Resource Adequacy Proceeding Phase 3

February 7, 2017

Agenda

Discussion Topics

- NQC/EFC Timeline
- Local RA Program
    - Interchangeable Local Resources
    - Clarifying How Local Resources are Assessed
    - Seasonal Local Requirements
- Defining Dispatchability
- Path 26 Constraint

Publishing of NQC/EFC Lists

Background:

- The initial step in the process of determining the NQC for a resource is for the Commission (or relevant local regulatory authority (LRA)) to establish a QC value by June 1 of every year.

- The CAISO then transforms the QC value for each resource into an NQC. The CAISO is to publish the draft NQC/EFC lists by the second week in August.

Issues:

- Delays in publishing the draft NQC lists in recent years could hamper LSEs and SCs in efforts to comply with RA obligations.

  - For example, scheduling coordinators were given only one and two days to provide comments to the CAISO for the 2016 and 2017 draft EFC lists, respectively.

	QC (CPUC)	Draft NQC (CAISO)	Draft EFC (CAISO)	Comments Due	Final NQC (CAISO)	Final EFC (CAISO)
Current	June 1	Second Week of August	Second Week of August	• **NQC**: 3 weeks after published date • **EFC**: September 1	Undefined	Undefined
2017 RA Year	Week of August 1	August 26	August 30		October 5	October 28
2016 RA Year	Unknown	August 28	August 31		October 12	Unknown

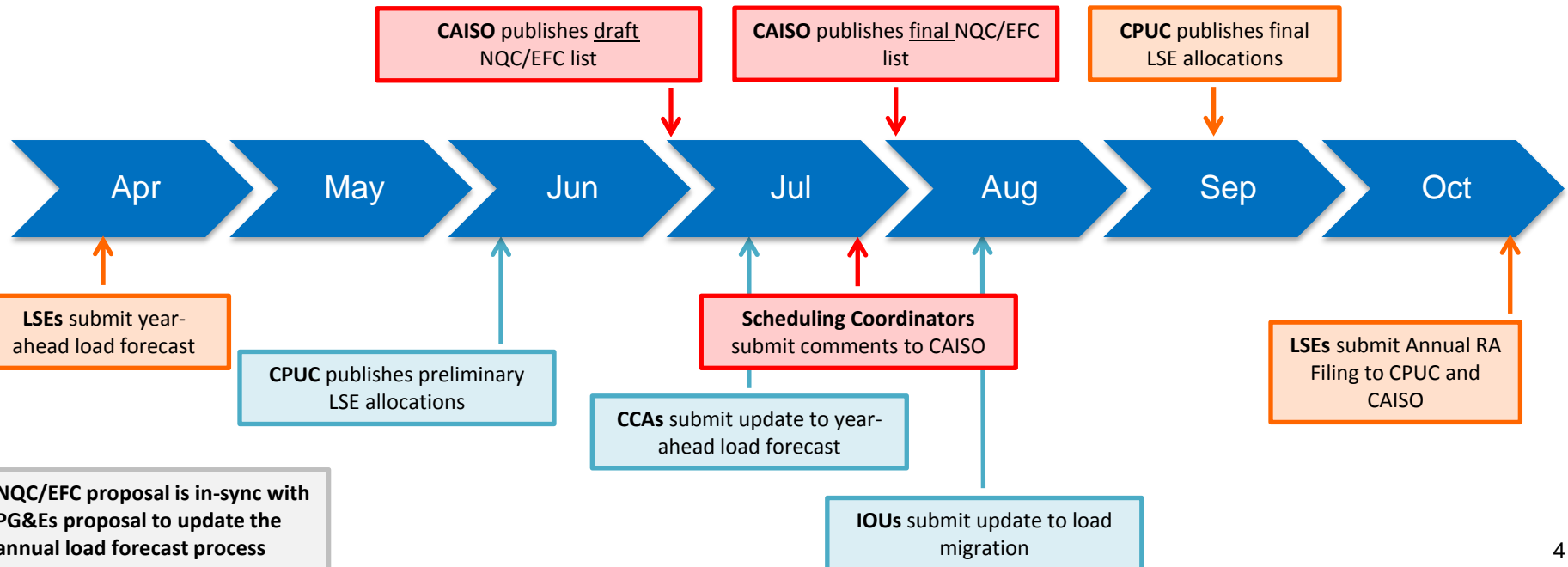# Proposal to Revise the NQC and EFC Timeline

Legend:
- Current
- LF Proposal
- NQC/EFC Proposal

Proposal:

- Commission and the CAISO revise the current annual RA timeline to ensure that the <u>draft</u> NQC and EFC lists are published by July 1 of each year.
- PG&E supports SDG&E's proposal for CAISO to publish the <u>final</u> NQC/EFC list by August 1 of every year.

