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## *Value of the Grid to DG Customers*

The Benefits of the Grid for Distributed Generation

MADRI Working Group Meeting

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Presented by

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[www.edisonfoundation.net/IEE](http://www.edisonfoundation.net/IEE)

# Key Issues

- Major issue: value of grid services used by solar rooftop DG customers
  - > DG customers use the grid 24 x 7 & should pay their share of the costs.
  - > Focusing on the “value of solar” does not explicitly address this issue!
- The cost shifting to non-DG customers is significant
  - > DG cost shifting ranges from about \$25 to \$60 per month per DG customer. This is unfair.
  - > A CPUC study projects \$1.1 billion in annual cost shifting by 2020.
- Decoupling does not resolve DG cost shifting issue.
  - > Although decoupling socializes the cost of EE (for example) these only amount to about about \$2 to \$3 per month per customer and are transparent.



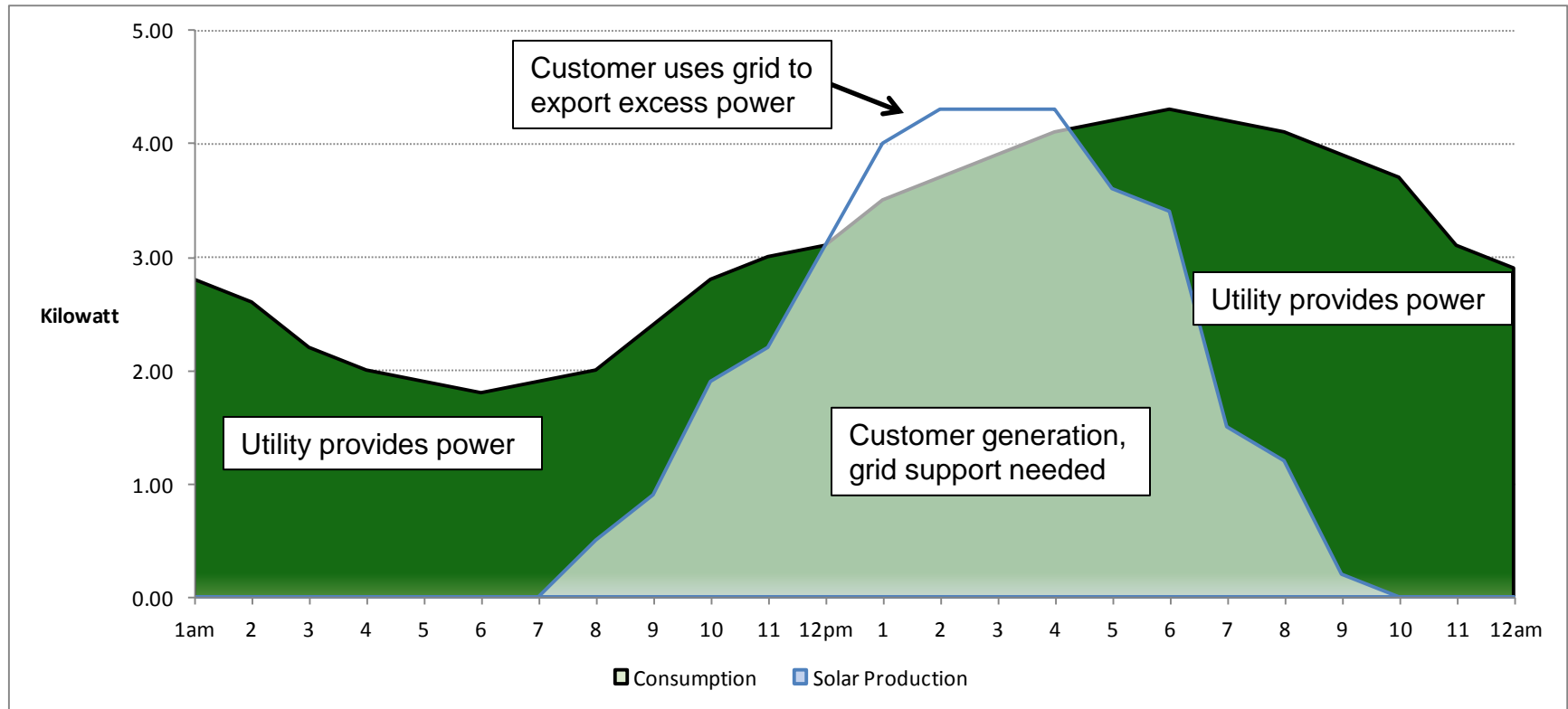
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# Value of the grid example: rooftop solar customers use the power grid 24 hours a day

## Typical grid interaction with rooftop solar



# Value of the grid to DG customers is the elephant in the room (*focusing on the value of solar avoids addressing this point!*)

<b>Average Residential Customer: Non-Energy Charges as Percent of Typical Monthly Bill</b>	
Average Monthly Usage (kWh)*	1000
Average Monthly Bill (\$)*	\$110
Typical Monthly Fixed Charges	
Ancillary/Balancing Services	\$1
Transmission Systems	\$10
Distribution Services	\$30
Generation Capacity ^	\$19
Total Fixed Charges for Customer	\$60
<b>Fixed Charges as Percent of Monthly Bill</b>	<b>55%</b>

\*Based on Energy Information Administration (EIA) data, 2011

^The charge for capacity varies depending upon location. This is just an estimate.



