MINNESOTA
PUBLIC UTILITIES COMMISSION

Staff Briefing Papers

Meeting Date	**April 24, 2025**		**Agenda Item 2***
Company	Minnesota Power		
Docket No.	E-015/M-24-343		
	In the Matter of the Petition of Minnesota Power for Approval of Investments and Expenditures in the Regal Solar Project for Recovery through Minnesota Power's Renewable Resources Rider under Minn. Stat. § 216B.1645.		
Issues	Should the Commission approve Minnesota Power's recovery of investments and expenditures in the Regal Solar Project through its Renewable Resources Rider?		
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✓ **Relevant Documents**	**Date**
Minnesota Power – Initial Filing	November 13, 2024
Department of Commerce – Comments	February 11, 2025
City of Cohasset – Comments	February 13, 2025
LIUNA Minnesota/North Dakota – Comments	February 24, 2025
Clean Energy Economy Minnesota (CEEM) – Comments	February 24, 2025
IUOE Local 49 and NCSRC of Carpenters - Comments	February 24, 2025
Minnesota Power – Reply Comments	February 24, 2025
Department of Commerce – Errata	March 28, 2025

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I. Statement of the Issue

Should the Commission approve Minnesota Power's recovery of investments and expenditures in the Regal Solar Project through its Renewable Resources Rider?

II. Background

On November 13, 2024, Minnesota Power (MP or the Company) filed a petition (Petition) seeking recovery approval, through its Renewable Resources Rider, for costs related to the Regal Solar Project (Project).

On February 11, 2025, the Department of Commerce (Department) filed its Comments, recommending approval for the Project.

On February 13, 2025, the City of Cohasset filed Comments, recommending approval for the Project.

On February 24, 2025, the Laborers' International Union of North America (LIUNA) filed Comments, recommending approval for the Project.

On February 24, 2025, Clean Energy Economy Minnesota (CEEM) filed Comments, recommending approval for the Project.

On February 24, 2025, IUOE Local 49 and NCSRC of Carpenters filed Comments, recommending approval for the Project.

On February 24, 2025, Minnesota Power filed Reply Comments and expressed agreement with the Department's recommendation.

III. Parties' Comments

A. Minnesota Power – Petition

MP stated that, in compliance with the 2021 IRP Order,[1] the Regal Project is a 119.5 megawatt (MW) solar energy facility located in Benton County near Royalton, Minnesota and will cost approximately $237.5 million to build. The Company noted that the Project will generate carbon-free energy for customers, help MP make progress on the Carbon Free and Renewable Energy Standards, boost the tax base of local economies, and create local union jobs.

Minnesota Power requested the following be approved:

[1] Commission January 9, 2023 Order, Docket No. E-015/RP-21-33, Order Point 1b.

1. Approval for investments and expenditures related to the Regal Project pursuant to Minn. Stat. § 216B.1645. Minnesota Power's development of this 119.50 MW solar project will facilitate compliance with the requirements under Minn. Stat. § 216B.1691.
2. Approval to include associated costs to the existing Renewable Resources Factor under its Renewable Resources Rider.

The Company pointed out that its commitment to diversifying its power supply and supporting renewable energy options is guided by the Company's 2021 IRP and its climate related goals in its *Energy Forward* resource strategy. The Regal Project is an integral part of its progress towards meeting both the Carbon Free Standard (CFS) and Renewable Energy Standard (RES)[2] and an example of its commitment to reinvest in host communities.

In addition to the Order Point 1b mentioned above, the same Commission Order, laid out a bidding process for resource acquisitions for projects in the IRP.[3] MP noted that compliance with this order point is outlined in detail in section III.E.

On November 15, 2023, Minnesota Power issued a Request for Proposal (RFP) for up to 300 MW of regional/in-service territory or net-zero solar. The RFP sought to maximize the regional economic benefits of solar development by including preferences for diverse bidders and domestically sourced materials. Additionally, it contained requirements for using local union labor for construction and permanent staffing, and the development of apprenticeship programs. Evaluation on bids received were performed by Minnesota Power and Independent Evaluator (IE) Levelized Consulting.[4] On September 23, 2024, the Company announced the selection of 205 MW of new solar projects: the Regal and the Boswell Solar Projects.

1. Overview of the Project

The Company's Regal Project that is anticipated to add approximately 242,000 MWh of renewable energy, was submitted as a self-build project in the RFP on January 15, 2024 and was the second lowest cost project bid into the RFP, after the Boswell Solar Project. The proposed Project will consist of approximately 255,000 mono-crystalline, bifacial solar modules and use single axis tracking technology mounted on conventional driven piles. The Project site will be connected to the 115 kilovolt (kV) transmission system via a new substation and provide enough electricity to power approximately 29,400 homes.[5]

2. EnergyForward Strategy

MP observed that this renewable resource development is guided by its 2021 IRP and *EnergyForward* resource strategy, which incorporates a diverse renewable and carbon-free strategy including hydroelectric, solar, biomass, wind, and energy storage resources. Under this

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[2] Petition, at 2.

[3] Commission January 9, 2023 Order, Docket No. E-015/RP-21-33, Order Point 4a.

[4] Petition, Appendix A.

[5] Petition, at 3.

strategy, the Company is currently delivering over 50 percent renewable energy to customers and is the first Minnesota utility to achieve this milestone.[6]

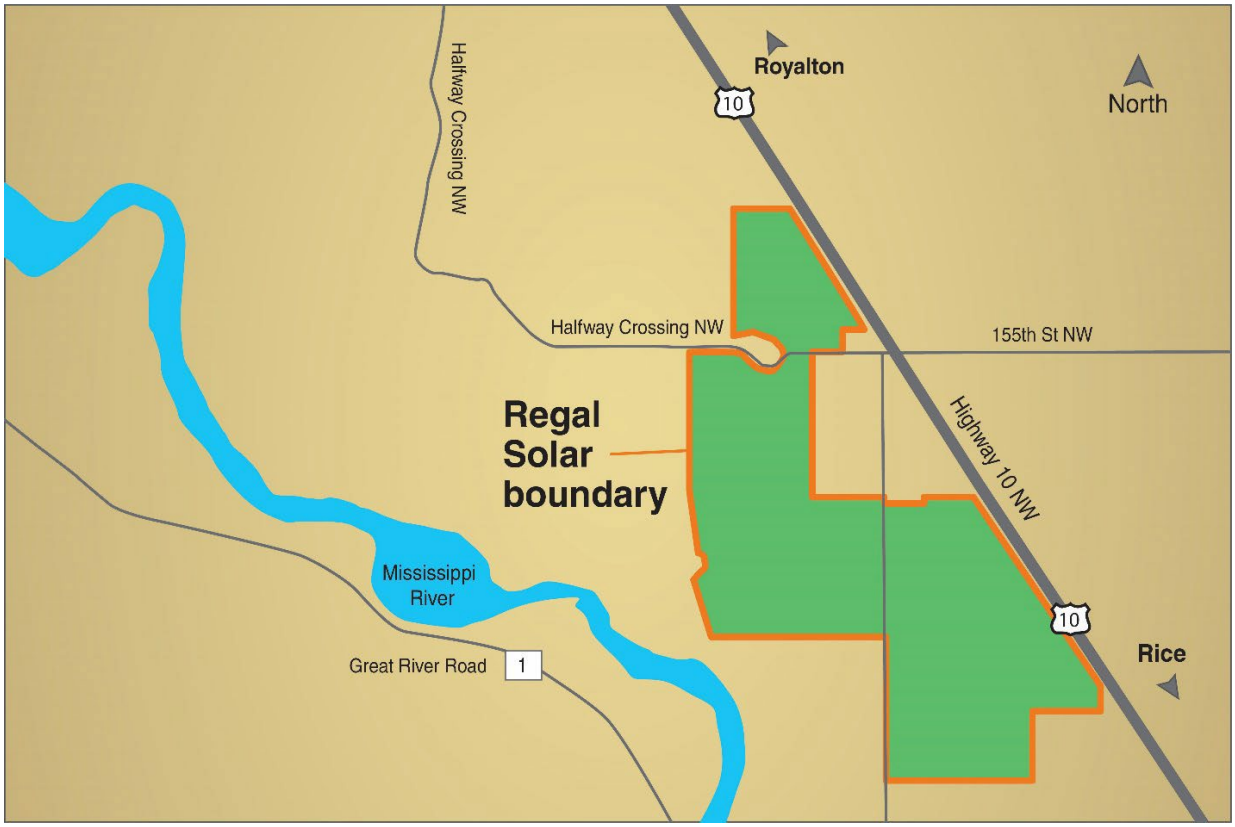
MP noted that it is currently exceeding Minnesota's RES requirement in the near term, nearing completion of an RFP to procure up to 400 MW of additional wind energy. The Company's upcoming 2025 IRP will assess a wide range of power supply resources and pathways to meet the recent carbon-free energy generation standard.

