

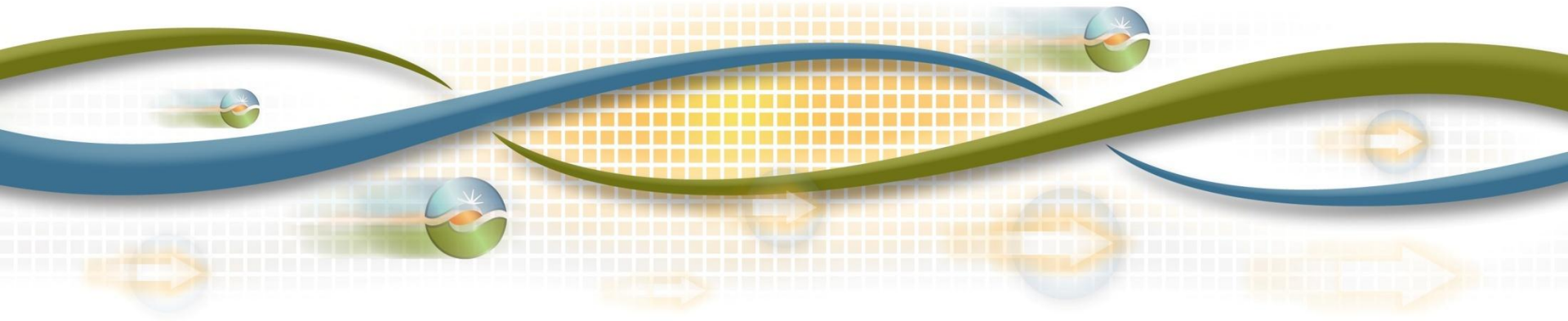


California ISO
Shaping a Renewed Future

Integration of Transmission Planning and Generator Interconnection (TPP-GIP Integration)

Draft Final Proposal

Stakeholder Meeting, February 22, 2012

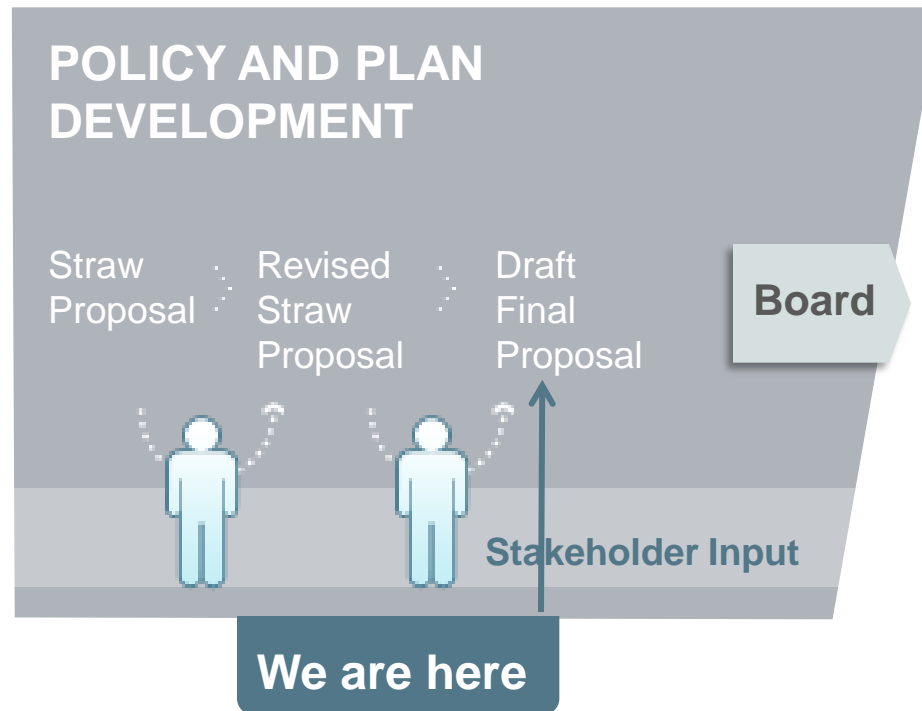


Introduction, Stakeholder Process

Mercy Parker Helget

Senior Stakeholder Engagement and Policy
Specialist

ISO Stakeholder Initiative Process



Schedule for stakeholder process

Date	Event
July 21	ISO posts Straw Proposal
July 28	Stakeholder meeting at ISO
August 9	Stakeholders' written comments due
September 12	ISO posts Revised Straw Proposal
September 19	Stakeholder meeting at ISO
September 26	Stakeholders' written comments due
November 23	ISO posts Discussion Paper
December 1	Work group meeting at ISO
January 12	ISO posts Second Revised Straw Proposal
January 19	Stakeholder meeting at ISO
January 31	Stakeholders' written comments due
February 15	ISO posts Draft Final Proposal
February 22	Stakeholder meeting at ISO
March 1	Stakeholders' written comments due
March 22-23	ISO Board meeting

Agenda

Time		Speaker
10:00-10:10	Stakeholder Process, Agenda	Mercy Parker Helget
10:10-10:30	Proposal Overview & Objectives	Lorenzo Kristov
10:30-12:00	Draft Final Proposal	TPP-GIP Team
12:00-1:00	Lunch – All are welcome to dine at ISO café	
1:00-3:45	Draft Final Proposal	TPP-GIP Team
3:45-4:00	Next Steps	Mercy Parker Helget

Proposal Overview & Objectives

Lorenzo Kristov

Principal, Market & Infrastructure Policy

Objectives

1. Develop ratepayer-funded transmission for the ISO grid in a comprehensive planning process
2. Rely primarily on the TPP as the venue for developing ratepayer-funded transmission
3. Provide incentives for generation project location decisions to make efficient use of transmission
4. Limit potential ratepayer exposure to costs for under-utilized or excessive transmission upgrades
5. Provide greater certainty that transmission approved by ISO will be permitted by siting authority
6. Provide greater transparency on transmission upgrade decisions

