



California ISO

2018 Interconnection Process Enhancements (IPE)

Web conference

January 3, 2019

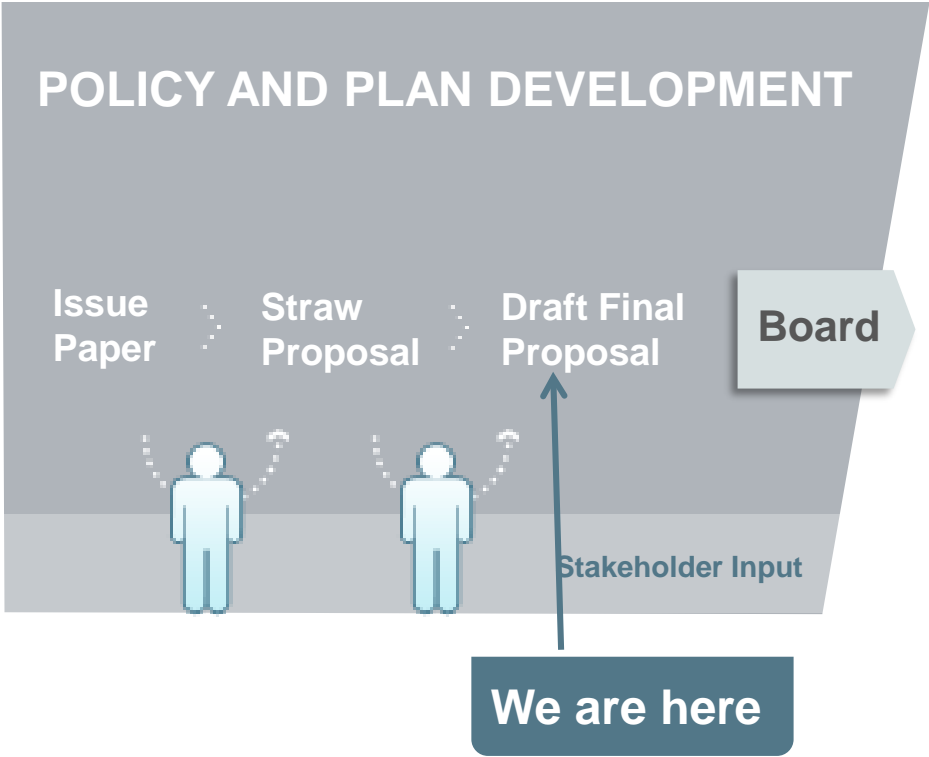
1:00 p.m. – 3:00 p.m. (Pacific Time)

Agenda

Time	Item	Speaker
1:00 - 1:10	Stakeholder Process and Schedule	Jody Cross
1:10 - 1:20	Introductions	Linda Wright
	Background and Scope	
1:20 – 2:30	Interconnection Financial Security and Cost Responsibility Topics	Team
2:30 – 2:50	Interconnection Request Acceptance and Validation Criteria	
2:50 - 3:00	Next Steps	Jody Cross

STAKEHOLDER PROCESS

CAISO Policy Initiative Stakeholder Process



Background/Scope

2018 IPE goal is to modify and clarify the generator interconnection process to reflect changes in the industry and in customer needs

- IPE was completed in 2014
- 2015 IPE was completed in 2016
- 2017 IPE was completed March 2018
- 2018 IPE
 - Issue paper included 42 potential topics
 - Straw proposal included 25 topics
 - 8 topics were finalized in the straw proposal
 - Revised straw proposal included revisions to 17 topics
 - This addendum further explores Item 7.1 and includes two new topics

Initiative topics and associated presenter

Category	Topic	Presenter
Interconnection Financial Security and Cost Responsibility	Maximum Cost Responsibility for NUs and potential NUs	Jason Foster
Interconnection Request Acceptance and Validation Criteria	Interconnection Request Acceptance	Matt Chambers
	Validation Criteria	

INTERCONNECTION FINANCIAL SECURITY AND COST RESPONSIBILITY TOPICS

Cost Responsibility for Network Upgrades (7.1)

Proposed Definitions:

- **Assigned Network Upgrade (ANU)**

RNUs and LDNUs for which the Interconnection Customer has a direct cost responsibility. ANUs exclude CANUs if they become ANUs.

