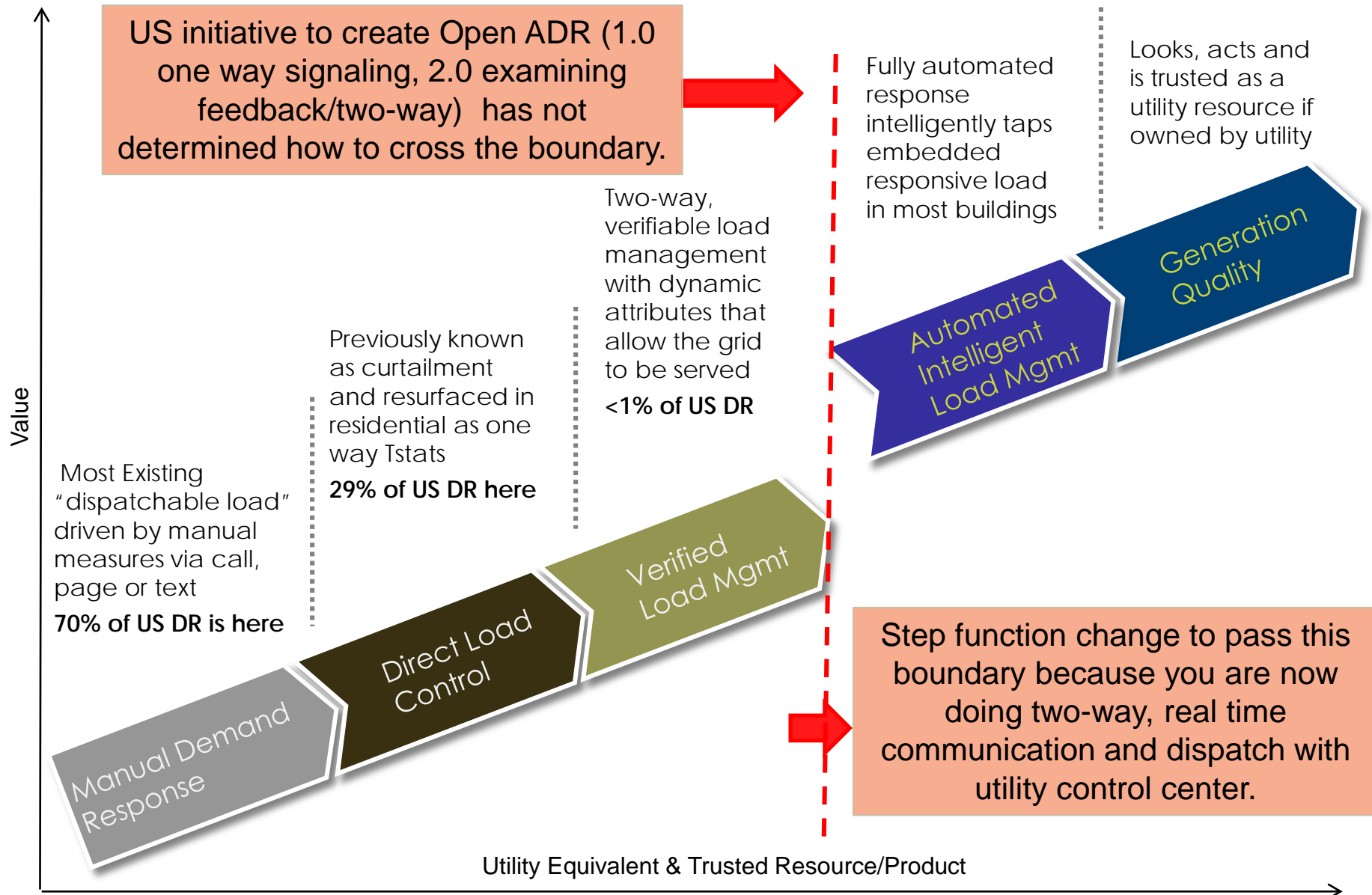


A NEW REGULATORY MODEL FOR AUTOMATED DEMAND SIDE MANAGEMENT

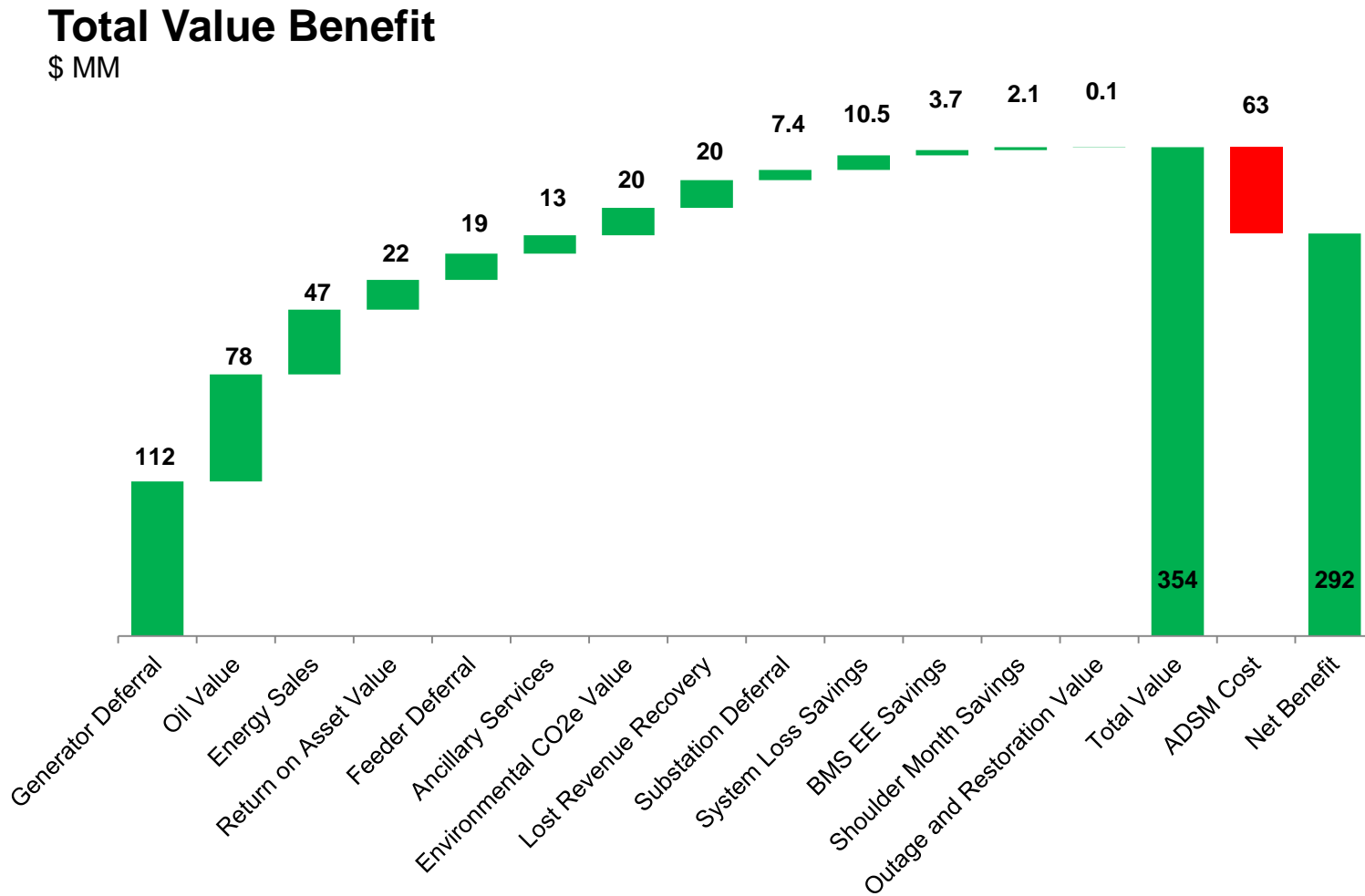
Consumers, regulators and utilities can all benefit

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What's the real value of ADSM?



History: Learn from others what has and has not worked

In the U.S. and Europe, DR is still utilized almost exclusively for “Emergency” reasons only, not as a grid resource.

Most programs are even designed to operate for less than 80 hours/year and actually dispatched or called less than 20 hours each year.

DSM needs to be a 400 hour/year resource and needs to be two-way and verifiable by Grid Operator in real-time. Not one way, not 80 hours.

