

Rate Impact of Net Metering

Interstate Renewable Energy Council

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Solar ABCs



Different from Solar Valuation Studies

- Several studies have looked at the total value provided by distributed PV (list on next page), which will provide valuable background
- We plan to look at which benefits accrue to the utility, especially avoided costs, in the short and long term
- Utilities often claim that the lost revenues associated with customer generation are greater than benefits that accrue to the utility (at least in the short term), forcing up rates
- Net metering assumes that the difference between lost utility revenue and utility benefits is small, so there is minimal impact on rates
- We are not trying to justify or estimate PV penetration; we're just trying to assure that net metering treats all ratepayers fairly



Solar Valuation Studies (partial list)

- *Photovoltaics Value Analysis*, NREL, 2008 (a DOE RSI study)
- *Distributed Renewable Energy Operating Impacts and Valuation*, R.W. Beck, Inc. [for Arizona Public Service], 2009
- *Toward Reaching Consensus in the Determination of Photovoltaics Capacity Credit*, Perez et. al., 2008
- *CPUC Self-Generation Incentive Program Preliminary Cost-Effectiveness Evaluation Report*, Itron, Inc., 2006
- *Distributed Generation and Distribution Planning: An Economic Analysis for the Massachusetts DG Collaborative*, Navigant Consulting Inc., 2006
- *The Value of Distributed Photovoltaics to Austin Energy and the City of Austin*, Clean Power Research LLC, 2006
- *Build-Up of PV Value in California*, Americans for Solar Power, 2005
- *Quantifying the Benefits of Solar Power for California*, Vote Solar, 2005



RSI Study Identified Benefits

- 13 key sources of value identified, which could be broken down into societal benefits, owner benefits, and short term and long term benefits accruing to the utility. The following is IREC's attempt at that division:
- Societal benefits: reduced criteria pollution, reduced CO2 emissions, market price impacts (PV market transformation), "implicit value"
- Owner benefits: Electricity price protection, reliability benefits
- Short term benefits accruing to the utility: avoided central power generation costs, avoided system line losses, potential ancillary services, potential system resiliency
- Long term benefits accruing to the utility: central power capacity costs, avoided T&D costs, hedge value



California PUC Cost-Benefit Analysis

- The CPUC is currently modifying its cost-benefit methodologies developed for energy efficiency to quantify the costs and benefits of distributed generation including net metered systems (IREC is a participant in the docket)
- Ultimate Goal: Provide an apples-to-apples comparison of various demand side resources for use in resource planning.
- Proposed methodology has four tests:
 - Participant test (customer's investing in DG)
 - Ratepayer Impact Test (measuring potential cross-subsidies between nonparticipating ratepayers and customer-generators)
 - Program Administrator Test (costs of program administration)
 - Societal Test (measuring costs and benefits to society as a whole)
- The Ratepayer Impact Test will be particularly relevant to the analysis in this ABCs paper



CPUC Ratepayer Impact Test: Benefits

- Avoided line losses
- Avoided purchase of energy and resource adequacy costs
- Avoided T&D costs
- Environmental benefits (CO₂, NO_x, particulate matter emissions)
- Reduction in market price for electricity due to reduction in electricity demand
- Reliability benefits from both system and customer ancillary services/VAR support
- IREC proposal: include PV market transformation



CPUC Ratepayer Impact Test: Costs

- Lost revenues from reduction in generation and capacity demand
- Lost revenue from standby charge exemptions
- Lost T&D revenue
- Reliability costs from both customer and system ancillary services/VAR support
- Incentive payments
- Utility interconnection costs not charged to the customer
- Program administration costs



ABCs Study

- Review and synthesize solar valuation studies and CPUC ratepayer impact test
- Differentiate short and long term rate impacts of net metering; if short term impacts put upward pressure on rates, consider whether they are justified by long term benefits
- Consider impact of including PV market transformation effects
- Consider location-specific utility benefits from distributed generation and whether net metering can account for them
- Seek stakeholder input on other impacts and important factors

