



UCAP IMPLEMENTATION ISSUES

Updating UCAP implementation approach to address System RA Must Offer tracking, mixed UCAP and ICAP showings at resource level, and ensure correct treatment of Local RA and firm exports.

Chris Devon, Director of Wholesale Market Policy
October 9, 2026, CAISO RAMPD Meeting

UCAP implementation requires a CAISO RA systems rethinking, not a single new NQC number



Mixing UCAP-based NQC and ICAP values in CAISO systems and capacity functions creates several risks and impacts:

- (1) Stranding RA capability and reliable export capability,
- (2) Potential for double counting, and
- (3) Uncertainty that makes commercial transaction execution and counterparty validation less transparent and much more difficult.

UCAP implementation needs to be translated across every CAISO capacity functions to account for different LRA decisions to utilize UCAP or ICAP accreditation.

A single UCAP NQC number cannot perform every CAISO function



Use additional terms with clear definitions and reassess the approach for each function.

Terms

Pmax	Maximum physical capability
Deliverable Pmax / PmaxRA	Capability adjusted for deliverability and persistent physical limits
LRA-specific accreditation	Capacity recognized under the applicable LRA methodology
Maximum showing value	Maximum aggregate amount allowed on RA plans
Shown RA	Committed RA capacity
Residual deliverable capability	Capability remaining after showings (UCAP and ICAP)



Capacity Functions

System RA	Counting towards LRA system RA reqmts
MOO	Shown capacity offer requirements
RAAIM / Substitution	Shown RA basis for RAAIM and Sub
Local RA	Counting towards CAISO local capacity requirements
Firm exports	Support high-priority exports
Backstop	Provide backstop capacity

UCAP implementation requires more drastic updates



UCAP is a forward planning accreditation value. Not a new physical operating limit.

What UCAP changes:

- Forward System RA counting
- Representation of forced-outage risk
- LRA compliance and contract denominations
- System Planning Reserve Margin (PRM)

What UCAP should not change:

- Installed capability
- Deliverability
- Operational capability - key issue for Local RA and firm exports
- Must Offer Obligation (MOO) needs

What CAISO should address:

- Update CIRA for RA showings and validations to reflect capacity functions/attributes
- MOO requirement transparency
- Local RA, Flex RA, firm export treatment clarity
- Residual capability transparency for exports, substitution, backstop

UCAP cannot be applied as resources' operational ceilings



A forward outage-risk discount does not mean an available resource can produce only the UCAP amount in the operational horizon.

In the operational horizon, RA resources should be qualified to support certain capacity functions up to deliverable Pmax (ICAP) or derated levels if a partial outage has been submitted.

Impacts if UCAP MW becomes the universal RA ceiling or operational limit

Residual capacity can be stranded or double counted, exports and substitution capability can be unfairly limited

Mixing UCAP and ICAP RA showing values without consistent tracking will be problematic

