



Energy Storage and Distributed Energy Resources Phase 2

Working Group Web Conference on use-limitations for storage resources

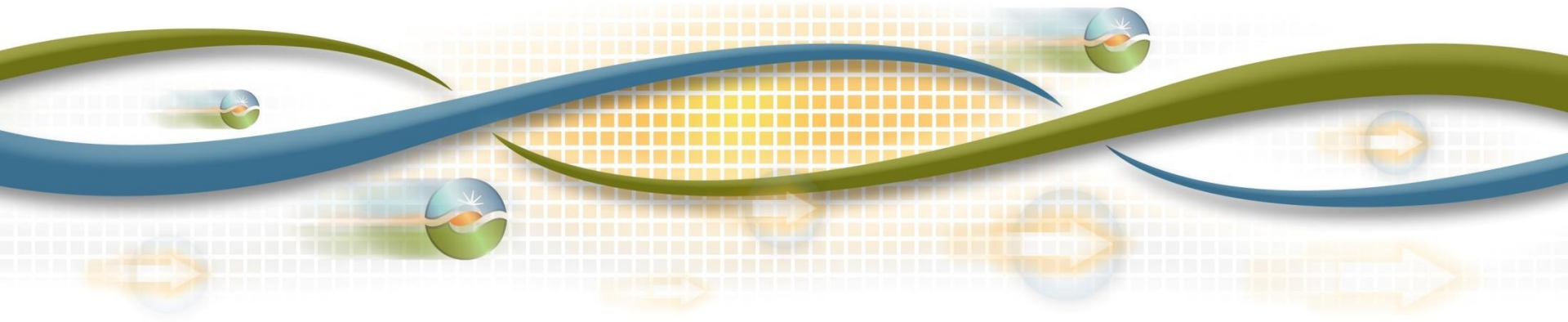
September 13, 2016

Peter Klauer

Smart Grid Technology and Strategy

Tom Flynn

Market and Infrastructure Policy



Today's agenda topics

- Welcome and introductions.
- Objectives and schedule for working group.
- What is “Use-limited” status and how is it determined?
- What are the use limitations of storage? Can these be modeled in the market optimization?
- Does “Use-limited” status for non-generator resources (NGR) have merit? If yes, then what's the process?
- Are NGR enhancements needed?
- Next Steps

Objectives of the storage use-limitation working group

- Develop common understanding of “Use-limited” status.
- Discuss and document use limitations of storage.
- Explore the merits of “Use-limited” status for non-generator resources (NGR).
- Explore whether NGR enhancements are warranted.

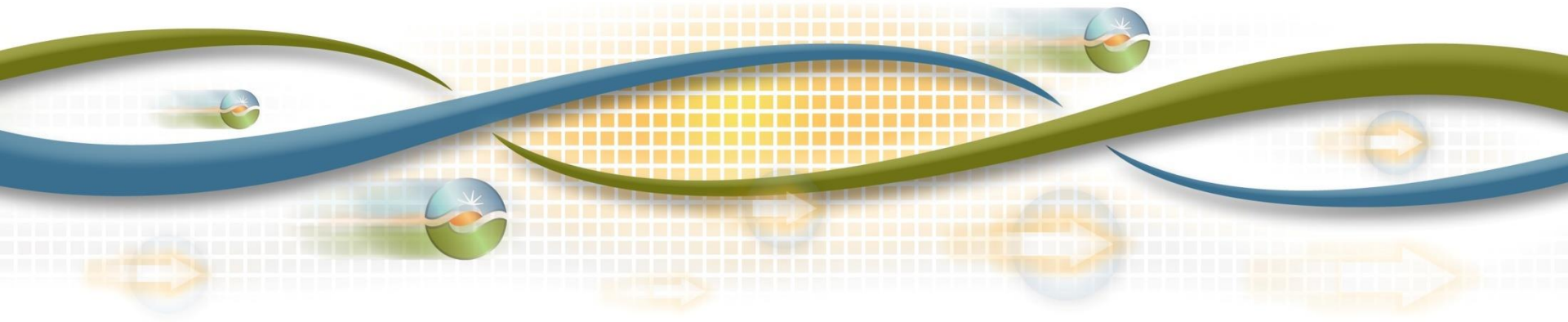
Proposed schedule for the working group

- Meet regularly (How often? Web conferences?) through 2016 (and into 2017 as necessary) to meet objectives.
- Develop policy proposal; obtain ISO Board approval Q1-Q2 of 2017 (if tariff changes are required).
- Potential Implementation: Q3-Q4 of 2017 based on policy decisions.

What is “Use-limited” status?

Kallie Wells

Market and Infrastructure Policy



Use-limited status

- A resource can be flagged as use-limited in the CAISO market if it meets the current definition, completes the application/registration process, and provides an annual use-plan.
 - Use plan indicates starts, run-hours, MWhs available per month or year.
- In the midst of a use-limited evolution regarding the definition, application process, and market treatment of use-limited resources.
- Exogenous limitations that cannot be incorporated into the optimization model.
 - Use-limited is not necessarily energy limited

On-going evolution of use-limited status and benefits

Today – Oct 2016

Today's definition
and benefits

RSI1: Oct 2016 – Fall 2017

Reliability Services Initiative
Phase 1 (RSI1)

Modifying market treatment
of use-limited resources

- Management of limitation(s)
- Bid insertion exemption
- Must offer obligation

CCE3: Fall 2017 onward

Commitment Cost Enhancements
Phase 3 (CCE3)

Modifying definition and market
treatment of use-limited resources

- Management of limitation(s)

Improved market efficient mechanism for optimizing use-limited resources
while applying equitable standards across all resource adequacy resources.