3. Project Location

The Project is in Langola Township at the southwestern edge of Minnesota Power's service territory, near Royalton in Benton County, Minnesota (Figure 1 below). The site is currently agricultural land and will be comprised of approximately 800 acres. Its selection was based on favorable solar irradiance data and site conditions for solar construction, and a proximity to an interconnection point on Minnesota Power's transmission system.

[6] *Id*.

Figure 1. Location of the Regal Solar Project.



4. National Grid Renewables Partnership

MP noted that it entered into an Asset Purchase Agreement with National Grid on November 20, 2023 that provided a pathway to acquire National Grid's assets associated with the Regal Project, including the project interconnection and permitting. The Asset Purchase Agreement price is included in the overall project cost.

5. Request for Proposal Process and Project Award

Pursuant to the 2021 IRP Order,[7] Minnesota Power retained an independent evaluator to oversee the RFP process for Minnesota Power's Regional Solar Request for Proposals and provide an independent evaluation of bids. The independent evaluator was obtained because Minnesota Power was proposing solar projects into the bidding process.[8]

On November 15, 2023, Minnesota Power issued a press release opening the RFP to all developers. On December 11, 2023, an email was issued by the North American Energy Markets Association (NAEMA) notifying the public and industry members of the RFP opportunity. On

[7] Commission January 9, 2023 Order, Docket No. E-015/RP-21-33, Order Point 4e.

[8] Petition, at 10.

November 18, 2023, Minnesota Power held an online seminar that allowed prospective bidders to ask clarifying questions regarding the RFP.

The RFP requested 300 MW of regionally located solar generation that could be comprised of PPAs, Build-Operate-Transfer (BOT) agreements, and/or self-build projects. In response, 11 proposals were received, consisting of two energy storage projects, one PPA, two self-build projects, one BOT project, and five BOT or PPA proposals. During the initial independent evaluator's review, it was determined that six proposals did not meet the criteria set forth in the RFP. The remaining five proposals were moved forward to the next phase of the evaluation which included qualitative and quantitative (cost) evaluations.

Since the Company was expecting to receive self-build proposals, consistent with the Commission's Order and FERC Code of Conduct requirements and under the guidance of legal counsel, the Company instituted a "wall" prior to submitting the RFP between its RFP Team that was responsible for developing, issuing, and implementing the Project and the Solar Development Team that was responsible for developing the self-build proposals. The separation ensured both the integrity of the process and value for Minnesota Power's customers.

The Company received (trade secret) bids for BOT, PPA, and self-build options. Compared to 2021 IRP modeling, the cost range was higher because of supply chain uncertainty, concerns about workforce availability, MISO interconnection costs and general inflation and higher interest rates. The Company noted that, while the Inflation Reduction Act (IRA) provides benefits for solar projects, those benefits did not fully offset the increase in cost of solar projects.

In the shortlisting process, Regal Solar Project was deemed the second lowest cost option by the initial assessment by the independent evaluator. Three other projects, including another self-build proposal (Boswell Solar Project) and two BOT proposals were selected to continue to the next phase of evaluation, which included further risk assessment and pricing adjustments. At the end of the selection process, the Regal and Boswell Solar[9] self-build projects, totaling 204.5 MW, were selected. The Company then petitioned for recovery approval for both projects through its Renewable Resources Rider.

Due to the large cost gap between the self-build projects and the next lowest cost shortlisted projects, MP did not select the full 300 MW of solar projects through this RFP process.[10]

6. Utilization of Federal Legislation

MP stated that the Regal Project will take advantage of the extended Production Tax Credit (PTC) and it intends to sell (transfer) the PTCs to an eligible taxpayer in exchange for cash

[9] Docket No. E-015/M-24-344.

[10] Petition, at pp 11-12.

payments. Furthermore, the Project will utilize labor resources complying with the IRA's wage and apprenticeship requirements to secure the full base tax credit.[11]

7. Solar Array Construction

The Project's 255,000 modules will be on conventional piles using single axis tracking technology. The tracker technology will be equipped with backtracking, snow shed, and wind/hail stow capabilities. Approximately 31 central inverters will be located throughout the project site. Additionally, a 34.5 kV collector line system will connect the inverters throughout the project site. The site will be connected to a point of interconnection by approximately 3.5 miles of 34.5 kV lines.[12] A new 115 kV substation called Two Rivers will be constructed as part of the interconnection requirements. The Project will connect to the Two Rivers substation by a single 115/34.5 kV transformer with a top rating of 150 megavolt-amperes ("MVA").

MP also noted that, to ensure the community benefits from the Project, it plans to utilize local union labor and businesses as much as possible. Additionally, upon the completion of construction, the site restoration work will be completed to establish diverse and native perennials at the site that will provide soil stability and improve soil health while also supporting native pollinators.

8. Socioeconomic Impact

The economic benefits of this investment in solar energy will provide an average of $395,000 in annual tax revenue in Minnesota Power's local communities, add $2 million to the 2028 Gross Regional Product, boost 2028 regional employment by about 10 (full-time equivalent) jobs[13] and provide long-term employment, tax revenue, and local consumer spending.

9. Interconnection

A Generator Interconnection Agreement (GIA) was executed for the Regal Project on August 9, 2024. On September 26, 2024, a Consent to Assignment of the GIA was executed by Minnesota Power and the parties to the GIA, including Midcontinent Independent System Operator (MISO)[14] for interconnection at the 115 kV Langola Tap; and has received a Site Permit and Certificate of Need[15], which have provided increased cost and schedule certainty for Minnesota Power customers. The Company contended that the Regal Project has favorable inter-connection costs relative to other Zone 1 generator projects in recent and current queues.