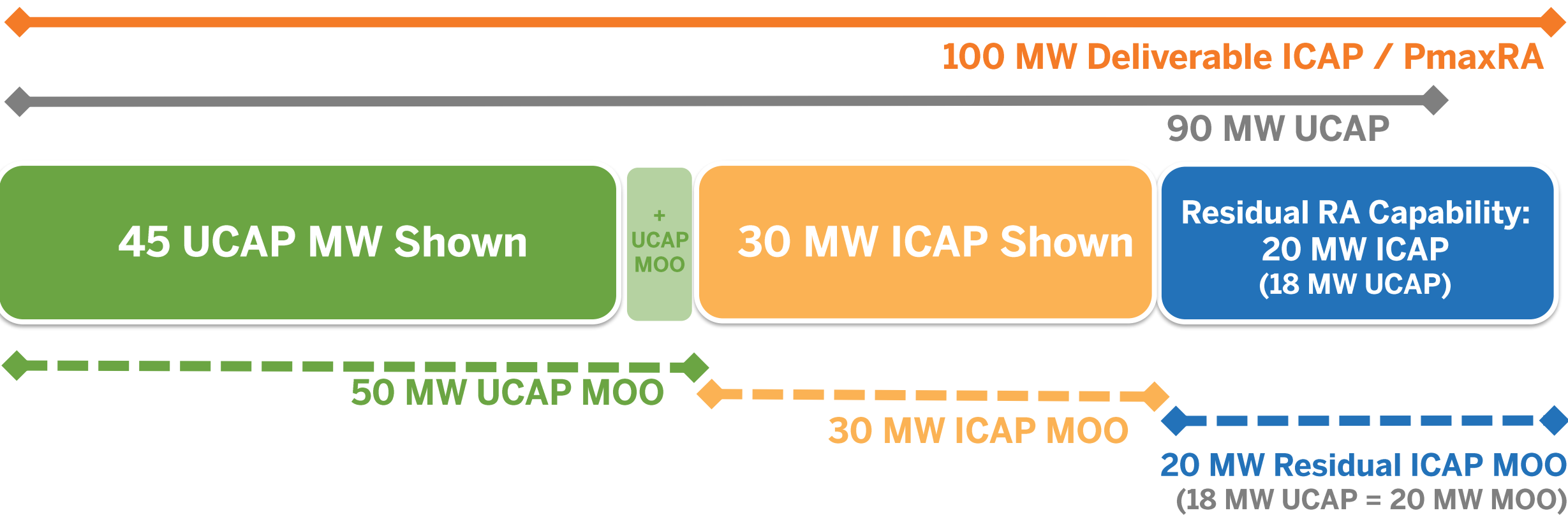
Risks underrepresenting expected MOO MWs, and unfairly limit reliable exports in the operating horizon, also risks overcommitment of the same deliverable capability

Solution: Do not continue proposing use of a single UCAP NQC value for all capacity functions. Allow showings in ICAP or UCAP denominations, convert resource commitments to equivalent MOO, and cap total shown MOO at full deliverable capability.