Objectives – continued

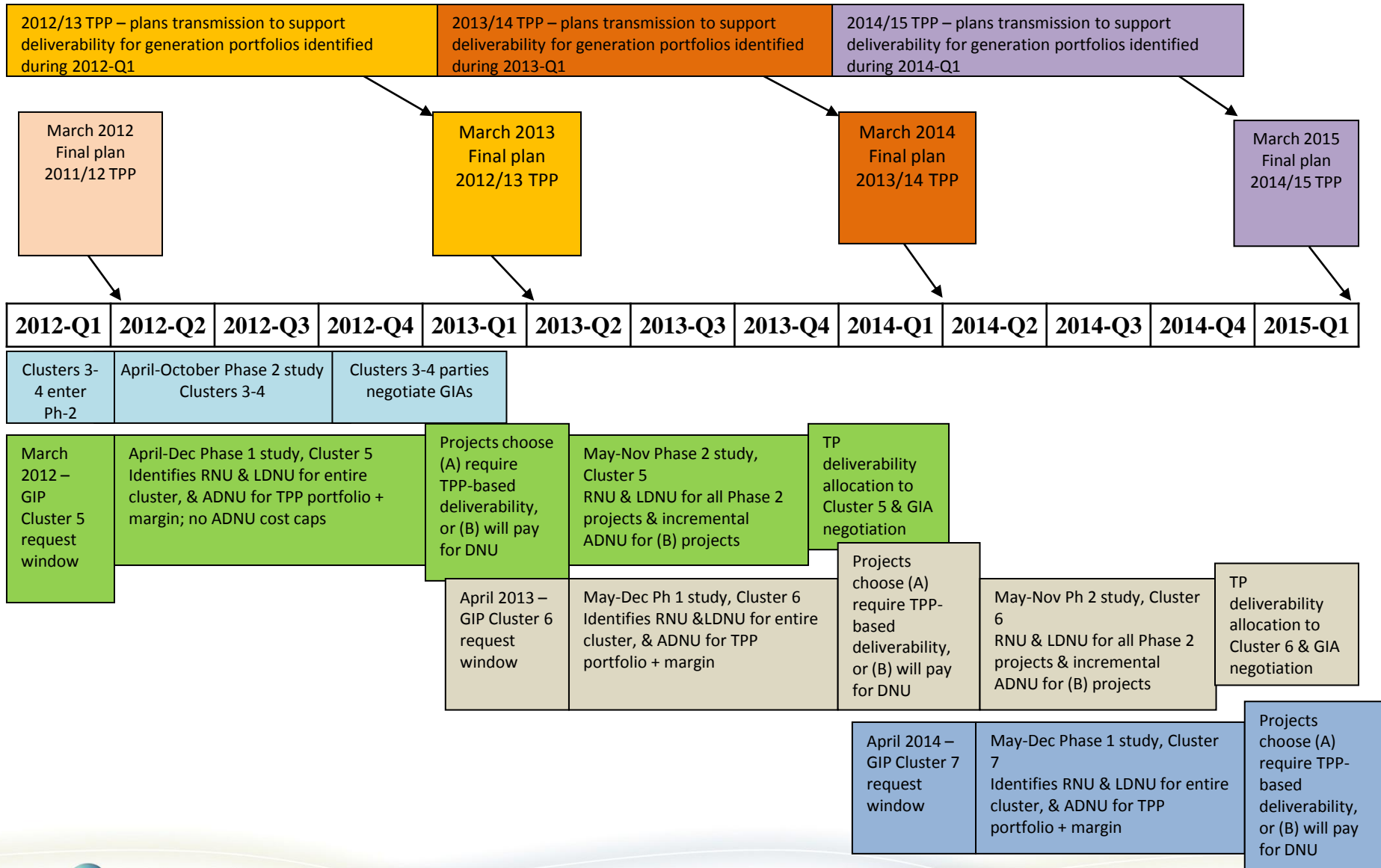
7. Resolve open GIP issues related to initiative scope

- a. Clarify IC funding and posting requirements
- b. Provide for re-study process to re-evaluate needed upgrades and plan of service due to status changes of queue projects
- c. Modify GIP study process to yield meaningful results even when the volume of MW in the queue is extremely large
- d. Consider whether to allow additional opportunities for projects to downsize before executing the GIA

8. Allocate TPP-based deliverability to eligible generation projects in a manner that:

- a. Selects projects with high likelihood of successful completion
- b. Limits the ability of non-viable projects to retain TPP deliverability without progressing to commercial operation
- c. Provides sufficient certainty for viable projects to obtain financing
- d. Ensures transparency and is implementable.

Timeline for Integrated TPP and GIP



TPP-GIP Integration

Draft Final Proposal

Draft Final Proposal – Preliminary

Proposal distinguishes:

- Area Delivery Network Upgrades (ADNU)
 - Identified in TPP to provide deliverability for MW generation quantities in grid areas specified in TPP resource portfolios
 - Projects allocated “TP Deliverability” are not required to post or pay for ADNU
- Local Delivery Network Upgrades (LDNU)
 - Identified in GIP studies; specific to generation project
- Reliability Network Upgrades (RNU)
 - Identified in GIP studies; specific to generation project
 - Required to address a problem that cannot be managed through market congestion management
- All projects post for their shares of LDNU and RNU.

