

August 29, 2022

Will Seuffert
Executive Secretary
Minnesota Public Utilities Commission
121 7th Place East, Suite 350
St. Paul, Minnesota 55101-2147

RE: **Reply Comments of the Minnesota Department of Commerce, Division of Energy Resources**
Docket No. E015/RP-21-33

Dear Mr. Seuffert:

Attached are the comments of the Minnesota Department of Commerce, Division of Energy Resources (Department) in the following matter:

Minnesota Power's Application for Approval of its 2021-2035 Integrated Resource Plan.

The Petition was filed on February 1, 2021 by:

Jennifer J. Peterson
Manager, Regulatory Strategy and Policy
30 West Superior Street
Duluth, MN 55802

The Department recommends **approval with modifications**. The Department's team of Craig Addonizio, Danielle Winner, and myself is available to answer any questions the Minnesota Public Utilities Commission may have.

Sincerely,

/s/ STEVE RAKOW
Analyst Coordinator

SR/DW/ja
Attachment



Before the Minnesota Public Utilities Commission

Reply Comments of the Minnesota Department of Commerce Division of Energy Resources

Docket No. E015/RP-21-33

I. INTRODUCTION

On February 1, 2021, February 3, 2021, February 5, 2021, and April 1, 2021, Minnesota Power, a division of ALLETE, Inc., (MP or the Company) filed the Company's *Application for Approval of its 2021-2035 Integrated Resource Plan* (Petition).

On August 13, 2021 the Minnesota Office of Administrative Hearings filed its *Summary of Public Testimony*, providing an overview of the public meetings held for this proceeding.

On April 29, 2022 the following parties filed Comments:

- Citizens Utility Board of Minnesota (CUB)
- City of Cohasset (City);
- Clean Energy Organizations (CEOs);¹
- Glenda Valdez;
- International Brotherhood of Electrical Workers Local Union 31;
- International Union of Operating Engineers Local 49;
- Laborers District Council of Minnesota and North Dakota;
- Large Power Intervenors (LPI);²
- Minnesota Department of Commerce, Division of Energy Resources (Department);
- Office of the Attorney General—Residential Utilities Division (OAG); and
- Union of Concerned Scientists.

¹ For this proceeding the CEOs are Fresh Energy, Clean Grid Alliance, Sierra Club, and the Minnesota Center for Environmental Advocacy.

² LPI is an ad hoc consortium of industrial Large Power and Large Light and Power customers of Minnesota Power consisting for purposes of this filing of Blandin Paper Company; Boise White Paper, L.L.C., a Packaging Corporation of America company, formerly known as Boise, Inc.; Cleveland-Cliffs Minorca Mine Inc.; Enbridge Energy Limited Partnership; Gerdau Ameristeel US Inc.; Hibbing Taconite Company; Northern Foundry, LLC; Sappi Cloquet, LLC; USG Interiors, Inc.; United States Steel Corporation (Keetac and Minntac Mines); and United Taconite, LLC.

On July 8, 2022 the CEOs requested that the Commission establish July 29, 2022 as the due date for new or revised EnCompass modeling and August 29, 2022 as the due date for reply comments. On July 13, 2022 the Commission issued a notice adopting the CEO's proposed schedule.

On July 29, 2022 supplemental modeling comments were filed by CEOs and the Department.

Below are the reply comments of the Department.

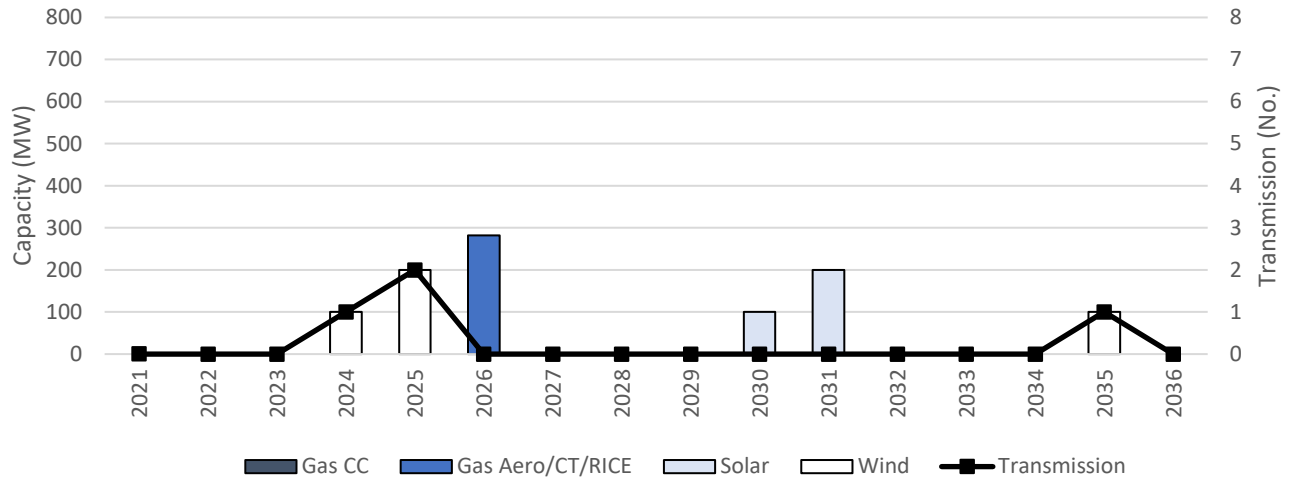
II. DEPARTMENT CORRECTIONS TO JULY 29, 2022 COMMENTS

In reviewing its July 29, 2022 Supplemental Modeling Comments, the Department found a number of calculation errors. The Department did not find any errors that changed its final results and recommendation. In this section, the Department discusses each of the errors and its effects, then provides the original and corrected figures or tables.

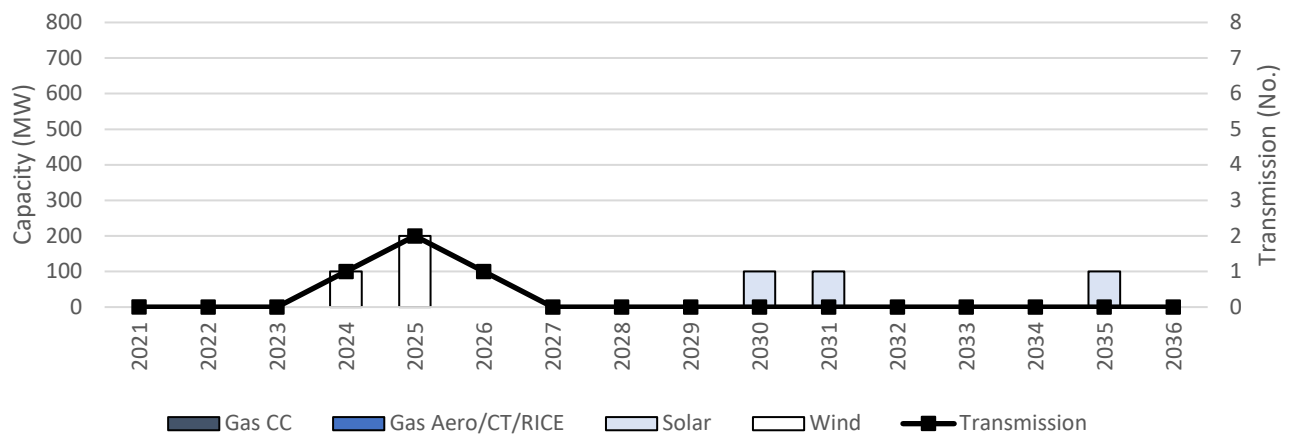
In addition, note that while peaking resources are modeled as a natural gas fueled unit and shown as such in the Department's tables and charts, the Department has consistently focused on the services provided by the expansion units. Thus, any resource addition that can provide the services of a peaking unit should be considered during the resource acquisition process for any peaking resources. The Department's July 29, 2022 errors included the following:

- Department Figure 1C: This figure shows the Department's expansion plan of Early3 retirement under a Mid/Mid carbon future. The Department inadvertently referenced the expansion plan from the High/High carbon future instead of the Mid/Mid carbon future. Most significantly, while the High/High carbon future selected a 2026 gas peaking resource for BEC 3 retirement mitigation, the Mid/Mid carbon future instead selected a 2026 transmission resource. Further, while the High/High carbon future selected 200 MW of Boswell-sited solar in 2031, the Mid/Mid carbon future only selected 100 MW of Boswell-sited solar in 2031. Finally, while the High/High carbon future selected 100 MW of wind and accompanying transmission in 2035, the Mid/Mid carbon future instead selected 100 MW of Boswell-sited solar. The Department provides the following charts for comparison.

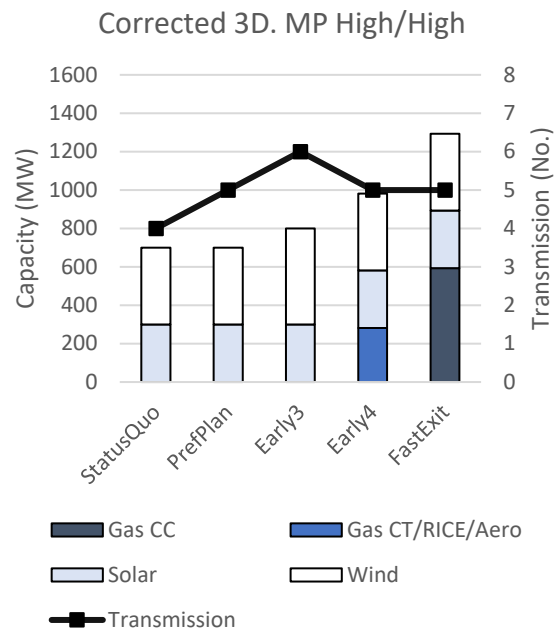
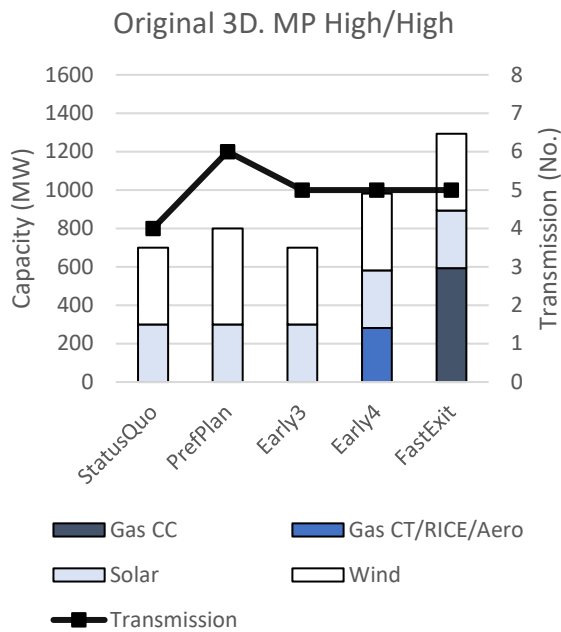
Original 1C. Early3 (High/High carbon future)



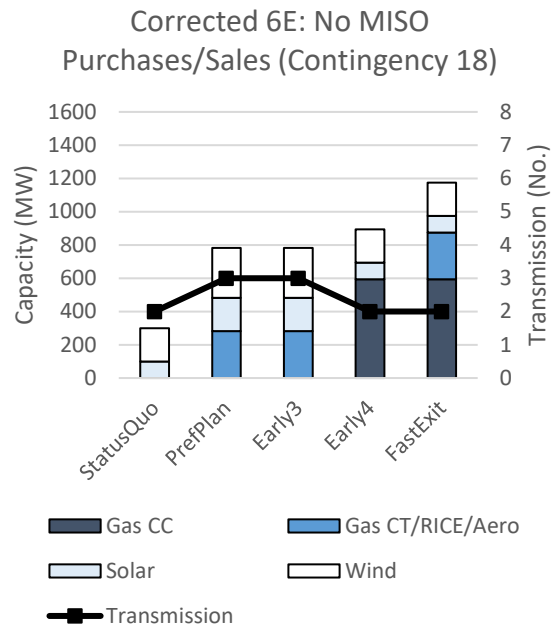
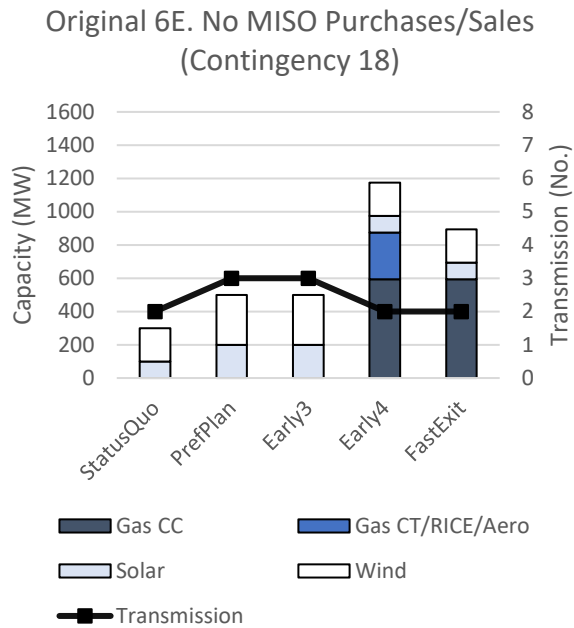
Corrected 1C. Early3 (Mid/Mid carbon future)



- Department Figure 3D: This figure compares MP’s expansion plan results for each of the five BEC retirement scenarios under a High/High carbon future. The Department inadvertently switched the results of PrefPlan and Early3. The correct results show that MP’s model selected more wind and transmission under an Early3 scenario than under a PrefPlan scenario; the July 29, 2022 Comments show the opposite trend. The Department provides the following charts for comparison.



- Department Figure 6E: This figure shows the Department’s Mid/Mid expansion plan results for each of the five BEC scenarios under Contingency 18 (No Purchases or Sales). For the Gas CT/RICE/Aero resource only, the Department mistakenly referenced the Base contingency results instead of the Contingency 18 results. While the Base contingency results only added a gas peaking resource under the Early4 scenario, the Contingency 18 results added gas peaking resources under PrefPlan, Early3, and FastExit.



- Department Tables 7A-7D: These tables show Minnesota Power's cost results for each BEC retirement scenario under each carbon future. The Department provided the net present value of costs for years 2021-2050, whereas all other cost tables in the Department's July 29, 2022 Comments show the net present values of costs for years 2021-2045. This meant that Minnesota Power had slightly higher cost results than the Department's results under identical base conditions because the Department erroneously included an additional five years of costs in MP's cost results; once corrected, the results between the two parties were much more similar. Although the actual costs changed between the original and corrected results, the plan rank did not change under five of the six carbon futures; only under the Mid/Mid carbon future did the plan rank change. However, this meant that the summary cost metrics also changed. Under the corrected results, MP's data shows that:
 - FastExit is the least cost plan in two of the three metrics, whereas Early3 is the least cost plan in one of the three metrics, and;
 - Early4 is the highest cost plan in two of the three metrics, and StatusQuo is the highest cost plan in one of the three metrics.

The Department's original and corrected results are shown in the following tables.

Original Dept Tables 7A to 7C. MP Cost Results for each carbon future, conditionally formatted from least cost (green) to highest cost (red) Boswell retirement scenario

7A. MP NPV Rev Req + Ext Costs (\$Million)					
Carbon Future	StatusQuo	PrefPlan	Early3	Early4	FastExit
No/No	\$7,963	\$8,158	\$8,200	\$8,295	\$8,559
No/Low	\$12,268	\$11,457	\$11,391	\$11,478	\$10,785
No/High	\$16,613	\$14,876	\$14,724	\$14,753	\$13,130
Low/Low	\$10,970	\$10,636	\$10,621	\$10,677	\$10,332
Mid/Mid	\$10,796	\$10,760	\$10,763	\$10,826	\$10,761
High/High	\$11,015	\$11,035	\$11,036	\$11,113	\$11,223

7B. MP Scenario Rank Per Future (1-5 rank each row)					
Carbon Future	StatusQuo	PrefPlan	Early3	Early4	FastExit
No/No	1	2	3	4	5
No/Low	5	3	2	4	1
No/High	5	4	2	3	1
Low/Low	5	3	2	4	1
Mid/Mid	4	1	3	5	2
High/High	1	2	3	4	5

7C. MP Summary Cost Metrics (30 Runs total)					
	StatusQuo	PrefPlan	Early3	Early4	FastExit
Plan Rank Count	21	15	15	24	15
Average Cost	\$11,604	\$11,154	\$11,123	\$11,190	\$10,798
Median Cost	\$10,993	\$10,898	\$10,900	\$10,970	\$10,773

Corrected Dept Tables 7A to 7C. MP Cost Results for each carbon future, conditionally formatted from least cost (green) to highest cost (red) Boswell retirement scenario

7A. MP Rev Req + Ext Costs (\$000, NPV)					
Carbon Future	StatusQuo	PrefPlan	Early3	Early4	FastExit
No/No	\$7,466	\$7,650	\$7,693	\$7,768	\$8,010
No/Low	\$11,244	\$10,610	\$10,546	\$10,647	\$10,086
No/High	\$15,057	\$13,670	\$13,518	\$13,603	\$12,261
Low/Low	\$10,115	\$9,888	\$9,874	\$9,935	\$9,690
Mid/Mid	\$10,057	\$10,051	\$10,056	\$10,125	\$10,118
High/High	\$10,342	\$10,373	\$10,388	\$10,451	\$10,581

7B. MP Scenario Rank Per Future (1-5 rank each row)					
Carbon Future	StatusQuo	PrefPlan	Early3	Early4	FastExit
No/No	1	2	3	4	5
No/Low	5	3	2	4	1
No/High	5	4	2	3	1
Low/Low	5	3	2	4	1
Mid/Mid	3	1	2	5	4
High/High	1	2	3	4	5

7C. MP Summary Cost Metrics (30 Runs total)					
	StatusQuo	PrefPlan	Early3	Early4	FastExit
Plan Rank Count	20	15	14	24	17
Average Cost	\$10,714	\$10,374	\$10,346	\$10,421	\$10,124
Median Cost	\$10,229	\$10,212	\$10,222	\$10,288	\$10,102

- Department Tables 9A-9B: These tables show the Department's cost results for each Boswell retirement scenario under each carbon future, with LRTP. In Table 9A, the Department mistakenly switched the labels in five of the six carbon cost futures. Although the No/No carbon future was correct, each of the other five futures were mislabeled. The plan rank, average cost, and median cost results presented in Table 9C were identical.

Original Dept Tables 9A to 9C. Department Cost Results, with LRTP

9A. LRTP NPV Rev Req + Ext Costs (\$Million)					
Carbon Future	StatusQuo	PrefPlan	Early3	Early4	FastExit
No/No	\$7,430	\$7,610	\$7,657	\$7,628	\$7,898
No/Low	\$9,995	\$9,719	\$9,697	\$9,553	\$9,344
No/High	\$10,064	\$9,998	\$10,000	\$9,898	\$9,753
Low/Low	\$10,324	\$10,338	\$10,315	\$10,257	\$10,177
Mid/Mid	\$10,868	\$10,432	\$10,307	\$10,186	\$9,671
High/High	\$14,365	\$13,369	\$13,091	\$12,812	\$11,610

9B. LRTP Scenario Rank Per Future (1-5 rank each row)					
Carbon Future	StatusQuo	PrefPlan	Early3	Early4	FastExit
No/No	1	2	4	3	5
No/Low	5	4	3	2	1
No/High	5	3	4	2	1
Low/Low	4	5	3	2	1
Mid/Mid	5	4	3	2	1
High/High	5	4	3	2	1

9C. LRTP Summary Cost Metrics (30 Runs total)					
	StatusQuo	PrefPlan	Early3	Early4	FastExit
Plan Rank Count	25	22	20	13	10
Average Cost	\$10,508	\$10,244	\$10,178	\$10,056	\$9,742
Median Cost	\$10,194	\$10,168	\$10,154	\$10,042	\$9,712

Corrected Dept Tables 9A to 9C. Department Cost Results, with LRTP

9A. LRTP Rev Req + Ext Costs (\$000, NPV)					
Carbon Future	StatusQuo	PrefPlan	Early3	Early4	FastExit
No/No	\$7,430	\$7,610	\$7,657	\$7,628	\$7,898
No/Low	\$10,868	\$10,432	\$10,307	\$10,186	\$9,671
No/High	\$14,365	\$13,369	\$13,091	\$12,812	\$11,610
Low/Low	\$9,995	\$9,719	\$9,697	\$9,553	\$9,344
Mid/Mid	\$10,064	\$9,998	\$10,000	\$9,898	\$9,753
High/High	\$10,324	\$10,338	\$10,315	\$10,257	\$10,177

9B. LRTP Scenario Rank Per Future (1-5 rank each row)					
Carbon Future	StatusQuo	PrefPlan	Early3	Early4	FastExit
No/No	1	2	4	3	5
No/Low	5	4	3	2	1
No/High	5	4	3	2	1
Low/Low	5	4	3	2	1
Mid/Mid	5	3	4	2	1
High/High	4	5	3	2	1

9C. LRTP Summary Cost Metrics (30 Runs total)					
	StatusQuo	PrefPlan	Early3	Early4	FastExit
Plan Rank Count	25	22	20	13	10
Average Cost	\$10,508	\$10,244	\$10,178	\$10,056	\$9,742
Median Cost	\$10,194	\$10,168	\$10,153	\$10,042	\$9,712

- Department Tables 18 and 19; Department Attachment 5: The Department provided emissions values spanning the planning period (2021-2035), whereas cost values include the end effects period (2036-2045), thereby reflecting a full study period of 2021-2045. For consistency, the Department here provides updated Tables 18 and 19 reflecting 2021-2045 values. The Department also provides an updated Attachment 5 to these comments reflecting the 2021-2045 emissions.

