Minnesota Public Utilities Commission

Staff Briefing Papers

Meeting Date: November 3, 2016 ..... **Agenda Item # **7**

Company: Minnesota Power (MP or the Company)

Docket Number: **E-015/M-15-773**

In the Matter of the Petition of Minnesota Power for Approval of Investments and Expenditures in the Camp Ripley Solar Project for Recovery through Minnesota Power's Renewable Resources Rider under Minn. Stat. § 216B.1645 and Related Tariff Modifications

Issue: Should the Commission approve Minnesota Power's compliance filing, including the initial cost recovery amount for its land lease and proposal to adjust its Fuel and Purchased Energy (FPE) and Solar Energy Adjustment (SEA) Riders?

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Relevant Documents

Staff briefing papers ..... January 20, 2016
PUC Order Granting Petition in Part ..... February 24, 2016

Staff briefing papers ..... May 3, 2016
PUC Order Denying Reconsideration ..... May 13, 2016

MP compliance filing ..... April 25, 2016
Department of Commerce (DOC) ..... July 7, 2016
Office of the Attorney General (OAG) ..... July 7, 2016
Fresh Energy ..... July 7, 2016
MP reply comments ..... July 18, 2016

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Statement of the Issue

Should the Commission approve Minnesota Power's compliance filing, including the initial cost recovery amount for its land lease and proposal to adjust its Fuel and Purchased Energy (FPE) and Solar Energy Adjustment (SEA) Riders?

Procedural background

On February 24, 2016, the Commission issued its *Order Granting Petition in Part and Requiring Reevaluation of Solar Energy Adjustment Rider*, in the current docket.

On May 13, 2016, the Commission issued an Order denying a request filed by the Office of the Attorney General (OAG) for reconsideration of the Commission's February 24 Order.

On April 25, 2016, MP submitted a compliance filing pursuant to the February 24 Order.

On June 1, 2016, the Commission issued a notice seeking comments on MP's compliance filing.

On July 7, 2016, the Department of Commerce (DOC), the OAG, and Fresh Energy filed comments in response to the Commission's notice.

On July 18, 2016, MP filed reply comments.

Background

In its February 24, 2016 Order, the Commission approved the recovery of the investments and expenditures for the Camp Ripley project. The investments and expenditures were approved subject to further adjustment after MP filed an independent property appraisal for the leased land.

Specifically, Order Point 2 of the February 24 Order stated:

> 2. Approved Camp Ripley Project investments and expenditures are subject to further adjustment by the Commission.
>
> a. Minnesota Power shall obtain an independent property appraisal for the leased land as evidence of the value appropriate for recovery from ratepayers of the proposed land lease agreement. The appraisal shall be done to the standards the Department of Natural Resources uses for valuing easements and property purchases.
>
> b. Within 60 days of the date of this order, Minnesota Power shall file the independent appraisal with the Commission and the Commission will determine if the total approved recovery amount for the project should be adjusted for a different land lease payment.

The Commission in its February 24 Order also approved MP's proposal to recover the costs for the Camp Ripley project through the Company's Renewable Rider, with the addition of a Solar Renewable Factor to allow the recovery of solar costs from non-exempt, solar-paying customers

only.[1] As part of MP's proposal, the Commission also approved a new Solar Energy Adjustment (SEA) Rider to be applied in conjunction with the Company's existing Fuel and Purchased Energy (FPE) Rider after its adjustment to exclude solar costs and energy. However, the Commission required MP to file an alternative calculation of the SEA Rider as a compliance filing.

Specifically, Order Point 7 of the February 24 Order states:

> 7. Within 60 days of the date of this order, Minnesota Power shall submit a proposed alternative calculation of the SEA Rider. The proposal shall include, at a minimum:
>
> a. an on-peak energy offset or another method that would better reflect the actual avoided energy costs due to solar additions, and
>
> b. an analysis of the applicability of the VOS Methodology components.

MP's April 25 compliance filing addresses the two Order Points above.

MP indicated that, despite the September 2016 storm, which damaged the solar array, the Camp Ripley facility is now 50% operational and will be fully operational in mid-November, 2016. The Company will continue to complete site restoration through the end of 2016.

