Standard Capacity Product Phase II

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Stakeholder Conference Call
March 24, 2010
ISO Stakeholder Process
Standard Capacity Product Phase ii

1. Project is triggered
2. Issue ID Paper
3. Straw Proposal
4. Draft Final Proposal

Options Paper
Revised Draft Final Proposal
Board of Governors
FERC

Opportunities for Stakeholder Input

We are here.
Meeting Agenda

1. • Introduction
2. • Changes to SCP Schedule
3. • Availability Calculation Options
4. • Replacement Rule Options
The stakeholder process for SCP II was extended.

Why the new schedule?
- Additional opportunity to discuss new features
- Broaden stakeholder consensus

Alternative Options Paper
- Availability calculations
- Replacement rule

Revised Draft Final Proposal
- Complete proposal
- Includes grandfathering, tariff clarifications, etc.

Next Steps
- Board of Governors
- Develop Tariff and BPM language
- FERC Approval
- Implementation
Schedule dates

- April 1: Comments due*
- April 6: Post revised draft final proposal
- April 13: Conference call
- April 20: Final comments due*
- May 17, 18: Board of Governors Meeting

* Submit comments to scpm@caiso.com
How should availability standards be determined?

- Availability calculation for deferred resource types
- Option: Consider actual energy delivery?
- Option: Special calculation for QFs?
Deferred RA resource types require a different availability calculation.

- Qualifying capacity (QC) is based on historical energy production
  - Production in peak hours – and hence QC – is typically much lower than resource’s nameplate or maximum capability
- Expect QC counting rules of CPUC and local regulatory authorities to be revised if needed to address “double counting” concern
  - QC should exclude hours in which the resource had full or partial forced outage or temperature-related ambient de-rate
- Thus production data for calculating QC is from hours of full nameplate capacity availability.
A forced de-rate that reduces a resource’s available capacity reduces its ability to provide its full QC.

- Consider a hypothetical wind farm having $P_{\text{max}} = 100$ MW comprised of 100 x 1 MW turbines.
- Its QC = 15 MW is calculated on hourly production during peak hours with all 100 turbines available.
  - QC for this resource = 15% of $P_{\text{max}}$
- If 20 of 100 turbines are forced out for an SCP assessment hour, the resource’s ability to provide its full QC is reduced by 20 percent for that hour.
  - Availability to provide RA = 80% x 15 MW QC = 12 MW
  - Equivalent to 15% of 80 MW available capacity = 12 MW
Example 1: Intermittent resource with QC = 15% of nameplate (P\textsubscript{max}) has a 20% capacity de-rate.

\[
P\text{max} = 100 \text{ MW}
\]

20 MW de-rate

QC = 15 MW

12 MW available

RA sold = 10 MW

This resource is at 80% of full capacity due to the de-rate.

Accordingly the resource is available to provide at most 80% or 12 MW of its QC.

Because RA sold is only 10 MW, the resource is considered 100% available for SCP purposes.
Example 2: Intermittent resource with QC = 15% of nameplate (Pmax) has a 50% capacity de-rate

This resource is at 50% of full capacity due to the de-rate.

Accordingly the resource is available to provide at most 50% or 7.5 MW of its QC.

Because RA sold is 10 MW, the resource is considered 75% available for SCP purposes.
Alternative option - Consider the actual energy that was delivered from a de-rated RA resource.

1. Perform the availability calculation for deferred resource types to determine proportional de-rate value.

2. Check to see if the actual energy delivered was greater or less than the proportional de-rate value.

3. If the actual energy delivered was greater than or equal to the RA sold, consider the resource 100% available; else,

4. If actual energy delivered was less than the RA sold, use the maximum of the actual energy delivered and proportional de-rate value.
Alternative Option: Example 1 - actual energy delivered > RA sold

P_{\text{max}} = 100 \text{ MW}

QC = 15 \text{ MW}

RA Sold = 10 \text{ MW}

50 \text{ MW de-rate}

This resource is at 50\% of full capacity due to the de-rate.