Original Dept Table 18. Department’s Summary Emissions Data for All 774 FastExit Runs (2021-2035)

Metric	Total CO2 Emissions (tons)
Average	61,591,818
Median	61,896,417
Max	73,066,279
Min	46,122,822

Corrected Dept Table 18. Department’s Summary Emissions Data for All 774 FastExit Runs (2021-2045)

Metric	Total CO2 Emissions (tons)
Average	80,310,541
Median	81,541,285
Max	97,589,515
Min	59,652,779

Dept Table 19. Department’s Average CO2 Emissions Results (tons) for each Boswell retirement scenario, by carbon future (3,870 runs)

Carbon Future	StatusQuo	PrefPlan	Early3	Early4	FastExit
No/No	88,670,617	78,438,748	78,209,580	76,783,989	66,071,481
No/Low	88,658,883	78,435,639	78,202,648	75,597,946	66,076,258
No/High	88,663,828	78,435,809	78,205,263	75,636,115	66,076,424
Low/Low	79,423,902	71,879,861	70,928,678	68,818,824	61,236,504
Mid/Mid	67,992,244	63,684,175	61,652,357	60,482,377	56,390,086
High/High	60,455,201	58,509,651	55,158,513	55,412,177	53,700,153

Corrected Dept Table 19. Department’s Average CO2 Emissions Results (tons) for each Boswell retirement scenario, by carbon future (3,870 runs)

Carbon Future	StatusQuo	PrefPlan	Early3	Early4	FastExit
No/No	133,018,030	113,487,405	112,105,086	109,291,847	81,768,220
No/Low	132,999,657	113,470,658	112,111,440	109,259,638	81,777,221
No/High	133,017,643	113,484,369	112,113,825	109,287,870	81,767,868
Low/Low	115,366,403	98,992,216	98,027,102	94,833,303	74,764,116
Mid/Mid	86,843,419	81,389,028	80,056,245	77,306,246	67,937,129
High/High	73,018,252	71,198,736	67,869,463	68,456,241	64,517,431

While the corrections to these errors had little to no impact on the Department’s final results or recommendations, the Department wants the record to reflect the correct values.

III. DEPARTMENT REPLY TO OTHER PARTIES

A. REPLY REGARDING NEMADJI TRAIL ENERGY CENTER (NTEC)

Several parties and members of the public commented on NTEC. The Commission approved a 50 percent share of NTEC for MP in Docket No. E015/AI-17-568. Since that approval MP has indicated that it is pursuing a 20 percent share, which would require revising the NTEC agreements. In addition to the uncertainty regarding NTEC’s capacity there is uncertainty regarding the in-service date. At this time MP has made no filings regarding changing the Company’s share of NTEC or the in-service date. In addition, there are active lawsuits regarding NTEC. Given the uncertainty created by NTEC for MP’s IRP, the Department’s modeling analysis for comments treated the specific share of NTEC as uncertain and included both a 50 percent share of NTEC and a 20 percent share.

At this time the Department has two recommendations regarding NTEC. First, the Department recommends the Commission treat the capacity to be made available by NTEC as an uncertainty in

developing an approved retirement plan for Boswell Energy Center (BEC) units 3 and 4 and the expansion plan. Any approved plan should be designed to address any uncertainties created by MP's changing plans regarding NTEC.

Second, the Department recommends the Commission not make a determination regarding NTEC in this proceeding. While MP's plans have clearly changed since the initial NTEC proceeding, the Company's plans may change yet again depending upon the outcome of the ongoing court proceedings. To account for this the Department recommends that the Commission require MP to make a filing no later than 60 days following the final court ruling regarding NTEC. At a minimum the filing should include an explanation of MP's plans regarding NTEC along with a request for any Commission approvals necessary for MP to implement its plans for NTEC. All issues regarding NTEC's capacity, cost, in-service date, associated risks, and so forth should be deferred to that proceeding.

B. REPLY TO CEO

1. Range of Future Carbon Regulation Cost

In discussing Minnesota's range of costs of future carbon regulation the CEOs state:

The current estimate of the likely range of costs of future carbon regulation, adopted pursuant to Minn. Stat. § 216H.06, is outdated. It does not reflect the material changes in climate science and policy or the far more aggressive decarbonization targets the power sector now faces, as discussed in Part I.A and I.B. The Commission should recognize the presence of this unaccounted-for regulatory risk in assessing this IRP. It should also commence a proceeding to update its carbon regulatory cost estimates to reflect today's climate policy landscape, as required by section 216H.06. *Citation omitted.*

Minnesota Statutes § 216H.06 requires:

By January 1, 2008, the Public Utilities Commission shall establish an estimate of the likely range of costs of future carbon dioxide regulation on electricity generation. The estimate, which may be made in a commission order, must be used in all electricity generation resource acquisition proceedings. The estimates, and annual updates, must be made following informal proceedings conducted by the commissioners of commerce and pollution control that allow interested parties to submit comments.

Minnesota Statutes clearly requires “informal proceedings conducted by the commissioners of commerce and pollution control” before the Commission can update the likely range of costs of future carbon dioxide regulation. The Department has opened Docket No. E999/DI-22-236 to address this issue. Therefore, no Commission action is necessary at this time; the issue is being addressed in another proceeding.

2. *Transmission and BEC Retirement*

In summarizing the need for transmission for BEC retirement the CEOs stated:

Consistent with Minnesota Power’s analysis, Telos found that retiring BEC 4 in addition to BEC 3 will increase stress on the system such that more extensive transmission mitigations will likely be required than when retiring Unit 3 alone. These mitigations would almost certainly include transmission line additions, such as the current MISO Long Range Transmission Planning Iron Range line and potentially others.
Citations omitted.

The Department’s July 29, 2022 supplemental modeling comments discussed transmission upgrades, MISO’s Long Range Transmission Planning (LRTP) report, and the impact of LRTP on the cost-effectiveness of BEC 4 retirement. The Department generally agrees with the CEOs and MP that planning, permitting, constructing, and placing into operation is a lengthy process and such a line likely will be needed for retirement of BEC 4. However, in this case the process of acquiring the transmission resources necessary to retire BEC 4 has already begun via MISO’s LRTP proposal. MISO’s LRTP projects are expected to be on-line by the end of 2030. Thus, they will be available in a timely manner for the BEC 4 retirement dates studied in this docket.

Note that the ultimate decision on what transmission upgrades or local generation is needed is determined by MISO’s unit retirement study; referred to as an “Attachment Y” study. The outcome of an Attachment Y study is either the unit is allowed to retire or MISO declares the unit to be a System Support Resource (SSR) and the SSR is not allowed to retire until the issues are fixed. For an example, see MISO’s presentation regarding an Attachment Y study for Rush Island Units 1 and 2 from the June 17, 2022 meeting of the Central Technical Study Task Force.³

³ Available here: <https://www.misoenergy.org/events/central-technical-study-task-force-ctstf---june-17-2022/>

C. *REPLY TO THE CITY*

The City recommends the Commission adopt recommendations similar to order point 20 in the Commission's April 15, 2022 order in Northern States Power Company, doing business as Xcel Energy (Xcel) integrated resource plan (IRP); Docket Number E-002/RP-19-368. Specifically, the City recommends the Commission:

1. Authorize the Executive Secretary of the Commission to open a new docket on site development and remediation plans for the Boswell site.
2. Minnesota Power shall conduct stakeholder meetings regarding the site with interested parties including the City of Cohasset; adjacent cities and townships including the City of Grand Rapids, Itasca County; The Minnesota Department of Commerce, the Minnesota Department of Natural Resources, the Minnesota Pollution Control Agency, the Center for Energy and Environment, the Minnesota Energy Transition Office, and labor unions. By January 1, 2024 of the year following approval of this plan, Minnesota Power shall file in the new docket details describing updates on the site and the stakeholder outreach and meetings.
3. Following those stakeholder meetings, by December 31, 2024, or in its next resource plan if earlier—and annually thereafter—Minnesota Power shall submit to the Commission and to the City of Cohasset a detailed report describing the company's plans for disposition of the Boswell site, equipment, and buffer property. The report shall include at least the following items:
 - a. To the extent possible, a detailed description of the timeline, estimated costs, and steps necessary to remediate pollution at the Boswell site.
 - b. A section detailing how the company is working to ensure that plans for site remediation, economic development, or future development and maintenance of power generation, transmission, or distribution infrastructure are consistent with the community's long-range planning and vision.
 - c. A description of any ongoing efforts by the company to evaluate future uses for the plant site, any buffer property owned by the company, or any adjacent property, including a description of how the company is involving interested stakeholders in those efforts.
 - d. An update to the Commission on the status of efforts to support the city's and region's economic development efforts, including—to the extent possible—specific projects and investments the company is assisting the City and region in attracting.

- e. A description of the company's efforts to work with local governments.
- f. Any other items the Commission or the company see fit to include.

The Department agrees with the City that the proposed recommendations largely mirror the steps the Commission required in the April 15, 2022 order regarding Xcel's most recent IRP. Therefore, the Department recommends the Commission approve the City's recommendations.

Note that a pre-filing stakeholder process is part of the process for most utilities at this time. In the Department's view such a process can be a valuable addition to resource planning. One goal of a pre-filing stakeholder process is to determine what are the key inputs and what are the appropriate range of values for those inputs, hopefully making the ensuing resource plan process easier.

Finally, the Department notes that the Energy Transition Office (ETO) was established within the Minnesota Department of Employment and Economic Development (DEED) by the 2021 legislature. The purpose of ETO is to address economic dislocations experienced by workers and communities impacted by a power plant closure, by improving communication among relevant entities, addressing local tax and fiscal issues related to a power plant closure, and assisting in the establishment and implementation of economic support programs.

Specifically, ETO's duties include:

- coordinating local, state, and federal resources to support impacted communities and impacted workers;
- coordinating the development of statewide policies addressing impacted communities and impacted workers;
- assisting state agencies to:
 - address local tax, land use, economic development, and fiscal issues related to an impacted facility's retirement; and
 - develop strategies to support impacted communities and impacted workers; and
- monitoring and participating in administrative proceedings that affect the office's activities, including matters before the Public Utilities Commission, the Department of Commerce, the Department of Revenue, and other entities.

The Department and Commission both have representatives on ETO's Energy Transition Advisory Committee. This Committee is tasked with the creation of a state Energy Transition Plan that must, among other things, analyze the estimated fiscal impact of impacted facility retirements on local

governments and recommend how to effectively respond to the economic effects of impacted facility retirements.

The City's comments also noted that the retirement of BEC units 1 and 2 "significantly reduced the city's total tax capacity," ultimately shifting the local tax burden onto other residents and businesses. These concerns have also been expressed to the Department through the ETO's Energy Transition Advisory Committee proceedings. In particular, those proceedings have emphasized the importance of a host community having adequate lead times to properly prepare for an impending facility retirement. These lead times enable the community to prepare budgets that account for lowered tax revenues, evaluate and implement new economic development programs, and perhaps most importantly, evaluate any impacts of those lowered tax revenues to any municipal debt holdings that may be secured by future tax revenues.

The Department is sympathetic to the concerns of the City. As noted in our recommendations, we believe it would be reasonable to delay BEC 3 retirement to a date where such retirement is feasible for Minnesota Power. The Department's feasibility concerns and the City's lead time concerns are in alignment, namely, that 2025 may be too soon to retire BEC 3. However, the Department's modeling demonstrates that any delay carries a cost to ratepayers. Of course, it is reasonable for the Commission to weigh plan cost, lead times, and feasibility in its decision on a future retirement date.

D. REPLY TO CUB

1. Regulatory Costs and Dispatch

First, CUB claims at page 6 that the Commission did not require MP to analyze a contingency with no environmental cost and no carbon regulation cost throughout the planning horizon. However, the Commission's June 11, 2018 *Order Establishing 2018 and 2019 Estimate of Future Carbon Dioxide Regulation Costs* in Docket No. E999/DI-17-53, at page 11, clearly directs utilities to analyze at least one contingency that excludes consideration of CO₂ costs. Among other things, such a contingency establishes a clear baseline so that the effects of the Commission's externality and carbon regulatory cost values can be determined.

Second, regarding including the Commission-approved, regulatory cost of CO₂ CUB states:

The regulatory costs, on the other hand, are included in the utility's cost of operations and have an impact on the merit order of dispatch. The model pretends that there is an actual cost of emissions that the Company will have to pay.

...

While the regulatory cost scenarios provide useful analysis, we do not consider runs with a regulatory cost in dispatch decisions to be credible projections of the near-term future, as there is no regulatory mechanism currently in place to account for emissions costs in actual operations. Relying on scenarios with regulatory costs for determining the Company's plans will lead to unintended and poor outcomes.

Outside of an IRP, the Company's actual operations will not consider any regulatory adder and thus will not realize the theoretical modeled savings.

The Department notes that Minnesota Statutes § 216H.06 requires the Commission to "establish an estimate of the likely range of costs of future carbon dioxide regulation on electricity generation." Further, the values are required to be used by utilities by various Commission orders and Minnesota Statutes; see the Petition's Appendix N for details.

The Department agrees with CUB that the Commission's regulatory cost values are not actual costs being realized today. Instead, they are a forecast of a cost that will be incurred in the future. The current forecast is that the costs will fall between \$5 and \$25 per ton of CO₂ starting in 2025. MP's approach of building into the dispatch routine a cost per ton of CO₂ emissions from the Company's generating units and imputing a cost per ton into the spot market energy price is the approach followed by all other utilities. The approach will produce accurate results if costs per ton of CO₂ are between \$5 and \$25 starting in 2025. The Department agrees that imputing a CO₂ emissions costs in resource plan modeling will not produce accurate results if there are no CO₂ costs in the real world. But, if that is the case, then the contingencies with only externality costs or with no externality or regulatory costs will produce accurate results. Thus, the overall modeling process ordered by the Commission will produce the information needed by the Commission. The Commission can weigh all of the information, including the potential for regulatory costs in the future, and determine the best plan considering all of the risks.

In addition, the Department notes that the capacity factors for MP's coal units resulting from use of various levels of externalities and carbon regulatory cost provided in Figure 7 of CUB's comments follow the pattern that would be expected for the coal units.

Finally, the Department notes that if CUB believes that the current CO₂ emissions cost forecast is inappropriate, either in cost per ton or in starting date, CUB should indicate this in the Department's proceeding to update the values, which is Docket No. E999/DI-22-236.

2. *Replacement Units For BEC*

At page 11 CUB states that “it is disappointing and inappropriate that Minnesota Power limited its replacement options for BEC 3 and 4 to thermal units and transmission upgrades without considering any alternative options.” For context, MP determined that it was necessary, for bulk electric system reliability purposes, that either thermal units or transmission upgrades would be necessary at or near the BEC site. CUB did not provide evidence that MP’s transmission studies were flawed. Further, in addition to the choice of upgrades MP concluded were necessary for bulk system reliability (thermal or transmission), MP made available to EnCompass a variety of other resources such as batteries, wind, solar, and other options for EnCompass to consider as part of the overall replacement package. Thus, while the upgrades for bulk system reliability were thermal or transmission, the replacement option (for BEC 3 and 4) as a whole were not limited to thermal units and transmission upgrades.

E. *REPLY TO LPI*

1. *Resource Acquisition*

Regarding resource acquisition, LPI’s comments at page eight state:

Minnesota Power’s plan proposes 200 MW of wind by 2025 and 200 MW of solar to be added at the Boswell site or other Company locations by 2030. LPI does not oppose these additions from a size, type, and timing perspective; however, LPI respectfully asserts that Minnesota Power’s implementation of these resources should be conditioned upon a finding that it is pursuing cost-effective options for ratepayers. For example, when Minnesota Power moves forward with a specific proposal to acquire an additional 200 MW of wind by 2025, its selected project(s), purchase agreements, or other structures should be the most cost effective for ratepayers. *Citations omitted.*

In general, the Department agrees with LPI’s recommendation that Minnesota Power’s implementation of resource acquisitions should be conditioned upon a finding that it is pursuing cost-effective options for ratepayers at the time the resources are acquired. It is common for cost-effectiveness to be studied at the time of the resource acquisition and LPI’s recommendation does not alter that standard practice.

2. *Reliability*

Regarding reliability, LPI’s comments at page eight state “To ensure that Minnesota Power can continue reliably serving its customers with the same level of service quality that has been present for decades, it should be required to conduct a sub-hourly, stochastic LOLP [Loss of Load Probability] study of its preferred plan in the next IRP.”

The Department's response to LPI Information Request No. 303 discussed the issue of an LOLP study:

First, for resource planning (IRP) purposes, reliability of Minnesota Power's system is ensured by requiring EnCompass to meet a minimum reserve margin. The minimum reserve margin used in this resource plan was determined by the Midcontinent Independent System Operator, Inc. (MISO). MISO's reserve margin results in MISO's entire system meeting a one day in ten years loss of load reliability requirement. Thus, reliability is a function of the system as a whole and not any one utility. If each MISO-member utility meets MISO's planning reserve margin, the MISO system will be reliable. If one utility overbuilds its system, the utility's ratepayers would pay higher costs but the reliability benefit would be shared across MISO's footprint.

Second, in an IRP supply- and demand-side resources not being equal to load at any one point in time is not a reliability issue. Instead, it is an economic issue. When supply- and demand-side resources are less than load, that means the utility is exposed to market prices via purchases from the market. When supply and demand resources are greater than load, that means the utility is exposed to market prices via sales to the market. Thus, imbalances between a utilities' resources and requirements is an issue of economic risk, not reliability.

In addition, the Department notes that, in general, the smaller the system that is studied for reliability purposes the higher the resulting PRMR should be. A higher PRMR will cause MP to overbuild its system and thus subsidize reliability benefits for all MISO members. In summary, LPI has not demonstrated that the benefits from a sub-hourly, stochastic LOLP study exceed the costs nor has LPI demonstrated how such a study is applicable to MP in isolation.

F. REPLY TO OAG

During discovery the OAG informed the Department that on page 86 the Department's comments explained why future Requests for Proposals (RFP) should be open to power purchase agreement (PPA) and build-operate-transfer (BOT) proposals:

In addition to the ROFO provision, the Department notes that when issuing the RFP MP would have wide latitude regarding what to include and exclude in the RFP process. The Department notes that, when the bidding process is used, the Company should be required to seek proposals for both PPA and build-operate-transfer (BOT) projects. Thus, the Department recommends that the Commission require any RFP issued by MP to include the option for both PPA and BOT proposals unless the

Company can demonstrate why either a PPA or BOT proposal is not feasible.

However, that recommendation was omitted from the lists of recommendations on pages 87 and 92 of the Department's comments. Below the Department revises the recommendations regarding an RFP process to account for this inadvertent omission.

1. use a bidding process for supply-side acquisitions of 100 MW or more lasting longer than five years;
2. ensure that the RFP is consistent with the Commission's then-most-recent IRP order and direction regarding size, type, and timing unless changed circumstances dictate otherwise;
3. provide the Department and other stakeholders with notice of RFP issuances;
4. notify the Department and other stakeholders of material deviations from initial timelines;
5. update the Commission, the Department, and other stakeholders regarding changes in the timing or need that occur between IRP proceedings;
6. where MP or an affiliate proposes a project, engage an independent evaluator to oversee the bid process and provide a report for the Commission;
7. request that the independent evaluator, if engaged, specifically address the impact of material delays or changes of circumstances on the bid process; and
8. any RFP issued by MP must include the option for both PPA and BOT proposals unless the Company can demonstrate why either a PPA or BOT proposal is not feasible;
9. cap any ROFO offer made by MP at net book value; and
10. ensure that any RFP documents for peaking resources issued are technology neutral.

IV. DEPARTMENT RECOMMENDATIONS

A. RECOMMENDED ACTION PLAN

Based on the supplemental and corrected modeling results, Department continues to recommend the Commission direct MP to pursue the FastExit plan for Boswell retirement. However, the Department is cognizant of the fact that may no longer be feasible, given the fact that the utility's original filing was made in 2021, with data development based on stakeholder proceedings that began in 2019. Therefore, although the Department continues to recommend the FastExit plan, the Department recommends the Commission make any retirement date adjustments MP indicates are necessary to ensure the feasibility of the BEC retirements. In particular, from conversations with MP the Department understands the retirement date for BEC 3 would have to be pushed back by several years.

Based on the current modeling results of BEC retirement, the Department recommends that the Commission should:

- Direct MP to retire BEC 3 in 2025, with the actual date to be adjusted based on feasibility;

- Direct MP to proceed as if BEC 4 were to be shut down in 2030;
- Direct MP to re-study the BEC 4 2030 retirement decision in the next IRP assuming the IRP is filed in 2024.

The Department further recommends that for the five-year action plan, the Commission should:

- Direct MP to begin proceedings to acquire approximately 282 MW of peaking resource that would be built in 2026, following BEC 3 retirement; and
- Direct MP to acquire 200 to 300 MW of wind in the in the 2024 to 2025 time frame.

The Department finally recommends that beyond the five-year action plan, the Commission should:

- Direct MP to work with MISO to ensure that Tranche 1 LRTP would fully meet all reliability requirements associated with a 2030 BEC 4 retirement; and
- Direct MP to beginning planning for solar sited at BEC, beginning around the time of the BEC 4 retirement.

