



R.I. DIVISION OF PUBLIC UTILITIES AND CARRIERS, R.I. OFFICE
OF ENERGY RESOURCES & PUBLIC UTILITIES COMMISSION

**GUIDING THE FUTURE OF RHODE ISLAND'S
ELECTRICAL GRID**

THE GRID WAS BUILT FOR A DIFFERENT ERA



3

**Benefits of
Modernizing the
RI Electric
Grid**

Control the long-term costs of the electric system.



Today's electric grid is built for peak usage. That's like constructing a **100-lane highway for Thanksgiving traffic.** New technology provides us with more ways to right-size the system to Rhode Islanders' needs.

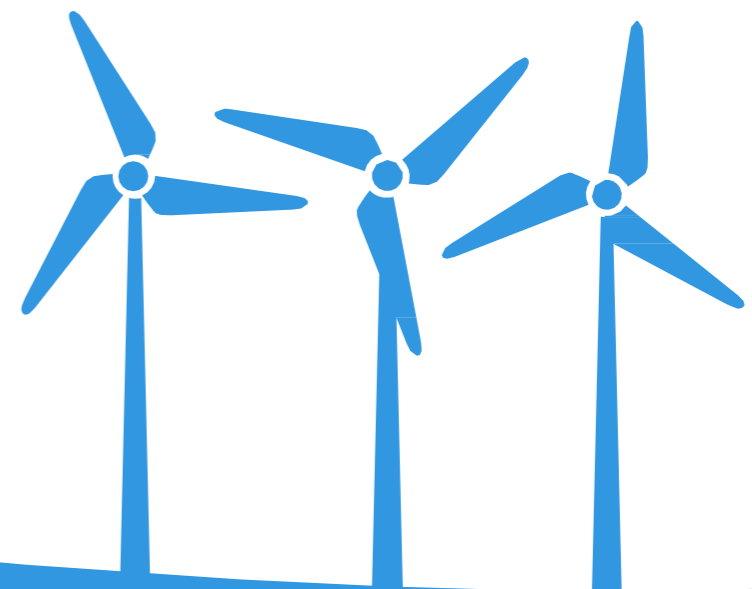
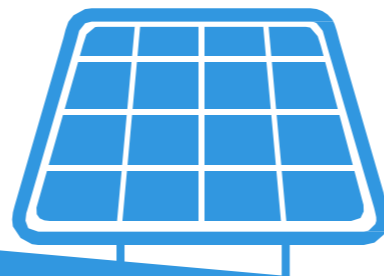


Give customers more energy choices.

Clean energy technologies are **more affordable now than ever**. Our utility rules should allow consumers to access and enjoy creative solutions to manage their energy production and use.

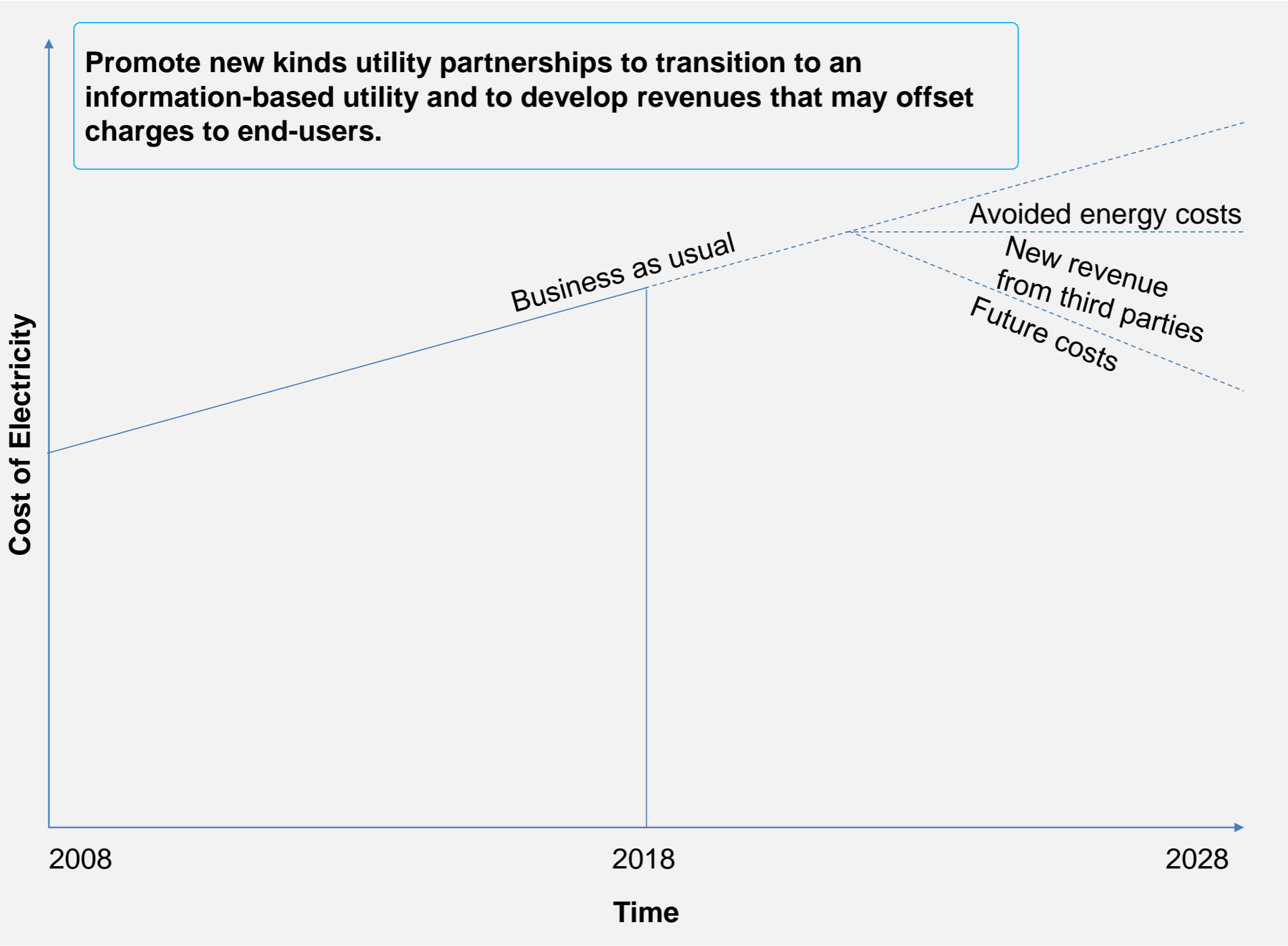
Build a flexible grid to integrate more clean energy.

