



November 4, 2009

# Villanova University

## Making Sustainability the Economic Choice -Smart Grid as a Revenue Stream

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## Redefining Power Economics:

*Transforming energy investments into savings and revenues*

### Virtual Power Generation

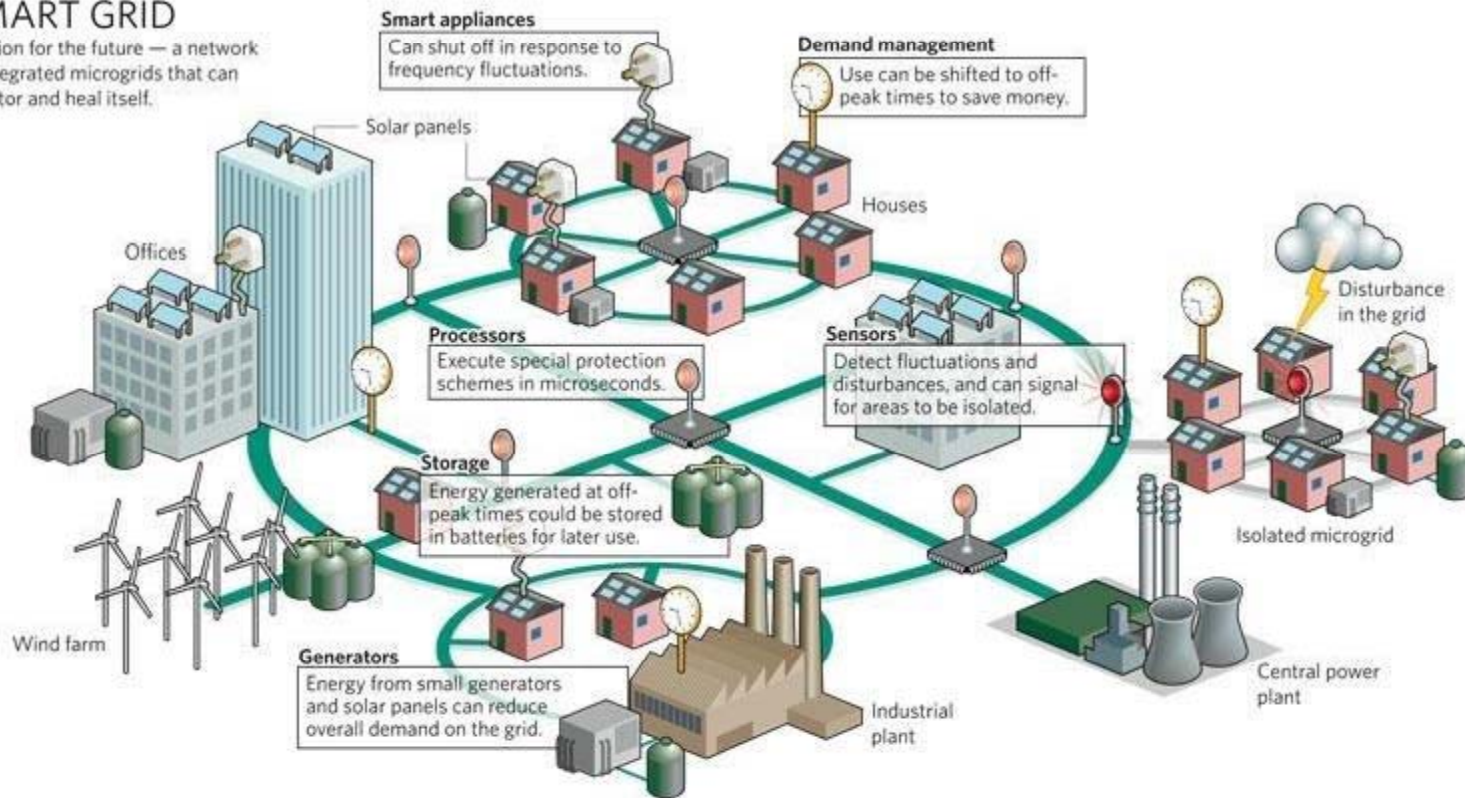
Integrated and Optimized Demand Response + Distributed Generation + Storage that results in controlled and defined load curtailments that are scheduled onto the grid as capacity, energy and ancillary services