Example: Tracking mixed UCAP & ICAP showings



100 MW deliverable ICAP (PmaxRA / Deliverable Pmax)
10% UCAP forced outage rate: UCAP = 90 MW

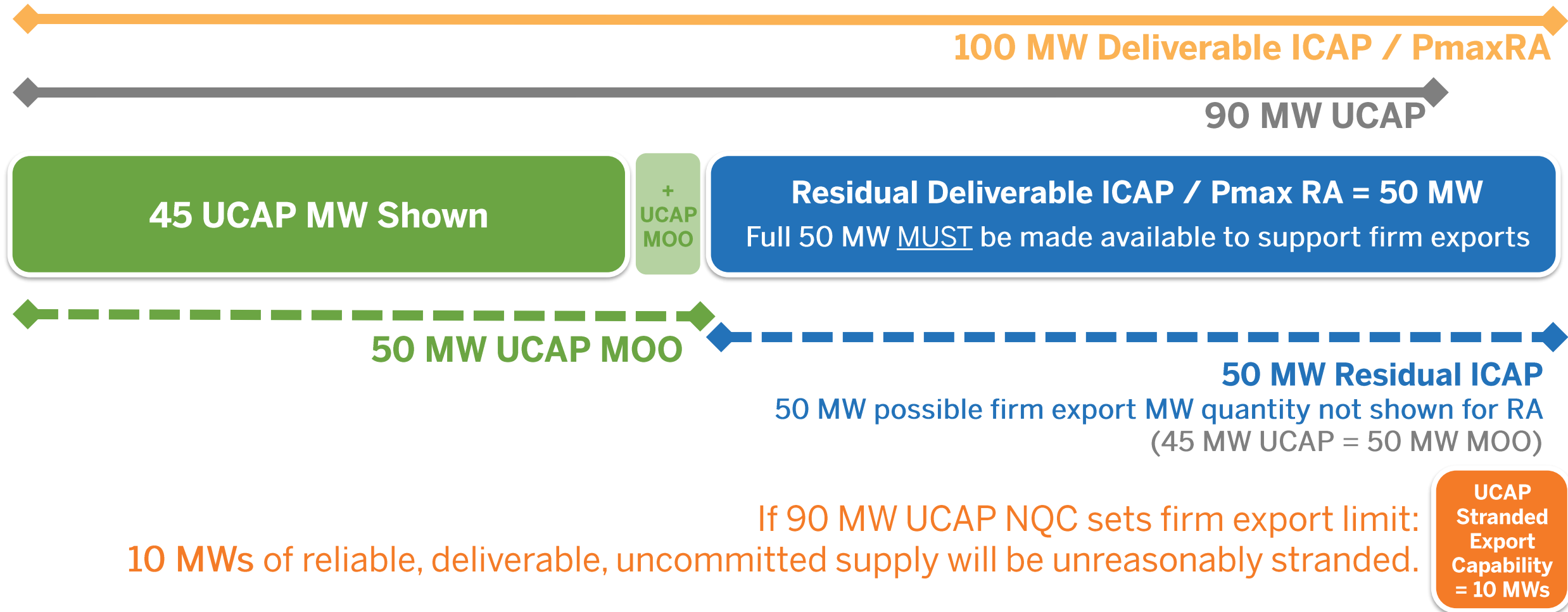


Example: UCAP impacts on firm exports



100 MW deliverable ICAP ($P_{\max RA} / \text{Deliverable } P_{\max}$)

10% UCAP forced outage rate: UCAP = 90 MW



Example: Local RA using UCAP

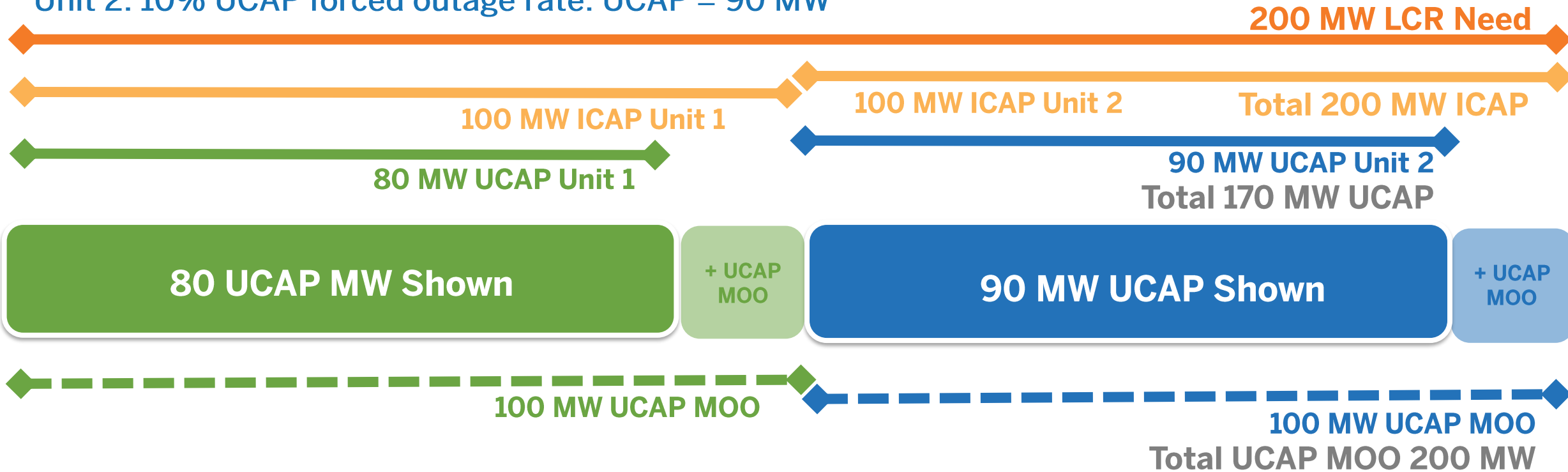


LCR Need = 200 MW

Two units – both 100 MW deliverable ICAP (P_{maxRA} / Deliverable P_{max})

Unit 1: 20% UCAP forced outage rate: UCAP = 80 MW

Unit 2: 10% UCAP forced outage rate: UCAP = 90 MW



The operational LCR need remains 200 MW. If CAISO counts local RA resources at 170 UCAP MW, it also needs to establish a corresponding UCAP-based procurement requirement, rather than requiring 200 UCAP MW of showings. The MOO should still translate UCAP showings into the full 200 MW of deliverable capability needed in operations.

Local RA counting should remain tied to deliverable operational ICAP capability or Local RA requirements should be translated to UCAP



A resource does not become less capable of serving a local contingency because one buyer changes its System RA counting method.