The Governor's goal of **1,000 megawatts of clean energy by 2020** will bolster our growing local clean jobs economy and help us meet state climate goals.



Bend the Long-Term Utility Cost Curve

Avoided System Costs and Third Party Revenue



- Avoided Energy Costs:**
- Electricity Demand
 - Capacity charge
 - Transmission
 - Distribution

- New Revenue from Third-Parties:**
- Data access
 - Meter software platform
 - Shared communications network



Utility Business Model

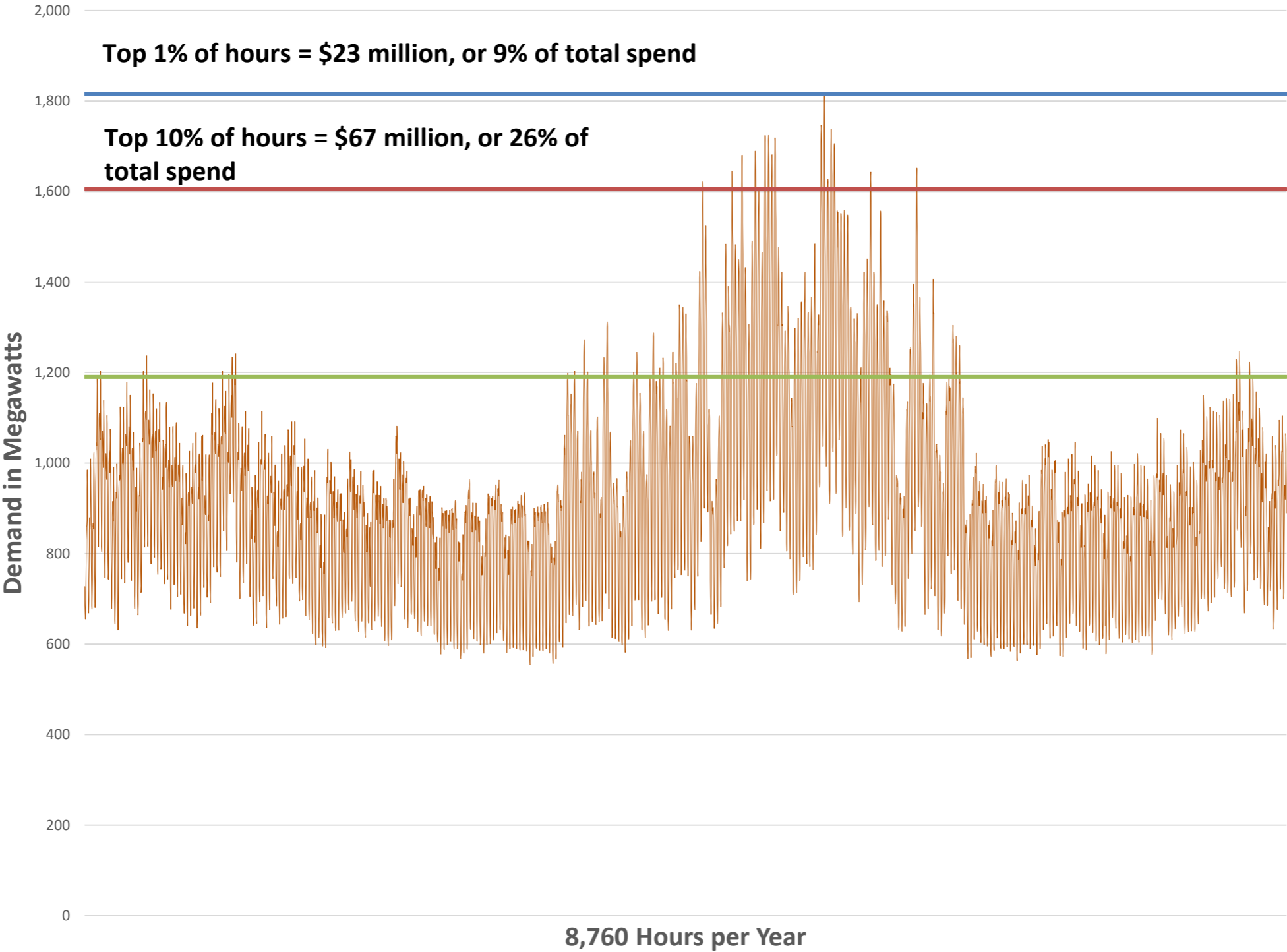
Distribution System
Planning

Grid Connectivity