- **Conditionally Assigned Network Upgrade (CANU)**

RNUs and LDNUs whose cost responsibility is assigned to an earlier Interconnection Customer, but which may fall to the then current Interconnection Customer.

- **Interconnection Service Reliability Network Upgrade (ISRNU)**

RNUs at the POI to accomplish the physical interconnection of the generator to the CAISO Controlled Grid. CANUs can be identified as ISRNUs.

- **Precursor Network Upgrade (PNU)**

Network Upgrades required for an Interconnection Customer that consist of (1) Network Upgrades whose cost responsibility is assigned to an earlier Interconnection Customer that has executed its GIA; and (2) Network Upgrades in the approved CAISO Transmission Plan.

Cost Responsibility for Network Upgrades (7.1) (cont'd)

Proposed Definitions (cont'd):

- **Current Cost Responsibility (CCR)**

The sum of the Interconnection Customer's (1) current allocated costs for ANUs, and (2) allocated ISRNUs, not to exceed the MCR. This cost is used to calculate the Interconnection Customer's IFS requirement.

- **Maximum Cost Responsibility (MCR)**

The lower sum of an Interconnection Customer's (1) ANU costs, plus (2) 100% of ISRNUs costs, from its Phase I or Phase II Interconnection Studies, which may be adjusted if a subsequent reassessment converts CANUs to ANUs.

- **Maximum Cost Exposure (MCE)**

The sum of (1) the Interconnection Customer's MCR and (2) the sum of the Interconnection Customer's CANUs from its Phase I or Phase II Interconnection Studies.

- *Final MCE is established in Phase II*

Cost Responsibility for Network Upgrades (7.1) (cont'd)

CAISO reconsidered a few items in the addendum #2 to draft final proposal:

