

Standby Service Recommendations for Large CHP Customers

**Michigan Public Service Commission
*Standby Workgroup***

June 16, 2016

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On behalf of:

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Overview

- Background on ABATE and BAI
- Combined Heat and Power (CHP) Standby Service
- General COS Principles for CHP Standby Service
- Standby Service Sourcing Approaches for Utilities
- Model Generation and Transmission (G&T) Rate Design for Utility Wholesale Market Sourced Standby Service
- Model G&T Rate Design for Utility Generation Fleet Sourced Standby Service
- Recommendations for Consumers Rate GSG-2
- Recommendations for DTE Rider R3
- Questions



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ABATE and BAI

- ABATE
 - Longstanding organization of large industrial customers in Michigan
 - A number of ABATE members either have CHP facilities or are contemplating the addition of such facilities
 - ABATE strongly supports rate design based on cost of service principles
- BAI
 - Energy, Economic and Regulatory Consultants
 - Active throughout the country in providing expert testimony in energy, economic and regulatory matters before FERC and before state regulatory bodies in both regulated and deregulated states
 - For over thirty years have provided such testimony in proceedings before the MPSC
 - BAI is the author of the February 2014 RAP Report “Standby Rates for Combined Heat and Power Systems”

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CHP Standby Service

- Focus of presentation is on large (> 1 MW) CHP Backup and Maintenance Service
- Rates for this service may be applicable to other types of customer generation depending on its output, outage and maintenance characteristics
- However, any modifications CHP standby service rates to make them applicable to other types of customer generation must not lead to CHP standby customers subsidizing the standby service provided to other types of customer generation
- In light of the forgoing, if there are major differences in characteristics, a separate standby rate may be warranted for certain types of customer generation

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General COS Principle for CHP Backup and Maintenance Service

- Must recognize the high availability of CHP generation and the ability to coordinate its maintenance outages
- As FERC's PURPA Rules require, rates for sales of backup or maintenance power:
 - (1) shall not be based upon an assumption (unless supported by factual data) that forced outages or other reductions in electric output by all qualifying facilities on an electric utility's system will occur simultaneously, or during a 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 the scheduled outages of the utility's facilities
- This is a sound cost of service principle for standby service for CHP in general, not just for qualifying facilities



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Standby Service Cost Allocation

Costs Driven by Aggregate System Demand

- Principally fixed generation and transmission costs
- Two methods
 - Direct Method
 - Expected Value Method



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Direct Method

- Charges based on customer's actual backup or maintenance service demand at the time of the system peak(s) (relevant CPs)
- No outage during the system peak(s), no charges
- The charges inherently average over time to the forced outage rate of customer

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Expected Value Method

- Reservation charge based on forced outage rate of best performing customer
 - Ensures best performing customer is not subsidizing poorer performing customers
- For forced outages, a daily backup demand charge based on actual backup service demand
 - Pro-rated from normal monthly demand charge
- For maintenance outages, a daily maintenance service demand charge discounted from the daily backup demand charge
 - Maintenance outages must be scheduled

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Standby Service Sourcing Approaches for Utilities

- Generation Fleet
 - Expected backup service demand at the system peak(s) is included in the utility's long-term resource planning
 - Generation-related demand and energy charges: the average embedded fixed and variable costs of utility's generation fleet as supplemented by the wholesale market
- Wholesale Market
 - Expected backup service demand at the system peak(s) is only included in the utility's near-term resource planning
 - Utility acquires the necessary capacity and energy from the wholesale market as needed – it does not construct or acquire resources to provide the service
 - Generation-related demand and energy charges: Spot capacity and energy purchases from the wholesale market

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Standby Service Sourcing Approaches for Utilities (Cont'd)

- If the rate is properly designed
 - Both approaches are cost of service based
 - Neither approach will cause subsidies between standby and non-standby customers
- Consumers Rate GSG-2 uses the Wholesale Market approach
- DTE Rider R3 formerly offered the customer either approach, but currently only offers the Generation Fleet approach

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Standby Service Sourcing Options for Utilities (Cont'd)

- **ABATE Recommendation**
 - Utilities be required to at least offer their CHP customers the option of the Wholesale Market approach
 - There is not a need for utilities to include the provision of backup and maintenance service to CHP in their long-term resource planning
 - Backup and maintenance service for CHP has a very low annual load factor (commonly 5% or less)
 - Long-term utility resource plans are designed for a load factor of 50%+
 - As a result those long-term plans include base load and intermediate generation that is unnecessary for the provision of backup and maintenance service



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Model G&T Rate Design for Utility Wholesale Market Sourced Standby Service

- Monthly Reservation charge based on one day at the Regional Transmission Organization (RTO) per MW-day capacity auction clearing price (grossed up for planning reserve margin and losses)
- Daily Backup Demand Charge equal to the per MW-day RTO capacity auction clearing price (grossed up for planning reserve margin and losses) applied to actual daily backup demand for each forced outage or derate day in a month (beyond the first)
- Daily Maintenance Demand charge equal to 50% of the Daily Backup Demand Charge applied to actual daily maintenance demand for each scheduled outage day
- Direct pass-through of RTO transmission charges based on customer's actual backup demand at the hour of the monthly system peak
- Backup and Maintenance energy priced at Locational Marginal Price (plus other relevant RTO energy market settlement charges)



