

**Standby Rate
Working Group
Report**

**PREPARED BY:
MICHIGAN PUBLIC SERVICE
COMMISSION STAFF**

MPSC Case Nos. U-17735

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Introduction

Factors such as low natural gas prices for combined heat and power systems (CHP), decreasing solar photovoltaic (solar) and wind costs, increased corporate and non-profit environmental standards, federal tax credits, rising utility rates and the ability to self-generate during utility power outages are contributing to increased interest in utility customers opting to install self-generation projects. To satisfy the need for electric reliability, self-generation customers rely on utility services for backup, supplemental and maintenance power.¹ These utility services are generally referred to as standby service² and the rates are based on the utility's costs for being ready to serve a load that is otherwise supplied by a customer's generator as well as the cost of any energy actually delivered by the utility to the customer pursuant to standby service.

Ensuring that utility standby service tariffs are appropriately recovering only the costs attributable to the self-generation customer can result in complex analysis and billing. There is some concern in the self-generation community that standby rates in Michigan may not be set appropriately – particularly for small-scale CHP and intermittent resources such as solar and wind generation, but also in some cases for large-scale CHP. With the burgeoning interest in these types of projects by potential self-generation customers and project developers, greater understanding of these complicated standby service tariffs is essential. It is an opportune time to determine whether the current standby service tariffs reflect the cost of serving self-generation customers with CHP or solar and address concerns of the self-generation community.

In the November 19, 2015 order issued in Case No. U-17735 (Consumers Energy rate case),

¹ **Backup power** means electric energy or capacity supplied by an electric utility to replace energy ordinarily generated by a facility's own generation equipment during an unscheduled outage of the facility.

Supplemental power means electric energy or capacity supplied by an electric utility, regularly used by a qualifying facility in addition to that which the facility generates itself.

Maintenance power means electric energy or capacity supplied by an electric utility during scheduled outages of the qualifying facility. (From PURPA)

² Also referred to as partial requirements service.

the Michigan Public Service Commission (MPSC or Commission) directed Staff to establish the Standby Rate Working Group (SRWG) to review the current Consumers Energy Company (Consumers Energy) standby tariffs and develop recommendations for any improvements to be considered in future rate cases. Similarly, in the December 11, 2015 order in Case No. U-17767 (DTE Electric rate case), the Commission directed Staff to include DTE Electric (DTE) in the SRWG. The SRWG met six times between January and July 2016 with participation from utilities, current and future standby customers and Staff. A website was created for the SRWG.³ This report is intended to provide background information on Consumers Energy and DTE standby service tariffs and describe potential changes in regard to non-residential, solar self-generation standby customers that may be considered in future rate cases. Standby service tariff analyses and recommendations in regard to CHP will be presented in a separate report issued at the end of 2016.⁴

Standby Rate Background

The Public Utility Regulatory Policies Act of 1978 includes a provision requiring utilities to provide standby service: 18 CFR 292.305

(c) Rates for sales of back-up and maintenance power. The rate for sales of back-up power or maintenance power

(1) Shall not be based upon an assumption (Unless supported by factual data) that forced outages or other reductions in the electric output by all qualifying facilities on an electric utility's system will occur simultaneously, or during the system peak, or both: and

(2) Shall take into account the extent to which scheduled outages of the qualifying facilities can be usefully coordinated with scheduled outages of the utility's facilities.

Self-generation customers taking standby service impose a cost to the grid regardless of whether or not they take energy deliveries from the utility pursuant to that standby service because the utility must maintain the customer's access to the transmission and distribution systems and

³ See http://www.michigan.gov/mpsc/0,4639,7-159-16377_47107-376753--,00.html

⁴As explained in the Next Steps section of this report, the SRWG has requested more time to analyze standby tariff design. Staff will file a supplement to this report with a focus on CHP generation resources at the end of 2016.

have generation resources ready in anticipation of customer generator outage events. If these costs are not recovered from self-generation customers imposing the costs by taking standby service, a cross subsidy occurs whereby other customers pay these costs.⁵ Self-generation advocates sometimes argue that they reduce utility ratepayer costs by providing distributed generation, but if they were to unexpectedly have an outage and need to call on the utility's generation capacity, in some instances, the utility may not be able to serve load in the area.⁶ The important aspect to remember when considering standby service tariff design and the policy involved is that the utility has a legal obligation to serve its customers while self-generation customers do not. However, it is also important to remember that there is typically a substantial investment required by a customer to pursue a self-generation project, and, as a result, it usually is in the customer's self-interest to take full advantage of that investment by operating their self-generation project as much as possible.

There are benefits arising out of self-generation. The generating assets are usually smaller-scale than utility generation facilities and by nature, are located close to customer load which minimizes line losses. In some cases, particularly CHP, self-generation can be more efficient, due to the customer's on-site use of the associated thermal energy created as a by-product of the electric generation when compared to the predominately central station power provided by the utility. In the case of non-combustion based generation such as solar, there are no air pollutants or other harmful emissions associated with the production of electricity.

The primary focus of this report will be on Consumers Energy and DTE, however, the general standby service rate concepts explained should apply to most electric utilities. The main rate components of standby tariffs can be split into two categories: power supply and delivery

⁵ Furuqui, Ahmad, January 20, 2016:
[http://www.brattle.com/system/publications/pdfs/000/005/253/original/Michigan_Standby_Rates_\(01-19-2016\).pdf?1453481497](http://www.brattle.com/system/publications/pdfs/000/005/253/original/Michigan_Standby_Rates_(01-19-2016).pdf?1453481497)

⁶Stanton, Tom http://www.michigan.gov/documents/mpsc/NRRI-12-11_Electric_Standby_Rates_517637_7.pdf

charges. Power supply charges account for the energy and generation capacity that the customer uses during a self-generation outage while the delivery charges recover the utility's costs of the transmission and distribution system the utility has to maintain to serve the customer. A brief description of the typical components that are included on standby tariffs is provided below.

Power Supply Charges:

Generation Reservation Fee – The purpose of this fee is to recover some portion of the utility's costs of having generation resources available to serve load that is normally served by the customer's generator without regard to the extent the customer actually draws upon standby service. DTE's standby service tariff includes this component (billed on a dollar amount per kilowatt of standby contract capacity) but Consumers Energy's tariff does not.

Power Supply Demand Charge - The power supply demand charge recovers the utility's generation capacity-related costs of serving the customer during the month. The charge is based on the highest on-peak customer usage (according to the terms of the standby service tariff), net of the self-generation output. This charge is on a dollar amount per kilowatt basis and may be lower for scheduled outages than for unplanned outages.⁷ On-peak hours for Consumers Energy and DTE are from 11 a.m. – 7 p.m. on weekdays excluding holidays. Unlike with a Generation Reservation Fee, these charges are applied in proportion to the amount of standby service demand that is actually drawn by the customer from the utility. Often, non-residential customers are on rates with demand charges, however, some smaller non-residential customers may be on rates without demand charges where these costs are recovered on a volumetric basis.

Energy Charge - The energy charge is volumetric and charged on a dollar amount per kilowatt-hour basis. The charge is based on the standard tariff rate or a market clearing price on a dollar

⁷ The same power-supply resources can be used to provide standby service to multiple standby customers, because it is unlikely that all the generators for which standby service is reserved will fail simultaneously. Stanton, Tom, July 2012, http://www.michigan.gov/documents/mpsc/NRRI-12-11_Electric_Standby_Rates_517637_7.pdf Page 9

amount per kilowatt-hour basis. This charge can include a market settlement fee. This charge applies to the actual standby service drawn by the customer from the utility.

Delivery charges:

System Access Charge/Service Charge – This charge is a flat monthly fee. The fixed charge can be classified as the charge for metering, billing and other items that pertain to the additionality of services and complexities of a self-generation customer.

Distribution Demand Charge – The distribution demand charge recovers all or a portion of the utility’s costs to maintain and operate the distribution system. It is based on units of dollar amount per kilowatt and generally decreases as the customer’s voltage service level (secondary, primary, sub transmission, transmission) increases as the customer uses less of the utility’s distribution system. The utility’s distribution costs are generally not reduced when a customer installs self-generation. Because of this, there is sometimes a ratchet mechanism so that the self-generation customer’s maximum demand over a long period of time sets the level of this demand charge since the customer’s maximum demand on the utility’s system closely relates to the utility’s costs to serve the customer. This is true whether or not the maximum demand occurs on or off peak, therefore peak usage does not factor into the charge. Typically, non-residential customers are on rates with demand charges, however, some smaller non-residential customers may be on rates without demand charges where these costs are recovered on a volumetric basis.

Distribution Volumetric Charge – Where all of the utility’s costs to maintain and operate the distribution system are not collected via a distribution demand charge, all or a portion of these costs may be recovered using a dollar amount per kilowatt-hour volumetric charge.

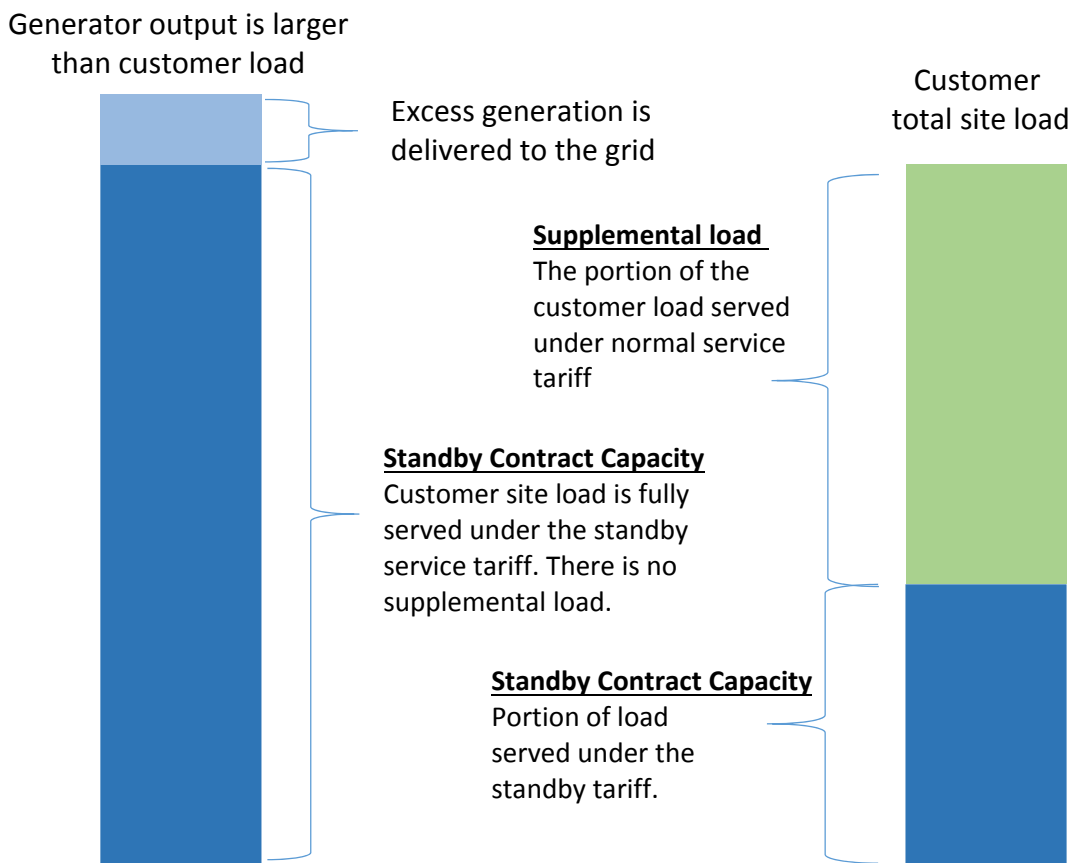
Current Standby Service Tariffs

This section of the report focuses on how the Consumers Energy and DTE standby service tariffs function. Both utilities made presentations to the SRWG describing their tariffs and showed

several examples.⁸ Each company's current tariff will be described below.

For both utilities, customers taking standby service would utilize the standby service tariff for the portion of their load that could be met by their generator (standby contract capacity) and remain on their normal service tariff for meeting any remaining requirement (supplemental service). For self-generation projects where the output of the generator is designed to be larger than the customer's load, all of the customer's load would be served according to the standby tariff. **Figure 1** below illustrates the split between standby contract capacity and supplemental service.

Figure 1: Standby Service Tariff Scenarios



⁸ See presentations shown on March 14, 2016 agenda: http://www.michigan.gov/mpsc/0,4639,7-159-16377_47107-376753--,00.html

It is a common misconception that taking service under a standby tariff will cause customers to pay more than if they had remained on their normal service tariff and simply reduced their load by using their on-site generation behind the meter. This may be true in some cases for customers on energy-only rates, however, customers on demand-based rates with generators that operate nearly continuously would benefit from standby rates. During the course of the SRWG process, analysis of both companies' standby service tariffs showed that customers usually paid no more than the normal tariff charges and in most cases, paid less.

DTE's standby rate tariff is called Rider 3. The company explained that Rider 3 charges are capped at the amount customers would have paid if they had taken service on their normal tariff. Customers taking service on Consumers Energy's General Self-Generation Tariff GSG-2, also typically would pay less than if they had taken all service on their normal tariff. Consumers Energy's tariff has no reservation charge and power supply capacity and energy charges are less than the General Primary Demand rate and the delivery charges are the same.

Simplified and abbreviated frameworks for both utilities' standby rate tariffs are discussed below. The descriptions are intended to provide a basic explanation and illustrate how these tariffs work. In particular, DTE's standby tariff contains a number of criteria that will impact the billing calculation. The actual current tariffs should always be consulted for analysis and decision-making purposes.

Consumers Energy

Consumers Energy customers with self-generation projects that are less than 550 kW (and not on a net metering tariff) do not take service under a standby tariff and service is provided according to the Self-Generation Provision (SG) which is included on each individual rate schedule. Under this provision, customers are charged according to their normal service rate for energy delivered by the company and receive MISO Locational Marginal Prices (LMP) for energy they

export to the grid (less an administrative fee).⁹

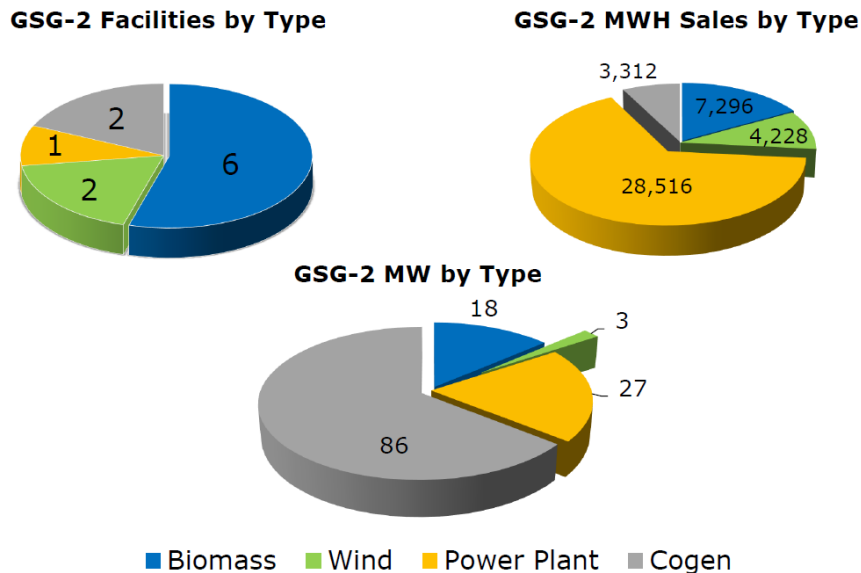
Customers with larger generators (greater than 550 kW) take service under the Company's standby rate tariff called General Service Self Generation Rate (GSG-2). Customers with internal loads greater than their self-generation capacity may take service under a combination of their normal firm rate and the GSG-2 standby rate. The rates for delivery under the GSG-2 rate schedule are set at the same delivery demand rates on the General Service Primary Demand Rate (GPD) rate schedule. Generally, GPD is available to customers taking primary voltage service where the on-peak billing demand is 25 kW or more.

Consumers Energy reported that there were eight customers taking service under GSG-2 in 2015 and the average cost of electricity provided to those customers was 6.87 cents per kWh.

Figure 2 shows the GSG-2 summary data presented by the company.

Figure 2: GSG-2 Summary Data

GSG-2 Customers, MWH and MW



⁹ Consumers Energy currently does not have customers taking service under the Self-Generation Provision.

General Self Generation Rate GSG-2¹⁰

Power Supply Charges:

- Standby energy supplied by Consumers Energy is priced at the LMP at the company's load node plus a settlement fee of \$0.002 per kilowatt-hour. (During the time period of July 2015 through June 2016, MISO Michigan Hub monthly on-peak prices ranged from \$0.035 per kilowatt-hour to \$0.024 per kilowatt-hour and off-peak prices ranged from \$0.025 per kilowatt-hour to \$0.019 per kilowatt-hour.) An unplanned outage or planned outage without proper notification to the company that occurs during the summer months will result in a 10% adder to the LMP.
- On-peak capacity charge is charged each month based on the highest kW demand during that month for standby service provided. The on-peak charge is based on the \$/kW charge of the company's highest contracted capacity for the month (prorated based on the ratio of the number of on-peak periods where standby service was actually drawn from Consumers Energy during the month and the total number of on-peak days in the month) and includes allocated transmission costs. (The schedule of 2016 on-peak capacity charges ranges from the lowest cost of \$10.64 per kilowatt for April to \$15.23 per kilowatt in August.) On-peak hours are those hours between 11 a.m. - 7 p.m. each day, Monday through Friday, excluding holidays.
- There is no Monthly Generation Reservation Fee

Delivery Charges:

- Monthly system access charge \$100 (\$200 where the generator meets or exceeds load).
- Capacity demand charge per kilowatt of standby demand (same rates as GPD). The standby demand is the contracted standby capacity. The standby demand would only change if the contracted standby capacity changed or if the customer's actual standby demand exceeded the contracted level, which would establish a new contracted standby capacity level.
- The rate varies from \$4.05 per kilowatt to \$0.62 per kilowatt according to the voltage level of service, which is set at an equivalent rate to GDP.

The tariff does not differentiate between backup or maintenance service.

Definitions

"Standby" service is defined as that electric service used in place of the customer's generation other than company supplied firm service.

"Standby Capacity" is defined as the contracted kilowatt capacity the company is expected to provide to the customer due to an outage of the customer's generating unit(s). The standby capacity shall not exceed the generator's capability as designated in the interconnection agreement and as determined by the company.

"Standby Demand" is the contracted standby capacity.

¹⁰ Rate information is summarized from Consumers Energy's March 14, 2016 presentation and the GSG-2 rate schedule.

Table 1 summarizes standby tariff calculations presented by Consumers Energy and shows MPSC Staff’s calculation of the “value” of their on-site generation by dividing the bill reduction due to the customer’s generation (and includes any sales of generation to the company) by the total number of kilowatt hours generated.

Table 1: Summary of Consumers Energy Standby Service Tariff Example Calculations					
Customer Type	Customer Peak Demand & Annual kWh	Type of Generation	Annual Bill With Generator & Standby Tariff	Annual Bill Without Generator	Bill Reduction \$ Divided by Total Generation \$ per kWh
Large Industrial	7 MW 44,623,000 kWh	3.5 MW CHP 90% Capacity Factor 27,594,000 kWh	\$1,489,000	\$3,128,000	\$0.059/kWh
Large Commercial	1 MW 5,889,000 kWh	3.0 MW Solar 3,416,000 kWh (used on site & sold) 1,503,000 kWh sales @ \$0.029 per kWh	\$300,000	\$503,000	\$0.059/kWh
Large Commercial	1 MW 5,889,000 kWh	0.45 MW CHP 90% Capacity Factor 3,548,000 kWh	\$259,000	\$503,000	\$0.069/kWh

DTE

DTE customers who generate all or some of their own power must take standby service under Standard Contract Rider No. 3¹¹ subject to the following exemptions: Rider 13 – Dispersed

¹¹ See DTE Ratebook (search using Rider 3): <http://www.dleg.state.mi.us/mpsc/electric/ratebooks/dtee/dtee1cur.pdf>

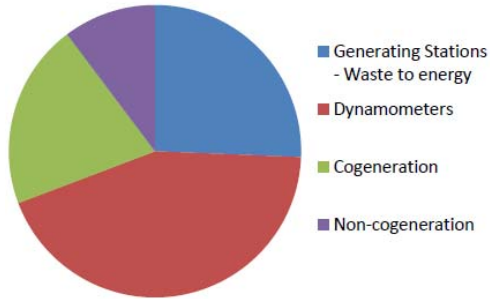
Generation, Rider 16 – Net Metering, Rider DG – Distributed Generation (generator size limited to 100 kW), and regenerative dynamometers.¹² There are approximately 45 customers taking service under Rider 3. The power supply demand charge is capped at the Rate D11 power supply demand charge and the energy and delivery charges are the same as Rate D11. However, the rider includes different rate provisions for customers on rate schedules other than Rate D11. Rate D11 is available to customers desiring service at primary, sub-transmission, or transmission voltage who contract for a specified capacity of not less than 50 kilowatts at a single location. *Figure 3* shows a summary of customers taking service under DTE’s standby tariff.

