

DOCKET

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Berman Economics
1915 Grand Court
Vienna, VA 22182

RE: Docket # 09-IEP-IA
IPER Comments

Berman Economics is an economic consulting company specializing in energy, environmental, and natural resource issues. Berman Economics is pleased to provide comments on the CEC's *2009 Integrated Energy Policy Report*. Our comments are based on recent analyses of the potential for substantial energy savings resulting from efficiency improvements on distribution and transmission systems generally, and on distribution systems of California utilities in particular. In conducting our analyses, we also met with managers and senior executives of all three major California IOUs (PG&E, SCE, and SDG&E) and California's major municipal utilities (SMUD and LADWP).

The following 3 paragraphs should be inserted on page 200, preceding "**End-Use Customer Investments**":

Improving the efficiency of the transmission and distribution systems is especially important in California owing to a combination of the long distances from electric generation points to load centers, to California's requirement for 33 percent renewable generation by 2020 and to California's requirement to reduce GHGs by 169 million metric tons per year. Although we believe that the CEC has appropriately focused on the importance of Smart Grid, we note an absence of initiatives to address efficiency improvements on distribution systems.

Simply improving efficiencies on distribution systems present a significant opportunity for energy savings. Losses on distribution systems constitute 2 percent of total energy at generation – about 8.6 million MWh annually, or the equivalent of 46 small power plants per year. Continuous yearly no-load or phantom losses amount to approximately half of all distribution system losses. As an example, these no-load losses can be reduced by 70 percent – 3 million MWh per year, or the equivalent of 16 small power plants – simply by using transformers with amorphous metal cores. Although sometimes marginally more expensive than the common silicon steel cores, amorphous metal core transformers have a payback period of 3 – 4 years, thereafter resulting in a net reduction in out-of-pocket costs to California electric ratepayers. Accordingly, Berman Economics recommends that it should be the policy of the State of California to encourage the use of energy efficient amorphous metal core transformers on distribution systems.

Although energy efficient amorphous metal core transformers provide returns to ratepayers averaging 35 – 40 percent per year, and provide a measure of inflation protection, virtually all of these benefits accrue to ratepayers. Under current California regulations and tariffs, the benefits of energy efficient transmission and distribution technologies are not shared with utilities or their stockholders. Accordingly, there is no incentive for utilities to make use of available energy efficient equipment. To provide an incentive for California utilities to adopt energy efficient equipment, particularly amorphous metal core transformers, they should be permitted to share in the benefits. Accordingly, Berman Economics recommends that it should be the policy of the State of California to provide financial incentives for utilities to adopt amorphous metal core transformers and other energy efficient

equipment. One approach would be to allow a higher rate of return on amorphous metal core transformers. This would be consistent with what Nevada allows for energy efficiency investments. Since the incremental savings are essentially a public good that accrues to the ratepayers, another possibility would be to allow utilities to apply a portion of their public goods funds to any incremental cost of amorphous metal core transformers, with an appropriate, corresponding offset to the distribution system charge to consumers, to permit consumers to enjoy benefits immediately.

The following paragraph should be inserted on page 72 preceding ‘**Renewable Energy and the Environment**’:

Energy efficiency and the use of energy efficient transmission and distribution equipment is particularly important for renewable generation that may be available only intermittently. Wind generation, may have a capacity factor in California of only 20 – 25 percent. For example, when the wind turbines are not generating power, the transformer core losses of the transformer is powered from the grid, actually resulting in a *negative* contribution to energy resources. Simply using readily available energy efficient amorphous metal core transformers boost the energy generated from each turbine by 1-2 percent as well as reduce the drain on power systems by 70 percent when the turbines are not generating power. Moreover, from a public perspective, increasing the available power from a renewable generator reduces the need to build additional generation, reducing both costs and environmental impacts. Accordingly, Berman Economics recommends that it should be the policy of the State of California to require the use of amorphous metal core transformers for siting all renewable energy generated in and sold to utilities in California.

The following paragraph should be inserted on page 180 following the paragraph at the top of the page which begins on page 179:

Berman Economics believes that existing RPS law focusing on renewables as a percentage of retail sales does not provide the appropriate incentive for utilities to improve the efficiency of distribution systems or transmission systems. Since the ultimate objective is to reduce reliance on fossil generation, utilities should be “credited” with efficiency improvements to the distribution system, such as use of amorphous metal core transformers, which result in less generation with resulting in less ultimate demand. Accordingly, Berman Economics recommends that it should be the policy of the State of California to change the existing RPS law to measuring renewables as a percent of energy at the point of generation. Such a change would encourage California utilities to help meet their RPS goals by improving the efficiency on their distribution systems and transmission systems.

The following should be inserted on page 208 preceding the “**Need conformance**” bullet:

- **Consideration of losses:** Rather than considering transmission and distribution losses as measured losses in justifying new generation, it should be the policy of the State of California to include only *unavoidable* losses. Specifically, the State should have utilities identify where losses can be reduced on transmission and distribution systems, and provide a plan for reducing those losses.