Positions of the parties

Land appraisal

Minnesota Power (MP or the Company)

As ordered by the Commission, MP obtained an independent property appraisal for the utilization of a parcel of land similar to that being used for the Camp Ripley project, done to the standards of the Department of Natural Resources. This appraisal, conducted by Ramsland and Vigen, Inc., included a valuation of the land and property taxes for the 35-year term of the agreement with Camp Ripley. The appraisal is included as Attachment 1 to MP's April 25 compliance filing.

In addition, MP obtained an independent evaluation of the benefits of permitting and security that the Camp Ripley project will realize due to its location. This evaluation was conducted by Burns & McDonnell and is included as Attachment 2 to MP's April 25 compliance filing.

MP's land lease with Camp Ripley includes total payment of $1.6 million over 35 years, or a net present value of $592,723. The total payment based on the independent appraisals is about $1.0 million and the net present value is $403,243. The results of the independent appraisals and comparison to the actual lease are summarized in the table below.

[1] See Minn. Stat. § 216B.1691, subd. 2f(d), which excludes the recovery of Solar Energy Standard (SES) costs from certain customers.

Table 1. Net Present Value of Appraisal Results [MP's April 25 compliance filing, p. 3]

	Lease Value	Appraisal Value
Land value	$200,000	$128,000
Property tax benefits	118,627	44,819
Security benefits	224,096	180,624
Permitting benefits	25,000	24,800
Solar Education Center	25,000	25,000
Total Value (NPV)	**$592,723**	**$403,243**

MP explained that it signed the land lease with Camp Ripley on November 19, 2015 and is bound by its terms. The total payments using the independent appraisal values are $667,080 lower than the land lease payment the Company will pay to Camp Ripley over 35 years. If the Commission determines that the total approved recovery amount for the project should be adjusted to reflect the appraised value, MP stated the recoverable portion of operation and maintenance (O&M) expense for the project would be reduced by $19,059 per year. MP believes, however, that the lease payments already agreed to with Camp Ripley are appropriate and justified given the benefits of siting a facility within Camp Ripley property.

Department of Commerce (the DOC)

The DOC noted that MP's compliance filing and the independently appraised values show that MP overstated the value not only of the land but also of property taxes and security benefits (see Table 1 above). The DOC recommended that the Commission require MP to adjust the costs of the project to be recovered from ratepayers to reflect the values determined by the independent appraisals.

Staff discussion on land appraisal

In its February 24, 2016 Order, the Commission stated that certain of the Camp Ripley project investments and expenditures would be subject to further adjustment, pending an independent property appraisal of the leased land. The Commission stated that based on the appraisal, it would determine if the total approved recovery amount for the project should be adjusted for a different land lease payment. Since the independent appraisals show that the lease values are higher than the appraised values, the Commission will need to decide whether to adjust the recovery amount to reflect the difference. MP provided several arguments in support of the higher land lease payment, many of which were included in its initial petition.

Allocation of capacity benefits

Minnesota Power

MP agreed that solar energy brings capacity benefits to its system. It agreed to develop a methodology for allocating capacity costs between solar-exempt and solar-paying customers in its next rate case.[2]

Department of Commerce

The DOC did not agree with MP's statement that there would be no positive value for the solar generation capacity until after the Company adds a CT unit in 2023. In noted that adding generation to a utility's system can affect how existing resources are used, as well as the amount and timing of additional resources. However, the DOC did not attempt to analyze the effects of adding the 10 MW Camp Ripley facility to MP's system as part of the current compliance filing. Instead, it asked MP to note the amount of capacity that will be accredited by MISO for the Camp Ripley project, and to commit to addressing these capacity benefits in its next rate case.

Minnesota Power response

In reply, MP explained that when fully operational for MISO purposes (end of 2017) the project will add about 5 MW of accredited capacity per year to MP's power supply for solar-paying customers. Once qualified, the capacity can be sold through the MISO Planning Resource Auction. Once the project operates through its first MISO peak season (June to August), it will qualify and be eligible for capacity sales and thus have a theoretical capacity value. The earliest this would occur is June 2018. Based on MISO's last capacity auction, this equates to about $36,000 per planning year for Camp Ripley's 5 MW of capacity.

