OPTIMIZING LOAD IN THE SMART GRID ENVIRONMENT

FERC/NARUC JOINT COLLABORATIVES

Allen M. Freifeld
SVP, External Affairs
Viridity Energy
443.878.7155

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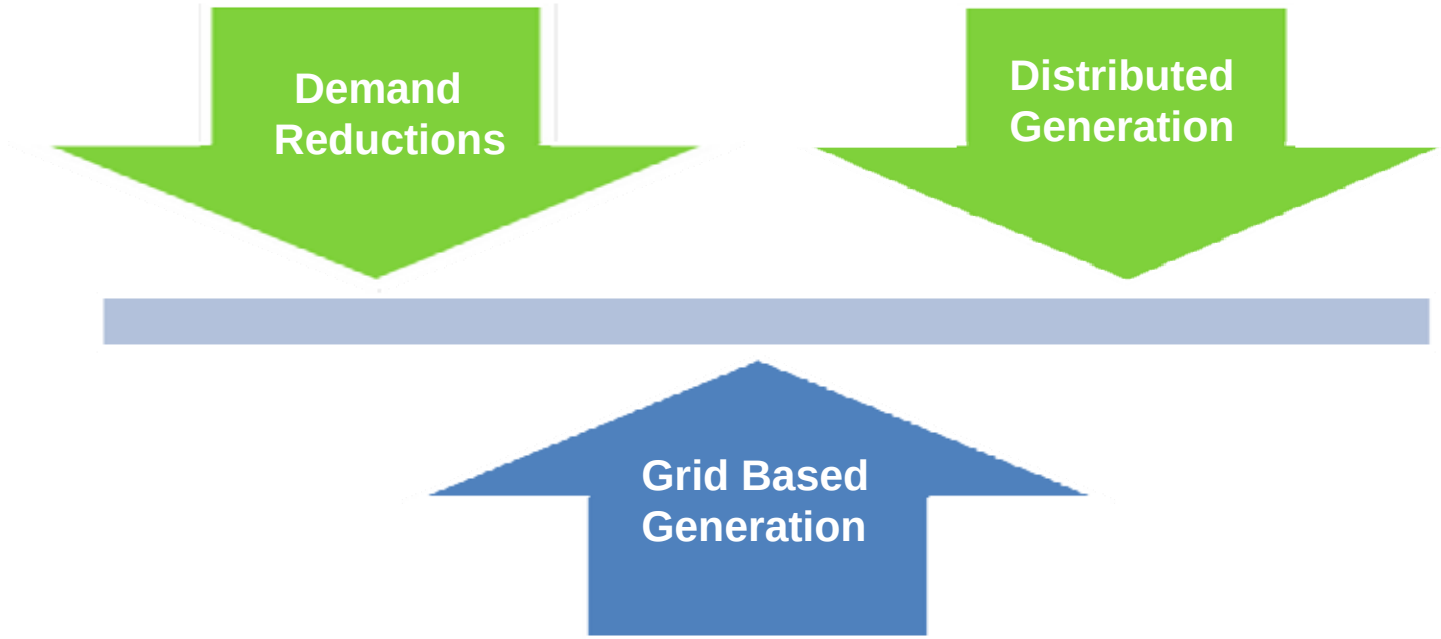
Electric Industry Fundamentals