*Viridity Integrates Customer Energy Assets onto the Grid via 24/7 Market Participation*

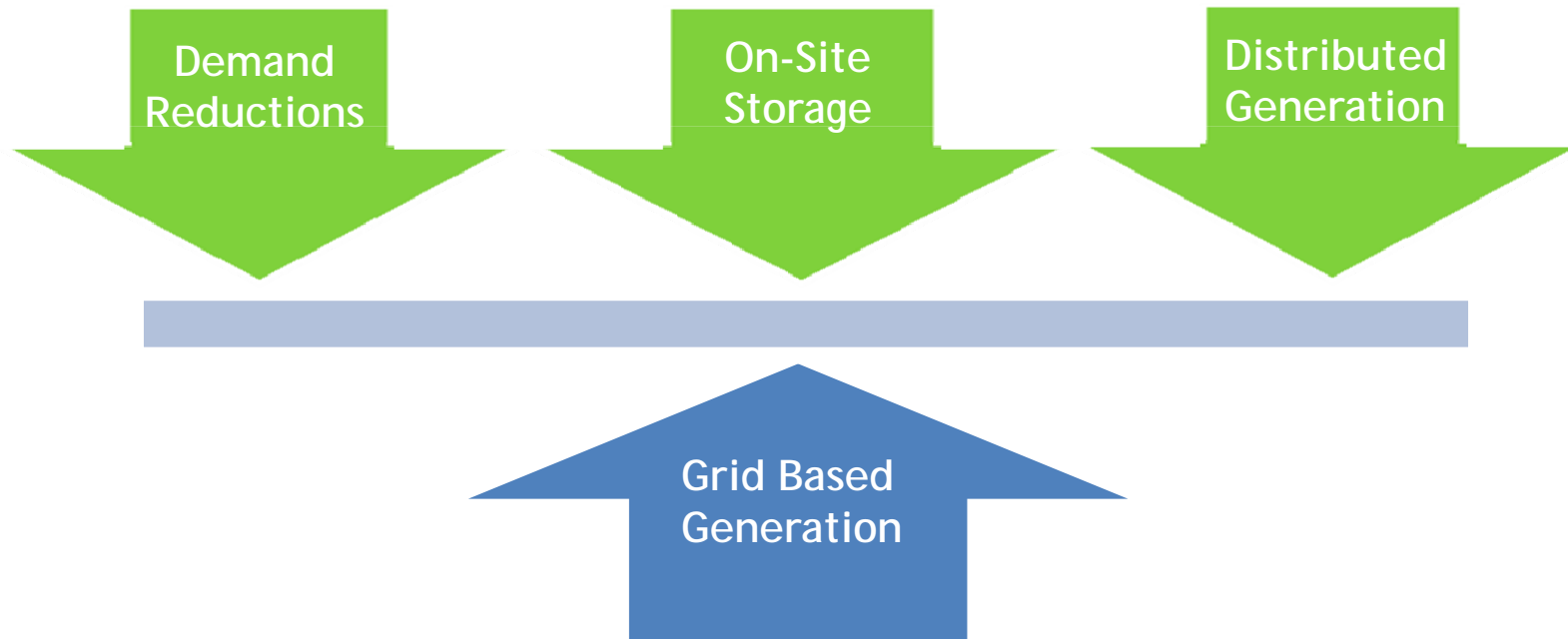
# What is a Smart Grid?

## SMART GRID

A vision for the future — a network of integrated microgrids that can monitor and heal itself.