Reimbursement of RNU & LDNU postings is linked to TP deliverability allocation

- Option (A) and (B) projects allocated TP deliverability receive full reimbursement of RNU and LDNU postings following start of commercial operation
- Option (A) projects not allocated TP deliverability that remain in queue as energy only are
 - Eligible for reimbursement of first LDNU posting
 - Not eligible for RNU cost reimbursement
- Option (B) projects not allocated TP deliverability are not eligible for cash ratepayer reimbursement of RNU, LDNU or ADNU costs
 - “First-mover-late-comer” provisions may provide partial cash reimbursement from later generation projects
- Projects that initially enter the queue as energy only are eligible for reimbursement of RNU costs up to \$40,000 per MW of installed capacity following commercial operation

Draft Final Proposal – GIP Phase 1

1. Cluster 5 request window closes at end of March. Cluster 6 and beyond – request window closes at end of April.
2. Modified GIP phase 1 study approach will provide more realistic/useful results than today.
 - Identify RNU and LDNU for all projects in cluster
 - Identify ADNU for constructed “GIP phase 1 study portfolio”
 - ADNU identified in phase 1 are for information purposes and first security posting where applicable

3. “GIP phase 1 study portfolio” – MW studied for deliverability in each area is aligned with expected generation development and depends on:

- amount of “TP deliverability” in latest transmission plan
- amount and resource mix of FC projects in the queue, and
- size of the largest generation project in the study area.

Concept: GIP phase 1 study portfolio reflects

- Entire cluster study group if queue amount is within moderate amount above TP deliverability
- More realistic amount if existing queue plus Cluster N is large.

Phase 1 study will provide plan of service (POS) for LDNU, RNU, and interconnection facilities (IF).

4. “GIP phase 1 study portfolio” may over-achieve 33% RPS for ISO system as a whole.

On a portfolio area basis, phase 1 identifies incremental ADNU and cost estimates if generation development exceeds TPP portfolio.

Provides useful information to LSEs and Regulatory Authorities in evaluating procurement options.

5. Study process remains within the structure of the GIP – current study roles & responsibilities of ISO and PTOs would not change from today.
6. Phase 1 study will inform each project of its RNU, LDNU and associated costs, and either:
 - Case (1): Incremental ADNU and estimated project cost share, if cluster study group total MW amount does not exceed the phase 1 study portfolio MW limit; or,
 - Case (2): Incremental ADNU and estimated costs to provide deliverability up to MW amount in GIP phase 1 study portfolio, if large cluster study group.

- 6 – continued. For case (2), ISO will calculate \$/MW cost rate equal to ADNU cost divided by MW amount of generating capacity studied.
- Will be used to extrapolate ADNU cost estimates for full study group and for each project in group.
7. GIP phase 1 results provide each project with cost cap for its RNU and LDNU
- Retain today's GIP provisions on security posting
 - Modify RNU & LDNU reimbursements to align with TP deliverability allocation.

Phase 1 does not cap project exposure to ADNU costs.

Transition from Phase 1 to Phase 2

8. Between phase 1 results and deadline for posting for phase 2, project must elect one of two options:
 - (A) => the project requires TP deliverability to continue to commercial operation; or,
 - (B) => the project is willing & able to pay for all network upgrades without cash reimbursement by ratepayers.
- (A) projects make normal GIP first security posting for RNU & LDNU, but not for ADNU.
- (B) projects post security for RNU, LDNU and ADNU.
 - ADNU security posting is calculated on \$/MW cost rate determined in phase 1 study

9. Required security posting amounts for phase 2 are based on the phase 1 study results.

- For RNU and LDNU, remains same as today.
- For ADNU, (B) must post, but not (A).

10. ADNU posting requirements for (B) assume that TP deliverability is fully utilized by (A) projects

- Assume (B) projects fully fund needed incremental ADNU.
- Each (B) project's ADNU posting equals
 - $(\$/\text{MW rate}) \times (\text{project MW deliverability})$ for large cluster study groups; or
 - actual phase 1 cost estimates for incremental ADNU distributed over only (B) projects.

- 11.(B) projects will be fully responsible for the actual cost of ADNU required for requested deliverability status.
- Phase 1 ADNU cost estimate not a cost cap.
 - Project developer can select preferred firm to build the ADNU, subject to tariff section 24 qualifications and restrictions on eligibility of non-PTO entities to build transmission.
 - Can withdraw after phase 2 study results
 - Eligible for partial refund of first security posting under current tariff provisions, or if phase 2 ADNU cost estimate exceeds phase 1 estimate by 20% or \$20 million.

GIP phase 2

12. ISO will perform baseline re-study (deliverability and reliability assessments) prior to beginning of each GIP phase 2 to assess impacts of:
- Project withdrawals from the queue since the ISO completed the last phase 2 study
 - Progress of earlier queued generation with GIAs on meeting required milestones
 - Transmission additions and upgrades approved in most recent TPP cycle
- Re-study will also re-assess ADNU requirements for (B) projects in prior cluster due to any (B) drop-outs or TP deliverability allocations.

12 – continued. Re-study could determine:

- Updated DNU for existing queue generation projects (serial through cluster 4)
 - Updated DNU for (B) in previous clusters that were not allocated TP deliverability
 - Updated RNU and LDNU for all earlier queued gen projects.
- ISO will use results to amend GIAs as needed and to develop phase 2 study base cases.
 - ISO will work with PTOs to establish schedule for re-study process.

13. Phase 2 study will determine required RNU and LDNU for all projects in phase 2.

- To determine ADNU for (B) projects, phase 2 models (A) projects at requested deliverability status up to amount feasible and uses up TP deliverability.
- If (A) projects exceed TP deliverability in an area, ISO will model all (A) to determine RNU and LDNU, but distribute TP deliverability over a subset of (A) in a representative manner to use available TP deliverability.
- If (A) projects and earlier queued projects in an area do not use up TP deliverability, some may be unencumbered in model for phase 2.

13 – continued

- Phase 2 then adds all (B) projects at requested deliverability levels to identify required incremental ADNU.
- Phase 2 thus produces realistic RNU, LDNU and costs for all projects, plus realistic ADNU results for (B) projects.
- These results will be used for developing GIAs.

