

**California Transmission Planning Group (CTPG)
Technical Study Team Response to
Comments of MegaWatt Storage Farms on
CTPG's Draft Phase 4 Study Report**

Comment:

2009-2010 Assembly Bill 2514 creates a framework for deploying storage. While the specific amount of storage is to be determined by the California Public Utilities Commission, as an initial working assumption MegaWatt Storage Farms ("MSF") recommends that the CTPG use the 2020 target of 5 percent of peak load (approximately 4 gigawatts). This could be modeled as one gigawatt in the San Diego load center, two gigawatts in the Los Angeles Basin and one gigawatt in the San Francisco Bay Area.

Given the CTPG's goal of determining the transmission needed in 2020, and given the CTPG's report that the results of the CTPG models are sensitive to the input assumptions (including the availability of fossil generation in the load centers), it stands to reason that deployment of storage in California load centers will materially change the conclusions reached for transmission requirements.

Accordingly, MSF strongly urges the CTPG (and any entity using the CTPG results, such as the balancing authorities – the California ISO, Sacramento Municipal Utility District, Los Angeles Department of Water and Power, Imperial Irrigation District, and Turlock Irrigation District) to update the models and analysis with reasonable assumptions on storage deployment in 2020 (MSF advocates four gigawatts) before making transmission deployment decisions.

MSF recognizes that Assembly Bill 2514 was not signed into law until September 2010, well after the CTPG was into constructing and running its models, but given that Assembly Bill 2514 is now in force, it is essential to include its impact in transmission planning. This is especially true given the significant sensitivity on input assumptions that the CTPG has reported for its models and analysis.

CTPG Technical Study Team Response:

The impact of renewable resources on electric grid operations is now being studied at considerable depth and results are beginning to emerge. Initial results from the California ISO's 33-percent renewable integration studies are suggesting the need for 4,350 megawatts of "flexible resources" above that which may be provided by California load-serving entities to meet planning reserve margins (PRM). (See, for example, slide 29 of the California ISO's November 30, 2010, presentation entitled "*ISO Study of Operational Requirements and Market Impacts at 33% RPS*".) Flexible resources include various storage technologies.

The California ISO's results are based on operational studies that make certain assumptions about the retirement and refurbishment of fossil-fueled coastal generating units using Once-Through Cooling (OTC) technology and other units which are required for local reliability purposes. The disposition of OTC generation and other required local generation—many of which are capable of providing operational services that support the integration of intermittent renewable resources—may be a key determinant of whether new sources of dispatchable generating capacity are needed.

Determinations as to which non-renewable (and potentially renewable) resources are likely to be built to provide the needed operational flexibility have not yet been made. These determinations may depend on balancing authority rules and/or regulatory orders that require certain load-serving entities to add specific amounts and types of dispatchable resources. It may depend on commercial assessments made by independent power producers as to the expected profitability of building such generation and selling their operational services to load-serving entities on a bilateral basis or through the California ISO's ancillary service markets. Determining which dispatchable resources make sense to build, and the location of those resources, requires consideration of the estimated costs and benefits of the various technologies, including any transmission costs that may be associated with specific resources.

Associated transmission costs will be a function of the frequency of expected congestion and the economic impact of such congestion relative to different alternatives for managing such congestion. To date, the CTPG has not undertaken congestion studies to determine which solutions (*e.g.*, new transmission infrastructure or redispatching existing generation) would be expected to be most economical for consumers.

The timing of intermittent renewable resource additions is an important variable in determining if, and when, the capability of the existing fleet of dispatchable generation to accommodate intermittent generation will be exhausted and new sources of dispatchable resources needed. The CPUC has initiated a proceeding to determine what specific amounts of storage may be required in the future.

Given the uncertainties involved, the CTPG believes it is premature to make any specific assumptions about the amounts and types of storage resources that, for study purposes, should be assumed to be added pursuant to the legislation referenced by MSF.