Comment Summary
MPSC Staff September 16, 2015

Draft Solar Working Group Staff Report
From Jesse Harlow
Solar Working Group,

Please find attached the draft report to be finalized and released on September 30, 2015. Please submit comments on the report to the group via email by September 24, 2015.

Thank you,
Jesse

Comments Received

To SWG
From Nancy Popa, Consumers Energy Company,

Hi Jesse, We have just a few comments on the draft report for your consideration.

1. Page 3, line 3. Staff forgot to include Mark Devereaux as a panelist
2. Page 4, paragraph 2 is missing the "Embedded Capacity Cost" heading
3. Page 4, note 6- Consider rewording to describe the "PRA as residual capacity auction and not necessarily representative of solar capacity value".
4. Page 9-recommendation for floor. We would like the staff to reconsider this recommendation. Agreeing to a floor that may be higher than tomorrow's market rates can result in cross subsidization. The program design was premised on assuring to the extent possible that cross subsidization did not occur and the establishment of a floor violates that fundamental design principle. The Company already has requested a five year fixed bill credit rate in order to market the program at the risk of a short-term cross subsidization. Other program improvements were requested and granted in the last filing, largely for the benefit of the customer. A floor is another move away from avoided cost principles which is uncomfortable.

We have tremendously appreciated the support of the MPSC for the Solar Gardens Program and look forward to working together in the future.

Thank you
Nancy

To SWG
From Harry Stansell, DTE Electric Company,

Jesse,

DTE has no comments on the Solar Working Group Staff Report draft, other than to state that the absence of comments should not be taken as an indication that DTE agrees (or disagrees) with the various positions taken by Staff in its draft report.

Regards,
Harry Stansell
Manager - Renewable Energy Business Development
DTE Energy
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To SWG
From Bradley Klein, ELPC,

Jesse – Thank you for the opportunity to respond to Staff's draft solar working group report. On behalf of ELPC and in order to ensure a full record, I'd like to request the following minor revisions:

(1) Please post ELPC and 5 Lakes Energy's July 23, 2015 comments on Staff's solar working group website. (The comments are attached).
(2) Please consider the attached minor revisions to your draft report in order to more clearly indicate the solar interveners' position in the working group process.

Thank you,
Brad

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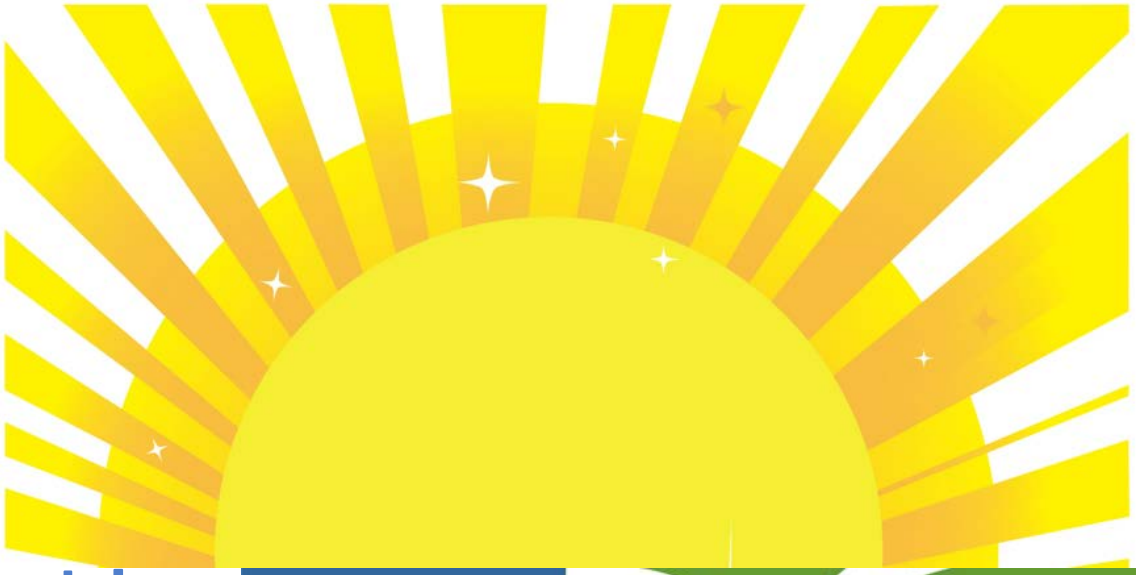
Michigan Public Service Commission