The Company explained that since there can be no positive market value of the solar capacity until June 2018, it continues to believe the best approach is to address the methodology of allocating the solar capacity valuation between solar-exempt and solar-paying customers in its next rate case.

Staff discussion the allocation of capacity benefits

MP has committed to provide a methodology for allocating the solar capacity valuation between solar-exempt and solar-paying customers in its 2016 rate case. Staff believes that this was the Commission's understanding when it approved the project and the DOC's understanding as well. Therefore, staff suggests that the Commission accept MP's commitment as part of an ordering requirement.[3]

[2] MP's April 25 filing, p. 12.

[3] The Commission should note that Fresh Energy has proposed that the Commission delay a cost recovery decision and require MP to re-submit its compliance filing (see discussion below).

Solar Energy Adjustment (SEA) calculation

Minnesota Power

In response to Order Point 7 in the Commission's February 24 Order, MP developed a SEA Rider that accounts for the time of generation with an on-peak energy offset. MP noted that but for the statutory requirement to exempt certain customers from paying costs needed to meet the SES, the SEA Rider would not be needed since all customers would pay for and receive the benefits of the solar production. MP believes the issue is whether there are benefits associated with the Camp Ripley solar energy production that exempt customers receive and for which they should pay. Therefore, MP approached the development of the SEA Rider based on the principle that solar benefits that would be paid by all customers, including exempt customers, should be based on known and measurable data, and would need to represent the value from a least-cost perspective of duplicating those benefits from another resource.

MP proposed a method for calculating the Fuel and Purchased Energy Adjustment (FPE Adjustment) altered to account for time of solar generation benefits in a new SEA Rider. The FPE Adjustment would be applied to all customer energy usage (as currently) and the SEA Rider would be applied only to the energy usage of solar-paying customers. As part of this new method, a new Time of Generation Adjustment (TOGA) factor was calculated that accounts for the time of solar generation.[4] The TOGA represents the "premium" value of solar energy's time of generation and is the means proposed by the Company to quantify the value of the time of generation for solar energy. The TOGA will compensate solar-paying customers for the time the solar energy is produced, rather than applying a 24-hour average cost, which is the current method for calculating the FPE Adjustment. The TOGA is added to the base FPE cost and the resulting TOGA-adjusted FPE Adjustment is applied to all customer energy usage.[5]

MP argued this approach reflects the hourly variability of solar production alongside the hourly avoided MP system cost, which is an appropriate basis on which to value the avoided fuel cost of solar generation for customers exempt from the SES. In addition, MP noted that the data is known and measurable and expected to be fairly straightforward to administer on a monthly basis.

As described below, MP agreed in reply comments to revise the calculation of the SEA Rider to reflect the higher value of solar energy compared to the actual average costs of non-solar energy as suggested by the DOC. MP also agreed to the revised tariff language proposed by the DOC with one minor change.

Department of Commerce

The DOC commented that with one exception MP's proposal for the calculation of the SEA is well-developed, sound, and based on data that will reflect the actual amount of solar energy produced at the time the energy is produced. The DOC believes that MP's proposed adjustment will reflect the

[4] Detailed steps on how to calculate the TOGA are included on pages 7-9 and Attachments 3 and 4 of MP's April 25 compliance filing.

[5] The TOGA is calculated by multiplying the TOGA factor by solar generation (MWhs), and then by the FPE Adjustment without solar. The TOGA-adjusted FPE Adjustment is calculated by adding the TOGA to the non-solar energy costs and dividing this result by the non-solar generation. The resulting TOGA-adjusted FPE Adjustment will be applied to all customers' kWh monthly usage.

higher-than-average value of the solar energy being produced during periods that coincide with MISO's peak.