B. OTHER RECOMMENDATIONS

First, the Department recommends the Commission approve the City's recommendations:

1. Authorize the Executive Secretary of the Commission to open a new docket on site development and remediation plans for the Boswell site.
2. Minnesota Power shall conduct stakeholder meetings regarding the site with interested parties including the City of Cohasset; adjacent cities and townships including the City of Grand Rapids, Itasca County; The Minnesota Department of Commerce, the Minnesota Department of Natural Resources, the Minnesota Pollution Control Agency, the Center for Energy and Environment, the Minnesota Energy Transition Office, and labor unions. By January 1, 2024 of the year following approval of this plan, Minnesota Power shall file in the new docket details describing updates on the site and the stakeholder outreach and meetings.
3. Following those stakeholder meetings, by December 31, 2024, or in its next resource plan if earlier—and annually thereafter—Minnesota Power shall submit to the Commission and to the City of Cohasset a detailed report describing the company's plans for disposition of the Boswell site, equipment, and buffer property. The report shall include at least the following items:
 - a. To the extent possible, a detailed description of the timeline, estimated costs, and steps necessary to remediate pollution at the Boswell site.
 - b. A section detailing how the company is working to ensure that plans for site remediation, economic development, or future development and maintenance of power generation, transmission, or distribution infrastructure are consistent with the community's long-range planning and vision.
 - c. A description of any ongoing efforts by the company to evaluate future uses for the plant site, any buffer property owned by the company, or any adjacent property,

including a description of how the company is involving interested stakeholders in those efforts.

- d. An update to the Commission on the status of efforts to support the city's and region's economic development efforts, including—to the extent possible—specific projects and investments the company is assisting the City and region in attracting.
- e. A description of the company's efforts to work with local governments.
- f. Any other items the Commission or the company see fit to include.

Second, the Department recommends the Commission not make a determination regarding NTEC in this proceeding and require MP to make a filing no later than 60 days following the final court ruling regarding NTEC. At a minimum the filing should include an explanation of MP's plans regarding NTEC along with a request for any Commission approvals necessary for MP to implement its plans.

Third, the Department revises the recommendations regarding an RFP process to account for the omission discovered by OAG:

1. use a bidding process for supply-side acquisitions of 100 MW or more lasting longer than five years;
2. ensure that the RFP is consistent with the Commission's then-most-recent IRP order and direction regarding size, type, and timing unless changed circumstances dictate otherwise;
3. provide the Department and other stakeholders with notice of RFP issuances;
4. notify the Department and other stakeholders of material deviations from initial timelines;
5. update the Commission, the Department, and other stakeholders regarding changes in the timing or need that occur between IRP proceedings;
6. where MP or an affiliate proposes a project, engage an independent evaluator to oversee the bid process and provide a report for the Commission;
7. request that the independent evaluator, if engaged, specifically address the impact of material delays or changes of circumstances on the bid process; and
8. any RFP issued by MP must include the option for both PPA and BOT proposals unless the Company can demonstrate why either a PPA or BOT proposal is not feasible;
9. cap any ROFO offer made by MP at net book value; and
10. ensure that any RFP documents for peaking resources issued are technology neutral.

Fourth, the Department agrees with LPI's recommendation that Minnesota Power's implementation of resource acquisitions should be conditioned upon a finding that it is pursuing cost-effective options for ratepayers at the time the resources are acquired.

Fifth, the Department recommends that within 180 days of the EPA's issuance of its final order that MP submit a compliance filing that presents the utility's understanding of EPA's final FIP and an action plan in response to the final FIP.

Updated Department Attach 5, Table 1. All Department Runs CO2 Emissions (tons), Conditionally Formatted from Low Cost (Green) to Mid Cost (Yellow) to High Cost (Red) in each row

Carbon Future	Contingency	L RTP	Forecast/NTEC	StatusQuo	PrefPlan	Early3	Early4	FastExit
01_No/No	00_Base	01_No LRTP	01_Mid50	136,977,945	113,023,482	113,597,359	114,776,794	83,899,114
01_No/No	01_Coal+20%	01_No LRTP	01_Mid50	117,113,956	97,535,668	96,930,363	96,544,364	77,437,964
01_No/No	02_Coal-10%	01_No LRTP	01_Mid50	142,682,920	120,768,948	122,262,751	119,039,109	85,515,696
01_No/No	05_Lower Gas-50%	01_No LRTP	01_Mid50	119,766,165	104,806,878	101,413,092	89,307,965	81,724,935
01_No/No	06_Low Gas-25%	01_No LRTP	01_Mid50	125,455,486	115,436,880	112,021,982	95,254,002	84,088,769
01_No/No	07_High Gas+25%	01_No LRTP	01_Mid50	143,548,596	116,562,001	108,471,976	113,179,193	79,333,185
01_No/No	08_Higher Gas+50%	01_No LRTP	01_Mid50	145,419,257	112,511,863	110,209,582	109,064,175	77,748,467
01_No/No	09_Highest Gas+100%	01_No LRTP	01_Mid50	144,198,838	113,130,015	111,220,786	108,913,770	77,762,466
01_No/No	10_WHSL Mkt-50%	01_No LRTP	01_Mid50	105,602,709	101,066,353	100,244,078	98,092,780	82,605,506
01_No/No	11_WHSL Mkt-25%	01_No LRTP	01_Mid50	126,727,414	115,357,288	113,859,830	110,315,697	83,725,377
01_No/No	12_WHSL Mkt+25%	01_No LRTP	01_Mid50	141,301,093	119,442,011	117,613,537	113,228,104	85,774,333
01_No/No	13_WHSL Mkt+50%	01_No LRTP	01_Mid50	143,544,188	119,589,012	119,487,506	114,584,530	86,920,078
01_No/No	14_CapCosts-30%	01_No LRTP	01_Mid50	136,882,521	121,663,363	119,788,269	110,805,648	87,943,616
01_No/No	15_CapCosts+30%	01_No LRTP	01_Mid50	136,754,382	116,806,758	111,806,049	114,972,671	83,929,585
01_No/No	17_NoMktSales	01_No LRTP	01_Mid50	127,788,460	116,778,747	115,634,953	109,882,042	81,657,502
01_No/No	18_NoSalePurchase	01_No LRTP	01_Mid50	134,753,125	122,016,498	119,902,869	107,275,824	84,497,902
01_No/No	19_MktAccess-50%	01_No LRTP	01_Mid50	136,024,873	122,638,854	119,012,925	114,252,500	81,625,963
01_No/No	20_LoINTCONCosts	01_No LRTP	01_Mid50	136,778,854	107,217,649	109,638,444	105,247,449	75,455,260
01_No/No	21_ITC&PTC Extend	01_No LRTP	01_Mid50	136,832,069	116,905,920	118,046,640	113,393,169	83,036,118
01_No/No	22_WindCostLow	01_No LRTP	01_Mid50	136,935,472	113,119,350	113,574,342	110,705,714	79,932,854
01_No/No	23_WindCostHi	01_No LRTP	01_Mid50	136,811,455	113,115,279	119,663,012	114,836,198	83,953,842
01_No/No	24_SolCostLow	01_No LRTP	01_Mid50	134,933,972	115,017,898	115,501,436	112,230,583	81,536,150
01_No/No	25_SolCostHigh	01_No LRTP	01_Mid50	136,891,743	117,220,470	121,227,012	112,101,952	84,895,069
01_No/No	26_StorCostLow	01_No LRTP	01_Mid50	136,871,935	113,254,927	113,585,431	114,930,816	84,024,616
01_No/No	27_StorCostHigh	01_No LRTP	01_Mid50	136,888,864	112,998,274	113,493,431	114,859,186	84,043,143
01_No/No	28_AFR 2020 Low	01_No LRTP	01_Mid50	125,588,197	111,120,328	110,303,173	106,799,971	80,433,108
01_No/No	31_ResTOU	01_No LRTP	01_Mid50	136,827,147	117,272,915	111,958,501	114,897,902	84,002,658
01_No/No	32_High DG&EV	01_No LRTP	01_Mid50	136,805,381	111,701,078	113,555,637	114,953,038	84,070,937
01_No/No	33_RenewELCC-2.5%	01_No LRTP	01_Mid50	136,875,465	121,436,809	115,594,160	114,898,527	79,136,974
01_No/No	34_RenewELCC+2.5%	01_No LRTP	01_Mid50	136,834,260	111,678,627	110,228,294	114,857,255	84,016,288
01_No/No	35_PRM-2%	01_No LRTP	01_Mid50	136,942,471	117,211,491	111,847,891	114,858,378	83,928,872
01_No/No	36_PRM+2%	01_No LRTP	01_Mid50	136,905,464	119,138,979	114,161,212	114,861,632	78,680,885
02_No/Low	00_Base	01_No LRTP	01_Mid50	136,840,742	113,096,666	113,590,462	114,785,482	83,924,473
02_No/Low	01_Coal+20%	01_No LRTP	01_Mid50	117,404,045	97,347,533	96,768,421	96,548,607	77,482,887
02_No/Low	02_Coal-10%	01_No LRTP	01_Mid50	142,615,679	120,695,689	122,258,057	118,795,925	85,676,784
02_No/Low	05_Lower Gas-50%	01_No LRTP	01_Mid50	119,758,292	104,810,614	101,320,793	89,204,873	81,872,862
02_No/Low	06_Low Gas-25%	01_No LRTP	01_Mid50	125,390,797	115,385,350	112,033,191	95,382,438	84,014,719
02_No/Low	07_High Gas+25%	01_No LRTP	01_Mid50	143,561,266	116,382,172	108,399,086	112,951,576	79,327,613
02_No/Low	08_Higher Gas+50%	01_No LRTP	01_Mid50	145,411,935	112,538,285	110,271,435	109,075,021	77,792,705
02_No/Low	09_Highest Gas+100%	01_No LRTP	01_Mid50	144,130,479	113,231,851	111,298,696	108,907,444	77,851,216

02_No/Low	10_WHSL Mkt-50%	01_No LRTP	01_Mid50	105,313,798	101,097,447	100,637,909	98,057,250	82,585,277
02_No/Low	11_WHSL Mkt-25%	01_No LRTP	01_Mid50	126,572,777	115,415,939	113,995,321	110,368,713	83,655,007
02_No/Low	12_WHSL Mkt+25%	01_No LRTP	01_Mid50	141,333,733	119,406,032	117,552,751	113,078,428	85,804,437
02_No/Low	13_WHSL Mkt+50%	01_No LRTP	01_Mid50	143,719,902	119,695,220	119,410,180	114,495,283	86,961,549
02_No/Low	14_CapCosts-30%	01_No LRTP	01_Mid50	136,825,348	116,723,774	111,781,138	115,001,749	83,977,528
02_No/Low	15_CapCosts+30%	01_No LRTP	01_Mid50	136,833,871	121,742,760	119,833,260	110,734,436	87,973,097
02_No/Low	17_NoMktSales	01_No LRTP	01_Mid50	127,779,136	116,791,186	115,624,720	109,853,221	81,654,747
02_No/Low	18_NoSalePurchase	01_No LRTP	01_Mid50	134,615,283	121,952,918	119,857,976	107,319,560	84,379,847
02_No/Low	19_MktAccess-50%	01_No LRTP	01_Mid50	135,809,444	122,787,945	119,085,941	114,195,375	81,557,436
02_No/Low	20_LoINTCONCosts	01_No LRTP	01_Mid50	137,011,551	107,281,189	109,811,207	105,270,812	75,467,661
02_No/Low	21_ITC&PTC Extend	01_No LRTP	01_Mid50	136,743,118	116,729,600	117,989,722	113,453,092	83,113,711
02_No/Low	22_WindCostLow	01_No LRTP	01_Mid50	136,874,172	113,103,280	113,617,051	110,729,821	79,930,069
02_No/Low	23_WindCostHi	01_No LRTP	01_Mid50	136,985,626	113,096,695	119,662,503	114,838,819	84,008,938
02_No/Low	24_SolCostLow	01_No LRTP	01_Mid50	135,013,773	115,051,871	115,526,906	112,093,952	81,471,554
02_No/Low	25_SolCostHigh	01_No LRTP	01_Mid50	136,873,222	117,215,457	121,133,680	112,136,757	84,977,209
02_No/Low	26_StorCostLow	01_No LRTP	01_Mid50	136,829,123	112,970,517	113,448,522	114,922,175	84,099,378
02_No/Low	27_StorCostHigh	01_No LRTP	01_Mid50	136,948,757	113,056,908	113,497,159	114,845,216	83,944,450
02_No/Low	28_AFR 2020 Low	01_No LRTP	01_Mid50	125,514,482	111,146,999	110,419,561	106,776,274	80,560,877
02_No/Low	31_ResTOU	01_No LRTP	01_Mid50	136,747,208	117,201,455	111,967,974	114,767,427	83,947,266
02_No/Low	32_High DG&EV	01_No LRTP	01_Mid50	136,792,742	111,622,308	113,548,437	114,853,098	84,014,826
02_No/Low	33_RenewELCC-2.5%	01_No LRTP	01_Mid50	136,848,240	121,518,567	115,605,210	114,743,031	79,038,927
02_No/Low	34_RenewELCC+2.5%	01_No LRTP	01_Mid50	136,768,059	111,608,481	110,190,910	114,933,445	83,981,741
02_No/Low	35_PRM-2%	01_No LRTP	01_Mid50	136,912,505	117,253,597	111,830,608	114,789,651	83,994,402
02_No/Low	36_PRM+2%	01_No LRTP	01_Mid50	136,963,875	119,010,506	114,104,371	114,879,200	78,718,734
03_No/High	00_Base	01_No LRTP	01_Mid50	136,937,109	113,054,420	113,497,809	114,776,477	83,972,814
03_No/High	01_Coal+20%	01_No LRTP	01_Mid50	117,293,965	97,349,736	96,888,032	96,562,100	77,458,033
03_No/High	02_Coal-10%	01_No LRTP	01_Mid50	142,747,978	120,664,062	122,318,356	118,956,975	85,578,354
03_No/High	05_Lower Gas-50%	01_No LRTP	01_Mid50	119,722,435	104,819,147	101,287,455	89,116,534	81,779,584
03_No/High	06_Low Gas-25%	01_No LRTP	01_Mid50	125,287,369	115,416,605	112,112,336	95,220,537	84,120,768
03_No/High	07_High Gas+25%	01_No LRTP	01_Mid50	143,513,657	116,530,651	108,374,896	113,045,825	79,299,426
03_No/High	08_Higher Gas+50%	01_No LRTP	01_Mid50	145,375,167	112,409,520	110,273,601	109,053,519	77,717,543
03_No/High	09_Highest Gas+100%	01_No LRTP	01_Mid50	144,139,218	113,263,727	111,322,392	108,984,692	77,798,364
03_No/High	10_WHSL Mkt-50%	01_No LRTP	01_Mid50	105,566,568	101,021,579	100,492,067	98,018,581	82,602,925
03_No/High	11_WHSL Mkt-25%	01_No LRTP	01_Mid50	126,595,870	115,287,854	113,941,784	110,408,772	83,650,082
03_No/High	12_WHSL Mkt+25%	01_No LRTP	01_Mid50	141,298,299	119,461,833	117,552,311	113,229,246	85,804,050
03_No/High	13_WHSL Mkt+50%	01_No LRTP	01_Mid50	143,587,776	119,693,656	119,407,342	114,549,560	87,025,956
03_No/High	14_CapCosts-30%	01_No LRTP	01_Mid50	136,893,200	116,811,709	111,787,065	115,076,739	83,966,893
03_No/High	15_CapCosts+30%	01_No LRTP	01_Mid50	136,833,352	121,725,586	119,757,542	110,802,680	88,060,794
03_No/High	17_NoMktSales	01_No LRTP	01_Mid50	127,876,736	116,755,806	115,692,452	109,899,420	81,560,615
03_No/High	18_NoSalePurchase	01_No LRTP	01_Mid50	134,674,431	121,924,286	119,835,559	107,339,905	84,490,757
03_No/High	19_MktAccess-50%	01_No LRTP	01_Mid50	135,898,389	122,765,257	119,089,577	114,231,682	81,598,145
03_No/High	20_LoINTCONCosts	01_No LRTP	01_Mid50	136,868,803	107,369,793	109,766,812	105,279,891	75,574,389
03_No/High	21_ITC&PTC Extend	01_No LRTP	01_Mid50	136,959,811	116,868,503	118,042,138	113,470,866	83,085,855

03_No/High	22_WindCostLow	01_No LRTP	01_Mid50	136,915,051	112,933,233	113,409,712	110,798,330	79,793,051
03_No/High	23_WindCostHi	01_No LRTP	01_Mid50	136,910,860	113,131,787	119,801,133	114,866,357	84,002,290
03_No/High	24_SolCostLow	01_No LRTP	01_Mid50	134,991,588	115,003,688	115,446,106	112,145,196	81,542,627
03_No/High	25_SolCostHigh	01_No LRTP	01_Mid50	136,794,712	117,293,391	121,247,361	112,188,906	84,890,064
03_No/High	26_StorCostLow	01_No LRTP	01_Mid50	136,862,823	113,019,520	113,526,291	114,795,404	84,022,769
03_No/High	27_StorCostHigh	01_No LRTP	01_Mid50	137,041,981	113,161,451	113,575,579	114,873,171	84,010,976
03_No/High	28_AFR 2020 Low	01_No LRTP	01_Mid50	125,606,482	111,237,533	110,236,534	106,766,440	80,455,013
03_No/High	31_ResTOU	01_No LRTP	01_Mid50	136,863,965	117,308,005	111,956,527	114,948,185	83,987,688
03_No/High	32_High DG&EV	01_No LRTP	01_Mid50	136,815,291	111,622,821	113,604,186	114,908,032	83,949,071
03_No/High	33_RenewELCC-2.5%	01_No LRTP	01_Mid50	136,824,921	121,492,972	115,520,581	114,882,360	79,087,158
03_No/High	34_RenewELCC+2.5%	01_No LRTP	01_Mid50	136,782,372	111,603,209	110,108,857	114,830,550	83,940,629
03_No/High	35_PRM-2%	01_No LRTP	01_Mid50	136,975,677	117,206,009	112,109,545	114,877,035	84,047,857
03_No/High	36_PRM+2%	01_No LRTP	01_Mid50	136,881,853	119,197,855	114,131,811	114,876,505	78,661,359
04_Low/Low	00_Base	01_No LRTP	01_Mid50	119,446,177	98,940,799	97,582,127	97,590,030	75,779,472
04_Low/Low	01_Coal+20%	01_No LRTP	01_Mid50	93,389,502	86,961,959	86,523,791	84,909,259	70,698,606
04_Low/Low	02_Coal-10%	01_No LRTP	01_Mid50	132,806,472	102,666,678	101,753,272	100,724,259	77,105,691
04_Low/Low	05_Lower Gas-50%	01_No LRTP	01_Mid50	114,268,325	100,827,809	97,695,620	86,748,734	80,717,465
04_Low/Low	06_Low Gas-25%	01_No LRTP	01_Mid50	111,735,095	105,466,537	104,388,034	90,801,069	81,539,943
04_Low/Low	07_High Gas+25%	01_No LRTP	01_Mid50	119,304,339	103,459,610	98,193,154	96,720,426	73,430,053
04_Low/Low	08_Higher Gas+50%	01_No LRTP	01_Mid50	123,283,314	107,219,187	101,360,238	98,581,028	73,083,154
04_Low/Low	09_Highest Gas+100%	01_No LRTP	01_Mid50	124,802,389	108,753,889	103,322,548	99,518,729	76,869,451
04_Low/Low	10_WHSL Mkt-50%	01_No LRTP	01_Mid50	93,554,050	92,808,160	90,913,601	90,293,426	79,993,547
04_Low/Low	11_WHSL Mkt-25%	01_No LRTP	01_Mid50	112,892,551	96,138,710	102,091,732	100,353,757	76,071,123
04_Low/Low	12_WHSL Mkt+25%	01_No LRTP	01_Mid50	118,937,008	103,886,924	104,034,533	93,635,286	74,249,205
04_Low/Low	13_WHSL Mkt+50%	01_No LRTP	01_Mid50	122,093,465	109,300,338	106,686,979	94,379,087	79,110,728
04_Low/Low	14_CapCosts-30%	01_No LRTP	01_Mid50	119,372,967	98,914,559	96,966,705	97,456,506	71,686,639
04_Low/Low	15_CapCosts+30%	01_No LRTP	01_Mid50	119,415,360	101,006,241	98,987,876	94,087,806	75,900,532
04_Low/Low	17_NoMktSales	01_No LRTP	01_Mid50	116,982,732	98,642,284	99,652,184	97,504,046	75,537,933
04_Low/Low	18_NoSalePurchase	01_No LRTP	01_Mid50	120,574,612	109,017,518	107,534,479	97,771,024	77,813,146
04_Low/Low	19_MktAccess-50%	01_No LRTP	01_Mid50	119,324,756	101,648,911	107,273,223	102,733,612	75,515,460
04_Low/Low	20_LoINTCONCosts	01_No LRTP	01_Mid50	106,226,211	94,407,440	93,588,096	91,868,914	72,620,743
04_Low/Low	21_ITC&PTC Extend	01_No LRTP	01_Mid50	115,463,837	98,320,762	97,102,211	95,174,458	74,562,184
04_Low/Low	22_WindCostLow	01_No LRTP	01_Mid50	112,903,082	98,851,882	93,641,327	97,270,227	72,510,004
04_Low/Low	23_WindCostHi	01_No LRTP	01_Mid50	119,520,166	99,013,346	97,634,922	97,569,196	75,874,145
04_Low/Low	24_SolCostLow	01_No LRTP	01_Mid50	112,545,301	98,486,953	97,443,705	94,835,256	73,921,562
04_Low/Low	25_SolCostHigh	01_No LRTP	01_Mid50	119,469,203	98,353,424	101,733,718	100,160,982	77,295,205
04_Low/Low	26_StorCostLow	01_No LRTP	01_Mid50	119,527,464	98,870,703	97,397,734	97,151,538	75,767,823
04_Low/Low	27_StorCostHigh	01_No LRTP	01_Mid50	119,476,689	99,237,171	97,602,569	97,541,417	75,913,827
04_Low/Low	28_AFR 2020 Low	01_No LRTP	01_Mid50	107,994,630	90,698,571	91,539,525	87,795,365	69,191,759
04_Low/Low	31_ResTOU	01_No LRTP	01_Mid50	119,432,845	100,384,099	99,307,734	97,478,702	75,745,499
04_Low/Low	32_High DG&EV	01_No LRTP	01_Mid50	119,422,203	100,279,449	99,461,857	97,137,119	76,727,196
04_Low/Low	33_RenewELCC-2.5%	01_No LRTP	01_Mid50	119,662,611	98,454,040	100,638,589	97,552,961	72,424,965
04_Low/Low	34_RenewELCC+2.5%	01_No LRTP	01_Mid50	119,443,696	99,969,137	99,215,060	97,488,869	75,895,656