Solar Working Group – Staff Report

September 30, 2015



Electric Reliability Division Renewable Energy Section

MICHIGAN PUBLIC SERVICE COMMISSION

Introduction

On January 23, 2015, Consumers Energy Company (Consumers or Company) filed an application to amend its Renewable Energy Plan in Docket Number U-17752 to implement a 10 megawatt (MW) community solar pilot program.[1] The Company proposed to construct and own up to 10 MW of solar photovoltaic (solar) facilities. The program would allow customers to purchase subscriptions in 0.5 kilowatt (kW) increments and receive a bill credit based on the value of solar (VOS) generated over the 25 year life of the solar project. The customers could elect to pay for their subscription over a variety of different time periods. Initially, the Company proposed including the following components in the bill credit:

- Midcontinent Independent System Operator (MISO) Locational Marginal Price (LMP) (price adjusted upward to reflect line loss mitigation)
- Capacity credit based on the MISO Planning Resource Auction (PRA)
- Renewable Energy Credit (REC) priced based on the Clear Energy Brokerage and Consulting quarterly "Midwest REC Market Notes" publication

On February 24, 2015 testimony was filed by the Environmental Law and Policy Center, Great Lakes Renewable Energy Association and the Ecology Center jointly (interveners) and Michigan Public Service Commission Staff (Staff), addressing concerns with the program and suggesting potential improvements.[2] The Commission reviewed the record in this case and on May 14, 2015 (May 2015 order), ordered approval of the program subject to, among other things, Staff reconvening the Solar Working Group to ~~discuss~~ "continue investigating the appropriate inputs to the VoS calculation," including the capacity component of the total bill credit.[3]

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[1] http://efile.mpsc.state.mi.us/efile/viewcase.php?casenum=17752
[2] http://efile.mpsc.state.mi.us/efile/viewcase.php?casenum=17752&submit.x=0&submit.y=0
[3] http://efile.mpsc.state.mi.us/efile/viewcase.php?casenum=17752

The first reconvened Solar Working Group meeting took place on June 9, 2015. In attendance were 34 participants from DTE and Consumers, the solar industry and installer representatives, Staff, and other interested parties. At this meeting, Staff hosted a discussion panel comprised of representatives from the Company, Staff and Interveners. Representatives of these organizations were Nancy Popa, Jesse Harlow and Douglas Jester respectively. The panel discussed potential methodologies for use as a basis to determine the capacity credit. A summary of capacity options considered is shown in **Figure 1**.[4]

Figure 1: Value of Solar Capacity Options

Value of Solar Capacity Value Options		
Description	**$ per MW-Year[5]**	**$ per kWh**
Planning Reserve Auction	$1,270.00	
Consumers Energy's embedded capacity cost from U-17725 A-6	$175,362.00	
MISO CONE for Michigan Zone 7	$90,100.00	
Consumers Energy's ZRC Reverse Auction Results	$54,800.00	
2015 MPSC Staff Transfer Price		$0.068
Palisades Standby Capacity Charge	$116,970.00	
PURPA Contracts - Various Capacity Rates		$0 - $0.054
Prepared by MPSC Staff		0.45

[4] Presentations from the SWG meeting are available here: http://www.michigan.gov/mpsc/0,4639,7-159-16393_55246_55249-321593--,00.html

[5] These values are as of July 2015 and subject to change. Any calculations to derive the numbers are based on the variables at the bottom of the figure. The transfer price value would be a schedule of payments.

