

Ferguson: Energy Matters

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Consensus on Tehachapi Transmission Plan

After two intense years of haggling and study, consensus was reached last week on a plan to upgrade California's electric transmission grid to accommodate massive amounts of wind power potential in the Tehachapi region.

The plan includes building facilities that allow electricity generated in Tehachapi to flow into the state's 500,000 volt backbone grid. A new 500 kV substation will be built in Tehachapi feeding two new power lines.

One of these lines will terminate at the existing Vincent substation, and another new substation will be built to allow power to flow into Path 26, the major electrical connection between Northern and Southern California.

The major features of the plan were agreed to at an August 18 stakeholder meeting of the California Independent System Operator's Southern Regional Transmission Planning process (*CSRTP-2006*). Details were unveiled to a larger group of experts at a public workshop on August 23.

Preliminary estimates put the cost of the plan at \$1.4 billion, about 60 percent of which is for wind-related facilities. The various components will be built in phases to allow existing facilities to be upgraded without disrupting grid operations while accommodating increased amounts of wind power. Total wind project costs, including turbines and lower-voltage lines to collect the power, are estimated to be in the neighborhood of \$10 billion.

Consensus on the basic plan of service for the Tehachapi region marks an important milestone for the Tehachapi Wind Energy Project. Approval of the plan by the CAISO board is the next step necessary for the construction of the facilities, without which Tehachapi wind would continue to remain one of the state's stranded energy assets.

The estimated wind energy potential in the Tehachapi region, some 4,500 MW, is comparable to that produced by all four of California's nuclear units *combined*. Wind projects sufficient to generate 90 percent of this total have already entered the CAISO queue with interconnection requests.

The plan also includes facilities to increase Edison's load-serving capacity in the Antelope Valley region. The Antelope substation is to be upgraded from 230 to 500 kV and linked to the existing high-voltage system. Additional facilities will be constructed to feed Antelope and allow enormous amounts of power to flow into Southern California.

Darius Shirmohammadi, the grid operator's planning director for Southern California, directed the analysis, which resulted in the consensus agreement. The California Public Utilities Commission recently appointed Tom Flynn as Tehachapi project manager, an essential step to ensuring the success of this huge project.

Flynn has been involved at the Energy Commission and other parts of the state's energy bureaucracy for many years. He reports to CPUC member Dian Grueneich, the assigned commissioner for transmission issues.

Technical issues are continuing to be studied by Edison and the CAISO staff. The final plan is expected to go before the grid operator board for approval in October. The public planning process began two years ago at the behest of the CPUC. The commission's Tehachapi Collaborative Study Group spent a year and a half studying the options before recommending that CAISO put them together into a definitive plan of service. The group's voluminous reports are available on the CPUC Web site.

California has adopted official policies calling for 20 percent of the state's electric energy to be generated from renewable resources such as wind power by the year 2010. There is talk of raising the bar later to 33 percent.

When the goal was adopted, little thought was given to the fact that the existing grid will have to be expanded into regions where these valuable resources are located. These last two years of planning proceeded at a glacial pace until Shirmohammadi took charge. My hat is off to him (aka The Professor) and the rest of the CAISO management and staff who took on this essential task and hammered out the consensus plan. They worked long hours over the last several months, sifting through thousands of arcane details to arrive at a workable solution at a surprisingly reasonable cost.

The target date for completing the analysis is now September 20. CAISO has given itself a mere four weeks to have the plan in final form—a huge challenge, but one I have no doubt they can meet if all the parties involved remain cooperative.

My thanks go to all those who have participated in the planning tasks. The CPUC and its staff launched the effort and remain the lead agency for the project. Edison and Pacific Gas & Electric contributed large amounts of time and expertise. The Energy Commission has been extremely supportive and has provided the financial means that allow my colleague Dave Olsen and me to participate.

My dream is to see the entire project completed before the end of 2010. We are a long way from the end, but it is wonderful to have reached the first milestone. A little celebration is in order. Then back to work.

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