144	0.12612	0.12783	0.13366	0.13755	0.14056	0.14629
RP8a2	0.10107	0.10137	0.10568	0.10475	0.10521	0.10933	0.11255	0.11500	0.12134	0.12602	0.12773	0.13356	0.13745	0.14046	0.14619
RP8a3	0.10107	0.10137	0.10560	0.10467	0.10513	0.10925	0.11247	0.11492	0.12126	0.12594	0.12765	0.13348	0.13737	0.14038	0.14611

Retail Rate Impact (cents/kWh) Medium DSM, $35/ton CO_2, Medium Gas															
	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
RP1	0.10107	0.10233	0.10783	0.10755	0.10862	0.11540	0.11844	0.12126	0.12634	0.13091	0.13277	0.13990	0.14623	0.14928	0.15620
RP2	0.10107	0.10233	0.10786	0.10757	0.10862	0.11539	0.11841	0.12127	0.12632	0.13088	0.13277	0.13988	0.14620	0.14860	0.15472
RP3	0.10107	0.10232	0.10784	0.10757	0.10865	0.11441	0.11749	0.12033	0.12888	0.13286	0.13479	0.14085	0.14566	0.15339	0.15977
RP4	0.10107	0.10235	0.10788	0.10759	0.10866	0.11543	0.11846	0.12132	0.12554	0.13013	0.13135	0.13787	0.14830	0.15130	0.15852
RP5	0.10107	0.10233	0.10784	0.10756	0.10864	0.11717	0.11984	0.12242	0.12726	0.13155	0.13340	0.13998	0.14597	0.14940	0.15662
RP6	0.10107	0.10230	0.10782	0.10754	0.10864	0.11641	0.11912	0.12171	0.12657	0.13095	0.13271	0.13945	0.14531	0.14879	0.15496
RP7	0.10107	0.10262	0.10776	0.10746	0.10853	0.11486	0.11770	0.12042	0.12534	0.12975	0.13153	0.13828	0.14437	0.14781	0.15512
RP7a	0.10107	0.10230	0.10720	0.10693	0.10797	0.11454	0.11738	0.12011	0.12502	0.12949	0.13132	0.13807	0.14400	0.14753	0.15367
RP7a2	0.10107	0.10230	0.10709	0.10682	0.10786	0.11443	0.11727	0.12000	0.12491	0.12938	0.13121	0.13796	0.14389	0.14742	0.15356
RP7a3	0.10107	0.10230	0.10701	0.10674	0.10778	0.11435	0.11719	0.11992	0.12483	0.12930	0.13113	0.13788	0.14381	0.14734	0.15348
RP7b	0.10107	0.10234	0.10762	0.10735	0.10836	0.11493	0.11775	0.12048	0.12538	0.12980	0.13171	0.13840	0.14435	0.14783	0.15511
RP7b2	0.10107	0.10234	0.10751	0.10724	0.10825	0.11482	0.11764	0.12037	0.12527	0.12969	0.13160	0.13829	0.14424	0.14772	0.15500
RP7b3	0.10107	0.10234	0.10744	0.10717	0.10818	0.11475	0.11757	0.12030	0.12520	0.12962	0.13153	0.13822	0.14417	0.14765	0.15493
RP8	0.10107	0.10232	0.10785	0.10756	0.10861	0.11337	0.11652	0.11933	0.12668	0.13166	0.13386	0.13968	0.14450	0.14765	0.15332
RP8a	0.10107	0.10235	0.10766	0.10736	0.10838	0.11292	0.11592	0.11862	0.12591	0.13039	0.13185	0.13809	0.14213	0.14522	0.15139
RP8a2	0.10107	0.10235	0.10755	0.10725	0.10827	0.11281	0.11581	0.11851	0.12580	0.13028	0.13174	0.13798	0.14202	0.14511	0.15128
RP8a3	0.10107	0.10235	0.10748	0.10718	0.10820	0.11274	0.11574	0.11844	0.12573	0.13021	0.13167	0.13791	0.14195	0.14504	0.15121