Allocation of TP Deliverability – post GIP phase 2

14. Allocation of TP deliverability has two steps.

Step 1: Reserve TP deliverability for existing queue (serial through cluster 4), prior cluster allocations, MIC expansion and distributed generation (new initiative in progress).

- Identify existing queue projects that meet two criteria:
 - Have executed PPA in good standing with LSEs; and,
 - Have GIA in good standing.
- Determine which projects previously allocated TP deliverability (from cluster 5 up through cluster N-1) have met retention criteria described below.
- Reserve as much TP deliverability as needed for these two groups of generation projects, for MIC expansion and for distributed generation.

14 – continued

- If total deliverability encumbered is less than TP deliverability, the remainder will be available for allocation in step 2 of the process.
- If total deliverability encumbered is greater than TP deliverability, there is no further TP deliverability to allocate to new projects.

15. If total deliverability encumbered in step 1 exceeds TP deliverability in current transmission plan, ISO will consult with CPUC & LRAs to assess whether to increase TPP portfolio amount for next TPP cycle.
- Time lag between generator CODs and in-service dates of additional DNU approved in TPP may require reductions in annual NQC.
 - ISO will apply annual NQC adjustments, as needed, to projects with 5% flow factor on constraining facilities.
 - Apply first to “new” generation – not in commercial operation and without executed PPA or RA contract by 2/29/2012
 - If new generation not sufficient for feasible total NQC, then also other generation in area plus expanded MIC.

16. Step 2 – Allocate available TP deliverability to current cluster N projects and “parked” cluster N-1 (A) projects
- Performed during 120-day period between phase 2 results and GIA execution deadline.
 - Eligible projects must meet two minimum threshold criteria related to permitting and project financing:
 - Applied for government permit/approval for construction of generating facility
 - On an active short-list for an LSE’s request for offer.
 - If amount of (A) and (B) projects meeting threshold criteria does not exceed available TP deliverability, then all will be allocated and may execute GIAs accordingly.

17. If (A) and (B) meeting threshold criteria exceed amount available, ISO will ration TP deliverability

- Calculate a numerical score for each eligible project and allocate TP deliverability to highest scoring projects.
- Three scoring categories:
 - Permitting status (10 pts possible)
 - Project financing status (10 pts possible)
 - Land acquisition (4 pts possible)
- Minimum threshold for eligibility is 1 pt for permitting status and 1 pt for project financing status.

17 – continued

- Ranking may identify a “borderline” eligible project – available TP deliverability can provide only partial deliverability status.
- Project may accept available amount, and either
 - Downsize its physical capacity to match the smaller amount of FC deliverability status; or
 - Maintain physical characteristics and reduce deliverability status to partial.

After the allocation process

18. An (A) project that does not obtain TP deliverability in the current cluster allocation may either:

- Defer execution of GIA and “park” for one additional GIP phase 2 study cycle
- Execute an energy only (EO) GIA, or
- Withdraw from the queue.
- If it parks and does not obtain TP deliverability in the next cluster’s allocation, it must either
 - Withdraw from the queue, or
 - Go forward as an EO project and meet all requirements associated with an EO GIA.
- Later conversion of EO to deliverability will be governed by existing tariff appendix Y, sec. 8.2

18 – continued

- If the (A) project withdraws, it would be eligible for partial refund of its first security posting if it meets any one of the 4 conditions of App. Y Sec. 9.4.1, or
 - A new fifth condition: the project after having elected option (A) was not allocated TP deliverability.
- “Early” withdrawal period for 5th condition will extend up to 18 months after the phase 2 results
 - 120 day allocation period + one year of parking to end of next allocation period + 60 days

19. If a (B) project is not allocated TP deliverability in the current cluster allocation period, it must either

- Execute a GIA specifying its non-cash-reimbursable funding of needed ADNU, LDNU, and RNU, and make the required postings within the normal time frame; or,
 - Withdraw from the queue.
- If the (B) project withdraws, it would be eligible for partial refund of its first security posting if it meets any one of the 4 conditions of App. Y Sec. 9.4.1, or
- A new fifth condition: Its phase 2 ADNU costs exceed its phase 1 cost estimate by the lesser of 20% or \$20 million
 - Must withdraw no later than 180 days after phase 2 results to be eligible for partial refund.

20. The GIA for an (A) or (B) project allocated TP deliverability will include criteria it must meet or lose its TP deliverability allocation
- Annual status review prior to allocation process for a new cluster
 - Loss of allocation would not necessarily terminate the GIA
 - Project may continue under a GIA amended to reflect EO deliverability status.

21. Retain earlier TPP-GIP Integration proposal that:

- a. (B) projects must fully fund incremental DNU they require, even if the DNU provide more deliverability than the projects fully utilize
- b. Such DNU would be incorporated into the ISO controlled grid as merchant transmission facilities
 - Eligible for allocation of merchant transmission CRRs
- c. “First-mover-late-comer” – Later generation projects that receive deliverability benefits from DNU funded by earlier projects will reimburse the funding parties in proportion to the benefits they receive (i.e., flow impacts on the DNU).

22. If TP deliverability in a study area in any given GIP cycle is not fully allocated in that cycle, then

- Later GIP studies will continue to model the TP deliverability as fully utilized, if there are sufficient generation projects in good standing in the queue that could utilize it.
- In such areas, the ISO will model generating capacity at representative locations to reflect the locations and resource types in the queue.

23. If a generation project allocated TP deliverability loses the allocation by failing a retention criterion, the project would either

- be modeled as energy only in subsequent GIA studies if it elects to remain in queue, or
- not be modeled at all if it drops out.

The associated deliverability would be available in the next TP deliverability allocation cycle.