¹² Regenerative dynamometers are used in the automotive industry for vehicle testing and analysis. Regenerative AC drives provide the AC Dynamometer with the ability to both absorb power and supply power to the vehicle being tested. The term regenerative describes the ability of the motor to convert the mechanical energy of vehicle under braking conditions into electrical energy which is returned (or regenerated) to the AC power source. Regenerative drives can reclaim a majority energy produced from the vehicle being tested which can reduce the overall electricity cost of testing. <http://www.dynesystems.com/ac-drives.htm>

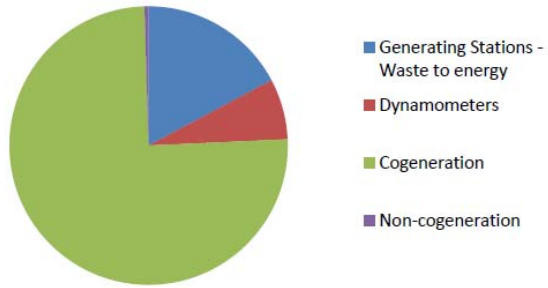
Figure 3 – Rider 3 Summary Data

2013 Historical Data 

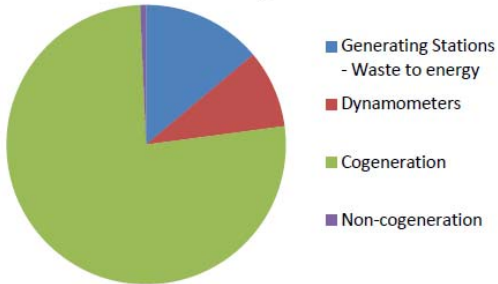
Number of Customers



R3 Sales ~ 100 GWh, 0.2% DTE Electric Sales



R3 Revenues ~ \$8M, 0.2% DTE Electric Revenue



Standby Service Rate – Rider 3

Power Supply charges:

- The Demand Charge is the greater of:
Monthly Generation Reservation Fee - \$1.75/kW of Standby Contract Capacity, per month.
or
Daily Demand (Standby Power) - \$4.67/kW on-peak per day + Daily Maintenance Demand - \$2.60/kW on-peak per day capped at \$14.65/kW which is the monthly power supply demand charge on Rate Schedule D11. The power supply demand charge for back-up and maintenance power will be charged based on standby contract capacity less the output toward internal load of the customer's generator, less any reduction the customer can accomplish by reducing the supplemental demand at the time of the daily on-peak standby demand below the maximum monthly on-peak supplemental demand, but not less than zero.
- Energy Charge:
Customers taking service on energy only rate schedules (D3, D3.2, D3.3), the energy charge will be the same as the normal rate schedule.
Customers taking service on supplemental rate schedules D4, D11, D6.2 and D8, the energy charge will be the D11 on-peak power supply energy charge, 3.807¢ per kWh, plus appropriate power supply credits.

Delivery Charges:

- Service Charge:
\$275 per customer per month for customers served at primary voltage.
\$375 per customer per month for customers served above primary voltage.
\$ 95 per customer per month for customers served at secondary voltages.
- The Distribution Demand Charge ranges from \$3.38 to \$0.88 per kW of standby contract capacity according to the service voltage and are the same as Rate D11.
For service provided in conjunction with a secondary voltage base rate the Delivery Charge will be the greater of \$8.97 per kW applied to standby contract capacity or 3.589¢/kWh applied to all standby energy delivered.

Interruptible Standby Service: Rider 3 provides for interruptible standby service if the customer's supplemental rate schedule is an interruptible rate schedule.

Definitions

“On-Peak Hours” are those hours between 11 a.m. -7 p.m. each day, Monday through Friday, legal holidays excluded.

“Standby Contract Capacity” may be determined according to several methods. DTE applies the method that best determines the electric capacity sufficient to meet the customer's standby load.

Methods:

1. For baseload generators (e.g: CHP)
 - Calendar months June through October: the 1001st highest half-hourly kW output

toward internal load (simultaneous output of all units less excess generation flowing back through the interconnection) during those billing months that include periods from those calendar months during the latest 12-month period.

- Remaining calendar months: determined in a similar manner as explained above.

The standby contract capacity will be adjusted on an ongoing basis reflecting the current month and the preceding eleven months.

2. If the customer's generating units are operated with the intent to provide energy to the system and standby is only required for site load during outages the standby contract capacity will be set at the maximum half-hourly demand provided to the facility. For customers with units that do not operate in parallel with the system but have the ability to connect load normally served by unmetered on site generation to the system during generation outages, (throw over standby), the standby contract capacity will be set at the maximum metered half-hourly demand thrown over to the system and supplemental demand will be the metered inflow less the metered throw over load.
3. For customers demonstrating unusual operating conditions, including but not limited to initial unit operation, unpredictable generation from renewable resource units or generation that follows thermal load and prolonged periods with no generation, standby contract capacity may be set by mutual agreement of the company and the customer to levels sufficient to meet the customer's standby load.

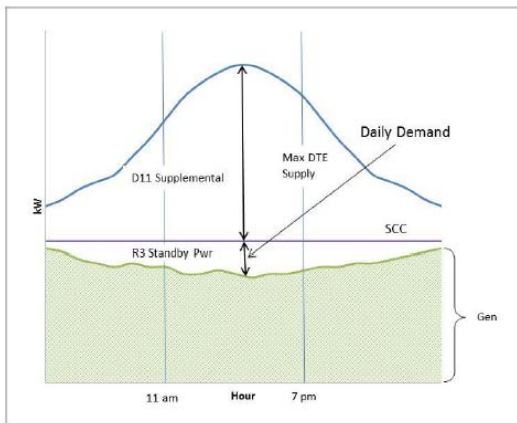
“Maintenance Day” is a calendar 24 hour day that meets timing request criteria detailed in the Rider 3 tariff and agreed to by DTE. A customer may be able to utilize up to 20 on-peak days during a year as maintenance days.

“Output Toward Internal Load” is equal to the output of the generator less excess generation flowing back through the interconnection to DTE.

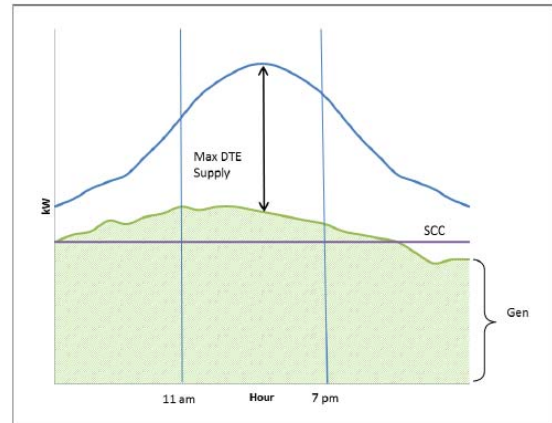
Figure 4 illustrates the basis for determining standby capacity charges for demand rates.

Figure 4:

Standby Capacity Charges for Demand Rates



Daily demands are determined based on the daily standby demand coincident with the highest 30-minute on-peak DTE Supply demand. Daily Demand is reduced if supplemental demand is less than the maximum monthly on-peak supplemental demand



A customer that operates their generator consistently at or above SCC during on-peak periods will pay the generation reservation fee (i.e. the minimum capacity charge of \$1.75/kW/month)

Table 2 summarizes standby tariff calculations presented by DTE and shows MPSC Staff's calculation of the "value" of on-site generation by dividing the bill reduction due to the customer's generation by the total number of kilowatt hours generated.

Table 2: Summary of DTE Rider 3 Example Calculations

Customer Type	Customer Peak Demand & Annual kWh	Type of Generation	Annual Bill With Generator & Rider 3 Rate	Annual Bill Without Generator	Bill Reduction \$ Divided by Total Generation \$ per kWh
Large Industrial	8 MW 51,544,000 kWh	5 MW CHP 30,926,400 kWh	\$1,756,000	\$3,280,000	\$0.049/kWh
Large Commercial	1 MW 3,917,000 kWh	850 kW Solar 861,740 kWh	\$290,000	\$318,000	\$0.032/kWh
Large Commercial	1 MW 3,917,000 kWh	282 kW CHP 2,350,200 kWh	\$183,000	\$318,000	\$0.057/kWh

SRWG – Meeting Presentations

The introductory meeting for the SRWG was held on January 20, 2016. Presentations were made by MPSC Staff regarding the relevant Commission orders and the schedule of the group, Michigan Agency for Energy Staff with regards to a CHP initiative, and by Dr. Amad Faruqui of the Brattle Group. Dr. Faruqui’s presentation was on the history of and development of standby tariffs and the common arguments surrounding standby tariffs. At the conclusion of the meeting, the SRWG decided that the second meeting would focus on the current standby tariffs of Consumers Energy and DTE.

At the second meeting, Consumers Energy and DTE presented background on their standby tariffs. All presentations are available on the SRWG website.¹³ One key comment was that the bill calculations were performed on an annual basis, but the SRWG is accustomed to monthly bills and this made the comparison with the monthly rate schedules difficult. The utilities provided updated information to address those concerns.

The third meeting focused on the valuation and rates for capacity. The arguments for different methods of pricing capacity closely mirrored the statements that were made during the PURPA working group about capacity.¹⁴ They included, but were not limited to, highest cost capacity contracted by the utility during the month, proxy methods, cost of new entry (CONE), embedded cost, and market value. There was no general agreement on the appropriate price for capacity.

The fourth meeting of the SRWG dealt with energy and distribution. By contrast, these topics generated the least discussion. No new ideas or proposals were put forward with regard to these topics and there was no criticism of the current utility tariffs in this regard. Cost of service for distribution was mentioned, however, the changes proposed would go beyond the standby tariff to distribution expense recovery and would likely affect all customers.

There were four speakers at the fifth SRWG meeting. Rob Rafson of ChartHouse Energy, Jim Dauphinais of Brubaker and Associates, representing ABATE, Rob Ozar of MPSC Staff, and Douglas Jester of 5 Lakes Energy. Among the suggestions made by SRWG participants were eliminating standby tariffs, modifying the cost for capacity, modifying the generation reservation fee to reflect the best performing customer, modifying the basis for on-peak daily power supply demand charges, modifying the number of generator outages before the monthly standby costs

¹³ http://www.michigan.gov/mpsc/0,4639,7-159-16377_47107-376753--,00.html

¹⁴ <http://efile.mpsc.state.mi.us/efile/docs/17973/0004.pdf>

escalate to the full requirements tariff, and providing a demonstration that if a generator offsets a significant amount of line loss then a negative standby charge may actually be appropriate. Market based proposals and taking advantage of time of use rates for energy and capacity were also highlighted.

At the sixth and final meeting, Staff presented an alternate proposal for consideration by the group. The key features were making the standby tariff voluntary (for all types of self-generation), but requiring that customers be on a demand or demand plus time-of-use rate. The only reason self-generation customers with a baseload-type, high reliability generators, would want to be on a standby tariff is because that tariff would reduce their electric bill over the full requirements tariff. Additional comments about the process were taken at the final meeting. Staff confirmed that the draft SRWG report will be provided to the SRWG for comments on August 1, 2016. SRWG comments will be due on August 15, 2016 and the final report will be posted in the U-17735 docket on August 19, 2016.

Standby Service Tariff Discussion

Background

The existing standby service tariffs were designed at a time when baseload generators with high reliability factors were the norm for self-generation. During the course of the SRWG, it became clear that the purpose of the Consumers Energy and DTE standby service tariffs are to (1) Recover appropriate costs for power supply and incorporate a mechanism for daily demand charges so that a single generation outage does not trigger the full monthly power supply demand charge, and (2) Recover full delivery (distribution system) costs for the portion of customer load that is served by the generator. There is increasing interest in projects with intermittent generation such as solar. The current standby service tariff design may not be the most appropriate rate design for solar self-generation projects.

A fresh look at the existing tariffs with a focus on solar is needed at this time. To date, Staff has focused its SRWG analysis efforts on developing a proposal that is more oriented towards solar. However, the SRWG is interested in continuing its efforts and examining the rates with CHP in mind. A supplemental report will be released at a later date that addresses CHP.

What Standby Service is Not

Standby service is neither net metering nor a lost revenue recovery mechanism for the utility to recover all of the lost revenue due to customer's generators. Net metering is exempt from taking standby service. However, utilities still maintain the obligation to serve loads that are normally served by net metering generators.

Net metering allows customers to offset purchases from the utility by using their generation behind the meter and also receive a credit equal to the volumetric portion of the full retail rate for any outflow to the utility. Some customers who install self-generation projects may expect this type of rate treatment. The limitations on the availability of net metering are defined in Michigan by statute and not all customers with self-generation projects are eligible.

A customer's self-generation project results in a decrease in sales between the utility and that customer. A lost revenue recovery mechanism would recover all the revenue from the lost sales from that customer. Standby tariffs can look to the customer like a way for the utility to recover all of the lost revenue, although this is not the purpose of an appropriately designed standby tariff. The purpose is to cover the costs of the standby service provided to the customer.

Standby Tariff Perception

Standby tariffs may seem confusing to customers who are not familiar with utility rate schedules. Some standby tariffs may rely on LMP prices or other variable prices that are not shown on the tariff since these prices are not known in advance. The number of customers taking service on a standby tariff is small and within the utility and MPSC Staff there are a limited number of

people with specialized knowledge. Some customers and developers believe that standby charges are arbitrary or that standby is a barrier to distributed generation. Due to the complexity of standby tariffs, it is difficult to demonstrate that the tariffs are non-arbitrary and based on cost-of-service principles.

A lack of understanding of standby tariffs can contribute to confusion during the planning phases of self-generation projects. This may be particularly true for customers interested in solar projects, because Michigan has very few large solar self-generation projects. In some cases, non-utility solar project planners have not had the opportunities to develop expertise in complex utility rates. Without assistance from the utility, a solar project planner may find it difficult to calculate the potential utility bill reduction when analyzing the project economics.

Solar PV Cost of Service Considerations– High Level Analysis

There is currently only one standby rate customer with a solar generation project in Michigan. To begin considering the costs to provide standby service to customers with solar generation, Staff worked with Consumers Energy and DTE to obtain an “average” industrial customer annual hourly data set. Hourly data for Consumers Energy’s total industrial class was normalized to develop a load profile for a 1 MW customer. Hourly data from Delta College’s solar PV project was also normalized and then used to obtain annual, hourly data for several size solar projects. The customer load and solar generation data were used to make bill calculations for Consumers Energy’s GPD, GP Time of Use (TOU) and DTE’s D11 rate schedules – both with various size solar projects and without. The results are shown in *Table 3*. The “value” of the solar generation is estimated by dividing the total annual bill reduction by the total solar generation. The “value” of the solar generation increases as the solar project size decreases, because using the generation behind the meter to offset purchases from the utility is more cost effective. Installing a larger project that results in some of the generation being exported and sold to the utility at the LMP

is usually less valuable than offsetting the customer's tariff rate.

The bill reduction numbers shown on *Table 3* show bill reductions for all scenarios evaluated, however, Consumers Energy's GPTOU rate is the most favorable to the solar self-generation customer. Increasing interest nationally and among SRWG participants indicate that time of use rates are becoming more popular and may be the preferred choice for customers with solar self-generation.

Solar generation, no matter what size solar PV project is modeled, does not significantly change the delivery demand payments as shown in *Figures 5 and 6*.¹⁵ An industrial customer with a 1 MW peak load is able to reduce delivery demand payments by 10% on Consumers Energy's Rate GPD and 16% on DTE's Rate D11 by installing a self-generation solar project that generates more than twice the customer's annual load (this is an extreme example to illustrate the point). On these tariffs, delivery demand charges are calculated using the maximum demand over a rolling, one-year period. If the solar project has an outage while the customer's load is at or near peak demand, a new maximum demand level will be set and it will take another year of reliable solar operation (or longer) to reduce the delivery demand charges. These two factors (limited ability to reduce delivery payments with solar and the rolling one-year maximum demand), contribute to maintaining the customer delivery payments at or very near the cost of service when the solar self-generation customer stays on the normal service tariff.

¹⁵ Staff's bill calculations were made using hourly load and generation data which spreads out generation more evenly and lessens peaks. Staff suspects that repeating the bill calculations using sub-hourly data (the actual time periods used to calculate utility bills) will show less reduction in demand based charges.

Table 3: Preliminary Bill Calculations, with and without Solar

Preliminary Analysis										
Annual Bill Calculations for a 1 MW Industrial Customer w/Several Solar PV Project Sizes										
	GP TOU			GPD			D11			GSG-2
<i>Bill w/o Solar</i> \$460,000										
Solar PV Project	Bill Reduction \$	Excess Sales @ \$0.04/kWh \$	Total \$ Divided by kWh Solar Generation	Bill Reduction \$	Excess Sales @ \$0.04/kWh \$	Total \$ Divided by kWh Solar Generation	Bill Reduction \$	Excess Sales @ \$0.04/kWh \$	Total \$ Divided by kWh Solar Generation	Bill Reduction GPD to GSG-2 \$
300 kW	35,978	-	0.081	33,777	-	0.076	30,089	-	0.067	
750 kW	89,450	296	0.080	67,776	296	0.061	60,472	296	0.054	
1,000 kW	114,622	3,098	0.079	81,835	3,098	0.057	73,223	3,098	0.051	190,187
10,000 kW	224,737	483,810	0.048	143,838	483,810	0.042	141,298	483,810	0.042	243,412

Data calculated using current tariffs, hourly industrial class averaged load data from Consumers Energy, solar data from the Delta College project. This is a high level analysis and does not include the PSCR factor, surcharges, and substation ownership credits. Only basic tariff info was used to calculate the example bills.

