

Memorandum

To: ISO Board of Governors

From: Keith Casey, Vice President, Market & Infrastructure Development

Date: February 1, 2013

Re: Briefing on Transmission Projects under \$50 million

This memorandum does not require Board action.

EXECUTIVE SUMMARY

Each year the California Independent System Operator Corporation undertakes a comprehensive assessment of the transmission needs of the system over a 10-year planning horizon and produces an annual transmission plan. The ISO 2012/2013 transmission plan provides a comprehensive evaluation of the ISO transmission grid to identify upgrades needed to successfully meet California's policy goals, in addition to examining conventional grid reliability requirements and transmission projects that can bring economic benefits to consumers.

Management intends to approve transmission upgrades that are individually less than \$50 million that have been identified in the 2012/2013 transmission planning process as needed for reliability or policy reasons. Last year, the Board approved a proposal that would allow ISO Management to approve policy projects under \$50 million so long as the Board was provided a briefing prior to Management approval. This briefing is one step in that approval process, as set out in the ISO tariff. Though the Board approval of this new authority only pertained to policy-driven projects, ISO Management felt it would nonetheless be appropriate to provide a similar briefing for reliability projects under \$50 million, which the Management already has tariff authority to approve.

Several of the upgrades being considered for Management approval have also been identified in study results from the generator interconnection process Cluster 3 and Cluster 4 phase II study process. If these upgrades are approved by Management as part of the ISO transmission plan, they can be removed from the affected generation interconnection studies, which would reduce the cost responsibilities for these generators.

Management approval of the reliability and policy upgrades less than \$50 million will both streamline the review and approval of the comprehensive transmission plan, and enable generator interconnection customers to receive timely clarification on their financial obligations in the Cluster 3 and 4 phase II process.

DISCUSSION AND ANALYSIS

A core responsibility of the ISO is to plan and approve additions and upgrades to transmission infrastructure so that as conditions and requirements evolve over time, it can continue to provide a well-functioning wholesale power market through reliable, safe and efficient electric transmission service. Since it began operation in 1998, the ISO has fulfilled this responsibility through its annual transmission planning process.

In the past, ISO management has typically reviewed in detail and approved reliability driven transmission projects less than \$50 million prior to the presentation of the comprehensive transmission plan to the Board of Governors in March of each year.

The ISO's development of the annual transmission plan takes place through engaging in an extensive stakeholder process. We communicated preliminary results through stakeholder presentations on September 26 and 27, and on December 11 and 12. A draft plan was released on February 1 and will be presented at a stakeholder session on February 11. The draft final comprehensive plan will be presented to the Board of Governors for approval at the March meeting.

Reliability Driven Projects Costing less than \$50 million

Our comprehensive evaluation of the areas listed above resulted in the identification of reliability projects costing less than \$50 million individually as set out in Table 1 below. A complete listing of the projects totaled below is provided in Table 3, attached to the end of this memo.

Service Territory	Number of Projects	Cost
Pacific Gas & Electric	25	\$408 M
Southern California Edison		
Co.	0	\$0 M
San Diego Gas & Electric Co.	3	\$28 M
Total	28	\$436 M

Table 1 – Summary of Reliability Driven Transmission Projectsless than \$50 million in the ISO 2012/2013 Transmission Plan

The number and total costs of these projects are similar to what was approved in prior planning cycles. The ISO's 2010/2011 Plan identified 28 reliability projects less than \$50 million totaling \$573 million, and the 2011/2012 plan – 26 reliability projects less than \$50 million totaling \$411 million. The ISO has operational control over PG&E and SDG&E lower voltage transmission facilities (i.e., 138 kV and below) and therefore there are typically more reliability projects identified for those service territories in comparison to the SCE higher-voltage bulk system.

Policy Driven Elements Costing less than \$50 million

The 2012/2013 transmission planning process has also resulted in the identification of three policy driven elements less than \$50 million, as set out in Table 2 below.