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[11] Petition, at 12.

[12] *Id*.

[13] *Id*, at 13.

[14] *Id*.

[15] Docket Nos. IP-7003/GS-19-395 and IP-7003/CN-19-223, respectively.

10. Ensuring Reasonable Project Costs

MP asserted that, when possible, engineering, procurement, and construction contracts project will be issued based on competitive bidding. However, contracts may be awarded on a single source basis to qualified contractors based on utilizing existing partnering agreements or to those who have a specific expertise. Furthermore, contractors will be asked to enroll in Minnesota Power's Tier 2 reporting program, which promotes doing business with diverse and small companies (as subcontractors).

11. Renewable Energy Credits

Since 2006, MP has executed PPAs, constructed, or rebuilt over 1,350MW of wind, solar, and hydro facilities to increase its Minnesota-eligible renewable energy supply. [16] In 2023, the renewable portion of Minnesota Power's retail energy supply was greater than 50 percent of its projected 2025 retail and wholesale electric sales. With the Commission approved 2021 IRP, Minnesota Power's renewable portfolio is expected to increase by up to 400 MW of new wind and up to 300 MW of new regional solar. Minnesota Power is currently working through an RFP process to procure up to 400 MW of additional wind resources. Moreover, MP is currently working through an RFP process to comply with the Distributed Solar Energy Standard (DSES),[17] which is expected to add approximately 65 to 85 MW of additional solar energy to Minnesota Power's portfolio.[18] MP asserted that its customers will receive all the renewable energy credits (RECs) and carbon free benefits from the Project.

12. Project Schedule and Permitting

Since the Regal Project has secured state level permitting and has an executed Generator Interconnection Agreement with MISO, the Project has the flexibility to be implemented in a thoughtful manner to balance the impacts of the current supply chain landscape and workforce availability and to quickly provide increased renewable energy to customers. The proposed Project schedule is shown in Table 1, which assumes Commission approval by October 2025.

Table 1. Regal Project Schedule

Task	Anticipated Date
MPUC Permitting	Complete
Execution of GIA with MISO	Complete
Construct Solar Array	Q4 2025-Q2 2027
Conduct Commissioning / Start-up	Q2 2027
Begin Commercial Operation	Q3 2027

[16] Petition, at 14.

[17] Docket No. E-002, E-015, E-017/CI-23-403.

[18] Petition, at 14.

The Project has been reviewed by the Minnesota Department of Commerce Energy Environmental Review and Analysis Unit (EERA), which performed an Environmental Assessment (EA). The EA reviewed the potential human and environmental impacts and mitigation measures and recommended that a Site Permit be issued. The Project has also conducted reviews of other potential impacts and determined the following:

- The Regal Project submitted the cultural resources survey report to the Minnesota State Historic Preservation Office (SHPO) for a determination of the Project. The SHPO have responded with a "No Adverse Effect" for the Regal Project.
- The Regal Project reviewed the Project's impacts on rare species and other significant natural features with the Minnesota Department of Natural Resources (DNR) through the Natural Heritage Information System. The DNR determined construction of the Project could potentially affect the Loggerhead Shrike. As a result, tree and shrub removal for the project is required to not occur during the species breeding period (between April and July) to remove the Project's potential to negatively impact the species. The DNR has also determined a Minnesota Biological Survey (MBS) was identified near the western boundary of the project. Given the ecological significance of Sothern Dry Savanna, protections for surface runoff and spread of invasive species are planned.
- There are no wetlands impacted by this Project, and thus, no related restrictions.

Additionally, as part of the Company's internal policy to protect the Company and its customers from potential future liability, MP performed a Phase I Environmental Site Assessment that found no environmental concerns.

The Project's remaining permitting requirements are for the Contractor to develop a Storm Water Pollution Prevention Plan and receive a National Pollutant Discharge Elimination System permit from the Minnesota Pollution Control Agency, a Public Water Utility Crossing License from the DNR, a Conditional Use Permit from Benton County, and other construction permits necessary for the Regal Project.

13. Summary of Investments, Expenditures and Customer Impacts

a. Estimated Project Costs

As shown in Table 2, the Project will cost approximately $237.5 million.

Table 2. Minnesota Power's Capital Costs for the Regal Project

Capital Costs * (dollars in millions)	
[TRADE SECRET DATA BEGINS	
Solar Array	[redacted]
Transmission Interconnection	
Total	$ 237.5
**Costs include AFUDC and internal capitalized costs and assumes current cost recovery starting October 1, 2025.*	
TRADE SECRET DATA ENDS]	

The total revenue requirements over the 35-year life of the Project were presented in a Trade Secret Table[19] and calculated using the total capital costs and anticipated PTC revenue, including Allowance for Funds Used During Construction (AFUDC) and internal capitalized costs. MP will exclude internal capitalized costs and AFUDC on internal capitalized costs from the revenue requirements once the project is included in a subsequent Renewable Resources Rider Factor filing. Additionally, the revenue requirements will be updated to reflect the outcomes of the Company's current rate case.[20]

Minnesota Power and its Contractors will be responsible for project management, permitting, licensing and approvals, design, procurement, site preparation, balance of plant construction, and ancillary facilities.

b. Operations and Maintenance

MP will build upon its experience operating and maintaining solar facilities and will continue to use renewable technicians to perform the operation and maintenance activities required to operate the solar facility. While solar photovoltaic systems do not require fuel, have minimal moving parts, and do not require substantial personnel, considerable operations and maintenance (O&M) costs exist to properly maintain the array. Base O&M expense for the Project is trade secret and is projected to escalate at approximately 2.5 percent annually.[21] It is assumed that many internal components will need to be replaced when equipment warranties

[19] Petition, at 18.

[20] Docket No. E-015/GR-23-155.

[21] Petition, at 19.

come to an end. These ongoing (trade secret) capital costs will begin in 2037 and are projected to escalate at approximately 1.5 percent annually.

c. Estimated Customer Impact

Assuming approval by October 2025, Table 3 summarizes the estimated rate impact by customer class, with rider recovery starting in October 2025 and an in-service by September 30, 2027. The Regal and Boswell Solar Projects are the first Minnesota Power solar projects where costs will apply to all customer classes.[22] Previously, Large Power classes were exempt from solar projects that complied with the Solar Energy Standard.

Based on the above assumptions, all the Non-Large Power classes would have an initial of 0.021 cents per kWh increase in 2025, followed by 0.192 cents per kWh in 2026, and 0.268 cents per kWh in 2027, the first-year in-service. For an average residential customer, this would be a 0.15 percent increase in 2025, a 1.39 percent increase in 2026, and a 1.94 percent increase in 2027. This is about $0.15 more per month in 2025, $1.35 more per month in 2026 and $1.89 more per month in 2027. The Large Power average class rate would see an initial 0.017 cents per kWh increase in 2025, a 0.155 cents per kWh in 2026, and a 0.216 cents per kWh in 2027. This would be a 0.20 percent increase in 2025, a 1.83 percent in 2026 and a 2.54 percent in 2027.[23]

When factoring in the reduction in the Fuel Adjustment Clause (FAC), the total rate impact will be lower than the values discussed above.[24]

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[22] Petition, at 20.

[23] *Id*.

[24] *Id*.