Figure 5: Consumers Energy, Change in Annual Capacity and Delivery Demand Payments with Varying Sized Solar Projects, Rate GPD

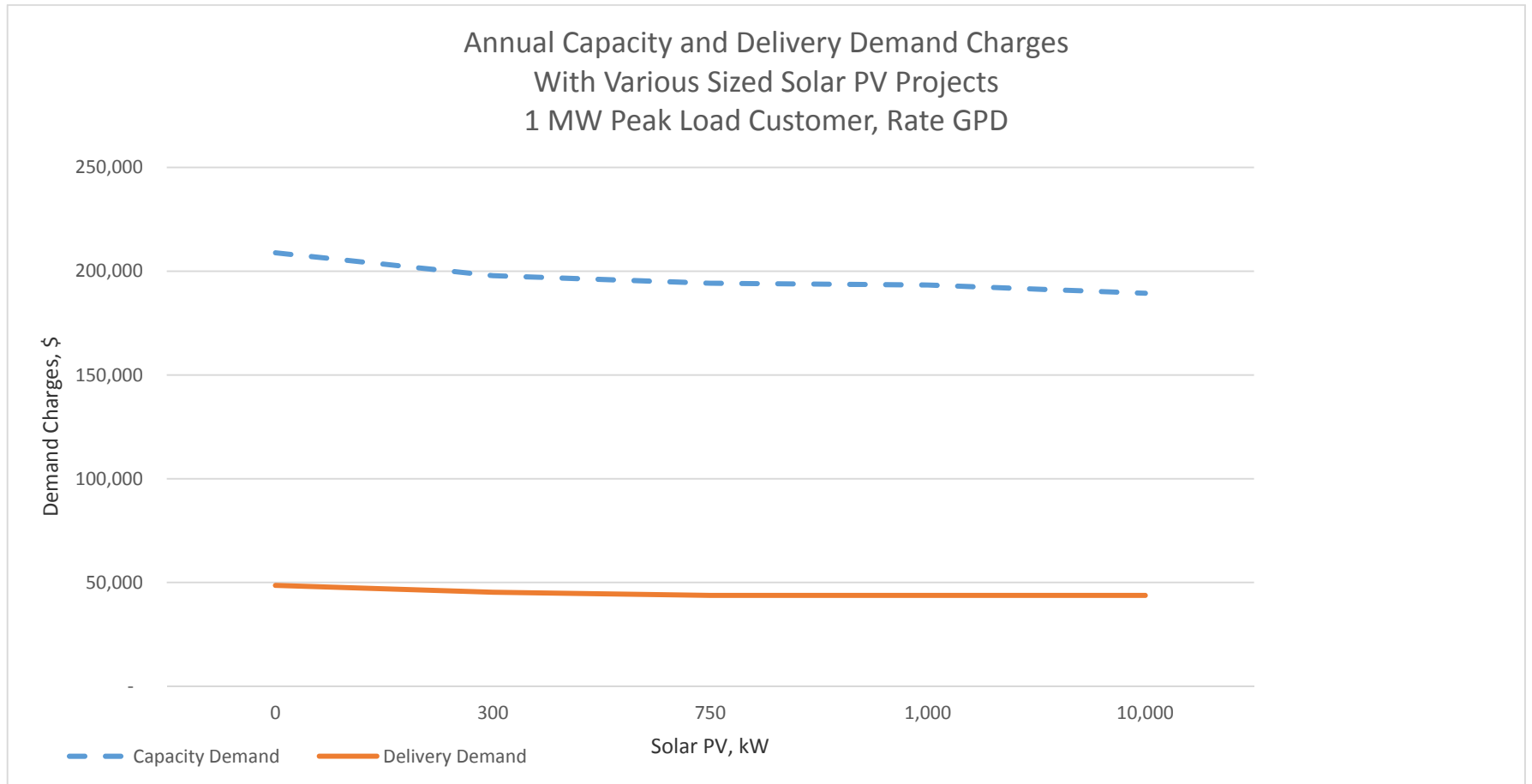
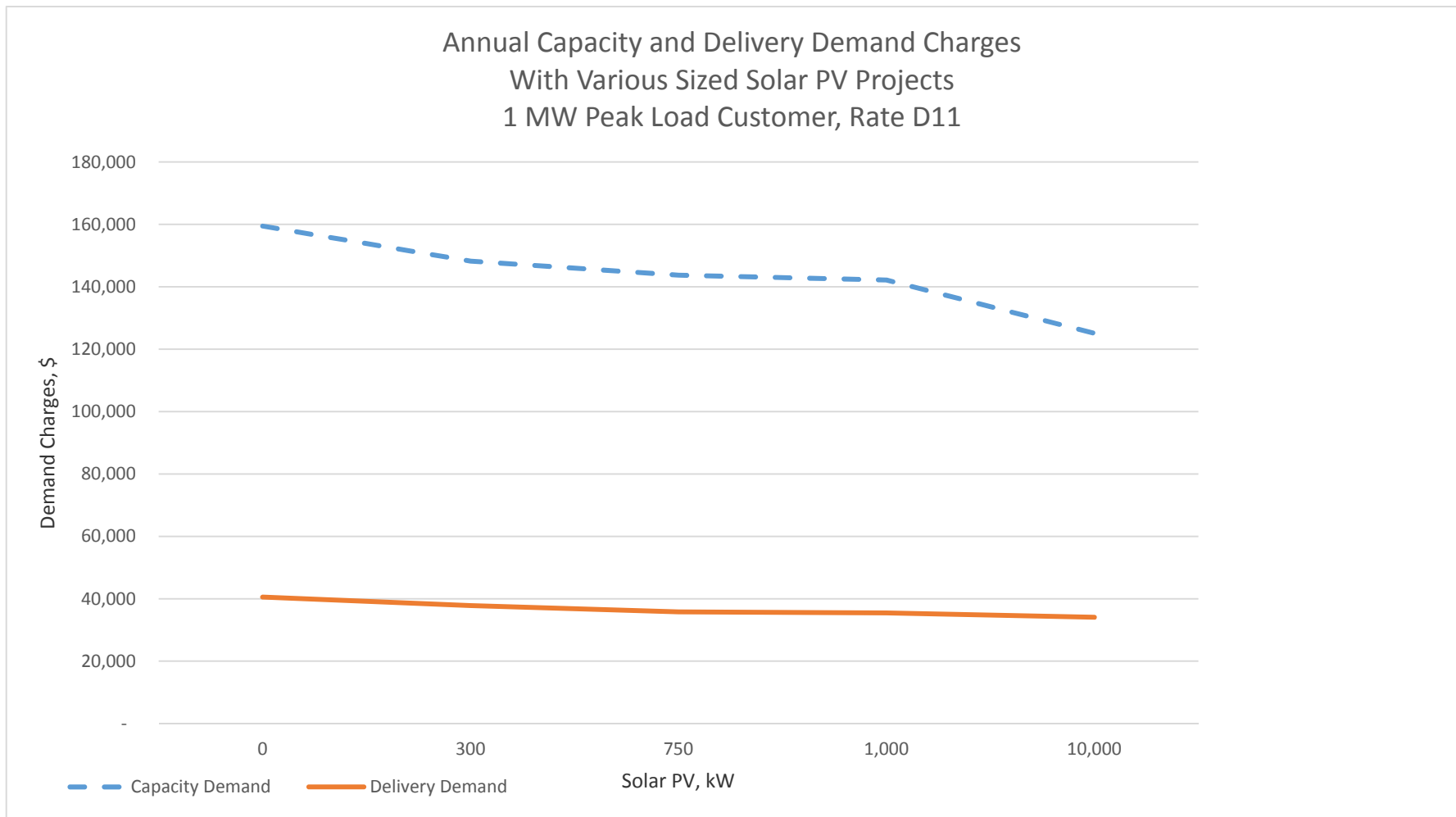


Figure 6: DTE, Change in Annual Capacity and Delivery Demand Payments with Varying Sized Solar Projects, Rate D11



Staff Solar PV Standby Proposal

The preliminary analysis completed by Staff as part of the SRWG activities indicates that it is not necessary for non-residential, self-generation solar projects to take service under a standby service tariff provided the normal service tariff incorporates a delivery demand charge and either a power supply demand charge or accurate time of use rates.

A high-reliability, baseload-type generator will almost always experience a bill reduction by taking standby service under a tariff with daily or prorated power supply demand charges. However, because of the intermittent nature of solar generation, the customer will utilize on-peak power every on-peak day and the bill reduction advantage of daily or prorated power supply demand charges on the standby service tariff is not realized. Therefore, in regard to power supply demand charges, standby service offers no cost-saving benefit to a solar self-generation customer. The utility must maintain some level of capacity to back up the customer's solar project if it is not able to generate during on-peak periods. The cost for this service is sometimes recovered using a standby generation reservation fee. Factoring in line loss benefits based on the location of the solar project on the distribution system, generator diversity and the generation profile of solar, indicates a standby reservation fee may not be justified.

The existing standby service tariffs are designed so that the utility collects delivery charges based on the standby contract capacity (the part of the customer's load that is expected to be served by the customer's generator) to ensure that self-generation customers make their cost of service based contribution to the utility's distribution system. The billing calculations (highlighted in **Figures 5 and 6**) show that the "average" industrial customer with solar is unable to significantly reduce delivery payments. Staff supports customers with solar generation taking service under a normal service tariff with a time of use or power supply demand charge, volumetric energy charge and a delivery demand charge.

In an order issued on June 15, 2015 in Case No. U-17689, the Commission ordered DTE to establish time of use and dynamic peak pricing rates by January 1, 2016 for customers who have had AMI for at least a year, on an opt-in basis. Similarly, on June 30, 2015 in Case No. U-17688, Consumers Energy was directed to have these rates available by January 1, 2017. More bill calculations using sub-hourly data and these new time of use and dynamic pricing rates is recommended.

Remaining on the customer's normal service tariff, provided it meets the above criteria for demand and/or time of use charges, simplifies the customer experience and, as our preliminary analysis indicates, sends the correct cost of service price signals.

SRWG Report Comments

Staff sent the draft SRWG report to the SRWG for comments on August 1, 2016. Comments were received from ABATE, DTE, ELPC & 5 Lakes Energy, Midwest Cogeneration Association and Washtenaw Community College and are attached to this report in **Appendix A**. Many of the comments suggested clarification language to improve the overall quality of the report. Nearly all of these comments were incorporated into this final report. Additional comments pointed out areas of disagreement with Staff's standby service proposal for solar and suggested areas where future investigation and analysis is needed for both solar and CHP self-generation standby service tariffs. A summary of these comments is included in *Table 4*.

Table 4: SRWG Report Comment Summary	
Commenter	Comment Description
ABATE	Review whether the current standby rates reflect all of the features of the full service equivalent distribution component such as the substation ownership credit.
DTE Electric	More analysis is needed to support Staff’s recommendation that solar customers should be exempt from standby service.
ELPC & 5 Lakes Energy	Agrees that a customer with solar self-generation taking service under an accurate time of use based power supply charge is appropriately charged. Does not agree with Staff’s proposal that a solar self-generation customer should (if not on a power supply time-of-use rate) be required to take service on a demand based power supply and delivery rate. Comments that a self-generation solar customer should continue taking service under the normal service tariff.
Midwest Cogeneration Association	Comments that CHP projects are not being developed because the current standby rates include disproportionate fixed charges.
Washtenaw Community College	Commented that as a current CHP standby rate customer, they experienced higher than expected charges related to standby capacity and the energy optimization surcharge.

This is a Staff report. SRWG participants may or may not agree with some or all of this report.

Next Steps

Standby service tariff design that incorporates cost of service principles is an extremely complicated undertaking. Policy, statute, and long-held tariff principles can all play an integral part in developing a well-designed tariff. Staff primarily focused on tariff analysis with respect to solar which has the operational characteristic of being intermittent. Staff recommends that non-residential customers with self-generation solar projects take all service under a normal service tariff that includes a demand charge for delivery charges and either a time of use rate or demand charge for power supply.

calculations and heard presentations on new concepts for standby service tariffs and modifications for the current standby service tariffs. Some participants in the SRWG have asked for additional time to do a more in-depth analysis of the cost to provide standby service to customers with CHP and other generators with baseload operating characteristics. Staff agrees that more work is needed in this area. A supplemental report will highlight the SRWG's findings related to non-intermittent standby service tariff design and update its solar standby recommendations if needed. The target date for issuing the supplemental report is December 16, 2016.

Staff would like to commend the participants in the SRWG. This process has been very informative for all parties and has provided Staff and others with a much deeper understanding of the various rationale for standby service tariff components. This has provided a basis for future tariff improvement in light of ever-changing energy markets and economic conditions. The energy industry is constantly evolving as new technology matures and it is paramount that tariffs are continuously reviewed for potentially necessary changes to reflect these dynamics. Participants in the SRWG have open-mindedly embraced this fact and graciously committed their time. Staff looks forward to our continued work together on these issues.

SRWG Draft Report

Comments

Baldwin, Julie (LARA)

From: Dauphinais, Jim <jdauphinais@consultbai.com>
Sent: Monday, August 15, 2016 3:46 PM
To: Krause, Kevin (LARA); Baldwin, Julie (LARA)
Cc: Gallagher, Sean P.; Andrews, Brian C.; Selecky, Jim
Subject: Comments of ABATE -- Standby Rate Working Group - Draft Report
Attachments: ABATE August 15 2016 Redline and Strikeout Comments on Draft August SRWG Report.docx

Comments of the Association of Businesses Advocating Tariff Equity (ABATE) on the Draft August 19, 2016 MPSC Standby Working Group Report

The Association of Businesses Advocating Tariff Equity (ABATE) appreciates the opportunity to provide comments on the MPSC Staff's draft August 19, 2016 Standby Working Group Report (August Report). Since the August Report only focuses on general background with respect to standby service and specific recommendations for standby service for intermittent generation such as solar, except for one issue detailed below, ABATE has limited its comments to the attached proposed markups to the draft August Report provided in redline and strikeout format. These redline and strikeout comments are intended to increase the accuracy and balance of the August Report.

The one additional issue that ABATE wishes to raise at this time is with respect to the distribution component of standby service rates. It has recently come to ABATE's attention that the distribution component of existing standby rates may not in all cases reflect all of the features of their full service equivalent. For example, the distribution component of the full service rate may include a provision for a credit for customers who own their own substation to reflect the lower cost of providing distribution service to those customers. However, the current distribution component of the equivalent standby service rate may not provide for this credit despite the distribution service being provided being the same.

It is very important that the distribution component of the standby rate closely align with the distribution component of the corresponding full service rate that would otherwise apply to the standby customer. This will help to help ensure the distribution component of the standby service rate reflects the true cost to the utility to provide distribution service to standby customer. ABATE recommends that this issue be thoroughly examined in the forthcoming Combined Heat and Power (CHP) discussions of the Standby Working Group.

ABATE is not offering any other comments at this time other than to indicate that it is grateful that the Commission is allowing more time for work on CHP standby service issues and that ABATE looks forward to actively participating in those very important discussions.

These comments and the attached specific redlined and strikeout comments on the draft August Report may be publicly shared and posted.

If you have any questions or concerns, please do not hesitate to contact us.

Sincerely,

Jim

James R. Dauphinais
Managing Principal

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August 15, 2016 Redline and Strikeout Comments of ABATE on

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DRAFT

For SRWG Review

**Standby Rate
Working Group
Report**

**PREPARED BY:
MICHIGAN PUBLIC SERVICE
COMMISSION STAFF**

MPSC Case No. U-New Docket

August 19, 2016

Introduction

Factors such as low natural gas prices for combined heat and power systems (CHP), decreasing solar photovoltaic (solar) and wind costs, increased corporate environmental standards, federal tax credits, [rising utility rates](#) and the ability to self-generate during utility power outages are contributing to increased interest in utility customers opting to install self-generation projects. To satisfy the need for electric reliability, self-generation customers rely on utility services for backup, supplemental and maintenance power.¹ These utility services are generally referred to as standby service² and the rates are based on the utility's costs for being ready to serve a load that is otherwise supplied by a customer's generator [as well as the cost of any energy actually delivered by the utility to the customer pursuant to standby service](#).

Ensuring that utility standby service tariffs are appropriately recovering only the costs attributable to the self-generation customer can result in complex analysis and billing. There is some concern in the self-generation community that standby rates in Michigan may not be set appropriately – particularly for small-scale CHP and intermittent resources such as solar and wind generation, [but also in some cases for large-scale CHP](#). With the burgeoning interest in these types of projects by potential self-generation customers and project developers, greater understanding of these complicated standby service tariffs is essential. It is an opportune time to determine whether the current standby service tariffs reflect the cost of serving self-generation customers with CHP or solar and address concerns of the self-generation community.

In orders issued in Case Nos. U-17735 (Consumers Energy rate case) and U-17767 (DTE

¹ **Backup power** means electric energy or capacity supplied by an electric utility to replace energy ordinarily generated by a facility's own generation equipment during an unscheduled outage of the facility.

Supplemental power means electric energy or capacity supplied by an electric utility, regularly used by a qualifying facility in addition to that which the facility generates itself.

Maintenance power means electric energy or capacity supplied by an electric utility during scheduled outages of the qualifying facility. (From PURPA)

² Also referred to as partial requirements service.

Electric rate case) during 2015, the Michigan Public Service Commission (MPSC or Commission) directed Staff to establish the Standby Rate Working Group (SRWG) to review the current Consumers Energy Company (Consumers Energy) and DTE Electric Company (DTE) standby tariffs and develop recommendations for any improvements to be considered in future rate cases. The SRWG met six times between January and July 2016 with participation from utilities, current and future stand-by customers and Staff. A website was created for the SRWG.³ This report is intended to provide background information on Consumers Energy and DTE standby service tariffs and describe potential changes in regard to non-residential, solar self-generation standby customers that may be considered in future rate cases. Standby service tariff analyses and recommendations in regard to CHP will be presented in a separate report issued at the end of 2016.⁴

Standby Rate Background

The Public Utility Regulatory Policies Act of 1978 includes a provision requiring utilities to provide standby service: 18 CFR 292.305

- (c) Rates for sales of back-up and maintenance power. The rate for sales of back-up power or maintenance power
 - (1) Shall not be based upon an assumption (Unless supported by factual data) that forced outages or other reductions in the electric output by all qualifying facilities on an electric utility's system will occur simultaneously, or during the system peak, or both: and
 - (2) Shall take into account the extent to which scheduled outages of the qualifying facilities can be usefully coordinated with scheduled outages of the utility's facilities.

Self-generation customers taking standby service impose a cost to the grid regardless of whether or not they take energy deliveries from the utility pursuant to that standby by service because the utility must maintain the customer's access to the transmission and distribution systems and have generation resources ready in anticipation of customer generator outage events. If these

³ See http://www.michigan.gov/mpsc/0,4639,7-159-16377_47107-376753--,00.html

⁴As explained in the Next Steps section of this report, the SRWG has requested more time to analyze standby tariff design. Staff will file a supplement to this report with a focus on CHP generation resources at the end of 2016.

costs are not recovered from self-generation customers imposing the costs by taking standby service, a cross subsidy occurs whereby other customers pay these costs.⁵ Self-generation advocates sometimes argue that they reduce utility ratepayer costs by providing distributed generation, but if they were to unexpectedly have an outage and need to call on the utility's generation capacity, in some instances, the utility may not be able to serve load in the area.⁶ The important aspect to remember when considering standby service tariff design and the policy involved is that the utility has a legal obligation to serve its customers while self-generation customers can cease operating their self-generation projects at any time. However, it is also important to remember that there is typically a substantial investment required by a customer to pursue a self-generation project, and, as a result, it usually in the customer's self-interest to take full advantage of that investment by operating their self-generation project as much as possible.

There are benefits arising out of self-generation. The generating assets are usually smaller-scale than utility generation facilities and by nature, are located close to customer load which minimizes line losses. In some cases, particularly CHP, self-generation can be more efficient, due to the customer's on-site use of the associated thermal energy created as a by-product of the electric generation when compared to the predominately central station power provided by the utility. In the case of non-combustion based generation such as solar, there are no air pollutants or other harmful emissions associated with the production of electricity.

The primary focus of this report will be on Consumers Energy and DTE, however, the general standby service rate concepts explained should apply to most electric utilities. The main rate components of standby tariffs can be split into two categories: power supply and delivery charges. Power supply charges account for the energy and generation capacity that the customer

⁵ Furuqui, Ahmad, January 20, 2016: [http://www.brattle.com/system/publications/pdfs/000/005/253/original/Michigan_Standby_Rates_\(01-19-2016\).pdf?1453481497](http://www.brattle.com/system/publications/pdfs/000/005/253/original/Michigan_Standby_Rates_(01-19-2016).pdf?1453481497)

⁶Stanton, Tom http://www.michigan.gov/documents/mpsc/NRRI-12-11_Electric_Standby_Rates_517637_7.pdf

uses during a self-generation outage while the delivery charges recover the utility's costs of the transmission and distribution system the utility has to maintain to serve the customer. A brief description of the typical components that are included on standby tariffs is provided below.

Power Supply Charges:

Generation Reservation Fee – The purpose of this fee is to recover some minimum portion of the utility's costs of having generation resources available to serve load that is normally served by the customer's generator without regard to the extent the customer actually draws upon standby service. DTE's standby service tariff includes this component (billed on a dollar per kilowatt of standby contract capacity) but Consumers Energy's tariff does not.

Power Supply Demand Charge - The power supply demand charge recovers the utility's generation capacity-related costs of serving the customer during the month. The charge is based on the highest on-peak customer usage (according to the terms of the standby service tariff), net of the self-generation output. This charge is on a dollar per kilowatt basis and may be lower for scheduled outages than for unplanned outages.⁷ On-peak hours for Consumers Energy and DTE are from 11 a.m. – 7 p.m. on weekdays excluding holidays. Unlike with a Generation Reservation Fee, these charges are applied to customer in proportion to the amount of standby service demand that is actually drawn by the customer from the utility. Often, non-residential customers are on rates with demand charges, however, some smaller non-residential customers may be on rates without demand charges where these costs are recovered on a volumetric basis. -

Energy Charge - The energy charge is volumetric and charged on a dollar per kilowatt-hour basis. The charge is based on the standard tariff rate or a market clearing price on a dollar per kilowatt-hour basis. This charge can include a market settlement fee. This charge applies to the actual

⁷ The same power-supply resources can be used to provide standby service to multiple standby customers, because it is unlikely that all the generators for which standby service is reserved will fail simultaneously. Stanton, Tom, July 2012, http://www.michigan.gov/documents/mpsc/NRRI-12-11_Electric_Standby_Rates_517637_7.pdf Page 9

standby energy drawn by the customer from the utility.

Delivery charges:

System Access Charge/Service Charge – This charge is a flat monthly fee. The fixed charge can be classified as the charge for metering, billing and other items that pertain to the additionality of services and complexities of a self-generation customer.

Distribution Demand Charge – The distribution demand charge recovers all or a portion of the utility’s costs to maintain and operate the distribution system. It is based on units of dollar per kilowatt and generally decreases as the customer’s voltage service level (secondary, primary, sub transmission, transmission) increases as the customer uses less of the utility’s distribution system. The utility’s distribution costs are generally not reduced when a customer installs self-generation.

Because of this, there is sometimestypically a ratchet mechanism so that the self-generation customer’s maximum demand over a long period of time sets the level of this demand charge since the customer’s maximum demand on the utility’s system closely relates to the utility’s costs to serve the customer. This is true whether or not the maximum demand occurs on or off peak, therefore peak usage does not factor into the charge. Typically, non-residential customers are on rates with demand charges, however, some smaller non-residential customers may be on rates without demand charges where these costs are recovered on a volumetric basis.