Allocation Process Examples

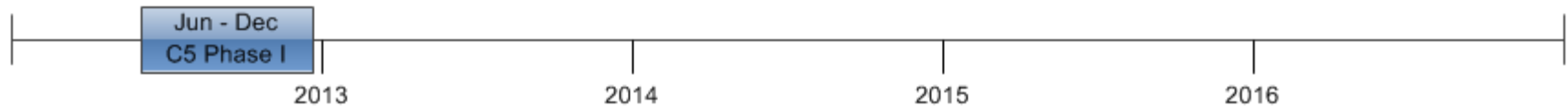
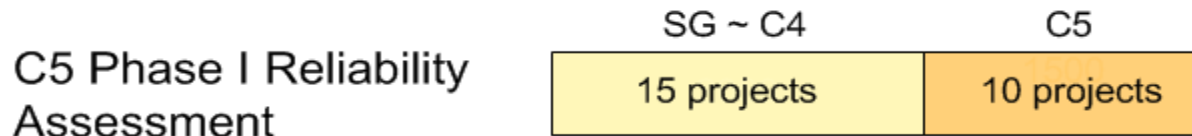
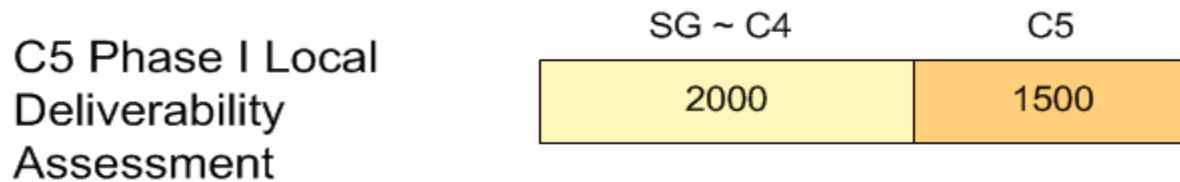
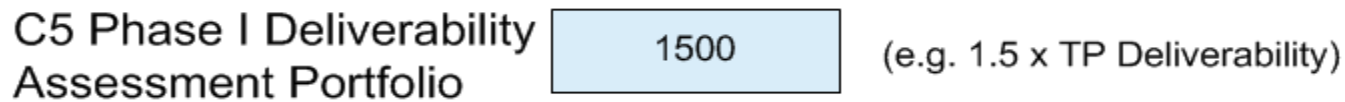
Robert Sparks

Manager, Regional Transmission

Songzhe Zhu

Senior Regional Transmission Engineer

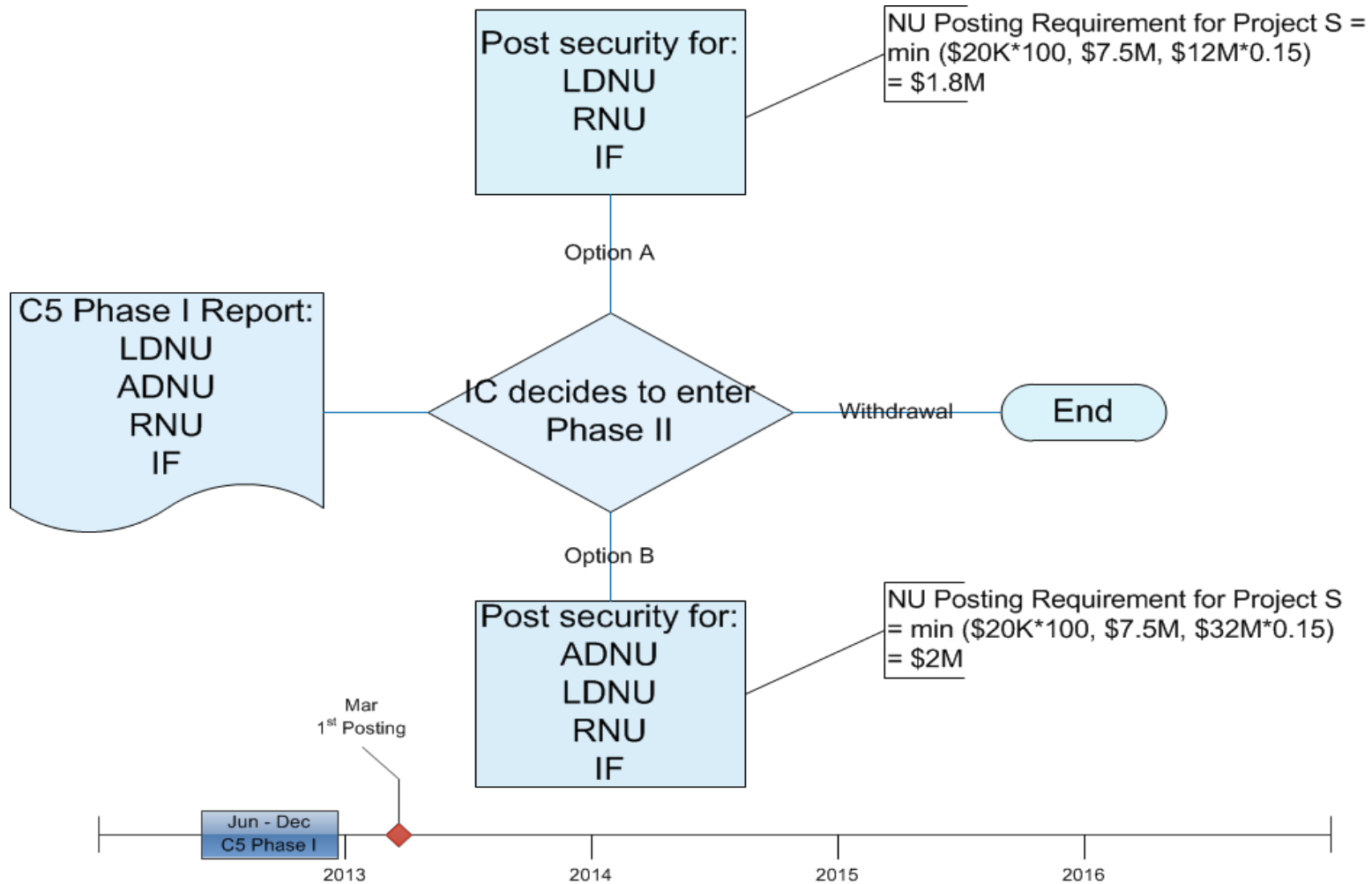
Example – Cluster 5 Phase I Study (Q3~Q4 2012)



