



California ISO

Decision on ISO 2017-2018 Transmission Plan

Neil Millar

Executive Director, Infrastructure Development

Board of Governors Meeting

General Session

March 22, 2018

Approving the plan means approving determinations and recommendations contained in the plan.

- 17 transmission projects identified as needed:
 - 13 reliability-driven projects
 - 4 economic-driven projects
- Changes to previously-approved projects
 - Canceling 20 projects
 - Revising the scope of 21 projects
 - 7 projects require further evaluation in future planning cycles
- No policy-driven projects

2017-2018 Transmission Planning Process

January 2017

April 2017

March 2018

Phase 1 – Develop detailed study plan

State and federal policy
CEC - Demand forecasts
CPUC - Resource forecasts and common assumptions with procurement processes
Other issues or concerns

Phase 2 - Sequential technical studies

- Reliability analysis
- Renewable (policy-driven) analysis
- Economic analysis

Publish comprehensive transmission plan with recommended projects

Phase 3 Procurement

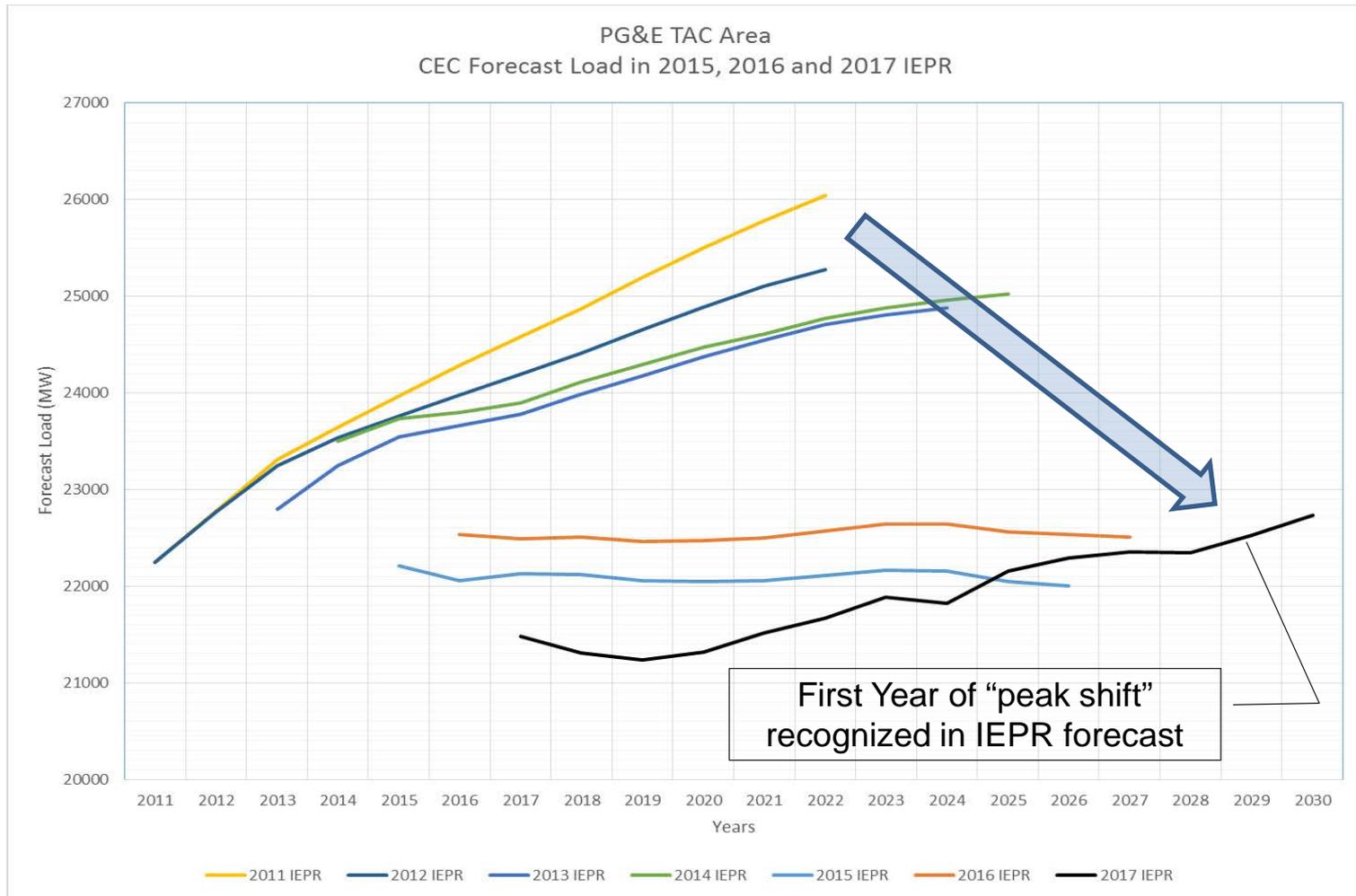
ISO Board for approval of transmission plan