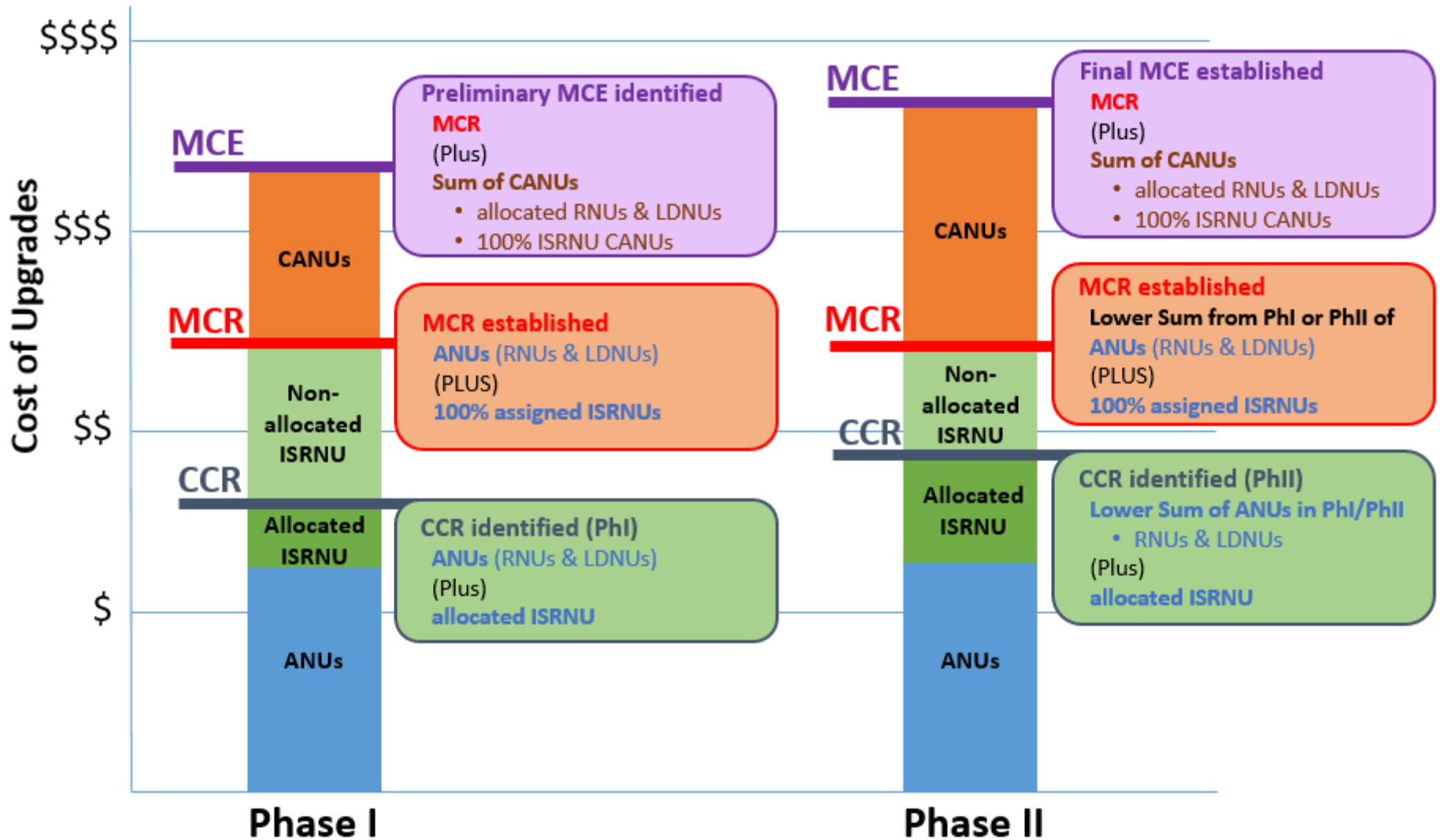
- **Treatment of CANUs**
 - Assigned an allocated cost in the Phase I & II study
 - ISRNU CANUs are allocated 100%
 - Maintain a fixed-cost concept for CANUs identified in the phase II study for the purpose of adjusting the MCR and MCE
- **Treatment and definition of ISRNUs**
 - a percentage of each ISRNU is identified as 'allocated ISRNU' or 'non-allocated ISRNU' for purpose of calculating the CCR and MCR
- **Treatment of MCE**
 - Phase II study establishes a final MCE (Phase I MCE is preliminary)
 - Propose to allow adjustments to MCE when MCR is adjusted
- **Remove GIA execution from the TPD retention requirement**
 - Maintain GIA Execution as milestone for PTO to backstop upgrade costs

Cost Responsibility for Network Upgrades (7.1) (cont'd)

CAISO reconsidered a few items in the addendum #2 to draft final proposal:

- **Headroom Issues**
 - Ensure no headroom issues with CANUs and ANUs by adjusting the MCR and MCE based on upgrade type/status
- **Funding CANUs or PNUs to achieve earlier COD**
 - Projects must fund CANUs needed to achieve earlier COD
 - PNUs have executed GIAs and responsibility of earlier projects/PTO
 - Projects pay acceleration costs to achieve earlier COD
- **RNU Reimbursement cap impacts from CANU-to-ANU conversions**
 - Total RNU costs will include upgrades that convert from CANUs to ANUs
- **Additional RNU reimbursement when later-queued projects utilized previously developed RNUs that exceed RNU reimbursement cap.**
 - Not in scope of this 2018 IPE process

Cost Responsibility for Network Upgrades (7.1) (cont'd)



Cost Responsibility for Network Upgrades (7.1) (cont'd)

Example 1)

CCR

In Phase I, by sum of (1) ANUs, plus (2) allocated ISRNU.

In Phase II, by sum of (1) lower sum of ANUs in the PhI and PhII studies, plus (2) sum allocated ISRNU in PhII.