According to the DOC, the one exception is that MP compared the energy costs that are actually avoided due to the projection of solar energy at Camp Ripley to the average avoided cost that would occur if solar energy were produced evenly in all hours of the month. Specifically, the DOC noted that MP proposed to calculate the TOGA by comparing the actual avoided costs due to solar generation with the average of avoided costs over the month. Since the purpose of the adjustment is to reflect the higher value of solar energy compared to the actual average costs of non-solar energy, the DOC proposed that the TOGA calculation reflect this comparison. It recommended the Commission approve MP's proposed FPE and SEA Riders with one revision to Tariff page 96.1, as follows:

> (f) Calculate the simple average of actual non-solar ~~hourly projected avoided~~ energy cost ($/MWh) for the first two of the preceding three months by dividing total monthly costs of non-solar generation by total monthly MWh sales ~~as set out in Minn. Statute § 216B.164, subd. 3(b).~~

MP agreed to the DOC's proposed change with one addition, which the DOC accepted. Therefore, the DOC and MP are in agreement on the calculation of the adjustment and the tariff language. The agreed upon language reads:

> (f) Calculate the simple average of actual non-solar energy cost ($/MWh) for the first two of the preceding three months by dividing total monthly costs of non-solar generation by total monthly non-solar MWh sales.

Applicability of VOS factors

Minnesota Power

In response to Order Point 7b of the Commission's February 24 Order, MP provided an analysis of the applicability of the VOS components. As part of its analysis of the VOS components, and to comply with the solar exemption statute (Minn. Stat. § 216B.1691, subd. 2f (d)), MP included only known and measureable values in its SEA Rider calculation.

The Company believes that adding values beyond what are known and measurable, and of value to exempt customers, is in violation of the exemption statute and could result in a legal challenge to MP's adjustment proposal. MP noted that there is a limit on the cost-shifting between solar-paying and solar-exempt customers (i.e. once MP meets the SES, additional solar costs will be paid for by all customers). Given this limit, MP argued that it is reasonable to weigh the value of the cost-shifting against the administrative burden of determining methods and allocating costs for components that may have perceived conceptual values that are expected to be marginal.[6] With these limitations in mind, MP provided an analysis of each of the VOS components (see Attachment A to these briefing papers).

The Company's evaluation of VOS components determined that several of the components—avoided fuel cost, avoided fixed and variable O&M, avoided generation capacity cost, and avoided

[6] See MP reply comments filed October 23, 2015, in this docket.

environmental cost—would have no near-term value for MP customers using the defined VOS Methodology. This is due to the fact that most of the components are based on avoiding cost from a combined cycle or combustion turbine (CT) existing in the Company's system today. MP does not expect to add a gas generation resource to its system until 2023, so these VOS components would not provide a positive value until after this addition.

The Company's analysis and evaluation of the VOS components also determined that quantifying and including many of the components in the FPE Rider, as the SEA is designed to do, could be problematic because the FPE Rider is established primarily as a mechanism to account for fuel and purchased energy. Minn. Stat. § 216B.16, subd. 7 (the Energy Cost Adjustment Statute), which provides the legal framework for the FPE Rider, allows an automatic adjustment of charges related to changes in wholesale energy rates, direct costs for natural gas, costs for fuel used in generation of electricity or the manufacture of gas, and prudent costs for emission controls. Most of the VOS components do not currently qualify for recovery under guidelines governing the FPE Rider, and consequently would not be allowed to flow through the SEA. MP also indicated that because of the solar exemption statute, it is not appropriate for MP to incorporate VOS components in its Class Cost of Service Study (CCOSS) in its next rate case as proposed by the OAG.

MP noted that the OAG already requested that the Commission amend its February 24 Order to require the Company to calculate a value for each VOS component. On May 13, 2016, the Commission issued an Order denying OAG's request. MP also noted that the Commission has already approved a motion requiring MP to submit a VOS calculation in its Community Solar Garden docket (15-825).[7]

Fresh Energy

Fresh Energy concluded that MP's compliance filing did not meet the requirements of Order Point 7. It argued that MP provided a limited narrative of each VOS component but did not provide sufficient information to demonstrate whether each is applicable to the Camp Ripley project. Therefore, Fresh Energy recommended that the Commission delay its decision on cost recovery and require MP to re-submit the compliance filing with a quantitative analysis and evaluation of the eight VOS Methodology components, consistent with the approved methodology in Docket 14-65. It also recommended that the Commission direct MP to "show cause" as to why each of the eight components should not be included in the FPE adjustment for the SEA rider as applied to the project.

Fresh Energy noted that MP claimed that there is no known and measurable valuation of solar's avoided costs other than avoided fuels and capacity costs, yet it agreed that the project provides Avoided Fixed O&M and Avoided Variable O&M benefits and simply concluded that these components should not be incorporated into the FPE adjustment. MP also argued that its winter peak means the solar energy does not avoid transmission and distribution costs, which Fresh Energy questioned. Fresh Energy argued that rather than apply the VOS Methodology to test assumptions such as these and analyze their application to the project, the Company simply provided brief narratives.