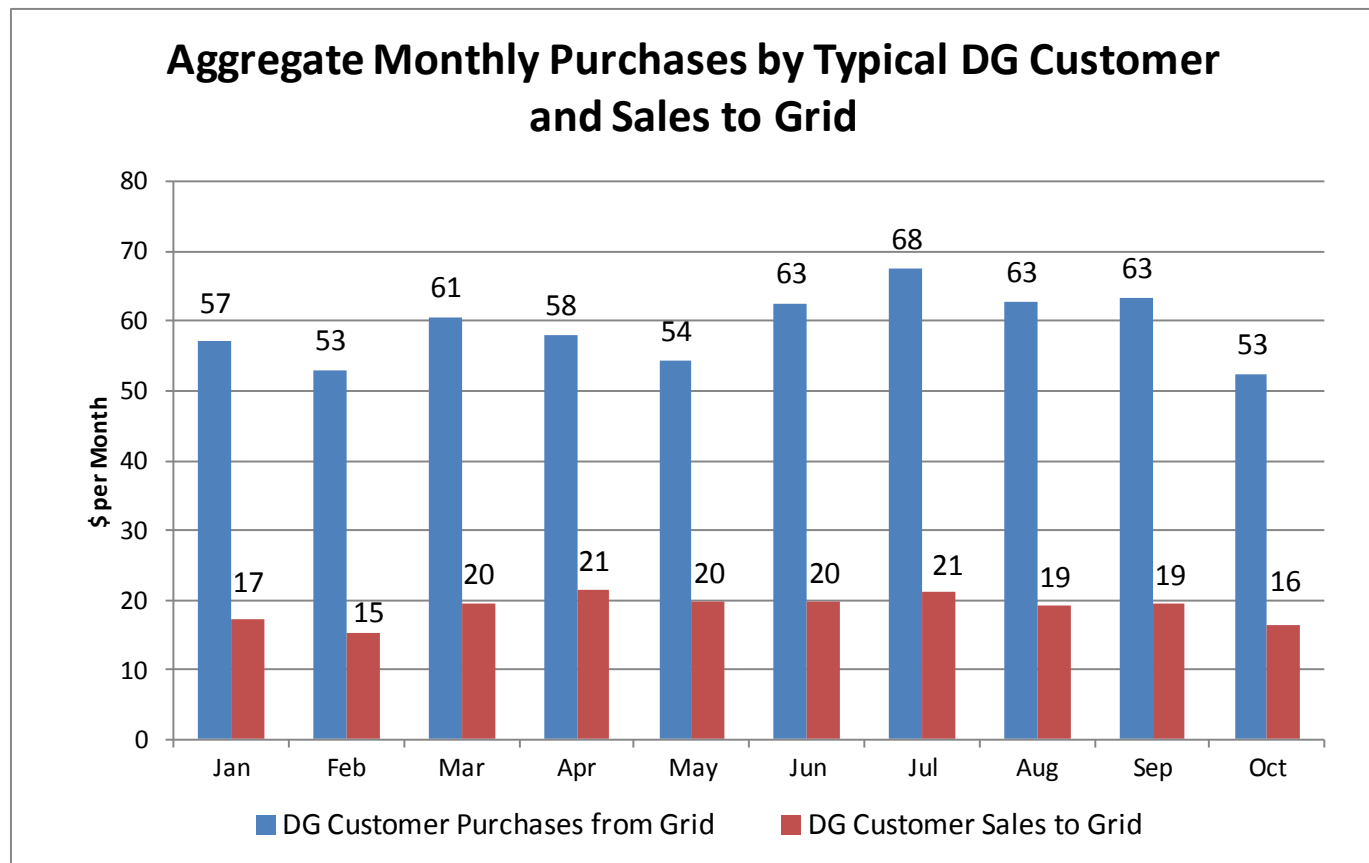
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Source: Value of the Grid to DG Customers.  
IEE Issue Brief. Updated October 2013.  
Available at [www.edisonfoundation.net/IEE](http://www.edisonfoundation.net/IEE)

# Example: Electricity purchases and sales by a typical DG customer with rooftop solar based on CAISO day-ahead hourly wholesale prices (2013)

- Purchases of monthly energy by a DG customer range from \$53 - \$68 per month
- Sales of monthly energy to the grid range from \$15 - \$21 per month



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Note: Although net metering uses the retail rate, the wholesale rate is the component of the retail rate that truly accounts for the energy. The remainder is the cost of grid services.

# Net metering is sending the wrong price signal to customers, the solar industry, and investors. The time to fix this is now!

- Solar rooftop DG has several cost components. Using the retail rate under net metering fails to accurately capture these costs.
- Non-energy components
  - > Cost of grid services to DG customers (e.g., \$60 per month)
  - > Capacity value of rooftop solar to the utility (varies by utility, range \$0+)
- Energy components (using hourly wholesale market prices)
  - > DG customer electricity purchases (e.g., \$53 to \$68 per month)
  - > DG customer electricity sales (e.g., \$15 to \$21 per month)
- Under net metering today (based on retail rates) very few solar rooftop DG customers pay their fair share of the cost of the grid services they utilize.





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