MCR

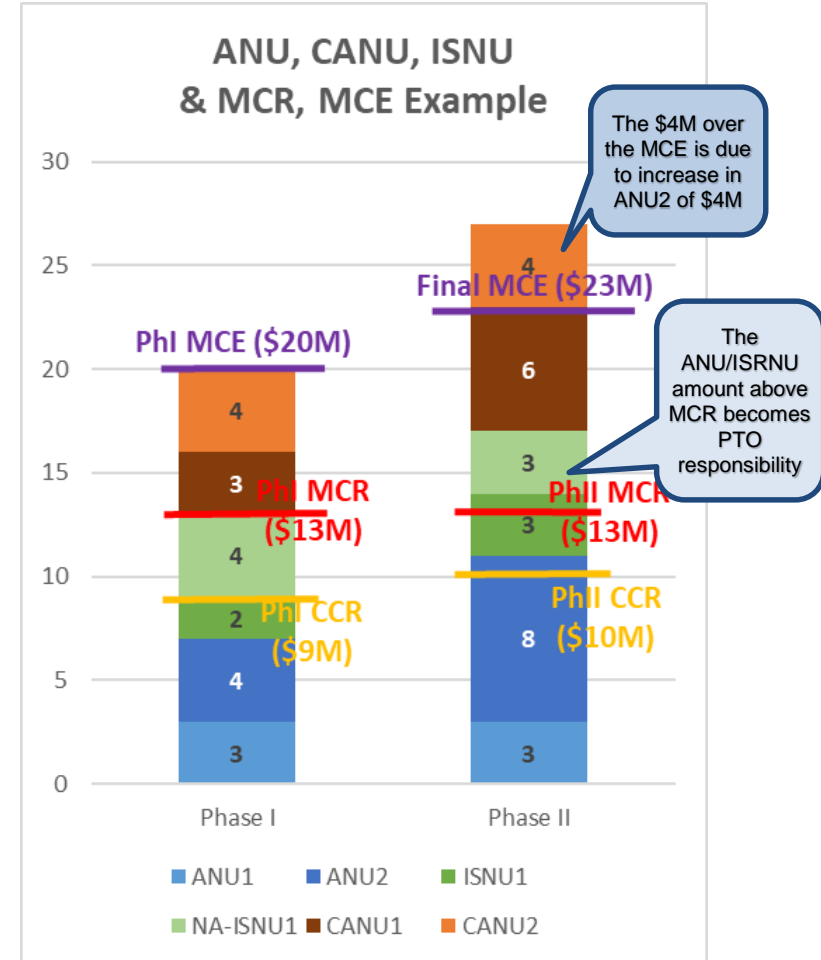
In Phase I, by sum of (1) ANUs, plus (2) 100% cost of assigned ISRNU.

In Phase II, by sum of (1) the lower sum of the ANUs in the PhI and PhII studies, plus (2) 100% cost of assigned ISRNU in PhII.

MCE

In Phase I, preliminary MCE identified by sum of (1) the PhI MCR, plus (2) sum of allocated CANU costs.

