

Value and Cost of Distributed Solar Generation

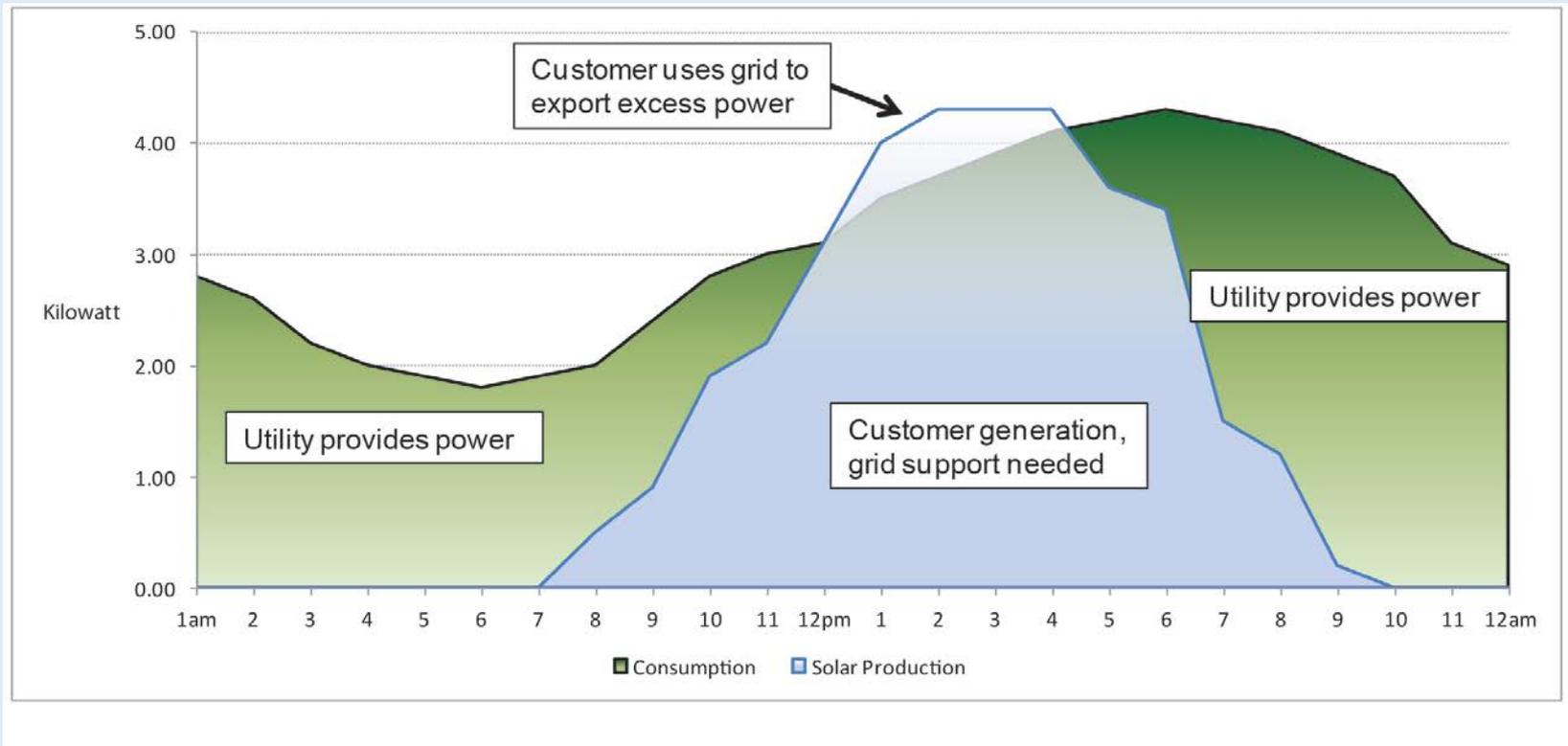
MPSC Solar Working Group

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Typical Energy Production And Consumption For A Small Customer With Solar PV



Source: *Value of the Grid to DG Customers*, IEE, October 2013

Net Metering Shifts Grid Costs to Non-DG Customers

- What's the **Problem**? Most rates recover a large share of fixed costs through variable use charges
- DG customers continue to rely on the grid and increase grid costs, most of which are fixed
- Under most rate designs, rates to customers with DG fail to recover right amount of fixed grid costs
- Net metering makes the cost-recovery problem worse, shifting fixed costs to non-DG customers

