

Memorandum

To: ISO Board of Governors
From: Gary DeShazo, Director – Regional Transmission - North
Date: May 13, 2008
Re: **Decision on Atlantic-Lincoln Transmission Project**

This memorandum requires Board action.

EXECUTIVE SUMMARY

ISO Management requests ISO Governing Board approval of the Atlantic-Lincoln Transmission Project ("Project") on the ground that it is necessary to maintain system reliability in accordance with federally mandated reliability standards adopted by the Federal Energy Regulatory Commission ("FERC"). The Project must be in-service by June 2010 to mitigate the identified system reliability concern. The Project is composed of three components that together have an estimated cost of \$70 million and therefore must be approved by the ISO Governing Board.

Each year Planning and Infrastructure Development prepares an annual ten-year planning assessment to guide the enhancement and expansion of transmission facilities to ensure the ISO Controlled Grid can satisfy the needs of a competitive bulk power market in a reliable, economically efficient, and environmentally acceptable manner. As a result of this process, ISO Management identified the Project as needed to maintain system reliability by increasing electric transmission capacity in the Rocklin and Lincoln city areas.

The three components of the Project are:

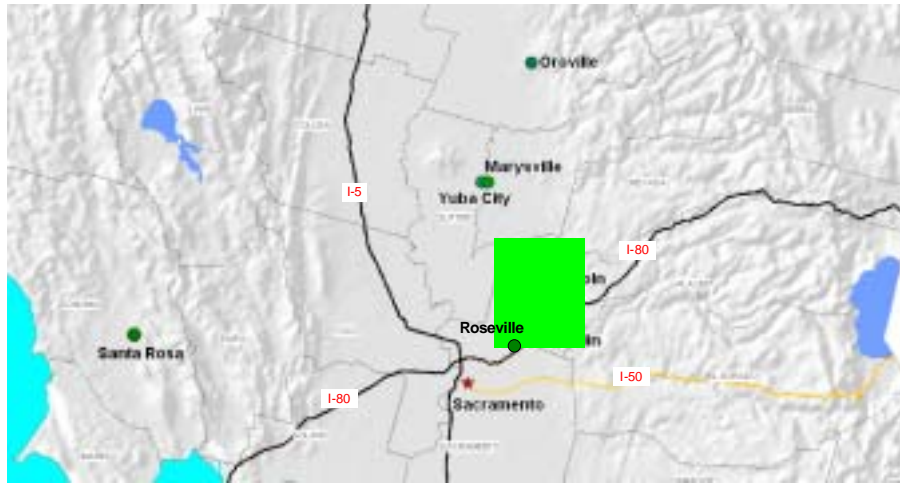
1. Atlantic-Pleasant Grove Line #2 and Lincoln-Pleasant Grove 60kV line reconductoring
2. Atlantic-Lincoln 60kV to 115kV conversion (115/60kV transformer)
3. New Rio Oso-Lincoln 115kV line

In addition to the proposed Project, five alternatives (includes a "status quo" or "do nothing" alternative) were assessed by the CAISO. The proposed Project was found to be the lowest cost alternative to resolve the long-term reliability concern. This Project has undergone stakeholder review through the ISO Planning Process and has been approved by the ISO Executive Leadership Team for consideration by the ISO Board of Governors.

The geographic location of the project area is shown in Figure 1.

Figure 1

Geographic Area of the Project Area



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MOTION

Moved, that the ISO Board of Governors finds that the Atlantic-Lincoln Transmission Project, as described in the Board Memorandum dated May 13, 2008, is a necessary and cost effective addition to the CAISO Controlled Grid; and

Moved, that the ISO Board of Governors directs PG&E to continue with the design, licensing, and construction of this project.

BACKGROUND

This project is a capacity and reliability project that is needed to serve load in the Lincoln and Rocklin city areas within the Pacific Gas and Electric Company (PG&E) service territory. The Project is composed of the following three components:

Project Component #1 – in service by May 2009

1. Reconductor the Atlantic – Pleasant Grove 60 kV No. 2 Line (about 6 miles) with minimum 1,113 kcmil all aluminum conductor;
2. Reconductor the Lincoln – Pleasant Grove 60 kV Line (about 7 miles) with minimum 1,113 kcmil all aluminum conductor; and
3. Rerate the above lines plus the Atlantic-Pleasant Grove 60 kV No. 1 Line to 4 feet per second wind speed assumption.