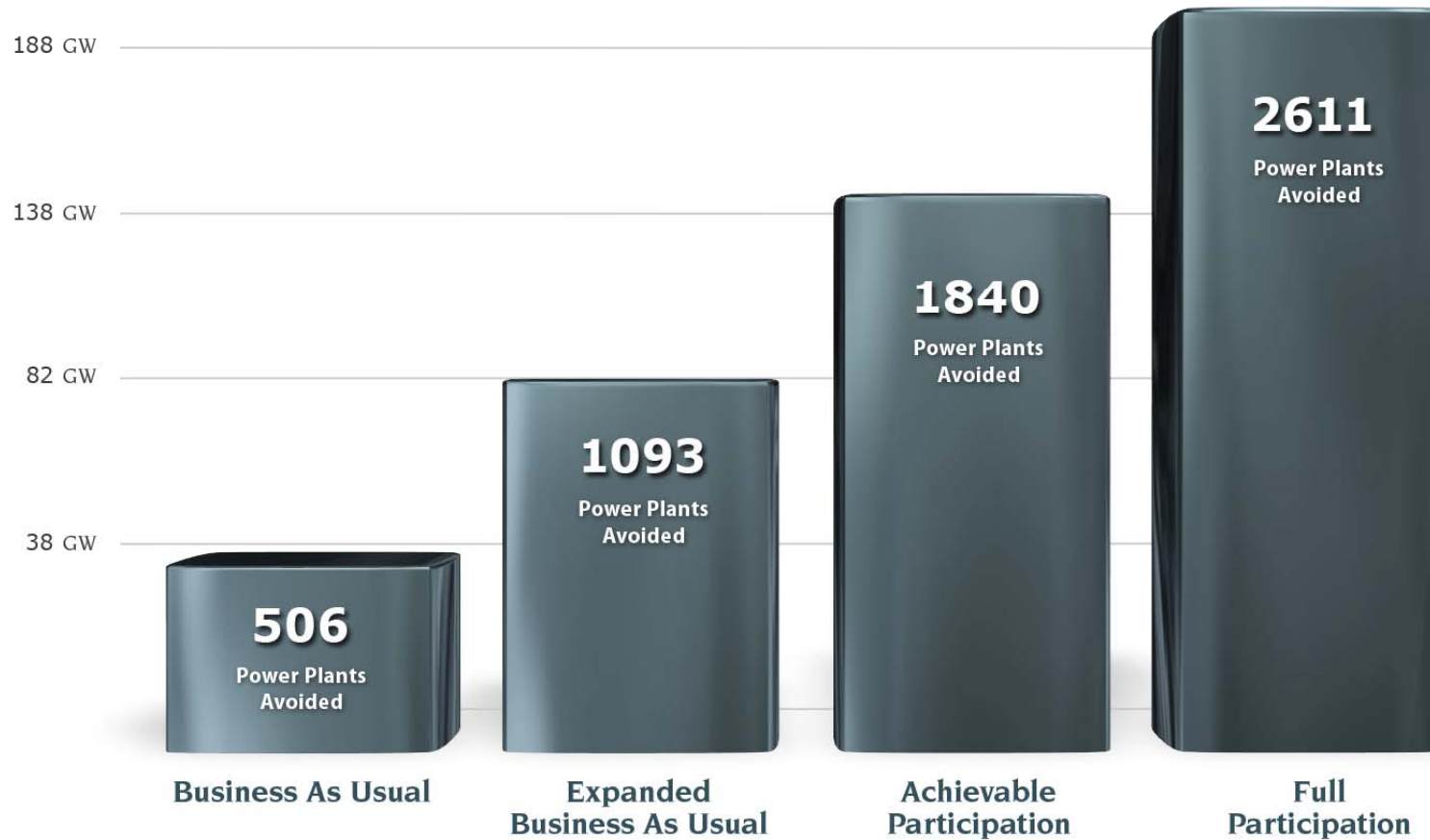
# The Smart Grid is the Game Changer



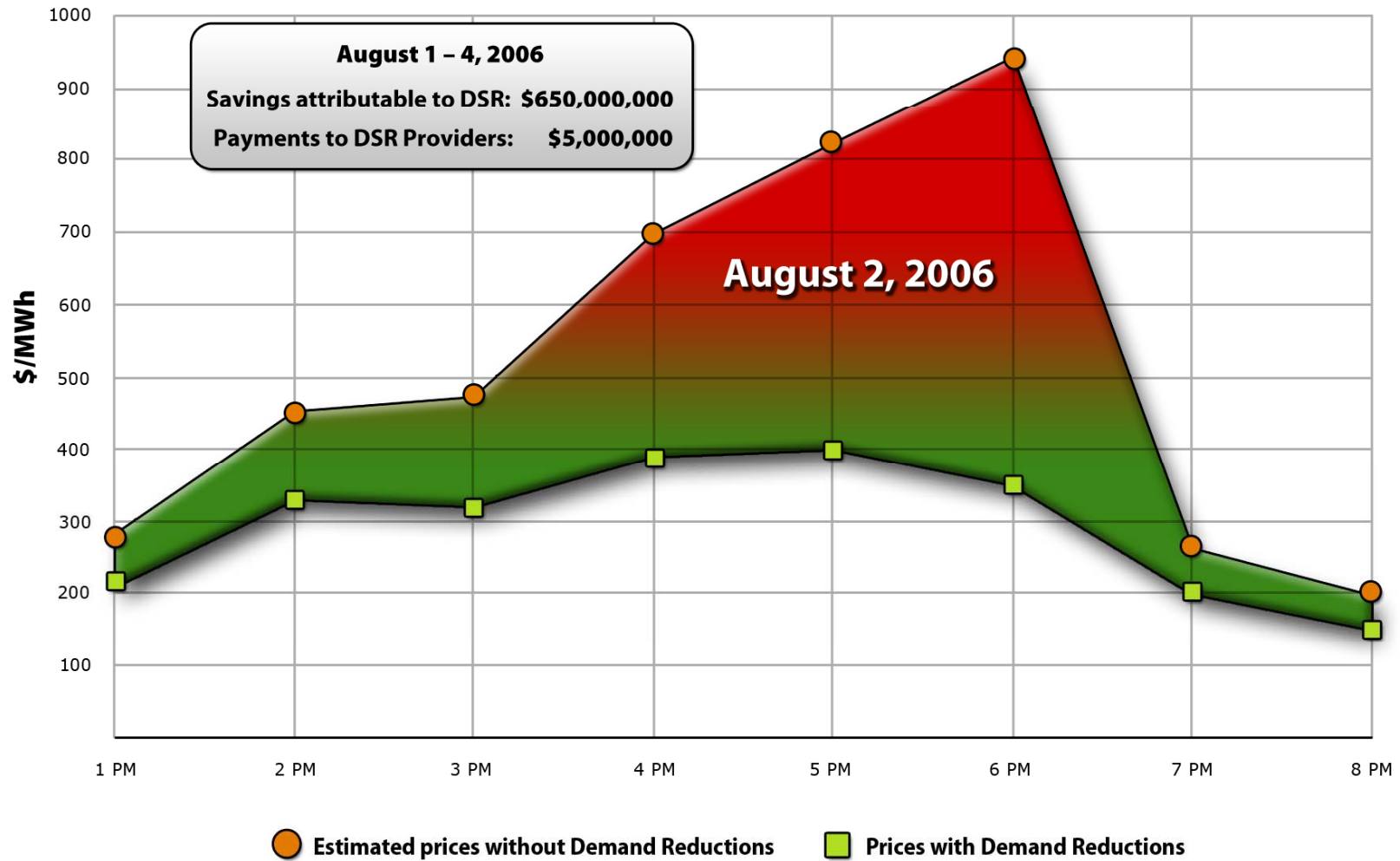
- Two-way communication makes customer-owned distributed generation and demand management available to the grid
- Customers are suppliers to the market
- Grid-based generation is coupled and optimized with customer generation and controllable demand to maintain system balance at the lowest possible price