Table 3: Estimated Average Rate Impacts

Rate Class Impacts /1	2025	2026	2027
Annual MN Jurisdictional Revenue Requirements	1,426,541	13,077,806	18,254,296
Residential (average current rate, cents/kWh)	13.814	13.814	13.814
Increase/Decrease (cents/kWh) /2	0.021	0.192	0.268
Increase/Decrease (%)	0.15%	1.39%	1.94%
Average Impact ($ / month)	$0.15	$1.35	$1.89
General Service (average current rate, cents/kWh)	13.879	13.879	13.879
Increase/Decrease (cents/kWh) /2	0.021	0.192	0.268
Increase/Decrease (%)	0.15%	1.38%	1.93%
Average Impact ($ / month)	$0.56	$5.19	$7.25
Large Light & Power (average current rate, cents/kWh)	10.862	10.862	10.862
Increase/Decrease (cents/kWh) /2	0.021	0.192	0.268
Increase/Decrease (%)	0.19%	1.76%	2.46%
Average Impact ($ / month)	$50	$460	$642
Large Power (average current rate, cents/kWh)	8.491	8.491	8.491
Increase/Decrease (Demand & Energy Combined) (cents/kWh) /2	0.017	0.155	0.216
Increase/Decrease (%)	0.20%	1.83%	2.54%
Average Impact ($ / month)	$8,483	$77,342	$107,780
Lighting (average current rate, cents/kWh)	31.171	31.171	31.171
Increase/Decrease (cents/kWh) /2	0.021	0.192	0.268
Increase/Decrease (%)	0.07%	0.61%	0.86%
Average Impact ($ / month)	$0.03	$0.30	$0.42

Notes:

1/ Average current rates are 2022 Final General base rates without riders per MPUC decision (E-015/GR-21-335) adjusted to include current rider rates. Current rider rates included Renewable Resources Rider rates, Transmission Cost Recovery Rider rates, Solar Adjustment rates, Conservation Program Adjustment rates, and Fuel and Purchased Energy with True-Up. Average $/month impact based on 2024 budgeted billing units.

2/ Increase/Decrease (cents/kWh) shown is the estimated average rate based on annual revenue requirements of the new project.

d. Tax Matters

MP stated that the Project's $91.7 million PTC benefit will reduce the revenue requirement as the credits are earned during the first 10 years the Project is in service.

The IRA allows PTCs generated after 2022 to be transferred (sold) to an eligible taxpayer. The Company intends to transfer (sell) Project credits at a discount, which is necessary to incentivize eligible transferee taxpayers to purchase them. The discount will reduce the net benefit of the PTCs to customers, but the cumulative benefit of immediately reducing the Accumulated Deferred Income Tax Asset (ADITA) through the sale of PTCs and customers seeing those benefits sooner will outweigh the detriment of the discount. The benefits will flow through the Renewable Resource Rider.

14. The Regal Project is in the Public Interest

MP considers the Regal Project a key component of continuing the Company's *EnergyForward* resource strategy because it will provide substantial benefits to its system and its customers through the addition of local renewable clean power that will continue to diversify the Company's wind, hydro, and distributed solar centric renewable portfolio, provide energy during higher demand periods, and will reduce greenhouse gases and other criteria pollutants. Additionally, the Regal Project will ensure that the Company is making progress towards the RES and CFS, while leveraging federal tax credits and existing energy infrastructure to efficiently add new renewable energy to the system.

The Company further pointed out that this Project will both reduce carbon emissions and criteria pollutants and increase access to clean energy resources for Minnesota Power's customers in Northern Minnesota.

15. Capacity and Energy

When fully operational, the Regal Project will add approximately 242,000 MWh of renewable energy and on average about 16 MW of accredited capacity across the four annual planning seasons.[25] MP anticipates the accredited capacity value for the Regal Project to decline as additional solar is added to the broader system and as MISO continues to update its resource adequacy program. Table 4 summarizes seasonal capacity values.

Table 4. Regal Project - Seasonal Accredited Capacity Values (MW)[26]

Regal Seasonal Capacity Values				
	Spring	**Summer**	**Fall**	**Winter**
2028	20	27	23	0
2038	15	14	24	0

[25] Petition, at 23.

[26] Capacity values are based off MISO's current Seasonal Accredited Capacity methodology. The 2028 and 2037 value applies an Effective Load Carrying Capability curve. This accredited capacity values could be reduced further if FERC approves MISO's proposed Direct-Loss of Load approach for resource adequacy, which is expected to start for MISO Planning Year 2028-2029.

16. Meeting the RES and CFS

In addition to the Regal Project to continue moving towards the goals of the CFS and exceed the RES, Minnesota Power is seeking up to 400 MW of wind through an RFP that was issued on February 15, 2024. The Company expects to bring forward wind projects from the RFP for Commission approval in early 2025. Furthermore, in compliance with the DSES, MP is seeking approximately 65 to 85 MW of distributed solar through at least two rounds of RFPs. The first DSES RFP was filed with the Commission on November 1, 2024 for review by the Department of Commerce. These initiatives will each continue Minnesota Power's decarbonization progress.

MP stated that, in the upcoming IRP, it will continue the evaluation and consideration of power supply alternatives as it works towards a sustainable path to meet the CFS by 2040. The Regal Project is projected to provide energy during periods of high customer demand during the on-peak hours of a day when solar irradiance is available and can help protect customers against the volatility of regional energy markets.

The Company noted that energy production is not well matched with customer demand in the winter season because customer demand for energy is highest in the evening hours when the sun isn't shining. MP provided a trade secret demonstration[27] of how the timing of customer demand versus solar production in a typical winter week is more misaligned than in a typical summer week. This variability of solar generation contributes to a no accredited capacity value for a solar project for the purposes of demonstrating resource adequacy. Consequently, it is estimated that the Regal Project will provide 0 MW of accredited capacity in the winter season versus the full 119.5 MW nameplate of the solar array during the winter season.

17. Customer Impact Analysis

To determine the customer impact of the 2027 addition, Minnesota Power added the Regal Project to its Encompass production cost modeling software. Encompass results quantified that the proposed Regal Project will:

1. displace on-peak wholesale market purchases and some fossil fuel-based generation as the new solar energy is added to the Minnesota Power system,
2. reduce total carbon dioxide (CO2) emissions, as well as other emissions, and
3. result is a small increase in power supply cost for Minnesota Power's customers.

To provide additional insight on the total solar projects selected in the RFP, included in this filing is the change in power supply cost when the Boswell Solar Project and Regal Solar Project are added. There were two Encompass scenarios MP used to simulate the addition of the Regal Project and both scenarios were run – both with and without – the Commission-approved mid-CO_2 regulation tax of $40 per ton in 2028 and the mid-CO_2 environmental cost of $260[28]

[27] Petition, at 25.

[28] Mid CO_2 environmental cost is net of carbon regulation costs.

starting in 2025, and other mid-environmental costs.[29] The Company also evaluated the power supply cost impacts for the other Commission-ordered carbon regulation cost and environmental cost scenarios (i.e. high and low scenarios), those results are shown in Appendix B (additional analysis petition) and a table of all the environmental cost scenarios evaluated is included in Appendix C (assumptions appendix):[30]

- Scenario 1 – Baseline
- Scenario 2 – Baseline + Regal
- Scenario 3 – Baseline + Regal + Boswell Solar

The Baseline scenario contains all Minnesota Power's existing thermal and renewable energy resources. Scenario 2 incrementally adds the proposed Regal Project and associated project costs to the Baseline scenario. The third scenario incrementally adds Boswell and Regal Solar, and associated costs to the baseline scenario. The three scenarios are compared to each other to identify the power supply and cost impacts of adding the Projects.