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Notes on Model Wholesale Market Approach

- Reservation charge is based on best performing customer having one outage day a month
 - MISO GADS CCGT Class Average EFORd = 3.6%
 - One day is 3.2% to 3.6% of month
 - Two days would unreasonably be 6.5% to 7.1% of month
- Daily demand charge is not limited to on-peak period because the RTO capacity charge is a uniform calendar day charge
- Not limiting the demand charge to the on-peak period requires recognition that first forced outage or derate day is pre-paid
- An on-peak demand charge alternative to all of the above would be to use 1/28th (for reservation) and 1/20th (for on-peak backup demand) of 30.5 days worth of RTO charges

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Model G&T Rate Design for Utility Generation Fleet Sourced Standby Service

- Monthly Reservation charge based on 1/28th (3.6%) the normally applicable generation demand charge, but with the latter adjusted to exclude base load and intermediate generation
- On-peak Daily Backup Demand Charge equal to 1/20th the normally applicable demand charge (as adjusted above) applied to actual on-peak daily backup demand for each forced outage or derate in a month
- On-peak Daily Maintenance Demand charge equal to 50% of the Daily Backup Demand Charge applied to actual on-peak daily maintenance demand for each scheduled outage
- Direct pass-through of RTO transmission charges based on customer's actual backup demand at the hour of the monthly system peak
- Backup and Maintenance energy priced at Locational Marginal Price (plus other relevant RTO energy market settlement charges)

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Notes on Model Generation Fleet Approach

- The Generation Reservation charge is based on best performing customer having one outage day per month
 - MISO GADS CCGT Class Average EFORd = 3.6%
 - $1/28^{\text{th}} = 3.6\%$
- The On-peak Daily Demand charges are based on 20 on-peak days a month



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Model Generation Fleet Approach Additional Important Note

- If base load and intermediate generation costs are not removed from the normally applicable demand charge when developing the standby generation reservation and demand charges:
 - The energy price for backup and maintenance power should instead be set to the energy charge that would be applicable to the customer under normal service because the customer will be paying for the fixed costs of the utility's base load and intermediate generation



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A Final Note with Respect to Reservation and Daily Demand Charges

- Reservation charges should be applied to maximum potential backup and maintenance demand
- Many CHP customers have processes that cannot operate when their CHP generation is down
- Therefore, the maximum potential backup and maintenance demand should be set based on the generation not available during an outage less the load that will not be available during that same outage
- In addition, care should be taken to ensure daily demand charges are not accidentally applied to supplemental service demand due to this phenomenon
- Applies to both the Wholesale Market approach and the Generation Fleet approach



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Recommendations for Consumers Rate GSG-2

- The Wholesale Market approach should be retained, but with the following modifications:
 - The current Power Supply Standby demand charge based on the highest contracted capacity and allocated transmission and ancillaries should be replaced with the monthly reservation, daily backup demand, daily maintenance demand and transmission charges of the Model Wholesale Market approach rate design we presented today
 - The current GSG-2 power supply demand charge requires a customer with only one on-peak forced outage day to pay 100% (rather than 5%) of the monthly demand charge inconsistent with FERC's PURPA rules for backup and maintenance service
 - Consumers has revealed in discovery in U-17790 that it is basing the demand charge on its Palisades nuclear plant Purchased Power Agreement (PPA), which inappropriately assigns the cost of a base load PPA to the provision of backup and maintenance service



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Recommendations for DTE Rider R3

- The Wholesale Market approach should be restored to R3, but using a rate design consistent with the Model Wholesale Market approach that we have presented today
 - The Model Wholesale Market approach is cost of service based
 - The Model Wholesale Market approach will not result in subsidies between standby and non-standby customers
 - The Model Wholesale Market approach appropriately does not require standby customers to pay for DTE's base load and intermediate generation facilities
 - The Model Wholesale Market approach is relatively simple to implement



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Recommendations for DTE Rider R3 (Cont'd)

- If the current Generation Fleet approach is also retained as a customer option, it as a minimum should be modified as follows:
 - The Monthly Generation Reservation Fee should be lowered from 11.9% of the D11 Power Supply Demand Charge to 1/28th (3.6%) of that charge as it currently requires the best performing customers to subsidize poorer performing customers
 - The Daily On-Peak Backup Demand Charge should be lowered from 31.9% of the D11 Power Supply Demand Charge to 1/20th (5%) of that charge as it is currently not consistent with FERC's PURPA Rules with respect backup and maintenance service
 - For example, currently, if a customer experiences a single on-peak forced outage per month (an expected forced outage rate of 5%), DTE would each month charge the customer 43.8% of the normal D11 demand charge for power supply



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Note on Recommendations on Consumers and DTE Rates

- ABATE may present additional recommendations in testimony in the current Consumers and DTE rate proceedings (e.g., on the delivery service portion of the rates)

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Questions?

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