

**Comments of the Center for Energy Efficiency and Renewable Technologies  
On the California Energy Commission  
Draft Strategic Transmission Investment Plan**

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## **Introduction**

CEERT offers these comments and recommendations on the draft CEC Strategic Transmission Investment Plan document (Draft STIP) published September 2009. CEERT is a 501c3 non-profit organization with 20-year history and expertise in renewable generation and transmission planning. CEERT also serves as coordinator for the Renewable Energy Transmission Initiative (RETI), whose work is cited in the Draft STIP.

The role of the STIP process in guiding California transmission decisions remains unclear. However, as the Draft STIP correctly notes, the lack of a coherent statewide transmission plan with broad public and stakeholder consensus is a major obstacle to needed transmission development.

The Draft STIP correctly identifies a large number of transmission planning issues which must be addressed and interrelated planning venues whose efforts must be coordinated. In CEERT's opinion, however, the document fails to identify the major ingredients of a truly statewide strategic transmission plan on which consensus must be reached for the plan to be effective.

CEERT suggests that the following components are essential to any transmission plan:

1. A scenario which identifies expected future demand for electricity delivered over the grid, including the geographical distribution of that demand, in the near- and long-term;
2. A scenario which identifies future grid-connected generation adequate to satisfy the demand scenario while simultaneously satisfying reliability and public policy objectives; and

3. A set of criteria for evaluating proposed transmission projects and corridors that are consistent with supply and demand scenarios.

In addition to the necessity of developing these planning elements for both long- and short-term horizons, it is essential that they have the broadest possible consensus from stakeholders and the public. Each of these elements can be expected to create controversy which must be resolved to the extent possible if the resulting plan is to be effective.

## **Demand Scenarios**

The CEC issues electric demand forecasts with a 10-year horizon for incorporation in the IEPR, and CEC staff is to be applauded for the thoroughness of this work. CEERT notes that the latest staff draft forecast dramatically reduces consumption projected for 2020. Based on the latest forecast RETI is in the process of revising its estimate of the “renewable net short”, i.e., the amount of renewable generation which may need expanded transmission capacity. To our knowledge, however, no similar forecast with a multi-decade horizon exists to provide a basis for transmission planning for the longer term.

As RETI discovered at its public meetings, forecasts of demand for electricity delivered over the transmission network are not without controversy. These forecasts depend, among other factors, on estimates of future private supply (self-generation), distributed generation, and energy efficiency improvements. Public acceptance of new power plants and transmission lines depends on the degree of concurrence that forecasts have appropriately considered “non-wires” solutions, as required by statute.

CEERT agrees that the CEC is the appropriate entity to provide the official demand scenario for use in California transmission planning, and encourages the Commission to prepare similar forecasts with 20- and 30-year horizons to be used in longer term transmission plans.

CEERT notes that, based on the RETI experience, even the 10-year forecasts remain controversial among a significant segment of the population. Evidently the current CEC process for obtaining stakeholder input to the demand forecasts is insufficient to build broad public consensus. The Draft STIP rightly identifies the need to engage public officials in the planning process. As RETI has discovered, this is a difficult task due to budgetary issues and an understandable focus on more pressing local issues. In addition, local officials are unlikely to participate absent interest expressed by constituents.

CEERT recommends that the demand forecasting process be provided with adequate financial and staff resources to extend public outreach and attempt to obtain broad consensus from the public and their local representatives on underlying assumptions. The RETI consensus-building process could be a model for this effort.

## **Supply Scenarios**

The second essential element of a successful strategic transmission plan is a consensus supply scenario identifying generation resources and resource areas projected to need transmission access to satisfy the demand scenario. A plethora of policy decisions and discussions in recent years, such as AB 32, the 33% Renewables Portfolio Standard, and the reduction of once-through cooling impacts from existing power plants, will constrain supply scenarios. Incorporation of these policies into transmission plans remains a work in progress.

CEERT notes that RETI has not yet adopted a realistic renewable supply scenario for purposes of assessing transmission needs. In its recent Phase 2B report, for purposes of assessing the

usefulness of proposed transmission segments, RETI assumed that each resource area (CREZ) would supply an equal percentage of the area's estimated generation potential toward meeting the net short. Use of this scenario provided valuable information on the relative value of different proposed line segments, but clearly it is not a reasonable scenario to use for transmission decisions.

The CAISO used a different supply scenario in its recently published conceptual renewable transmission plan. Amounts of generation in chosen CREZs were assumed to be proportional to current indications of commercial interest as expressed through queue positions and power purchase agreements. This scenario assumed that transmission access would not be provided to CREZ for which little commercial interest identified.

As CEERT commented in the recent workshop on the revised demand forecast, adding renewable energy sufficient to satisfy a 33% RPS should exceed the additional expected consumption by a considerable margin. Achieving the 33% RPS would displace a substantial amount of non-renewable energy, presumably fossil-fueled generation. In addition to considering future renewable energy sources, transmission planners must also consider which fossil generators will be displaced.

As energy from fossil generation is displaced in the future by energy from renewable resources, gas-fired generation must become increasingly flexible to meet expected system peaking and ramping requirements. Pumped storage facilities are likely to become more valuable. There are a multitude of policies and other factors that must be considered when preparing a supply scenario for transmission planning.