System RA UCAP functions

- Forward planning expected-availability accreditation
- System RA requirement and compliance established by LRAs (UCAP PRM and UCAP counting applied)
- Applicable only under the adopting LRA methodology

Local RA reliability functions and process

- Deliverable capacity located within a constrained local area
- Local RA resources in LCR study dispatch capability = Lesser of: latest NQC – or – historical output capability at the relevant local managed peak
- Resource effectiveness is assessed and studied under actual transmission system limitations
- CAISO's current LCRs process does not apply a UCAP forced-outage discount to the LCR need

Solution: Align Local RA requirements and resource counting. Either use deliverable operational capability for both the LCR study and Local RA credit –OR– Translate both the procurement requirement and resource accreditation to a consistent UCAP basis.

Do not retain an ICAP-based Local RA requirement while capping Local showings on UCAP basis.

Current proposal creates commercial complexity and does not provide sufficient transparency for multi-contract resources or residual capability



NQC list process could be revised:

- Establish Pmax RA i.e., “Deliverable Pmax” concept as a value that is included in the NQC list.
- Pmax RA = “Deliverable physical capability available for RA and related operational functions, adjusted for persistent physical limitations.”
- Include both ICAP and UCAP values published on the NQC list for UCAP eligible resources.

CIRA could be modified to:

- (1) Track shown UCAP and ICAP quantities.
- (2) Convert shown amounts into translated MOO MWs on aggregate commitments on a per resource basis.
- (3) Provide transparency into residual capability MWs.

RA contracting, buyer/seller validation, residual capacity for exports, substitution, backstop, etc., can all be more transparent and streamlined under a more robust design.

Incorporate changes for mixed ICAP and UCAP showings to provide greater certainty and transparency, and easier commercialization



Track showings

- UCAP and ICAP LRA denominations
- Shown amounts of UCAP and ICAP, including partial quantities, can be mixed
- Buyer's compliance LRA value is known
- Residual amounts of deliverable ICAP/UCAP can be known
- Transparency into what can be reliably used for substitution, firm exports, backstop, etc.

Convert partial showings to establish clear equivalent MOO requirements

- UCAP showings:
$$\text{Equivalent MOO MWs} = \frac{\text{Shown UCAP MWs} \times P_{\text{max RA}}}{\text{Resource UCAP MWs}}$$
- ICAP showings:
$$\text{Equivalent MOO MWs} = \frac{\text{Shown ICAP MWs} \times P_{\text{max RA}}}{\text{Resource ICAP MWs}}$$
- Aggregate mixed showings at resource level
- Indicate committed equivalent MOO for each RA resource

Validate each RA resource showing

- Total committed shares $\leq 100\%$
- MOO reflects total committed showings (can be UCAP or ICAP or mixed)
- Any residual capability remains visible (both UCAP and ICAP basis)
- Provides truly needed transparency
- No LRA methodology has to overrule another

UCAP implementation recommendations



Establish capacity function-specific approaches before implementation:

- Publish a complete mapping of all NQC-linked functions, including showings, MOO, RAAIM, substitution, Local RA, Flex RA, firm exports, backstop, and residual capacity transparency.

Track ICAP and UCAP commitments separately:

- Update NQC lists, CIRA, and RA validation processes to retain each showing's LRA denomination, translate shown capacity into equivalent MOO MW, and limit aggregate commitments to PmaxRA.

Preserve actual deliverable physical capability for operational functions:

- Do not use UCAP as a universal operating ceiling. Base MOO, firm-export capability, substitution, and other operational functions on committed versus available shares of deliverable physical capability, subject to actual outages and operating limitations.

Resolve Local RA treatment before binding implementation:

- Continue to establish and validate Local RA on a consistent physical-capability basis, or translate both the LCR requirement and resource accreditation to UCAP. Do not mix a physical LCR requirement with UCAP-discounted resource counting without an explicit conversion.



Constellation is America's largest producer of reliable and clean energy and the largest private-sector energy producer in the world. We produce more than 55 gigawatts of capacity – enough to power 27 million American homes – with a coast-to-coast portfolio of nuclear, natural gas, renewables, and other assets. We are a leading competitive retail supplier, serving more than 2.5 million homes, businesses and public sector customers nationwide.