Benefits:

- More effective planning for procurement to meet the RA obligation; less likelihood for over-procurement.

CAISO publishes <u>draft</u> NQC/EFC list

CAISO publishes <u>final</u> NQC/EFC list

CPUC publishes final LSE allocations

Apr → May → Jun → Jul → Aug → Sep → Oct

LSEs submit year-ahead load forecast

CPUC publishes preliminary LSE allocations

Scheduling Coordinators submit comments to CAISO

CCAs submit update to year-ahead load forecast

IOUs submit update to load migration

LSEs submit Annual RA Filing to CPUC and CAISO

NQC/EFC proposal is in-sync with PG&Es proposal to update the annual load forecast process

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Use of Local RA Resources in Annual Showing

Background:

- All local resources shown in the annual local RA showing must continue to be used in the monthly showing(s).

- An LSE may use a different local resource if the LSE informs the Energy Division and provides an explanation of the circumstances requiring the change.

Issues:

- Forecasting of resources
    - Resources in the annual local RA showing are based on the forecasted capability at the time of the filing (end of October). Resource availability can vary from the annual vs. the monthly showing given any operational constraints (e.g. weather patterns, storage capacity, air-permit limitations).

Proposal for Interchangeable Local Resource(s)

Proposal:

- LSEs continued to be allowed to use local resources that may differ from the annual local RA showing.

- CPUC requirement to provide a letter of explanation is not necessary so long as the substitute resource is located in the same local area and is for at least the same MW amount.

Annual RA Showing

Resource	Local Area	MW
Resource A	Bay Area	10
Resource B	Other PG&E Area	15
Resource C	Other PG&E Area	12

May RA Showing

Resource	Local Area	MW
Resource A	Bay Area	10
Resource B	Other PG&E Area	9
Resource C	Other PG&E Area	12
Resource D	Other PG&E Area	6

June RA Showing

Resource	Local Area	MW
Resource A	Bay Area	10
Resource B	Other PG&E Area	0
Resource C	Other PG&E Area	12
Resource D	Other PG&E Area	15

Local RA Showings to the CAISO

Background:

- CAISO is scheduled to implement Reliability Services Initiative Phase 2 in Fall of 2017.
- For RA resources in local areas, this initiative would require LSE and suppliers to differentiate between those that are shown for local and those that are not shown for local.

Issues:

- CAISO is planning to make a change to its RA filing templates.

	Showing	Reliability Assessment*	Substitution Requirement
Existing	• All RA resources located in a local area are considered local resources.	• All RA resources located in a local area are considered local resources.	• SC must substitute a local resource for all RA resources located in a local area.
Proposed	• For RA resources located in a local area, LSE will distinguish between those shown as local and those shown as system.	• No change.	• SC must substitute a local resource for RA resources shown as local • SC may substitute a system resource for RA resources in a local area not shown as local.
*The reliability assessment measures the shown RA for all LSEs against the Local Capacity Technical Report criteria.			

Proposal for CPUC to Perform Assessment Based on Resource Location

Additional Notes:

- To accommodate the substitution requirement change, the CAISO will require LSE and suppliers to note which resources are shown as local on RA filings.

- Because the CPUC does not consider outages or substitutions as part of its RA program, there is no need to make a corresponding change at the CPUC.

Proposal:

- The CPUC should not change its existing process for assessing compliance with local capacity requirements.

  - This would align the CPUC local RA assessment with CAISO's local reliability assessment.
  - Specifically, the CPUC should consider all shown RA resources located within a local area as local for its compliance assessment.

CAISO Local RA Requirements

Background:

- The local RA obligation is based on the August peak load and is subsequently applied to all months of the year.

Issues:

- Potential for higher procurement costs (over-procurement) in lower load months, when planned outages are frequently scheduled.

- Challenges to counting renewable resources (e.g. solar) towards RA obligations.
  - Near-zero MW value in winter months.

- Differences between the CPUC and CAISO in using NQC values toward the RA obligations.