CEERT notes that the long lead times associated with transmission planning preclude the option of leaving generation development to "the market". In order to have the appropriate transmission system in place decades hence, development of a supply scenario to be used for planning purposes is needed now. Clearly this scenario and the transmission plans based on the scenario should be as flexible as possible and subject to frequent updates. Nevertheless, CEERT believes that a strategic transmission plan cannot be developed without an accepted supply scenario to guide it.

Currently there is no single agency or other entity with the responsibility of determining the statewide supply scenario that will serve as the basis for statewide strategic transmission planning. Historically each utility adopted its own supply scenario and planned its own transmission accordingly. This approach is now understood to be inadequate, and efforts are underway to increase coordination, as the Draft STIP notes. Until a consistent supply scenario is used by all planners, however, coordination is impossible.

CEERT has no recommendation on the agency or entity that should have ultimate responsibility for approving the official supply scenario. Development of the scenario will necessarily require cooperation of a large number of agencies, utilities and other stakeholders. Like the demand scenario, the supply scenario must also have the maximum degree of public and stakeholder consensus possible. Consideration of transmission projects cannot include re-consideration of supply and demand scenarios if timely decisions are to be made. CEERT notes that lack of agreement on supply scenarios has been a major source of objection and litigation over nearly every transmission project proposed in recent decades. Perhaps the RETI consensus-building model could be usefully employed for this task as well.

## Transmission Corridor and Project Criteria

Individual transmission corridors and projects included in the strategic transmission plan must meet criteria based on their usefulness in enabling supply to satisfy demand described in the adopted scenarios while ensuring reliable grid operation. In addition, economic and environmental criteria must be established to prioritize transmission corridors and projects.

The Draft STIP cites a number of priority transmission projects, some of which were included in earlier STIPs. However, it remains unclear what the criteria for choosing these projects were, how the projects were rated, or which projects were not given priority and why. Consensus approval from stakeholders and the public seems unlikely in the absence of clearly enunciated criteria.

Planning activities are now underway by RETI, the CAISO, and the California Transmission Planning Group (CTPG) to identify priority transmission projects. Various long term demand and supply scenarios are being considered, and criteria for prioritizing transmission projects will be developed. In addition to maintaining grid reliability, minimizing cost, and satisfying demand/supply scenarios, projects meeting the prioritization criteria are likely to be projects which are:

- Useful in a broad range of demand and supply scenarios (“least regrets” projects); and
- Located in previously designated transmission corridors.

It is essential that California quickly identify and preserve access to transmission corridors that will be needed in the year 2050 and beyond. RETI has identified three major functions that these corridors serve.

- Foundation Lines comprise the major backbone of the state’s transmission system, transporting large amounts of power between Northern and Southern California in both directions. It is highly likely that corridors for foundation lines will require expansion and new corridors identified under a wide range of supply and demand scenarios.
- Delivery Lines allow power from foundation lines to reach load centers and are highly likely that corridors for delivery lines will require expansion and new corridors identified under a wide range of supply and demand scenarios. Because these corridors are in already developed areas, they must be identified and preserved as quickly as possible.
- Collector Lines allow power to move from generators in remote areas to foundation lines. Identification of needed corridors is therefore strongly dependent on supply scenarios.

The Department of Finance projects that the state’s population will grow by about 50% by 2050 (about 20 million), and a quarter of this growth is projected to occur in the eastern San Joaquin Valley along the Highway 99 corridor. Foundation lines currently are located on the western side of the valley (Path 15). It seems likely that under almost any demand and supply scenarios, a corridor for foundation lines on the eastern side will be needed. This new corridor should be identified and designated as quickly as possible.

Other foundation line corridors, expanded or new, currently are being considered in planning processes. It seems likely that expansion of corridors and new corridors in Southern California will be found needed under a wide range of demand and supply scenarios. These corridors also should be identified and preserved as quickly as possible.

Corridors for collector lines are strongly dependent on supply scenarios. As experience with the Sunrise Power Link demonstrated, broad acceptance of the supply scenarios used to justify a new corridor is essential.

In addition to identification of the need for additional transmission capacity under a wide range of demand and supply scenarios, establishing criteria for designating transmission corridor *routes* is essential but highly controversial. Resolution of these controversies is never perfect and is always time consuming. Identification of needed corridors should therefore begin immediately.

### **Summary of Recommendations**

CEERT recommends that the various state energy agencies and energy stakeholders collectively design an open and transparent process for statewide transmission planning and decision-making. While the Draft STIP provides a number of useful observations with regard to transmission planning issues, the role of the document in ultimate statewide transmission decisions remains unclear.

Furthermore, the Draft STIP should more directly address three major components of a truly collaborative, statewide, strategic transmission plan: consensus-based demand forecasts, policy-based supply scenarios, and criteria for evaluating proposed transmission projects and corridors based on the demand and supply scenarios. CEERT looks forward to working with the joint energy agencies in developing these scenarios and in working toward a statewide transmission plan that will facilitate the build-out of clean and renewable technologies.