



20 Year Transmission Outlook Kick-off Meeting - Agenda

Isabella Nicosia

Stakeholder Engagement and Policy Specialist

May 14, 2021

Reminders

- Stakeholder calls and meetings related to Transmission Planning are not recorded.
 - Given the expectation that documentation from these calls will be referred to in subsequent regulatory proceedings, we address written questions through written comments, and enable more informal dialogue at the call itself.
 - Minutes are not generated from these calls, however, written responses are provided to all submitted comments.
- To ask a question, press #2 on your telephone keypad. Please state your name and affiliation first.
- Calls are structured to stimulate an honest dialogue and engage different perspectives.
- Please keep comments friendly and respectful.

Stakeholder Call - Agenda

Topic	Presenter
Introduction	Isabella Nicosia
20 Year Transmission Outlook	Jeff Billinton
2021-2022 Transmission Planning Process Out of State Wind – Sensitivity Study	Jeff Billinton
Wrap-up & Next Steps	Isabella Nicosia



Kick-off Meeting

Jeff Billinton

Director, Transmission Infrastructure Planning

May 14, 2021

20 Year Transmission Outlook

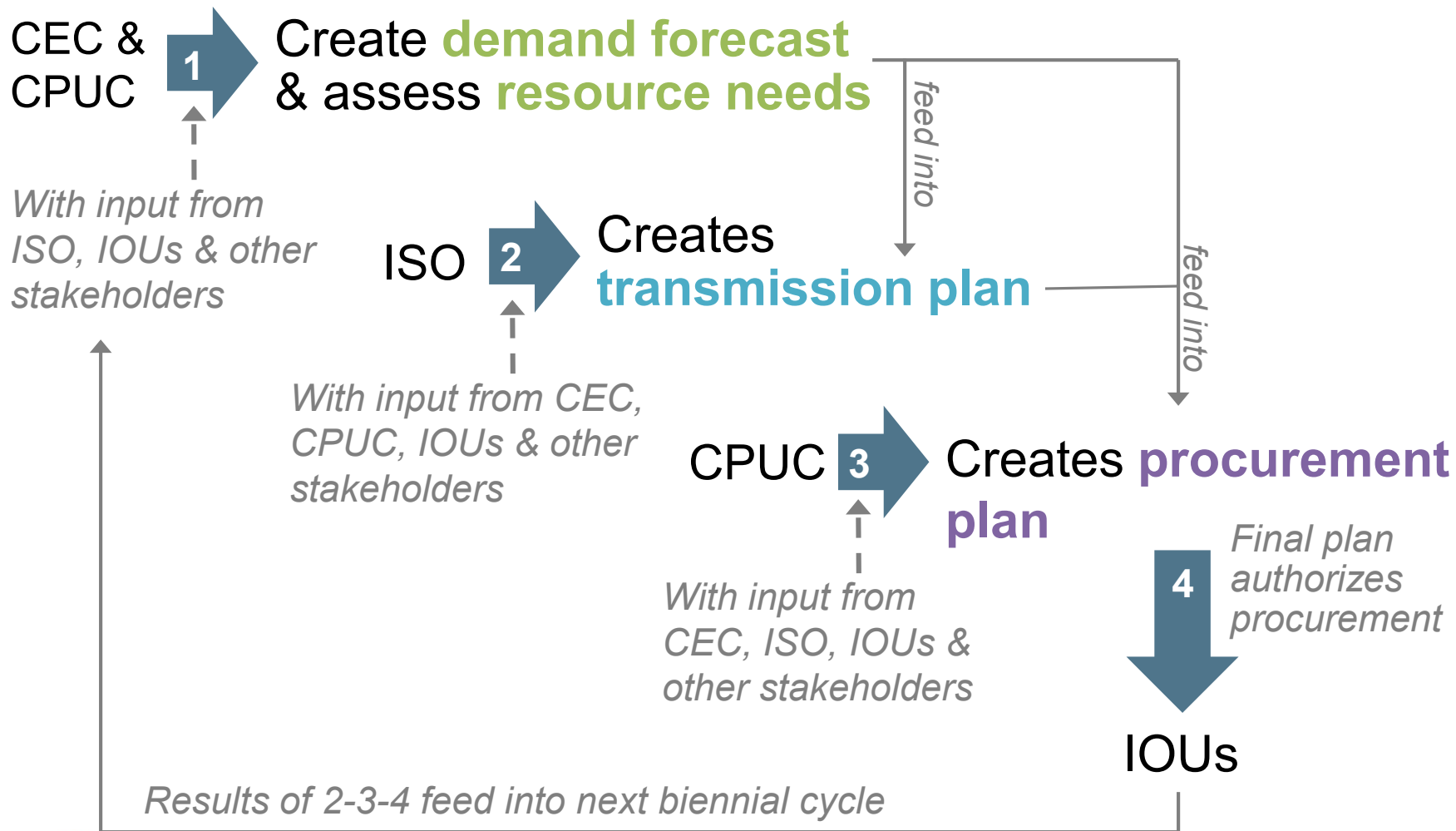
Overview - Launching the 20-Year Transmission Outlook initiative