Example of CAISO Showing

Category	1	2	3	4	5	6	7	8	9	10	11	12
Requirement	300	300	300	300	300	300	300	300	300	300	300	300
Total Solar NQC	0	1	7	80	76	79	75	80	75	58	0	0
Total Other NQC	300	300	300	300	300	300	300	300	300	300	300	300
Total Portfolio	300	301	307	380	376	379	375	380	375	358	300	300

Proposal for Seasonal Local Requirements

Proposal:

- Use a similar methodology to determine the seasonal local RA requirements as is employed in the CAISO Local Capacity Technical Study.
  - Sufficient information exists for the Commission and the CAISO to determine if a seasonal local RA requirement is a more cost effective approach to maintaining the goals of the RA program.

Benefits:

- Aligns costs with the need.
- Accounts for resource types with NQCs that vary throughout the year without having to procure additional local RA capacity.
- Increase efficiencies in planning for resource outages.

Category	1	2	3	4	5	6	7	8	9	10	11	12
Requirement	250	250	250	250	300	300	300	300	300	250	250	250
Total Solar NQC	0	1	7	80	76	79	75	80	75	58	0	0
Total Other NQC	250	250	250	250	250	250	250	250	250	250	250	250
Total Portfolio	250	251	257	330	326	329	325	330	325	308	250	250

Seasonal Local Requirements – Precedent

- Under the CAISO Reliability Services Initiative Phase 1B, an LSE's monthly local RA requirement is capped at its corresponding monthly system requirement.
  - This creates a default monthly local RA requirement for some LSEs.
  - There does not appear to be a corresponding change to the annual requirements that CAISO will use to assess collective local RA sufficiency.

Local Area A/ LSE A
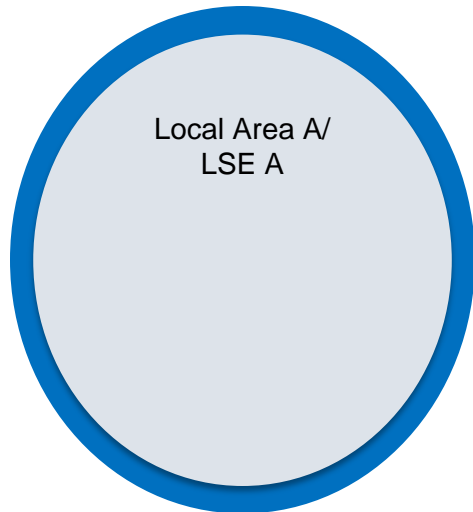
		System and Capped Local Requirements Post RSI 1B Implementation			
	Percent of TAC	August		January	
		System Requirement	Local Requirement	System Requirement	Local Requirement
LSE A	100%	2000	2000	1400	1400

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Definition of 'Dispatchability'

- EIA Glossary of Terms
  - **Dispatching**: The operating control of an integrated electric system involving operations such as (1) the assignment of load to specific generating stations and other sources of supply to effect the most economical supply as the total or the significant area loads rise or fall (2) the control of operations and maintenance of high-voltage lines, substations, and equipment; (3) the operation of principal tie lines and switching; (4) the scheduling of energy transactions with connecting electric utilities.

- Glossary of Terms Used in NERC Reliability Standards
  - **Economic Dispatch**: The allocation of demand to individual generating units on line to effect the most economical production of electricity.
  - **Dispatch Order**: A set of dispatch rules such that given a specific amount of load to serve, an approximate generation dispatch can be determined. To accomplish this, each generator is ranked by priority.
  - **Block Dispatch:** A set of dispatch rules such that given a specific amount of load to serve, an approximate generation dispatch can be determined. To accomplish this, the capacity of a given generator is segmented into loadable "blocks," each of which is grouped and ordered relative to other blocks (based on characteristics including, but not limited to, efficiency, run of river or fuel supply considerations, and/or "must-run" status).

Definition of 'Dispatchability'

- ## A Proposed Definition:

  - **Dispatchable Resource:** A resource that is willing to be subject to the rules by which the system operator determines how to allocate load among resources *(i.e. establish the resource's output level).*

- ## Key features:

  - **1) Volition –** Resource owner must be willing for resource to follow instructions from system operator. Resource can go from being dispatchable to non-dispatchable based on willingness to follow rules.

  - **2) Control by system operator through rules –** System operator must use rules to determine how load is met by resources on system. CAISO uses market mechanism and bids from resources to determine dispatch of resources**.**

    - **Rules may or may not contain provisions for availability of resource, including unavailability of fuel.**

Which are dispatchable resources and which are not?

