Taking a Deeper Look at Standby Rates for Combined Heat and Power

June 27, 2014
Webinar presented by:

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Richard Sedano, Principal & Director U.S. Programs, RAP
Efficiency
Reliability
Cost Savings
Sustainability
Technical Assistance
Education/Outreach
Market Opportunity Analyses

... to help reach the nation’s 40 GW goal

U.S. Department of Energy
CHP Technical Assistance Partnerships
SOUTHWEST
What is the SEE Action Network?

- Network of 200+ leaders and professionals, led by state and local policymakers, bringing energy efficiency to scale

- Support on energy efficiency policy and program decision making for:
  - Utility regulators, utilities and consumer advocates
  - Legislators, governors, mayors, county officials
  - Air and energy office directors, and others

- Facilitated by DOE and EPA; successor to the National Action Plan for Energy Efficiency

To stay updated on SEE Action activities and resources, sign-up for email alerts:

www1.eere.energy.gov/seeaction/index.html
Guide to the Successful Implementation of State Combined Heat and Power Policies

Industrial Energy Efficiency and Combined Heat and Power Working Group
Driving Ratepayer-Funded Efficiency through Regulatory Policies Working Group

March 2013

explores successful implementation approaches and policy recommendations

Available at:
www1.eere.energy.gov/seeaction/chp_policies_guide.html
Introducing Rich and Carl
Today’s Agenda

• CHP as a Customer Resource: Fair Compensation in a Time of Transition
• Principles of CHP Standby Rates
• A Deeper Dive
  Colorado
  Ohio
• Questions
The Transition Toward “N-way” Transactions

• Technology is making customer resources less expensive
• Technology is enabling customer resource participation
• Power sector institutions are evolving
• What constitutes fair compensation for CHP resources in a time of transition and beyond?
“Designing DG Tariffs Well”: Implications for CHP

• **Issues for all Customer Resources**
  Recognize value is a two (or N) way street
  The Full Value of CHP: include all relevant sources of benefit and cost over the long term
  No more complicated than necessary

“Standby Rates for Combined Heat and Power Systems”

• Prepared by Brubaker & Associates for RAP (Selecky, Iverson, Al-Jabir)
• Sponsored by ORNL & U.S. DOE
• Best Practice Recommendations and 5 Case Studies
Standby Service Defined

• Set of electric utility products for customers with on-site, non-emergency generation
• Provides for a utility backstop
• Standby Service terms are important

Determine economics of CHP applications vs. utility full requirements service or purchasing power competitively
A Self-Generator’s Purchase Requirements

Plant Requirement Generation
Supplemental Power
Standby Power

Forced Outage: Backup Power
Planned Outage: Coinciding with plant shutdown
Planned Outage: Maintenance Power
Typical Standby Rate Components

• Capacity reservation charge
• As-used capacity and energy charges
• Maintenance capacity charge
• Facility charges
Standby Rates Best Practices: Allocation of Utility Costs

• Generation, transmission, and distribution charges should be unbundled

• Generation reservation demand charges should be based on the utility’s cost and the forced outage rate of customers’ generators on the utility’s system

• Higher-voltage delivery charges should recognize load diversity
Standby Rates: Best Practices

• Appropriate Incentives
  Pro-rated daily demand charges
  Daily maintenance demand charges -- discounted

• Customer Options
  Interruptible standby service option
  Customers should be able to procure standby service from the open market
A Few Points about the Examples

• The examples were chosen primarily based on willing in-state interest
• The examples were not chosen based on being current best practices
• The examples were not chosen based on being the tariffs most in need of help
• Observations not intended to condemn, just trying to promote the public interest
Deeper Dive: PSCO in Colorado

• PSCO Standby Tariffs for CHP > 10 kW
  Transmission Standby Service (TST)
  Primary Standby Service (PST)

• Charges
  Monthly Service and Facilities charge
  Interconnection charge (TST only)
  G&T Standby Capacity Fee
  Distribution Standby Capacity Fee (PST only)
  Demand and Energy charges
G&T Standby Capacity Design

• Covers 1,051 hours of standby service assuming 100% capacity factor
• Above the “Grace Energy” pay for Demand at the Supplemental capacity price and pay for Energy at the energy usage charge
Opportunities for Improving Price Signals Relative to Current Terms

• Currently there is no daily demand charge
• No TOU price signals
• No recognition of load diversity
• G & T costs bundled in reservation fee
• Self-dispatch and market purchases to meet stand-by requirements not allowed
Potential Improvements

- Monthly standby at best FOR unit
- Daily standby demand charges
- Add option to buy back-up power from utility at market prices
- Allow load reduction plans to mitigate back-up charges
- Unbundle G&T in reservation fee
- Reflect load diversity on shared distribution facilities
- Standby back-up demand charges on peak only
Improvement Effects Example
Deeper Dive: AEP in Ohio

• AEP Ohio Power Tariffs for CHP < 50 MW
  Standby Service provided by AEP (SBS)
  Standby provided by 3rd Party (OAD-SBS)

• Two Zones
  Same Tariff structure, different rates for two different zones within AEP Ohio Power service territory
Schedule SBS

• Terms of Service

A demand charge based on a forecasted FOR of 5, 10, 15, 20, 25 or 30%
Amount of back-up power available a function of the FOR selected
Excess beyond back-up purchased at supplemental rates AND a much higher capacity charge
Distribution charge based on voltage level
Incremental Transmission recovered in a rider
Schedule OAD-SBS

• Terms of Service

  Monthly distribution charge based on voltage
  Transmission charges based on the OATT
Opportunities for Improvement

• Complex
• FOR selection is risky
• Few price signals available to optimize use of customer and system resources (e.g., no daily demand charge)
• TOU components missing
• No recognition of load diversity
• Little flexibility
Recommendations

• Set monthly demand charge at the system best FOR
• Set daily demand charge
• Add option to buy back-up power from the market through the utility
• Add option to provide load reduction plan
• Reflect load diversity
Recommendations

• Demand charges should apply only on peak hours
• Avoid demand ratchets
• Simplify the tariff terms
• Vary fuel and purchased power prices by time of use
• Specify circumstances where special contracts required
### Medium Load Economic Analysis

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<th>Backup kWh</th>
<th>Backup Days</th>
<th>Maint. kWh</th>
<th>Maint. Hours</th>
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**Modified Schedule SBS**

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**Modified Schedule SBS**

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Conclusions on CHP Compensation

• Recognize the Full Value of CHP
• Align valuation of all customer resources with the public interest
• Traditional mechanisms can be done well
• Administrative Simplicity is important
Conclusions on Standby Rates

- Generation, reservation and daily demand charges
- Seasonal and on/off-peak charges
- Scheduled maintenance daily demand charge
- Dedicated distribution investment charge
- Load diversity for transmission and shared distribution
- Interruptible option
- Open market standby – if available
About RAP

The Regulatory Assistance Project (RAP) is a global, non-profit team of experts that focuses on the long-term economic and environmental sustainability of the power and natural gas sectors. RAP has deep expertise in regulatory and market policies that:

- Promote economic efficiency
- Protect the environment
- Ensure system reliability
- Allocate system benefits fairly among all consumers

Learn more about RAP at www.raponline.org

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