Element	Cost
Lugo-Eldorado 500 kV line re-route	\$36 M
Warnerville-Bellota 230 kV line reconductoring	\$28 M
Wilson-Le Grand 115 kV line reconductoring	\$15 M

Table 2 – Summary of Policy Driven Transmission Elementsless than \$50 million in the ISO 2012/2013 Transmission Plan

All three of the policy driven transmission elements listed in Table 2 increase transfer capacity on the system that will facilitate increased deliverability of renewables. The Lugo-Eldorado 500 kV line re-route involves relocating 6 miles of the Lugo-Eldorado 500 kV transmission line to increase the separation from the Eldorado-Mohave 500 kV transmission line. The increased separation provides additional assurance that both lines will not be lost simultaneously, allowing an increase in the rating of the facilities supporting renewable generation development in the area.

The other two reconductoring projects (Warnerville-Bellota and Wilson-LeGrand) will increase the line ratings of these transmission lines, enabling increased renewable generation development in the Fresno area.

Competitive Solicitation for new Transmission Elements

Phase 3 of the ISO's transmission planning process includes a competitive solicitation process for policy-driven and economic-driven transmission elements, as well as for reliability-driven elements that provide additional policy and economic benefits. Upgrades to or additions on an existing participating transmission owner facility, the construction or ownership of facilities on a participating transmission owner's right-of-way, and the construction or ownership of facilities within an existing participating transmission owner's substation are excluded from competition.

We are not intending to advance the procurement process for the upgrades less than \$50 million that management is intending to approve. The process for identifying which upgrades are eligible for competitive solicitation will take place as part of a comprehensive process and will be reviewed at the March Board of Governors meeting.

STAKEHOLDER FEEDBACK

Stakeholders have provided feedback on the study plan, the preliminary reliability results, and the preliminary economic and policy results. Stakeholder feedback on the draft plan will be available following the February 11 stakeholder session.

Much of the feedback to date has focused on the overall planning process and assumptions, as well as targeted feedback concerning the major transmission projects that were discussed. Very little feedback has been provided on the smaller reliability projects, but the feedback relevant to smaller projects has been summarized below:

Need for timely update to generator interconnection process study results.
Some stakeholders expressed support for approving these smaller projects and

amending generator interconnection process study results as quickly as possible, due to ongoing renewable energy procurement processes.

ISO response: The ISO has responded to this concern by advancing to February instead of March the Board briefing and Management approval of transmission projects under \$50 million. If these upgrades are approved by Management as part of the ISO transmission plan, they can be removed from the affected generation interconnection studies, which would reduce the cost responsibilities for these generators.

• The volume of transmission planning activities, and in particular the number of reliability projects that continue to be found. - Some stakeholders expressed concern for the volume of overall planning activities, and in particular, the number of reliability issues needing to be addressed in the PG&E area. Also, the concern has been expressed that given the number of reliability projects approved in the PG&E area in previous cycles, the number approved in this planning cycle should be lower.

ISO response: The ISO agrees that there is a great deal of activity underway in the transmission planning process, and this places even more emphasis on the need to adhere to the structured planning process set out in the tariff. We further note that higher number of upgrades on the PG&E system relative to the SCE system is due to the fact that PG&E's lower voltage facilities (60 kV – 200 kV) are under ISO operational control and the bulk of SCE's facilities less than 200 kV are not. Further, previous years' studies have identified issues on the PG&E low voltage facilities which did not require immediate approval and initiation of mitigations due to the time frame the reliability concern was forecasted to occur, and the expected time frame for construction of mitigations. In those cases, the ISO routinely defers approving and initiating mitigations, so that updated information can be considered in future planning cycles.

 Level of detail and range of alternatives studied in developing recommendations, including non-transmission alternatives – Some stakeholders expressed the view that broader ranges of alternatives should be examined, and that the ISO should provide more detail in the transmission plan regarding each recommendation. Also, the ISO was strongly encouraged to rely more on non-transmission alternatives.

ISO Response: The ISO appreciates the desire for additional details and has tried to provide more details in this year's plan. Stakeholder consultation takes

place throughout the development of the transmission plan to enable suggestions regarding possible alternatives, and the ISO responds to that feedback. The geography and electrical system topology can at times limit the number of viable alternatives, however. The ISO is also taking a number of steps to be positioned to provide further consideration of non-wire alternatives in future planning cycles. These include reviewing with stakeholders the amount of uncommitted energy efficiency that should be included in future planning studies, and working with the utilities and state agencies to address characteristics demand response programs will need in order to be viable transmission system mitigation alternatives.