Estimated MISO Effective Load Carrying Capability of Solar:	
Annual Solar Generation per MW in MWh (DC installed):	1226
Solar Capacity Factor:	0.14

Proposed Capacity Valuation Options

Planning Reserve Auction

As proposed in the initial application, Consumers planned to value the capacity component of the solar bill credit at the price of capacity credits as determined in the annual MISO Planning Reserve Auction (PRA). In its May 2015 order, the Commission expressed concern about using this method to value capacity due to its variability.[6]

Consumers embedded capacity costs were calculated as shown in **Figure 1** using total Consumers Energy capacity costs in base rates with transmission and critical peak purchased power removed. The total dollar amount was then divided by the nameplate capacity and capacity life cycle. This option was presented by Staff but not included in the Consumers presentation.[7] It provides the calculation of what ratepayers pay for the capacity owned by the utility. The method does not represent incremental capacity value to the utility but rather the cost of power plants that are already used and useful. While it is useful for the SWG to have the perspective of how much the ratepayers pay the Company for its capacity, the embedded cost is not related to the value of incremental solar capacity.

MISO Cost of New Entry (CONE)

[6] PRA capacity is generally representative of capacity that is left over after meeting MISO capacity requirements and not the value of long-term or new capacity.
[7] http://www.michigan.gov/mpsc/0,4639,7-159-16393_55246_55249-321593--,00.html

CONE is a value calculated on a zonal basis which represents the annualized capital cost of constructing a new power plant. It is currently based on the cost to construct a new natural gas combustion turbine plant. CONE is a fairly stable value and is updated annually to account for capital cost variations. CONE is the representative maximum value of that capacity. The actual capacity value can change from year to year as it impacted by the amount of incremental capacity that is necessary in MISO's footprint, but has remained relatively stable since its creation. This method was favored by intervening parties.[8] There was discussion that this is the cap on market capacity purchases, therefore not applicable for a VOS capacity value. Consumers pointed out that their 5-year market capacity forecast was equivalent to approximately 75% of CONE.

Consumers Energy's Reverse Auction

The fourth method discussed was Consumers' Reverse Auction. This value is based on Consumers' solicitation held on August 12, 2014 for MISO Zonal Resource Credits to meet capacity requirements in each year from 2012-2020. After hearing feedback regarding Consumers' initial filing the Company suggested this method as it believed that the Reverse Auction pricing methodology would provide price certainty over a longer period (five years) and it is transparent.[9] While this represents a market based method, it is short term and not representative of the value of a 25-year solar project.

Staff Transfer Price Schedule

Staff Transfer Price transfer price schedules were presented as an option for the total bill credit. The Staff Transfer Price schedule is representative of what a Michigan utility would pay had it obtained energy and capacity through a long term power purchase agreement for traditional fossil fuel electric generation. To determine the value of generation, the levelized cost of a new natural gas combined

[8] http://efile.mpsc.state.mi.us/efile/docs/17752/0023.pdf Testimony of Douglas Jester; DBJ-17
[9] Nancy Popa panel discussion.

cycle (NGCC) plant was used as a proxy plant. Starting with the U.S. Energy Information Administration's (EIA) levelized cost estimate for an advanced natural gas combined cycle facility, Staff built a trend line from the cost estimate to effectively follow the value of energy, capacity and inflation through 2029 that represents the cost of a new NGCC plant in each year. This method was supported by some SWG participants, but some participants argued that it did not clearly distinguish between capacity and energy.

Standby Tariff Capacity Charge

The Consumers' Standby Capacity Charge applies to customers on the GSG-2 General Service Self Generation Rate. The charge is the highest contracted capacity purchased by the Company in that month, plus allocated transmission and ancillary services. This value is currently based on the Palisades Nuclear Plant contract and is the customer charge on the bill for customers utilizing the GSG-2 rate. This valuation methodology has very specific implications and does not represent the value of solar to the Company.

Public Utility Regulatory Policies Act of 1978 (PUPRA)

PURPA was passed as part of the legislation known as the National Energy Policy Act. PURPA was enacted to achieve three primary goals: (1) to provide for increased conservation of electric energy, increased efficiency in the use of facilities and resources by electric utilities, and equitable retail rates for electric consumers, (2) to improve the wholesale distribution of electric energy, the reliability of electric service, the procedures concerning consideration of wholesale rate applications before the Federal Energy Regulatory Commission, the participation of the public in matters before the Commission, and to provide other measures with respect to the regulation of the wholesale sale of electric energy, and (3) to provide for the expeditious development of hydroelectric potential at existing small dams to provide needed hydroelectric power. Qualifying facilities have the option of selling to a

utility either at the utility's avoided cost or at a negotiated rate.[10] There is not an avoided cost established that is applicable to solar. There are distinct similarities between avoided cost and components of the value of solar.