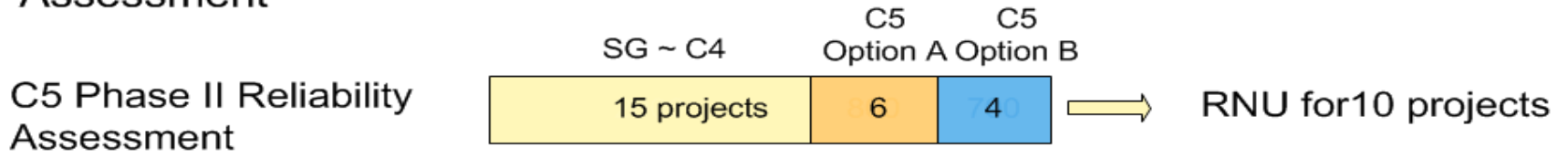
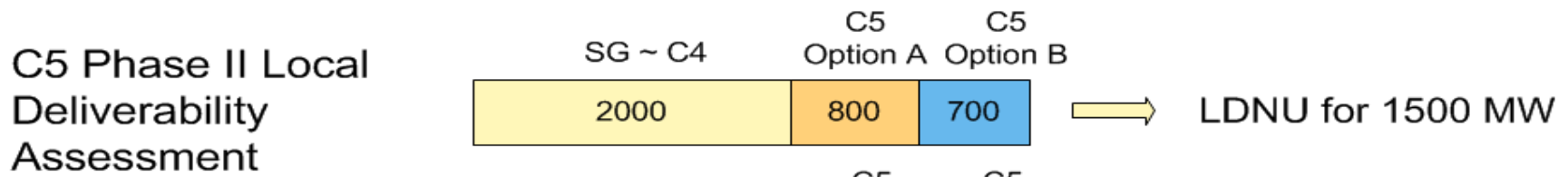
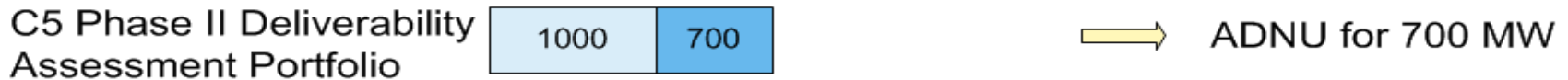
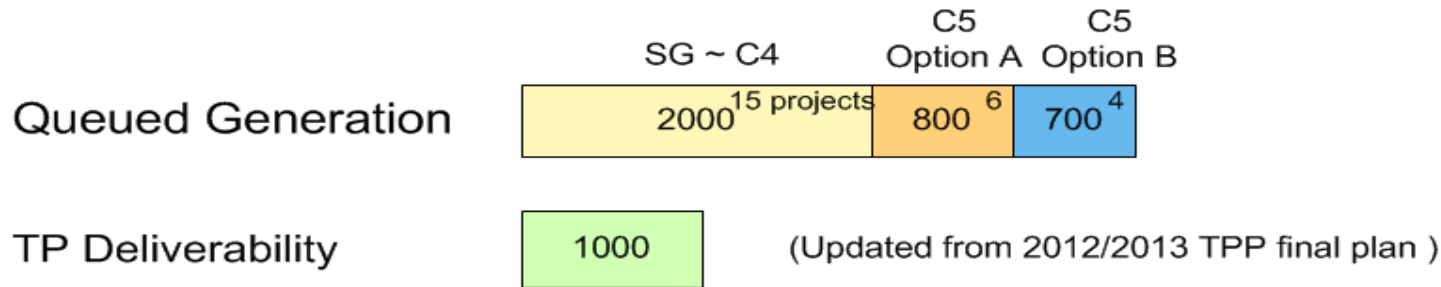
Example – Cluster 5 Phase I Network Upgrades and Cost Estimates

- Reliability Network Upgrades and costs for 10 C5 projects
- Local Delivery Network Upgrades and costs for 1500MW C5 projects
- Incremental Area Delivery Network Upgrades cost \$100M for 500 MW generation (1500 MW studied – 1000 from TP)
- ADNU cost rate = $\$100\text{M} / 500 \text{ MW} = \$200\text{K}/\text{MW}$
- For Project S, a 100MW solar project requesting FC:
 - ADNU = $\$200\text{K}/\text{MW} * 100\text{MW} = \20M (estimate)
 - LDNU \$7M
 - RNU \$5M

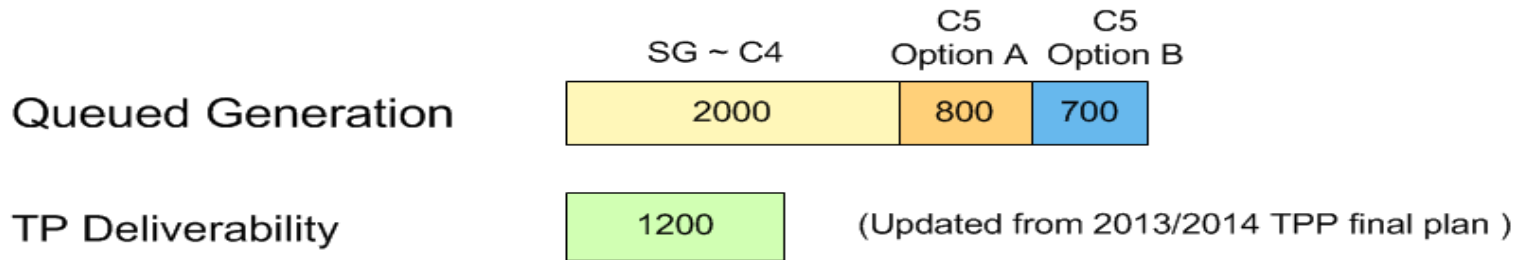
Example – Posting Requirement to Enter Cluster 5 Phase II Study (Q1 2013)