04_Low/Low	35_PRM-2%	01_No LRTP	01_Mid50	119,603,249	100,515,102	99,401,375	97,231,726	75,825,859
04_Low/Low	36_PRM+2%	01_No LRTP	01_Mid50	119,126,135	98,281,165	98,583,887	97,477,828	72,512,049
05_Mid/Mid	00_Base	01_No LRTP	01_Mid50	86,549,534	81,001,771	81,471,342	79,069,213	68,156,379
05_Mid/Mid	01_Coal+20%	01_No LRTP	01_Mid50	78,015,841	76,805,809	71,237,492	67,531,355	67,053,770
05_Mid/Mid	02_Coal-10%	01_No LRTP	01_Mid50	91,327,619	84,769,076	84,368,082	82,050,752	69,462,034
05_Mid/Mid	05_Lower Gas-50%	01_No LRTP	01_Mid50	84,192,612	81,271,348	79,026,641	77,857,910	78,885,623
05_Mid/Mid	06_Low Gas-25%	01_No LRTP	01_Mid50	84,599,453	76,684,383	74,880,490	75,734,765	71,918,122
05_Mid/Mid	07_High Gas+25%	01_No LRTP	01_Mid50	90,835,648	85,070,696	84,785,467	79,863,587	66,212,247
05_Mid/Mid	08_Higher Gas+50%	01_No LRTP	01_Mid50	96,243,074	86,554,938	84,427,438	83,628,667	66,246,208
05_Mid/Mid	09_Highest Gas+100%	01_No LRTP	01_Mid50	102,087,873	92,112,403	89,891,210	88,706,808	69,180,375
05_Mid/Mid	10_WHSL Mkt-50%	01_No LRTP	01_Mid50	84,225,169	81,506,393	81,213,322	82,824,969	76,161,995
05_Mid/Mid	11_WHSL Mkt-25%	01_No LRTP	01_Mid50	79,468,007	73,523,148	73,537,675	76,844,970	67,277,309
05_Mid/Mid	12_WHSL Mkt+25%	01_No LRTP	01_Mid50	93,979,741	85,519,138	81,599,730	77,046,228	69,834,177
05_Mid/Mid	13_WHSL Mkt+50%	01_No LRTP	01_Mid50	99,156,922	90,034,243	84,803,250	78,655,699	70,202,302
05_Mid/Mid	14_CapCosts-30%	01_No LRTP	01_Mid50	86,625,930	81,117,968	80,101,771	79,249,989	68,604,886
05_Mid/Mid	15_CapCosts+30%	01_No LRTP	01_Mid50	86,612,574	80,604,789	78,566,181	71,491,430	66,683,979
05_Mid/Mid	17_NoMktSales	01_No LRTP	01_Mid50	86,455,874	77,500,860	77,871,898	75,558,317	65,337,580
05_Mid/Mid	18_NoSalePurchase	01_No LRTP	01_Mid50	104,512,812	91,881,575	90,063,317	77,277,574	70,547,581
05_Mid/Mid	19_MktAccess-50%	01_No LRTP	01_Mid50	90,971,933	88,889,496	82,461,975	71,065,186	68,433,909
05_Mid/Mid	20_LoINTCONCosts	01_No LRTP	01_Mid50	82,802,484	80,389,674	78,722,705	76,909,510	65,867,889
05_Mid/Mid	21_ITC&PTC Extend	01_No LRTP	01_Mid50	84,651,648	81,372,357	80,390,246	78,884,535	66,647,148
05_Mid/Mid	22_WindCostLow	01_No LRTP	01_Mid50	82,623,142	79,773,681	75,199,925	73,577,458	66,587,201
05_Mid/Mid	23_WindCostHi	01_No LRTP	01_Mid50	86,560,486	81,420,834	81,530,095	79,093,021	68,067,562
05_Mid/Mid	24_SolCostLow	01_No LRTP	01_Mid50	84,450,060	81,543,523	81,031,201	77,674,170	67,061,511
05_Mid/Mid	25_SolCostHigh	01_No LRTP	01_Mid50	90,787,870	81,159,040	82,144,755	80,946,978	70,270,401
05_Mid/Mid	26_StorCostLow	01_No LRTP	01_Mid50	86,610,292	81,109,331	81,400,093	79,036,789	68,076,025
05_Mid/Mid	27_StorCostHigh	01_No LRTP	01_Mid50	86,689,180	81,392,471	81,531,584	79,137,654	68,188,635
05_Mid/Mid	28_AFR 2020 Low	01_No LRTP	01_Mid50	76,426,802	74,420,674	73,974,048	70,562,560	62,259,825
05_Mid/Mid	31_ResTOU	01_No LRTP	01_Mid50	85,187,504	81,970,824	81,401,095	79,104,772	67,375,208
05_Mid/Mid	32_High DG&EV	01_No LRTP	01_Mid50	87,012,203	82,317,251	81,528,837	79,060,987	68,581,146
05_Mid/Mid	33_RenewELCC-2.5%	01_No LRTP	01_Mid50	86,605,590	81,422,493	81,602,536	79,046,282	68,617,746
05_Mid/Mid	34_RenewELCC+2.5%	01_No LRTP	01_Mid50	86,675,108	81,977,015	81,738,878	79,035,078	67,521,916
05_Mid/Mid	35_PRM-2%	01_No LRTP	01_Mid50	86,669,775	81,943,696	81,519,894	79,012,666	67,496,694
05_Mid/Mid	36_PRM+2%	01_No LRTP	01_Mid50	86,547,156	81,398,944	81,465,038	78,986,085	68,588,649
06_High/High	00_Base	01_No LRTP	01_Mid50	72,738,024	71,908,479	66,941,065	69,453,474	64,790,805
06_High/High	01_Coal+20%	01_No LRTP	01_Mid50	67,449,585	64,999,987	63,116,279	63,138,264	63,573,841
06_High/High	02_Coal-10%	01_No LRTP	01_Mid50	75,363,556	74,396,733	70,657,641	71,813,880	66,177,044
06_High/High	05_Lower Gas-50%	01_No LRTP	01_Mid50	72,791,338	70,373,808	69,051,973	72,384,884	74,104,550
06_High/High	06_Low Gas-25%	01_No LRTP	01_Mid50	71,132,056	68,733,690	67,158,343	67,201,410	66,185,868
06_High/High	07_High Gas+25%	01_No LRTP	01_Mid50	73,673,193	72,465,277	69,088,599	71,131,845	62,650,037
06_High/High	08_Higher Gas+50%	01_No LRTP	01_Mid50	74,226,189	75,572,168	73,202,080	70,795,252	61,902,357
06_High/High	09_Highest Gas+100%	01_No LRTP	01_Mid50	84,029,315	81,508,860	79,034,216	74,692,913	63,759,731
06_High/High	10_WHSL Mkt-50%	01_No LRTP	01_Mid50	81,322,357	78,740,977	74,318,979	79,839,545	75,062,550

06_High/High	11_WHSL Mkt-25%	01_No LRTP	01_Mid50	69,062,154	67,143,246	67,102,533	67,044,770	64,684,269
06_High/High	12_WHSL Mkt+25%	01_No LRTP	01_Mid50	76,964,274	74,730,706	70,161,278	67,476,013	66,259,977
06_High/High	13_WHSL Mkt+50%	01_No LRTP	01_Mid50	81,406,353	75,484,159	72,872,836	70,418,339	65,933,895
06_High/High	14_CapCosts-30%	01_No LRTP	01_Mid50	72,921,701	72,074,621	71,102,987	69,182,021	65,154,191
06_High/High	15_CapCosts+30%	01_No LRTP	01_Mid50	72,760,833	68,971,428	67,085,335	66,212,283	63,894,618
06_High/High	17_NoMktSales	01_No LRTP	01_Mid50	72,964,531	71,261,445	65,865,568	68,406,232	64,571,113
06_High/High	18_NoSalePurchase	01_No LRTP	01_Mid50	84,605,775	79,446,791	76,603,172	72,163,186	67,575,055
06_High/High	19_MktAccess-50%	01_No LRTP	01_Mid50	78,946,621	71,800,434	69,174,971	67,707,215	63,034,718
06_High/High	20_LoINTCONCosts	01_No LRTP	01_Mid50	68,756,551	70,230,434	63,233,300	66,702,779	62,684,639
06_High/High	21_ITC&PTC Extend	01_No LRTP	01_Mid50	72,776,362	72,667,708	66,907,333	66,382,250	64,049,005
06_High/High	22_WindCostLow	01_No LRTP	01_Mid50	68,273,634	67,653,569	63,669,129	66,040,740	61,386,333
06_High/High	23_WindCostHi	01_No LRTP	01_Mid50	72,320,745	71,681,182	66,986,884	69,378,216	64,781,715
06_High/High	24_SolCostLow	01_No LRTP	01_Mid50	70,824,549	70,513,453	65,419,164	68,260,984	65,396,134
06_High/High	25_SolCostHigh	01_No LRTP	01_Mid50	73,876,348	70,422,972	69,540,861	67,859,643	64,711,076
06_High/High	26_StorCostLow	01_No LRTP	01_Mid50	72,762,081	72,056,976	67,082,527	69,557,353	64,801,183
06_High/High	27_StorCostHigh	01_No LRTP	01_Mid50	72,872,171	71,945,395	67,035,882	69,550,808	64,773,164
06_High/High	28_AFR 2020 Low	01_No LRTP	01_Mid50	63,416,479	65,129,930	62,946,954	60,883,220	59,661,098
06_High/High	31_ResTOU	01_No LRTP	01_Mid50	72,933,824	71,282,284	67,067,437	67,265,317	64,839,832
06_High/High	32_High DG&EV	01_No LRTP	01_Mid50	73,000,500	71,157,747	67,141,367	67,264,853	64,786,594
06_High/High	33_RenewELCC-2.5%	01_No LRTP	01_Mid50	72,868,696	68,450,372	67,305,287	69,510,448	65,150,232
06_High/High	34_RenewELCC+2.5%	01_No LRTP	01_Mid50	72,826,630	72,336,069	67,095,884	69,448,799	64,753,662
06_High/High	35_PRM-2%	01_No LRTP	01_Mid50	72,717,002	72,230,298	67,030,623	69,469,536	64,936,588
06_High/High	36_PRM+2%	01_No LRTP	01_Mid50	72,905,771	68,440,046	66,945,623	69,423,243	64,776,757
01_No/No	00_Base	01_No LRTP	02_Mid20	143,323,630	121,501,847	119,097,510	100,492,322	82,469,115
01_No/No	01_Coal+20%	01_No LRTP	02_Mid20	119,316,559	110,118,841	105,660,184	96,451,809	80,882,139
01_No/No	02_Coal-10%	01_No LRTP	02_Mid20	146,707,897	128,538,030	121,058,909	106,948,917	87,806,647
01_No/No	05_Lower Gas-50%	01_No LRTP	02_Mid20	136,826,321	118,978,967	114,587,903	86,160,186	88,466,496
01_No/No	06_Low Gas-25%	01_No LRTP	02_Mid20	139,316,886	125,909,216	121,633,099	105,664,771	90,064,701
01_No/No	07_High Gas+25%	01_No LRTP	02_Mid20	145,481,701	120,630,250	112,782,740	104,347,793	78,877,128
01_No/No	08_Higher Gas+50%	01_No LRTP	02_Mid20	144,095,042	116,148,249	113,690,768	102,111,829	79,470,657
01_No/No	09_Highest Gas+100%	01_No LRTP	02_Mid20	144,351,145	114,488,891	113,618,638	102,178,726	77,027,236
01_No/No	10_WHSL Mkt-50%	01_No LRTP	02_Mid20	110,923,374	106,203,551	105,543,910	102,132,568	89,167,218
01_No/No	11_WHSL Mkt-25%	01_No LRTP	02_Mid20	132,289,298	121,098,417	119,132,863	102,983,555	89,417,153
01_No/No	12_WHSL Mkt+25%	01_No LRTP	02_Mid20	146,340,900	123,958,890	120,972,694	111,149,851	84,883,410
01_No/No	13_WHSL Mkt+50%	01_No LRTP	02_Mid20	141,354,687	125,845,651	116,798,226	115,359,283	87,321,939
01_No/No	14_CapCosts-30%	01_No LRTP	02_Mid20	143,373,055	121,702,753	119,035,293	107,459,656	87,808,422
01_No/No	15_CapCosts+30%	01_No LRTP	02_Mid20	143,241,510	121,580,773	119,171,600	105,452,651	87,733,662
01_No/No	17_NoMktSales	01_No LRTP	02_Mid20	134,353,548	123,591,651	121,539,519	104,068,568	87,316,176
01_No/No	18_NoSalePurchase	01_No LRTP	02_Mid20	136,673,698	120,151,152	118,542,037	110,578,485	81,568,839
01_No/No	19_MktAccess-50%	01_No LRTP	02_Mid20	143,166,066	121,252,991	118,544,439	111,180,130	86,126,722
01_No/No	20_LoINTCONCosts	01_No LRTP	02_Mid20	136,187,248	115,023,148	113,111,413	98,931,875	78,977,389
01_No/No	21_ITC&PTC Extend	01_No LRTP	02_Mid20	141,325,662	120,266,843	117,128,768	104,665,150	85,780,479
01_No/No	22_WindCostLow	01_No LRTP	02_Mid20	143,330,938	121,124,420	112,784,224	103,419,042	83,451,980

01_No/No	23_WindCostHi	01_No LRTP	02_Mid20	143,356,565	119,646,658	117,473,064	104,516,204	86,739,583
01_No/No	24_SolCostLow	01_No LRTP	02_Mid20	138,720,308	117,237,331	114,514,554	102,808,406	84,811,968
01_No/No	25_SolCostHigh	01_No LRTP	02_Mid20	143,300,650	123,080,594	120,404,873	103,611,921	84,460,192
01_No/No	26_StorCostLow	01_No LRTP	02_Mid20	143,313,351	121,615,114	119,058,580	104,600,581	82,450,277
01_No/No	27_StorCostHigh	01_No LRTP	02_Mid20	143,161,693	121,513,440	119,113,953	100,591,853	82,515,830
01_No/No	28_AFR 2020 Low	01_No LRTP	02_Mid20	131,817,011	117,806,525	115,460,679	101,993,190	79,890,523
01_No/No	31_ResTOU	01_No LRTP	02_Mid20	143,324,200	121,621,591	118,976,035	105,912,561	86,766,609
01_No/No	32_High DG&EV	01_No LRTP	02_Mid20	143,248,788	121,476,584	119,035,599	106,095,542	83,485,833
01_No/No	33_RenewELCC-2.5%	01_No LRTP	02_Mid20	143,331,592	121,701,789	119,078,593	100,282,422	86,814,303
01_No/No	34_RenewELCC+2.5%	01_No LRTP	02_Mid20	143,227,009	121,538,019	119,017,190	105,953,757	82,529,045
01_No/No	35_PRM-2%	01_No LRTP	02_Mid20	143,135,871	121,584,688	119,048,054	106,329,469	82,550,508
01_No/No	36_PRM+2%	01_No LRTP	02_Mid20	143,391,765	121,632,054	113,294,964	100,278,665	83,061,212
02_No/Low	00_Base	01_No LRTP	02_Mid20	143,233,010	121,564,824	119,062,548	100,402,360	82,500,433
02_No/Low	01_Coal+20%	01_No LRTP	02_Mid20	119,306,201	110,057,621	105,892,634	96,323,118	80,842,626
02_No/Low	02_Coal-10%	01_No LRTP	02_Mid20	146,649,579	128,429,763	120,934,507	106,715,179	87,628,452
02_No/Low	05_Lower Gas-50%	01_No LRTP	02_Mid20	136,880,952	119,090,593	114,743,360	86,330,693	88,474,831
02_No/Low	06_Low Gas-25%	01_No LRTP	02_Mid20	139,361,746	125,896,448	121,629,261	105,779,355	90,093,295
02_No/Low	07_High Gas+25%	01_No LRTP	02_Mid20	145,426,794	120,500,903	112,780,820	104,267,166	78,859,430
02_No/Low	08_Higher Gas+50%	01_No LRTP	02_Mid20	144,060,193	116,155,807	113,684,293	102,185,914	79,442,830
02_No/Low	09_Highest Gas+100%	01_No LRTP	02_Mid20	144,268,938	114,528,909	113,674,633	102,117,705	77,074,049
02_No/Low	10_WHSL Mkt-50%	01_No LRTP	02_Mid20	110,764,812	106,254,875	105,606,865	102,059,412	89,313,098
02_No/Low	11_WHSL Mkt-25%	01_No LRTP	02_Mid20	132,408,659	121,090,403	119,118,891	102,979,730	89,356,617
02_No/Low	12_WHSL Mkt+25%	01_No LRTP	02_Mid20	146,341,579	124,051,295	120,896,830	116,304,827	84,951,419
02_No/Low	13_WHSL Mkt+50%	01_No LRTP	02_Mid20	141,521,909	125,965,169	116,712,124	115,305,432	87,329,423
02_No/Low	14_CapCosts-30%	01_No LRTP	02_Mid20	143,238,815	121,536,320	118,990,555	108,663,090	87,741,051
02_No/Low	15_CapCosts+30%	01_No LRTP	02_Mid20	143,340,946	121,684,095	119,038,759	107,433,784	87,780,824
02_No/Low	17_NoMktSales	01_No LRTP	02_Mid20	134,380,422	123,475,172	121,412,691	104,126,238	87,367,964
02_No/Low	18_NoSalePurchase	01_No LRTP	02_Mid20	136,611,039	120,010,581	118,435,191	110,614,721	81,427,200
02_No/Low	19_MktAccess-50%	01_No LRTP	02_Mid20	142,913,921	121,370,099	118,647,362	108,185,306	86,109,605
02_No/Low	20_LoINTCONCosts	01_No LRTP	02_Mid20	136,285,176	115,138,212	113,149,058	99,012,214	78,981,479
02_No/Low	21_ITC&PTC Extend	01_No LRTP	02_Mid20	141,273,304	120,251,698	116,975,277	100,485,616	85,730,352
02_No/Low	22_WindCostLow	01_No LRTP	02_Mid20	143,339,020	121,038,737	112,850,295	103,463,516	83,499,990
02_No/Low	23_WindCostHi	01_No LRTP	02_Mid20	143,301,393	119,531,976	117,538,169	104,509,286	86,746,298
02_No/Low	24_SolCostLow	01_No LRTP	02_Mid20	138,769,576	117,094,762	114,541,953	102,800,317	84,876,181
02_No/Low	25_SolCostHigh	01_No LRTP	02_Mid20	143,302,842	123,268,023	120,501,877	103,683,114	84,427,421
02_No/Low	26_StorCostLow	01_No LRTP	02_Mid20	143,245,829	121,555,616	118,979,273	100,665,004	82,574,828
02_No/Low	27_StorCostHigh	01_No LRTP	02_Mid20	143,315,736	121,559,141	118,992,646	100,538,437	82,566,037
02_No/Low	28_AFR 2020 Low	01_No LRTP	02_Mid20	131,775,645	117,838,376	115,405,162	101,622,868	79,849,280
02_No/Low	31_ResTOU	01_No LRTP	02_Mid20	143,204,898	121,454,924	119,018,495	105,796,997	86,778,411
02_No/Low	32_High DG&EV	01_No LRTP	02_Mid20	143,198,603	121,539,813	119,050,871	106,103,524	83,487,767
02_No/Low	33_RenewELCC-2.5%	01_No LRTP	02_Mid20	143,380,913	121,748,840	119,009,733	100,138,243	86,700,161
02_No/Low	34_RenewELCC+2.5%	01_No LRTP	02_Mid20	143,196,484	121,649,202	119,116,202	106,011,465	82,523,765
02_No/Low	35_PRM-2%	01_No LRTP	02_Mid20	143,260,869	121,495,762	118,991,292	105,812,704	82,535,160