Retail Rate Impact (cents/kWh) Medium DSM, $35/ton CO_2, High Gas															
	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
RP1	0.10107	0.10368	0.11063	0.11127	0.11353	0.12143	0.12566	0.12850	0.13420	0.13925	0.14212	0.15010	0.15739	0.16128	0.16937
RP2	0.10107	0.10366	0.11063	0.11127	0.11352	0.12143	0.12566	0.12849	0.13419	0.13930	0.14204	0.15010	0.15739	0.16042	0.16740
RP3	0.10107	0.10370	0.11065	0.11127	0.11354	0.12052	0.12474	0.12760	0.13733	0.14196	0.14462	0.15195	0.15801	0.16622	0.17365
RP4	0.10107	0.10369	0.11065	0.11130	0.11355	0.12147	0.12569	0.12855	0.13339	0.13833	0.14097	0.14861	0.16019	0.16386	0.17224
RP5	0.10107	0.10371	0.11065	0.11130	0.11354	0.12303	0.12680	0.12941	0.13474	0.13957	0.14224	0.14985	0.15680	0.16074	0.16892
RP6	0.10107	0.10370	0.11064	0.11128	0.11356	0.12228	0.12606	0.12872	0.13406	0.13888	0.14153	0.14923	0.15617	0.16021	0.16769
RP7	0.10107	0.10397	0.11054	0.11118	0.11340	0.12070	0.12467	0.12739	0.13284	0.13779	0.14045	0.14813	0.15519	0.15922	0.16734
RP7a	0.10107	0.10371	0.10993	0.11051	0.11267	0.12039	0.12436	0.12710	0.13253	0.13755	0.14014	0.14786	0.15488	0.15888	0.16648
RP7a2	0.10107	0.10371	0.10982	0.11040	0.11256	0.12028	0.12425	0.12699	0.13242	0.13744	0.14003	0.14775	0.15477	0.15877	0.16637
RP7a3	0.10107	0.10371	0.10974	0.11032	0.11248	0.12020	0.12417	0.12691	0.13234	0.13736	0.13995	0.14767	0.15469	0.15869	0.16629
RP7b	0.10107	0.10367	0.11030	0.11089	0.11303	0.12079	0.12472	0.12749	0.13292	0.13789	0.14060	0.14821	0.15517	0.15918	0.16740
RP7b2	0.10107	0.10367	0.11019	0.11078	0.11292	0.12068	0.12461	0.12738	0.13281	0.13778	0.14049	0.14810	0.15506	0.15907	0.16729
RP7b3	0.10107	0.10367	0.11012	0.11071	0.11285	0.12061	0.12454	0.12731	0.13274	0.13771	0.14042	0.14803	0.15499	0.15900	0.16722
RP8	0.10107	0.10365	0.11063	0.11128	0.11355	0.11947	0.12368	0.12654	0.13680	0.14314	0.14599	0.15306	0.15907	0.16253	0.16932
RP8a	0.10107	0.10372	0.11033	0.11091	0.11305	0.11877	0.12283	0.12554	0.13563	0.14121	0.14335	0.15080	0.15600	0.15944	0.16664
RP8a2	0.10107	0.10372	0.11023	0.11081	0.11295	0.11867	0.12273	0.12544	0.13553	0.14111	0.14325	0.15070	0.15590	0.15934	0.16654
RP8a3	0.10107	0.10372	0.11015	0.11073	0.11287	0.11859	0.12265	0.12536	0.13545	0.14103	0.14317	0.15062	0.15582	0.15926	0.16646

Retail Rate Impact (cents/kWh) High DSM, $0/ton CO_2, Low Gas															
	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
RP1	0.10107	0.10148	0.10450	0.10212	0.10183	0.10554	0.10694	0.10801	0.11007	0.11176	0.11231	0.11505	0.11719	0.11841	0.12041
RP2	0.10107	0.10146	0.10448	0.10210	0.10181	0.10552	0.10695	0.10799	0.11006	0.11174	0.11228	0.11504	0.11712	0.11839	0.12033
RP3	0.10107	0.10149	0.10448	0.10213	0.10183	0.10456	0.10601	0.10709	0.11531	0.11695	0.11735	0.11982	0.12150	0.12265	0.12448
RP4	0.10107	0.10144	0.10448	0.10212	0.10182	0.10552	0.10696	0.10800	0.10929	0.11092	0.11145	0.11419	0.11630	0.11752	0.11959
RP5	0.10107	0.10146	0.10450	0.10211	0.10183	0.10870	0.10985	0.11081	0.11270	0.11430	0.11476	0.11733	0.11936	0.12052	0.12242
RP6	0.10107	0.10150	0.10448	0.10211	0.10182	0.10788	0.10909	0.11005	0.11194	0.11355	0.11403	0.11662	0.11864	0.11983	0.12169
RP7	0.10107	0.10146	0.10447	0.10210	0.10181	0.10647	0.10778	0.10882	0.11081	0.11246	0.11299	0.11561	0.11768	0.11888	0.12080
RP7a	0.10107	0.10150	0.10499	0.10264	0.10236	0.10600	0.10735	0.10843	0.11041	0.11211	0.11266	0.11527	0.11732	0.11855	0.12047
RP7a2	0.10107	0.10150	0.10489	0.10254	0.10226	0.10590	0.10725	0.10833	0.11031	0.11201	0.11256	0.11517	0.11722	0.11845	0.12037
RP7a3	0.10107	0.10150	0.10481	0.10246	0.10218	0.10582	0.10717	0.10825	0.11023	0.11193	0.11248	0.11509	0.11714	0.11837	0.12029
RP7b	0.10107	0.10146	0.10542	0.10308	0.10279	0.10644	0.10779	0.10889	0.11087	0.11256	0.11309	0.11574	0.11779	0.11900	0.12094
RP7b2	0.10107	0.10146	0.10531	0.10297	0.10268	0.10633	0.10768	0.10878	0.11076	0.11245	0.11298	0.11563	0.11768	0.11889	0.12083
RP7b3	0.10107	0.10146	0.10524	0.10290	0.10261	0.10626	0.10761	0.10871	0.11069	0.11238	0.11291	0.11556	0.11761	0.11882	0.12076
RP8	0.10107	0.10147	0.10450	0.10213	0.10185	0.10367	0.10541	0.10650	0.11683	0.12044	0.12121	0.12404	0.12607	0.12793	0.13004
RP8a	0.10107	0.10150	0.10539	0.10305	0.10277	0.10454	0.10624	0.10737	0.11758	0.12119	0.12194	0.12468	0.12666	0.12850	0.13059
RP8a2	0.10107	0.10150	0.10528	0.10294	0.10266	0.10443	0.10613	0.10726	0.11747	0.12108	0.12183	0.12457	0.12655	0.12839	0.13048
RP8a3	0.10107	0.10150	0.10521	0.10287	0.10259	0.10436	0.10606	0.10719	0.11740	0.12101	0.12176	0.12450	0.12648	0.12832	0.13041