In the U.S., great things have been accomplished:

- EE
- Deferral or Elimination of Peak Power Plants
- Emission Reductions
- Full deployment of SCADA
- AMI/AMR

But the net result related to the Root Cause Problem of our Industry?

The Root Cause Problem of the System Load Duration Curve is **WORSE**.

The grid has become more ‘peaky’ driving even greater economic issues and price separation from peak to baseload. Utilities have not been given control.

FIRST – Define the goal for ADSM

Define and approve regulatory structures that provide a 'regulatory equivalent' treatment for investment on the demand side to align the objectives for the customer, utility and regulator.

Ensure KPI's measure system effects, not programmatic results.

Traditional DSM Models

Regulatory Economic Implications

Traditional DSM or DR program structures

- No physical assets
- Programmatic expenses are created
- Execution of DSM events creates kWh reduction, which erodes revenue
- Customer interaction typically owned by vendor, creates conflict to regulator and utility
- Not treated as a 'regulatory equivalent' to other options such as a peaking power plant

Result:

The typical regulatory-or legislation-mandated DSM program creates new expenses while reducing revenue. No asset is created to be included in rate base. The utility's customer relationships are transferred to a vendor. The utility must manage a programmatic pass-through expense with negative revenue implications and negative customer impacts. Customer complaints to regulators increase.

Asset Based Approach for DSM Regulatory Economic Implications

- DSM provides system optimization and reliability. The DSM equipment can be recognized as a plant-in-service asset
- Designed to enhance the utility's relationship with their customer, potential to add value to the customer through incentive, tariff or other methods
- Designed to work within existing regulatory framework to simplify requirements for program creation and enhance support of regulatory goals for electrification of Indian Power Sector
- Designed to enable a truly equivalent resource for the utility to choose
- Designed to improve the overall GDP of India through efficient, effective, reliable and low cost supply of electricity

Result:

Assets are installed that the utility can add to rate base and earn on. Utility relationships with key commercial and industrial customers can be improved. Regulatory framework exists today so can get started quickly and create value for every stakeholder in the energy value chain. True Win-Win-Win model for Utility-Customer-Regulator.

Asset Based Approach for DSM Recommended Regulatory Framework Outline

Partnership approach with regulators to define a successful model for DSM in India. Develop a Common Framework for scale implementation.

Step 1: Allow the asset to be placed into rate base.

Step 2: Define regulatory treatment for the programmatic/recurring cost of the program and customer incentives.

Step 3: Define regulatory treatment for the lost revenue from reduced kWh due to DSM events and EE effects.

Step 4: Define the regulatory treatment/tracking for the environmental benefits associated with the kWh reductions for both EE and DSM. (White Tags)

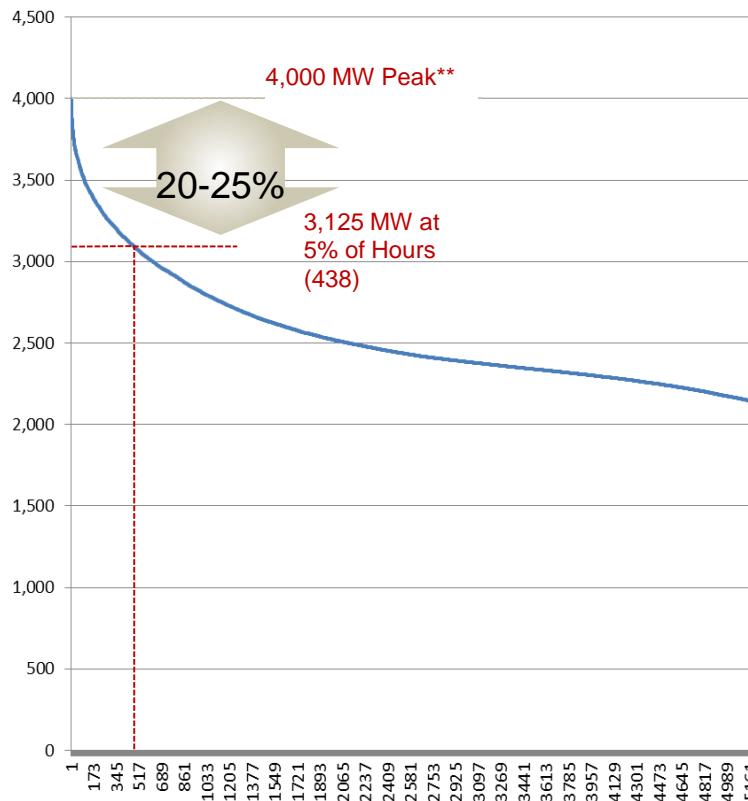
Step 5: Define the regulatory treatment of fuel pass through mechanism for aggregation of customer owned distributed generation resources.