02_No/Low	36_PRM+2%	01_No LRTP	02_Mid20	143,239,571	121,546,068	113,080,419	100,273,253	83,045,577
03_No/High	00_Base	01_No LRTP	02_Mid20	143,374,086	121,477,853	118,939,430	100,520,332	82,455,945
03_No/High	01_Coal+20%	01_No LRTP	02_Mid20	119,190,607	110,219,753	105,858,025	96,369,409	80,774,106
03_No/High	02_Coal-10%	01_No LRTP	02_Mid20	146,637,361	128,474,801	121,058,678	106,800,136	87,748,827
03_No/High	05_Lower Gas-50%	01_No LRTP	02_Mid20	136,657,888	119,014,231	114,487,225	86,200,663	88,445,283
03_No/High	06_Low Gas-25%	01_No LRTP	02_Mid20	139,382,800	125,938,014	121,612,806	105,726,761	90,071,772
03_No/High	07_High Gas+25%	01_No LRTP	02_Mid20	145,330,701	120,528,320	112,801,220	104,211,927	78,858,455
03_No/High	08_Higher Gas+50%	01_No LRTP	02_Mid20	143,954,553	116,130,781	113,732,833	102,169,661	79,497,257
03_No/High	09_Highest Gas+100%	01_No LRTP	02_Mid20	144,247,050	114,605,569	113,631,376	102,272,413	77,085,458
03_No/High	10_WHSL Mkt-50%	01_No LRTP	02_Mid20	110,766,255	106,061,146	105,630,186	102,100,769	89,316,091
03_No/High	11_WHSL Mkt-25%	01_No LRTP	02_Mid20	132,372,341	121,034,522	119,143,435	103,006,631	89,421,790
03_No/High	12_WHSL Mkt+25%	01_No LRTP	02_Mid20	146,357,145	124,001,836	120,962,092	111,220,480	84,943,866
03_No/High	13_WHSL Mkt+50%	01_No LRTP	02_Mid20	141,386,954	125,875,321	116,728,679	115,311,283	87,296,765
03_No/High	14_CapCosts-30%	01_No LRTP	02_Mid20	143,292,593	121,553,385	119,122,782	105,524,445	87,737,987
03_No/High	15_CapCosts+30%	01_No LRTP	02_Mid20	143,354,846	121,765,498	119,102,411	107,489,976	87,837,107
03_No/High	17_NoMktSales	01_No LRTP	02_Mid20	134,469,565	123,566,611	121,458,006	104,160,479	87,330,047
03_No/High	18_NoSalePurchase	01_No LRTP	02_Mid20	136,596,711	120,148,029	118,509,553	111,363,772	81,571,673
03_No/High	19_MktAccess-50%	01_No LRTP	02_Mid20	142,997,412	121,364,277	118,788,274	107,903,791	86,233,159
03_No/High	20_LoINTCONCosts	01_No LRTP	02_Mid20	136,144,610	115,124,306	113,108,205	98,995,020	79,020,261
03_No/High	21_ITC&PTC Extend	01_No LRTP	02_Mid20	141,353,008	120,292,876	117,174,229	104,781,575	85,758,690
03_No/High	22_WindCostLow	01_No LRTP	02_Mid20	143,330,885	121,135,324	112,795,626	103,372,957	83,509,691
03_No/High	23_WindCostHi	01_No LRTP	02_Mid20	143,233,965	119,551,195	117,654,175	104,572,343	86,732,248
03_No/High	24_SolCostLow	01_No LRTP	02_Mid20	138,650,128	117,292,338	114,580,853	102,883,869	84,891,933
03_No/High	25_SolCostHigh	01_No LRTP	02_Mid20	143,168,057	123,141,611	120,491,553	103,594,369	84,435,912
03_No/High	26_StorCostLow	01_No LRTP	02_Mid20	143,208,043	121,466,972	119,051,434	104,472,182	82,443,182
03_No/High	27_StorCostHigh	01_No LRTP	02_Mid20	143,338,070	121,590,522	119,010,990	100,528,329	82,547,941
03_No/High	28_AFR 2020 Low	01_No LRTP	02_Mid20	131,892,783	117,885,964	115,389,422	102,037,512	79,915,763
03_No/High	31_ResTOU	01_No LRTP	02_Mid20	143,322,051	121,626,668	119,042,601	105,857,189	86,840,937
03_No/High	32_High DG&EV	01_No LRTP	02_Mid20	143,255,441	121,584,964	119,021,126	105,986,571	83,403,387
03_No/High	33_RenewELCC-2.5%	01_No LRTP	02_Mid20	143,374,621	121,747,388	119,095,989	100,257,283	86,759,411
03_No/High	34_RenewELCC+2.5%	01_No LRTP	02_Mid20	143,397,197	121,546,011	119,066,753	105,918,166	82,469,513
03_No/High	35_PRM-2%	01_No LRTP	02_Mid20	143,338,765	121,529,217	119,123,058	106,438,876	82,549,903
03_No/High	36_PRM+2%	01_No LRTP	02_Mid20	143,389,388	121,625,765	113,149,627	100,222,744	83,137,345
04_Low/Low	00_Base	01_No LRTP	02_Mid20	120,306,644	107,881,282	106,274,375	95,130,250	79,528,494
04_Low/Low	01_Coal+20%	01_No LRTP	02_Mid20	105,920,118	95,681,973	92,350,815	86,918,989	72,289,542
04_Low/Low	02_Coal-10%	01_No LRTP	02_Mid20	131,390,443	111,289,021	109,106,347	107,186,732	80,722,224
04_Low/Low	05_Lower Gas-50%	01_No LRTP	02_Mid20	123,628,257	107,603,745	95,714,947	97,557,722	86,835,551
04_Low/Low	06_Low Gas-25%	01_No LRTP	02_Mid20	117,099,714	104,971,736	106,728,455	100,732,851	82,564,750
04_Low/Low	07_High Gas+25%	01_No LRTP	02_Mid20	123,342,260	108,972,191	107,979,843	98,273,472	75,321,782
04_Low/Low	08_Higher Gas+50%	01_No LRTP	02_Mid20	124,660,940	104,104,567	103,503,088	99,329,755	74,916,533
04_Low/Low	09_Highest Gas+100%	01_No LRTP	02_Mid20	124,654,742	106,154,101	104,408,959	99,847,358	75,170,288
04_Low/Low	10_WHSL Mkt-50%	01_No LRTP	02_Mid20	101,888,484	99,505,134	98,464,444	95,949,999	86,210,130
04_Low/Low	11_WHSL Mkt-25%	01_No LRTP	02_Mid20	122,318,739	107,348,041	105,126,241	98,565,614	80,226,579

04_Low/Low	12_WHSL Mkt+25%	01_No LRTP	02_Mid20	126,888,987	113,136,724	110,118,949	100,993,076	78,050,042
04_Low/Low	13_WHSL Mkt+50%	01_No LRTP	02_Mid20	130,124,651	116,226,182	112,766,081	102,183,724	83,650,240
04_Low/Low	14_CapCosts-30%	01_No LRTP	02_Mid20	120,392,101	99,644,073	106,089,347	102,406,971	74,895,254
04_Low/Low	15_CapCosts+30%	01_No LRTP	02_Mid20	120,258,343	108,540,680	105,899,833	96,883,871	79,557,702
04_Low/Low	17_NoMktSales	01_No LRTP	02_Mid20	120,190,388	110,010,441	107,793,425	96,398,301	79,840,114
04_Low/Low	18_NoSalePurchase	01_No LRTP	02_Mid20	130,703,544	117,281,552	107,207,126	99,537,523	74,962,368
04_Low/Low	19_MktAccess-50%	01_No LRTP	02_Mid20	130,471,214	110,819,872	108,859,186	100,616,169	79,368,900
04_Low/Low	20_LoINTCONCosts	01_No LRTP	02_Mid20	115,216,394	103,937,847	101,627,629	97,228,301	75,008,768
04_Low/Low	21_ITC&PTC Extend	01_No LRTP	02_Mid20	117,348,185	106,256,629	103,748,869	96,707,054	78,068,815
04_Low/Low	22_WindCostLow	01_No LRTP	02_Mid20	120,293,853	107,753,001	101,501,517	95,631,498	74,942,413
04_Low/Low	23_WindCostHi	01_No LRTP	02_Mid20	120,081,372	108,439,739	106,331,071	100,175,745	79,426,586
04_Low/Low	24_SolCostLow	01_No LRTP	02_Mid20	121,111,086	106,076,239	103,225,811	96,708,126	77,557,559
04_Low/Low	25_SolCostHigh	01_No LRTP	02_Mid20	122,215,165	111,383,010	108,758,251	96,863,230	76,757,379
04_Low/Low	26_StorCostLow	01_No LRTP	02_Mid20	120,239,718	107,840,589	106,158,815	95,016,893	79,500,559
04_Low/Low	27_StorCostHigh	01_No LRTP	02_Mid20	120,450,274	107,988,955	106,186,064	94,902,917	79,502,615
04_Low/Low	28_AFR 2020 Low	01_No LRTP	02_Mid20	115,429,774	97,739,728	97,835,347	95,419,252	71,568,420
04_Low/Low	31_ResTOU	01_No LRTP	02_Mid20	120,245,929	107,884,049	106,294,209	96,952,881	74,923,490
04_Low/Low	32_High DG&EV	01_No LRTP	02_Mid20	120,353,172	107,967,939	105,945,127	96,877,519	74,895,324
04_Low/Low	33_RenewELCC-2.5%	01_No LRTP	02_Mid20	120,418,608	107,920,323	106,285,311	95,686,801	79,488,967
04_Low/Low	34_RenewELCC+2.5%	01_No LRTP	02_Mid20	120,163,333	108,259,779	106,259,814	96,904,956	74,927,896
04_Low/Low	35_PRM-2%	01_No LRTP	02_Mid20	120,445,107	108,457,615	106,258,875	96,910,078	74,884,964
04_Low/Low	36_PRM+2%	01_No LRTP	02_Mid20	120,290,378	108,479,618	106,237,708	96,936,088	79,487,031
05_Mid/Mid	00_Base	01_No LRTP	02_Mid20	97,563,859	89,383,954	85,962,731	78,224,067	69,348,309
05_Mid/Mid	01_Coal+20%	01_No LRTP	02_Mid20	87,204,943	79,890,596	76,852,920	73,932,679	67,539,525
05_Mid/Mid	02_Coal-10%	01_No LRTP	02_Mid20	102,983,769	92,669,070	89,919,751	80,979,527	70,553,205
05_Mid/Mid	05_Lower Gas-50%	01_No LRTP	02_Mid20	96,127,392	86,716,375	86,978,442	82,454,331	79,847,478
05_Mid/Mid	06_Low Gas-25%	01_No LRTP	02_Mid20	98,478,532	86,580,019	83,423,763	77,665,275	74,953,495
05_Mid/Mid	07_High Gas+25%	01_No LRTP	02_Mid20	99,851,952	89,398,830	90,265,312	86,642,157	68,872,796
05_Mid/Mid	08_Higher Gas+50%	01_No LRTP	02_Mid20	101,756,552	91,078,617	89,412,827	88,371,360	70,837,248
05_Mid/Mid	09_Highest Gas+100%	01_No LRTP	02_Mid20	102,738,682	93,038,745	91,722,043	89,477,205	71,221,845
05_Mid/Mid	10_WHSL Mkt-50%	01_No LRTP	02_Mid20	94,850,816	90,286,603	88,367,001	87,851,268	78,745,573
05_Mid/Mid	11_WHSL Mkt-25%	01_No LRTP	02_Mid20	87,304,859	80,568,141	80,078,875	77,936,774	68,001,795
05_Mid/Mid	12_WHSL Mkt+25%	01_No LRTP	02_Mid20	105,523,950	94,080,039	89,798,842	83,700,209	72,314,230
05_Mid/Mid	13_WHSL Mkt+50%	01_No LRTP	02_Mid20	107,423,196	97,836,804	94,271,329	87,001,852	73,539,397
05_Mid/Mid	14_CapCosts-30%	01_No LRTP	02_Mid20	97,363,180	87,217,120	85,662,362	84,829,471	68,666,472
05_Mid/Mid	15_CapCosts+30%	01_No LRTP	02_Mid20	97,418,848	89,589,921	86,552,550	78,570,805	69,192,792
05_Mid/Mid	17_NoMktSales	01_No LRTP	02_Mid20	98,497,146	85,679,311	83,320,504	73,328,281	66,614,990
05_Mid/Mid	18_NoSalePurchase	01_No LRTP	02_Mid20	111,131,338	95,860,681	92,095,974	84,513,135	68,430,188
05_Mid/Mid	19_MktAccess-50%	01_No LRTP	02_Mid20	104,633,749	97,533,723	93,979,704	79,700,727	70,809,477
05_Mid/Mid	20_LoINTCONCosts	01_No LRTP	02_Mid20	93,771,453	87,969,469	82,928,116	77,507,189	67,963,875
05_Mid/Mid	21_ITC&PTC Extend	01_No LRTP	02_Mid20	97,057,352	89,006,571	86,019,528	77,629,287	69,095,041
05_Mid/Mid	22_WindCostLow	01_No LRTP	02_Mid20	94,756,667	86,980,663	82,941,762	77,627,521	68,821,651
05_Mid/Mid	23_WindCostHi	01_No LRTP	02_Mid20	97,592,811	89,714,490	86,046,546	78,446,120	69,282,655

05_Mid/Mid	24_SolCostLow	01_No LRTP	02_Mid20	97,084,748	89,431,463	86,184,518	76,441,437	68,925,734
05_Mid/Mid	25_SolCostHigh	01_No LRTP	02_Mid20	99,718,784	91,374,166	88,792,584	80,965,745	72,278,890
05_Mid/Mid	26_StorCostLow	01_No LRTP	02_Mid20	97,572,899	89,339,482	86,037,630	78,431,183	69,312,221
05_Mid/Mid	27_StorCostHigh	01_No LRTP	02_Mid20	97,348,733	89,416,444	85,993,542	78,420,599	69,310,625
05_Mid/Mid	28_AFR 2020 Low	01_No LRTP	02_Mid20	88,591,111	81,359,895	77,318,485	71,138,511	63,337,803
05_Mid/Mid	31_ResTOU	01_No LRTP	02_Mid20	97,476,307	89,103,799	86,468,606	78,200,802	69,241,108
05_Mid/Mid	32_High DG&EV	01_No LRTP	02_Mid20	99,040,592	89,616,621	86,649,587	78,405,557	70,518,115
05_Mid/Mid	33_RenewELCC-2.5%	01_No LRTP	02_Mid20	97,533,069	89,577,061	86,691,202	78,305,101	69,229,785
05_Mid/Mid	34_RenewELCC+2.5%	01_No LRTP	02_Mid20	97,592,701	89,783,999	86,426,954	78,248,895	69,332,251
05_Mid/Mid	35_PRM-2%	01_No LRTP	02_Mid20	97,667,187	89,315,732	86,351,432	78,209,261	69,324,146
05_Mid/Mid	36_PRM+2%	01_No LRTP	02_Mid20	97,575,110	89,344,601	86,692,378	78,235,352	69,190,929
06_High/High	00_Base	01_No LRTP	02_Mid20	83,364,226	76,260,533	73,524,076	69,297,965	67,276,668
06_High/High	01_Coal+20%	01_No LRTP	02_Mid20	74,625,810	69,755,788	68,286,331	67,660,386	65,437,728
06_High/High	02_Coal-10%	01_No LRTP	02_Mid20	85,902,174	79,323,391	75,681,117	72,289,220	68,047,258
06_High/High	05_Lower Gas-50%	01_No LRTP	02_Mid20	80,274,933	78,081,020	73,412,007	72,846,162	73,935,247
06_High/High	06_Low Gas-25%	01_No LRTP	02_Mid20	82,051,394	74,872,036	72,141,832	71,839,327	68,719,958
06_High/High	07_High Gas+25%	01_No LRTP	02_Mid20	84,772,871	75,973,638	76,663,000	76,192,867	64,588,366
06_High/High	08_Higher Gas+50%	01_No LRTP	02_Mid20	82,381,055	77,079,551	75,412,013	75,784,777	64,359,077
06_High/High	09_Highest Gas+100%	01_No LRTP	02_Mid20	87,651,506	79,515,415	77,660,103	77,461,633	62,954,940
06_High/High	10_WHSL Mkt-50%	01_No LRTP	02_Mid20	87,052,630	79,928,301	78,191,816	79,448,863	77,324,555
06_High/High	11_WHSL Mkt-25%	01_No LRTP	02_Mid20	77,793,372	71,016,583	69,113,724	71,986,146	67,174,272
06_High/High	12_WHSL Mkt+25%	01_No LRTP	02_Mid20	86,261,162	78,141,339	75,317,509	72,998,002	66,247,131
06_High/High	13_WHSL Mkt+50%	01_No LRTP	02_Mid20	92,039,897	82,570,366	80,426,770	76,781,334	67,258,340
06_High/High	14_CapCosts-30%	01_No LRTP	02_Mid20	83,214,072	74,729,494	70,549,428	73,690,347	64,315,794
06_High/High	15_CapCosts+30%	01_No LRTP	02_Mid20	83,322,519	76,446,543	73,619,654	71,652,746	66,931,246
06_High/High	17_NoMktSales	01_No LRTP	02_Mid20	77,371,525	76,557,251	73,892,220	69,062,447	64,373,979
06_High/High	18_NoSalePurchase	01_No LRTP	02_Mid20	96,387,175	82,657,436	80,420,959	76,911,684	67,377,623
06_High/High	19_MktAccess-50%	01_No LRTP	02_Mid20	91,732,804	83,715,705	80,811,652	73,831,082	68,323,554
06_High/High	20_LoINTCONCosts	01_No LRTP	02_Mid20	81,340,769	72,019,290	72,352,332	67,348,571	65,515,932
06_High/High	21_ITC&PTC Extend	01_No LRTP	02_Mid20	83,369,903	76,292,559	72,746,921	69,350,256	66,221,654
06_High/High	22_WindCostLow	01_No LRTP	02_Mid20	78,906,393	73,027,638	70,172,778	70,148,684	63,331,539
06_High/High	23_WindCostHi	01_No LRTP	02_Mid20	81,688,180	76,860,972	73,438,697	71,141,794	67,227,671
06_High/High	24_SolCostLow	01_No LRTP	02_Mid20	81,328,994	73,606,847	72,179,736	70,198,171	66,188,207
06_High/High	25_SolCostHigh	01_No LRTP	02_Mid20	81,489,252	78,372,129	72,032,551	70,953,135	68,606,790
06_High/High	26_StorCostLow	01_No LRTP	02_Mid20	83,072,505	76,642,512	73,660,633	69,383,451	67,168,173
06_High/High	27_StorCostHigh	01_No LRTP	02_Mid20	83,366,172	76,663,999	73,560,958	69,423,012	67,101,058
06_High/High	28_AFR 2020 Low	01_No LRTP	02_Mid20	73,237,634	67,677,938	64,489,276	63,446,397	60,377,005
06_High/High	31_ResTOU	01_No LRTP	02_Mid20	83,262,532	76,685,480	73,538,998	69,881,763	65,546,049
06_High/High	32_High DG&EV	01_No LRTP	02_Mid20	83,393,945	76,457,498	73,633,007	70,457,043	67,075,548
06_High/High	33_RenewELCC-2.5%	01_No LRTP	02_Mid20	83,410,373	76,703,849	73,642,165	69,125,642	67,191,825
06_High/High	34_RenewELCC+2.5%	01_No LRTP	02_Mid20	83,453,484	76,806,669	73,498,051	69,277,338	67,140,706
06_High/High	35_PRM-2%	01_No LRTP	02_Mid20	83,341,207	76,797,817	73,828,790	69,328,904	67,305,927
06_High/High	36_PRM+2%	01_No LRTP	02_Mid20	83,245,519	76,805,328	73,789,741	69,281,105	67,245,589