Fresh Energy is also concerned with views expressed by MP regarding solar costs. According to Fresh Energy, MP has assumed that solar energy will always be a costlier resource than central station fossil resources. While solar costs may have been higher than the avoided cost benefits

[7] At the time MP filed its reply comments, the Order in 15-825 had not been issued. It was issued on July 27, 2016.

provided when the SES was passed (in 2013), Fresh Energy argued that recent resource acquisitions and resource plans demonstrate this is no longer true.[8]

Office of the Attorney General (the OAG)

The OAG believes MP's analysis is questionable and asked that additional analysis be included in the Company's next rate case. The OAG questioned MP's compliance filing as sufficient for making a final decision, but took no position on whether MP's proposed credit adjustment and recovery mechanism should be approved now. It asked the Commission to require MP to quantify all of the VOS factors and include these, if applicable, as part of its next Class Cost of Service Study (CCOSS).

According to the OAG, MP acknowledged that the project will provide non-solar-paying customers with some of the benefits that the Commission recognized in approving the VOS rate. Yet, MP did not quantify these benefits and indicated that they are not appropriate for inclusion in the fuel-clause rider. Specifically, MP acknowledged that the facility will reduce the Company's fixed plant O&M costs, its variable plant O&M costs, and its generation capacity costs, but argued that the value of these benefits should not be credited to non-exempt customers because: (1) the financial impact is likely to be small or not realized immediately, (2) the value of these benefits cannot be included in its fuel clause adjustment under Minn. Stat. § 216B.16, subd. 7, and (3) in some instances, VOS benefits do not apply.

MP argued, for example, that the Camp Ripley facility will not lead to avoided transmission and distribution capacity costs because peak load reduction from the facility is expected to be at or near zero because MP is winter-peaking. However, the OAG noted that the Commission recently questioned whether cost allocators in the CCOSS should rely on the utility's peak or on MISO's peak. Until the Commission evaluates MP's CCOSS, the OAG argued it is unclear whether this same reasoning should apply to the Company's transmission and distribution costs. Moreover, the OAG argued that MP's conclusion that its avoided capacity and transmission costs are expected to be "at or near zero" is unsupported speculation, because the Company did not perform the applicable calculations. The OAG believes that other VOS components that MP claimed should not apply to the Camp Ripley project will need analysis during the next rate case as well.

Staff discussion of SEA Rider and VOS components

This compliance filing represents the third time that cost recovery issues related to the Camp Ripley project have come before the Commission. MP first filed a petition for project approval and cost recovery on August 21, 2015. The Commission approved the recovery of the investments and expenditures for the project subject to adjustment based on the land appraisal, and asked for an alternative calculation of the SEA Rider. In response to requests for reconsideration of the SEA Rider, the Commission then issued its Order Denying Reconsideration on May 13, 2016. The project is currently 50% operational and expected to be fully operational in mid-November. Given the desirability of having a cost recovery mechanism in place close to the time the facility comes on-line, and the DOC's recommendation for approval of the SEA Rider, the Commission may wish to approve a cost recovery method at this time. However, if the Commission does not find that the

[8] Fresh Energy claimed that in MP's recent resource plan, the Commission found that up to 100 MW of solar energy by 2022 (an amount exceeding the Company's SES compliance requirements) is likely an economic resource for MP's customers.

record supports the proposed cost recovery mechanism and/or more information is needed, the existing fuel clause could remain in place with the understanding it would be trued-up in conjunction with the eventual establishment of an SEA.

In reconsideration, the OAG asked the Commission to amend its February 24 Order and to require MP as part of its compliance filing and alternative calculation of the SEA Rider to quantify each of the VOS components. Denying this request, the Commission implicitly indicated that quantification of all of the VOS factors is not required by Order Point 7b. Rather, Order Point 7b requires MP to propose an alternative SEA Rider calculation that includes an analysis of the "applicability" of the VOS components.