Retail Rate Impact (cents/kWh) High DSM, $0/ton CO_2, Medium Gas															
	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
RP1	0.10107	0.10208	0.10589	0.10416	0.10441	0.10843	0.10953	0.11069	0.11270	0.11412	0.11455	0.11744	0.11953	0.12081	0.12282
RP2	0.10107	0.10205	0.10588	0.10413	0.10440	0.10843	0.10953	0.11069	0.11269	0.11418	0.11455	0.11740	0.11949	0.12081	0.12282
RP3	0.10107	0.10207	0.10590	0.10415	0.10442	0.10745	0.10860	0.10977	0.11852	0.12002	0.12018	0.12298	0.12476	0.12604	0.12815
RP4	0.10107	0.10209	0.10590	0.10424	0.10443	0.10843	0.10955	0.11071	0.11188	0.11336	0.11373	0.11652	0.11867	0.12001	0.12217
RP5	0.10107	0.10210	0.10590	0.10415	0.10442	0.11156	0.11240	0.11348	0.11531	0.11671	0.11699	0.11969	0.12161	0.12284	0.12482
RP6	0.10107	0.10208	0.10587	0.10421	0.10439	0.11069	0.11162	0.11267	0.11455	0.11596	0.11628	0.11898	0.12091	0.12215	0.12412
RP7	0.10107	0.10208	0.10590	0.10415	0.10441	0.10931	0.11038	0.11152	0.11344	0.11491	0.11524	0.11800	0.11996	0.12124	0.12323
RP7a	0.10107	0.10205	0.10634	0.10469	0.10486	0.10882	0.10991	0.11108	0.11300	0.11451	0.11488	0.11760	0.11963	0.12090	0.12292
RP7a2	0.10107	0.10205	0.10623	0.10458	0.10475	0.10871	0.10980	0.11097	0.11289	0.11440	0.11477	0.11749	0.11952	0.12079	0.12281
RP7a3	0.10107	0.10205	0.10616	0.10451	0.10468	0.10864	0.10973	0.11090	0.11282	0.11433	0.11470	0.11742	0.11945	0.12072	0.12274
RP7b	0.10107	0.10208	0.10678	0.10513	0.10529	0.10924	0.11033	0.11152	0.11344	0.11492	0.11525	0.11806	0.12005	0.12131	0.12336
RP7b2	0.10107	0.10208	0.10667	0.10502	0.10518	0.10913	0.11022	0.11141	0.11333	0.11481	0.11514	0.11795	0.11994	0.12120	0.12325
RP7b3	0.10107	0.10208	0.10659	0.10494	0.10511	0.10906	0.11015	0.11134	0.11326	0.11474	0.11507	0.11788	0.11987	0.12113	0.12318
RP8	0.10107	0.10206	0.10586	0.10414	0.10440	0.10654	0.10801	0.10921	0.12073	0.12479	0.12532	0.12855	0.13073	0.13273	0.13529
RP8a	0.10107	0.10207	0.10676	0.10512	0.10530	0.10741	0.10875	0.10996	0.12128	0.12538	0.12586	0.12897	0.13116	0.13308	0.13563
RP8a2	0.10107	0.10207	0.10665	0.10501	0.10519	0.10730	0.10864	0.10985	0.12117	0.12527	0.12575	0.12886	0.13105	0.13297	0.13552
RP8a3	0.10107	0.10207	0.10658	0.10494	0.10512	0.10723	0.10857	0.10978	0.12110	0.12520	0.12568	0.12879	0.13098	0.13290	0.13545