Distribution Volumetric Charge – Where all of the utility’s costs to maintain and operate the distribution system are not collected via a distribution demand charge, all or a portion of these costs may be recovered using a dollar per kilowatt-hour volumetric charge.

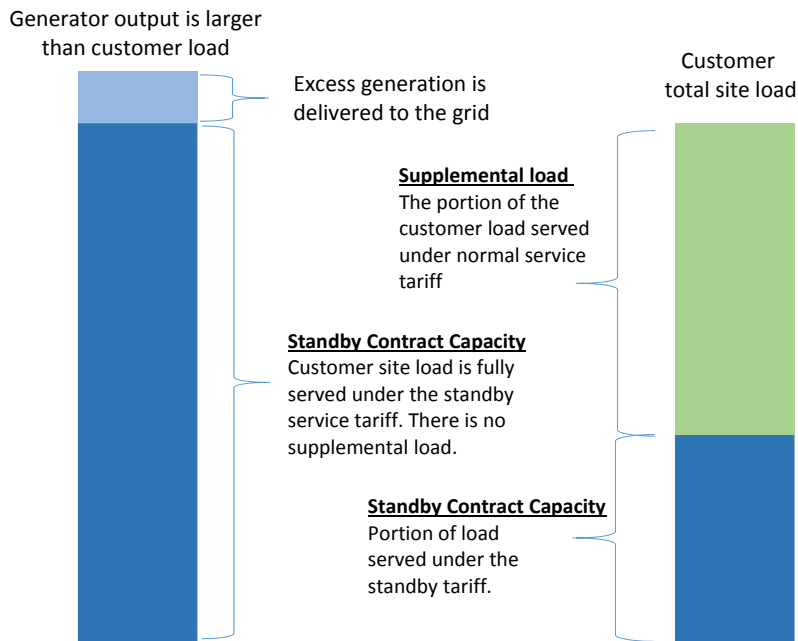
Current Standby Service Tariffs

This section of the report focuses on how the Consumers Energy and DTE standby service tariffs function. Both utilities made presentations to the SRWG describing their tariffs and showed

several examples.⁸ Each company's current tariff will be described below.

For both utilities, customers taking standby service would utilize the standby service tariff for the portion of their load that could be met by their generator (standby contract capacity) and remain on their normal service tariff for meeting any remaining requirement (supplemental service). For self-generation projects where the output of the generator is designed to be larger than the customer's load, all of the customer's load would be served according to the standby tariff. *Figure 1* below illustrates the split between standby contract capacity and supplemental service.

Figure 1: Standby Service Tariff Scenarios



⁸ See presentations shown on March 14, 2016 agenda: http://www.michigan.gov/mpsc/0,4639,7-159-16377_47107-376753--00.html

It is a common misconception that taking service under a standby tariff will cause customers to pay more than if they had remained on their normal service tariff and simply reduced their load by using their on-site generation behind the meter. This may be true in some cases for customers on energy-only rates, however, customers on demand-based rates with generators that operate nearly continuously would benefit from standby rates. During the course of the SRWG process, analysis of both companies' standby service tariffs showed that customers usually paid no more than the normal tariff charges and in most cases, paid less consistent with the fact that for the same given amount of customer load, customers using self-generation typically put less of a power supply demand on their utility than those without self-generation. To varying degrees, Consumers Energy's and DTE's standby service rates reflect this in their rate design. However, their full service rates do not since they were not designed to provide standby service. As a result, it is not surprising a self-generation customer who chose to take standby service via a full service rate would see higher charges than if it took that service pursuant to the standby service rate. –

DTE's standby rate tariff is called Rider 3. The company explained that Rider 3 charges are capped at the amount customers would have paid if they had taken service on their normal tariff. Customers taking service on Consumers Energy's General Self-Generation Tariff GSG-2, also typically would pay less than if they had taken all service on their normal tariff. Consumers Energy's tariff has no reservation charge and power supply capacity and energy charges are less than the General Primary Demand rate and the delivery charges are the same.

Simplified and abbreviated frameworks for both utilities' standby rate tariffs are discussed below. The descriptions are intended to provide a basic explanation and illustrate how these tariffs work. In particular, DTE's standby tariff contains a number of criteria that will impact the billing calculation. The actual current tariffs should always be consulted for analysis and decision-making purposes.

Consumers Energy

Consumers Energy customers with self-generation projects that are less than 550 kW (and not on a net metering tariff) do not take service under a standby tariff and service is provided according to the Self-Generation Provision (SG) which is included on each individual rate schedule. Under this provision, customers are charged according to their normal service rate for energy delivered by the company and receive MISO Locational Marginal Prices (LMP) for energy they export to the grid (less an administrative fee).⁹

Customers with larger generators (greater than 550 kW) take service under the Company's standby rate tariff called General Service Self Generation Rate (GSG-2). Customers with internal loads greater than their self-generation capacity may take service under a combination of their normal firm rate and the GSG-2 standby rate. The rates for delivery under the GSG-2 rate schedule are set at the same delivery demand rates on the General Service Primary Demand Rate (GPD) rate schedule. Generally, GPD is available to customers taking primary voltage service where the on-peak billing demand is 25 kW or more.

Consumers Energy reported that there were eight customers taking service under GSG-2 in 2015 and the average cost of electricity provided to those customers was 6.87 cents per kWh.

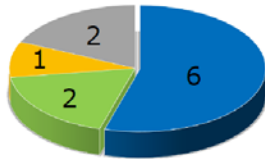
Figure 2 shows the GSG-2 summary data presented by the company.

Figure 2: GSG-2 Summary Data

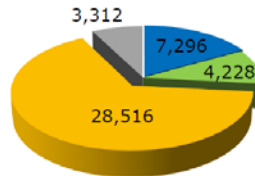
⁹ Consumers Energy currently does not have customers taking service under the Self-Generation Provision. _____
9 | Page

GSG-2 Customers, MWH and MW

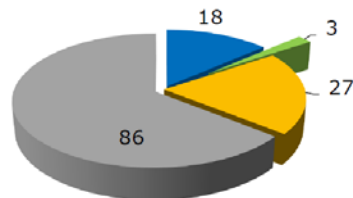
GSG-2 Facilities by Type



GSG-2 MWH Sales by Type



GSG-2 MW by Type



■ Biomass ■ Wind ■ Power Plant ■ Cogen

General Self Generation Rate GSG-2¹⁰

Power Supply Charges:

- Standby energy supplied by Consumers Energy is priced at the LMP at the company's load node plus a settlement fee of \$0.002 per kilowatt-hour. (During the time period of July 2015 through June 2016, MISO Michigan Hub monthly on-peak prices ranged from \$0.035 per kilowatt-hour to \$0.024 per kilowatt-hour and off-peak prices ranged from \$0.025 per kilowatt-hour to \$0.019 per kilowatt-hour.) An unplanned outage or planned outage without proper notification to the company that occurs during the summer months will result in a 10% adder to the LMP.
- On-peak capacity charge is charged each month based on the highest kW demand during that month for standby service provided. The on-peak charge is based on the \$/kW charge of the company's highest contracted capacity for the month (prorated based on the ratio of the number of on-peak periods where standby service was ~~taken~~ actually drawn from Consumers Energy during the month and the total number of on-peak days in the month) and includes allocated transmission costs. (The schedule of 2016 on-peak capacity charges ranges from the lowest cost of \$10.64 per kilowatt for April to \$15.23 per kilowatt in August.) On-peak hours are those hours between 11 a.m. - 7 p.m. each day, Monday through Friday, excluding holidays.
- There is no Monthly Generation Reservation Fee

¹⁰ Rate information is summarized from Consumers Energy's March 14, 2016 presentation and the GSG-2 rate schedule.

Delivery Charges:

- Monthly system access charge \$100 (\$200 where the generator meets or exceeds load).
- Capacity demand charge per kilowatt of standby demand (same rates as GPD). The standby demand is the contracted standby capacity. The standby demand would only change if the contracted standby capacity changed or if the customer's actual standby demand exceeded the contracted level, which would establish a new contracted standby capacity level.
- The rate varies from \$4.05 per kilowatt to \$0.62 per kilowatt according to the voltage level of service, which is set at an equivalent rate to GDP.

The tariff does not differentiate between backup or maintenance service.

Definitions

"Standby" service is defined as that electric service used in place of the customer's generation other than company supplied firm service.

"Standby Capacity" is defined as the contracted kilowatt capacity the company is expected to provide to the customer due to an outage of the customer's generating unit(s). The standby capacity shall not exceed the generator's capability as designated in the interconnection agreement and as determined by the company.

"Standby Demand" is the contracted standby capacity.

Table 1 summarizes standby tariff calculations presented by Consumers Energy and shows MPSC Staff's calculation of the "value" of their on-site generation by dividing the bill reduction due to the customer's generation (and includes any sales of generation to the company) by the total number of kilowatt hours generated.

Table 1: Summary of Consumers Energy Standby Service Tariff Example Calculations					
Customer Type	Customer Peak Demand & Annual kWh	Type of Generation	Annual Bill With Generator & Standby Tariff	Annual Bill Without Generator	Bill Reduction \$ Divided by Total Generation \$ per kWh
Large Industrial	7 MW 44,623,000 kWh	3.5 MW CHP 90% Capacity Factor 27,594,000 kWh	\$1,489,000	\$3,128,000	\$0.059/kWh
Large Commercial	1 MW 5,889,000 kWh	3.0 MW Solar 3,416,000 kWh (used on site & sold) 1,503,000 kWh sales @ \$0.029 per kWh	\$300,000	\$503,000	\$0.059/kWh
Large Commercial	1 MW 5,889,000 kWh	0.45 MW CHP 90% Capacity Factor 3,548,000 kWh	\$259,000	\$503,000	\$0.069/kWh

DTE

DTE customers who generate all or some of their own power must take standby service under Standard Contract Rider No. 3¹¹ subject to the following exemptions: Rider 13 – Dispersed Generation, Rider 16 – Net Metering, Rider DG – Distributed Generation (generator size limited to 100 kW), and regenerative dynamometers.¹² There are approximately 45 customers taking service

¹¹ See DTE Ratebook (search using Rider 3): <http://www.dleg.state.mi.us/mpsc/electric/ratebooks/dtee/dtee1cur.pdf>

¹² Regenerative dynamometers are used in the automotive industry for vehicle testing and analysis. Regenerative AC drives provide the AC Dynamometer with the ability to both absorb power and supply power to the vehicle being tested. The term regenerative describes the ability of the motor to convert the mechanical energy of vehicle under braking conditions into electrical energy which is returned (or regenerated) to the AC power source. Regenerative drives can—

under Rider 3. The power supply demand charge is capped at the Rate D11 power supply demand charge and the energy and delivery charges are the same as Rate D11. However, the rider includes different rate provisions for customers on rate schedules other than Rate D11. Rate D11 is available to customers desiring service at primary, sub-transmission, or transmission voltage who contract for a specified capacity of not less than 50 kilowatts at a single location. **Figure 3** shows a summary of customers taking service under DTE’s standby tariff.

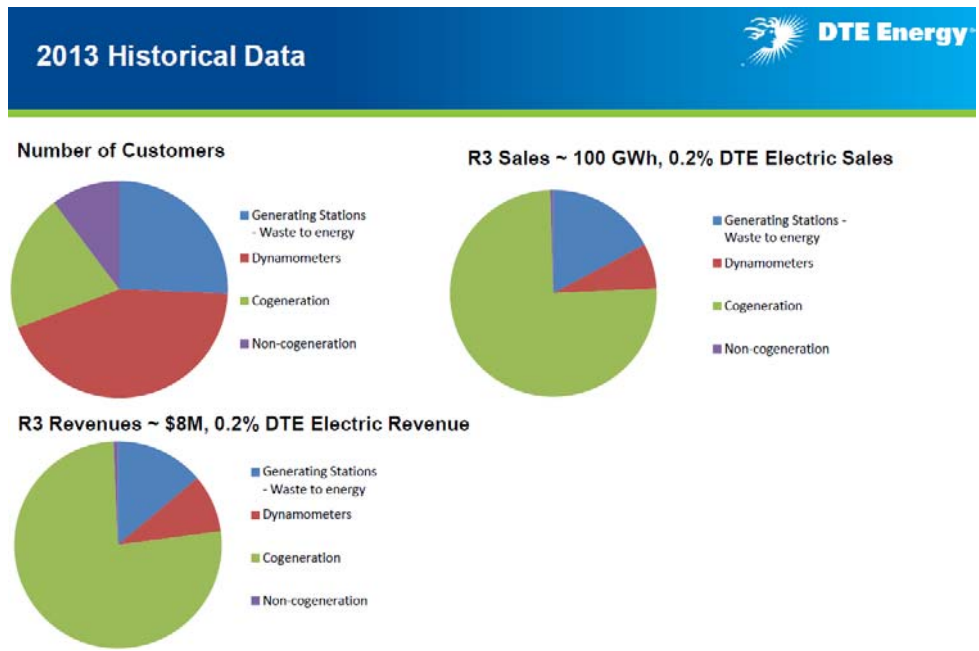


Figure 3 – Rider 3 Summary Data

reclaim a majority energy produced from the vehicle being tested which can reduce the overall electricity cost of testing. <http://www.dynesystems.com/ac-drives.htm>

Standby Service Rate – Rider 3

Power Supply charges:

- The Demand Charge is the greater of:
Monthly Generation Reservation Fee - \$1.75/kW of Standby Contract Capacity, per month.
or
Daily Demand (Standby Power) - \$4.67/kW on-peak per day + Daily Maintenance Demand - \$2.60/kW on-peak per day capped at \$14.65/kW which is the monthly power supply demand charge on Rate Schedule D11. The power supply demand charge for back-up and maintenance power will be charged based on standby contract capacity less the output toward internal load of the customer's generator, but not less than zero.
- Energy Charge:
Customers taking service on energy only rate schedules (D3, D3.2, D3.3), the energy charge will be the same as the normal rate schedule.
Customers taking service on supplemental rate schedules D4, D11, D6.2 and D8, the energy charge will be the D11 on-peak power supply energy charge, 3.807¢ per kWh, plus appropriate power supply credits.

Delivery Charges:

- Service Charge:
\$275 per customer per month for customers served at primary voltage.
\$375 per customer per month for customers served above primary voltage.
\$ 95 per customer per month for customers served at secondary voltages.
- The Distribution Demand Charge ranges from \$3.38 to \$0.88 per kW of standby contract capacity according to the service voltage and are the same as Rate D11.
For service provided in conjunction with a secondary voltage base rate the Delivery Charge will be the greater of \$8.97 per kW applied to standby contract capacity or 3.589¢/kWh applied to all standby energy delivered.

Interruptible Standby Service: Rider 3 provides for interruptible standby service if the customer's supplemental rate schedule is an interruptible rate schedule.

Definitions

"On-Peak Hours" are those hours between 11 a.m. -7 p.m. each day, Monday through Friday, legal holidays excluded.

"Standby Contract Capacity" may be determined according to several methods. DTE applies the method that best determines the electric capacity sufficient to meet the customer's standby load.

Methods:

1. For baseload generators (ie: CHP)
 - Calendar months June through October: the 1001st highest half-hourly kW output toward internal load (simultaneous output of all units less excess generation flowing back through the interconnection) during those billing months that include periods

from those calendar months during the latest 12-month period.

- Remaining calendar months: determined in a similar manner as explained above.

The standby contract capacity will be adjusted on an ongoing basis reflecting the current month and the preceding eleven months.

2. If the customer's generating units are operated with the intent to provide energy to the system and standby is only required for site load during outages the standby contract capacity will be set at the maximum half-hourly demand provided to the facility. For customers with units that do not operate in parallel with the system but have the ability to connect load normally served by unmetered on site generation to the system during generation outages, (throw over standby), the standby contract capacity will be set at the maximum metered half-hourly demand thrown over to the system and supplemental demand will be the metered inflow less the metered throw over load.
3. For customers demonstrating unusual operating conditions, including but not limited to initial unit operation, unpredictable generation from renewable resource units or generation that follows thermal load and prolonged periods with no generation, standby contract capacity may be set by mutual agreement of the company and the customer to levels sufficient to meet the customer's standby load.

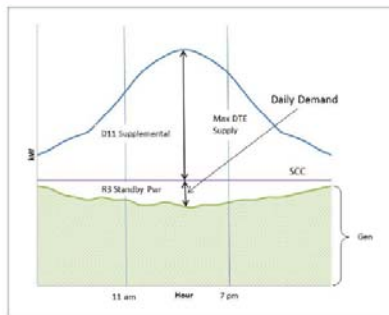
“Maintenance Day” is a calendar 24 hour day that meets timing request criteria detailed in the Rider 3 tariff and agreed to by DTE. A customer may be able to utilize up to 20 on-peak days during a year as maintenance days.

“Output Toward Internal Load” is equal to the output of the generator less excess generation flowing back through the interconnection to DTE.

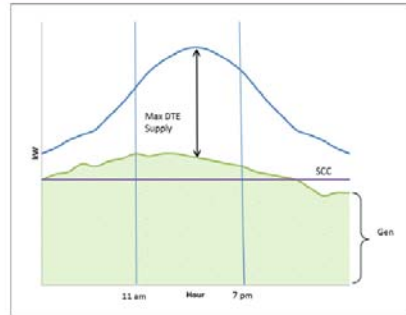
Figure 4 illustrates the basis for determining standby capacity charges for demand rates.

Figure 4:

Standby Capacity Charges for Demand Rates



Daily demands are determined based on the daily standby demand coincident with the highest 30-minute on-peak DTE Supply demand. Daily Demand is reduced if supplemental demand is less than the maximum monthly on-peak supplemental demand



A customer that operates their generator consistently at or above SCC during on-peak periods will pay the generation reservation fee (i.e. the minimum capacity charge of \$1.75/kW/month)

Table 2 summarizes standby tariff calculations presented by DTE and shows MPSC Staff’s calculation of the “value” of on-site generation by dividing the bill reduction due to the customer’s generation by the total number of kilowatt hours generated.

Table 2: Summary of DTE Rider 3 Example Calculations

Customer Type	Customer Peak Demand & Annual kWh	Type of Generation	Annual Bill With Generator & Rider 3 Rate	Annual Bill Without Generator	Bill Reduction \$ Divided by Total Generation \$ per kWh
Large Industrial	8 MW 51,544,000 kWh	5 MW CHP 30,926,400 kWh	\$1,756,000	\$3,280,000	\$0.049/kWh
Large Commercial	1 MW 3,917,000 kWh	850 kW Solar 861,740 kWh	\$290,000	\$318,000	\$0.032/kWh
Large Commercial	1 MW 3,917,000 kWh	282 kW CHP 2,350,200 kWh	\$183,000	\$318,000	\$0.057/kWh

SRWG – Meeting Presentations

The introductory meeting for the SRWG was held on January 20, 2016. Presentations were made by MPSC Staff regarding the relevant Commission orders and the schedule of the group, Michigan Agency for Energy Staff with regards to a CHP initiative, and by Dr. Amad Faruqui of the Brattle Group. Dr. Faruqui’s presentation was on the history of and development of standby tariffs and the common arguments surrounding standby tariffs. At the conclusion of the meeting, the SRWG decided that the second meeting would focus on the current standby tariffs of

Consumers Energy and DTE.

At the second meeting, Consumers Energy and DTE presented background on their standby tariffs. All presentations are available on the SRWG website.¹³ One key comment was that the bill calculations were performed on an annual basis, but the SRWG is accustomed to monthly bills and this made the comparison with the monthly rate schedules difficult. The utilities provided updated information to address those concerns.

The third meeting focused on the valuation and rates for capacity. The arguments for different methods of pricing capacity closely mirrored the statements that were made during the PURPA working group about capacity.¹⁴ They included, but were not limited to, highest cost capacity contracted by the utility during the month, proxy methods, cost of new entry (CONE), embedded cost, and market value. There was no general agreement on the appropriate price for capacity.

The fourth meeting of the SRWG dealt with energy and distribution. By contrast, these topics generated the least discussion. No new ideas or proposals were put forward with regard to these topics and there was no criticism of the current utility tariffs in this regard. Cost of service for distribution was mentioned, however, the changes proposed would go beyond the standby tariff to distribution expense recovery and would likely affect all customers.

There were four speakers at the fifth SRWG meeting. Rob Rafson of ChartHouse Energy, Jim Dauphinais of Brubaker and Associates, representing ABATE, Rob Ozar of MPSC Staff, and Douglas Jester of 5 Lakes Energy. Among the suggestions made by SRWG participants were eliminating standby tariffs, modifying the cost for capacity, [modifying the generation reservation fee to reflect the best performing customer](#), [modifying the basis for on-peak daily power supply demand charges](#), modifying the number of generator outages before the monthly standby costs

¹³ http://www.michigan.gov/mpsc/0,4639,7-159-16377_47107-376753--,00.html

¹⁴ <http://efile.mpsc.state.mi.us/efile/docs/17973/0004.pdf>

escalate to the full requirements tariff, and providing a demonstration that if a generator offsets a significant amount of line loss then a negative standby charge may actually be appropriate. Market based proposals and taking advantage of time of use rates for energy and capacity were also highlighted.