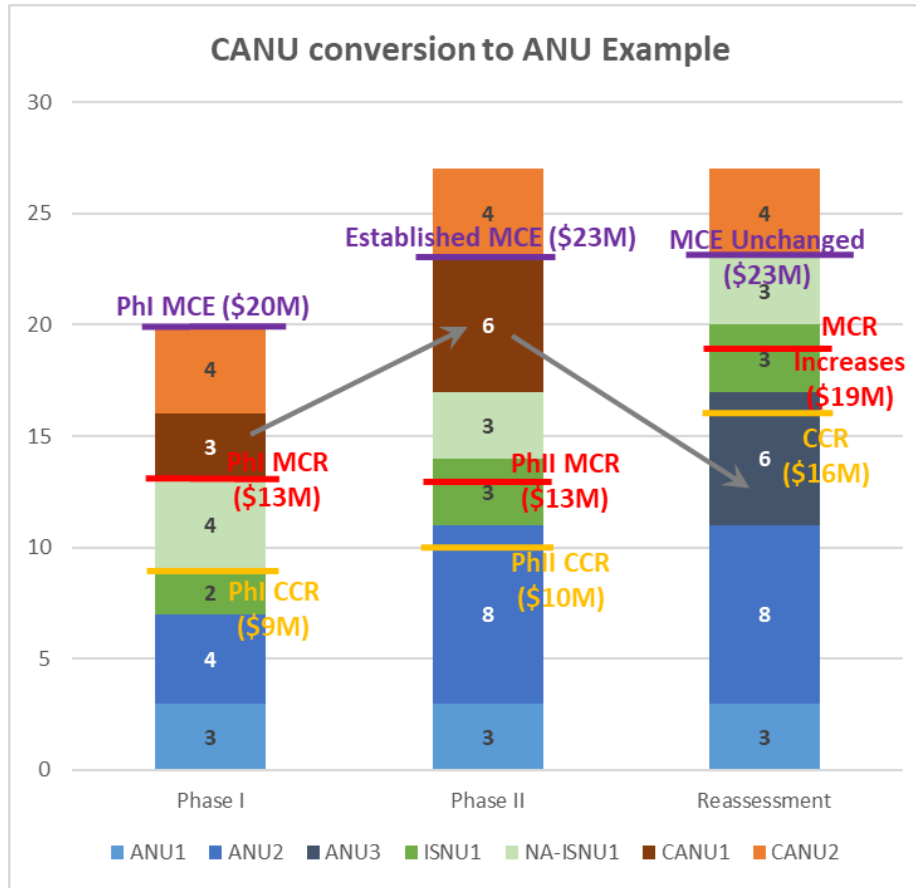
In Phase II, Final MCE is established by sum of (1) the PhII MCR, plus (2) the sum of allocated cost of each CANU in PhII.



	ANU1	ANU2	ISNU1	NA-ISNU1	CANU1	CANU2	CCR	MCR	MCE
Phase I	3	4	2	4	3	4	9	13	20
Phase II	3	8	3	3	6	4	10	13	23