As shown in Figure 2, when the 119.5 MW Regal Project is added, existing market energy purchases and thermal generation are displaced over the Project's first 20 years. On average, the Regal solar energy generated will annually displace a mix of 46 percent market purchases and 54 percent existing thermal generation. These displacements will reduce Minnesota Power's emissions customers over the life of the Project.

[29] See Docket No. E-999/CI-07-1199; E-999/DI-22-236 - October 2023.

[30] Petition, at 27.

Figure 2. Energy Displaced by the Regal Project

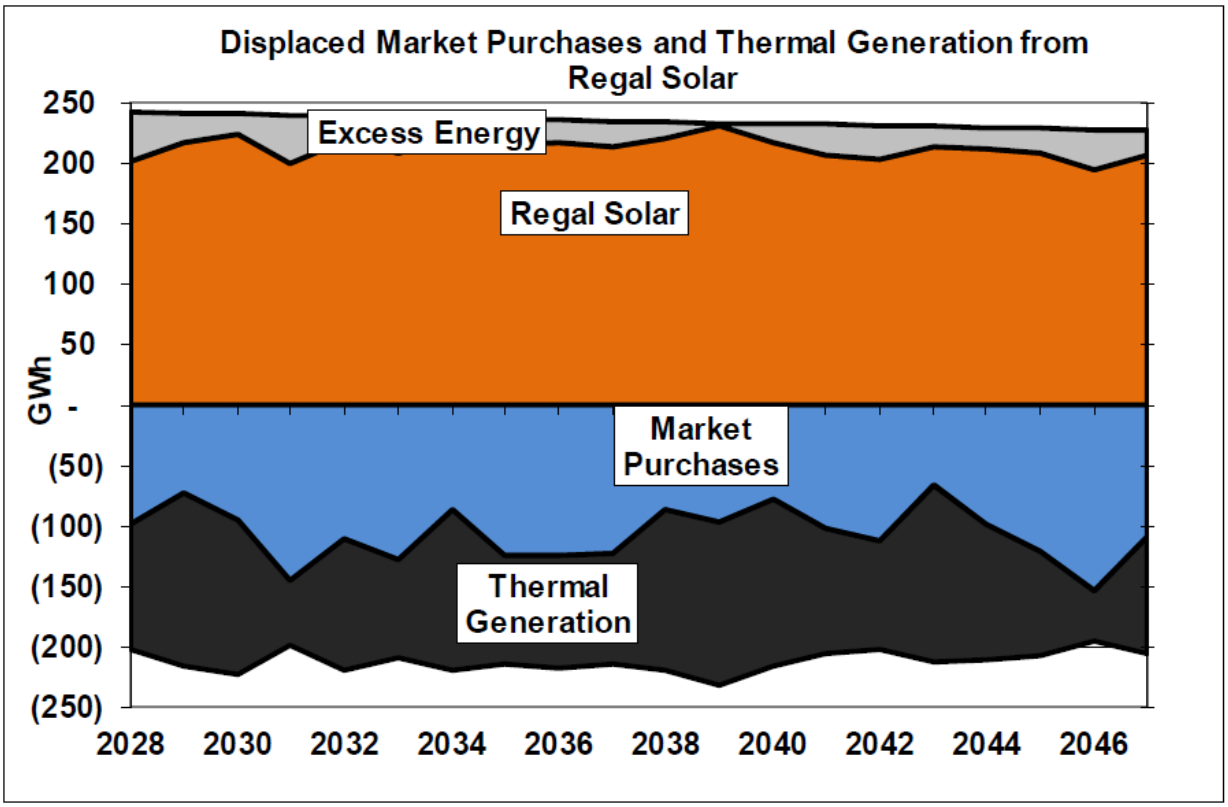


Table 5 summarizes the Project's average avoided annual CO_2, sulfur dioxide (SO_2), nitrogen oxides (NOx), and mercury (Hg) emissions. Carbon dioxide is projected to see the greatest reduction with an annual average of 162,184 tons of CO_2 removed. When environmental externality effects are included in the analysis, the Project's emissions reduction results, over the Project's life, in an environmental cost reduction of $323 million.[31]

Table 5: Average Annual Avoided Emissions (2028-2050)

Effluent (Tons)	Average Annual Reduction when adding Regal	Average Annual Reduction when adding Regal + Boswell
CO2	162,184	266,953
SO2	74	142
NOx	5	8

MP observed that Encompass' resource planning evaluations identify a range of outcomes that

[31] Petition, at 29 (Based on the net present value for years 2025 through 2050, in 2025 dollars.)

are dependent on the carbon and regulation costs incorporated. The cases provided in Table 6 are the Customer Billing Case and Mid Environmental and Carbon Regulation case.[32] When adding the Regal project:

- In the Customer Billing case, total power supply costs increase by $71 million.
- When considering the carbon regulation cost and environmental cost benefits in the Mid Environmental and Carbon Regulation case, the total power supply costs decreases by $283 million; demonstrating an overall net benefit for customers.

When considering both projects in the Customer Billing case, the Company saw an $88 million increase in power supply costs; however, in the Mid Environmental and Carbon Regulation case, the total power supply cost decreased $526 million.

Table 6: Encompass Power Supply Cost Summary ($2025, NPV 2025-2050)

Customer Billing Case ($ in Millions, 2025 $)			
	Base	**Base + Regal (Delta from Base)**	**Base + Regal (Delta from Base)**
Total Cost	$9,569	$71	$88

Mid Environmental and Carbon Regulation Case ($ in Millions, 2025 $)			
	Base	**Base + Regal (Delta from Base)**	**Base + Regal + Boswell (Delta from Base)**
Base Cost	$10,032	$20	$35
Carbon Regulation	$1,234	($36)	($65)
Environmental Cost	$13,350	($267)	($496)
Total Cost	$24,616	($283)	($526)