At the sixth and final meeting, Staff presented an alternate proposal for consideration by the group. The key features were making the standby tariff voluntary (for all types of self-generation), but requiring that customers be on a demand or demand plus time-of-use rate. The only reason self-generation customers with a baseload-type, high reliability generators, would want to be on a standby tariff is because that tariff would reduce their electric bill over the full requirements tariff.

Additional comments about the process were taken at the final meeting. Written comments were also taken on the draft for this report. Staff incorporated those written comments into the final report where and when Staff deemed it was appropriate to do so. Other written comments from stakeholders have been appended to this report. Ultimately, this is a report of Staff. Stakeholders who participated in the SRWG may or may not agree with some or all of the final report.

Standby Service Tariff Discussion

Background

The existing standby service tariffs were designed at a time when baseload generators with high reliability factors were the norm for self-generation. During the course of the SRWG, it became clear that the purpose of the Consumers Energy and DTE standby service tariffs are to (1) Recover appropriate costs for power supply and incorporate a mechanism for daily demand charges so that a single generation outage does not trigger the full monthly power supply demand charge, and (2) Recover full delivery (distribution system) costs for the portion of customer load that is served by the generator. There is increasing interest in projects with intermittent generation such as solar. The current standby service tariff design may not be the most appropriate rate design for

solar self-generation projects.

A fresh look at the existing tariffs with a focus on solar is needed at this time. To date, Staff has focused its SRWG analysis efforts on developing a proposal that is more oriented towards solar. However, the SRWG is interested in continuing its efforts and examining the rates with CHP in mind. A supplemental report will be released at a later date that addresses CHP.

What Standby Service is Not

Standby service is neither net metering nor a lost revenue recovery mechanism for the utility to recovery all of the lost revenue due to customer's generators.

Net metering allows customers to offset purchases from the utility by using their generation behind the meter and receive a credit equal to the volumetric portion of the full retail rate. Some customers who install self-generation projects may expect this type of rate treatment. The limitations of net metering are defined in Michigan by statute and not all customers with self-generation projects are eligible.

A customer's self-generation project results in a decrease in sales between the utility and that customer. A lost revenue recovery mechanism would be designed such that the utility would recover all the revenue from the lost sales from that customer. Standby tariffs can look to the customer like a way [for the utility](#) to recover all of the lost revenue, although this is not the purpose of an appropriately designed standby tariff. The purpose is to cover the costs of the [standby](#) service provided to the customer.

Standby Tariff Perception

Standby tariffs may seem confusing to customers who are not familiar with utility rate schedules. Some standby tariffs may rely on LMP prices or other variable prices that are not shown on the tariff since these prices are not known in advance. The number of customers taking service on a standby tariff is small and within the utility and MPSC Staff there are a limited number of

people with specialized knowledge. Some customers and developers believe that standby charges are arbitrary or that standby is a barrier to distributed generation. Due to the complexity of standby tariffs, it is difficult to demonstrate that the tariffs are non-arbitrary and based on cost-of-service principles.

A lack of understanding of standby tariffs can contribute to confusion during the planning phases of self-generation projects. This may be particularly true for customers interested in solar projects, because Michigan has very few large solar self-generation projects. In some cases, non-utility solar project planners have not had the opportunities to develop expertise in complex utility rates. A solar project planner may find it difficult to calculate the potential utility bill reduction when analyzing the project economics.

Solar PV Cost of Service Considerations– High Level Analysis

There is currently only one standby rate customer with a solar generation project in Michigan. To begin considering the costs to provide standby service to customers with solar generation, Staff worked with Consumers Energy and DTE to obtain an “average” industrial customer annual hourly data set. Hourly data for Consumers Energy’s total industrial class was normalized to develop a load profile for a 1 MW customer. Hourly data from Delta College’s solar PV project was also normalized and then used to obtain annual, hourly data for several size solar projects. The customer load and solar generation data were used to make bill calculations for Consumers Energy’s GPD, GP Time of Use (TOU) and DTE’s D11 rate schedules – both with various size solar projects and without. The results are shown in *Table 3*. The “value” of the solar generation is estimated by dividing the total annual bill reduction by the total solar generation. The “value” of the solar generation increases as the solar project size decreases, because using the generation behind the meter to offset purchases from the utility is more cost effective. Installing a larger project that results in some of the generation being exported and sold to the utility at the LMP

is usually less valuable than offsetting the customer's tariff rate.

The bill reduction numbers shown on **Table 3** show bill reductions for all scenarios evaluated, however, Consumers Energy's GPTOU rate is the most favorable to the solar self-generation customer. Increasing interest nationally and among SRWG participants indicate that time of use rates are becoming more popular and may be the preferred choice for customers with solar self-generation.

Solar generation, no matter what size solar PV project is modeled, does not significantly change the delivery demand payments as shown in **Figures 5 and 6**.¹⁵ An industrial customer with a 1 MW peak load is able to reduce delivery demand payments by 10% on Consumers Energy's Rate GPD and 16% on DTE's Rate D11 by installing a self-generation solar project that generates more than twice the customer's annual load (this is an extreme example to illustrate the point). On these tariffs, delivery demand charges are calculated using the maximum demand over a rolling, one-year period. If the solar project has an outage while the customer's load is at or near peak demand, a new maximum demand level will be set and it will take another year of reliable solar operation (or longer) to reduce the delivery demand charges. These two factors (limited ability to reduce delivery payments with solar and the rolling one-year maximum demand), contribute to maintaining the customer delivery payments at or very near the cost of service when the solar self-generation customer stays on the normal service tariff.

¹⁵ Staff's bill calculations were made using hourly load and generation data which spreads out generation more evenly and lessens peaks. Staff suspects that repeating the bill calculations using sub-hourly data (the actual time periods used to calculate utility bills) will show less reduction in demand based charges.

Table 3: Preliminary Bill Calculations, with and without Solar

Preliminary Analysis										
Annual Bill Calculations for a 1 MW Industrial Customer w/Several Solar PV Project Sizes										
	GP TOU			GPD			D11			GSG-2
<i>Bill w/o Solar</i> \$460,000										
Solar PV Project	Bill Reduction \$	Excess Sales @ \$0.04/kWh \$	Total \$ Divided by kWh Solar Generation	Bill Reduction \$	Excess Sales @ \$0.04/kWh \$	Total \$ Divided by kWh Solar Generation	Bill Reduction \$	Excess Sales @ \$0.04/kWh \$	Total \$ Divided by kWh Solar Generation	Bill Reduction GPD to GSG-2 \$
300 kW	35,978	-	0.081	33,777	-	0.076	30,089	-	0.067	
750 kW	89,450	296	0.080	67,776	296	0.061	60,472	296	0.054	
1,000 kW	114,622	3,098	0.079	81,835	3,098	0.057	73,223	3,098	0.051	190,187
10,000 kW	224,737	483,810	0.048	143,838	483,810	0.042	141,298	483,810	0.042	243,412

Data calculated using current tariffs, hourly industrial class averaged load data from Consumers Energy, solar data from the Delta College project. This is a high level analysis and does not include the PSCR factor, surcharges, and substation ownership credits. Only basic tariff info was used to calculate the example bills.

Figure 5: Consumers Energy, Change in Annual Capacity and Delivery Demand Payments with Varying Sized Solar Projects, Rate GPD

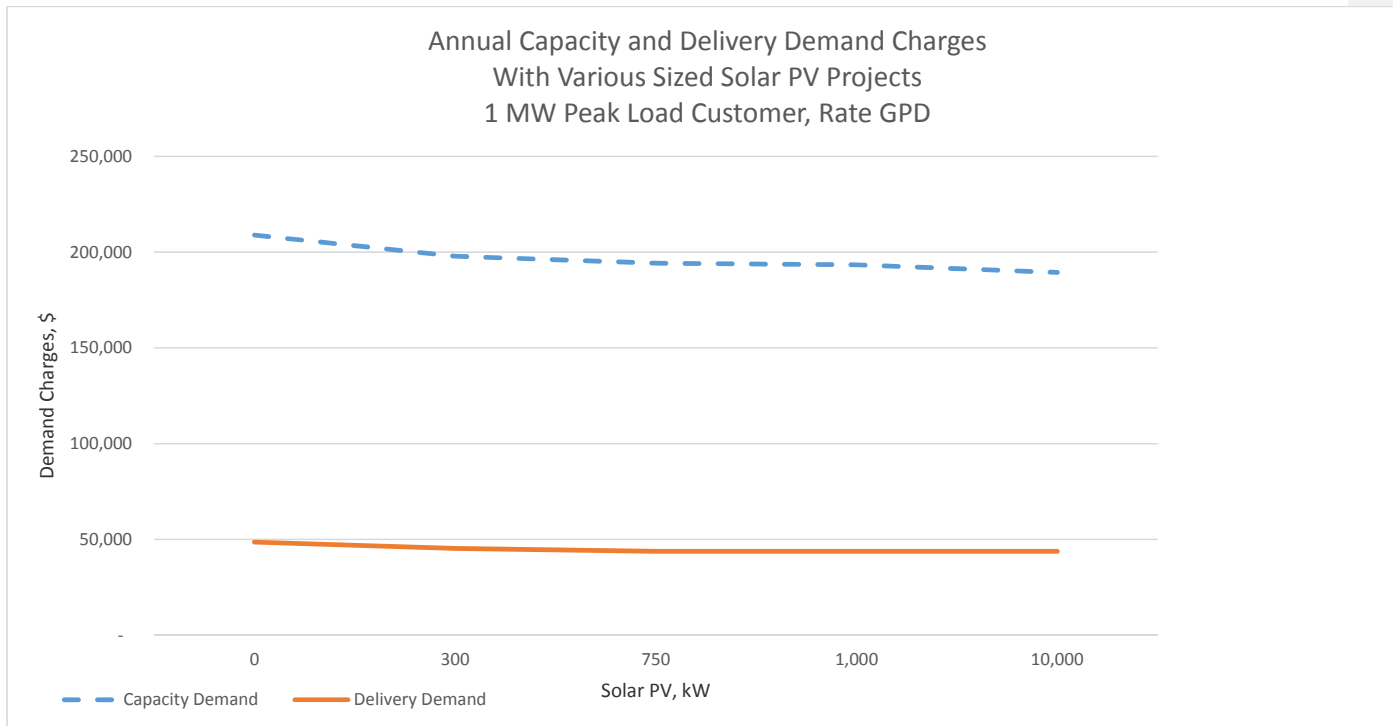
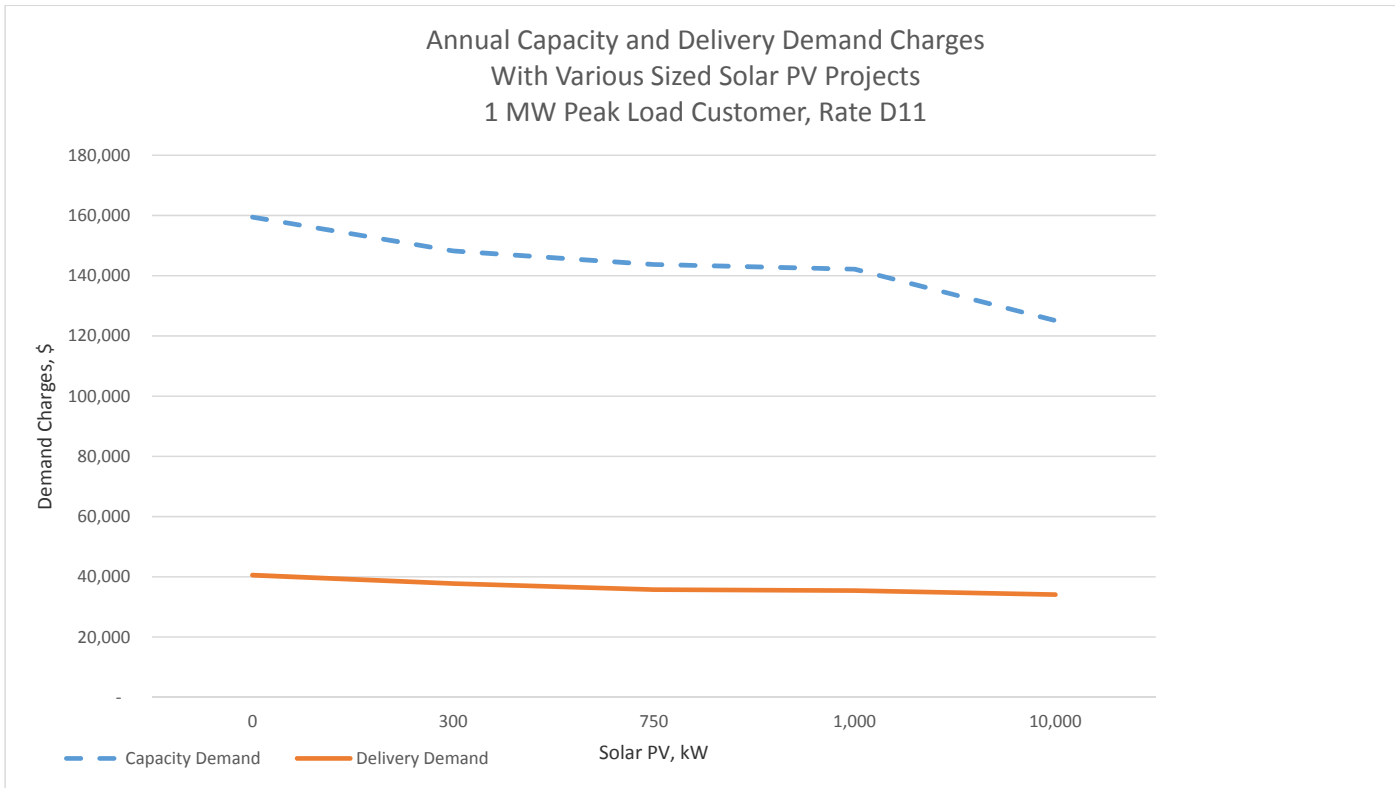


Figure 6: DTE, Change in Annual Capacity and Delivery Demand Payments with Varying Sized Solar Projects, Rate D11



Staff Solar PV Standby Proposal

The preliminary analysis completed by Staff as part of the SRWG activities indicates that it is not necessary for non-residential, self-generation solar projects to take service under a standby service tariff provided the normal service tariff incorporates a delivery demand charge and either a power supply demand charge or accurate time of use rates.

A high-reliability, baseload-type generator will almost always experience a bill reduction by taking standby service under a tariff with daily or prorated power supply demand charges.

However, because of the intermittent nature of solar generation, the customer will utilize on-peak power every on-peak day and the bill reduction advantage of daily or prorated power supply demand charges on the standby service tariff is not realized. Therefore, in regard to power supply demand charges, standby service offers no cost-saving benefit to a solar self-generation customer. The utility must maintain some level of capacity to back up the customer's solar project if it is not able to generate during on-peak periods. The cost for this service is sometimes recovered using a standby generation reservation fee. Factoring in line loss benefits based on the location of the solar project on the distribution system, generator diversity and the generation profile of solar, indicates a standby reservation fee may not be justified.

The existing standby service tariffs are designed so that the utility collects delivery charges based on the standby contract capacity (the part of the customer's load that is expected to be served by the customer's generator) to ensure that self-generation customers make their cost of service based contribution to the utility's distribution system. The billing calculations (highlighted in **Figures 5 and 6**) show that the "average" industrial customer with solar is unable to significantly reduce delivery payments. Staff supports customers with solar generation taking service under a normal service tariff with a time of use or power supply demand charge, volumetric energy charge and a delivery demand charge.

In an order issued on June 15, 2015 in Case No. U-17689, the Commission ordered DTE to establish time of use and dynamic peak pricing rates by January 1, 2016 for customers who have had AMI for at least a year, on an opt-in basis. Similarly, on June 30, 2015 in Case No. U-17688, Consumers Energy was directed to have these rates available by January 1, 2017. More bill calculations using sub-hourly data and these new time of use and dynamic pricing rates is recommended.

Remaining on the customer's normal service tariff, provided it meets the above criteria for demand and/or time of use charges, simplifies the customer experience and, as our preliminary analysis indicates, sends the correct cost of service price signals.

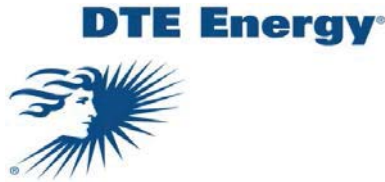
Next Steps

Standby service tariff design that incorporates cost of service principles is an extremely complicated undertaking. Policy, statute, and long-held tariff principles can all play an integral part in developing a well-designed tariff. Staff primarily focused on tariff analysis with respect to solar which has the operational characteristic of being intermittent. Staff recommends that non-residential customers with self-generation solar projects take all service under a normal service tariff that includes a demand charge for delivery charges and either a time of use rate or demand charge for power supply.

The SRWG discussed how the current standby service tariffs function, reviewed example calculations and heard presentations on new concepts for standby service tariffs and modifications for the current standby service tariffs. Some participants in the SRWG have asked for additional time to do a more in-depth analysis of the cost to provide standby service to customers with CHP and other generators with baseload operating characteristics. Staff agrees that more work is needed in this area. A supplemental report will highlight the SRWG's findings related to non-intermittent standby service tariff design and update its solar standby recommendations if needed. The target

date for issuing the supplemental report is December 16, 2016.

Staff would like to commend the participants in the SRWG. This process has been very informative for all parties and has provided Staff and others with a much deeper understanding of the various rationale for standby service tariff components. This has provided a basis for future tariff improvement in light of ever-changing energy markets and economic conditions. The energy industry is constantly evolving as new technology matures and it is paramount that tariffs are continuously reviewed for potentially necessary changes to reflect these dynamics. Participants in the SRWG have open-mindedly embraced this fact and graciously committed their time. Staff looks forward to our continued work together on these issues.



Electric Reliability Division
Michigan Public Service Commission
7109 West Saginaw Highway
Lansing, MI 48917

RE: DTE Electric Company Comments on the MPSC Staff Draft
Standby Rate Working Group Report

The work of the Standby Rate Working Group (SRWG) to date has been very beneficial toward reaching common understanding of standby rate design concepts in general, and the current rate structures and charge levels of both DTE Electric Company (DTE or Company) and Consumers Energy (CE) standby tariffs. DTE is supportive of economic distributed generation resources and appreciates the opportunity to further explain its current standby tariff, as well as participate in discussions of other proposals. As the Michigan Public Service Commission Staff (Staff) report indicates, this understanding has helped dispel the common misconception that taking service under a standby tariff will cause customers to pay more than if they had remained on their normal service tariff.

Although the workgroup has made good progress in reviewing and understanding the current DTE and CE standby tariffs, the Company believes it is premature to draw certain conclusions, and suggest changes at this time. Specifically, Staff's recommendation that non-residential customers with self-generation solar projects take all service under a normal service tariff that includes a demand charge for delivery charges, and either a time of use rate or demand charge for power supply. Staff's conclusion is based on their preliminary analysis as part of the SRWG activities. From that analysis, Staff concluded the following:

- 1) In regard to power supply demand charges, standby service offers no cost-saving benefit to a solar self-generation customer
- 2) Factoring in line loss benefits based on the location of the solar project on the distribution system, generator diversity and the generation profile of solar, indicates a standby reservation fee may not be justified.

This recommendation essentially exempts non-residential self-generation solar projects from taking Standby Service. DTE Electric believes this recommendation is premature as it relies on preliminary analysis with very little actual customer operating experience

to date (DTE currently has only one non-residential self-generation solar project). In addition, during the workgroup sessions, although it was discussed, there was no support for the notion that standby rates are a barrier for the development of solar or other types of self-generation projects.

DTE disagrees with the statement contained in the draft report which states that due to the complexity of the standby tariffs, the rates may be arbitrary and not cost based. DTE acknowledges that the complicated nature of standby service can be confusing to potential customers, but maintains this complication is necessary to properly address the complex issues involved. The Company's standby tariff is based on cost of service principals and its rate design is consistent with FERC's PURPA rules. To address customer concerns with respect to complexity, DTE provides customer presentations to explain standby service, and also performs standby rate analysis for all customers free of charge. The Company is always open to customer suggestions for improvement in this area.

In summary, exempting non-residential solar technology from standby service based on preliminary analysis and limited actual customer operating experience to date, the Company believes is unnecessary at this time. Any changes to existing standby service rates should only be made after careful and measured consideration.

Future efforts of this workgroup should be to provide recommendations toward maintaining sustainable cost based standby rates while providing flexibility to address emerging technologies.