The ISO's reliability analysis led to the following:

- 13 new reliability projects are recommended for approval
- Reassessment of previously-approved projects in PG&E service territory
 - 18 are recommended to be canceled,
 - 21 have been re-scoped, and
 - 7 have been identified as needing further review.
 - After identifying 33 projects as needed from initial screening, 62 projects received a thorough and comprehensive programmatic review
- In the SDG&E service territory, 2 previously-approved projects are recommended to be canceled

\$2.6 billion savings
from current estimates.

Programmatic review of previously-approved PG&E projects driven largely from changes in load forecast.



New reliability projects recommended for approval in 2017-2018 TPP

Projects	Planning Area
Lakeville 60 kV Area Reinforcement	North Coast and North Bay
Vaca Dixon-Lakeville 230 kV Corridor Series Compensation	North Coast and North Bay
<i>Newark-Lawrence 115 kV Line Upgrade *</i>	<i>Bay Area</i>
<i>Newark-Milipitas #1 115 kV Line Upgrade *</i>	<i>Bay Area</i>
<i>Trimble-San Jose B 115 kV Line Upgrade *</i>	<i>Bay Area</i>
Cooley Landing-Palo Alto and Ravenswood-Cooley Landing 115 kV Rerate	Bay Area
Oakland Clean Energy Initiative Project	Bay Area
<i>Coburn-Oil fields 60 kV system *</i>	<i>Central Coast and Los Padres</i>
Herndon-Bullard 115 kV Reconductoring Project	Fresno
Moorpark-Pardee 4th 230 kV Circuit	SCE
<i>San Ysidro 69 kV Reconductoring *</i>	<i>SDG&E</i>
<i>Suncrest Transformer Rating Increase*</i>	<i>SDG&E</i>
Tie line Phasor Measurement Units	PG&E, SCE, VEA

No policy-driven projects are recommended

- Portfolio direction received from the CPUC and CEC on June 13, 2016:
 - *Use the same base case 33% RPS portfolio used in the 2015-16 TPP as the base case in the 2016-17 TPP*
 - *“Given the range of potential implementation paths for a 50 percent RPS, it is undesirable to use a renewable portfolio in the TPP base case that might trigger new transmission investment, until more information is available.”*
- This policy direction remained in place for the 2017-2018 transmission planning cycle.
- Portfolios used in the ISO’s informational 50% RPS special studies and evaluation of interregional projects were provided by CPUC staff.