- To explore longer term grid requirements and options for meeting the State's greenhouse gas reduction and renewable energy objectives reliably and cost-effectively,
- To run in parallel with the 2021-2022 annual tariff-based 10-year transmission planning process.
- To engage in meaningful discussion without focusing on specific project approvals

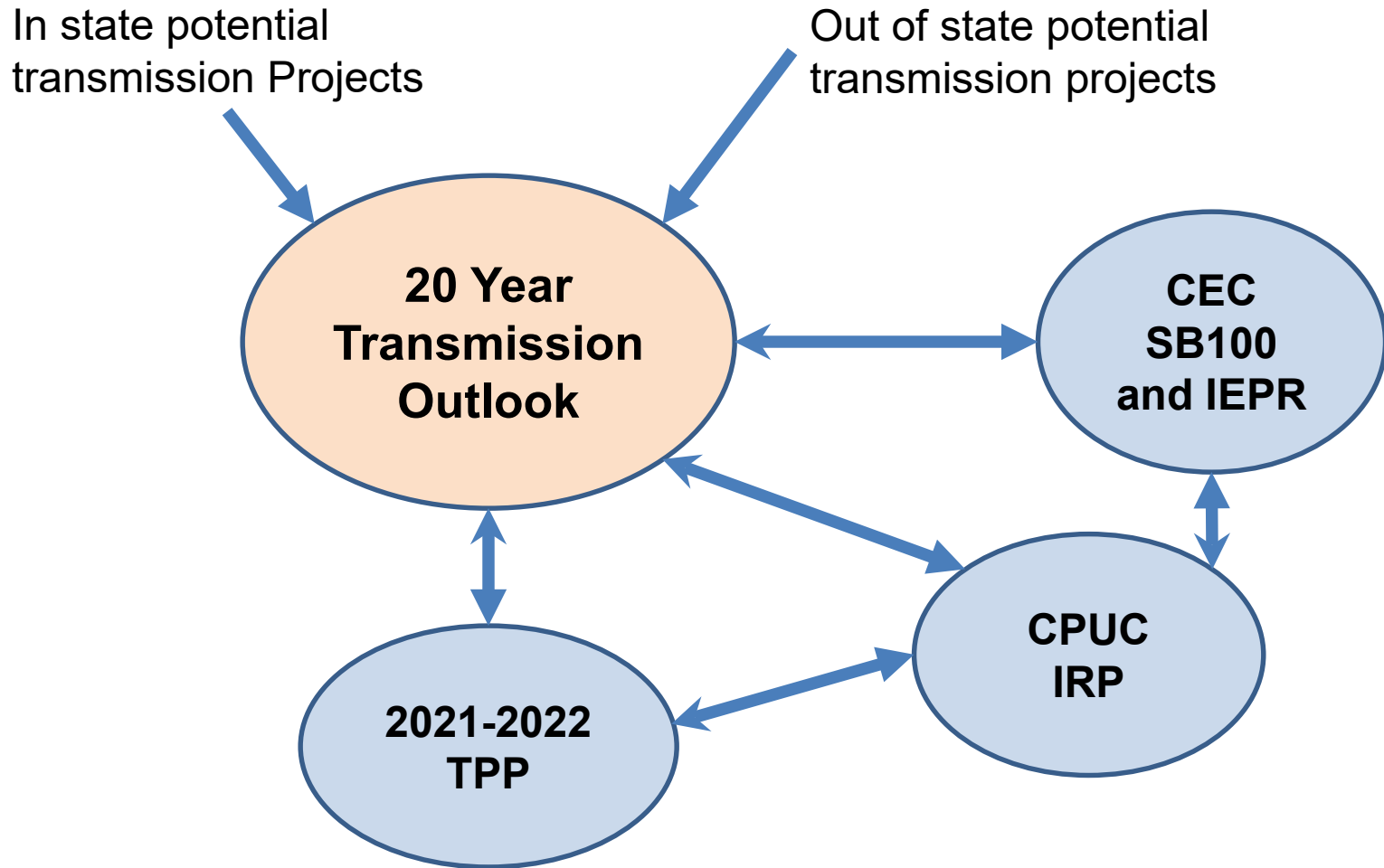
The 20-Year Transmission Outlook initiative will provide:

- A less structured framework for open discussion outside of the tariff-based 10-Year Transmission Plan that focuses on transmission project needs and approvals over the 10 year planning horizon
- Longer term context for and framing issues in the 10-Year Transmission Plan
- A transparent process to develop transmission information responsive to supporting and informing the CPUC's Integrated Resource Planning processes, and the CEC's SB 100 and Integrated Energy Policy Report efforts.