Retail Rate Impact (cents/kWh) High DSM, $0/ton CO_2, High Gas															
	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
RP1	0.10107	0.10292	0.10735	0.10647	0.10708	0.11145	0.11284	0.11380	0.11605	0.11768	0.11832	0.12168	0.12441	0.12567	0.12844
RP2	0.10107	0.10293	0.10733	0.10648	0.10708	0.11145	0.11286	0.11380	0.11603	0.11766	0.11832	0.12167	0.12441	0.12569	0.12844
RP3	0.10107	0.10293	0.10737	0.10650	0.10712	0.11047	0.11191	0.11289	0.12455	0.12651	0.12700	0.13070	0.13331	0.13482	0.13793
RP4	0.09775	0.09960	0.10403	0.10319	0.10376	0.10815	0.10956	0.11052	0.11198	0.11356	0.11422	0.11755	0.12030	0.12169	0.12465
RP5	0.10107	0.10287	0.10736	0.10649	0.10707	0.11438	0.11550	0.11626	0.11832	0.11978	0.12029	0.12347	0.12597	0.12715	0.12982
RP6	0.10107	0.10289	0.10732	0.10649	0.10708	0.11360	0.11474	0.11553	0.11763	0.11909	0.11963	0.12281	0.12531	0.12654	0.12924
RP7	0.10107	0.10291	0.10738	0.10651	0.10707	0.11217	0.11346	0.11433	0.11648	0.11799	0.11860	0.12180	0.12434	0.12560	0.12828
RP7a	0.10107	0.10291	0.10775	0.10692	0.10744	0.11171	0.11300	0.11390	0.11606	0.11762	0.11824	0.12144	0.12400	0.12523	0.12800
RP7a2	0.10107	0.10291	0.10765	0.10682	0.10734	0.11161	0.11290	0.11380	0.11596	0.11752	0.11814	0.12134	0.12390	0.12513	0.12790
RP7a3	0.10107	0.10291	0.10757	0.10674	0.10726	0.11153	0.11282	0.11372	0.11588	0.11744	0.11806	0.12126	0.12382	0.12505	0.12782
RP7b	0.10107	0.10290	0.10821	0.10741	0.10789	0.11215	0.11345	0.11434	0.11650	0.11806	0.11868	0.12187	0.12442	0.12568	0.12838
RP7b2	0.10107	0.10290	0.10810	0.10730	0.10778	0.11204	0.11334	0.11423	0.11639	0.11795	0.11857	0.12176	0.12431	0.12557	0.12827
RP7b3	0.10107	0.10290	0.10803	0.10722	0.10770	0.11196	0.11326	0.11415	0.11631	0.11787	0.11849	0.12168	0.12423	0.12549	0.12819
RP8	0.10107	0.10293	0.10734	0.10650	0.10708	0.10955	0.11123	0.11220	0.12915	0.13604	0.13723	0.14170	0.14499	0.14729	0.15089
RP8a	0.10107	0.10289	0.10824	0.10742	0.10786	0.11027	0.11185	0.11276	0.12924	0.13600	0.13713	0.14144	0.14462	0.14693	0.15048
RP8a2	0.10107	0.10289	0.10813	0.10731	0.10775	0.11016	0.11174	0.11265	0.12913	0.13589	0.13702	0.14133	0.14451	0.14682	0.15037
RP8a3	0.10107	0.10289	0.10806	0.10724	0.10768	0.11009	0.11167	0.11258	0.12906	0.13582	0.13695	0.14126	0.14444	0.14675	0.15030

Retail Rate Impact (cents/kWh) High DSM, $12/ton CO_2, Low Gas															
	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
RP1	0.10107	0.10149	0.10447	0.10212	0.10183	0.10551	0.10698	0.10800	0.11008	0.11757	0.11848	0.12218	0.12536	0.12727	0.13059
RP2	0.10107	0.10147	0.10448	0.10212	0.10182	0.10551	0.10692	0.10798	0.11007	0.11751	0.11846	0.12213	0.12532	0.12722	0.13051
RP3	0.10107	0.10149	0.10449	0.10213	0.10183	0.10455	0.10600	0.10708	0.11530	0.12208	0.12290	0.12618	0.12875	0.13048	0.13341
RP4	0.10107	0.10144	0.10448	0.10212	0.10182	0.10552	0.10696	0.10800	0.10929	0.11669	0.11760	0.12123	0.12446	0.12626	0.12955
RP5	0.10107	0.10146	0.10450	0.10211	0.10182	0.10869	0.10985	0.11081	0.11268	0.11976	0.12067	0.12398	0.12703	0.12885	0.13199
RP6	0.10107	0.10150	0.10450	0.10212	0.10183	0.10788	0.10908	0.11005	0.11195	0.11904	0.11992	0.12331	0.12636	0.12815	0.13143
RP7	0.10107	0.10148	0.10447	0.10212	0.10184	0.10648	0.10780	0.10884	0.11081	0.11796	0.11891	0.12228	0.12537	0.12721	0.13052
RP7a	0.10107	0.10150	0.10499	0.10264	0.10235	0.10599	0.10736	0.10843	0.11041	0.11758	0.11857	0.12196	0.12502	0.12688	0.13012
RP7a2	0.10107	0.10150	0.10489	0.10254	0.10225	0.10589	0.10726	0.10833	0.11031	0.11748	0.11847	0.12186	0.12492	0.12678	0.13002
RP7a3	0.10107	0.10150	0.10481	0.10246	0.10217	0.10581	0.10718	0.10825	0.11023	0.11740	0.11839	0.12178	0.12484	0.12670	0.12994
RP7b	0.10107	0.10146	0.10542	0.10308	0.10280	0.10643	0.10780	0.10888	0.11086	0.11802	0.11898	0.12239	0.12545	0.12732	0.13054
RP7b2	0.10107	0.10146	0.10531	0.10297	0.10269	0.10632	0.10769	0.10877	0.11075	0.11791	0.11887	0.12228	0.12534	0.12721	0.13043
RP7b3	0.10107	0.10146	0.10524	0.10290	0.10262	0.10625	0.10762	0.10870	0.11068	0.11784	0.11880	0.12221	0.12527	0.12714	0.13036
RP8	0.10107	0.10147	0.10450	0.10213	0.10184	0.10368	0.10543	0.10651	0.11684	0.12431	0.12531	0.12875	0.13125	0.13347	0.13632
RP8a	0.10107	0.10150	0.10539	0.10305	0.10277	0.10454	0.10624	0.10737	0.11758	0.12486	0.12582	0.12913	0.13162	0.13378	0.13659
RP8a2	0.10107	0.10150	0.10528	0.10294	0.10266	0.10443	0.10613	0.10726	0.11747	0.12475	0.12571	0.12902	0.13151	0.13367	0.13648
RP8a3	0.10107	0.10150	0.10521	0.10287	0.10259	0.10436	0.10606	0.10719	0.11740	0.12468	0.12564	0.12895	0.13144	0.13360	0.13641

