

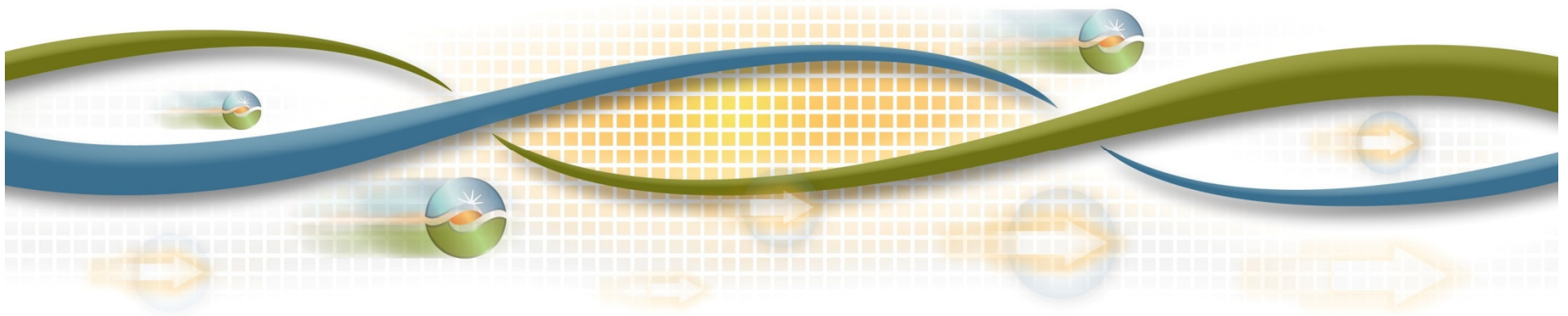


Exploring transmission access charge issues

Deep dive to transmission rates panel


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Review of current transmission access charge structure is currently underway

- CAISO is exploring potential modifications to high voltage Transmission Access Charge (TAC)
- Changes would have impacts on the cost allocation of existing system's embedded (sunk) costs
 - May have potential impacts on future transmission cost drivers
- Review TAC Structure initiative must consider important guiding principles
 - CAISO and most stakeholders agree any modifications must meet traditional FERC ratemaking principles and CAISO cost allocation principles



What are the priorities for what we want to accomplish, given TAC recovers the costs of facilities that are in service, not that are planned

- Current TAC design was heavily influenced by perceived “fair” cost recovery and minimizing economic dispatch interference
- Should design changes consider:
 - The cost drivers of the past?
 - Current use of the system?
 - Future cost drivers? / Send behavior signal to minimize future costs?
 - All above objectives reasonably fall within FERC principles
- Due to constant changes in how the transmission system is being planned and used, these are not necessarily aligned

Two major aspects of TAC structure are under consideration in the CAISO stakeholder initiative

- TAC billing determinant – current method is a volumetric measurement (MWh's)
 - Exploring peak demand charges (MWs), time of use, fixed charges, and hybrid methods (blend of volumetric and peak demand)
- TAC point of measurement – currently assessed by load reported at end use customer meters
 - Exploring T-D interface measurement point option as an alternative method

Market efficiency impacts are key consideration if changing the existing TAC structure

- Stakeholders have raised concerns related to potential impacts to market efficiency and economic dispatch
 - These issues are especially important considerations for CAISO
- CAISO's Department of Market Monitoring and CAISO's Market Surveillance Committee confirm the current volumetric billing determinant (MWh) may cause inefficient outcomes:
 - Charging TAC to each MWh of load results in the TAC rate becoming part of the marginal price of energy, thus creating a potential market inefficiency¹

¹ [DMM Comments - Review Transmission Access Charge Structure - Working Group Meetings - Aug 29 and Sep 25, 2017 10/25/2017](#)