The effort will leverage but extend beyond existing planning and procurement processes



Primary Paths for Coordination with Other Initiatives



The initiative will continue – and increase the level of - coordination with CEC and CPUC

- Coordination of procurement of resources with the long lead time transmission to integrate the resources
- Coordination with expected CEC SB100 workshops

Initiative will consider:

- Long-term load forecasts such as an emphasis on potential impacts from increased electrification in other sectors,
- Broader ranges of resource transitions including potentially more aggressive gas-fired generation fleet retirement, and
- Increased emphasis on inter-regional opportunities.

Starting Point for Assumptions

Resources	Scenarios		
	60 RPS (GW)	SB100 Core (GW)	SB100 Study (GW)
Onshore Wind (in state)	4.3	4.3	4.3
Onshore Wind (out of state)	2.2	8.2	11.9
Offshore Wind		10	10
Utility-Scale Solar	36	70	86
Battery Storage	30	49	55
Pumped Storage	1.7		
Long Duration Storage		4	4
Geothermal		0.135	2.3
Shed DR	0.44		
New Gas	2.6		
Total New Resources	77.2	145.6	173.5
Retirement of Gas		-4.7	-7.2
Scenarios are from SB100 Report - Central Core and Study Scenarios			
Informational and not scenario we would be studying in Outlook			
Need to develop principle for resources to retire			

Further outreach on the scenarios is expected with the CEC, CPUC and stakeholders

Coordination with 2021-2022 transmission planning process

- The process is expected to include higher level technical studies to test feasibility of alternatives, and not the detailed level of comprehensive analysis that underpins the 10-Year Transmission Plan
- Accordingly we will coordinate with currently scheduled 10-Year Transmission Plan stakeholder sessions to the extent possible, and hold separate stakeholder sessions as appropriate.
- The process welcomes and will incorporate stakeholder input and consultation.

20 Year Transmission Outlook Milestones

- Stakeholder call initiating Outlook on May 14
 - Comments to be submitted by May 28
- Coordination with CEC workshops on SB100
 - Stakeholder call with on potential transmission projects in June
- Update at 2021-2022 TPP Stakeholder call on September 27 and 28
 - Comments to be submitted by October 12
- Update at 2021-2022 TPP Stakeholder call on November 18
 - Comments to be submitted by December 6
- Draft 20 Year Transmission Outlook as standalone document together with draft 2021-2022 Transmission Plan to be posted on January 31, 2022
- Stakeholder meeting in February



Out of State Wind Sensitivity Study

Jeff Billinton

Director, Transmission Infrastructure Planning

May 14, 2021

2021-2022 Transmission Planning Process

2021-2022 Transmission Planning Process

CPUC Portfolios

- For the 2021-2022 planning cycle, the CPUC provided:
 - a “base” portfolio for reliability, policy and economic study purposes – for potential transmission upgrade approval purposes
 - Sensitivities for informational studies.
- These portfolios include out of state resources, raising questions as to if or how the ISO would examine out of state transmission needs

Out of State Wind in Portfolios

- The economic assessment of the base portfolio will not assess the transmission outside of the CAISO system and assumes use of existing transmission rights secured by the generator resources that would be procured.
 - Base portfolio will consider the injection of the out of state wind at either the Eldorado or Palo Verde areas and potential internal CAISO system transmission constraints
- The CAISO will assess as a special study a comparison of transmission alternatives for the out of state wind in the Sensitivity 1 portfolio provided by the CPUC
 - Analysis of the out state transmission alternatives will only include production cost simulation.