Retail Rate Impact (cents/kWh) High DSM, $12/ton CO_2, Medium Gas															
	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
RP1	0.10107	0.10208	0.10589	0.10416	0.10441	0.10843	0.10953	0.11069	0.11270	0.12040	0.12132	0.12532	0.12853	0.13058	0.13410
RP2	0.10107	0.10208	0.10591	0.10415	0.10443	0.10844	0.10955	0.11070	0.11268	0.12040	0.12131	0.12528	0.12854	0.13056	0.13411
RP3	0.10107	0.10208	0.10589	0.10416	0.10441	0.10746	0.10859	0.10978	0.11851	0.12534	0.12606	0.12968	0.13236	0.13431	0.13752
RP4	0.10107	0.10209	0.10590	0.10424	0.10443	0.10843	0.10955	0.11071	0.11188	0.11956	0.12046	0.12441	0.12766	0.12968	0.13332
RP5	0.10107	0.10210	0.10590	0.10416	0.10442	0.11154	0.11241	0.11347	0.11532	0.12253	0.12339	0.12708	0.13019	0.13210	0.13548
RP6	0.10107	0.10205	0.10588	0.10422	0.10438	0.11066	0.11162	0.11270	0.11456	0.12179	0.12260	0.12634	0.12948	0.13140	0.13480
RP7	0.10107	0.10210	0.10588	0.10416	0.10443	0.10932	0.11035	0.11150	0.11343	0.12076	0.12160	0.12540	0.12854	0.13048	0.13392
RP7a	0.10107	0.10208	0.10635	0.10471	0.10487	0.10883	0.10990	0.11109	0.11305	0.12039	0.12123	0.12504	0.12818	0.13015	0.13360
RP7a2	0.10107	0.10208	0.10624	0.10460	0.10476	0.10872	0.10979	0.11098	0.11294	0.12028	0.12112	0.12493	0.12807	0.13004	0.13349
RP7a3	0.10107	0.10208	0.10617	0.10453	0.10469	0.10865	0.10972	0.11091	0.11287	0.12021	0.12105	0.12486	0.12800	0.12997	0.13342
RP7b	0.10107	0.10206	0.10677	0.10512	0.10528	0.10923	0.11033	0.11151	0.11343	0.12076	0.12164	0.12546	0.12857	0.13053	0.13398
RP7b2	0.10107	0.10206	0.10666	0.10501	0.10517	0.10912	0.11022	0.11140	0.11332	0.12065	0.12153	0.12535	0.12846	0.13042	0.13387
RP7b3	0.10107	0.10206	0.10659	0.10494	0.10510	0.10905	0.11015	0.11133	0.11325	0.12058	0.12146	0.12528	0.12839	0.13035	0.13380
RP8	0.10107	0.10205	0.10587	0.10420	0.10437	0.10654	0.10795	0.10913	0.12071	0.12860	0.12938	0.13319	0.13589	0.13822	0.14157
RP8a	0.10107	0.10207	0.10676	0.10512	0.10530	0.10741	0.10875	0.10996	0.12128	0.12897	0.12971	0.13342	0.13606	0.13836	0.14160
RP8a2	0.10107	0.10207	0.10665	0.10501	0.10519	0.10730	0.10864	0.10985	0.12117	0.12886	0.12960	0.13331	0.13595	0.13825	0.14149
RP8a3	0.10107	0.10207	0.10658	0.10494	0.10512	0.10723	0.10857	0.10978	0.12110	0.12879	0.12953	0.13324	0.13588	0.13818	0.14142

Retail Rate Impact (cents/kWh) High DSM, $12/ton CO_2, High Gas															
	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
RP1	0.10107	0.10293	0.10736	0.10651	0.10711	0.11144	0.11285	0.11380	0.11604	0.12521	0.12656	0.13098	0.13471	0.13696	0.14108
RP2	0.10107	0.10292	0.10737	0.10649	0.10708	0.11144	0.11284	0.11380	0.11602	0.12519	0.12655	0.13096	0.13469	0.13691	0.14104
RP3	0.10107	0.10293	0.10736	0.10651	0.10711	0.11046	0.11190	0.11288	0.12453	0.13246	0.13348	0.13809	0.14150	0.14380	0.14792
RP4	0.10107	0.10292	0.10733	0.10650	0.10708	0.11144	0.11284	0.11380	0.11527	0.12440	0.12574	0.13008	0.13381	0.13613	0.14044
RP5	0.10107	0.10287	0.10733	0.10648	0.10706	0.11439	0.11551	0.11625	0.11832	0.12701	0.12829	0.13246	0.13599	0.13808	0.14217
RP6	0.10107	0.10288	0.10734	0.10648	0.10709	0.11359	0.11472	0.11551	0.11761	0.12634	0.12762	0.13183	0.13532	0.13747	0.14148
RP7	0.10107	0.10291	0.10738	0.10650	0.10708	0.11219	0.11344	0.11432	0.11649	0.12527	0.12659	0.13082	0.13437	0.13653	0.14055
RP7a	0.10107	0.10290	0.10774	0.10692	0.10744	0.11169	0.11302	0.11391	0.11605	0.12487	0.12620	0.13046	0.13400	0.13615	0.14025
RP7a2	0.10107	0.10290	0.10763	0.10681	0.10733	0.11158	0.11291	0.11380	0.11594	0.12476	0.12609	0.13035	0.13389	0.13604	0.14014
RP7a3	0.10107	0.10287	0.10799	0.10713	0.10763	0.11190	0.11319	0.11409	0.11625	0.12506	0.12644	0.13068	0.13424	0.13644	0.14048
RP7b	0.10107	0.10290	0.10823	0.10737	0.10787	0.11214	0.11343	0.11433	0.11648	0.12529	0.12667	0.13088	0.13441	0.13661	0.14065
RP7b2	0.10107	0.10290	0.10812	0.10726	0.10776	0.11203	0.11332	0.11422	0.11638	0.12519	0.12657	0.13078	0.13431	0.13651	0.14055
RP7b3	0.10107	0.10290	0.10805	0.10719	0.10769	0.11196	0.11325	0.11415	0.11631	0.12512	0.12650	0.13071	0.13424	0.13644	0.14048
RP8	0.10107	0.10291	0.10734	0.10649	0.10707	0.10955	0.11124	0.11220	0.12914	0.13991	0.14133	0.14640	0.15020	0.15287	0.15725
RP8a	0.10107	0.10292	0.10823	0.10736	0.10788	0.11026	0.11187	0.11276	0.12925	0.13965	0.14102	0.14590	0.14959	0.15224	0.15649
RP8a2	0.10107	0.10292	0.10812	0.10725	0.10777	0.11015	0.11176	0.11265	0.12914	0.13954	0.14091	0.14579	0.14948	0.15213	0.15638
RP8a3	0.10107	0.10292	0.10804	0.10717	0.10769	0.11007	0.11168	0.11257	0.12906	0.13946	0.14083	0.14571	0.14940	0.15205	0.15630