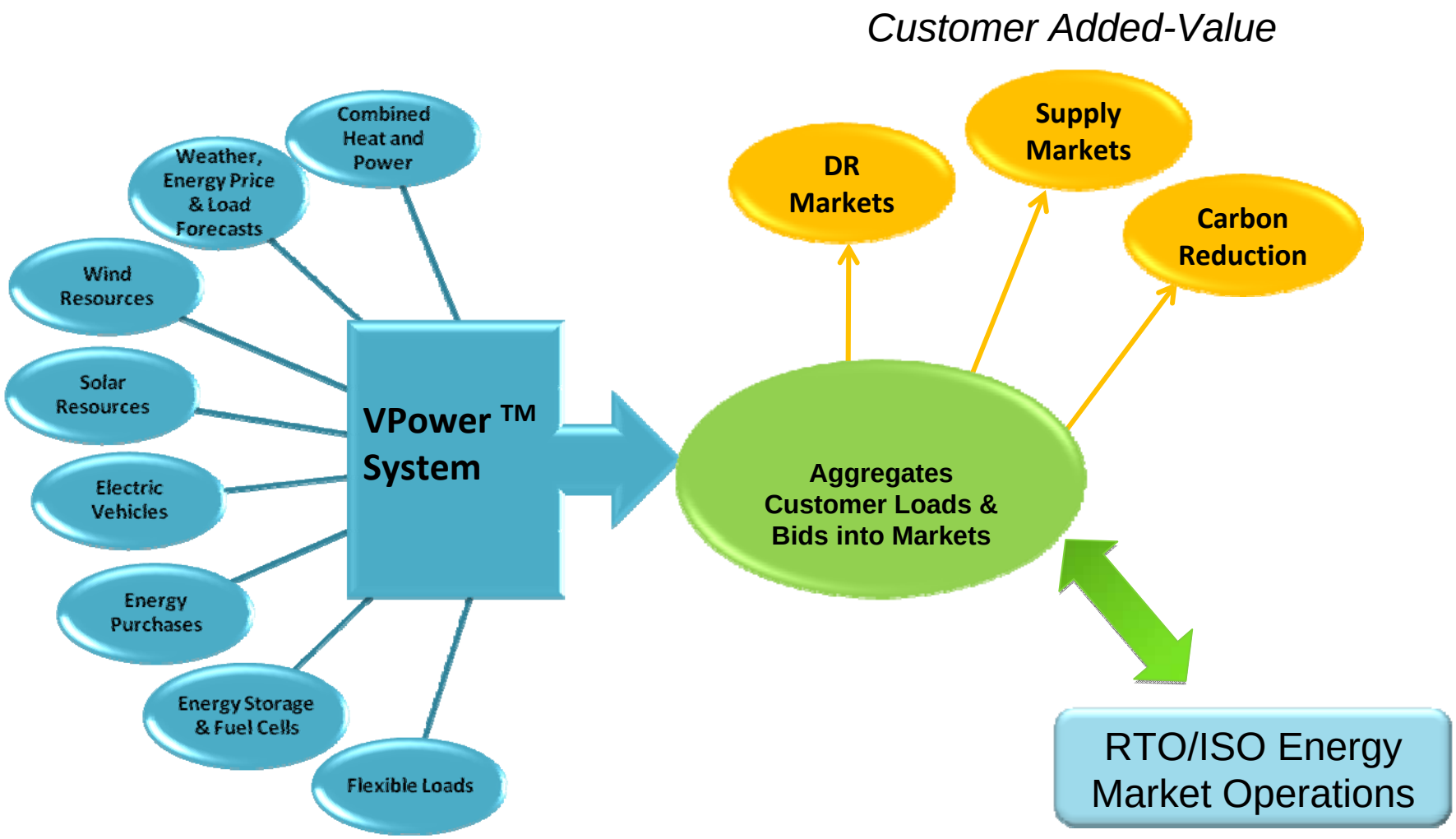
1. Grid requires supply and demand to be in balance.
2. Grid operators have limited control over demand
3. Grid reliability is maintained by anticipating and matching changes in demand with supply i.e. generation
4. Grid operators require resources they can control, predict and measure

The Smart Grid is the Game Changer



- Two-way communication makes customer-owned distributed generation and demand management available to the grid
- Customers are suppliers to the market
- Grid-based generation is coupled and optimized with customer generation and controllable demand to maintain balance