The increased common understanding of standby service concepts and standby rate design accomplished through the efforts of the SRWG thus far, has now positioned the SRWG to further examine both cost allocation and rate design principles of standby service to achieve that objective. DTE agrees with Staff that more work is needed and remains committed to continuing participation in the SRWG toward meeting that goal.

Sincerely,

Philip W.
Dennis

Digitally signed by Philip W. Dennis
DN: cn=Philip W. Dennis, o=DTE Energy, ou=DTE Energy,
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Date: 2016.08.17 14:55:55 -0400

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Baldwin, Julie (LARA)

From: Philip W Dennis <dennisp@dteenergy.com>
Sent: Wednesday, August 17, 2016 3:29 PM
To: Baldwin, Julie (LARA)
Cc: Krause, Kevin (LARA); Timothy A Bloch
Subject: DTE Comments on Standby Working Group Draft Report
Attachments: DTE Electric Comments on Draft Standby Report.pdf

Julie,

See attached document for our general comments on the report. Also, below we have some suggested changes to the report for clarity (see highlighted language). Let me know if you have any questions.

(See attached file: DTE Electric Comments on Draft Standby Report.pdf)

Page 14 -

*Under Power Supply charges, the description of Daily Demand should include the highlighted section below.

“The power supply demand charge for back-up and maintenance power will be charged based on standby contract capacity less the output toward internal load of the customer's generator, less any reduction the customer can accomplish by reducing the supplemental demand at the time of the daily on-peak standby demand below the maximum monthly on peak supplemental demand, but not less than zero.

Under definitions, standby contract capacity method. “For baseload generators (i.e. CHP)” should be changed to “For baseload generators (e.g. CHP)”

Page 20 -

*DTE would like to add the following footnote to the first sentence ("Standby service is neither net metering nor a lost revenue recovery mechanism ..."):

“Net metering is exempt from taking standby service. However, utilities still maintain the obligation to serve loads that are normally served by net metering generators.”

*DTE proposes the following clarifying changes to the second paragraph:

Net metering allows customers to offset purchases from the utility by using their generation behind the meter and also receive a credit equal to the volumetric portion of the full retail rate for any outflow to the utility. Some customers who install self-generation projects may expect this type of rate treatment. The limitations on the availability of net metering are defined in Michigan by statute and not all customers with self-generation projects are eligible.

*DTE proposes the following clarifying changes (see ~~strikeout~~) to the third paragraph:

A customer's self-generation project results in a decrease in sales between the utility and that customer. A lost revenue recovery mechanism ~~would be designed such that the utility~~ would recover all the revenue from the lost sales from that customer. Standby tariffs can look to the customer like a way to recover all of the lost revenue, although this is not the purpose of an appropriately designed standby tariff. The purpose is to cover the costs of the service provided to the customer.

Page 21 -

*DTE would like to add the following to the last sentence in the first paragraph

"Without assistance from the utility, a solar project planner may find it difficult to calculate the potential utility bill reduction when analyzing the project economics .

=====
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DTE Energy
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=====



ENVIRONMENTAL LAW & POLICY CENTER

Protecting the Midwest's Environment and Natural Heritage

August 15, 2016

Submitted Via E-mail Only.

Michigan Public Service Commission Staff
7109 W. Saginaw Hwy., 3rd Floor
Lansing, MI 48917
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KrauseK@michigan.gov

Commission Staff:

The Environmental Law and Policy Center (“ELPC”) and 5 Lakes Energy hereby submit the following comments in response to the Standby Rate Working Group Report prepared by Michigan Public Service Commission Staff (“Draft Report”).

I. INTRODUCTION

We greatly appreciate the effort by the Michigan Public Service Commission and its Staff to review and potentially revise standby rate policy as reflected in current tariffs of regulated utilities in Michigan. As has been well demonstrated in the meetings of the Standby Rate Working Group, this is a complicated topic about which there is considerable uncertainty and disagreement. The Draft Report is a good step forward in the process of ensuring transparent and sound standby rate policies.

We support continued discussion and analysis regarding standby rates as they apply to cogeneration, and our comments on the current draft report are exclusively in relation to customers with intermittent generation, such as solar photovoltaics, that are not expected to meet a customer’s requirements on a daily basis and thereby routinely require supplemental service.

We agree with the Staff conclusion that it is not necessary for non-residential, self-generation solar projects to take service under a standby service tariff. However, we disagree with Staff’s conditioning that conclusion with “provided the normal service tariff incorporates a delivery demand charge and either a power supply demand charge or accurate time of use rates.” We address each element of Staff’s proposed condition below.

(1) Power Supply Demand Charge.

With regard to this condition, we agree with the Draft Report that a solar system (without storage) will not enable the customer to significantly avoid demand charges. However, we do not understand why this means that use of a normal service tariff should be conditioned on the

customer being in a tariff that uses a power supply demand charge. While it is clear that imposing such a condition will result in the utility recovering the cost of power supply from a customer using such a solar system, there has been no attempt to demonstrate that a utility would not recover the cost of power supply under a tariff without a power supply demand charge. We are persuaded that if Staff made further inquiry, they would find that the cost of power supply would be appropriately recovered under any extant normal service tariff that does not include a power supply demand charge.

(2) Time of Use Rate.

We concur with the Staff that a utility will recover cost of power supply from a customer with solar self-generation who is on an accurate time of use rate. This is true for all customers, and Staff's conclusion is not specific to customers with solar self-generation. Any argument that, because the utility maintains capacity for standby service to the solar system, the utility is not recovering those costs, is easily rebutted. Rob Ozar's demonstration in the Standby Rate Working Group that the calculated cost of the required reserve margin for the solar system is more than offset by reduced capacity delivery losses disposes of that issue. However, we note that Mr. Ozar's analysis is not contingent on the customer with solar self-generation being assigned to a time of use tariff.

(3) Delivery Demand Charge.

With regard to the condition that "the normal service tariff incorporates a delivery demand charge ...", we concur with the Staff analysis that a customer with solar self-generation on a normal service tariff that incorporates a delivery demand charge will be unable to significantly reduce delivery payments. However, to require the use of a delivery demand charge as a condition for the customer with solar generation to stay on the normal service tariff requires showing that a utility would not recover cost of delivery from a customer with solar generation on a tariff that does not have a delivery demand charge. We do not see that Staff have attempted to make that showing. Indeed, Rob Ozar's presentation to the Standby Rates Working Group clearly demonstrated that the approach he labeled as the "inflow-outflow" method is fully consistent with traditional cost-of-service ratemaking practices. It is true that using this method will reduce the customer's bill for power delivery by a greater amount than in the case where the tariff includes a delivery demand charge. But, such a cost shift is not materially different than the cost shift that occurs if a customer invests in energy efficiency, changes operating hours, increases or decreases production, is differentially affected by changes in climate, or any of a myriad of other changes; it would be discriminatory to treat changes in delivery costs differently because they are due to self-generation.

Further, we note that at most very small portions of the distribution system are sized to a single customer's demand. Rather, service transformers are often shared with at least a few other customers and everything on the grid side of the service transformer is clearly shared with a significant number of customers. Cost causation would therefore be related to the customer's contribution to the peak demand on those grid components and not to the customer's individual peak demand; these are poorly correlated, especially for smaller customers. Paul Chernick et al., *Charge Without a Cause? Assessing Electric Utility Demand Charges on Small Consumers*, Electricity Policy, (Aug. 2016), <http://www.electricitypolicy.com/images/2016/August/10Aug>

[2016/Chernick/Chernick2016Aug10final.pdf](#) (last visited Aug 15, 2016). Hence, for those customers that are eligible for a tariff that does not include a delivery demand charge, demand is a poor determinant of cost of service.


II. CONCLUSION


We therefore recommend that Staff drop the condition that “the normal service tariff incorporates a delivery demand charge and either a power supply demand charge or accurate time of use rates” and simply conclude that, with respect to power supply cost recovery and delivery cost recovery, it is not necessary for non-residential, self-generation solar projects to take service under a standby tariff.

We look forward to continuing participation in the Standby Rate Working Group and to addressing standby rates for cogeneration.

Respectfully submitted,

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Re: Comments on PSC Staff Draft Standby Rate Working Group Report

Dear Ms. Baldwin and Mr. Krause:

The Midwest Cogeneration Association (MCA) would like to thank you for the time and effort the Michigan Public Service Commission Staff have devoted to examining Michigan utility standby rate (SBR) tariff design in the course of the last year. We appreciate having been included in the Standby Rate Working Group.

We support the Staff proposal to continue the Working Group review process through the end of the year to focus on the design of SBR tariffs for combined heat and power and waste heat to power distributed energy resources (collectively "CHP"). As noted in the Staff's Draft Report, CHP is a baseload resource which differs substantially from intermittent resources such as wind and solar. Therefore, a separate careful examination of SBR tariffs for this resource is warranted.

MCA looks forward to continuing to work with you in this process. CHP is an established, highly reliable energy resource with the potential to meet significant future Michigan baseload demand. As such, it is a clean, efficient and cost effective alternative to building new utility power plants at Michigan ratepayer expense. Yet MCA Michigan members report that they have file cabinets full of CHP projects that have not been built due to SBR tariffs which place disproportionate fixed charges on CHP partial use customers. This is a barrier which must be addressed. We hope the Working Group will focus on the development of a model SBR tariff for Michigan CHP customers which will provide a touch stone for utility tariff revisions that can unleash the potential for CHP in Michigan.

Thank you again for your leadership.

Sincerely,

Patricia F. Sharkey, Policy Director
Midwest Cogeneration Association

Comments from Washtenaw Community College regarding the Standby Contract Capacity

Page 2; Please add in Higher Education or non-profit

Page 4; item 1, while technically yes a self-generation customer could decide to cease operation of their power generation equipment it would be unlikely due to the fact that the capital investment of said equipment is substantial.

Page 4; item 2, It should be noted that solar or wind power generators can achieve carbon offset credits that have some value.

Page 5; add the word “amount” after the word “dollar”. Just having the word dollar might lead some to think that is one dollar per KW>

Page 21; Possibly the SRWG could work together with consultants from the solar manufacturers group to come up with an initial contract capacity for the first 12 month period after installation.

Page 27; Washtenaw Community College has data on the base load of power generation for our CHP units and would be willing to share with the SRWG for a study.

General Thoughts: One area that does not seem to be touched on in the Rider 3 language is the connection to the meter surcharges incurred under the Energy Optimization language. This is a large financial impact that was not expected and has severely affected our saving projections.

There is a major connection between the contract capacity and the EO surcharge. When we launched our CHP program we allowed, unwittingly, to use the name plate rating for the 2 CHP units which is why we regularly saw larger than truly needed amounts of energy being shown as required from DTE. An analogy would be the fuel mileage projection on a new vehicle that was tested under perfect conditions. That same vehicle performing under real world situations would average 10 to 20 percent less than projected. The CHP units operate under these same situations. Paying for the additional power would not be so bad but when adding in the EO surcharge it makes the situation uneconomical.

WCC feels the Standby Charges should be thoroughly thought out with past performance from like types of equipment being used as templates of calculating the correct standby charges. After a 12 month period of operation the standby charges rate could be adjusted accordingly.

Please contact me if any follow up information is needed or questions arise.

Respectfully,

Bill Ghrist

Manager of Energy and Systems Integration

Washtenaw Community College

734.477.8787

bghrist@wccnet.edu

DRAFT

For SRWG Review

**Standby Rate
Working Group
Report**

**PREPARED BY:
MICHIGAN PUBLIC SERVICE
COMMISSION STAFF**

MPSC Case No. U-New Docket

August 19, 2016

Introduction

Factors such as low natural gas prices for combined heat and power systems (CHP), decreasing solar photovoltaic (solar) and wind costs, **increased corporate** environmental standards, federal tax credits and the ability to self-generate during utility power outages are contributing to increased interest in utility customers opting to install self-generation projects. To satisfy the need for electric reliability, self-generation customers rely on utility services for backup, supplemental and maintenance power.¹ These utility services are generally referred to as standby service² and the rates are based on the utility's costs for being ready to serve a load that is otherwise supplied by a customer's generator.

Ensuring that utility standby service tariffs are appropriately recovering only the costs attributable to the self-generation customer can result in complex analysis and billing. There is some concern in the self-generation community that standby rates in Michigan may not be set appropriately – particularly for small-scale CHP and intermittent resources such as solar and wind generation. With the burgeoning interest in these types of projects by potential self-generation customers and project developers, greater understanding of these complicated standby service tariffs is essential. It is an opportune time to determine whether the current standby service tariffs reflect the cost of serving self-generation customers with CHP or solar and address concerns of the self-generation community.

In orders issued in Case Nos. U-17735 (Consumers Energy rate case) and U-17767 (DTE Electric rate case) during 2015, the Michigan Public Service Commission (MPSC or Commission)

¹ **Backup power** means electric energy or capacity supplied by an electric utility to replace energy ordinarily generated by a facility's own generation equipment during an unscheduled outage of the facility.

Supplemental power means electric energy or capacity supplied by an electric utility, regularly used by a qualifying facility in addition to that which the facility generates itself.

Maintenance power means electric energy or capacity supplied by an electric utility during scheduled outages of the qualifying facility. (From PURPA)

² Also referred to as partial requirements service.

directed Staff to establish the Standby Rate Working Group (SRWG) to review the current Consumers Energy Company (Consumers Energy) and DTE Electric Company (DTE) standby tariffs and develop recommendations for any improvements to be considered in future rate cases. The SRWG met six times between January and July 2016 with participation from utilities, current and future stand-by customers and Staff. A website was created for the SRWG.³ This report is intended to provide background information on Consumers Energy and DTE standby service tariffs and describe potential changes in regard to non-residential, solar self-generation standby customers that may be considered in future rate cases. Standby service tariff analyses and recommendations in regard to CHP will be presented in a separate report issued at the end of 2016.⁴

Standby Rate Background

The Public Utility Regulatory Policies Act of 1978 includes a provision requiring utilities to provide standby service: 18 CFR 292.305

(c) Rates for sales of back-up and maintenance power. The rate for sales of back-up power or maintenance power

(1) Shall not be based upon an assumption (Unless supported by factual data) that forced outages or other reductions in the electric output by all qualifying facilities on an electric utility's system will occur simultaneously, or during the system peak, or both: and

(2) Shall take into account the extent to which scheduled outages of the qualifying facilities can be usefully coordinated with scheduled outages of the utility's facilities.

Self-generation customers impose a cost to the grid regardless of whether or not they take energy deliveries from the utility because the utility must maintain the customer's access to the transmission and distribution systems and have generation resources ready in anticipation of customer generator outage events. If these costs are not recovered from self-generation customers

³ See http://www.michigan.gov/mpsc/0,4639,7-159-16377_47107-376753--,00.html

⁴As explained in the Next Steps section of this report, the SRWG has requested more time to analyze standby tariff design. Staff will file a supplement to this report with a focus on CHP generation resources at the end of 2016.

imposing the costs, a cross subsidy occurs whereby other customers pay these costs.⁵ Self-generation advocates sometimes argue that they reduce utility ratepayer costs by providing distributed generation, but if they were to unexpectedly have an outage and need the utility's generation capacity, in some instances, the utility may not be able to serve load in the area.⁶ The important aspect to remember when considering standby service tariff design and the policy involved is that the utility has a legal obligation to serve its customers **while self-generation customers can cease operating their self-generation projects at any time.**

There are benefits arising out of self-generation. The generating assets are usually small-scale and by nature, are located close to customer load which minimizes line losses. In some cases, particularly CHP, self-generation can be more efficient, due to the customer's on-site use of the associated thermal energy created as a by-product of the electric generation when compared to the predominately central station power provided by the utility. **In the case of non-combustion based generation such as solar, there are no air pollutants or other harmful emissions associated with the production of electricity.**

The primary focus of this report will be on Consumers Energy and DTE, however, the general standby service rate concepts explained should apply to most electric utilities. The main rate components of standby tariffs can be split into two categories: power supply and delivery charges. Power supply charges account for the energy and generation capacity that the customer uses during a self-generation outage while the delivery charges recover the utility's costs of the transmission and distribution system the utility has to maintain to serve the customer. A brief description of the typical components that are included on standby tariffs is provided below.

Power Supply Charges:

⁵ Furuqui, Ahmad, January 20, 2016: [http://www.brattle.com/system/publications/pdfs/000/005/253/original/Michigan_Standby_Rates_\(01-19-2016\).pdf?1453481497](http://www.brattle.com/system/publications/pdfs/000/005/253/original/Michigan_Standby_Rates_(01-19-2016).pdf?1453481497)

⁶Stanton, Tom http://www.michigan.gov/documents/mpsc/NRRI-12-11_Electric_Standby_Rates_517637_7.pdf

Generation Reservation Fee – The purpose of this fee is to recover the utility’s costs of having generation resources available to serve load that is normally served by the customer’s generator. DTE’s standby service tariff includes this component (billed on a **dollar per** kilowatt of standby contract capacity) but Consumers Energy’s tariff does not.

Power Supply Demand Charge - The power supply demand charge recovers the utility’s generation capacity-related costs of serving the customer during the month. The charge is based on the highest on-peak customer usage (according to the terms of the standby service tariff), net of the self-generation output. This charge is on a **dollar per** kilowatt basis and may be lower for scheduled outages than for unplanned outages.⁷ On-peak hours for Consumers Energy and DTE are from 11 a.m. – 7 p.m. on weekdays excluding holidays. Often, non-residential customers are on rates with demand charges, however, some smaller non-residential customers may be on rates without demand charges where these costs are recovered on a volumetric basis.

Energy Charge - The energy charge is volumetric and charged on a dollar per kilowatt-hour basis. The charge is based on the standard tariff rate or a market clearing price on a dollar per kilowatt-hour basis. This charge can include a market settlement fee.

Delivery charges:

System Access Charge/Service Charge – This charge is a flat monthly fee. The fixed charge can be classified as the charge for metering, billing and other items that pertain to the additionality of services and complexities of a self-generation customer.

Distribution Demand Charge – The distribution demand charge recovers all or a portion of the utility’s costs to maintain and operate the distribution system. It is based on units of dollar per kilowatt and generally decreases as the customer’s voltage service level (secondary, primary, sub

⁷ The same power-supply resources can be used to provide standby service to multiple standby customers, because it is unlikely that all the generators for which standby service is reserved will fail simultaneously. Stanton, Tom, July 2012, http://www.michigan.gov/documents/mpsc/NRRI-12-11_Electric_Standby_Rates_517637_7.pdf Page 9

transmission, transmission) increases as the customer uses less of the utility's distribution system. The utility's distribution costs are generally not reduced when a customer installs self-generation. Because of this, there is typically a ratchet mechanism so that the self-generation customer's maximum demand over a long period of time sets the level of this demand charge since the customer's maximum demand on the utility's system closely relates to the utility's costs to serve the customer. This is true whether or not the maximum demand occurs on or off peak, therefore peak usage does not factor into the charge. Typically, non-residential customers are on rates with demand charges, however, some smaller non-residential customers may be on rates without demand charges where these costs are recovered on a volumetric basis.

Distribution Volumetric Charge – Where all of the utility's costs to maintain and operate the distribution system are not collected via a distribution demand charge, all or a portion of these costs may be recovered using a dollar per kilowatt-hour volumetric charge.

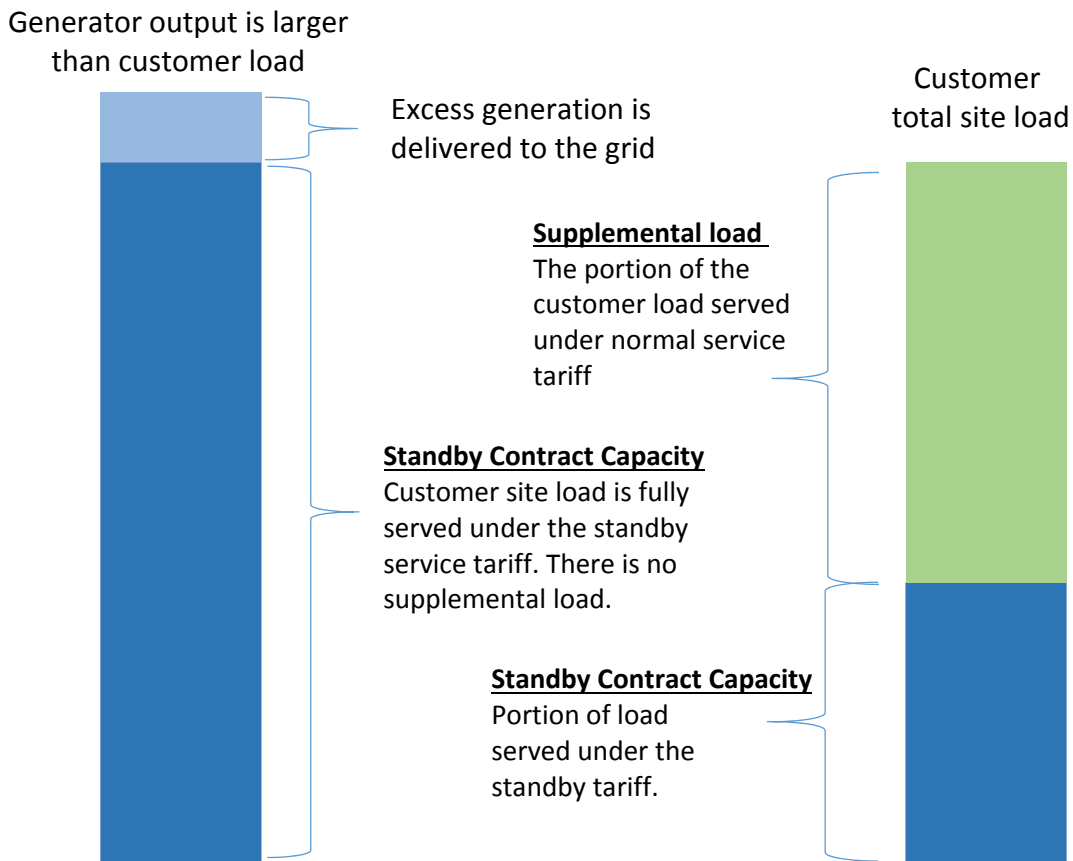
Current Standby Service Tariffs

This section of the report focuses on how the Consumers Energy and DTE standby service tariffs function. Both utilities made presentations to the SRWG describing their tariffs and showed several examples.⁸ Each company's current tariff will be described below.