It should be recalled that the DOC's initial review raised flags over the application of the VOS components in the context of FCA recovery. It is not clear that the VOS benefits reflected in a rate to be paid for distributed solar energy can be easily translated into a credit against the Fuel Clause Adjustment, a mechanism intended to recover specific fuel costs that are reasonably well-known. Moreover, although the VOS Methodology is defined, its appropriate use (outside a utility's voluntary use for net metered and small cogeneration facilities less than 1 MW or as a CSG rate) is not fully specified.

As noted, MP approached the development of the SEA Rider with the principle that solar benefits to be paid for by all customers, including exempt customers, would need to utilize known and measurable data and would need to represent the value, from a least-cost perspective, of duplicating those benefits from another resource. MP cautioned that one of the unintended consequences of determining the SEA credit based on a full application of the VOS components might be to exceed the value of the least-cost alternative on MP's system.

MP's compliance filing, including its analysis of the applicability of the VOS components (see Attachment A), explained that they: (1) have been accounted for (avoided fuel costs), (2) have not yet been realized (avoided fixed O&M costs), (3) are minimal and already embedded in base rates (avoided variable O&M), (4) will be considered and accounted for in MP's next rate cases (avoided generation capacity costs), (5) are not applicable (avoided reserve capacity costs), (6) are not qualified to be included under statute (avoided transmission and distribution capacity costs), or (7) are not known and measureable (avoided environmental costs).

As proposed in MP's compliance filing, solar-paying customers would be receiving credit for the value of the on-peak energy provided by the project (which is expected to be the most significant of all the VOS components in terms of value), and the positive market value of the capacity from the project once available (5 MW of MISO accreditation). The Commission may find this sufficient for now.

MP also raised two legal issues. The first is that only known and measurable benefits associated with solar generation should be included in the SEA. MP is concerned that the application of additional values beyond what is known and measurable and of value to exempt customers could result in the SEA being challenged as violating the solar exemption statute (Minn. Stat. § 216B.1691, subd 2f(d)), which states that customers exempt from the SES "may not have included in the rates charged to them by the public utility any costs of satisfying the solar standard specified by this subdivision."

The second legal issue is whether the recovery of VOS components through the fuel clause (as the SEA is designed to do) is permitted under statute, since the FPE Rider is established primarily to be a mechanism to account for fuel and purchased energy. Minn. Stat. § 216B.16, subd. 7 (the Energy Cost Adjustment Statute), provides the legal framework for the FPE Rider, and allows an automatic adjustment of charges related to changes in wholesale energy rates, direct costs for natural gas, costs for fuel used in generation of electricity or the manufacture of gas, and prudent costs for emission controls. MP noted that most of the VOS components do not currently qualify for recovery under the guidelines in this statute, and consequently, would not be allowed to flow through the SEA.

Staff notes that the Commission has interpreted or varied its fuel clause rules, usually at the request of utilities, to include elements that may not be explicitly listed in the fuel clause statutes and rules, but are considered to be related closely enough to costs of fuel to warrant collection through the fuel clause. These elements include MISO Day 2 costs, wind curtailment costs, financial hedging costs, and renewable capacity costs.

One option is for the Commission to approve MP's proposal for the FPE and SEA Riders with the DOC modification, reserving the possibility further modifications in the future. The Commission could recognize that additional solar benefits beyond energy and generation capacity may exist, but that the Commission is not going to take further steps at this time, in this docket, to attempt to quantify and apply them.

Further modification could occur after a resubmitted compliance filing and quantification of the eight VOS components as suggested by Fresh Energy. Alternatively, modifications, if appropriate, could follow the compliance filing in MP's CSG docket (15-825) that requires a VOS calculation.[9] Finally, the Commission could approve MP's proposed FPE and SEA Rider calculations in this docket and reserve quantifying the VOS components and, where appropriate, applying them in MP's next rate case as part of its CCOSS. Regardless, the Commission need not find that the VOS benefits are to be ignored. The Commission might clarify that the VOS Methodology remains the approved standard for determining the value of distributed solar projects, and that MP's analysis of its applicability in this specific instance carries no implications limiting its full implementation and quantification in other cases.

[9] Order Point 14 of the Commission's July 27, 2016 Order approving MP's CSG pilot program states:

> Within 180 days of the date of this order, Minnesota Power shall file a Value of Solar calculation and propose how to implement it in this docket.