CPUC Portfolio 1 - Sensitivity 1

- The CPUC IRP Sensitivity 1 portfolio includes OOS wind with specific capacity identified in both Wyoming and New Mexico. The Sensitivity 1 Portfolio provided specified injection points for the OOS wind, it was not specified how the OOS wind would be delivered to the injection points.
 - Out of state wind requiring transmission
 - 1500 MW in Wyoming area
 - 1500 MW in New Mexico area
 - Portfolio also includes out of state wind on existing transmission
 - 500 MW in New Mexico
 - 1500 MW in Pacific Northwest

Out of State Wind Sensitivity Study

- The purpose of this study is to do a comparative assessment for alternative transmission projects outside of CAISO system for integrating the OOS wind.
- Therefore this study will directly compare the CAISO ratepayers' net payments of the selected study scenarios, and provide the comparison results to the CPUC's IRP for future portfolio development
 - Expanding on the previous analysis that the CAISO has undertaken in past planning cycles

Alternative Transmission Projects

- Alternative transmission projects will be assessed for the OOS wind in the Wyoming (or Idaho) area
- The alternatives will include projects that have submitted previously as interregional transmission projects or assessed in previous TPP assessments
 - TransWest Express project
 - SWIP North project
 - Cross-tie project

Previous Analysis

2017-2018 TPP – Special Study

	SWIP-N with Gateway West*	Cross-Tie with Gateway South*	TransWest Express	REX HVDC with SunZia
Total ISO renewables including WY and NM wind	—	—	—	—
Impact on only WY and NM wind curtailment	WY wind curtailment**	↓ ↓ ↓	↓	—
	NM wind curtailment**	—	—	↓ ↓
	Curtailment (No ISO Export Limit)	—	—	—
	Thermal Overload Performance	↓ ↓	↓ ↓	—
	Planning Level Cost***	\$2B - \$3.9B	\$1.5B - \$2.1B	\$2.4B - 3.2B

↓ Reduction in curtailment or overload

— No impact relative to baseline

* SWIP-N and Cross-Tie without certain segments of Gateway were studied and were found to be decisively inadequate for the purpose of delivering Wyoming resources to California

** Curtailment under 2,000 MW Net ISO Export Limit

*** Based on (i) the request window submittals and (ii) cost information specified in RETI 2.0 Western Outreach Project Report – http://docketpublic.energy.ca.gov/PublicDocuments/15-RETI-02/TN214339_20161102T083330_RETI_20_Western_Outreach_Project_Report.pdf

ATC Assessment

- The ISO's examination of yearly, firm, point-to-point ATC data from the Western OASIS points to a severe lack of scheduling capability to deliver Wyoming and New Mexico wind to California
- None of the ITPs except TWE will create sufficient long-term, firm ATC from the renewable resource area all the way to the ISO without relying on other transmission not owned by the project sponsor. Note the proponent of the SWIP North project cites having pre-existing arrangements to secure transmission rights on the One Nevada Transmission Line (ON Line), addressing one of two transmission paths needing ATC on other transmission.

Study Approach for Wyoming or Idaho Out of State Wind

- The wind generators in Wyoming and Idaho will be modeled in Wyoming and Idaho
 - Wyoming wind generators will be modeled at the Aeolus 500 kV bus, which is the junction terminal of the Gateway West and Gateway South projects
 - Idaho wind generators will be modeled at the MidPoint 500 kV bus, which is the terminal in Idaho of the proposed SWIP-North project

Study Approach for New Mexico Out of State Wind

- 1500 MW of New Mexico wind generators that require new transmission will be modeled at the Pinal Central 500 kV bus
- The 500 MW of New Mexico wind generators that use the existing transmission will be modeled on an existing 345 kV bus in the New Mexico system, such as WESTMESA 345 kV that was used for modeling New Mexico wind in the previous cycles.

Out of State Wind Special Study - Timeline

- Targeting to provide analysis at the November Stakeholder meeting
- Will be incorporated into the Draft 2021-2022 Transmission Plan to be posted on January 31, 2022



California ISO

Next Steps

Isabella Nicosia

Stakeholder Engagement and Policy Specialist

May 14, 2021

Comments

- Comments due by end of day May 28, 2021
- Submit comments through the ISO's commenting tool, using the template provided on the process webpage:
<https://stakeholdercenter.caiso.com/RecurringStakeholderProcesses/20-Year-transmission-outlook>

Comments will be submitted to the ISO using the online stakeholder commenting tool

- Ability to view all comments with a single click.
- Ability to filter comments by question or by entity.
- Login, add your comments directly to the template and submit.
 - You can save and return to your entry anytime during the open comment period.

NOTE

Submitting comments in the tool will require a one-time registration.

- ▶ Find a [video](#) on how to use the commenting tool on the Recurring Stakeholder Processes [landing page](#).

Announcements

- [2021 Summer Loads and Resources Assessment](#) was posted to the ISO website on Wednesday, May 12.
 - ISO will hold a public stakeholder call on May 24 to discuss the assessment.