Retail Rate Impact (cents/kWh) High DSM, $35/ton CO_2, Low Gas															
	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
RP1	0.10107	0.10168	0.10564	0.10449	0.10481	0.11088	0.11395	0.11632	0.12100	0.12557	0.12757	0.13427	0.14035	0.14374	0.15095
RP2	0.10107	0.10166	0.10565	0.10450	0.10484	0.11089	0.11396	0.11633	0.12101	0.12555	0.12755	0.13428	0.14036	0.14381	0.15092
RP3	0.10107	0.10165	0.10566	0.10450	0.10482	0.10990	0.11299	0.11538	0.12385	0.12780	0.12982	0.13577	0.14069	0.14396	0.15007
RP4	0.10107	0.10162	0.10563	0.10448	0.10480	0.11086	0.11390	0.11631	0.12012	0.12472	0.12664	0.13339	0.13952	0.14215	0.14860
RP5	0.10107	0.10164	0.10565	0.10448	0.10482	0.11287	0.11556	0.11775	0.12211	0.12648	0.12839	0.13456	0.14037	0.14362	0.15039
RP6	0.10107	0.10165	0.10564	0.10447	0.10483	0.11209	0.11482	0.11702	0.12142	0.12586	0.12777	0.13390	0.13973	0.14299	0.14983
RP7	0.10107	0.10165	0.10565	0.10449	0.10482	0.11068	0.11355	0.11582	0.12030	0.12475	0.12672	0.13294	0.13881	0.14206	0.14892
RP7a	0.10107	0.10165	0.10512	0.10404	0.10435	0.11021	0.11309	0.11539	0.11990	0.12434	0.12633	0.13257	0.13844	0.14170	0.14851
RP7a2	0.10107	0.10165	0.10501	0.10392	0.10423	0.11009	0.11297	0.11527	0.11979	0.12423	0.12622	0.13246	0.13833	0.14159	0.14840
RP7a3	0.10107	0.10165	0.10494	0.10385	0.10416	0.11002	0.11290	0.11520	0.11972	0.12416	0.12615	0.13239	0.13826	0.14152	0.14833
RP7b	0.10107	0.10165	0.10554	0.10443	0.10474	0.11060	0.11350	0.11581	0.12027	0.12475	0.12674	0.13292	0.13876	0.14208	0.14889
RP7b2	0.10107	0.10165	0.10543	0.10432	0.10463	0.11049	0.11339	0.11570	0.12017	0.12465	0.12664	0.13282	0.13866	0.14198	0.14879
RP7b3	0.10107	0.10165	0.10536	0.10425	0.10456	0.11042	0.11332	0.11563	0.12010	0.12458	0.12657	0.13275	0.13859	0.14191	0.14872
RP8	0.10107	0.10167	0.10565	0.10453	0.10483	0.10888	0.11207	0.11447	0.12075	0.12528	0.12693	0.13242	0.13651	0.13957	0.14481
RP8a	0.10107	0.10167	0.10553	0.10444	0.10475	0.10865	0.11169	0.11397	0.12029	0.12489	0.12648	0.13173	0.13568	0.13870	0.14372
RP8a2	0.10107	0.10167	0.10542	0.10433	0.10464	0.10854	0.11158	0.11386	0.12018	0.12478	0.12637	0.13162	0.13557	0.13859	0.14361
RP8a3	0.10107	0.10167	0.10535	0.10426	0.10457	0.10847	0.11151	0.11379	0.12011	0.12471	0.12630	0.13155	0.13550	0.13852	0.14354