Staff notes the only explanation of this finding is on page 8:

> To ensure that the program appropriately confers benefits of solar generation to subscribers, the Commission will require that the Company calculate pilot program subscribers' cost-recovery-rider charges using their kwh usage minus the subscriber's allocated kwh credit. And the Company will be required to apply the Commission-approved method to calculate a distributed solar value, file its calculation in this docket, and propose how to implement it.

Decision options

Land appraisal

1. Approve the project land lease payment amounts for recovery that were initially proposed by the Company and included in its initial August 21, 2015 filing. (*Minnesota Power*)

2. Require the Company to adjust the project land lease payment amounts to be recovered from ratepayers to reflect the independent land appraisal values filed by the Company in its April 25 compliance filing. Under this decision option, the recoverable portion of O&M expense will be reduced by $19,059 per year. (*Department*)

Allocation of capacity benefits

3. Accept the commitment by MP in its July 18, 2016 reply comments to develop and provide in its 2016 rate case a methodology for allocating the Camp Ripley solar capacity benefits between solar-exempt and non-exempt solar-paying customers. (*Minnesota Power, Department*)

Solar Energy Adjustment (SEA) Rider calculation

4. Approve the Company's compliance proposal for revisions to its existing FPE Rider, as shown in Attachment 5 of its April 25 compliance filing, and the Company's proposed Solar Energy Adjustment (SEA) Rider, as shown in Attachment 6 of its April 25 compliance filing, as modified by its July 18, 2016 reply comments:

    a. Approve a revision to the tariff language and calculation of the SEA Rider so that the SEA Rider tariff language (on page 96.1) reads as follows:

        (f) Calculate the simple average of actual non-solar cost ($/MWh) for the first two of the preceding three months by dividing total monthly costs of non-solar generation by total monthly non-solar MWh sales.

    (*Minnesota Power, Department*)

5. Deny the Company's proposal for revisions to the Company's existing FPE Rider as shown in Attachment 5 of its April 25 compliance filing and the Company's proposal for a Solar Energy Adjustment (SEA) Rider as shown in Attachment 6 of its April 25 compliance filing. (*Fresh Energy*)

VOS components

6. Require the Company to quantify all VOS components for the Camp Ripley project and to incorporate the components that are applicable into the Class Cost of Service Study (CCOSS) submitted in the Company's next rate case. (*OAG*)

7. Find that the Company's April 25 compliance filing does not meet the requirements of the Commission's February 24, 2016 Order, Order Point 7, and require the Company:

a. to re-submit its compliance filing with quantitative analysis and evaluation of the eight VOS Methodology components for the Camp Ripley project; and

b. to include as part of its re-submitted compliance filing a "show cause" as to why each of the eight VOS components should not be included in the FPE adjustment for the SEA Rider as applied to the Camp Ripley project.

(*Fresh Energy*)

8. Find that the VOS Methodology remains an approved standard for determining the value of distributed solar projects where applicable and that MP's analysis of its applicability in this specific instance carries no implications limiting its full implementation and quantification in other cases. (*Staff suggestion, if the Commission finds it appropriate*)

MP's evaluation of the applicability of each of the VOS components (compliance filing, April 25, 2016, pp. 11-13).

1. Avoided Fuel Cost

Since energy generated from solar projects displaces fuel required to produce energy for the grid, this VOS component can be estimated and the Company agrees it should be included in the SEA Rider calculation. Minnesota Power proposes to use the SEA Rider and TOGA calculations described above to value the avoided fuel cost. Minnesota Power's proposal includes time of solar generation to value the avoided fuel cost of adding solar energy to the grid, and captures the estimated value of avoided fuel cost for solar-paying customers. The Company expects avoided fuel cost to be the most significant of all the VOS components in terms of value.

2. Avoided Plant Operation and Maintenance – Fixed

Minnesota Power generally agrees that the avoided fixed O&M costs could represent a benefit solar generation brings to all customers. Traditionally, the Company views the value of on-going avoided fixed O&M cost as a component of the market value of capacity. Consequently, this component is best "valued" as part of the avoided generation capacity cost, described later in this section. As previously mentioned, the Company does not expect there to be an actual value of avoided fixed O&M until 2023 at the earliest, using the VOS methodology. Further, avoided fixed O&M does not qualify to be included in the FPE Rider under the Energy Cost Adjustment Statute. Consequently, Minnesota Power does not believe it is applicable to include this VOS component in its current SEA.