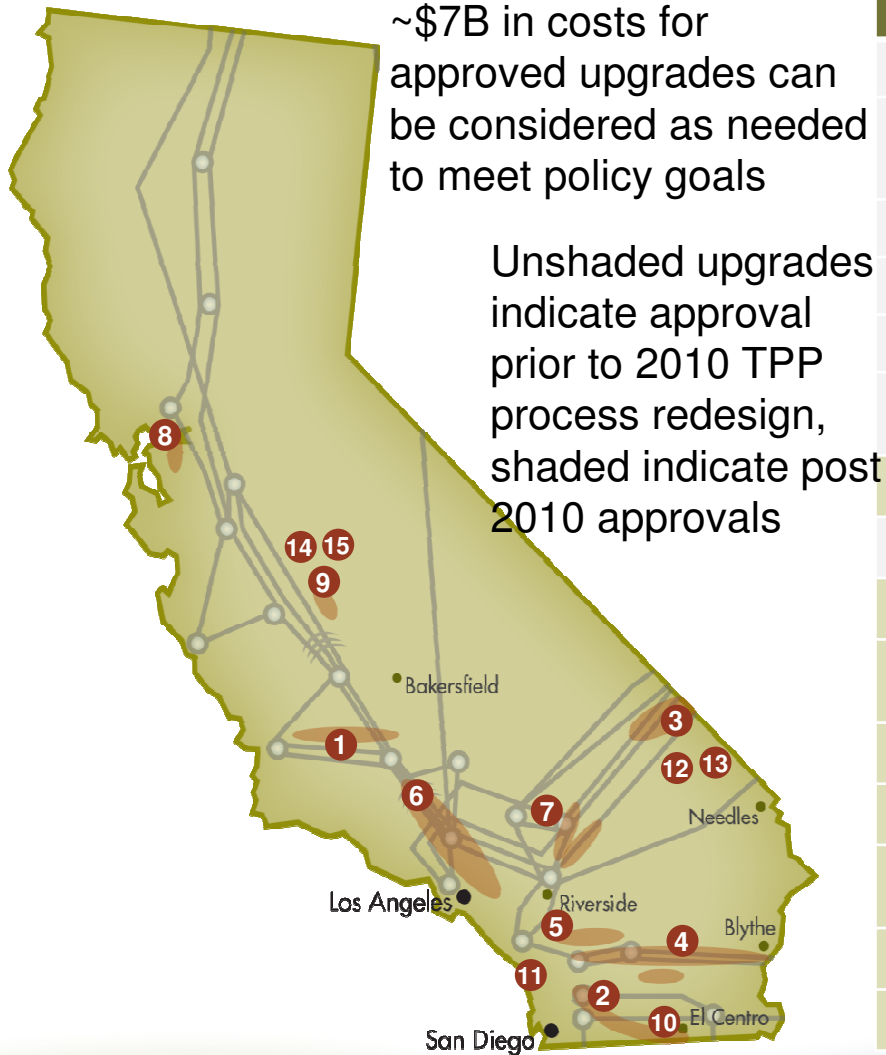
Transmission cost drivers and supporting analysis

- CAISO looking into extent existing and currently planned and future transmission investments driven by coincident peak loads, minimum loads, other reliability concerns, or policy goals
- CAISO analysis of historic needs identified through Transmission Planning Process (TPP)
 - TPP project cost drivers and justification: Looking into trying to determine what share of reliability projects were needed for on-peak vs off-peak
 - Also compare share of approved costs for policy-driven projects and economic projects
 - Future transmission needs/drivers are hard to predict

New transmission costs and drivers are significantly different than historical costs and drivers:

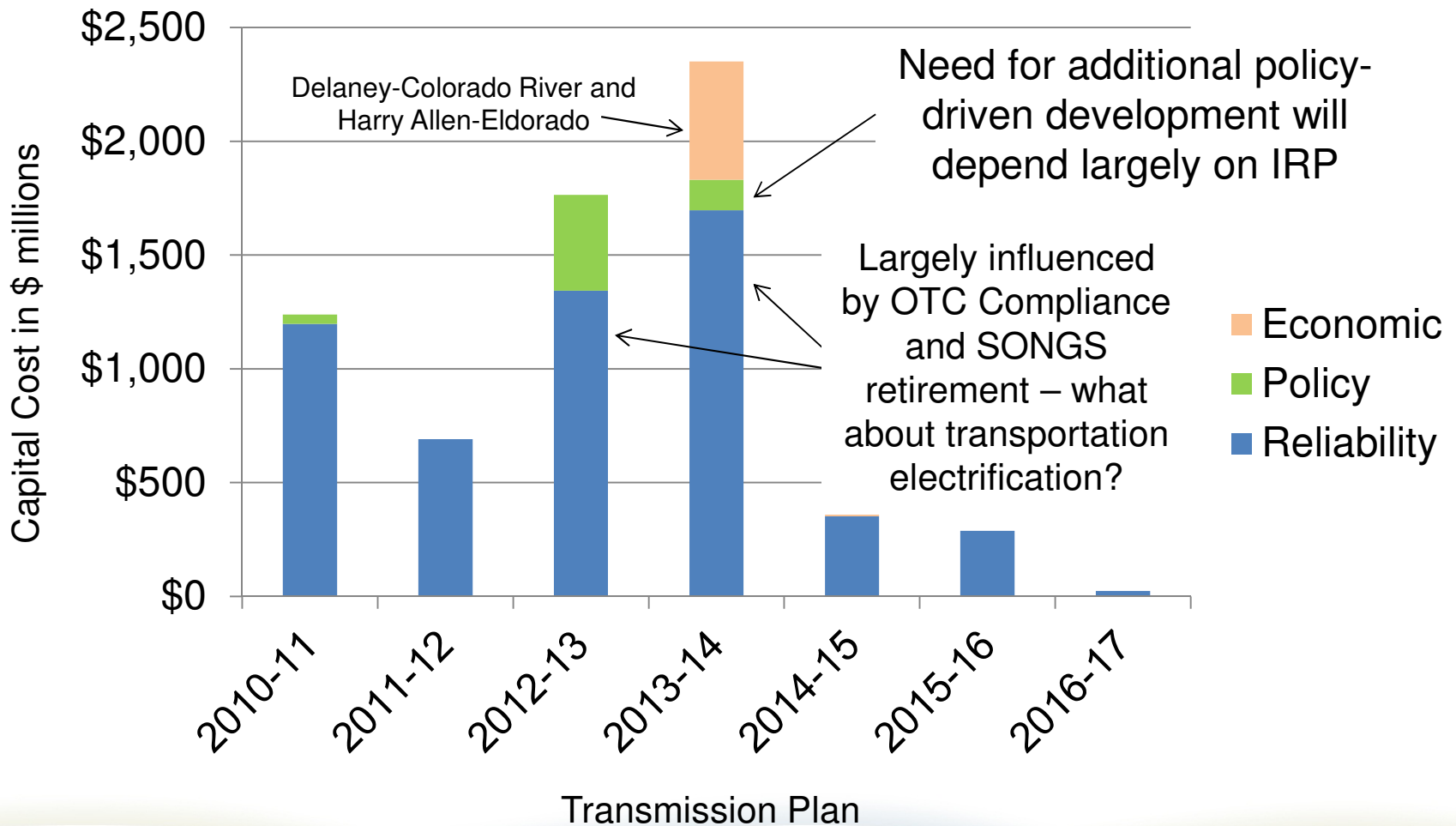
- New transmission investment has a much higher impact on TAC than old, due to depreciation and inflation
 - For example, Sunrise almost single-handedly doubled SDG&E's high voltage rate base
- A significant amount of new transmission that was approved pre-2010 was planned for policy purposes
- ISO "RTPP" approved capital since 2010 was mainly reliability driven but very little load growth driven
- Capital maintenance and refurbishment planned by Transmission Owners, not the ISO, also reflect aging facilities...
 - Recent annual increases in TAC have largely been due to non-ISO capital projects – but no long term projection is available