01_No/No	00_Base	01_No LRTP	03_High50	145,778,366	123,285,065	127,035,183	120,091,855	95,047,625
01_No/No	01_Coal+20%	01_No LRTP	03_High50	127,093,880	114,679,665	111,894,545	101,450,586	86,516,455
01_No/No	02_Coal-10%	01_No LRTP	03_High50	154,555,092	132,712,884	124,292,124	126,280,981	96,511,798
01_No/No	05_Lower Gas-50%	01_No LRTP	03_High50	136,883,402	120,391,921	116,521,590	103,086,823	93,416,996
01_No/No	06_Low Gas-25%	01_No LRTP	03_High50	138,599,890	124,189,346	123,098,913	103,967,520	95,662,631
01_No/No	07_High Gas+25%	01_No LRTP	03_High50	149,877,494	120,851,631	123,726,781	119,803,309	88,316,070
01_No/No	08_Higher Gas+50%	01_No LRTP	03_High50	151,696,663	128,118,535	125,523,976	121,162,920	86,617,996
01_No/No	09_Highest Gas+100%	01_No LRTP	03_High50	145,406,840	121,099,650	119,245,525	117,202,651	86,316,135
01_No/No	10_WHSL Mkt-50%	01_No LRTP	03_High50	122,367,904	116,615,570	116,141,597	112,455,974	96,947,894
01_No/No	11_WHSL Mkt-25%	01_No LRTP	03_High50	142,656,055	123,738,040	122,052,050	116,828,096	92,610,099
01_No/No	12_WHSL Mkt+25%	01_No LRTP	03_High50	149,849,217	131,533,607	128,480,656	120,741,706	96,975,591
01_No/No	13_WHSL Mkt+50%	01_No LRTP	03_High50	150,382,291	133,276,386	130,641,074	122,056,823	93,227,003
01_No/No	14_CapCosts-30%	01_No LRTP	03_High50	146,006,892	127,945,323	121,351,226	118,221,552	90,222,163
01_No/No	15_CapCosts+30%	01_No LRTP	03_High50	145,611,171	124,386,627	125,614,927	122,071,100	84,642,679
01_No/No	17_NoMktSales	01_No LRTP	03_High50	144,529,676	122,508,302	121,782,261	117,728,940	90,883,048
01_No/No	18_NoSalePurchase	01_No LRTP	03_High50	146,836,955	125,847,833	123,328,199	111,244,040	83,325,555
01_No/No	19_MktAccess-50%	01_No LRTP	03_High50	145,424,633	128,882,205	120,984,105	122,071,934	93,032,974
01_No/No	20_LoINTCONCosts	01_No LRTP	03_High50	145,423,431	117,440,990	115,915,853	111,831,657	86,630,683
01_No/No	21_ITC&PTC Extend	01_No LRTP	03_High50	149,346,125	122,013,896	119,524,458	120,624,048	93,003,407
01_No/No	22_WindCostLow	01_No LRTP	03_High50	145,504,943	129,132,577	115,650,291	110,983,982	90,782,967
01_No/No	23_WindCostHi	01_No LRTP	03_High50	149,049,193	129,144,944	121,269,991	122,481,111	93,974,944
01_No/No	24_SolCostLow	01_No LRTP	03_High50	141,448,326	127,130,944	117,070,780	120,196,997	91,791,885
01_No/No	25_SolCostHigh	01_No LRTP	03_High50	145,945,979	130,607,980	128,420,878	118,410,822	96,050,588
01_No/No	26_StorCostLow	01_No LRTP	03_High50	145,905,042	123,344,867	127,165,861	120,225,844	94,999,301
01_No/No	27_StorCostHigh	01_No LRTP	03_High50	145,874,201	123,264,470	126,914,627	120,182,259	94,048,381
01_No/No	28_AFR 2020 Low	01_No LRTP	03_High50	125,575,565	111,120,328	110,303,173	106,799,971	80,432,632
01_No/No	31_ResTOU	01_No LRTP	03_High50	136,827,411	117,272,915	111,958,501	114,897,902	84,003,478
01_No/No	32_High DG&EV	01_No LRTP	03_High50	136,817,467	111,701,078	113,555,637	114,953,029	84,069,451
01_No/No	33_RenewELCC-2.5%	01_No LRTP	03_High50	145,845,921	123,244,044	127,018,439	114,842,768	95,115,557
01_No/No	34_RenewELCC+2.5%	01_No LRTP	03_High50	145,714,244	129,733,258	126,878,485	114,813,674	94,986,021
01_No/No	35_PRM-2%	01_No LRTP	03_High50	152,945,071	127,538,689	127,747,773	114,799,331	91,079,390
01_No/No	36_PRM+2%	01_No LRTP	03_High50	149,200,474	123,004,607	125,355,901	114,815,168	89,878,522
02_No/Low	00_Base	01_No LRTP	03_High50	145,857,668	123,226,044	127,045,983	114,743,316	94,946,922
02_No/Low	01_Coal+20%	01_No LRTP	03_High50	127,270,682	114,738,637	111,932,175	96,483,303	86,455,390
02_No/Low	02_Coal-10%	01_No LRTP	03_High50	154,413,369	132,666,521	124,223,040	118,750,682	96,561,428
02_No/Low	05_Lower Gas-50%	01_No LRTP	03_High50	136,867,134	120,430,131	116,460,297	89,141,866	93,471,860
02_No/Low	06_Low Gas-25%	01_No LRTP	03_High50	138,636,616	124,206,549	123,160,417	95,236,568	95,645,917
02_No/Low	07_High Gas+25%	01_No LRTP	03_High50	149,931,070	120,792,105	123,649,178	112,916,845	88,316,097
02_No/Low	08_Higher Gas+50%	01_No LRTP	03_High50	151,777,177	128,202,008	125,416,541	109,050,481	86,621,147
02_No/Low	09_Highest Gas+100%	01_No LRTP	03_High50	145,447,004	121,102,409	119,302,090	108,840,486	86,341,080
02_No/Low	10_WHSL Mkt-50%	01_No LRTP	03_High50	122,057,962	116,388,548	115,896,153	97,969,724	96,870,060
02_No/Low	11_WHSL Mkt-25%	01_No LRTP	03_High50	142,522,282	123,723,238	122,018,446	110,329,250	92,592,794
02_No/Low	12_WHSL Mkt+25%	01_No LRTP	03_High50	149,955,834	131,519,579	128,415,947	112,996,458	97,025,264

02_No/Low	13_WHSL Mkt+50%	01_No LRTP	03_High50	150,518,298	133,318,489	130,529,322	114,529,362	93,246,161
02_No/Low	14_CapCosts-30%	01_No LRTP	03_High50	145,856,198	124,379,365	125,476,246	114,962,881	84,639,503
02_No/Low	15_CapCosts+30%	01_No LRTP	03_High50	145,828,854	127,871,300	121,313,121	110,645,939	90,325,904
02_No/Low	17_NoMktSales	01_No LRTP	03_High50	144,577,836	122,490,811	121,577,640	109,854,807	90,897,510
02_No/Low	18_NoSalePurchase	01_No LRTP	03_High50	146,667,452	125,709,776	123,256,344	107,274,671	83,248,729
02_No/Low	19_MktAccess-50%	01_No LRTP	03_High50	145,262,971	128,980,758	120,962,775	114,146,998	92,961,427
02_No/Low	20_LoINTCONCosts	01_No LRTP	03_High50	145,600,195	117,512,847	116,110,698	105,201,640	86,457,931
02_No/Low	21_ITC&PTC Extend	01_No LRTP	03_High50	149,206,410	122,018,185	119,574,095	113,424,737	93,082,899
02_No/Low	22_WindCostLow	01_No LRTP	03_High50	145,490,676	129,090,137	115,683,720	110,705,404	90,729,752
02_No/Low	23_WindCostHi	01_No LRTP	03_High50	149,249,287	129,209,703	121,415,876	114,777,763	94,103,616
02_No/Low	24_SolCostLow	01_No LRTP	03_High50	141,538,298	127,163,768	117,289,735	112,043,497	91,792,750
02_No/Low	25_SolCostHigh	01_No LRTP	03_High50	145,791,508	130,657,938	128,336,625	112,047,168	96,150,097
02_No/Low	26_StorCostLow	01_No LRTP	03_High50	145,858,496	123,293,574	126,963,775	114,900,274	95,092,958
02_No/Low	27_StorCostHigh	01_No LRTP	03_High50	145,851,582	123,404,115	127,009,746	114,797,554	94,063,663
02_No/Low	28_AFR 2020 Low	01_No LRTP	03_High50	125,516,219	111,146,999	110,419,561	106,781,798	80,562,391
02_No/Low	31_ResTOU	01_No LRTP	03_High50	136,756,419	117,201,455	111,967,974	114,767,577	83,948,541
02_No/Low	32_High DG&EV	01_No LRTP	03_High50	136,778,485	111,622,308	113,548,437	114,853,098	84,012,465
02_No/Low	33_RenewELCC-2.5%	01_No LRTP	03_High50	145,814,729	123,342,669	127,038,842	114,707,622	94,996,049
02_No/Low	34_RenewELCC+2.5%	01_No LRTP	03_High50	145,799,378	129,731,852	127,084,024	114,897,789	94,985,747
02_No/Low	35_PRM-2%	01_No LRTP	03_High50	153,128,953	127,622,968	127,755,723	114,757,895	91,168,046
02_No/Low	36_PRM+2%	01_No LRTP	03_High50	149,330,450	122,873,381	125,135,343	114,818,893	89,947,345
03_No/High	00_Base	01_No LRTP	03_High50	145,958,765	123,274,687	127,033,407	114,773,741	94,922,225
03_No/High	01_Coal+20%	01_No LRTP	03_High50	127,284,621	114,773,172	111,853,988	96,544,964	86,537,367
03_No/High	02_Coal-10%	01_No LRTP	03_High50	154,620,031	132,689,780	124,356,088	118,925,827	96,572,229
03_No/High	05_Lower Gas-50%	01_No LRTP	03_High50	136,756,613	120,422,536	116,362,674	89,001,575	93,317,383
03_No/High	06_Low Gas-25%	01_No LRTP	03_High50	138,589,691	124,248,248	123,263,971	95,081,986	95,751,066
03_No/High	07_High Gas+25%	01_No LRTP	03_High50	149,817,715	120,713,130	123,656,704	113,003,186	88,345,619
03_No/High	08_Higher Gas+50%	01_No LRTP	03_High50	151,796,987	128,162,033	125,489,899	109,021,068	86,641,290
03_No/High	09_Highest Gas+100%	01_No LRTP	03_High50	145,501,357	121,134,871	119,255,952	108,932,078	86,308,762
03_No/High	10_WHSL Mkt-50%	01_No LRTP	03_High50	122,237,309	116,304,135	115,819,610	97,919,131	97,000,228
03_No/High	11_WHSL Mkt-25%	01_No LRTP	03_High50	142,358,785	123,693,476	122,136,299	110,379,894	92,642,907
03_No/High	12_WHSL Mkt+25%	01_No LRTP	03_High50	149,812,642	131,511,450	128,448,963	113,149,748	96,979,812
03_No/High	13_WHSL Mkt+50%	01_No LRTP	03_High50	150,376,669	133,355,794	130,544,549	114,520,125	93,319,334
03_No/High	14_CapCosts-30%	01_No LRTP	03_High50	145,863,691	124,384,927	125,402,467	115,038,760	84,619,306
03_No/High	15_CapCosts+30%	01_No LRTP	03_High50	145,847,102	127,864,590	121,256,898	110,842,087	90,397,329
03_No/High	17_NoMktSales	01_No LRTP	03_High50	144,551,718	122,471,761	121,631,766	109,866,534	90,798,386
03_No/High	18_NoSalePurchase	01_No LRTP	03_High50	146,887,005	125,735,995	123,173,958	107,297,881	83,381,205
03_No/High	19_MktAccess-50%	01_No LRTP	03_High50	145,317,969	128,956,974	121,017,983	114,167,077	93,069,018
03_No/High	20_LoINTCONCosts	01_No LRTP	03_High50	145,497,239	117,434,977	115,995,776	105,218,471	86,638,687
03_No/High	21_ITC&PTC Extend	01_No LRTP	03_High50	149,429,931	122,062,511	119,648,196	113,437,495	92,977,779
03_No/High	22_WindCostLow	01_No LRTP	03_High50	145,476,726	129,265,731	115,645,990	110,745,622	90,703,634
03_No/High	23_WindCostHi	01_No LRTP	03_High50	149,135,734	129,275,968	121,431,147	114,826,711	94,046,988
03_No/High	24_SolCostLow	01_No LRTP	03_High50	141,519,463	127,192,758	117,120,535	112,072,970	91,828,353

03_No/High	25_SolCostHigh	01_No LRTP	03_High50	145,793,225	130,710,102	128,392,215	112,160,262	96,068,889
03_No/High	26_StorCostLow	01_No LRTP	03_High50	145,740,032	123,157,780	127,044,581	114,753,663	95,001,566
03_No/High	27_StorCostHigh	01_No LRTP	03_High50	146,016,253	123,340,552	127,016,556	114,825,926	94,020,609
03_No/High	28_AFR 2020 Low	01_No LRTP	03_High50	125,621,774	111,237,533	110,236,534	106,765,299	80,452,056
03_No/High	31_ResTOU	01_No LRTP	03_High50	136,875,535	117,308,005	111,956,527	114,952,465	83,993,613
03_No/High	32_High DG&EV	01_No LRTP	03_High50	136,798,470	111,622,821	113,604,186	114,908,522	83,944,561
03_No/High	33_RenewELCC-2.5%	01_No LRTP	03_High50	145,905,597	123,210,107	127,057,943	114,821,139	94,996,269
03_No/High	34_RenewELCC+2.5%	01_No LRTP	03_High50	145,849,558	129,730,484	127,039,237	114,799,599	94,980,741
03_No/High	35_PRM-2%	01_No LRTP	03_High50	153,067,661	127,593,103	127,860,281	114,856,696	91,176,934
03_No/High	36_PRM+2%	01_No LRTP	03_High50	149,177,261	122,997,974	125,253,056	114,850,476	89,984,179
04_Low/Low	00_Base	01_No LRTP	03_High50	126,804,705	109,374,418	113,235,396	97,539,861	82,093,872
04_Low/Low	01_Coal+20%	01_No LRTP	03_High50	107,593,600	101,010,925	98,541,805	84,788,696	79,018,729
04_Low/Low	02_Coal-10%	01_No LRTP	03_High50	134,769,130	118,934,642	116,999,102	100,648,874	83,722,170
04_Low/Low	05_Lower Gas-50%	01_No LRTP	03_High50	124,367,952	109,935,443	109,182,590	86,621,502	88,071,769
04_Low/Low	06_Low Gas-25%	01_No LRTP	03_High50	128,219,818	114,682,302	105,267,629	90,710,775	88,856,924
04_Low/Low	07_High Gas+25%	01_No LRTP	03_High50	134,969,610	111,869,230	111,057,210	96,694,365	81,447,760
04_Low/Low	08_Higher Gas+50%	01_No LRTP	03_High50	137,533,003	114,739,066	113,462,955	98,519,738	83,929,508
04_Low/Low	09_Highest Gas+100%	01_No LRTP	03_High50	139,033,953	117,401,079	115,725,537	99,467,171	84,635,357
04_Low/Low	10_WHSL Mkt-50%	01_No LRTP	03_High50	110,133,775	107,571,293	106,291,915	90,214,574	93,211,738
04_Low/Low	11_WHSL Mkt-25%	01_No LRTP	03_High50	122,847,880	114,470,573	112,703,467	100,274,046	86,634,800
04_Low/Low	12_WHSL Mkt+25%	01_No LRTP	03_High50	133,207,889	120,159,736	111,962,930	93,677,360	84,706,885
04_Low/Low	13_WHSL Mkt+50%	01_No LRTP	03_High50	136,581,052	123,060,765	120,227,553	94,331,998	86,262,228
04_Low/Low	14_CapCosts-30%	01_No LRTP	03_High50	126,830,659	109,312,791	106,884,995	97,394,397	78,854,481
04_Low/Low	15_CapCosts+30%	01_No LRTP	03_High50	126,818,307	115,599,520	113,363,607	94,028,661	82,081,156
04_Low/Low	17_NoMktSales	01_No LRTP	03_High50	119,725,033	115,924,803	102,063,263	97,429,500	86,169,390
04_Low/Low	18_NoSalePurchase	01_No LRTP	03_High50	125,631,617	113,133,574	110,676,071	97,660,670	81,098,384
04_Low/Low	19_MktAccess-50%	01_No LRTP	03_High50	136,154,618	117,323,046	115,336,746	102,682,803	84,757,104
04_Low/Low	20_LoINTCONCosts	01_No LRTP	03_High50	122,579,482	109,316,950	107,474,523	91,953,345	82,149,528
04_Low/Low	21_ITC&PTC Extend	01_No LRTP	03_High50	117,914,512	113,009,968	110,859,098	95,114,406	81,138,086
04_Low/Low	22_WindCostLow	01_No LRTP	03_High50	122,518,487	109,160,807	107,492,667	94,444,921	80,277,655
04_Low/Low	23_WindCostHi	01_No LRTP	03_High50	133,460,776	114,792,446	113,237,762	97,543,653	86,134,113
04_Low/Low	24_SolCostLow	01_No LRTP	03_High50	128,109,920	106,648,231	110,187,345	94,831,417	80,540,802
04_Low/Low	25_SolCostHigh	01_No LRTP	03_High50	128,592,641	112,463,423	110,403,709	100,137,168	83,896,426
04_Low/Low	26_StorCostLow	01_No LRTP	03_High50	126,793,470	109,416,545	113,170,232	97,111,528	82,050,676
04_Low/Low	27_StorCostHigh	01_No LRTP	03_High50	126,896,964	109,425,513	113,200,617	97,106,136	82,088,569
04_Low/Low	28_AFR 2020 Low	01_No LRTP	03_High50	108,002,930	90,698,571	91,539,525	87,787,544	69,195,085
04_Low/Low	31_ResTOU	01_No LRTP	03_High50	119,469,794	100,384,099	99,307,734	97,480,361	75,727,237
04_Low/Low	32_High DG&EV	01_No LRTP	03_High50	119,382,762	100,279,449	99,461,857	97,492,728	76,724,002
04_Low/Low	33_RenewELCC-2.5%	01_No LRTP	03_High50	126,925,011	115,508,426	113,394,925	97,505,408	81,923,003
04_Low/Low	34_RenewELCC+2.5%	01_No LRTP	03_High50	126,784,653	115,212,587	107,462,770	97,104,589	82,096,353
04_Low/Low	35_PRM-2%	01_No LRTP	03_High50	127,820,346	115,175,382	113,303,770	97,221,160	81,961,200
04_Low/Low	36_PRM+2%	01_No LRTP	03_High50	119,591,905	110,360,851	111,833,910	97,437,424	81,295,540
05_Mid/Mid	00_Base	01_No LRTP	03_High50	100,592,453	91,576,358	88,632,431	78,980,430	76,317,172

05_Mid/Mid	01_Coal+20%	01_No LRTP	03_High50	90,157,833	83,656,021	81,851,364	67,481,300	74,550,724
05_Mid/Mid	02_Coal-10%	01_No LRTP	03_High50	105,331,280	94,875,364	95,775,609	81,937,558	77,677,906
05_Mid/Mid	05_Lower Gas-50%	01_No LRTP	03_High50	100,141,238	90,228,269	90,455,515	77,856,570	85,633,016
05_Mid/Mid	06_Low Gas-25%	01_No LRTP	03_High50	98,485,707	88,878,783	86,308,300	75,775,392	77,991,037
05_Mid/Mid	07_High Gas+25%	01_No LRTP	03_High50	102,915,204	89,899,872	94,218,685	79,801,007	74,375,465
05_Mid/Mid	08_Higher Gas+50%	01_No LRTP	03_High50	108,293,537	93,164,585	95,773,316	83,519,594	75,154,946
05_Mid/Mid	09_Highest Gas+100%	01_No LRTP	03_High50	114,466,335	101,505,104	104,185,793	88,652,264	76,541,004
05_Mid/Mid	10_WHSL Mkt-50%	01_No LRTP	03_High50	94,275,438	90,825,402	89,513,118	82,754,494	85,654,331
05_Mid/Mid	11_WHSL Mkt-25%	01_No LRTP	03_High50	90,061,981	84,762,579	84,692,067	76,768,134	75,599,018
05_Mid/Mid	12_WHSL Mkt+25%	01_No LRTP	03_High50	105,664,115	97,803,608	95,725,294	76,964,397	77,421,011
05_Mid/Mid	13_WHSL Mkt+50%	01_No LRTP	03_High50	109,730,333	101,347,140	98,132,431	78,614,715	78,857,696
05_Mid/Mid	14_CapCosts-30%	01_No LRTP	03_High50	100,826,713	87,933,262	88,632,490	79,115,001	74,948,808
05_Mid/Mid	15_CapCosts+30%	01_No LRTP	03_High50	100,975,408	91,351,357	88,700,906	71,480,743	76,326,898
05_Mid/Mid	17_NoMktSales	01_No LRTP	03_High50	95,345,742	89,507,168	87,938,448	75,470,853	73,372,359
05_Mid/Mid	18_NoSalePurchase	01_No LRTP	03_High50	106,391,633	94,132,094	91,586,813	77,113,177	74,122,539
05_Mid/Mid	19_MktAccess-50%	01_No LRTP	03_High50	107,057,351	94,708,394	92,714,523	71,048,232	76,829,230
05_Mid/Mid	20_LoINTCONCosts	01_No LRTP	03_High50	95,537,160	87,764,054	87,378,638	76,879,617	74,901,636
05_Mid/Mid	21_ITC&PTC Extend	01_No LRTP	03_High50	100,259,042	91,137,882	88,511,481	78,834,028	75,719,777
05_Mid/Mid	22_WindCostLow	01_No LRTP	03_High50	94,283,791	87,422,365	85,731,816	73,490,798	73,191,129
05_Mid/Mid	23_WindCostHi	01_No LRTP	03_High50	100,840,526	94,652,400	91,481,428	79,044,382	76,263,473
05_Mid/Mid	24_SolCostLow	01_No LRTP	03_High50	100,482,838	85,393,858	90,520,958	77,550,827	76,008,408
05_Mid/Mid	25_SolCostHigh	01_No LRTP	03_High50	103,371,325	92,373,565	91,132,722	80,658,516	79,485,801
05_Mid/Mid	26_StorCostLow	01_No LRTP	03_High50	100,939,234	91,584,790	88,690,697	78,923,277	76,377,043
05_Mid/Mid	27_StorCostHigh	01_No LRTP	03_High50	100,734,810	91,777,189	88,357,477	79,075,587	76,357,547
05_Mid/Mid	28_AFR 2020 Low	01_No LRTP	03_High50	76,439,622	74,420,674	73,974,048	70,564,036	62,255,822
05_Mid/Mid	31_ResTOU	01_No LRTP	03_High50	85,180,484	81,970,824	81,401,095	79,103,535	67,375,772
05_Mid/Mid	32_High DG&EV	01_No LRTP	03_High50	86,997,484	82,317,251	81,528,837	79,046,387	68,590,137
05_Mid/Mid	33_RenewELCC-2.5%	01_No LRTP	03_High50	100,839,292	91,475,522	88,483,145	78,960,455	76,553,617
05_Mid/Mid	34_RenewELCC+2.5%	01_No LRTP	03_High50	100,785,118	91,653,651	88,964,069	78,935,156	76,469,874
05_Mid/Mid	35_PRM-2%	01_No LRTP	03_High50	100,965,055	91,852,765	88,935,225	78,938,197	76,425,500
05_Mid/Mid	36_PRM+2%	01_No LRTP	03_High50	98,097,181	94,533,780	87,722,218	78,927,817	75,695,245
06_High/High	00_Base	01_No LRTP	03_High50	82,604,541	77,058,136	74,964,237	69,385,946	72,855,444
06_High/High	01_Coal+20%	01_No LRTP	03_High50	76,312,198	72,416,079	70,733,867	63,056,610	70,083,805
06_High/High	02_Coal-10%	01_No LRTP	03_High50	84,665,150	81,191,646	78,190,722	71,777,730	73,513,760
06_High/High	05_Lower Gas-50%	01_No LRTP	03_High50	84,219,023	81,046,903	79,305,517	72,322,693	80,558,882
06_High/High	06_Low Gas-25%	01_No LRTP	03_High50	84,478,986	79,360,427	77,136,380	67,155,184	75,752,257
06_High/High	07_High Gas+25%	01_No LRTP	03_High50	83,532,561	82,319,553	77,208,011	71,078,159	69,125,784
06_High/High	08_Higher Gas+50%	01_No LRTP	03_High50	88,210,328	84,898,255	81,867,006	70,681,218	69,741,282
06_High/High	09_Highest Gas+100%	01_No LRTP	03_High50	92,137,926	89,790,919	85,048,667	74,600,469	68,942,078
06_High/High	10_WHSL Mkt-50%	01_No LRTP	03_High50	90,681,349	86,710,991	84,975,990	79,792,525	84,600,472
06_High/High	11_WHSL Mkt-25%	01_No LRTP	03_High50	81,408,253	74,725,156	73,388,813	66,994,048	73,644,700
06_High/High	12_WHSL Mkt+25%	01_No LRTP	03_High50	88,977,271	83,299,032	81,490,333	67,481,124	71,431,851
06_High/High	13_WHSL Mkt+50%	01_No LRTP	03_High50	93,875,496	85,984,855	82,471,788	70,354,499	72,392,179