Cost Responsibility for Network Upgrades (7.1) (cont'd)

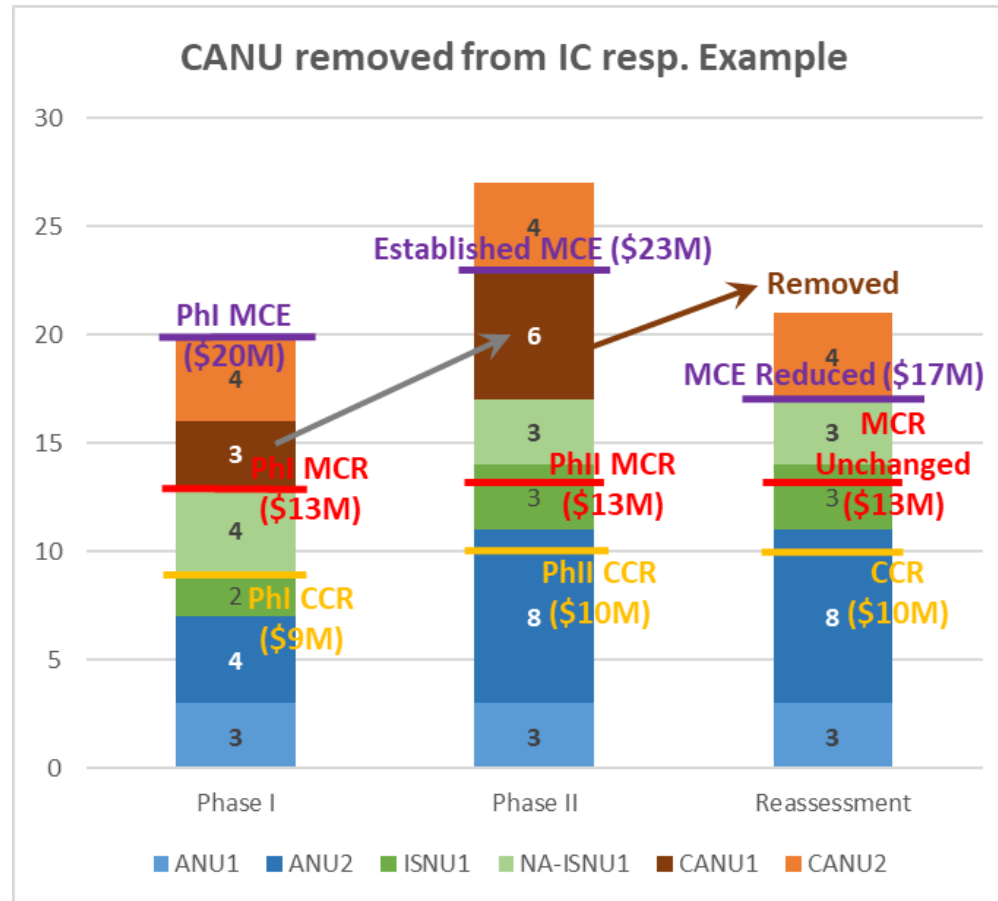
Example 2a) CANU1 becomes ANU3 (@\$6M). IC's MCR has increased by the fixed-cost of the CANU (\$6M) as identified in the Phase II study. The established MCE remains unchanged.