Transmission underway to meet 33% RPS in 2020



	Transmission upgrade	Approval status		Online
		ISO	CPUC	
1	Carrizo-Midway	LGIA	NOC effective	energized
2	Sunrise Powerlink	Approved	Approved	energized
	Suncrest dynamic reactive	Approved	Pending	2017
3	Eldorado-Ivanpah	LGIA	Approved	energized
4	Valley-Colorado River	Approved	Approved	energized
5	West of Devers	LGIA	Approved	2021
6	Tehachapi (segments 1, 2 & 3a of 11 completed)	Approved	Approved	energized
7	Cool Water-Lugo	LGIA	Pending	2018
8	South Contra Costa	LGIA	In process	2016
9	Borden-Gregg	LGIA	Not yet filed	2018
10	Path 42 reconductoring Imperial Valley-C Station	Approved Approved	Not needed Not needed	energized 2015
11	Sycamore-Penasquitos	Approved	Not yet filed	2018
12	Lugo-Eldorado line reroute	Approved	Not yet filed	2018
13	Lugo-Eldorado and Lugo-Mohave series caps	Approved	Not needed	2019
14	Warnerville-Bellota reconduct.	Approved	Not yet filed	2017
15	Wilson-Le Grand reconduct	Approved	Not yet filed	2020

Transmission approvals over the last 6 years – over 30 projects a year until 2014-2015 – and some are now being cancelled:



Scope of CAISO's TAC cost shift impact modeling

- CAISO has engaged The Brattle Group to assist in this effort through development of TAC cost shift impact model
- Model will provide CAISO and stakeholders the ability to analyze cost shifts associated with a host of potential changes:
 - Billing determinant: Current volumetric basis, peak demand charge basis (1CP, 4CP, & 12CP options), time of use method, and hybrid method (blended volumetric and peak demand, with option to adjust %'s)
 - Point of measurement: Current end use customer meter method or change to T-D interface method

CAISO's HV TAC cost shift impact model preview

Choose Billing Unit		Choose Rate Design	
Gross Load		Volumetric	
Assumptions for Specific TAC Designs			
			Notes
Anaheim	6.42%		Taken from the CEC Staff Paper
Azusa	6.42%		A Review of Transmission Losses in
Banning	6.42%		Planning Studies, August 2011
Colton	6.42%		
PG&E	5.26%		
Pasadena	6.42%		
Riverside	6.42%		
SDG&E	6.18%		
SCE	6.42%		
VEA	6.42%		
Vernon	6.42%		
Distribution of TRR for TOU rate design			Used only for TOU rate design
% Peak:	70%		
% Off-Peak:	30%		
Billing units for Hybrid TAC			Used only for Hybrid rate design
Volumetric billing unit	Gross Load		Change in cell C6
Peak billing unit	Coincident Peak 1 Period		
Distribution of TRR for Hybrid rate design			Used only for Hybrid rate design
% Volumetric	50%		
% Peak	50%		

Control

Summary_Change from Current TAC

Annual Summary

Calculations >>

Master Sheet

TRR Growth

TOU

Coir

Questions?

