



The Role of Distributed Resources in a Renewable Electricity Future

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Distributed Innovation



MYENERGI LIFESTYLE

More than ever, cars are sharing the same energy source as the home. The average American home uses over 11,000 kWh of electricity every year. But we can do something about it.

Recent technology advancements and utility trends have enabled a typical American middle-class family to significantly reduce their electricity bills and CO₂ footprint by integrating a plug-in vehicle, energy-efficient appliances and a renewable energy source.

Behind all these products is the power cloud computing that takes advantage of lower off-peak electric rates.

Georgia Tech's modeling* predicts these green home improvements could result in:

- ENERGY COSTS reduced by **60%**
- CO₂ WASTE reduced by **50%**

*Comparing 1995 appliances and a 25mpg vehicle to 2012 appliances and a Ford C-MAX Energy plug-in hybrid vehicle with Value Charging.





Saves Big

- Incorporating demand response and efficiency into forward capacity procurement
- Recent round chose 12.4 GW of DR plus 1.1 GW of efficiency
- Just in August 2012, PJM customers saved \$650 million due to demand response, including \$230 million on August 2 alone.

What is possible from distributed resources

- Efficiency: \$850bn supply-side cost savings
- Distributed renewable supply: 30–40% of total generation
- Flexibility resources:
 - Demand response 16–24% of peak
 - Distributed thermal and electricity storage
 - Integrated EV charging

Analyzing the options:

1. Measure the full range of costs and benefits for distributed energy resources.
2. Analyze trade-offs between centralized and distributed resource portfolios.
3. Integrate distributed energy resources into resource planning processes (create an **IDRP**).

Revamping the rules of the game to level the playing field:

4. Create new electric utility business models for a distributed resource future.
5. Adapt wholesale markets to allow distributed resources to compete.

Encouraging innovative technologies and service models

6. Enable microgrids and virtual power plants to support integration and aggregation of distributed resources.
7. Drive down “soft costs” for solar PV by streamlining permitting and interconnection procedures.
8. Encourage smart electric vehicle charging.



Discussion

**Have further questions?
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