Use-limited status: Today

- Resources that cannot operate continuously (i.e. cannot be available 24x7) due to exogenous, non-economic limitations.
 - Examples include gas-fired resource with an environmental permit limiting starts per year, wind, solar, “Delta Dispatch” resources
 - Limitations cannot modeled in market optimization .
- Specific market treatment of use-limited resources
 - Exempt from bid insertion
 - Modified must-offer-obligation for Resource Adequacy (RA) resources
 - Out of market management of the limitation(s)
 - No Resource Adequacy Availability Incentive Mechanism (RAAIM)

Use-limited status: RSI1 (Oct 2016 – Fall 2017)

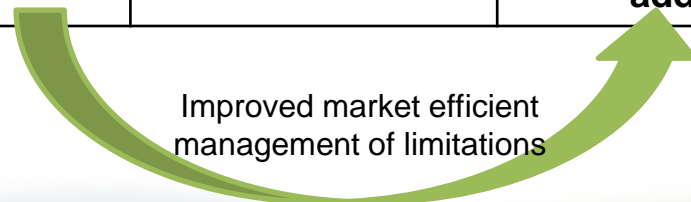
- Same definition as today
- Bid insertion exemption provided by resource type before determining exemption based on use-limited status.
- Must offer obligation is in accordance with RA being provided
- Manage limitation(s) through a higher commitment cost bid cap (150% of monthly calculated value).
 - Market based optimal use of resource given its limitation
 - Currently not applicable to NGR.
- Ability to submit an outage card to indicate when limitation has been reached, and no longer assessed under RAAIM.

Use-limited status: CCE3 (Fall 2017 onward)

- Modified definition to narrowly apply to resources with exogenous limitations that cannot be optimized within the market, and need the ability to reflect an opportunity cost in commitment cost and energy bids to manage limitations.
- No change to bid insertion exemption, must offer obligation, or access to use-limited reached outage cards as determined under RSI1.
 - Change in RAIM treatment to all use-limited resources when limit has been reached.
- Manage limitation(s) with an **opportunity cost adder**
 - Applied to commitment cost bid cap(s) (125% of daily calculated value plus an **opportunity cost adder**) and/or to Default Energy Bid (DEB).
 - Market based optimal use of the resource given the limitations.
 - Currently not applicable to NGR

NGR summary of market treatment under RSI1 and CCE3: Use-limited vs Non use-limited

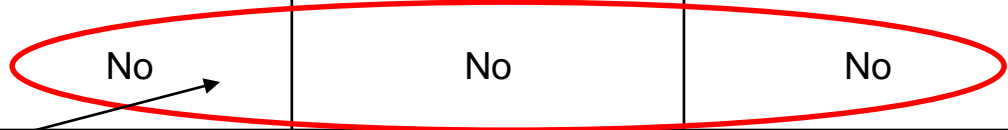
	RSI1		CCE3	
NGR market treatment	Non use-limited	Use-limited	Non use-limited	Use-limited
Bid Insertion	Exempt	Exempt	Exempt	Exempt
Bid Mitigation	Exempt	Exempt	Exempt	Exempt
Management of limitations	Limitations are reflected in market optimization	Commitment cost bids and use-limited outage cards	Limitations are reflected in market optimization	Commitment cost bids with an opportunity cost adder



Determining need of an opportunity cost adder

Can the resource have commitment costs? Is the resource subject to bid mitigation?	Does the resource have a qualifying limitation?		
	No	Yes, start or run-hour limitation	Yes, MWh limitation
Commitment costs and bid mitigation	No	Yes	Yes
Commitment costs, no bid mitigation	No	Yes	No
No commitment costs, bid mitigation	No	No	Yes
No commitment costs or bid mitigation	No	No	No

NGR today



Determining need of use-limited status under CCE3 for NGR going forward

- Questions need to be answered for all resource types:
 - Do the resources have qualifying limitations that cannot be optimized in the model?
 - Can the resource have commitment cost bids in the market?
 - Given a qualifying limitation on MWh, is the resource subject to bid mitigation?
- Pre-requisite discussions/questions for NGR:
 - What are the limitations for NGR and can they be reflected in the market optimization?
 - What are the costs for NGR and should/how would they be reflected in the market?

Use Limitation Modeling within NGR

- Resource Definition and Certifications
 - Capacity (MW) and Energy (MWh) limits
 - Ramping (charging, discharging)
- Outage Management
 - Daily, Hourly re-rates
- Bid Parameters
 - Daily upper and lower charging limits
 - *Initial SOC for Day Ahead Market (Fall 2017 Release)

Group Discussion

- What do stakeholders see as use limitations for storage resources that can not be modeled in the market optimization?

Group Discussion

- What are the costs for storage modeled under NGR and should they be reflected in the market?
 - If so, how?

Next Steps

- Collect Stakeholder comments and feedback and proposals
- Next Meeting Date