	ANU1	ANU2	ANU3	ISNU1	NA-ISNU1	CANU1	CANU2	CCR	MCR	MCE
Phase I	3	4	---	2	4	3	4	9	13	20
Phase II	3	8	---	3	3	6	4	10	13	23
Reassessment	3	8	6	3	3	---	4	16	19	23

Cost Responsibility for Network Upgrades (7.1) (cont'd)

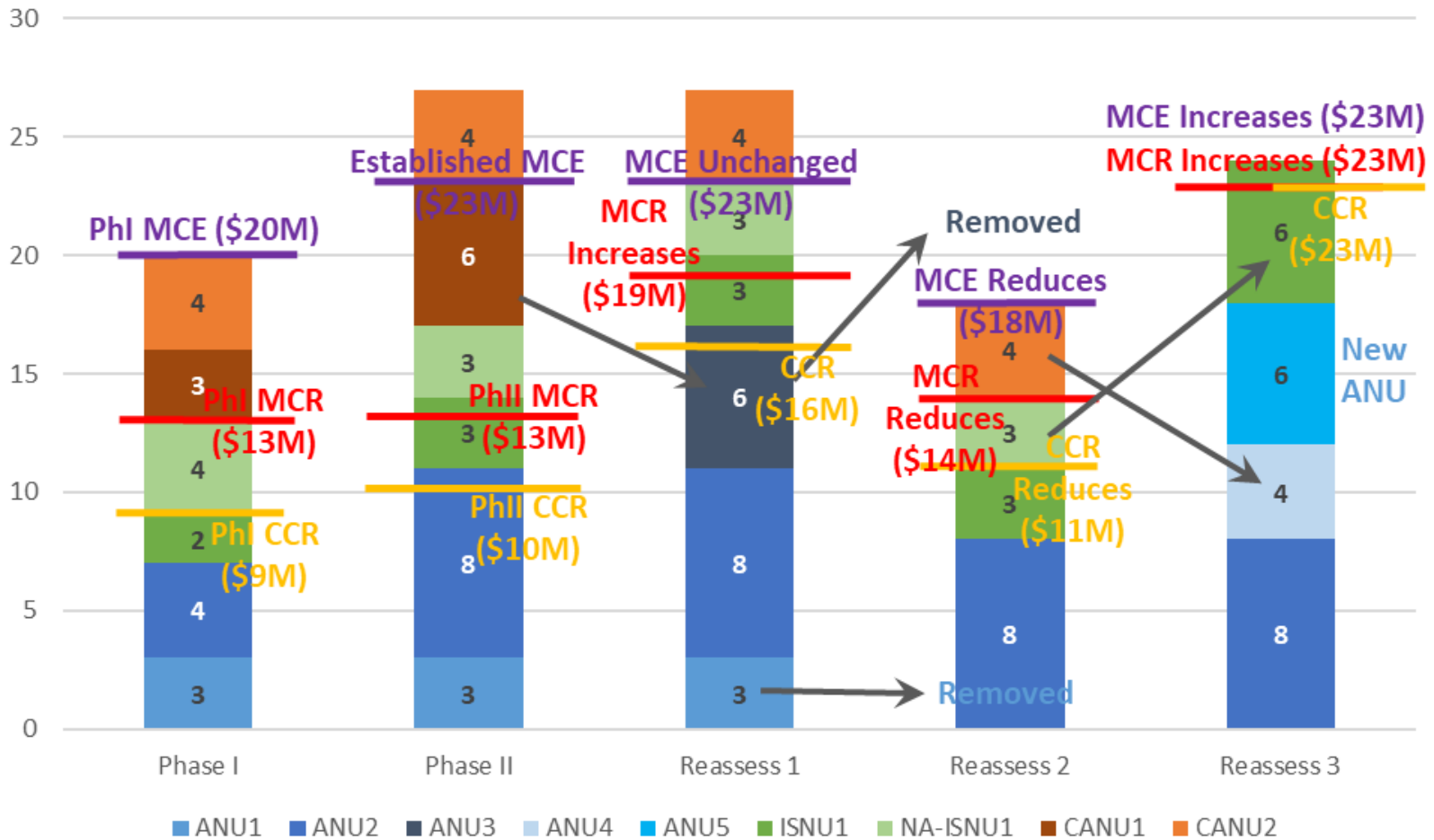
Example 2b) CANU1 is removed from project's cost responsibility (@\$6M). IC's MCE has decreased by the fixed-cost of the CANU (\$6M) as identified in the II study. The MCR remains unchanged.