For both utilities, customers taking standby service would utilize the standby service tariff for the portion of their load that could be met by their generator (standby contract capacity) and remain on their normal service tariff for meeting any remaining requirement (supplemental service). For self-generation projects where the output of the generator is designed to be larger than the customer's load, all of the customer's load would be served according to the standby tariff. *Figure 1* below illustrates the split between standby contract capacity and supplemental service.

⁸ See presentations shown on March 14, 2016 agenda: http://www.michigan.gov/mpsc/0,4639,7-159-16377_47107-376753--,00.html

Figure 1: Standby Service Tariff Scenarios



It is a common misconception that taking service under a standby tariff will cause customers to pay more than if they had remained on their normal service tariff and simply reduced their load by using their on-site generation behind the meter. This may be true in some cases for customers on energy-only rates, however, customers on demand-based rates with generators that operate nearly continuously would benefit from standby rates. During the course of the SRWG process, analysis of both companies' standby service tariffs showed that customers usually paid no more than the normal tariff charges and in most cases, paid less.

DTE's standby rate tariff is called Rider 3. The company explained that Rider 3 charges are capped at the amount customers would have paid if they had taken service on their normal tariff.

Customers taking service on Consumers Energy's General Self-Generation Tariff GSG-2, also typically would pay less than if they had taken all service on their normal tariff. Consumers Energy's tariff has no reservation charge and power supply capacity and energy charges are less than the General Primary Demand rate and the delivery charges are the same.

Simplified and abbreviated frameworks for both utilities' standby rate tariffs are discussed below. The descriptions are intended to provide a basic explanation and illustrate how these tariffs work. In particular, DTE's standby tariff contains a number of criteria that will impact the billing calculation. The actual current tariffs should always be consulted for analysis and decision-making purposes.

Consumers Energy

Consumers Energy customers with self-generation projects that are less than 550 kW (and not on a net metering tariff) do not take service under a standby tariff and service is provided according to the Self-Generation Provision (SG) which is included on each individual rate schedule. Under this provision, customers are charged according to their normal service rate for energy delivered by the company and receive MISO Locational Marginal Prices (LMP) for energy they export to the grid (less an administrative fee).⁹

Customers with larger generators (greater than 550 kW) take service under the Company's standby rate tariff called General Service Self Generation Rate (GSG-2). Customers with internal loads greater than their self-generation capacity may take service under a combination of their normal firm rate and the GSG-2 standby rate. The rates for delivery under the GSG-2 rate schedule are set at the same delivery demand rates on the General Service Primary Demand Rate (GPD) rate schedule. Generally, GPD is available to customers taking primary voltage service where the on-peak billing demand is 25 kW or more.

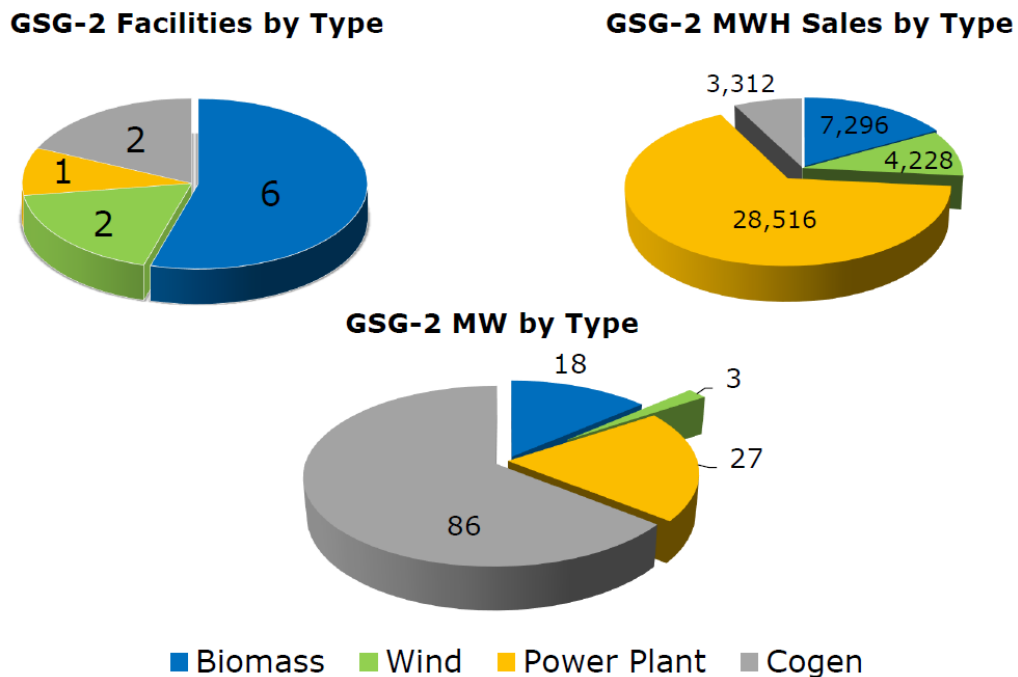
⁹ Consumers Energy currently does not have customers taking service under the Self-Generation Provision.

Consumers Energy reported that there were eight customers taking service under GSG-2 in 2015 and the average cost of electricity provided to those customers was 6.87 cents per kWh.

Figure 2 shows the GSG-2 summary data presented by the company.

Figure 2: GSG-2 Summary Data

GSG-2 Customers, MWH and MW



General Self Generation Rate GSG-2¹⁰

Power Supply Charges:

- Standby energy supplied by Consumers Energy is priced at the LMP at the company’s load node plus a settlement fee of \$0.002 per kilowatt-hour. (During the time period of July 2015 through June 2016, MISO Michigan Hub monthly on-peak prices ranged from \$0.035 per kilowatt-hour to \$0.024 per kilowatt-hour and off-peak prices ranged from \$0.025 per kilowatt-hour to \$0.019 per kilowatt-hour.) An unplanned outage or planned outage without proper notification to the company that occurs during the summer months will result in a 10% adder to the LMP.
- On-peak capacity charge is charged each month based on the highest kW demand during

¹⁰ Rate information is summarized from Consumers Energy’s March 14, 2016 presentation and the GSG-2 rate schedule.

that month for standby service provided. The on-peak charge is based on the \$/kW charge of the company's highest contracted capacity for the month (prorated based on the ratio of the number of on-peak periods where standby service was taken during the month and the total number of on-peak days in the month) and includes allocated transmission costs. (The schedule of 2016 on-peak capacity charges ranges from the lowest cost of \$10.64 per kilowatt for April to \$15.23 per kilowatt in August.) On-peak hours are those hours between 11 a.m. - 7 p.m. each day, Monday through Friday, excluding holidays.

- There is no Monthly Generation Reservation Fee

Delivery Charges:

- Monthly system access charge \$100 (\$200 where the generator meets or exceeds load).
- Capacity demand charge per kilowatt of standby demand (same rates as GPD). The standby demand is the contracted standby capacity. The standby demand would only change if the contracted standby capacity changed or if the customer's actual standby demand exceeded the contracted level, which would establish a new contracted standby capacity level.
- The rate varies from \$4.05 per kilowatt to \$0.62 per kilowatt according to the voltage level of service, which is set at an equivalent rate to GDP.

The tariff does not differentiate between backup or maintenance service.

Definitions

"Standby" service is defined as that electric service used in place of the customer's generation other than company supplied firm service.

"Standby Capacity" is defined as the contracted kilowatt capacity the company is expected to provide to the customer due to an outage of the customer's generating unit(s). The standby capacity shall not exceed the generator's capability as designated in the interconnection agreement and as determined by the company.

"Standby Demand" is the contracted standby capacity.

Table 1 summarizes standby tariff calculations presented by Consumers Energy and shows MPSC Staff's calculation of the "value" of their on-site generation by dividing the bill reduction due to the customer's generation (and includes any sales of generation to the company) by the total number of kilowatt hours generated.

Table 1: Summary of Consumers Energy Standby Service Tariff Example Calculations					
Customer Type	Customer Peak Demand & Annual kWh	Type of Generation	Annual Bill With Generator & Standby Tariff	Annual Bill Without Generator	Bill Reduction \$ Divided by Total Generation \$ per kWh
Large Industrial	7 MW 44,623,000 kWh	3.5 MW CHP 90% Capacity Factor 27,594,000 kWh	\$1,489,000	\$3,128,000	\$0.059/kWh
Large Commercial	1 MW 5,889,000 kWh	3.0 MW Solar 3,416,000 kWh (used on site & sold) 1,503,000 kWh sales @ \$0.029 per kWh	\$300,000	\$503,000	\$0.059/kWh
Large Commercial	1 MW 5,889,000 kWh	0.45 MW CHP 90% Capacity Factor 3,548,000 kWh	\$259,000	\$503,000	\$0.069/kWh

DTE

DTE customers who generate all or some of their own power must take standby service under Standard Contract Rider No. 3¹¹ subject to the following exemptions: Rider 13 – Dispersed Generation, Rider 16 – Net Metering, Rider DG – Distributed Generation (generator size limited to 100 kW), and regenerative dynamometers.¹² There are approximately 45 customers taking service

¹¹ See DTE Ratebook (search using Rider 3): <http://www.dleg.state.mi.us/mpsc/electric/ratebooks/dtee/dtee1cur.pdf>

¹² Regenerative dynamometers are used in the automotive industry for vehicle testing and analysis. Regenerative AC drives provide the AC Dynamometer with the ability to both absorb power and supply power to the vehicle being tested. The term regenerative describes the ability of the motor to convert the mechanical energy of vehicle under braking conditions into electrical energy which is returned (or regenerated) to the AC power source. Regenerative drives can —

under Rider 3. The power supply demand charge is capped at the Rate D11 power supply demand charge and the energy and delivery charges are the same as Rate D11. However, the rider includes different rate provisions for customers on rate schedules other than Rate D11. Rate D11 is available to customers desiring service at primary, sub-transmission, or transmission voltage who contract for a specified capacity of not less than 50 kilowatts at a single location. **Figure 3** shows a summary of customers taking service under DTE’s standby tariff.

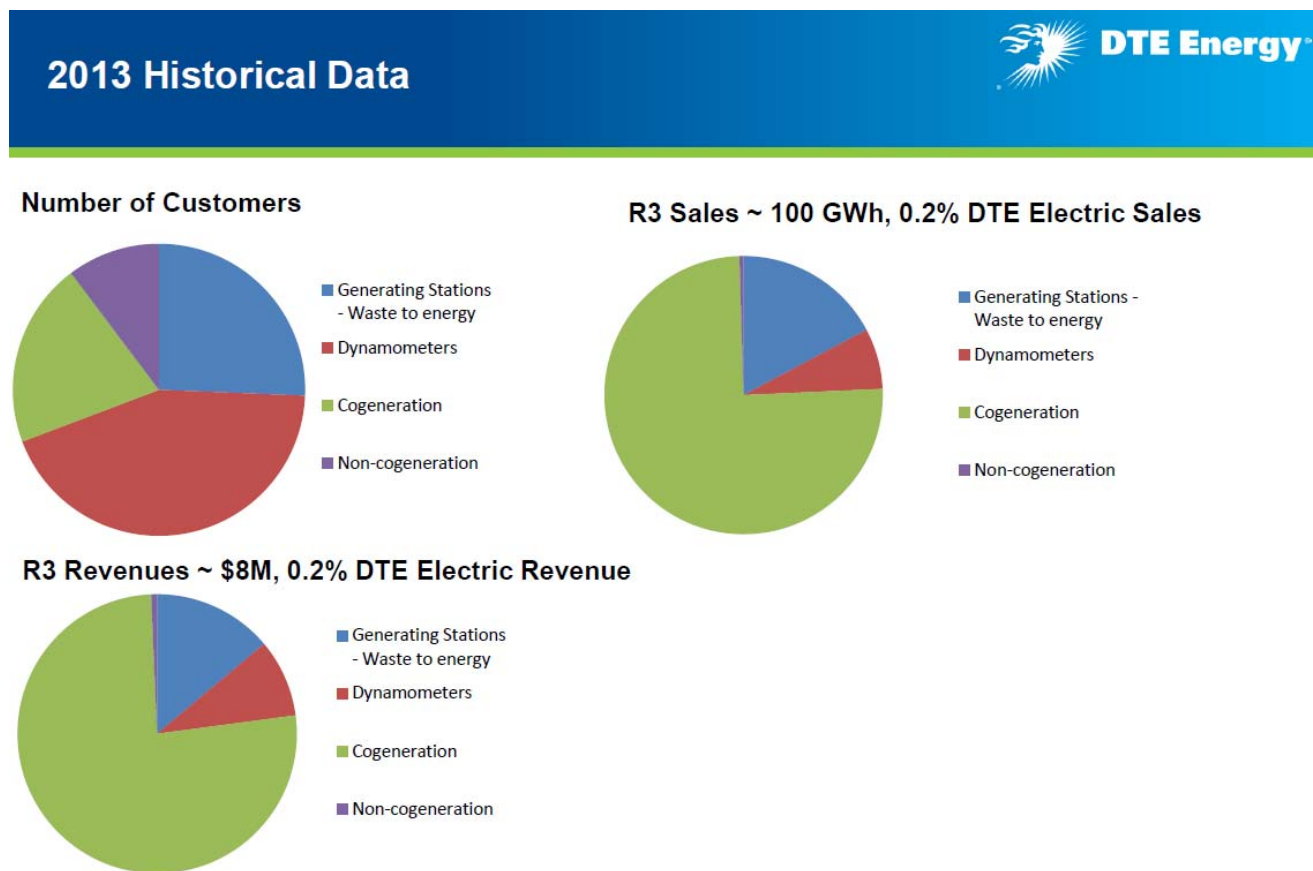


Figure 3 – Rider 3 Summary Data

Standby Service Rate – Rider 3

Power Supply charges:

- The Demand Charge is the greater of:
Monthly Generation Reservation Fee - \$1.75/kW of Standby Contract Capacity, per month.
or
Daily Demand (Standby Power) - \$4.67/kW on-peak per day + Daily Maintenance Demand - \$2.60/kW on-peak per day capped at \$14.65/kW which is the monthly power supply demand charge on Rate Schedule D11. The power supply demand charge for back-up and maintenance power will be charged based on standby contract capacity less the output toward internal load of the customer's generator, but not less than zero.
- Energy Charge:
Customers taking service on energy only rate schedules (D3, D3.2, D3.3), the energy charge will be the same as the normal rate schedule.
Customers taking service on supplemental rate schedules D4, D11, D6.2 and D8, the energy charge will be the D11 on-peak power supply energy charge, 3.807¢ per kWh, plus appropriate power supply credits.

Delivery Charges:

- Service Charge:
\$275 per customer per month for customers served at primary voltage.
\$375 per customer per month for customers served above primary voltage.
\$ 95 per customer per month for customers served at secondary voltages.
- The Distribution Demand Charge ranges from \$3.38 to \$0.88 per kW of standby contract capacity according to the service voltage and are the same as Rate D11.
For service provided in conjunction with a secondary voltage base rate the Delivery Charge will be the greater of \$8.97 per kW applied to standby contract capacity or 3.589¢/kWh applied to all standby energy delivered.

Interruptible Standby Service: Rider 3 provides for interruptible standby service if the customer's supplemental rate schedule is an interruptible rate schedule.

Definitions

“On-Peak Hours” are those hours between 11 a.m. -7 p.m. each day, Monday through Friday, legal holidays excluded.

“Standby Contract Capacity” may be determined according to several methods. DTE applies the method that best determines the electric capacity sufficient to meet the customer's standby load.

Methods:

1. For baseload generators (ie: CHP)
 - Calendar months June through October: the 1001st highest half-hourly kW output toward internal load (simultaneous output of all units less excess generation flowing back through the interconnection) during those billing months that include periods

from those calendar months during the latest 12-month period.

- Remaining calendar months: determined in a similar manner as explained above.

The standby contract capacity will be adjusted on an ongoing basis reflecting the current month and the preceding eleven months.

2. If the customer's generating units are operated with the intent to provide energy to the system and standby is only required for site load during outages the standby contract capacity will be set at the maximum half-hourly demand provided to the facility. For customers with units that do not operate in parallel with the system but have the ability to connect load normally served by unmetered on site generation to the system during generation outages, (throw over standby), the standby contract capacity will be set at the maximum metered half-hourly demand thrown over to the system and supplemental demand will be the metered inflow less the metered throw over load.
3. For customers demonstrating unusual operating conditions, including but not limited to initial unit operation, unpredictable generation from renewable resource units or generation that follows thermal load and prolonged periods with no generation, standby contract capacity may be set by mutual agreement of the company and the customer to levels sufficient to meet the customer's standby load.

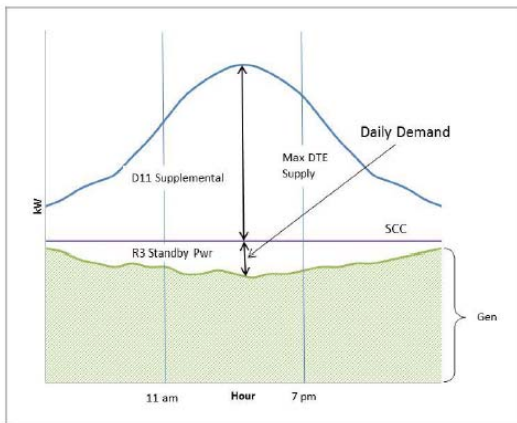
“Maintenance Day” is a calendar 24 hour day that meets timing request criteria detailed in the Rider 3 tariff and agreed to by DTE. A customer may be able to utilize up to 20 on-peak days during a year as maintenance days.

“Output Toward Internal Load” is equal to the output of the generator less excess generation flowing back through the interconnection to DTE.

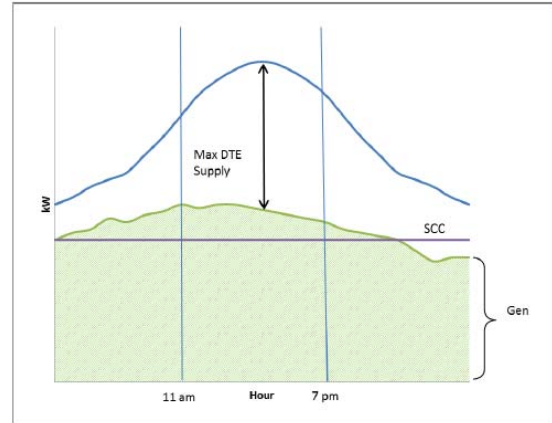
Figure 4 illustrates the basis for determining standby capacity charges for demand rates.

Figure 4:

Standby Capacity Charges for Demand Rates



Daily demands are determined based on the daily standby demand coincident with the highest 30-minute on-peak DTE Supply demand. Daily Demand is reduced if supplemental demand is less than the maximum monthly on-peak supplemental demand



A customer that operates their generator consistently at or above SCC during on-peak periods will pay the generation reservation fee (i.e. the minimum capacity charge of \$1.75/kW/month)

Table 2 summarizes standby tariff calculations presented by DTE and shows MPSC Staff's calculation of the "value" of on-site generation by dividing the bill reduction due to the customer's generation by the total number of kilowatt hours generated.