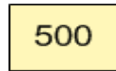
Example – Cluster 5 Phase II Study (Q2 ~ Q4 2013)



Example – Allocation of TP Deliverability after Cluster 5 Phase II Study: Year 1 (Q1 2014)



Step 1: reserve for SG ~ C4



500 MW SG ~ C4 in good standing

Step 2: allocate to C5



400 MW Option A and 200 MW Option B projects qualify

600 MW Option A and B projects complete FCDS GIA with TP deliverability;
 400 MW Option A projects may park for a year;
 500 MW Option B projects complete FCDS GIA with self-funding upgrades or withdraw.

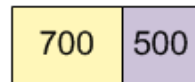


Example – Allocation of TP Deliverability after Cluster 5 Phase II Study: Year 2 (Q1 2015)

	SG ~ C4	C5	C6
Queued Generation	2000	1500	600
Previous allocation	500	600	
TP Deliverability	1400		

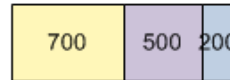
(Updated from 2014/2015 TPP final plan)

Step 1: reserve for SG ~ C4 & C5

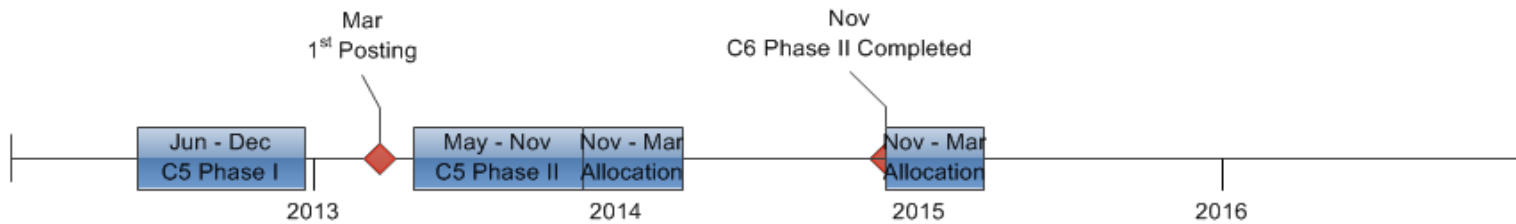


700 MW SG ~ C4 in good standing;
500 MW C5 projects meet retention criteria;
100 MW C5 projects lose TP deliverability

Step 2: allocate to C5 & C6



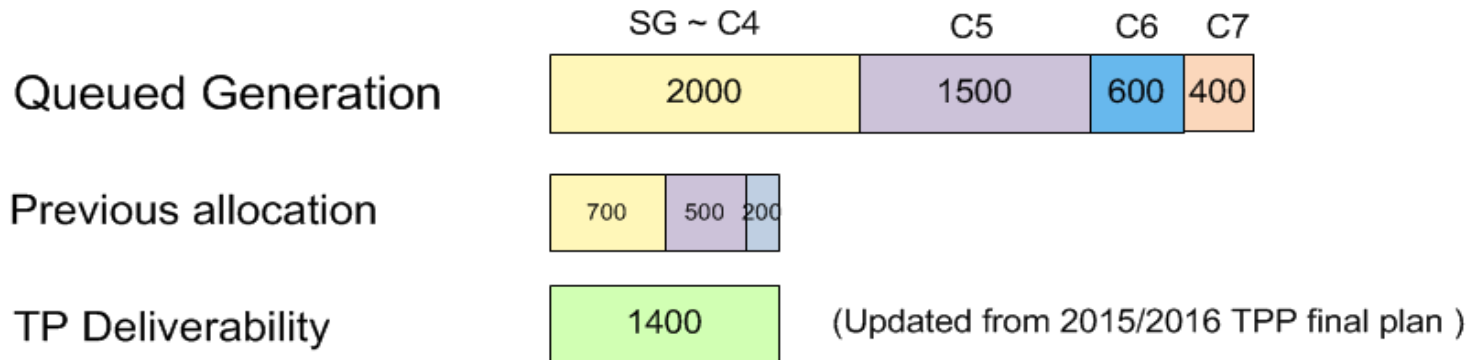
200 MW C5 Option A and C6 projects qualify



Example – Allocation of TP Deliverability after Cluster 5 Phase II Study: Year 2 (Q1 2015) (Cont.)

- C5 Option A projects allocated or losing TP deliverability complete EODS GIA or withdraw
- C6 projects allocated TP deliverability complete FCDS GIA
- C6 Option A projects not allocated TP deliverability may park for a year
- C6 Option B projects not allocated TP deliverability complete FCDS GIA with self-funding upgrades or withdraw

Example – Allocation of TP Deliverability after Cluster 5 Phase II Study: Year 3 (Q1 2016)