Project Component #2 – in service by May 2010

1. Build new 115 kV bus at Atlantic;
2. Install two new 230/115 kV transformers and associated equipment at Atlantic;
3. Convert and operate the Atlantic – Pleasant Grove Line Nos. 1 and 2 and the Lincoln – Pleasant Grove Line to 115 kV service; and
4. Convert all substations in this area: Pleasant Grove, Formica, Rio Bravo, Sierra Pacific Industries Lincoln and Lincoln from 60 kV to 115 kV service.

Project Component #3 – in service by May 2010

1. Construct a new Rio Oso – Lincoln 115 kV Line with minimum 1,113 kcmil all aluminum conductor and rerate to 4 feet per second wind speed assumption.

While the first and second components provide added capacity, the completion of all three components would provide the needed capacity and reliability improvements for the next 10 years to meet future electrical demand growth in southwest Placer County.

A scoping diagram that shows the existing Atlantic-Lincoln transmission configuration is shown in Figure 2. Figure 3 shows the Atlantic-Lincoln transmission configuration after the Project has been completed. These figures are included as Attachment 1.

The City of Lincoln has been experiencing rapid economic and population growth during the past ten years. According to the California State Department of Finance, in 2001, Lincoln was the fastest growing city in California with a 28.3% growth rate. In 2000, the population of Lincoln was 11,205. It is now 27,000. The Lincoln City Council has recently approved a public facilities plan that extends through 2010 and allows for possible population growth to 41,000. The ultimate build

out of the city is projected to be approximately 60,000 by 2020. The area peak electric demand in 2006 was recorded at 269 MW and is expected to increase at 15 MW or 6% per year.

PG&E has two electric distribution substations that serve Lincoln and the surrounding communities. These two substations are connected to the electric grid via three 60 kV transmission power lines. Two of the 60 kV lines originate from the Atlantic Substation in Roseville, which connects to the 230 kV transmission grid. The third 60 kV line originates from the Colgate Powerhouse, owned by the Yuba County Water Agency, which is a 312 MW hydroelectric electric generation plant located on the Yuba River. In addition, there are two Qualifying Facilities (QFs), Rio Bravo-Rocklin (25 MW) and Sierra Pacific Industries-Lincoln (18 MW), in this area.

In light of the high demand growth, PG&E recently completed two electric transmission projects to meet customer electric demand growth. In 1999, PG&E constructed the second 60 kV power line from Atlantic to Pleasant Grove substations. In 2005, PG&E installed a second transmission transformer at Atlantic Substation to step power down to the 60 kV network. However, as electric demand continues to increase at rapid pace, additional facilities are needed to provide safe and reliable service to customers consistent with mandatory reliability standards.

The reliability standards require, among other things, that the transmission system be planned in a manner that firm customer load can be served following a single contingency, i.e., an element of the transmission system is out-of-service. The ISO's transmission planning analyses, including power flow, reactive margin and dynamic studies, have concluded that without additional transmission infrastructure to increase transfer capability into the area, the reliability standards could not be met under load growth assumptions. For example, an outage of the Smartville – Lincoln 60 kV Line would result in the interruption of 8,000 customers served by the Lincoln Substation. The project addresses all single contingency violations and is consistent with future long-term plans for this area.

OTHER ALTERNATIVES CONSIDERED

Several alternatives to the recommended project have been evaluated. These alternatives included other potential system modifications or upgrades intended to address the same anticipated violations of the reliability standards under the same assumed future conditions.

Alternative 1: Status Quo

Alternative 2: Convert only Pleasant Grove substation to 115 kV Operation

Alternative 3: Convert only Lincoln substation to 115 kV Operation

Alternative 4: Convert the Pleasant Grove substation from 60 kV to 230 kV Operation

Alternative 5: Existing Atlantic – Lincoln – Smartville - Colgate 60 kV system reinforced by line reconductoring and transformer replacement

The results for all the alternatives have been previously presented to stakeholders and indicated that each would result in smaller load serving capability for the Atlantic-Lincoln area than the Project. In addition, the feasible alternatives studied have higher costs and/or significant uncertainties in permitting requirements associated with any proposed route for new lines. In contrast, since PG&E has concurrently sought, and received, California Public Utility Commission

approval for a portion of the Project, the Project can be assumed to have a high degree of regulatory certainty, which is likely to lead to lower costs and shortened construction times. As a result, the Project was deemed superior to these alternatives.