Retail Rate Impact (cents/kWh) High DSM, $35/ton CO_2, Medium Gas															
	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
RP1	0.10107	0.10261	0.10759	0.10710	0.10802	0.11454	0.11742	0.12007	0.12492	0.12920	0.13110	0.13810	0.14446	0.14808	0.15559
RP2	0.10107	0.10263	0.10760	0.10712	0.10804	0.11455	0.11743	0.12007	0.12494	0.12923	0.13109	0.13814	0.14446	0.14810	0.15565
RP3	0.10107	0.10257	0.10756	0.10708	0.10801	0.11355	0.11645	0.11913	0.12776	0.13151	0.13337	0.13973	0.14487	0.14826	0.15484
RP4	0.10107	0.10259	0.10757	0.10710	0.10799	0.11452	0.11739	0.12005	0.12407	0.12837	0.13021	0.13729	0.14365	0.14649	0.15340
RP5	0.10107	0.10260	0.10758	0.10712	0.10802	0.11641	0.11889	0.12129	0.12587	0.13002	0.13179	0.13841	0.14441	0.14767	0.15490
RP6	0.10107	0.10262	0.10757	0.10710	0.10803	0.11566	0.11813	0.12057	0.12519	0.12937	0.13114	0.13780	0.14378	0.14709	0.15438
RP7	0.10107	0.10260	0.10759	0.10708	0.10801	0.11423	0.11684	0.11937	0.12406	0.12828	0.13007	0.13681	0.14281	0.14615	0.15341
RP7a	0.10107	0.10260	0.10698	0.10653	0.10739	0.11377	0.11639	0.11896	0.12366	0.12788	0.12972	0.13645	0.14247	0.14581	0.15310
RP7a2	0.10107	0.10260	0.10687	0.10642	0.10728	0.11366	0.11628	0.11885	0.12355	0.12777	0.12961	0.13634	0.14236	0.14570	0.15299
RP7a3	0.10107	0.10260	0.10680	0.10635	0.10721	0.11359	0.11621	0.11878	0.12348	0.12770	0.12954	0.13627	0.14229	0.14563	0.15292
RP7b	0.10107	0.10263	0.10742	0.10692	0.10776	0.11414	0.11680	0.11933	0.12406	0.12825	0.13012	0.13677	0.14274	0.14618	0.15340
RP7b2	0.10107	0.10263	0.10731	0.10681	0.10765	0.11403	0.11669	0.11922	0.12395	0.12814	0.13001	0.13666	0.14263	0.14607	0.15329
RP7b3	0.10107	0.10263	0.10724	0.10674	0.10758	0.11396	0.11662	0.11915	0.12388	0.12807	0.12994	0.13659	0.14256	0.14600	0.15322
RP8	0.10107	0.10260	0.10762	0.10710	0.10800	0.11250	0.11547	0.11810	0.12537	0.12964	0.13106	0.13698	0.14126	0.14443	0.15013
RP8a	0.10107	0.10261	0.10741	0.10692	0.10778	0.11214	0.11490	0.11748	0.12471	0.12906	0.13045	0.13606	0.14019	0.14332	0.14884
RP8a2	0.10107	0.10261	0.10730	0.10681	0.10767	0.11203	0.11479	0.11737	0.12460	0.12895	0.13034	0.13595	0.14008	0.14321	0.14873
RP8a3	0.10107	0.10261	0.10723	0.10674	0.10760	0.11196	0.11472	0.11730	0.12453	0.12888	0.13027	0.13588	0.14001	0.14314	0.14866

Retail Rate Impact (cents/kWh) High DSM, $35/ton CO_2, High Gas															
	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
RP1	0.10107	0.10398	0.11042	0.11087	0.11294	0.12064	0.12463	0.12729	0.13275	0.13755	0.14024	0.14833	0.15566	0.15981	0.16830
RP2	0.10107	0.10397	0.11038	0.11085	0.11291	0.12062	0.12461	0.12726	0.13268	0.13756	0.14021	0.14837	0.15563	0.15977	0.16828
RP3	0.10107	0.10398	0.11042	0.11087	0.11288	0.11965	0.12365	0.12637	0.13611	0.14045	0.14296	0.15053	0.15679	0.16071	0.16828
RP4	0.10107	0.10396	0.11039	0.11089	0.11292	0.12063	0.12461	0.12727	0.13193	0.13662	0.13933	0.14745	0.15468	0.15845	0.16656
RP5	0.10107	0.10399	0.11040	0.11084	0.11290	0.12228	0.12584	0.12824	0.13337	0.13794	0.14048	0.14821	0.15498	0.15894	0.16708
RP6	0.10107	0.10397	0.11039	0.11085	0.11292	0.12147	0.12510	0.12747	0.13267	0.13727	0.13983	0.14753	0.15438	0.15835	0.16656
RP7	0.10107	0.10403	0.11043	0.11088	0.11292	0.12011	0.12384	0.12631	0.13153	0.13626	0.13883	0.14655	0.15348	0.15745	0.16566
RP7a	0.10107	0.10397	0.10972	0.11006	0.11204	0.11957	0.12334	0.12584	0.13112	0.13584	0.13846	0.14612	0.15308	0.15705	0.16529
RP7a2	0.10107	0.10397	0.10961	0.10995	0.11193	0.11946	0.12323	0.12573	0.13101	0.13573	0.13835	0.14601	0.15297	0.15694	0.16518
RP7a3	0.10107	0.10397	0.10953	0.10987	0.11185	0.11938	0.12315	0.12565	0.13093	0.13565	0.13827	0.14593	0.15289	0.15686	0.16510
RP7b	0.10107	0.10401	0.11004	0.11046	0.11241	0.11998	0.12376	0.12631	0.13152	0.13617	0.13880	0.14650	0.15344	0.15741	0.16560
RP7b2	0.10107	0.10401	0.10993	0.11035	0.11230	0.11987	0.12365	0.12620	0.13141	0.13606	0.13869	0.14639	0.15333	0.15730	0.16549
RP7b3	0.10107	0.10401	0.10986	0.11028	0.11223	0.11980	0.12358	0.12613	0.13134	0.13599	0.13862	0.14632	0.15326	0.15723	0.16542
RP8	0.10107	0.10401	0.11041	0.11085	0.11292	0.11858	0.12263	0.12531	0.13548	0.14086	0.14301	0.15017	0.15558	0.15910	0.16593
RP8a	0.10107	0.10393	0.11001	0.11042	0.11240	0.11790	0.12177	0.12433	0.13423	0.13958	0.14159	0.14843	0.15370	0.15717	0.16374
RP8a2	0.10107	0.10393	0.10990	0.11031	0.11229	0.11779	0.12166	0.12422	0.13412	0.13947	0.14148	0.14832	0.15359	0.15706	0.16363
RP8a3	0.10107	0.10393	0.10983	0.11024	0.11222	0.11772	0.12159	0.12415	0.13405	0.13940	0.14141	0.14825	0.15352	0.15699	0.16356