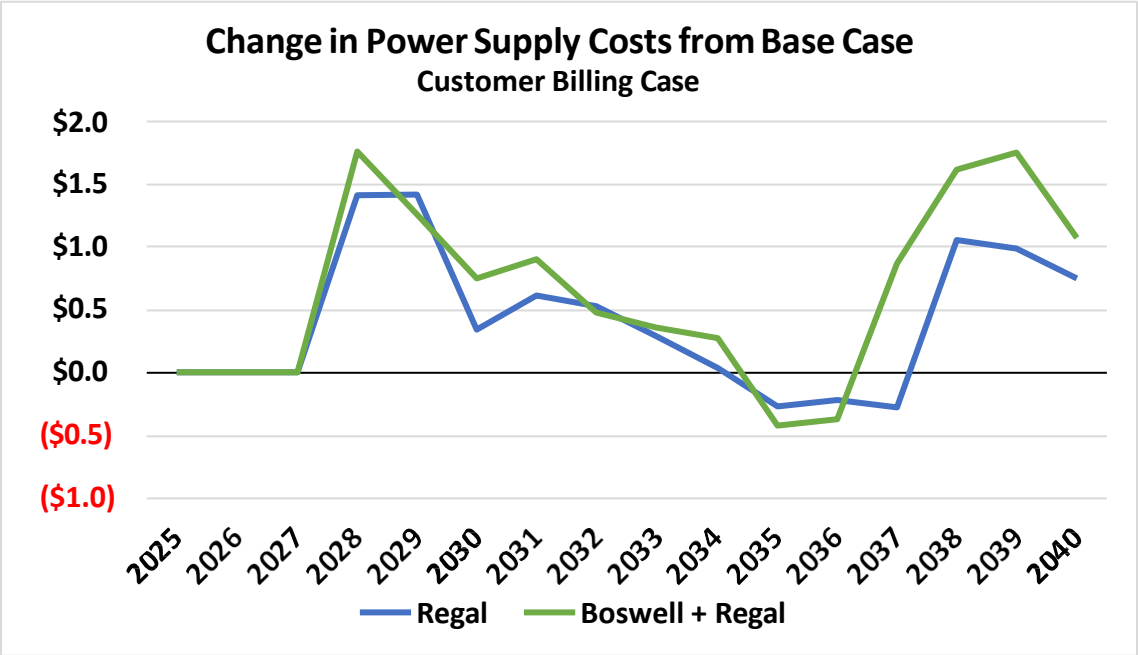
Table 7 shows that, when adding the Regal project, the cost impacts range from approximately $0.20/MWh in savings to $1.40/MWh increase. When adding the Regal and Boswell projects the cost impacts range from approximately $0.40/MWh in savings to $1.80/MWh increase in cost. The reason for the increases starting in 2037 and 2038 is due to production tax credits rolling off.

Minnesota Power asserted that the Regal Project is an opportunity that brings a unique solar project that reduces emissions and takes advantage of the federal tax incentives with a small

[32] Petition, at 30.

increase to power supply costs.

Table 7: Customer Billing $/MWh Power Supply Cost Comparison ($2025, NPV 2025-2050)



18. Conclusion

MP requested approval of the following:

1. Approval for investments and expenditures related to the Regal Solar Project pursuant to Minn. Stat. § 216B.1645. Minnesota Power's development of this 119.50 MW solar project will facilitate compliance under the requirements under Minn. Stat. § 216B.1691.

2. Approval for the Company's proposal to include costs to the existing Renewable Resources Factor under its Renewable Resources Rider.

B. Department of Commerce – Comments

The Department reviewed the Petition for compliance with the completeness requirements and concluded that the Petition is complete.

As part of its review, the Department noted that it analyzed need for and alternatives to the project, ratepayer protections, and whether the Project meets the RES and CFS as described in Minn. Stat. § 216B.1691.

1. Need and Alternative Analysis

The Department noted the 2021 IRP Order instructed Minnesota Power to, as practicable, acquire up to 300 MW of regional/in-service territory or net-zero solar by 2026.[33] The Regal Solar Project was proposed to help meet those requirements.

Additionally, as both an "eligible energy technology" and a "carbon- free" technology (discussed further below), the Regal Solar Project will help Minnesota Power to continue to comply with the Renewable Energy Standard (RES) and Carbon Free Standard (CFS). As a result, the Department concluded that, per the most recent IRP, MP has a need for solar and for new CFS-qualifying resources.

The Department concluded that Minnesota Power reasonably followed the steps outlined by the Commission and calculated the levelized cost of the various bids correctly, Minnesota Power has demonstrated a need for the Regal Solar Project and that the bidding process demonstrated there are no superior solar alternatives. Consequently, the Department recommended the Commission approve Minnesota Power's investment in the Project.

2. Ratepayers Protections

The Department recommended that capital cost recovery be set at the Minnesota Power's bid costs for the Regal Solar Project. This means that if up-front capital costs exceed the cap, the Company, not customers, bears the costs. However, If savings are achieved, the Company retains them.

Consistent with the Commission's Order in Docket No. E-002/M-22-403,[34] the Department recommended Minnesota Power be authorized to request to exceed the cost-cap if it can show that any overruns are the result of a government action (e.g. tariff, trade investigation, etc.) that causes a meaningful disruption to solar panel supplies and market prices.

3. Renewable Energy Standard (RES) and Carbon Free Standard (CFS) Obligations

a. RES Obligation

Minn. Stat. § 216B.1691 Subd 2(s) describes Minnesota's Renewable Energy Standard Objectives and provides RES and CFS obligations for Minnesota Electric Utilities as follows:

> Each electric utility shall generate or procure sufficient electricity generated by an eligible energy technology to provide its retail customers in Minnesota, or the retail customers of a distribution utility to which the electric utility provides

[33] IRP Order at point 1(b).

[34] In the Matter of the Petition of Xcel Energy Xcel Energy's 2022 Solar and Solar-plus-storage Request for Proposals, Commission October 10, 2023 Order, Docket No. E-002/M-22-403.

> wholesale electric service, so that the electric utility generates or procures an amount of electricity from an eligible energy technology that is equivalent to at least the following standard percentages of the electric utility's total retail electric sales to retail customers in Minnesota by the end of the year indicated:
>
> (1) 2012 12 percent
> (2) 2016 17 percent
> (3) 2020 20 percent
> (4) 2025 25 percent
> (5) 2035 55 percent.

Since the term "eligible energy technology" as defined by Minn. Stat. § 216B.1691 subd. 1 (c) includes solar, the Department concluded that the Regal Solar Project qualifies for application toward Minnesota Power's EETS and RES obligation.

b. CFS Obligations

Minn. Stat. § 216B.1691 subd. 2g states:

> In addition to the requirements under subdivisions 2a and 2f, each electric utility must generate or procure sufficient electricity generated from a carbon-free energy technology to provide the electric utility's retail customers in Minnesota, or the retail customers of a distribution utility to which the electric utility provides wholesale electric service, so that the electric utility generates or procures an amount of electricity from carbon free energy technologies that is equivalent to at least the following standard percentages of the electric utility's total retail electric sales to retail customers in Minnesota by the end of the year indicated:
>
> (1) 2030 80 percent for public utilities; 60 percent for other electric utilities
> (2) 2035 90 percent for all electric utilities
> (3) 2040 100 percent for all electric utilities.

The term "Carbon-free" is defined by Minn. Stat. § 216B.1691 subd. 1 (b) as a technology that generates electricity without emitting carbon dioxide. As solar generation does not emit carbon dioxide, the Department concluded that the Regal Project qualifies for application toward Minnesota Power's CFS obligation.

4. Renewable Resource Rider

The Department noted that MP is seeking approval for investments, expenditures, and costs related to the Regal Solar Project through Minnesota Power's Renewable Resources Rider. Minn. Stat. § 216B. 1645, subd. 2a (a) defines which projects qualify for rider recovery:

> A utility may petition the commission to approve a rate schedule that provides for the automatic adjustment of charges to recover prudently incurred investments, expenses, or costs associated with facilities constructed, owned, or operated by a utility to satisfy the requirements of section 216B.1691, provided those facilities were previously approved by the commission under section 216B.2422 or 216B.243, or were determined by the commission to be reasonable and prudent under section 216B.243, subdivision 9.