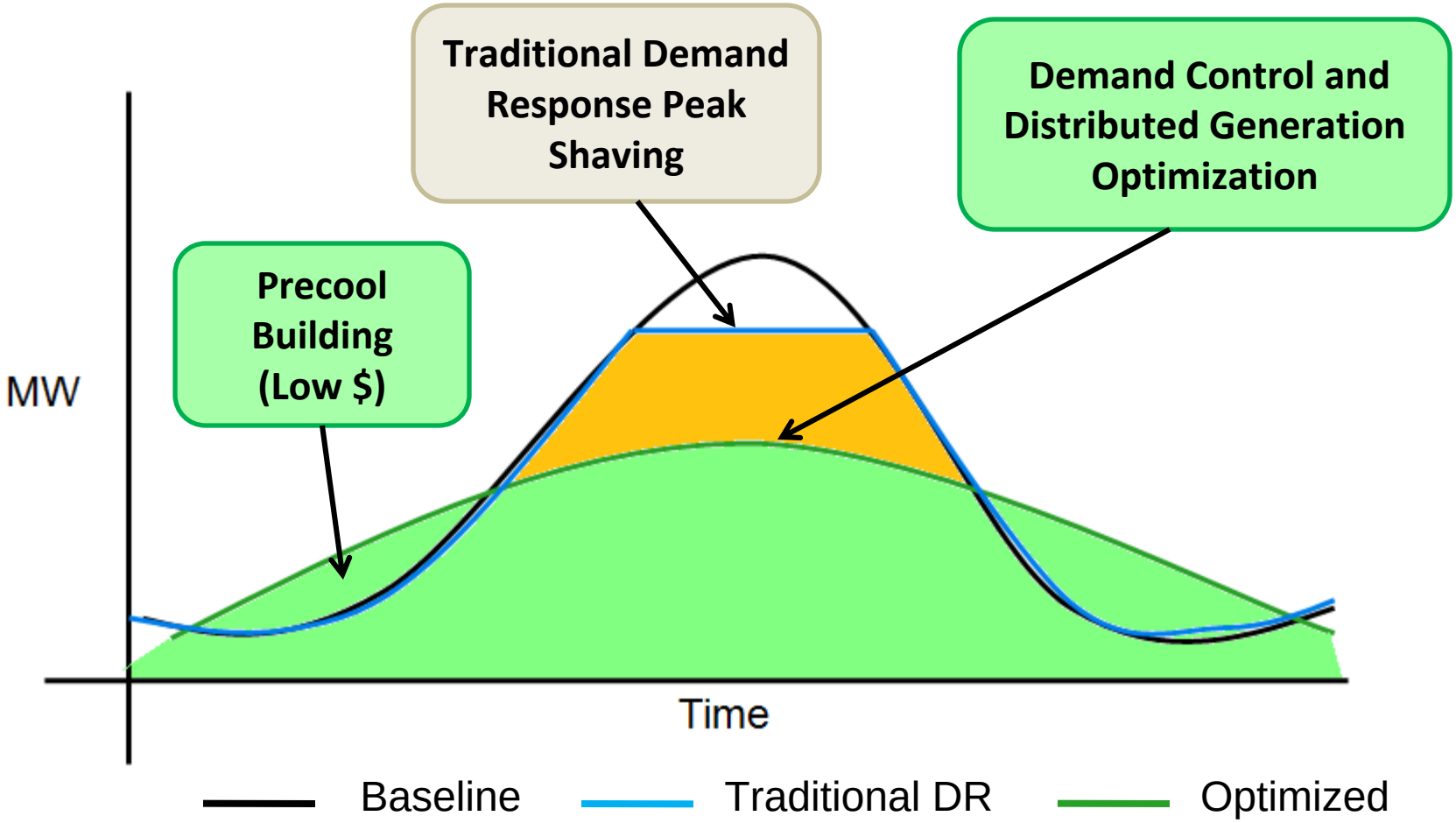
Optimization Process



In Traditional Utility Jurisdictions

- Tariff based
  - Customer incentives
    - Payment for curtailment or generation
  - Utility operational control (dispatch)
  - 3rd party implementation?

Optimizing Customer Demand



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Achieving Smart Grid Benefits *Today*

Customers	• Increase revenues from market participation • Reduced payback period for energy investments • Reduce supply expense through superior load management • Minimized carbon footprint
RTO/Market Operator/Utility	• Two way information and dispatch of distributed resources • Increased information, flexibility and security at distribution level
Renewable Generation	• Increase system value of renewable resources by integration with controllable demand (use embedded storage in load!) • Achieve environmental objectives through improved utilization of clean energy!