CONCLUSION

Management intends to approve transmission upgrades that are individually less than \$50 million that have been identified in the 2012/2013 transmission planning process as needed for reliability or policy reasons. Management approval of the reliability and policy upgrades less than \$50 million will both streamline the review and approval of the comprehensive transmission plan, and enable generator interconnection customers to receive timely clarification on their financial obligations in the Cluster 3 and 4 phase II process.

Table 3: Reliability Projects less than \$50 million Recommended for Approval in the 2012/2013 TPP

No	Project	Service Area	In-Service Date	Cost
1	Sweetwater Reliability Enhancement	San Diego Area	6/1/2017	\$10-12M
2	TL13820, Sycamore- Chicarita Reconductor	San Diego Area	6/1/2014	\$0.5 - 1M
3	TL674A Loop-in (Del Mar - North City West) & Removal of TL666D (Del Mar-Del Mar Tap)	San Diego Area	6/1/2015	\$12-15M

SDG&E Service Territory

No	Project	Service Area	In-Service Date	Cost
1	Almaden 60 kV Shunt Capacitor	Greater Bay Area	5/31/2015	\$5-10M
2	Arco #2 230/70 kV Transformer	Greater Fresno Area	12/31/2013	\$15-19M
3	Christie 115/60 kV Transformer No. 2	Greater Bay Area	12/31/2014	\$12-17M
4	Contra Costa Sub 230 kV Switch Replacement	Greater Bay Area	5/31/2015	\$1 million or less
5	Cressey - Gallo 115 kV Line	Greater Fresno Area	12/31/2013	\$15-20M
6	Diablo Canyon Voltage Support Project	Central Coast and Los Padres	5/31/2016	\$35-45M
7	Gregg-Herndon #2 230 kV Line Circuit Breaker Upgrade	Greater Fresno Area	5/31/2015	\$1-2M
8	Kearney #2 230/70 kV Transformer	Greater Fresno Area	12/31/2015	\$32-37M
9	Kearney-Caruthers 70 kV Line Reconductor	Greater Fresno Area	5/31/2016	\$13-20M
10	Lockheed No.1 115 kV Tap Reconductor	Greater Bay Area	5/31/2016	\$2-3M
11	Los Banos-Livingston Jct- Canal 70 kV Switch Replacement	Greater Fresno Area	5/31/2015	\$0.5 - 1M

PG&E Service Territory

12	Los Esteros-Montague 115 kV Substation Equipment Upgrade	Greater Bay Area	5/31/2016	\$.05-1M
13	Midway-Temblor 115 kV Line Reconductor and Voltage Support	Central Valley Area	5/31/2018	\$25-35M
14	Monte Vista 230 kV Bus Upgrade	Greater Bay Area	5/31/2016	\$10-15M
15	Monta Vista-Wolfe 115 kV Substation Equipment Upgrade	Greater Bay Area	5/13/2015	\$.05-1M
16	Newark-Applied Materials 115 kV Substation Equipment Upgrade Project	Greater Bay Area	5/31/2016	\$.05-1M
17	NRS-Scott No. 1 115 kV Line Reconductor	Greater Bay Area	5/31/2016	\$2-4M
18	Pease 115/60 kV Transformer Addition and Bus Upgrade	Central Valley Area	5/31/2016	\$25-35M
19	Potrero 115 kV Bus Upgrade	Greater Bay Area	5/31/2017	\$10-15M
20	Ripon 115 kV Line	Central Valley Area	5/31/2015	\$10-15M
21	Salado 115/60 kV Transformer Addition	Central Valley Area	12/31/2014	\$15-20M
22	Stone 115 kV Back-tie Reconductor	Greater Bay Area	5/31/2016	\$3-6M
23	Trans Bay Cable Dead Bus Energization Project	Greater Bay Area	11/30/2014	\$20-30M
24	Series Reactor on Warnerville-Wilson 230 kV Line	Central California /Fresno Area	2017	\$20-30M
25	Kearney - Hearndon 230 kV Line Reconductoring	Central California /Fresno Area	2017	\$15-25M