# Peaking Power Plants Avoided

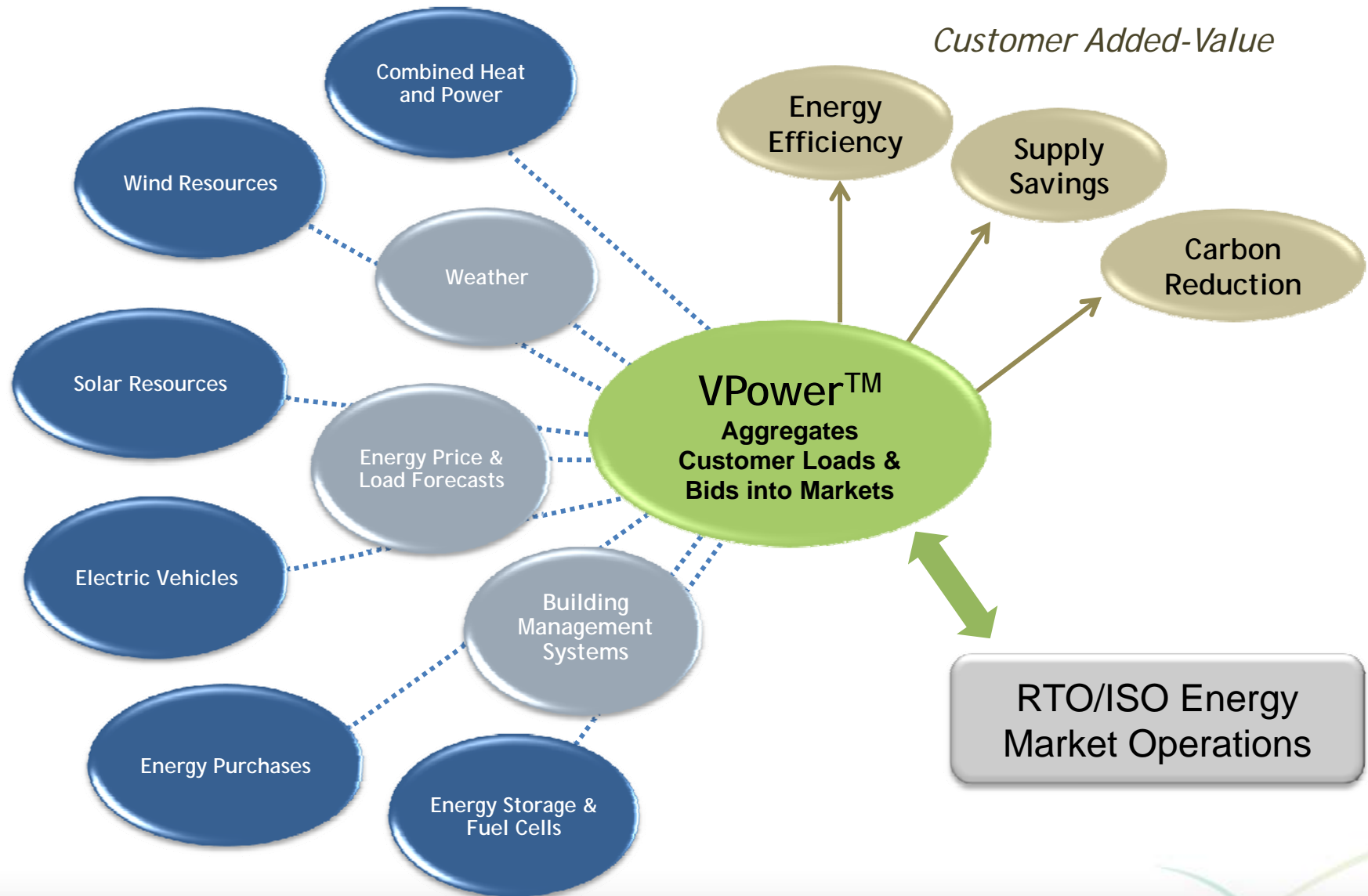
— *Brattle Report*



## PJM – Impact of Demand Response on Prices



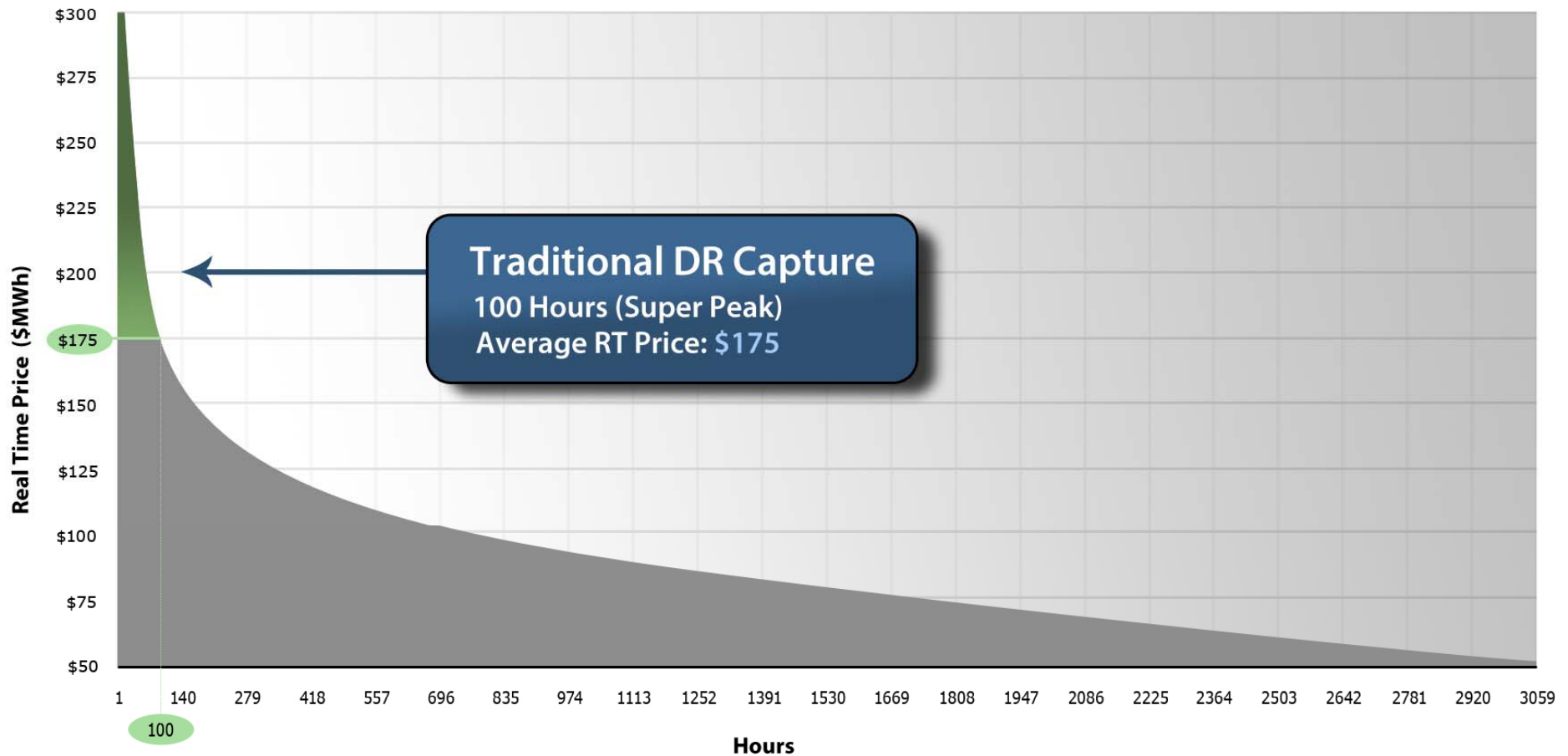
# Viridity 24/7 Optimization Process





# From Peak Shaving to Virtual Generation

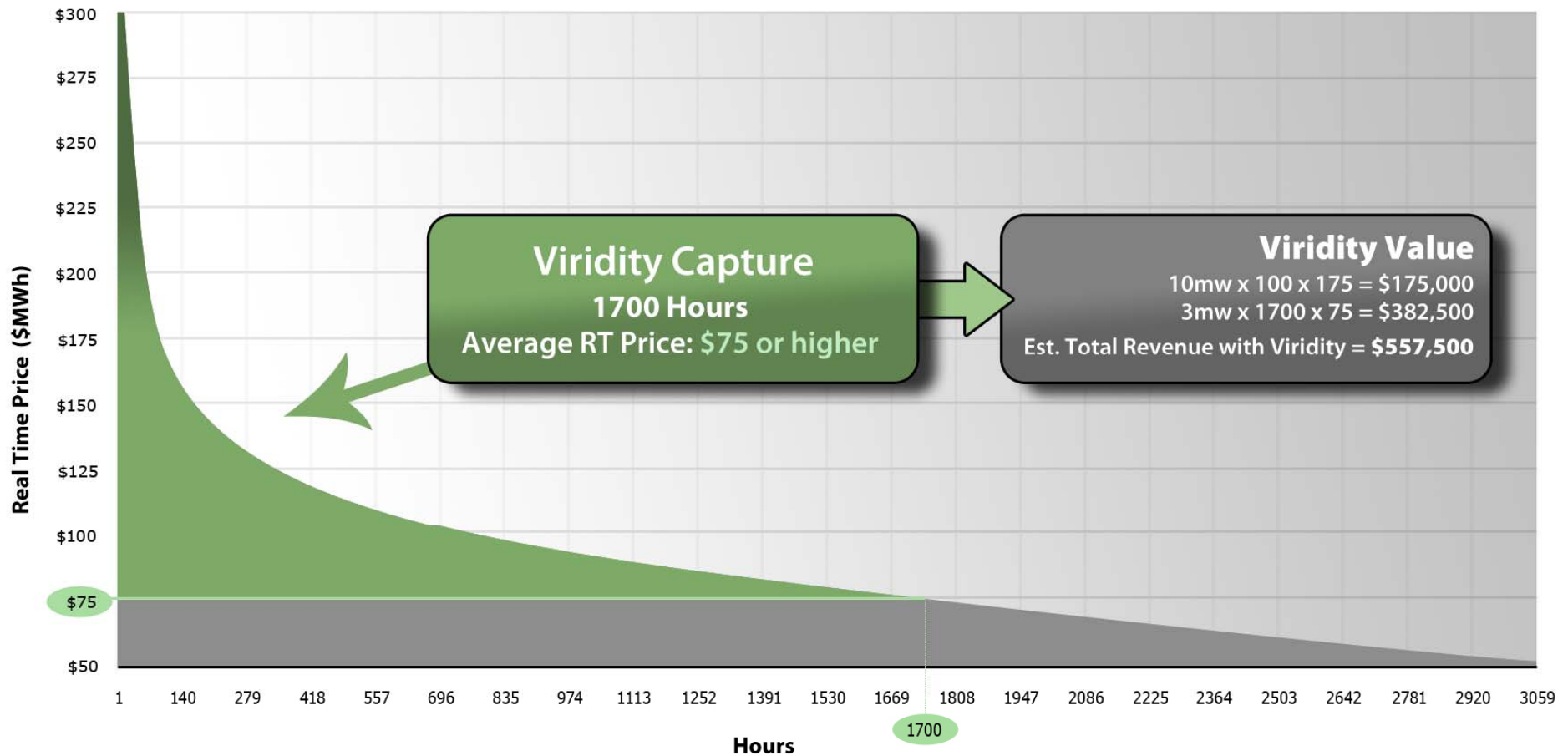
## Price Duration Curve





# From Peak Shaving to Virtual Generation

## Price Duration Curve



# The Total Value Proposition

*Providing optimal economic and environmental value to energy customers*

## Demand Side Management

- Optimize Distributed Generation and Curtailment Capabilities in response to prices, weather and supply purchases
- Provide predictable, controlled, measured, and auditable resources to be sold into markets

## Supply Side Benefits

- By virtue of Demand Side Management, electricity usage is optimized leading to better efficiency and reduced cost of electricity supply per Energy use.

## Carbon Footprint Reduction

- Carbon footprint can be a stated goal that can be managed via Viridity

## Distribution Utility/Customer Partnership

- Utilities have access to distributed energy resources.
- Load is a predictable and controlled resource on the grid



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**Thank You.**

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