Table 2: Summary of DTE Rider 3 Example Calculations

Customer Type	Customer Peak Demand & Annual kWh	Type of Generation	Annual Bill With Generator & Rider 3 Rate	Annual Bill Without Generator	Bill Reduction \$ Divided by Total Generation \$ per kWh
Large Industrial	8 MW 51,544,000 kWh	5 MW CHP 30,926,400 kWh	\$1,756,000	\$3,280,000	\$0.049/kWh
Large Commercial	1 MW 3,917,000 kWh	850 kW Solar 861,740 kWh	\$290,000	\$318,000	\$0.032/kWh
Large Commercial	1 MW 3,917,000 kWh	282 kW CHP 2,350,200 kWh	\$183,000	\$318,000	\$0.057/kWh

SRWG – Meeting Presentations

The introductory meeting for the SRWG was held on January 20, 2016. Presentations were made by MPSC Staff regarding the relevant Commission orders and the schedule of the group, Michigan Agency for Energy Staff with regards to a CHP initiative, and by Dr. Amad Faruqui of the Brattle Group. Dr. Faruqui’s presentation was on the history of and development of standby tariffs and the common arguments surrounding standby tariffs. At the conclusion of the meeting, the SRWG decided that the second meeting would focus on the current standby tariffs of

Consumers Energy and DTE.

At the second meeting, Consumers Energy and DTE presented background on their standby tariffs. All presentations are available on the SRWG website.¹³ One key comment was that the bill calculations were performed on an annual basis, but the SRWG is accustomed to monthly bills and this made the comparison with the monthly rate schedules difficult. The utilities provided updated information to address those concerns.

The third meeting focused on the valuation and rates for capacity. The arguments for different methods of pricing capacity closely mirrored the statements that were made during the PURPA working group about capacity.¹⁴ They included, but were not limited to, highest cost capacity contracted by the utility during the month, proxy methods, cost of new entry (CONE), embedded cost, and market value. There was no general agreement on the appropriate price for capacity.

The fourth meeting of the SRWG dealt with energy and distribution. By contrast, these topics generated the least discussion. No new ideas or proposals were put forward with regard to these topics and there was no criticism of the current utility tariffs in this regard. Cost of service for distribution was mentioned, however, the changes proposed would go beyond the standby tariff to distribution expense recovery and would likely affect all customers.

There were four speakers at the fifth SRWG meeting. Rob Rafson of ChartHouse Energy, Jim Dauphinais of Brubaker and Associates, representing ABATE, Rob Ozar of MPSC Staff, and Douglas Jester of 5 Lakes Energy. Among the suggestions made by SRWG participants were eliminating standby tariffs, modifying the cost for capacity, modifying the number of generator outages before the monthly standby costs escalate to the full requirements tariff, and providing a demonstration that if a generator offsets a significant amount of line loss then a negative standby

¹³ http://www.michigan.gov/mpsc/0,4639,7-159-16377_47107-376753--,00.html

¹⁴ <http://efile.mpsc.state.mi.us/efile/docs/17973/0004.pdf>

charge may actually be appropriate. Market based proposals and taking advantage of time of use rates for energy and capacity were also highlighted.

At the sixth and final meeting, Staff presented an alternate proposal for consideration by the group. The key features were making the standby tariff voluntary (for all types of self-generation), but requiring that customers be on a demand or demand plus time-of-use rate. The only reason self-generation customers with a baseload-type, high reliability generators, would want to be on a standby tariff is because that tariff would reduce their electric bill over the full requirements tariff. Additional comments about the process were taken at the final meeting.

Standby Service Tariff Discussion

Background

The existing standby service tariffs were designed at a time when baseload generators with high reliability factors were the norm. During the course of the SRWG, it became clear that the purpose of the Consumers Energy and DTE standby service tariffs are to (1) Recover appropriate costs for power supply and incorporate a mechanism for daily demand charges so that a single generation outage does not trigger the full monthly power supply demand charge, and (2) Recover full delivery (distribution system) costs for the portion of customer load that is served by the generator. There is increasing interest in projects with intermittent generation such as solar. The current standby service tariff design may not be the most appropriate rate design for solar self-generation projects.

A fresh look at the existing tariffs with a focus on solar is needed at this time. To date, Staff has focused its SRWG analysis efforts on developing a proposal that is more oriented towards solar. However, the SRWG is interested in continuing its efforts and examining the rates with CHP in mind. A supplemental report will be released at a later date that addresses CHP.

What Standby Service is Not

Standby service is neither net metering nor a lost revenue recovery mechanism for the utility to recovery all of the lost revenue due to customer's generators.

Net metering allows customers to offset purchases from the utility by using their generation behind the meter and receive a credit equal to the volumetric portion of the full retail rate. Some customers who install self-generation projects may expect this type of rate treatment. The limitations of net metering are defined in Michigan by statute and not all customers with self-generation projects are eligible.

A customer's self-generation project results in a decrease in sales between the utility and that customer. A lost revenue recovery mechanism would be designed such that the utility would recover all the revenue from the lost sales from that customer. Standby tariffs can look to the customer like a way to recover all of the lost revenue, although this is not the purpose of an appropriately designed standby tariff. The purpose is to cover the costs of the service provided to the customer.

Standby Tariff Perception

Standby tariffs may seem confusing to customers who are not familiar with utility rate schedules. Some standby tariffs may rely on LMP prices or other variable prices that are not shown on the tariff since these prices are not known in advance. The number of customers taking service on a standby tariff is small and within the utility and MPSC Staff there are a limited number of people with specialized knowledge. Some customers and developers believe that standby charges are arbitrary or that standby is a barrier to distributed generation. Due to the complexity of standby tariffs, it is difficult to demonstrate that the tariffs are non-arbitrary and based on cost-of-service principles.

A lack of understanding of standby tariffs can contribute to confusion during the planning phases of self-generation projects. This may be particularly true for customers interested in solar

projects, because Michigan has very few large solar self-generation projects. In some cases, non-utility solar project planners have not had the opportunities to develop expertise in complex utility rates. A solar project planner may find it difficult to calculate the potential utility bill reduction when analyzing the project economics.

Solar PV Cost of Service Considerations– High Level Analysis

There is currently only one standby rate customer with a solar generation project in Michigan. To begin considering the costs to provide standby service to customers with solar generation, Staff worked with Consumers Energy and DTE to obtain an “average” industrial customer annual hourly data set. Hourly data for Consumers Energy’s total industrial class was normalized to develop a load profile for a 1 MW customer. Hourly data from Delta College’s solar PV project was also normalized and then used to obtain annual, hourly data for several size solar projects. The customer load and solar generation data were used to make bill calculations for Consumers Energy’s GPD, GP Time of Use (TOU) and DTE’s D11 rate schedules – both with various size solar projects and without. The results are shown in *Table 3*. The “value” of the solar generation is estimated by dividing the total annual bill reduction by the total solar generation. The “value” of the solar generation increases as the solar project size decreases, because using the generation behind the meter to offset purchases from the utility is more cost effective. Installing a larger project that results in some of the generation being exported and sold to the utility at the LMP is usually less valuable than offsetting the customer’s tariff rate.

The bill reduction numbers shown on *Table 3* show bill reductions for all scenarios evaluated, however, Consumers Energy’s GPTOU rate is the most favorable to the solar self-generation customer. Increasing interest nationally and among SRWG participants indicate that time of use rates are becoming more popular and may be the preferred choice for customers with solar self-generation.

Solar generation, no matter what size solar PV project is modeled, does not significantly change the delivery demand payments as shown in *Figures 5 and 6*.¹⁵ An industrial customer with a 1 MW peak load is able to reduce delivery demand payments by 10% on Consumers Energy's Rate GPD and 16% on DTE's Rate D11 by installing a self-generation solar project that generates more than twice the customer's annual load (this is an extreme example to illustrate the point). On these tariffs, delivery demand charges are calculated using the maximum demand over a rolling, one-year period. If the solar project has an outage while the customer's load is at or near peak demand, a new maximum demand level will be set and it will take another year of reliable solar operation (or longer) to reduce the delivery demand charges. These two factors (limited ability to reduce delivery payments with solar and the rolling one-year maximum demand), contribute to maintaining the customer delivery payments at or very near the cost of service when the solar self-generation customer stays on the normal service tariff.

¹⁵ Staff's bill calculations were made using hourly load and generation data which spreads out generation more evenly and lessens peaks. Staff suspects that repeating the bill calculations using sub-hourly data (the actual time periods used to calculate utility bills) will show less reduction in demand based charges.

Table 3: Preliminary Bill Calculations, with and without Solar

Preliminary Analysis										
Annual Bill Calculations for a 1 MW Industrial Customer w/Several Solar PV Project Sizes										
	GP TOU			GPD			D11			GSG-2
Bill w/o Solar										
Solar PV Project	Bill Reduction \$	Excess Sales @ \$0.04/kWh \$	Total \$ Divided by kWh Solar Generation	Bill Reduction \$	Excess Sales @ \$0.04/kWh \$	Total \$ Divided by kWh Solar Generation	Bill Reduction \$	Excess Sales @ \$0.04/kWh \$	Total \$ Divided by kWh Solar Generation	Bill Reduction GPD to GSG-2 \$
300 kW	35,978	-	0.081	33,777	-	0.076	30,089	-	0.067	
750 kW	89,450	296	0.080	67,776	296	0.061	60,472	296	0.054	
1,000 kW	114,622	3,098	0.079	81,835	3,098	0.057	73,223	3,098	0.051	190,187
10,000 kW	224,737	483,810	0.048	143,838	483,810	0.042	141,298	483,810	0.042	243,412

Data calculated using current tariffs, hourly industrial class averaged load data from Consumers Energy, solar data from the Delta College project. This is a high level analysis and does not include the PSCR factor, surcharges, and substation ownership credits. Only basic tariff info was used to calculate the example bills.

Figure 5: Consumers Energy, Change in Annual Capacity and Delivery Demand Payments with Varying Sized Solar Projects, Rate GPD

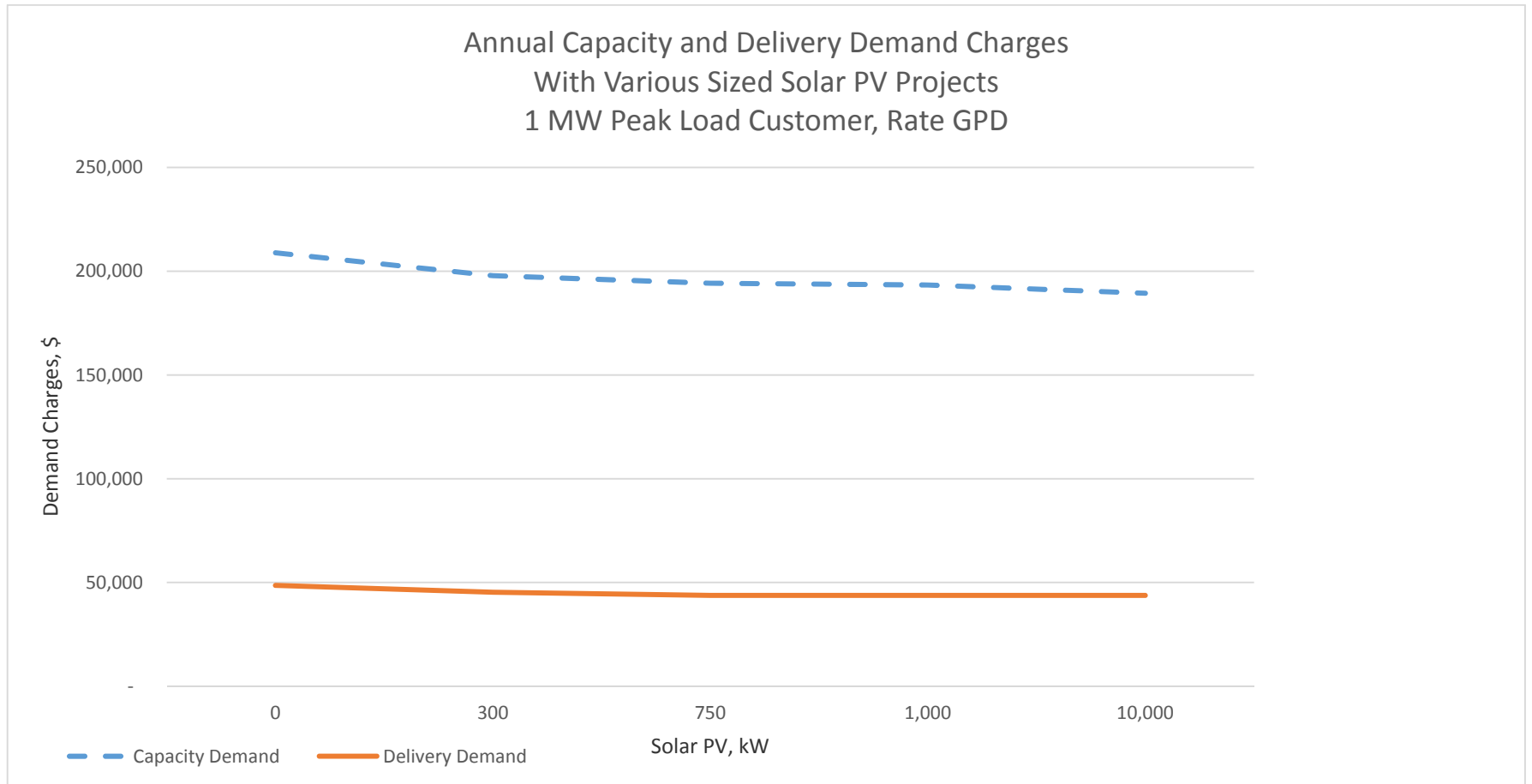
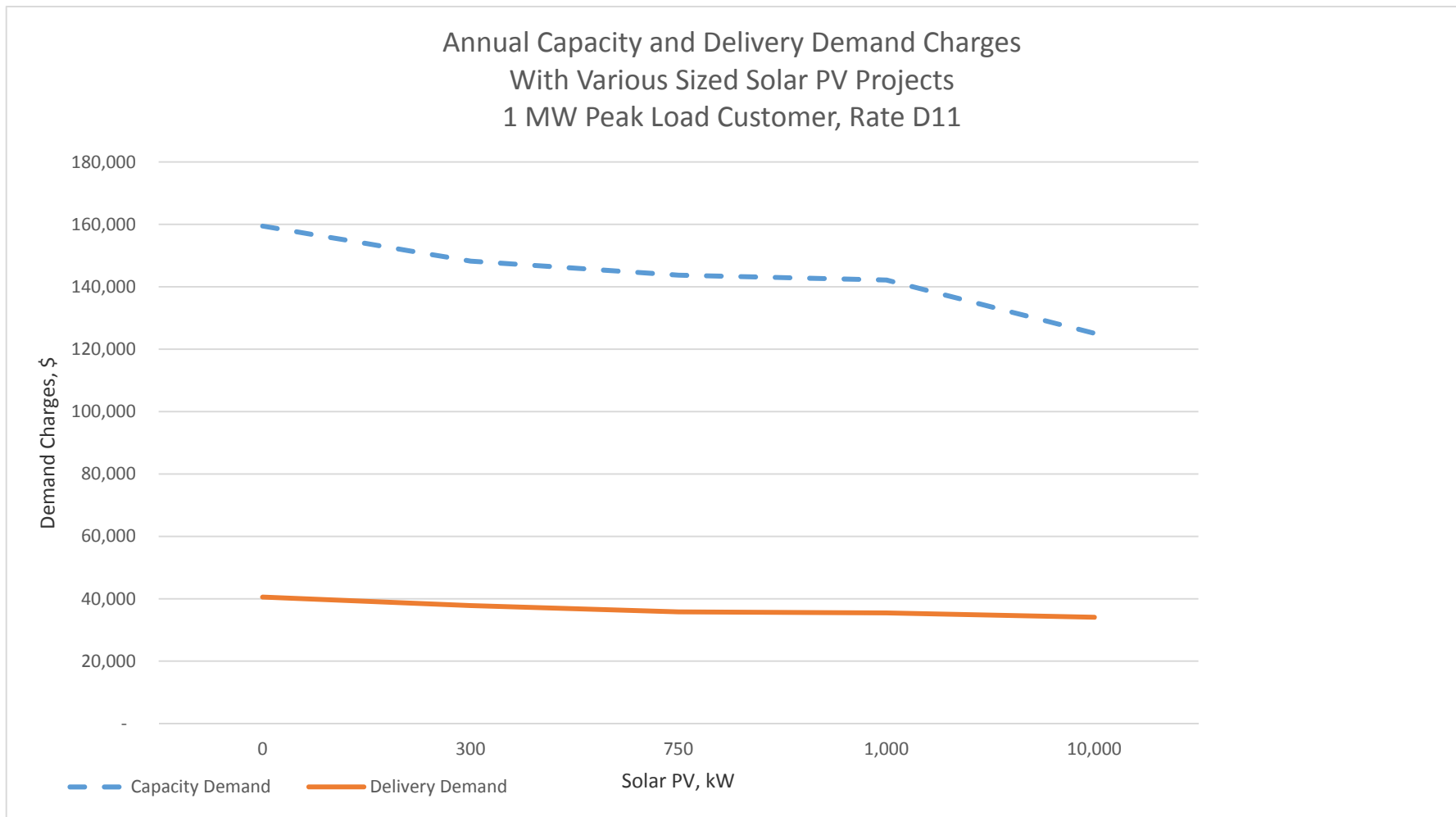


Figure 6: DTE, Change in Annual Capacity and Delivery Demand Payments with Varying Sized Solar Projects, Rate D11



Staff Solar PV Standby Proposal

The preliminary analysis completed by Staff as part of the SRWG activities indicates that it is not necessary for non-residential, self-generation solar projects to take service under a standby service tariff provided the normal service tariff incorporates a delivery demand charge and either a power supply demand charge or accurate time of use rates.

A high-reliability, baseload-type generator will almost always experience a bill reduction by taking standby service under a tariff with daily or prorated power supply demand charges. However, because of the intermittent nature of solar generation, the customer will utilize on-peak power every on-peak day and the bill reduction advantage of daily or prorated power supply demand charges on the standby service tariff is not realized. Therefore, in regard to power supply demand charges, standby service offers no cost-saving benefit to a solar self-generation customer. The utility must maintain some level of capacity to back up the customer's solar project if it is not able to generate during on-peak periods. The cost for this service is sometimes recovered using a standby generation reservation fee. Factoring in line loss benefits based on the location of the solar project on the distribution system, generator diversity and the generation profile of solar, indicates a standby reservation fee may not be justified.

The existing standby service tariffs are designed so that the utility collects delivery charges based on the standby contract capacity (the part of the customer's load that is expected to be served by the customer's generator) to ensure that self-generation customers make their cost of service based contribution to the utility's distribution system. The billing calculations (highlighted in **Figures 5 and 6**) show that the "average" industrial customer with solar is unable to significantly reduce delivery payments. Staff supports customers with solar generation taking service under a normal service tariff with a time of use or power supply demand charge, volumetric energy charge and a delivery demand charge.

In an order issued on June 15, 2015 in Case No. U-17689, the Commission ordered DTE to establish time of use and dynamic peak pricing rates by January 1, 2016 for customers who have had AMI for at least a year, on an opt-in basis. Similarly, on June 30, 2015 in Case No. U-17688, Consumers Energy was directed to have these rates available by January 1, 2017. More bill calculations using sub-hourly data and these new time of use and dynamic pricing rates is recommended.

Remaining on the customer's normal service tariff, provided it meets the above criteria for demand and/or time of use charges, simplifies the customer experience and, as our preliminary analysis indicates, sends the correct cost of service price signals.

Next Steps

Standby service tariff design that incorporates cost of service principles is an extremely complicated undertaking. Policy, statute, and long-held tariff principles can all play an integral part in developing a well-designed tariff. Staff primarily focused on tariff analysis with respect to solar which has the operational characteristic of being intermittent. Staff recommends that non-residential customers with self-generation solar projects take all service under a normal service tariff that includes a demand charge for delivery charges and either a time of use rate or demand charge for power supply.

The SRWG discussed how the current standby service tariffs function, reviewed example calculations and heard presentations on new concepts for standby service tariffs and modifications for the current standby service tariffs. Some participants in the SRWG have asked for additional time to do a more in-depth analysis of the cost to provide standby service to customers with CHP and other generators with baseload operating characteristics. Staff agrees that more work is needed in this area. A supplemental report will highlight the SRWG's findings related to non-intermittent standby service tariff design and update its solar standby recommendations if needed. The target

date for issuing the supplemental report is December 16, 2016.

Staff would like to commend the participants in the SRWG. This process has been very informative for all parties and has provided Staff and others with a much deeper understanding of the various rationale for standby service tariff components. This has provided a basis for future tariff improvement in light of ever-changing energy markets and economic conditions. The energy industry is constantly evolving as new technology matures and it is paramount that tariffs are continuously reviewed for potentially necessary changes to reflect these dynamics. Participants in the SRWG have open-mindedly embraced this fact and graciously committed their time. Staff looks forward to our continued work together on these issues.