	ANU1	ANU2	ISNU1	NA-ISNU1	CANU1	CANU2	CCR	MCR	MCE
Phase I	3	4	2	4	3	4	9	13	20
Phase II	3	8	3	3	6	4	10	13	23
Reassessment	3	8	3	3	0	4	10	13	17

Cost Responsibility for Network Upgrades (7.1) (cont'd)

Potential scenario with various results/impacts to MCR & MCE



	ANU1	ANU2	ANU3	ANU4	ANU5	ISNU1	NA-ISNU1	CANU1	CANU2	CCR	MCR	MCE
Phase I	3	4	---	---	---	2	4	3	4	9	13	20
Phase II	3	8	---	---	---	3	3	6	4	10	13	23
Reassess 1	3	8	6	---	---	3	3	---	4	16	19	23
Reassess 2	0	8	0	---	---	3	3	---	4	11	14	18
Reassess 3	0	8	0	4	6	6	---	---	---	23	23	23

INTERCONNECTION REQUEST ACCEPTANCE AND VALIDATION CRITERIA TOPICS

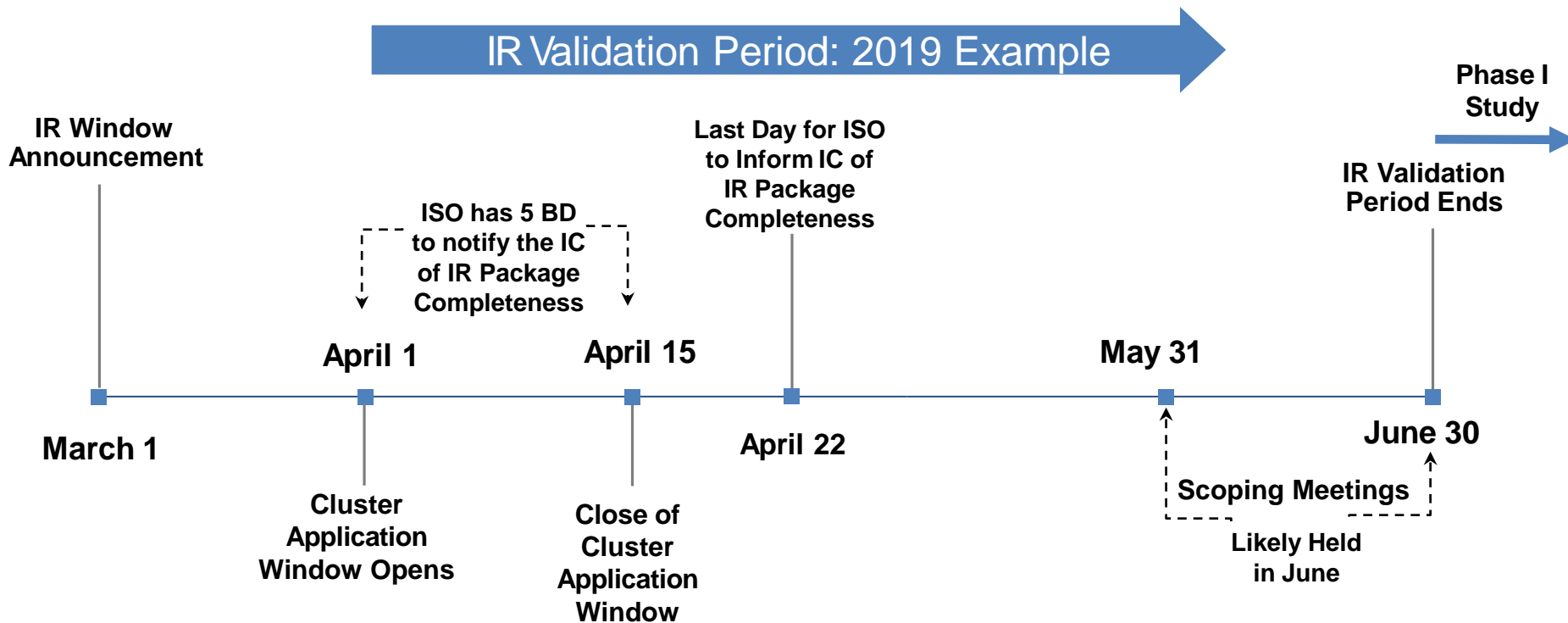
Interconnection Request Acceptance (11.1)

CAISO proposed minimum requirements for an Interconnection Request (IR) application:

- Study Deposit
- Evidence of Site Exclusivity or Deposit In Lieu of Site Exclusivity
- Completed Appendix 1 (Interconnection Request)
- Completed Attachment A to Appendix 1 (Generator Technical Data - Excel)
 - Technical Validation Tab: Must contain no errors and all warnings must be explained
 - IR Validation and Comments Tab: Column A must be filled in with “Yes” or “N/A” on all items
- Site Drawing
- Single Line Diagram
- Reactive Power Curve
- Load Flow Model (*.epc)
- Dynamic Model (*.dyd)
- Plot showing flat run **and bump test (fault at bus and clear after 4-6 cycles)** from the PSLF
 - (screenshot okay)
- Plot showing requested MW at POI from the PSLF
 - (screenshot okay)


Interconnection Request Validation Criteria (11.2)

- CAISO proposed adjusted Interconnection Request (IR) validation timeline



NEXT STEPS

Next Steps



Milestone	Date
Post Addendum #2 to Draft Final Proposal	December 21, 2018
Stakeholder call	January 3, 2019
Stakeholder comments due	January 11, 2019
February Board of Governors	February 6-7, 2019

Written stakeholder comments on the Addendum #2 to Draft Final proposal are due by COB January 11th to:

InitiativeComments@caiso.com

Materials related to the 2018 IPE initiative are available on the ISO website at:

<http://www.caiso.com/planning/Pages/GeneratorInterconnection/Default.aspx>