06_High/High	14_CapCosts-30%	01_No LRTP	03_High50	82,530,693	79,623,393	78,752,195	69,164,480	72,103,808
06_High/High	15_CapCosts+30%	01_No LRTP	03_High50	82,425,714	77,551,164	75,145,813	66,174,214	72,343,674
06_High/High	17_NoMktSales	01_No LRTP	03_High50	80,788,424	77,227,515	75,943,722	68,278,250	71,473,693
06_High/High	18_NoSalePurchase	01_No LRTP	03_High50	96,811,370	87,909,692	82,902,024	72,027,886	71,561,185
06_High/High	19_MktAccess-50%	01_No LRTP	03_High50	87,876,247	80,954,707	80,238,181	67,634,012	72,163,109
06_High/High	20_LoINTCONCosts	01_No LRTP	03_High50	80,082,364	78,128,236	73,245,387	66,689,072	70,108,813
06_High/High	21_ITC&PTC Extend	01_No LRTP	03_High50	81,711,541	77,130,486	75,311,259	66,309,119	72,420,303
06_High/High	22_WindCostLow	01_No LRTP	03_High50	80,467,495	75,833,942	73,480,784	65,990,066	70,096,595
06_High/High	23_WindCostHi	01_No LRTP	03_High50	86,143,037	80,740,082	78,761,016	69,199,678	73,938,062
06_High/High	24_SolCostLow	01_No LRTP	03_High50	85,255,052	78,993,309	77,163,197	68,199,474	71,586,557
06_High/High	25_SolCostHigh	01_No LRTP	03_High50	80,590,983	77,088,292	75,587,234	67,837,038	71,771,309
06_High/High	26_StorCostLow	01_No LRTP	03_High50	82,505,911	77,084,651	75,273,662	69,505,308	72,652,136
06_High/High	27_StorCostHigh	01_No LRTP	03_High50	82,547,454	77,178,192	75,193,223	69,471,907	72,811,174
06_High/High	28_AFR 2020 Low	01_No LRTP	03_High50	63,406,232	65,129,930	62,946,954	60,879,574	59,652,779
06_High/High	31_ResTOU	01_No LRTP	03_High50	72,940,616	71,282,284	67,067,437	67,265,272	64,842,030
06_High/High	32_High DG&EV	01_No LRTP	03_High50	72,995,679	71,157,747	67,141,367	67,284,724	64,785,702
06_High/High	33_RenewELCC-2.5%	01_No LRTP	03_High50	82,727,843	77,612,264	75,338,053	69,426,339	72,694,517
06_High/High	34_RenewELCC+2.5%	01_No LRTP	03_High50	82,636,301	80,715,748	75,019,738	69,389,993	72,643,386
06_High/High	35_PRM-2%	01_No LRTP	03_High50	82,509,505	80,931,456	75,211,967	69,397,414	72,723,617
06_High/High	36_PRM+2%	01_No LRTP	03_High50	81,453,583	78,315,572	74,311,679	69,402,367	72,023,219
01_No/No	00_Base	01_No LRTP	04_High20	137,789,617	111,592,300	119,844,496	111,727,176	89,587,735
01_No/No	01_Coal+20%	01_No LRTP	04_High20	129,230,599	106,905,686	110,247,568	104,088,937	86,544,067
01_No/No	02_Coal-10%	01_No LRTP	04_High20	154,664,835	113,640,808	127,116,252	117,380,252	94,627,134
01_No/No	05_Lower Gas-50%	01_No LRTP	04_High20	129,910,570	108,017,121	114,825,153	101,607,801	90,017,971
01_No/No	06_Low Gas-25%	01_No LRTP	04_High20	137,275,338	109,668,861	116,739,865	113,481,875	97,503,023
01_No/No	07_High Gas+25%	01_No LRTP	04_High20	143,490,932	112,883,733	121,221,317	116,194,724	88,106,701
01_No/No	08_Higher Gas+50%	01_No LRTP	04_High20	141,765,226	113,335,932	117,523,780	116,074,687	85,760,084
01_No/No	09_Highest Gas+100%	01_No LRTP	04_High20	141,661,667	113,683,904	116,215,394	116,064,784	86,825,493
01_No/No	10_WHSL Mkt-50%	01_No LRTP	04_High20	127,394,098	90,613,294	115,130,743	117,967,979	97,407,981
01_No/No	11_WHSL Mkt-25%	01_No LRTP	04_High20	140,907,838	103,779,684	127,081,121	110,956,995	96,552,293
01_No/No	12_WHSL Mkt+25%	01_No LRTP	04_High20	144,350,033	115,592,899	122,799,468	116,702,677	89,202,473
01_No/No	13_WHSL Mkt+50%	01_No LRTP	04_High20	147,017,870	117,948,502	125,076,592	120,412,578	92,672,576
01_No/No	14_CapCosts-30%	01_No LRTP	04_High20	137,743,080	111,337,577	117,025,157	112,995,232	93,763,082
01_No/No	15_CapCosts+30%	01_No LRTP	04_High20	137,778,342	111,327,329	125,273,820	115,885,024	93,754,175
01_No/No	17_NoMktSales	01_No LRTP	04_High20	143,206,432	104,465,042	127,555,511	115,290,733	90,176,002
01_No/No	18_NoSalePurchase	01_No LRTP	04_High20	137,081,114	108,523,497	115,397,404	110,206,225	82,747,746
01_No/No	19_MktAccess-50%	01_No LRTP	04_High20	141,100,649	111,254,163	131,786,168	111,676,623	92,170,162
01_No/No	20_LoINTCONCosts	01_No LRTP	04_High20	138,221,982	111,402,459	120,873,310	113,366,814	89,476,285
01_No/No	21_ITC&PTC Extend	01_No LRTP	04_High20	139,760,828	111,467,386	115,549,704	114,192,873	89,630,341
01_No/No	22_WindCostLow	01_No LRTP	04_High20	137,735,361	111,460,223	124,569,906	112,233,364	86,992,645
01_No/No	23_WindCostHi	01_No LRTP	04_High20	141,050,479	111,407,121	125,143,083	112,182,481	93,765,707
01_No/No	24_SolCostLow	01_No LRTP	04_High20	133,839,447	111,492,991	122,313,231	109,718,082	91,587,420
01_No/No	25_SolCostHigh	01_No LRTP	04_High20	137,406,321	111,377,295	128,126,131	113,070,453	95,770,234

01_No/No	26_StorCostLow	01_No LRTP	04_High20	137,709,218	111,480,568	119,873,953	111,796,129	89,351,288
01_No/No	27_StorCostHigh	01_No LRTP	04_High20	137,817,429	111,411,437	119,861,017	111,849,384	93,887,699
01_No/No	28_AFR 2020 Low	01_No LRTP	04_High20	131,846,400	101,455,232	115,460,679	105,396,695	79,890,594
01_No/No	31_ResTOU	01_No LRTP	04_High20	143,319,981	111,452,129	118,976,035	114,503,950	86,757,479
01_No/No	32_High DG&EV	01_No LRTP	04_High20	143,234,173	111,386,618	119,035,599	114,496,128	83,486,131
01_No/No	33_RenewELCC-2.5%	01_No LRTP	04_High20	134,689,967	111,384,943	125,225,048	110,980,635	89,641,613
01_No/No	34_RenewELCC+2.5%	01_No LRTP	04_High20	148,010,309	111,514,977	121,918,121	118,574,628	91,389,750
01_No/No	35_PRM-2%	01_No LRTP	04_High20	143,092,678	111,418,750	116,712,426	117,839,579	87,548,580
01_No/No	36_PRM+2%	01_No LRTP	04_High20	134,149,313	111,408,387	124,360,075	109,906,822	88,676,206
02_No/Low	00_Base	01_No LRTP	04_High20	137,616,802	111,451,430	119,749,432	111,782,680	89,577,049
02_No/Low	01_Coal+20%	01_No LRTP	04_High20	129,170,703	106,742,581	110,192,018	103,971,160	86,535,097
02_No/Low	02_Coal-10%	01_No LRTP	04_High20	154,638,267	113,598,775	127,048,635	117,319,409	94,691,922
02_No/Low	05_Lower Gas-50%	01_No LRTP	04_High20	129,913,173	108,094,288	114,992,122	101,655,039	90,018,711
02_No/Low	06_Low Gas-25%	01_No LRTP	04_High20	137,312,884	109,781,622	116,689,187	113,497,336	97,514,090
02_No/Low	07_High Gas+25%	01_No LRTP	04_High20	143,458,340	112,888,175	121,211,868	116,178,483	88,057,982
02_No/Low	08_Higher Gas+50%	01_No LRTP	04_High20	141,810,226	113,427,024	117,432,839	116,072,413	85,701,124
02_No/Low	09_Highest Gas+100%	01_No LRTP	04_High20	141,613,675	113,803,806	116,167,698	116,120,661	86,857,872
02_No/Low	10_WHSL Mkt-50%	01_No LRTP	04_High20	127,304,153	90,547,440	115,038,899	117,950,025	97,383,779
02_No/Low	11_WHSL Mkt-25%	01_No LRTP	04_High20	141,036,835	103,847,831	127,051,737	110,945,410	96,488,564
02_No/Low	12_WHSL Mkt+25%	01_No LRTP	04_High20	144,398,492	115,503,652	122,794,514	116,770,706	89,143,412
02_No/Low	13_WHSL Mkt+50%	01_No LRTP	04_High20	147,155,016	117,997,109	125,050,856	120,429,241	92,654,594
02_No/Low	14_CapCosts-30%	01_No LRTP	04_High20	137,735,222	111,509,804	125,253,755	115,910,627	93,825,077
02_No/Low	15_CapCosts+30%	01_No LRTP	04_High20	137,693,585	111,402,226	116,979,000	113,031,749	93,826,125
02_No/Low	17_NoMktSales	01_No LRTP	04_High20	143,281,798	104,563,415	127,571,842	115,107,600	90,168,031
02_No/Low	18_NoSalePurchase	01_No LRTP	04_High20	136,938,438	108,715,759	115,320,934	110,213,339	82,605,039
02_No/Low	19_MktAccess-50%	01_No LRTP	04_High20	140,831,610	111,201,866	131,917,358	111,624,333	92,204,307
02_No/Low	20_LoINTCONCosts	01_No LRTP	04_High20	138,281,960	111,553,447	120,832,375	113,385,903	89,581,067
02_No/Low	21_ITC&PTC Extend	01_No LRTP	04_High20	139,630,203	111,409,536	115,446,193	114,229,169	89,555,400
02_No/Low	22_WindCostLow	01_No LRTP	04_High20	137,727,537	111,473,562	124,461,601	112,271,931	87,006,665
02_No/Low	23_WindCostHi	01_No LRTP	04_High20	140,980,702	111,401,198	125,220,852	112,276,047	93,840,064
02_No/Low	24_SolCostLow	01_No LRTP	04_High20	133,789,921	111,432,313	122,296,089	109,756,904	91,553,770
02_No/Low	25_SolCostHigh	01_No LRTP	04_High20	137,381,265	111,478,748	128,151,552	113,065,023	95,820,181
02_No/Low	26_StorCostLow	01_No LRTP	04_High20	137,617,507	111,451,118	119,737,349	111,827,798	89,407,246
02_No/Low	27_StorCostHigh	01_No LRTP	04_High20	137,649,593	111,391,973	119,762,192	111,808,065	93,828,332
02_No/Low	28_AFR 2020 Low	01_No LRTP	04_High20	131,767,806	101,539,921	115,405,162	105,418,440	79,845,807
02_No/Low	31_ResTOU	01_No LRTP	04_High20	143,206,202	111,405,128	119,018,495	114,392,914	86,778,832
02_No/Low	32_High DG&EV	01_No LRTP	04_High20	143,147,767	111,287,340	119,050,871	114,467,807	83,493,213
02_No/Low	33_RenewELCC-2.5%	01_No LRTP	04_High20	134,738,560	111,446,651	125,233,752	110,756,457	89,581,972
02_No/Low	34_RenewELCC+2.5%	01_No LRTP	04_High20	148,029,106	111,513,043	121,976,590	118,665,716	91,447,399
02_No/Low	35_PRM-2%	01_No LRTP	04_High20	143,163,312	111,500,997	116,729,184	117,854,663	87,558,393
02_No/Low	36_PRM+2%	01_No LRTP	04_High20	134,046,923	111,403,613	124,228,767	109,840,026	88,665,689
03_No/High	00_Base	01_No LRTP	04_High20	137,776,361	111,515,029	119,807,020	111,757,103	89,547,632
03_No/High	01_Coal+20%	01_No LRTP	04_High20	129,149,594	106,745,250	110,250,297	104,112,515	86,455,434

03_No/High	02_Coal-10%	01_No LRTP	04_High20	154,651,833	113,589,505	127,095,739	117,349,354	94,685,472
03_No/High	05_Lower Gas-50%	01_No LRTP	04_High20	129,842,698	108,181,393	114,649,068	101,559,381	89,936,654
03_No/High	06_Low Gas-25%	01_No LRTP	04_High20	137,260,243	109,690,743	116,602,736	113,417,837	97,589,515
03_No/High	07_High Gas+25%	01_No LRTP	04_High20	143,339,589	112,945,935	121,243,567	116,183,218	88,103,939
03_No/High	08_Higher Gas+50%	01_No LRTP	04_High20	141,689,217	113,398,927	117,447,368	116,078,801	85,770,422
03_No/High	09_Highest Gas+100%	01_No LRTP	04_High20	141,563,416	113,764,951	116,151,457	116,137,642	86,869,966
03_No/High	10_WHSL Mkt-50%	01_No LRTP	04_High20	127,285,148	90,561,084	115,093,424	117,989,641	97,439,662
03_No/High	11_WHSL Mkt-25%	01_No LRTP	04_High20	140,898,315	103,900,804	127,085,310	110,963,636	96,469,069
03_No/High	12_WHSL Mkt+25%	01_No LRTP	04_High20	144,455,268	115,337,701	122,809,084	116,766,275	89,245,429
03_No/High	13_WHSL Mkt+50%	01_No LRTP	04_High20	147,043,374	117,950,264	125,038,095	120,361,180	92,673,350
03_No/High	14_CapCosts-30%	01_No LRTP	04_High20	137,687,327	111,414,713	125,279,239	115,833,829	93,818,668
03_No/High	15_CapCosts+30%	01_No LRTP	04_High20	137,844,009	111,418,147	116,949,890	113,026,087	93,762,805
03_No/High	17_NoMktSales	01_No LRTP	04_High20	143,339,900	104,599,670	127,600,278	115,154,148	90,146,403
03_No/High	18_NoSalePurchase	01_No LRTP	04_High20	136,948,185	108,604,141	115,476,093	110,306,440	82,718,340
03_No/High	19_MktAccess-50%	01_No LRTP	04_High20	140,915,062	111,198,668	131,787,594	111,720,859	92,290,794
03_No/High	20_LoINTCONCosts	01_No LRTP	04_High20	138,131,220	111,448,603	120,854,544	113,538,805	89,517,085
03_No/High	21_ITC&PTC Extend	01_No LRTP	04_High20	139,754,626	111,422,877	115,528,007	114,212,425	89,560,665
03_No/High	22_WindCostLow	01_No LRTP	04_High20	137,793,450	111,475,736	124,433,871	112,154,391	86,951,627
03_No/High	23_WindCostHi	01_No LRTP	04_High20	140,961,826	111,438,515	125,180,182	112,158,311	93,782,958
03_No/High	24_SolCostLow	01_No LRTP	04_High20	133,821,332	111,348,678	122,374,728	109,805,061	91,594,470
03_No/High	25_SolCostHigh	01_No LRTP	04_High20	137,271,275	111,451,475	128,020,471	112,978,437	95,716,211
03_No/High	26_StorCostLow	01_No LRTP	04_High20	137,671,058	111,349,399	119,731,157	111,700,713	89,352,351
03_No/High	27_StorCostHigh	01_No LRTP	04_High20	137,761,416	111,358,272	119,929,843	111,780,280	93,812,797
03_No/High	28_AFR 2020 Low	01_No LRTP	04_High20	131,892,438	101,724,399	115,389,422	105,467,678	79,919,451
03_No/High	31_ResTOU	01_No LRTP	04_High20	143,319,917	111,361,581	119,042,601	114,487,451	86,844,393
03_No/High	32_High DG&EV	01_No LRTP	04_High20	143,255,798	111,338,940	119,021,126	114,439,029	83,402,449
03_No/High	33_RenewELCC-2.5%	01_No LRTP	04_High20	134,664,047	111,361,701	125,234,675	110,804,647	89,562,972
03_No/High	34_RenewELCC+2.5%	01_No LRTP	04_High20	148,179,189	111,421,171	121,936,471	118,582,803	91,388,702
03_No/High	35_PRM-2%	01_No LRTP	04_High20	143,270,287	111,507,343	116,893,519	117,917,476	87,578,634
03_No/High	36_PRM+2%	01_No LRTP	04_High20	134,253,756	111,443,390	124,282,822	109,979,253	88,693,418
04_Low/Low	00_Base	01_No LRTP	04_High20	127,728,842	106,960,262	108,547,512	103,451,941	81,854,400
04_Low/Low	01_Coal+20%	01_No LRTP	04_High20	119,836,353	101,938,725	101,128,639	95,857,079	78,652,322
04_Low/Low	02_Coal-10%	01_No LRTP	04_High20	133,672,702	109,286,458	117,252,021	108,656,294	83,102,438
04_Low/Low	05_Lower Gas-50%	01_No LRTP	04_High20	117,788,582	104,292,703	104,633,196	93,307,420	88,433,632
04_Low/Low	06_Low Gas-25%	01_No LRTP	04_High20	127,046,270	105,649,843	105,025,609	101,207,612	89,591,090
04_Low/Low	07_High Gas+25%	01_No LRTP	04_High20	132,442,504	108,604,870	110,699,528	108,834,665	81,854,364
04_Low/Low	08_Higher Gas+50%	01_No LRTP	04_High20	131,832,510	109,612,398	112,466,260	110,044,734	82,482,007
04_Low/Low	09_Highest Gas+100%	01_No LRTP	04_High20	132,336,354	110,314,004	112,626,077	110,268,257	84,198,685
04_Low/Low	10_WHSL Mkt-50%	01_No LRTP	04_High20	112,343,334	85,351,720	105,860,097	111,597,034	93,120,630
04_Low/Low	11_WHSL Mkt-25%	01_No LRTP	04_High20	118,744,357	97,627,867	112,329,835	102,515,462	87,126,515
04_Low/Low	12_WHSL Mkt+25%	01_No LRTP	04_High20	133,874,777	112,255,264	112,883,904	108,062,569	84,234,855
04_Low/Low	13_WHSL Mkt+50%	01_No LRTP	04_High20	137,440,510	115,343,010	116,916,020	110,471,054	85,991,024
04_Low/Low	14_CapCosts-30%	01_No LRTP	04_High20	127,847,414	106,997,658	108,724,209	110,497,375	81,900,243

