



Barriers to DR Aggregation

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Gondolas can only Operate on Water

What is the basic requirement for DR to operate in an electricity market?



- ❑ Demand Response (DR) can only operate where provisions are made within a market to allow DR to operate, or
- ❑ Where utilities (fully integrated utilities or disaggregated utilities like network/grid businesses) can contract for DR services.

Regulations and Market Structures

- ❑ In California the Loading Order introduced by the Public Utilities Commission under Commission Chairman Michael Peevey, mandated that before any new infrastructure the utilities in California must first consider Energy Efficiency, DR and/or Renewable alternatives.
- ❑ Energy Only Markets (ie where generators are only compensated through a market mechanism for the energy they produce) are problematic for DR unless there are specific regulations which allow for DR programs.
- ❑ In a Capacity market, like the West Australian Wholesale Electricity Market, DR is remunerated the same as a peaking generation (ie a capacity fee plus a modest energy payment).



Attitudinal Barriers

- ❑ Utilities are generally staffed by engineers. Engineers like to build infrastructure so DR is often not a considered option.
- ❑ Customers too need to understand what it means to participate in a DR program
 - DR is not a primary or secondary consideration
 - DR program must be simple, transparent and risk averse
- ❑ Generation companies/generators and Gentailers will not encourage DR because DR competes directly with peakers.
- ❑ Policy makers and governments don't understand DR



Technical Barriers

❑ Do you need real time feedback?

- Technology will dramatically increase cost and complexity of DR solution but has obvious and significant benefits

❑ Notification Time:

- There is a direct relationship between the time available to notify customers to prepare for a DR event and how much capacity participates (ie the more notification time, the more DR capacity can participate)

❑ Access to the Customer's Meter Data

- In many markets access to customer meter data is heavily regulated and thereby can impede the financial settlement process



External Barriers



- ❑ In markets where electricity is actively traded, DR solutions can be packaged into derivatives.
 - Financial regulations independent of the electricity market may apply which may have harsh restrictions and penalties.

- ❑ Are standby and emergency generators going to form part of the DR solution?
 - Do environmental restrictions allow for the use of these customer owned generators for economic dispatch?



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