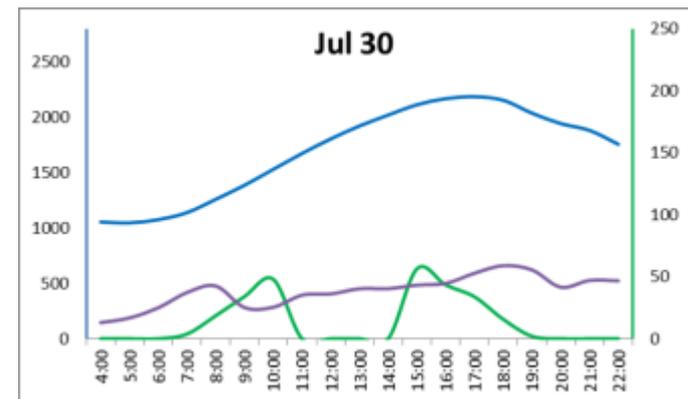
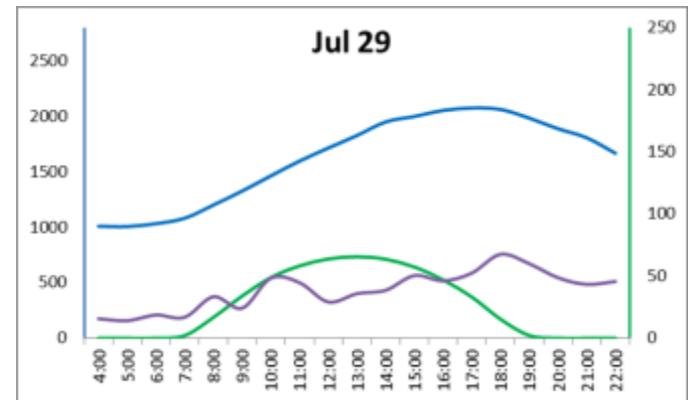
EEI/NRDC Joint Statement

- “Recovery of utilities’ non-fuel costs should reflect the costs of maintaining and improving the electricity grid, and should not be tied to levels of retail commodity sales.”
- “Owners and operators of on-site distributed generation must provide reasonable cost-based compensation for the utility services they use, while also being compensated fairly for the services they provide.”
- “Customers deserve assurances that costs will not be shifted unreasonably to them from other customers.”

Serving DG Users: A Two-Way Street

- Solar DG users don't just consume power – they generate it, creating unique dynamics for utilities.
- Most DG production occurs at midday, leaving users fully dependent on the grid most of the time (for either supply or demand) – including during peak periods that drive infrastructure investment, power prices and other issues.
- Solar DG users offload excess energy on the grid, placing additional requirements/investments on local distribution facilities.

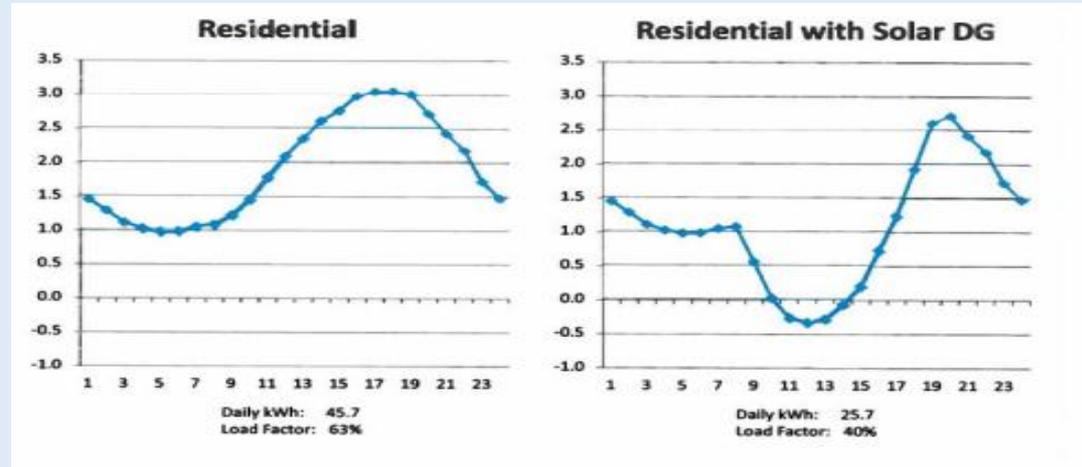
— TEP System Load — DG Solar Production — Residential Demand



Source: Tucson Electric Power

DG Users Have Unique Load Profiles

- Unlike typical residential customers, solar DG users use little or no grid power at midday but quickly ramp up demand on peak, when PV production wanes.
- Utilities must be prepared to serve full load on days when PV isn't performing.
- Ramping up resources quickly to address the typical “needle” peak created by solar DG users creates new issues for utilities.
- The increase in ramping rates equates to lower utilization of other assets.
- This load profile will require different services and resources from the utility.



Source: PacifiCorp

Compensating Distributed Generators for the Value of Solar

- Predictions Highly Speculative; Likely to Be Wrong
- Claims of Grid Savings Unlikely; True Grid Impacts and Costs of Controlling DG Still Unknown
- Seeks Payment for Attributes Never Paid to Utilities
- Causes Undue Discrimination with Other Non Carbon Emitting Generation – about 30% of Michigan's Power
- Increases Electricity Rates for Other Customers
- Conflicts with FERC Jurisdiction; PURPA Avoided Cost Cap