The Department further observed that Minn. Stat. § 216B. 1645, subd. 2a (a) provides three paths for a project to address the RES or CFS to qualify for rider recovery:

- approval via Minn. Stat. § 216B.243, which establishes the CN requirements;
- approval via Minn. Stat. § 216B.2422, which allows a utility to select resources through a Commission-approved bidding process; or
- approval via Minn. Stat. § 216B.243 subd. 9 which states that the CN requirements do not apply to a wind or solar generation facility that is intended to be used to meet the requirements of the EETS or the CFS.

The Department acknowledged that, although MP is exceeding its RES requirements in the near term,[35] the Company has a need for additional energy under its CFS requirements. As such, the Department concluded that the Project qualifies for a CN exemption as it is being acquired via a Commission-approved bidding process. Additionally, the analyses indicate it is reasonable to conclude that the Project will address the RES and CFS and that the Project was acquired via Minn. Stat. § 216B.2422. Consequently, the Department recommended that, subject to review and approval of specific costs to be presented in a future petition, cost recovery of the Projects through the Renewable Resource Rider be authorized.

5. Minnesota Power's Bidding Process

Order Point 4 of the 2021 IRP Order states that Minnesota Power must use a bidding process for its future resource acquisitions for the projects in the IRP, as follows:

> a. 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.
> b. Provide the Department and other stakeholders with notice of RFP issuances.
> c. Notify the Department and other stakeholders of material deviations from initial timelines.
> d. Update the Commission, the Department, and other stakeholders regarding changes in the timing or need that occur between IRP

[35] Department's Comments; at 5.

proceedings.

e. In instances where Minnesota Power or an affiliate proposes a project, engage an independent evaluator to oversee the bid process and provide a report for the Commission.
f. Request that the independent evaluator, if engaged, specifically address the impact of material delays or changes of circumstances on the bid process.
g. Any RFP issued by Minnesota Power 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.
h. Require Minnesota Power to notify the Commission of a detailed net book value offered by Minnesota Power in a future rate recovery proceeding.
i. Within 30 days of developing an RFP, require Minnesota Power to file a compliance filing detailing the RFP process and to include a template of the RFP.[36]

With the help of an independent evaluator, the Company completed the RFP seeking 300MW of regionally located solar generation.[37] Minnesota Power did not select the full 300 MW due to significant cost differences between the selected projects (Boswell and Regal) and the next least expensive proposal.[38] The Department concluded that Minnesota Power has complied with the RFP process outlined in the IRP Order.

6. Economic Development

Minn. Stat. § 216B.1691, subd. 9 (a) describes the following as reasonable actions the Commission must take to maximizes net benefits to all Minnesota citizens:

(1) the creation of high-quality jobs in Minnesota paying wages that support families;
(2) recognition of the rights of workers to organize and unionize;
(3) ensuring that workers have the necessary tools, opportunities, and economic assistance to adapt successfully during the energy transition, particularly in environmental justice areas;
(4) ensuring that all Minnesotans share (i) the benefits of clean and renewable energy, and (ii) the opportunity to participate fully in the clean energy economy;
(5) ensuring that statewide air emissions are reduced, particularly in environmental justice areas; and
(6) the provision of affordable electric service to Minnesotans, particularly to low-income consumers.

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[36] January 9, 2023 Order Approving Plan and Setting Additional Requirements, Docket No. E-015/RP-21-33, at pg.14.

[37] Petition, Docket No. E-015/M-24-343; at 10.

[38] *Id*; at pp 11-12.

The Department noted that the 2021 IRP Order required Minnesota Power to meet its customer and renewable product needs between 2025 and 2030 by working with organized labor and other interested stakeholders to maximize socioeconomic benefits to customers and host communities by prioritizing utility investment in its service territory, use of local labor for construction and permanent staffing, and development of apprenticeship pathways when procuring new energy resources.[39] Based on its review, the Department concluded that the Project meets the requirements for economic development as described in Minn. Stat. § 216B.1691, subd. 9 (a) and the IRP Order.

7. Ratepayer Impacts

The ratepayer/customer impact is discussed in detail on page 12 of these briefing papers. The Regal Solar Project was selected, in part, due to having the lowest levelized cost of energy—which means having the lowest direct impact on ratepayers. Therefore, the Department concluded that the Project's ratepayers' impact is reasonable.

8. Tax Matters

The Department observed that the Regal Power System is expected to go into service in 2027 and will qualify for PTCs and will use prevailing wage and apprenticeship requirements and is expected to qualify for 100 percent of the PTC value, which is approximately $91.7 million in earned credits during the first 10 years the Project is in service.[40] Additionally, as MP stated:[41]

> The IRA allows PTCs generated after 2022 to be transferred (sold) to an eligible taxpayer in exchange for cash. The Company intends to transfer (sell) the credits for the Regal Project. Transferring credits is a benefit to customers because the ADITA [Accumulated Deferred Income Tax Asset] will remain unchanged; the credits earned will increase the ADITA, but the cash received will immediately reduce the ADITA. This will allow the ADITA to decrease faster than if the Company retained the credits for its own use. Minnesota Power expects to transfer the PTCs at a discount which is necessary to incentivize eligible transferee taxpayers to purchase the credits. The discount will reduce the net benefit of the PTCs to customers, but the cumulative benefit of immediately reducing the ADITA through the sale of PTCs and customers seeing those benefits sooner will outweigh the detriment of the discount. The benefits will flow through the Renewable Resource Rider.

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[39] Department's Comments; at pp 7-8.

[40] Department Comments; at 8.

[41] Petition, at pp 21 – 22.

The Department reviewed MP's estimate of PTC benefits and concluded that the estimate is reasonable. To ensure that there are net benefits to ratepayers, the Department recommended that MP be required to track the actual cost and benefits of selling PTCs in its annual renewable energy rider filings. To calculate the cost, MP would use the increased RES Rider revenue requirement due to additional costs/discount from selling the PTCs. To calculate the benefit, MP would calculate the revenue requirement impact of the reduced ADITA from selling the PTCs. If the cost benefit tracker does not show a net benefit to ratepayers, the Department recommended MP refund the difference.

9. Department Recommendations

The Department recommended the following:

A. COMPLETENESS
- The Petition be found as complete.

B. APPROVE MINNESOTA POWER'S INVESTMENTS
- Minnesota Power's investment in the Regal Solar Project be approved.
- Cost recovery be limited to Minnesota Power's bid costs for the Regal Solar Project.
- Authorize Minnesota Power to request approval to exceed the cost-cap if it can show that any cost incurred above the cap are the result of a government action (e.g. tariff, trade investigation, etc.) that causes meaningful disruption to solar panel supplies and market prices.

C. RENEWABLE ENERGY STANDARD AND CARBON FREE STANDARD
- Determine that the Regal Solar Project qualifies toward Minnesota Power's RES obligation.
- Determine that the Regal Solar Project qualifies toward Minnesota Power's CFS obligation.

D. RENEWABLE RESOURCE RIDER
- Determine that the Regal Solar Project is exempt from the CN requirements under the Bidding Exemption because the Project was selected in a Commission-approved bidding process .
- Subject to review and approval of specific costs in a future petition, authorize future cost recovery of Regal Solar Project through the Renewable Resource Rider.