3. Avoided Plant Operation and Maintenance – Variable

Minnesota Power generally agrees that the avoided variable O&M costs could represent a benefit of solar generation. However, this component is currently embedded in the Company's base rates and various riders and there is no known and measurable valuation of the benefit outside of a rate case. Because the value of avoided variable O&M due to solar is expected to be very small, given the Company's projection of solar additions required to meet the SES, and because this component does not qualify to be included in the FPE Rider under the Energy Cost Adjustment Statute, the Company does not believe it is applicable to include this VOS component in its current SEA.

4. Avoided Generation Capacity Cost

Minnesota Power agrees that solar energy brings capacity benefits. The Camp Ripley Project is expected to provide 5 MW of accredited capacity based on MISO's current rules for calculating the accredited capacity value of solar per BPM 11 – Resource Adequacy.[10] In Comments filed October 14, 2015, the Department stated that an appropriate methodology for allocating capacity cost between solar-paying and solar-exempt customers should be determined in Minnesota Power's next rate case. The Company agrees with this approach.

5. Avoided Reserve Capacity Cost

Because the Ripley Project will be accredited as a capacity resource in MISO's Resource Adequacy Requirements, there will be no avoided reserve capacity cost savings associated with the project. Per MISO's BPM 11 – Resource Adequacy, a capacity resource that is classified as a Load Modifying Resource and as Behind the Meter Generation, such as the Camp Ripley Project, will have no change to the Company's planning reserve margin requirements. Minnesota Power recognizes that a solar facility that reduces load directly (i.e. rooftop solar) and is not accredited in MISO as a capacity resource could produce a reserve capacity cost savings. However, this does not apply to the Camp Ripley project given it is not reducing customer load directly; it is a traditional generation resource that is accredited in MISO as a capacity resource. Additionally, the avoided reserve capacity cost would not be expected to apply to other future utility scale solar facilities.

6. Avoided Transmission Capacity Cost

An avoided transmission capacity cost would occur if solar generation were to reduce the peak customer demand for generation. Minnesota Power's peak is in the winter in the evening. Therefore, the Peak Load Reduction factor from a solar resource is expected to be at or near zero during the winter using the VOS calculation methodology. Further, avoided fixed transmission capacity cost does not qualify to be included in the FPE Rider under the Energy Cost Adjustment Statute. Consequently, the Company concluded there should be no avoided transmission capacity cost included in the SEA Rider.

[10] Resource Adequacy Business Practice Manual document.

7. Avoided Distribution Capacity Cost

As with avoided transmission capacity cost, avoided distribution capacity cost would only occur if solar generation were to reduce the peak customer demand for generation. And again, since Minnesota Power is a winter peaking utility and the Peak Load Reduction factor per the calculation methodology is expected to be near or at zero during the winter, and since avoided distribution capacity cost does not qualify to be included in the FPE Rider under the Energy Cost Adjustment Statute, the Company concluded there should be no avoided distribution capacity cost included in the SEA Rider.

8. Avoided Environmental Cost

Minnesota Power agrees that solar energy could provide an avoided environmental cost once current and future environmental initiatives are rolled out and become known and measurable. For example, if a carbon regulation penalty were added in the future, solar energy would provide the benefit of avoiding the cost to emit carbon. The Company proposes considering a method to value avoided environmental costs once a carbon regulation penalty or other environmental initiative has been instituted and is known and measurable.

The Company believes its proposed SEA Rider is a fair method for allocating value associated with solar generation between solar-paying and solar-exempt customers. Although some stakeholders have argued that additional components of the VOS should be included in the SEA Rider, it is important to balance the solar exemption statute with the theoretical values solar energy brings to the grid. It is contrary to think that the policy enacted by the State to exempt certain customers from paying the costs to meet the SES, would result in these customers ultimately pay higher costs for energy than solar-paying customers. The Company's SEA Rider includes the largest VOS component – avoided fuel cost – in its calculation, while excluding other VOS components.