Concept: Use traditional Regulatory structures to implement. For each of these 5 steps, regulatory recovery mechanism already exist. Nothing new!

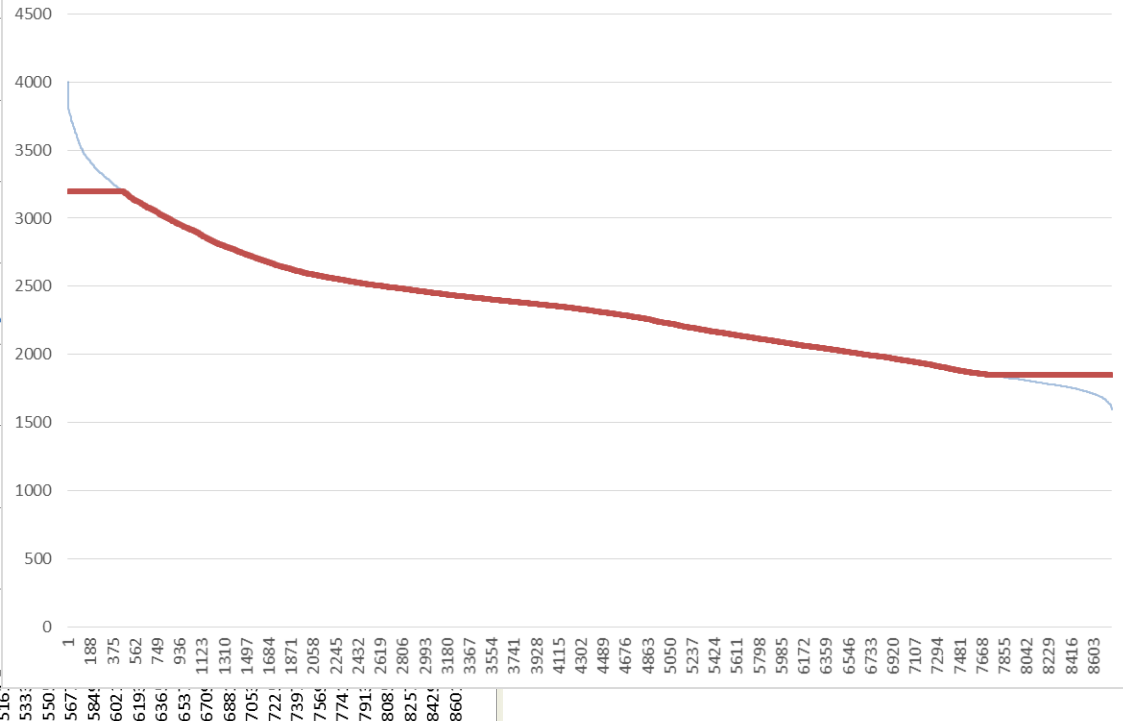
Ensure DSM designed to attack 400 hours/year of the LDC

Create Automated & Dispatchable DSM that can be trusted and relied upon up grid operators to effectively manage and optimize their system.

Load Duration Curve Example



Solving the Load Duration Curve Problem



Summary

- Your utility is uniquely positioned to leapfrog other grids by building DSM/DER into the system as it grows. Over time, this will improve system utilization by as much as 20%!
- Opportunity to utilize Automated and Dispatchable DSM for 'Peaking Power' while focus remains on building base load plants to electrify the nation.
- These initiatives will fail if the utility, consumer and regulatory goals are not aligned. Regulatory equivalent treatment for demand side investments must be achieved for utilities to embrace these programs and the investments necessary to make them part of their standard planning and operating practices.
- KPI's must measure and be correlated to system impact, not programmatic enrollment or programmatic measures.

THANK YOU!

QUESTIONS?