04_Low/Low	15_CapCosts+30%	01_No LRTP	04_High20	127,714,218	106,817,081	108,567,270	103,883,520	81,931,184
04_Low/Low	17_NoMktSales	01_No LRTP	04_High20	122,893,179	100,607,859	114,935,169	97,757,129	87,302,518
04_Low/Low	18_NoSalePurchase	01_No LRTP	04_High20	134,364,900	107,513,484	113,205,467	98,034,490	80,752,659
04_Low/Low	19_MktAccess-50%	01_No LRTP	04_High20	131,442,519	108,280,163	114,220,617	102,928,098	85,009,650
04_Low/Low	20_LoINTCONCosts	01_No LRTP	04_High20	129,613,993	106,903,146	108,562,462	103,395,473	81,983,523
04_Low/Low	21_ITC&PTC Extend	01_No LRTP	04_High20	132,693,443	106,843,576	110,253,467	101,686,141	83,474,942
04_Low/Low	22_WindCostLow	01_No LRTP	04_High20	129,625,441	106,904,563	107,852,943	103,326,456	80,064,250
04_Low/Low	23_WindCostHi	01_No LRTP	04_High20	127,890,220	106,819,606	108,713,752	103,530,788	81,845,926
04_Low/Low	24_SolCostLow	01_No LRTP	04_High20	124,383,939	106,996,634	110,497,455	100,344,780	84,830,850
04_Low/Low	25_SolCostHigh	01_No LRTP	04_High20	131,490,625	107,014,187	110,793,764	105,266,572	88,505,443
04_Low/Low	26_StorCostLow	01_No LRTP	04_High20	127,774,178	106,893,123	108,544,833	103,308,560	81,931,052
04_Low/Low	27_StorCostHigh	01_No LRTP	04_High20	127,907,343	107,023,326	108,549,577	103,486,516	81,918,200
04_Low/Low	28_AFR 2020 Low	01_No LRTP	04_High20	115,414,790	98,353,414	97,835,347	95,466,756	71,562,199
04_Low/Low	31_ResTOU	01_No LRTP	04_High20	120,251,298	107,034,444	106,294,209	96,823,963	74,913,224
04_Low/Low	32_High DG&EV	01_No LRTP	04_High20	120,353,971	106,922,495	105,945,127	96,834,191	74,895,883
04_Low/Low	33_RenewELCC-2.5%	01_No LRTP	04_High20	126,245,493	106,923,664	111,505,843	100,857,368	86,420,672
04_Low/Low	34_RenewELCC+2.5%	01_No LRTP	04_High20	136,233,558	106,998,860	109,308,069	103,826,171	82,401,737
04_Low/Low	35_PRM-2%	01_No LRTP	04_High20	136,417,887	106,939,782	112,614,337	103,859,506	84,934,505
04_Low/Low	36_PRM+2%	01_No LRTP	04_High20	125,769,370	106,964,520	108,551,728	101,982,053	85,901,002
05_Mid/Mid	00_Base	01_No LRTP	04_High20	109,385,672	98,209,892	95,309,840	90,120,264	77,584,136
05_Mid/Mid	01_Coal+20%	01_No LRTP	04_High20	103,606,025	93,782,912	87,153,721	84,934,768	75,114,875
05_Mid/Mid	02_Coal-10%	01_No LRTP	04_High20	116,410,290	100,722,597	97,996,044	94,490,333	78,404,846
05_Mid/Mid	05_Lower Gas-50%	01_No LRTP	04_High20	101,197,515	95,998,608	86,073,967	90,822,433	82,140,583
05_Mid/Mid	06_Low Gas-25%	01_No LRTP	04_High20	111,637,980	97,345,796	88,926,049	90,857,727	77,092,985
05_Mid/Mid	07_High Gas+25%	01_No LRTP	04_High20	111,702,567	99,675,365	96,901,350	96,259,532	74,839,792
05_Mid/Mid	08_Higher Gas+50%	01_No LRTP	04_High20	113,995,715	101,269,405	98,959,164	96,915,278	74,709,076
05_Mid/Mid	09_Highest Gas+100%	01_No LRTP	04_High20	115,243,032	102,966,544	98,061,654	98,771,458	77,090,887
05_Mid/Mid	10_WHSL Mkt-50%	01_No LRTP	04_High20	93,805,481	79,661,711	90,168,556	93,330,636	87,366,126
05_Mid/Mid	11_WHSL Mkt-25%	01_No LRTP	04_High20	101,294,873	88,148,406	89,687,822	83,494,355	74,332,377
05_Mid/Mid	12_WHSL Mkt+25%	01_No LRTP	04_High20	116,019,377	105,849,622	95,540,165	93,920,565	78,082,977
05_Mid/Mid	13_WHSL Mkt+50%	01_No LRTP	04_High20	118,778,654	110,631,335	100,581,838	94,724,752	79,763,222
05_Mid/Mid	14_CapCosts-30%	01_No LRTP	04_High20	109,307,293	98,408,824	93,936,982	90,976,078	76,813,396
05_Mid/Mid	15_CapCosts+30%	01_No LRTP	04_High20	109,342,541	98,509,203	94,269,716	90,043,029	76,485,171
05_Mid/Mid	17_NoMktSales	01_No LRTP	04_High20	109,549,650	93,448,486	92,350,496	86,836,684	73,016,967
05_Mid/Mid	18_NoSalePurchase	01_No LRTP	04_High20	114,229,798	105,827,119	97,031,933	90,134,288	71,272,801
05_Mid/Mid	19_MktAccess-50%	01_No LRTP	04_High20	119,901,774	103,351,789	99,828,526	92,085,962	78,713,725
05_Mid/Mid	20_LoINTCONCosts	01_No LRTP	04_High20	107,290,846	98,367,263	93,459,921	88,981,364	74,975,217
05_Mid/Mid	21_ITC&PTC Extend	01_No LRTP	04_High20	109,031,633	98,255,246	94,971,538	89,204,301	76,597,589
05_Mid/Mid	22_WindCostLow	01_No LRTP	04_High20	104,125,461	98,350,071	89,374,732	86,870,426	73,418,928
05_Mid/Mid	23_WindCostHi	01_No LRTP	04_High20	112,992,617	98,507,271	96,944,998	90,284,445	76,766,425
05_Mid/Mid	24_SolCostLow	01_No LRTP	04_High20	112,840,344	98,260,145	93,654,765	89,351,976	76,830,613
05_Mid/Mid	25_SolCostHigh	01_No LRTP	04_High20	112,257,735	98,403,043	94,052,995	91,127,516	76,841,652
05_Mid/Mid	26_StorCostLow	01_No LRTP	04_High20	109,485,743	98,232,217	94,552,119	90,268,184	76,799,626

05_Mid/Mid	27_StorCostHigh	01_No LRTP	04_High20	109,335,000	98,467,478	93,097,516	90,123,189	76,830,012
05_Mid/Mid	28_AFR 2020 Low	01_No LRTP	04_High20	88,584,668	89,391,982	77,318,485	71,134,196	63,326,856
05_Mid/Mid	31_ResTOU	01_No LRTP	04_High20	97,470,727	98,596,834	86,468,606	78,193,132	69,237,706
05_Mid/Mid	32_High DG&EV	01_No LRTP	04_High20	99,031,360	98,522,791	86,649,587	78,106,420	70,517,919
05_Mid/Mid	33_RenewELCC-2.5%	01_No LRTP	04_High20	108,499,161	98,349,996	92,290,385	88,265,594	76,792,917
05_Mid/Mid	34_RenewELCC+2.5%	01_No LRTP	04_High20	109,482,152	98,361,332	95,327,522	90,347,429	78,379,072
05_Mid/Mid	35_PRM-2%	01_No LRTP	04_High20	109,616,252	98,419,594	95,909,223	90,256,943	78,885,066
05_Mid/Mid	36_PRM+2%	01_No LRTP	04_High20	107,832,519	98,384,226	91,755,627	88,376,955	76,774,061
06_High/High	00_Base	01_No LRTP	04_High20	91,163,518	91,360,939	83,617,690	77,969,943	71,955,440
06_High/High	01_Coal+20%	01_No LRTP	04_High20	86,237,126	87,142,967	74,591,236	74,326,245	70,417,031
06_High/High	02_Coal-10%	01_No LRTP	04_High20	94,142,665	93,728,183	82,524,542	79,996,446	73,849,639
06_High/High	05_Lower Gas-50%	01_No LRTP	04_High20	84,733,991	88,995,886	77,159,309	82,386,765	75,488,786
06_High/High	06_Low Gas-25%	01_No LRTP	04_High20	94,813,383	90,484,394	77,174,392	81,488,977	74,887,451
06_High/High	07_High Gas+25%	01_No LRTP	04_High20	92,139,811	92,430,261	83,974,125	76,125,903	69,981,238
06_High/High	08_Higher Gas+50%	01_No LRTP	04_High20	94,110,847	94,038,384	87,486,070	85,851,004	70,263,391
06_High/High	09_Highest Gas+100%	01_No LRTP	04_High20	98,320,506	96,337,744	88,723,372	87,399,449	72,407,557
06_High/High	10_WHSL Mkt-50%	01_No LRTP	04_High20	94,114,584	77,508,683	81,368,657	84,643,917	81,808,104
06_High/High	11_WHSL Mkt-25%	01_No LRTP	04_High20	87,680,570	82,228,409	76,251,798	80,447,662	73,062,245
06_High/High	12_WHSL Mkt+25%	01_No LRTP	04_High20	99,236,685	99,981,703	84,693,213	79,509,429	72,625,426
06_High/High	13_WHSL Mkt+50%	01_No LRTP	04_High20	103,102,148	106,012,791	87,263,271	81,676,822	73,400,822
06_High/High	14_CapCosts-30%	01_No LRTP	04_High20	91,031,560	91,455,138	79,605,208	78,135,369	71,726,548
06_High/High	15_CapCosts+30%	01_No LRTP	04_High20	91,225,989	91,408,386	83,745,106	78,060,025	71,877,698
06_High/High	17_NoMktSales	01_No LRTP	04_High20	94,301,940	87,798,492	77,252,308	79,307,108	72,846,171
06_High/High	18_NoSalePurchase	01_No LRTP	04_High20	103,840,937	105,111,433	89,871,941	74,990,835	66,770,284
06_High/High	19_MktAccess-50%	01_No LRTP	04_High20	100,097,495	99,820,167	86,225,083	80,415,532	73,386,858
06_High/High	20_LoINTCONCosts	01_No LRTP	04_High20	89,440,367	91,453,778	79,766,186	73,921,309	72,059,407
06_High/High	21_ITC&PTC Extend	01_No LRTP	04_High20	90,617,776	91,407,135	78,327,419	77,248,384	72,666,884
06_High/High	22_WindCostLow	01_No LRTP	04_High20	89,575,073	91,545,997	76,364,219	77,156,464	69,616,099
06_High/High	23_WindCostHi	01_No LRTP	04_High20	95,812,503	91,377,101	83,845,858	78,080,753	71,926,950
06_High/High	24_SolCostLow	01_No LRTP	04_High20	93,599,515	91,502,827	77,314,350	77,873,720	72,108,520
06_High/High	25_SolCostHigh	01_No LRTP	04_High20	91,916,890	91,114,131	80,131,444	78,015,743	72,807,975
06_High/High	26_StorCostLow	01_No LRTP	04_High20	91,102,355	91,411,874	83,752,715	78,076,989	71,839,808
06_High/High	27_StorCostHigh	01_No LRTP	04_High20	91,119,609	91,455,291	83,832,513	77,891,088	71,755,333
06_High/High	28_AFR 2020 Low	01_No LRTP	04_High20	73,245,984	81,298,892	64,489,276	63,474,702	60,367,457
06_High/High	31_ResTOU	01_No LRTP	04_High20	83,294,198	91,600,547	73,538,998	69,809,231	65,554,298
06_High/High	32_High DG&EV	01_No LRTP	04_High20	83,313,445	91,585,411	73,633,007	70,298,766	67,077,739
06_High/High	33_RenewELCC-2.5%	01_No LRTP	04_High20	91,216,847	91,417,734	78,669,133	78,109,592	71,061,651
06_High/High	34_RenewELCC+2.5%	01_No LRTP	04_High20	91,163,931	91,379,821	80,459,803	77,994,104	74,272,707
06_High/High	35_PRM-2%	01_No LRTP	04_High20	90,321,669	91,205,461	81,187,247	78,011,350	74,402,519
06_High/High	36_PRM+2%	01_No LRTP	04_High20	90,986,308	91,091,857	82,882,514	78,076,347	71,118,005
01_No/No	00_Base	02_LRTP	01_Mid50	85,330,305	77,539,755	73,611,315	72,710,013	61,014,019
02_No/Low	00_Base	02_LRTP	01_Mid50	85,244,513	77,578,962	73,642,488	72,719,238	60,803,744
03_No/High	00_Base	02_LRTP	01_Mid50	54,113,125	53,747,053	51,746,170	52,996,232	48,272,586

04_Low/Low	00_Base	02_LRTP	01_Mid50	85,245,700	77,562,900	73,604,379	72,779,904	60,886,379
05_Mid/Mid	00_Base	02_LRTP	01_Mid50	75,090,870	66,959,775	65,641,955	61,956,345	55,325,211
06_High/High	00_Base	02_LRTP	01_Mid50	59,672,904	57,378,083	56,367,883	56,580,159	50,519,241

CERTIFICATE OF SERVICE

I, Sharon Ferguson, hereby certify that I have this day, served copies of the following document on the attached list of persons by electronic filing, certified mail, e-mail, or by depositing a true and correct copy thereof properly enveloped with postage paid in the United States Mail at St. Paul, Minnesota.

Minnesota Department of Commerce
Reply Comments

Docket No. E015/RP-21-33

Dated this **29th** day of **August 2022**

/s/Sharon Ferguson

First Name	Last Name	Email	Company Name	Address	Delivery Method	View Trade Secret	Service List Name
Jessica L	Bayles	Jessica.Bayles@stoel.com	Stoel Rives LLP	1150 18th St NW Ste 325 Washington, DC 20036	Electronic Service	No	OFF_SL_21-33_Official CC Service List
Laura	Bishop	Laura.Bishop@state.mn.us	MN Pollution Control Agency	520 Lafayette Rd Saint Paul, MN 55155	Electronic Service	No	OFF_SL_21-33_Official CC Service List
Jon	Brekke	jbrekke@greenergy.com	Great River Energy	12300 Elm Creek Boulevard Maple Grove, MN 553694718	Electronic Service	No	OFF_SL_21-33_Official CC Service List
Christina	Brusven	cbrusven@fredlaw.com	Fredrikson Byron	200 S 6th St Ste 4000 Minneapolis, MN 554021425	Electronic Service	No	OFF_SL_21-33_Official CC Service List
Generic Notice	Commerce Attorneys	commerce.attorneys@ag.state.mn.us	Office of the Attorney General-DOC	445 Minnesota Street Suite 1400 St. Paul, MN 55101	Electronic Service	Yes	OFF_SL_21-33_Official CC Service List
Riley	Conlin	riley.conlin@stoel.com	Stoel Rives LLP	33 S. 6th Street Suite 4200 Minneapolis, MN 55402	Electronic Service	No	OFF_SL_21-33_Official CC Service List
Hillary	Creurer	hcreurer@allete.com	Minnesota Power	30 W Superior St Duluth, MN 55802	Electronic Service	No	OFF_SL_21-33_Official CC Service List
Brian	Edstrom	briane@cubminnesota.org	Citizens Utility Board of Minnesota	332 Minnesota St Ste W1360 Saint Paul, MN 55101	Electronic Service	No	OFF_SL_21-33_Official CC Service List
Sharon	Ferguson	sharon.ferguson@state.mn.us	Department of Commerce	85 7th Place E Ste 280 Saint Paul, MN 551012198	Electronic Service	No	OFF_SL_21-33_Official CC Service List
Stephanie L	Fitzgerald	sfitzgerald@mncenter.org	Minnesota Center for Environmental Advocacy	1919 University Ave W Ste 515 Saint Paul, MN 55104-3435	Electronic Service	No	OFF_SL_21-33_Official CC Service List

First Name	Last Name	Email	Company Name	Address	Delivery Method	View Trade Secret	Service List Name
Edward	Garvey	garveyed@aol.com	Residence	32 Lawton St Saint Paul, MN 55102	Electronic Service	No	OFF_SL_21-33_Official CC Service List
Adam	Heinen	aheinen@dakotaelectric.com	Dakota Electric Association	4300 220th St W Farmington, MN 55024	Electronic Service	No	OFF_SL_21-33_Official CC Service List
Sarah	Johnson Phillips	sarah.phillips@stoel.com	Stoel Rives LLP	33 South Sixth Street Suite 4200 Minneapolis, MN 55402	Electronic Service	No	OFF_SL_21-33_Official CC Service List
William D	Kenworthy	will@votesolar.org	Vote Solar	332 S Michigan Ave FL 9 Chicago, IL 60604	Electronic Service	No	OFF_SL_21-33_Official CC Service List
Becky	Lammi	cityclerk@ci.aurora.mn.us	City of Aurora	16 W 2nd Ave N PO Box 160 Aurora, MN 55705	Electronic Service	No	OFF_SL_21-33_Official CC Service List
Emily	Larson	eLarson@duluthmn.gov	City of Duluth	411 W 1st St Rm 403 Duluth, MN 55802	Electronic Service	No	OFF_SL_21-33_Official CC Service List
James D.	Larson	james.larson@avantenergy.com	Avant Energy Services	220 S 6th St Ste 1300 Minneapolis, MN 55402	Electronic Service	No	OFF_SL_21-33_Official CC Service List
Annie	Levenson Falk	annielf@cubminnesota.org	Citizens Utility Board of Minnesota	332 Minnesota Street, Suite W1360 St. Paul, MN 55101	Electronic Service	No	OFF_SL_21-33_Official CC Service List
Eric	Lipman	eric.lipman@state.mn.us	Office of Administrative Hearings	PO Box 64620 St. Paul, MN 551640620	Electronic Service	Yes	OFF_SL_21-33_Official CC Service List
Susan	Ludwig	sludwig@mnpower.com	Minnesota Power	30 West Superior Street Duluth, MN 55802	Electronic Service	No	OFF_SL_21-33_Official CC Service List

First Name	Last Name	Email	Company Name	Address	Delivery Method	View Trade Secret	Service List Name
Pam	Marshall	pam@energycents.org	Energy CENTS Coalition	823 7th St E St. Paul, MN 55106	Electronic Service	No	OFF_SL_21-33_Official CC Service List
Daryl	Maxwell	dmaxwell@hydro.mb.ca	Manitoba Hydro	360 Portage Ave FL 16 PO Box 815, Station Main Winnipeg, Manitoba R3C 2P4 Canada	Electronic Service	No	OFF_SL_21-33_Official CC Service List
David	Moeller	dmoeller@allete.com	Minnesota Power	30 W Superior St Duluth, MN 558022093	Electronic Service	Yes	OFF_SL_21-33_Official CC Service List
Andrew	Moratzka	andrew.moratzka@stoel.com	Stoel Rives LLP	33 South Sixth St Ste 4200 Minneapolis, MN 55402	Electronic Service	No	OFF_SL_21-33_Official CC Service List
Evan	Mulholland	emulholland@mncenter.org	Minnesota Center for Environmental Advocacy	1919 University Ave W Ste 515 Saint Paul, MN 55101	Electronic Service	No	OFF_SL_21-33_Official CC Service List
David	Niles	david.niles@avantenergy.com	Minnesota Municipal Power Agency	220 South Sixth Street Suite 1300 Minneapolis, Minnesota 55402	Electronic Service	No	OFF_SL_21-33_Official CC Service List
Jennifer	Peterson	jjpeterson@mnpower.com	Minnesota Power	30 West Superior Street Duluth, MN 55802	Electronic Service	No	OFF_SL_21-33_Official CC Service List
Generic Notice	Residential Utilities Division	residential.utilities@ag.state.mn.us	Office of the Attorney General-RUD	1400 BRM Tower 445 Minnesota St St. Paul, MN 551012131	Electronic Service	Yes	OFF_SL_21-33_Official CC Service List
Susan	Romans	sromans@allete.com	Minnesota Power	30 West Superior Street Legal Dept Duluth, MN 55802	Electronic Service	No	OFF_SL_21-33_Official CC Service List

First Name	Last Name	Email	Company Name	Address	Delivery Method	View Trade Secret	Service List Name
Will	Seuffert	Will.Seuffert@state.mn.us	Public Utilities Commission	121 7th Pl E Ste 350 Saint Paul, MN 55101	Electronic Service	Yes	OFF_SL_21-33_Official CC Service List
Janet	Shaddix Elling	jshaddix@janetshaddix.com	Shaddix And Associates	7400 Lyndale Ave S Ste 190 Richfield, MN 55423	Electronic Service	Yes	OFF_SL_21-33_Official CC Service List
Eric	Swanson	eswanson@winthrop.com	Winthrop & Weinstine	225 S 6th St Ste 3500 Capella Tower Minneapolis, MN 554024629	Electronic Service	No	OFF_SL_21-33_Official CC Service List
Analeisha	Vang	avang@mpower.com	Minnesota Power	30 W Superior St Duluth, MN 558022093	Electronic Service	Yes	OFF_SL_21-33_Official CC Service List
Greg	Wannier	greg.wannier@sierraclub.org	Sierra Club	2101 Webster St Ste 1300 Oakland, CA 94612	Electronic Service	No	OFF_SL_21-33_Official CC Service List
Laurie	Williams	laurie.williams@sierraclub.org	Sierra Club	Environmental Law Program 1536 Wynkoop St Ste 200 Denver, CO 80202	Electronic Service	No	OFF_SL_21-33_Official CC Service List