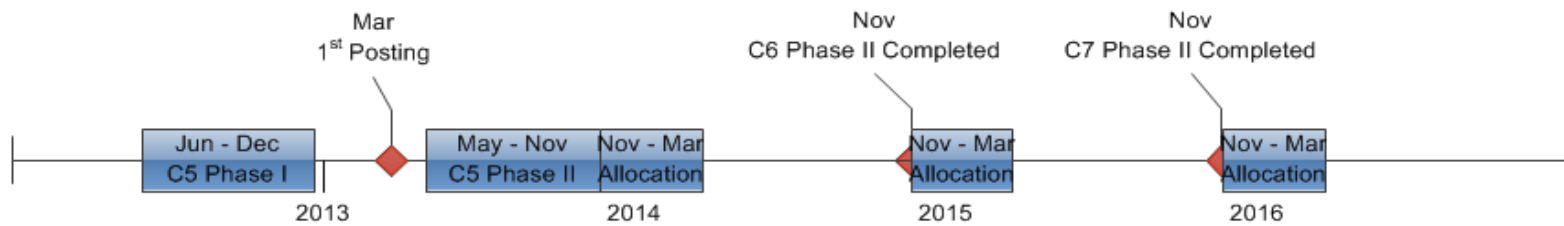
Step 1: reserve for SG ~ C4, C5 & C6

	SG ~ C4	C5	C6
Reserve	1000	500	200

1000 MW SG ~ C4 in good standing;
500 MW C5 projects meet retention criteria;
200 MW C6 projects meet retention criteria

No deliverability available for C7 projects and C6 Option A projects parked from last year;

Need to expand base portfolio by 300MW in 2016/2017 TPP cycle.



Scoring Methodology Examples

Tom Flynn

Infrastructure Policy Development Manager

Scoring example – Year 1: Q1/2014 -- Overview

- 1500 MW of FC projects in cluster 5 in this area
 - Five projects totaling 800 MW elected option (A)
 - Five projects totaling 700 MW elected option (B)
- 700 MW of TP deliverability available for allocation to cluster 5
- 600 MW of projects, 400 MW of (A) projects and 200 MW of (B) projects, meet the minimum threshold criteria.
- Although all 600 MW receive a score, the scores are not used as rationing is not necessary since 700 MW of TP deliverability are available.
- Project No. 2, a 400 MW (A) project, does not get an allocation because it did not meet the minimum threshold criteria and so elects to “park.”

Scoring example – Year 1: Q1/2014 (after completion of GIP phase 2 study for cluster 5)

#	Type	MW	Met Threshold ?	Permitting Status	Project Financing Status	Land Acquisition	Score	Rank	Allocation Result	Park ?
1	5A	100	Yes	10	5	2	17	2	100 MW	---
2	5A	400	No	10	0	4	---	---	---	Yes
3	5A	150	Yes	1	1	0	2	6	150 MW	---
4	5A	75	Yes	3	1	2	6	5	75 MW	---
5	5A	75	Yes	5	3	2	10	4	75 MW	---
6	5B	100	Yes	10	10	4	24	1	100 MW	---
7	5B	100	Yes	10	1	2	13	3	100 MW	---
8	5B	200	No	1	0	2	---	---	Elects to drop out	---
9	5B	150	No	3	0	2	---	---	Elects to drop out	---
10	5B	150	No	10	0	4	---	---	Elects to drop out	---

Scoring example – Year 2: Q1/2015 -- Overview

- 600 MW of cluster 5 received allocation in year 1.
- However, a year later, project no. 1 (100 MW) fails to meet retention criteria (500 MW from cluster 5 retain allocation).
- 600 MW of FC project in cluster 6 in this area (400 MW elected (A) and 200 MW elected (B)).
- 200 MW of TP deliverability available for allocation to cluster 6 and cluster 5 (A)s parked from year 1.
- 350 MW of projects (two (A)s and one (B)) meet minimum threshold criteria; thus, rationing required.
- Project No. 12, although eligible, does not get an allocation.

Scoring example – Year 2: Q1/2015

(after completion of GIP phase 2 study for cluster 6)

#	Type	MW	Met Threshold ?	Permitting Status	Project Financing Status	Land Acquisition	Score	Rank	Allocation Result	Park ?
2	5A	400	No	10	0	4	---	---	Elects to drop out	---
11	6A	100	Yes	5	3	2	10	2	100 MW	---
12	6A	150	Yes	1	1	0	2	3	No allocation	Yes
13	6A	150	No	3	0	2	---	---	---	Yes
14	6B	100	Yes	10	1	2	13	1	100 MW	---
15	6B	100	No	1	0	2	---	---	Elects to drop out	---

Scoring example – Year 3: Q1/2016 -- Overview

- Two (A)s totaling 300 MW from cluster 6 that “parked” from year 2.
- 400 MW of FC projects in cluster 7 (200 MW of (A)s and 200 MW of (B)s).
- However, there is no TP deliverability available for allocation to this 700 MW of projects desiring an allocation.

Scoring example – Year 3: Q1/2016 (after completion of GIP phase 2 study for cluster 7)

#	Type	MW	Met Threshold ?	Permitting Status	Project Financing Status	Land Acquisition	Score	Rank	Allocation Result	Park ?
12	6A	150	Yes	3	3	2	8	2	Zero available; Elects to drop out	---
13	6A	150	Yes	1	1	0	2	5	Zero available; Elects to drop out	---
16	7A	100	Yes	1	1	0	2	5	Zero available	Yes
17	7A	100	No	3	1	2	6	3	Zero available	Yes
18	7B	100	Yes	10	1	2	13	1	Zero available; Elects to drop out	---
19	7B	100	No	1	1	2	4	4	Zero available; Elects to drop out	---

Next steps

Mercy Parker Helget

Senior Stakeholder Engagement and Policy
Specialist

Comment Template Information

- A template will be posted for your use in providing comments on this initiative. Please fill it out and return to the TPP-GIP@caiso.com mailbox by March 1.
- The template indicates specific questions on which we are seeking your input, and provides additional space for you to comment on any other aspects of this initiative.

The next near-term milestones are shown below –

Date	Milestone
February 22	Stakeholder meeting on Draft Final Proposal
March 1	Stakeholder comments due
March 22-23	ISO Board Meeting