CONCLUSION

For the foregoing reasons, the CAISO concluded that the Project was the preferred and least cost transmission solution to address the identified system reliability needs for the Lincoln area.

Attachment 1

Figure 2
Existing Atlantic - Lincoln Transmission System

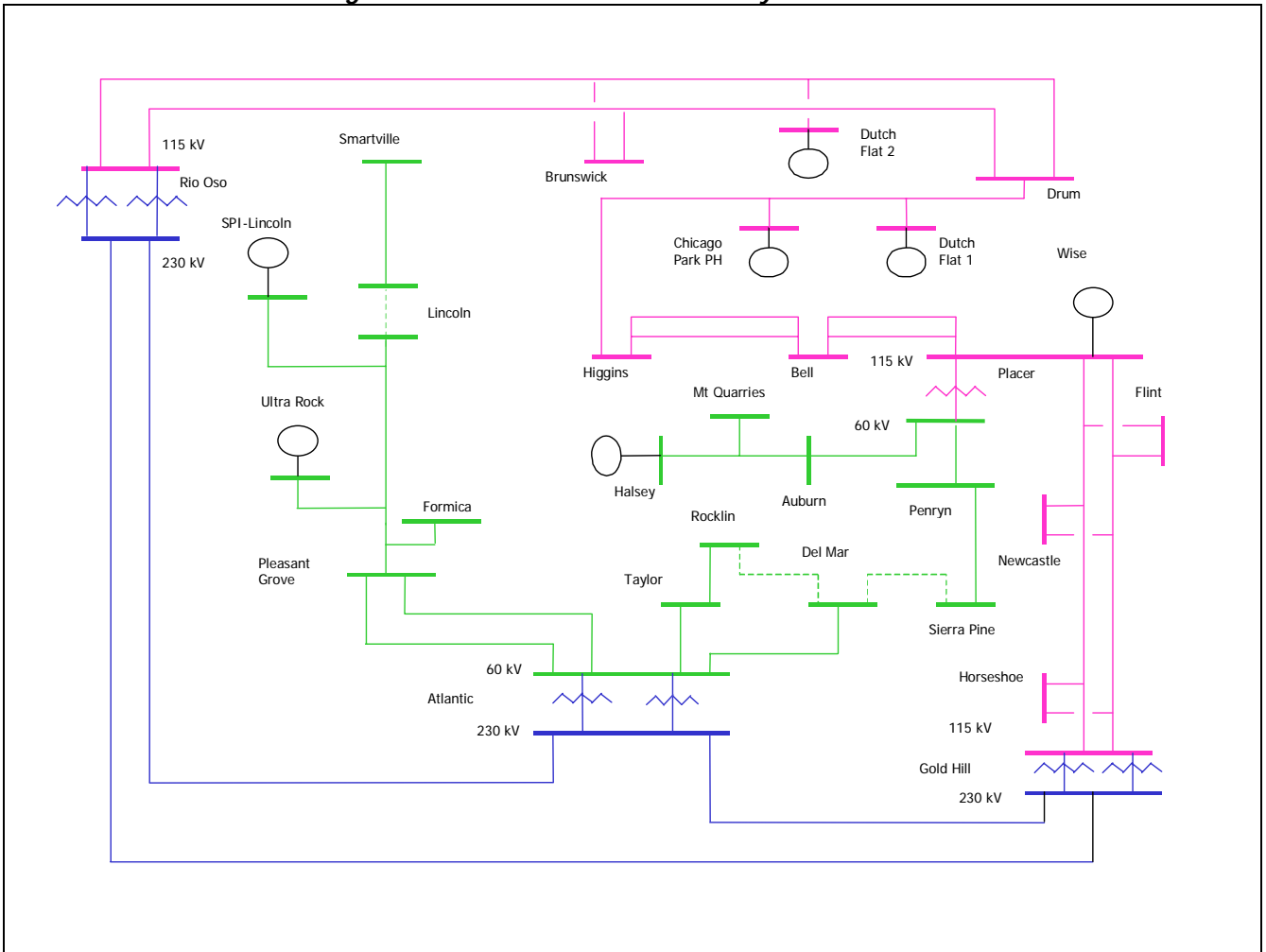


Figure 3

Upgrade Atlantic - Lincoln Transmission System to 115 kV Operation