E. TAX MATTERS
- Approve MP's proposal to sell PTCs. However, to ensure there are net benefits to ratepayers, require MP to track the actual cost and benefits of selling PTCs in its annual renewable energy rider filings.

C. City of Cohasset – Comments

The City of Cohasset expressed support for both of Minnesota Power's Regal Solar and Boswell Solar Projects. The city noted that, while the Regal Solar Project represents another meaningful investment in Minnesota's clean energy future, it is imperative that future initiatives prioritize economic development within coal impacted communities, like Cohasset and their surrounding communities that have been impacted by the energy transition.

The City requested approval of the Boswell and Regal Solar projects as part of this broader effort to secure a sustainable future for Minnesotans.

D. LIUNA Minnesota/North Dakota – Comments

LIUNA stated that it strongly supports the Boswell Solar Project and the 119.5 MW Regal Solar Project, which will bring economic opportunity to communities and workers impacted by planned retirements of coal plants while helping MP cost-effectively meet renewable and carbon-free energy generation requirements.

LIUNA concurs with the Department that the investment is in the public interest, meets applicable requirements and is recoverable through the renewable resource rider. LIUNA observed that its members rely on MP for job and career opportunities building and maintaining power generating facilities. Additionally, it asserted that the communities depend on the utility to power the mines and mills that form the backbone of the region's economy and drive the local construction industry.

LIUNA noted that it shares concerns expressed during the development of MP's IRP over the relatively small share of clean energy investment occurring in and around the utility's service territory. However, it stated that the proposed Boswell and Regal Solar projects provide an opportunity to remedy this issue by generating hundreds of jobs and millions of dollars in lease and tax revenues for MP customers and in communities served by the utility.

The organization recommended that any cost cap recognize not only the impact of potential tariffs, but also the broader volatility around markets for components, materials and construction services required to build utility-scale infrastructure.

E. Clean Energy Economy Minnesota (CEEM) – Comments

CEEM observed that, based on the available information, the Regal and Boswell Solar Projects hold potential to generate jobs, economic development, and electricity from clean, renewable energy via solar arrays. Moreover, about 100 jobs, and 150 jobs at peak construction, will be

tied to the Regal Solar Project.[42] The Regal and Boswell Solar Projects will have a large, positive impact for regional economic development[43] and are anticipated to provide local jobs and boost the economy. For these jobs and economic reasons, CEEM supports the Regal and Boswell Solar Projects. Additionally, the Regal Solar Project is anticipated to add approximately 242,000 MWh of renewable energy to the grid[44] and the Boswell Solar Projects is anticipated to add 166,000 MWh15 to the grid.[45]

Finally, for Minnesota Power and Minnesotans to capture the potential socioeconomic and environmental benefits from these two projects, CEEM supports the approval of investments and expenditures, consistent with the applicable Minnesota law, to develop both the Regal Solar Project and the Boswell Solar Project.

F. IUOE Local 49 and NCSRC of Carpenters – Comments

IUOE Local 49 and NCSRC of Carpenters noted that their Unions represent workers in the construction industry who build and maintain energy infrastructure – including solar. Additionally, both participated in the most recent IRP and were parties to the settlement that resulted in the order point requiring MP to acquire up to 300 MW of solar resources.

The group stated that they support MP's proposed investments in the Regal and Boswell solar projects, which will provide cost-effective solar energy for Minnesota ratepayers and will allow MP to comply with Minnesota's clean energy requirements. The Unions also asserted that both projects should qualify towards MP's obligations under the 100% by 2040 law and support the use of the Renewable Resources Cost Recovery Rider for these projects.

G. Minnesota Power – Reply Comments

MP concurs with the most of the Department's recommendations but addressed the following two:

1. Authorize Minnesota Power to request approval to exceed the cost-cap if it can show that any cost incurred above the cap are the result of a government action (e.g. tariff, trade investigation, etc.) that causes meaningful disruption to solar panel supplies and market prices.

Minnesota Power greatly appreciates the Department's approach to managing

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[42] Minnesota Power, Regal Solar Project Information Sheet, 1 (February 2025) (including reference to EnergyForward, mnpower.com/EnergyForwad, at https://mnpower.com/energyforward, wherein Minnesota Power sets forth its vision on its "commitment to climate, customers and communities").

[43] Clean Energy Economy Minnesota Comments; at 2.

[44] Petition, at 8.

[45] Id, at 9.

the cost-cap associated with the Regal Solar Project. Minnesota Power will diligently monitor expenses. The costs of photovoltaic solar energy panels, components and related equipment will be included under the Renewable Rider, ensuring transparency and accountability in managing the Project's budget. This strategy helps balance cost control with the need to adapt to external economic factors, ultimately benefiting Minnesota Power customers.

2. Approve MP's proposal to sell PTCs. However, to ensure there are net benefits to ratepayers, require MP to track the actual cost and benefits of selling PTCs in its annual renewable energy rider filings.

To account for transfer of the PTCs to eligible transferee taxpayers in exchange for cash payments, effective with Minnesota Power's 2024 RRR Petition,[46] the Company added two adjustments to its PTC true-up procedure. The first accounts for the PTCs discount that is necessary to incentivize the transferees to purchase the credits. The second accounts for the ADITA reduction as cash is received from the transferee. The ADITA reduction will accumulate with each cash payment received. Minnesota Power committed to providing annual updates in its RRR petition.

H. Staff Comments

Staff concurs with the Department that the Petition is complete and with the Department's recommendation that the Petition be approved.

Staff notes that MP's reply comments addressed their proposed handling of PTC sales; however, no party replied to the proposed handling. Therefore, the Commission may want ask parties if they agree with MP's PTC proposal.

Finally, it is unclear to Staff whether Minnesota Power agrees with the Department's recommendations related to the cost cap; therefore, the Commission may to confirm if MP agrees.

I. Decision Options

1. Find the Petition complete under Minn. Stat. § 216B.1645 and Minn. R. 7829.1300. (Minnesota Power, Department)

2. Approve Minnesota Power's investment in the Regal Solar Project. (Minnesota Power, Department, City of Cohasset, LIUNA Minnesota/North Dakota, CEEM, IUOE & NCSRC)

[46] See Docket No. E-015/M-24-140.

3. Determine that the Regal Solar Project is exempt from the CN requirements under the Bidding Exemption. (Department, Minnesota Power)

4. Limit cost recovery to the capital costs in Minnesota Power Regal Solar Project bid. (Department)

5. Authorize Minnesota Power to request approval to exceed the cost-cap if it can show that any costs incurred above the cap are the result of a government action that causes meaningful disruption to solar panel supplies and market prices. (Department)

6. Determine that the Regal Solar Project qualifies for application toward Minnesota Power's RES obligation. (Minnesota Power, Department)

7. Determine that the Regal Solar Project qualifies for application toward Minnesota Power's CFS obligation. (Minnesota Power, Department).

8. Subject to review and approval in a future petition, authorize Minnesota Power to recover Regal Solar Project costs through the Renewable Resource Rider. (Minnesota Power, Department, LIUNA Minnesota/North Dakota)

9. Approve Minnesota Power's proposal to sell PTCs. (Minnesota Power, Department)

10. Require Minnesota Power to track the actual cost and benefits of selling PTCs in its annual renewable energy rider filings. (Department, Minnesota Power agreed)