This resource delivered 12 MWh to the ISO grid for RA capacity.

Because RA sold is 10 MW, the resource is considered 100\% available for SCP purposes.

12 \text{ MWh delivered}

7.5 \text{ MW available}
Alternative Option: Example 2 - actual energy delivered < RA sold but > available capacity

This resource is at 50% of full capacity due to the de-rate.

This resource delivered 9 MWh to the ISO grid for RA capacity.

Because RA sold is 10 MW, the resource is considered 90% available for SCP. Energy delivered is still greater than the pro-rata value.
Alternative Option: Example 3 - actual energy delivered < RA sold & < available capacity

This resource is at 50% of full capacity due to the de-rate.

This resource delivered 2 MWh to the ISO grid for RA capacity.

Because RA sold is 10 MW, the resource is considered 75% available for SCP purposes because the pro-rata share of the RA available is 7.5 MW.

$P_{\text{max}} = 100\,\text{MW}$

$QC = 15\,\text{MW}$

$RA\,\text{Sold} = 10\,\text{MW}$

$50\,\text{MW\ de-rate}$

$7.5\,\text{MW available}$

$2\,\text{MWh delivered}$
Alternative Option: Different availability calculation for different types of intermittent resources

- **SCE** – composite vs. conventional generation
- **CAC** – firm, as available, hybrid approach
- **CPUC** – wind & solar vs. cogen & biomass
- **CAISO** – primary responsibility is to the host facility; additional generation is intermittent.
## Comparison of Replacement Rule Options

<table>
<thead>
<tr>
<th>Refined Draft Final Proposal</th>
<th>Refined Straw Proposal</th>
<th>Extend CPUC Replacement Rule</th>
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</thead>
<tbody>
<tr>
<td>• Pro - Ensures that the ISO has 115% reserves each month</td>
<td>• Pro – Broader Stakeholder support</td>
<td>• Pro – Provides time to consider other options</td>
</tr>
<tr>
<td>• Con – New ISO processes need to be developed</td>
<td>• Con – New ISO processes need to be developed</td>
<td>• Pro – No new processes need to be developed</td>
</tr>
<tr>
<td>• Con – Little stakeholder support</td>
<td>• Con – Lots of unanswered questions regarding ICPM criteria</td>
<td>• Con – Does not increase fungibility of SCP</td>
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Refined Draft Final Proposal Replacement Rule

- Supplier must designate Non-RA capacity to replace.
  - Once designated, capacity will become RA for the outage period.
- Local RA resources on planned outage should replace using other local capacity in same area, if possible.
  - If local capacity is unavailable, other system capacity must be designated.
  - If local area is deficient, local RA resource on planned outage with system replacement will be allocated ICPM cost if ICPM is required.
- RA resources on planned outage that do not provide any replacement will be subject to ICPM cost allocation if ICPM is required.
Refined Straw Proposal Replacement Rule

- Monthly supply plans will identify:
  - Resources contracted to provide RA capacity
  - RA capacity on a planned outage for more than 1 week
  - Any replacement capacity for RA if the supplier chooses to designate an alternate.

- If supplier does not provide replacement capacity, the ISO will do one of three things:
  - Deny or reschedule the outage based on defined criteria
  - Approve the outage and procure replacement through ICPM based on defined criteria
  - Approve the outage and not procure replacement capacity.
Refined Straw Proposal Replacement Rule

- It **may** be acceptable to replace Local RA capacity with System capacity
  - ISO Operations currently considering how to determine these criteria
    - Do not agree that system can replace local in every case
- Planned outages are currently approved based on reliability only
  - ISO Outage Management is currently considering the criteria and process needed to determine these new decision requirements
Please provide your comments and suggestions on these issues.

- The availability calculation and options
- The replacement rule options
- Send comments to scpm@caiso.com by April 1, 2010