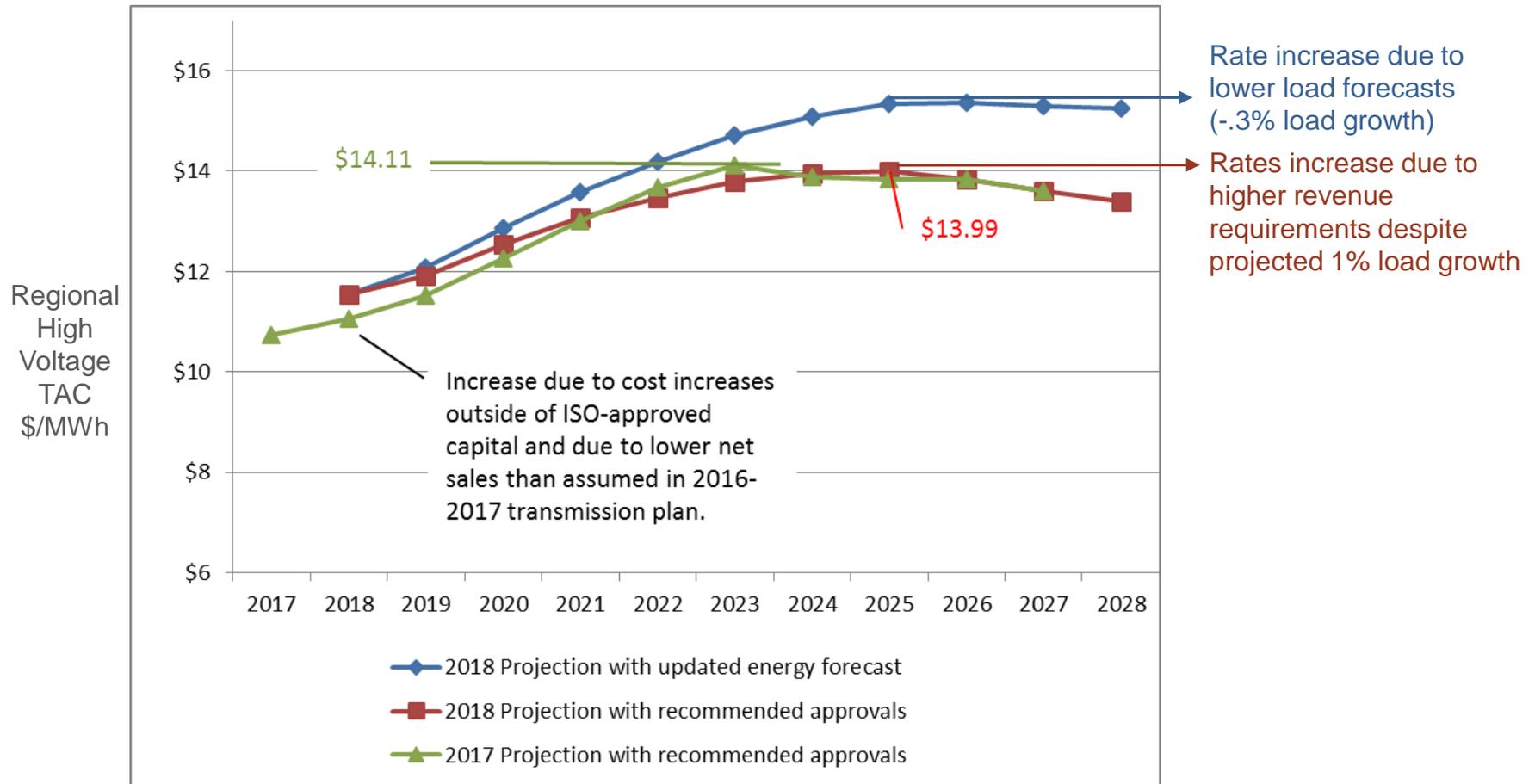
Recommending approval of 4 economic-driven projects.

- Bob-Mead 230 kV Rebuild – in the VEA service territory
 - Production cost simulation benefits
- IID S-Line Upgrade – in the Imperial Valley area
 - Local capacity requirement reduction savings
 - Production cost simulation benefits
- South Bay-Moss Landing enhancements
 - Comprised of
 - San Jose-Trimble 115 kV series reactor and
 - Moss Landing–Panoche 230 kV Path Upgrade
 - Reduces local capacity requirements in the area

Other key findings:

- No regional transmission solutions recommended for approval
- Hybrid solutions combining conventional upgrades with preferred resources recommended for two areas.
 - Oakland
 - Moorpark
- Batteries as transmission assets form part of the solution for two projects.
 - Oakland mitigation
 - Revise Reedley 70 kV reinforcement – Dinuba 70 kV substation
- Two projects are ideal applications of Smart Wires Technology
 - Vaca Dixon-Lakeville 230 kV corridor series compensation
 - San Jose-Trimble 115 kV series reactor

Regional high voltage transmission access charge projection trended from January 1, 2018 values:



* Existing returns are maintained for existing PTO rate base, and 11% return on equity is assumed for new transmission capital.

Special study efforts conducted in 2017:

- 2016-2017 TPP addendum reports
 - Risks of early economic retirement of gas fleet
 - Large scale storage benefits
 - 50% Renewables and Interregional Coordination
- 2017-2018 TPP Special Studies
 - Slow response resources in local capacity areas
 - Gas/electric reliability coordination
 - Continuation of frequency response study efforts through improved modeling

Stakeholder comments:

- Interest in more special studies on out of state wind and related transmission
- Questions regarding Moorpark 4th circuit – compared to gas fired generation or higher levels of preferred resources
- Concerns with California-Oregon Intertie day-ahead congestion not being considered as a driver for new transmission solutions.
- Requests for more detail and annual reviews of all previously approved projects and suggestions for increased cost review processes and process changes.

Stakeholder comments (continued):

- IID S-Line upgrade
 - Commercial interests in funding some questions
 - Questions regarding benefits and alternatives
- Interest in having revised previously-approved projects open to competition
- Concern that canceled projects will impact generation interconnection proposals
- Proponents advocating for their own projects
- Concerns over specific reliability projects
- Supportive comments on a range of issues, including Moorpark, South Bay/Moss Landing, Oakland, etc.

Management recommends the Board approve the 2017-2018 ISO Transmission Plan.

- Continues to pursue low emissions strategies in addressing reliability needs of the ISO controlled grid
- Enables the state's 33% RPS goals and sets a foundation for higher renewable energy goals
- Provides for prudent and economic development of the transmission system