A. **Gas-fired combustion turbine that bids into day-ahead market**

B. **Gas-fired combined-cycle plant that self-schedules in the day-ahead, fifteen-minute, and five-minute markets**

C. **Run of river hydro that bids maximum output at bid floor in all markets**

D. **Solar plant that self-schedules its output in day-ahead market, and offers bids for curtailment in fifteen-minute, and five-minute markets**

E. **Wind turbine that offers bids in day-ahead market, fifteen-minute, and five-minute markets**

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CAISO's Confusing Messages

- "For procedural reasons, mainly due to complications of LSE showings and substitution rules, the ISO believes that there is no need to enforce zonal constraint in the year ahead and month ahead RA showings at this time." Regional Resource Adequacy: Draft Regional Framework, December 1, 2016

- "Maintaining the Path 26 counting constraint is a prudent practice because the potential still exists for parties to over or under procure RA resources in either the northern or southern areas. This potential for skewed zonal RA procurement causes reliability concerns due to the known Path 26 constraint which limits the flows between the two areas." Comments on Preliminary Phase 3 Proposals, January 13, 2017

- **What analysis has the CAISO done to show that the costs of 'complications of LSE showings' continue to justify the benefits of the CPUC maintaining the Path 26 constraint?**
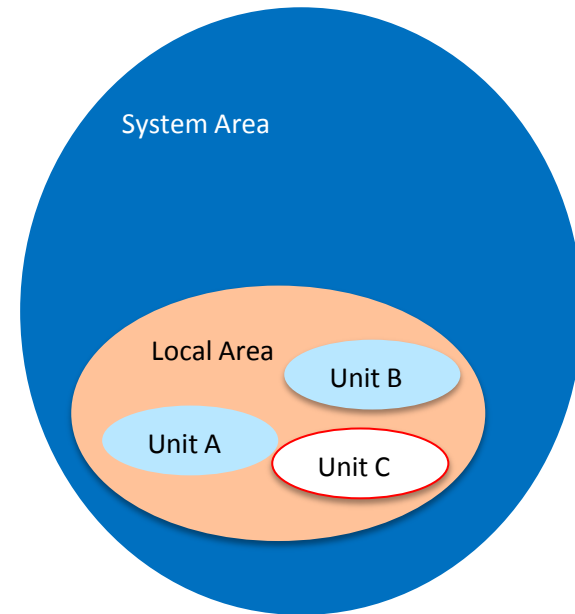
Appendix

Local RA Changes: RSI 2

Existing

System Area

Local Area

Unit B

Unit A

Unit C
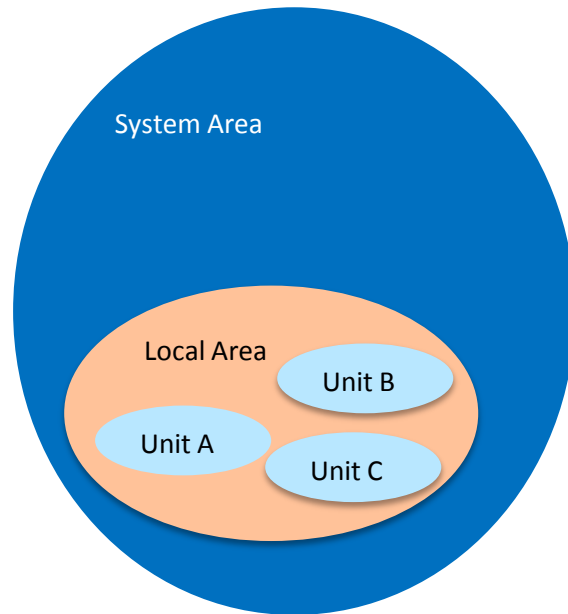
- **Designation**: Units A, B and C are local.
- **Criteria**: Units A, B and C are considered when assessing against local capacity criteria.
- **Substitution**: If any unit goes on forced outage, SC must substitute with a local resource.

Proposed

System Area

Local Area

Unit B

Unit A

Unit C

- **Designation**: Units A and B are local; Unit C is shown as system.
- **Criteria**: Units A, B and C are considered when assessing against local capacity criteria.
- **Substitution**:
    - If Unit A or B goes on forced outage, SC must substitute with a local resource.
    - If Unit C goes on forced outage, SC may substitute with a system resource.