Appendix L:
Cumulative CO_2 Emissions in the Low, Medium and High DSM Scenarios

2021-2050 Cumulative CO_2 Emissions in the Low DSM Scenario (M tons)									
RP ID	$0/ton CO_2			$12/ton CO_2			$35/ton CO_2		
	Low Gas	Medium Gas	High Gas	Low Gas	Medium Gas	High Gas	Low Gas	Medium Gas	High Gas
RP1	362	396	433	334	348	425	315	316	325
RP2	371	404	435	340	357	428	321	322	332
RP3	344	363	383	321	333	381	306	307	313
RP4	366	401	434	335	352	425	316	317	327
RP5	350	385	423	324	338	415	306	307	315
RP6	358	391	425	328	344	417	310	310	320
RP7	358	391	425	330	346	417	311	312	321
RP7a	356	389	424	326	342	415	308	309	318
RP7a2	356	389	424	326	342	415	308	309	318
RP7a3	356	389	424	326	342	415	308	309	318
RP7b	357	389	424	328	344	416	310	310	320
RP7b2	357	389	424	328	344	416	310	310	320
RP7b3	357	389	424	328	344	416	310	310	320
RP8	268	271	286	265	270	285	254	254	257
RP8a	256	260	275	254	259	274	244	244	246
RP8a2	256	260	275	254	259	274	244	244	246
RP8a3	256	260	275	254	259	274	244	244	246

2021-2050 Cumulative CO_2 Emissions in the Medium DSM Scenario (M tons)									
RP ID	$0/ton CO_2			$12/ton CO_2			$35/ton CO_2		
	Low Gas	Medium Gas	High Gas	Low Gas	Medium Gas	High Gas	Low Gas	Medium Gas	High Gas
RP1	361	396	432	333	348	424	314	315	324
RP2	370	402	434	340	357	427	320	321	331
RP3	343	362	382	320	332	379	305	306	312
RP4	366	400	433	335	352	425	316	317	327
RP5	349	384	422	323	337	413	305	306	314
RP6	356	389	424	327	343	415	309	309	319
RP7	357	389	424	328	344	416	310	311	320
RP7a	354	387	422	325	341	414	307	308	317
RP7a2	354	387	422	325	341	414	307	308	317
RP7a3	354	387	422	325	341	414	307	308	317
RP7b	354	387	422	326	342	414	308	309	319
RP7b2	354	387	422	326	342	414	308	309	319
RP7b3	354	387	422	326	342	414	308	309	319
RP8	266	270	284	264	269	284	253	253	256
RP8a	255	258	274	252	257	273	242	243	245
RP8a2	255	258	274	252	257	273	242	243	245
RP8a3	255	258	274	252	257	273	242	243	245

2021-2050 Cumulative CO_2 Emissions in the High DSM Scenario (M tons)									
RP ID	**$0/ton CO_2**			**$12/ton CO_2**			**$35/ton CO_2**		
	Low Gas	Medium Gas	High Gas	Low Gas	Medium Gas	High Gas	Low Gas	Medium Gas	High Gas
RP1	358	391	427	331	346	420	312	313	322
RP2	364	396	429	336	352	422	317	317	327
RP3	338	357	377	315	327	375	301	301	308
RP4	361	394	428	331	348	421	313	314	324
RP5	347	380	417	320	334	409	303	303	312
RP6	350	382	419	322	337	411	305	306	314
RP7	351	383	419	324	339	411	306	307	315
RP7a	348	381	417	321	336	409	303	304	313
RP7a2	348	381	417	321	336	409	303	304	313
RP7a3	348	381	417	321	336	409	303	304	313
RP7b	349	381	418	321	336	410	304	305	313
RP7b2	349	381	418	321	336	410	304	305	313
RP7b3	349	381	418	321	336	410	304	305	313
RP8	261	264	279	258	263	279	248	248	250
RP8a	249	253	268	247	252	268	237	237	239
RP8a2	249	253	268	247	252	268	237	237	239
RP8a3	249	253	268	247	252	268	237	237	239

Actions Speak Louder

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