After discussions between Staff and the Company, utilizing feedback from the June 9, 2015 SWG meeting, Staff sent out a proposal for comment by SWG participants on July 21, 2015. The proposal included:

1. For the first five years the bill credit will be based on a levelized energy and capacity rate ($ per kWh) established at the time of program enrollment plus the REC value from the current tariff. The energy and capacity forecast used in this calculation was used in our recently approved REP Amendment U-17752. The capacity forecast is based on 75% of CONE.
2. Energy - In years 6-25 the energy component is unchanged from the current tariff.
3. Capacity - In years 6-25 the capacity component is based on 75% of MISOs applicable annually published CONE value for Zone 7.
4. In years 1-25, the RECs component is unchanged from the current tariff

At the request of several commenters, MPSC Staff held a conference call on July 27 for further discussion of the proposal.

On July 29, 2015 Staff received comments from 14 participants.[11] While the concept of a fixed bill credit for the first 5 years was welcomed, comments suggested that the credit was too low (approximately 7.5 cents per kWh plus the REC value) especially compared to the net metering credit and the capacity component should be increased to reflect a lack of line losses. In years 6 through 25 of the program, a floor price was suggested to provide some certainty to participants.

[10] Consumers' solar facilities would be considered "qualifying facilities."
[11] Comments: http://michigan.gov/documents/mpsc/swg_comments_500097_7.pdf

Consumers Energy Company's Amended Solar Gardens Program

On August 7, 2015, Consumers filed an application to amend its Solar Gardens proposal pursuant to discussions with staff and feedback from the reconvened Solar Working Group. The Company explained that it wanted to modify payment terms to offer a five year fixed energy and capacity rate for the bill credit, reduce the pre-subscription payment and provide a less volatile source for the valuation capacity component of the bill credit. The amendment proposed eliminating the five year subscription payment option and substituting a 25 year payment option. The revised application included a fixed bill credit of $0.075 per kWh for the first five years. The payment is based on a projection of LMP and capacity based on a Consumers' forecast. The capacity credit is approximately equal to 75% of the current CONE value.

Conclusion and Recommendations

The SWG met the Commission's directive to discuss and determine possibilities for improving Consumers Energy Company's Solar Gardens Program with focus on the capacity valuation methodology. Other issues were addressed in testimony and SWG discussions included strategic placement of solar facilities for grid support, overall compensation for participants, line loss calculation methods, and third-party facility ownership, among others. Staff suggests that the Solar Working Group remain active and meet as necessary to continue discussing these issues and other solar issues outside of the Solar Gardens Program

Staff worked closely with Consumers to design the amended Solar Gardens program as filed in its application on August 7, 2015. The amended Solar Gardens program provides for an improved program compared to the original filing and does not create subsidization of program participants by non-participants. It provides certainty of the bill credit participants will receive for the first 5 years and is simple and transparent. Basing the capacity component on approximately 75% of CONE provides

what Staff believes to be a reasonable compromise, but it does not address all of the concerns raised by the interveners. To further provide certainty, Staff recommends that Consumers establish the $0.075 per kWh payment as a floor for the program in years six through the end of the program. The interveners continue to emphasize the importance of an independent solar valuation study to inform further improvements to the VoS calculation and solar programs used in Michigan.[12]

Staff would like to thank each of the SWG participants for their efforts. Staff would also like to thank Consumers Energy Company for proposing the Solar Gardens Program that utilized recommendations from the original SWG and its participation in a forum that allowed for its program to be molded in a way that solicited input and feedback. The program stands to provide access to solar for individuals who do not have the optimal solar siting requirements, financial means, or desire to install and maintain a solar installation on their own and is expected to continue to improve based on learned success that will contribute to a model that can be repeatable and scalable.

[12] See Comments of Environmental Law & Policy Center and 5 Lakes Energy (July 23, 2015), available at [LINK].