Functionality

Beneficial Electrification of
Transportation & Heating

Peak Demand Adds Cost

2016 Rhode Island Peak Energy Demand



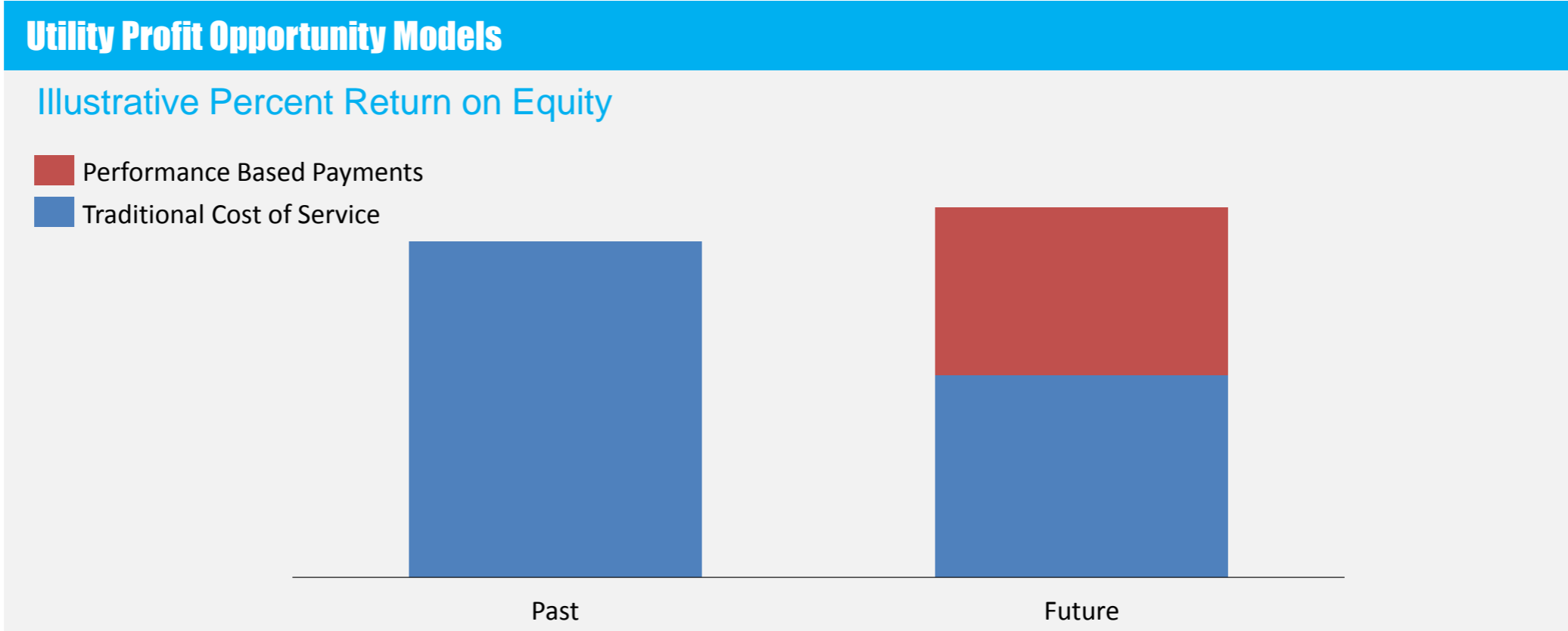
Modernize the Utility Business Model

1. CREATE A MULTI-YEAR PLAN AND BUDGET

Review rate cases as a **multi-year rate plan** with a **rate cap** that incents cost savings and **shares savings** with ratepayers

2. PAY FOR PERFORMANCE

Shift to a **pay for performance** model by developing performance incentive mechanisms for **system efficiency, distributed energy resources and network support services**

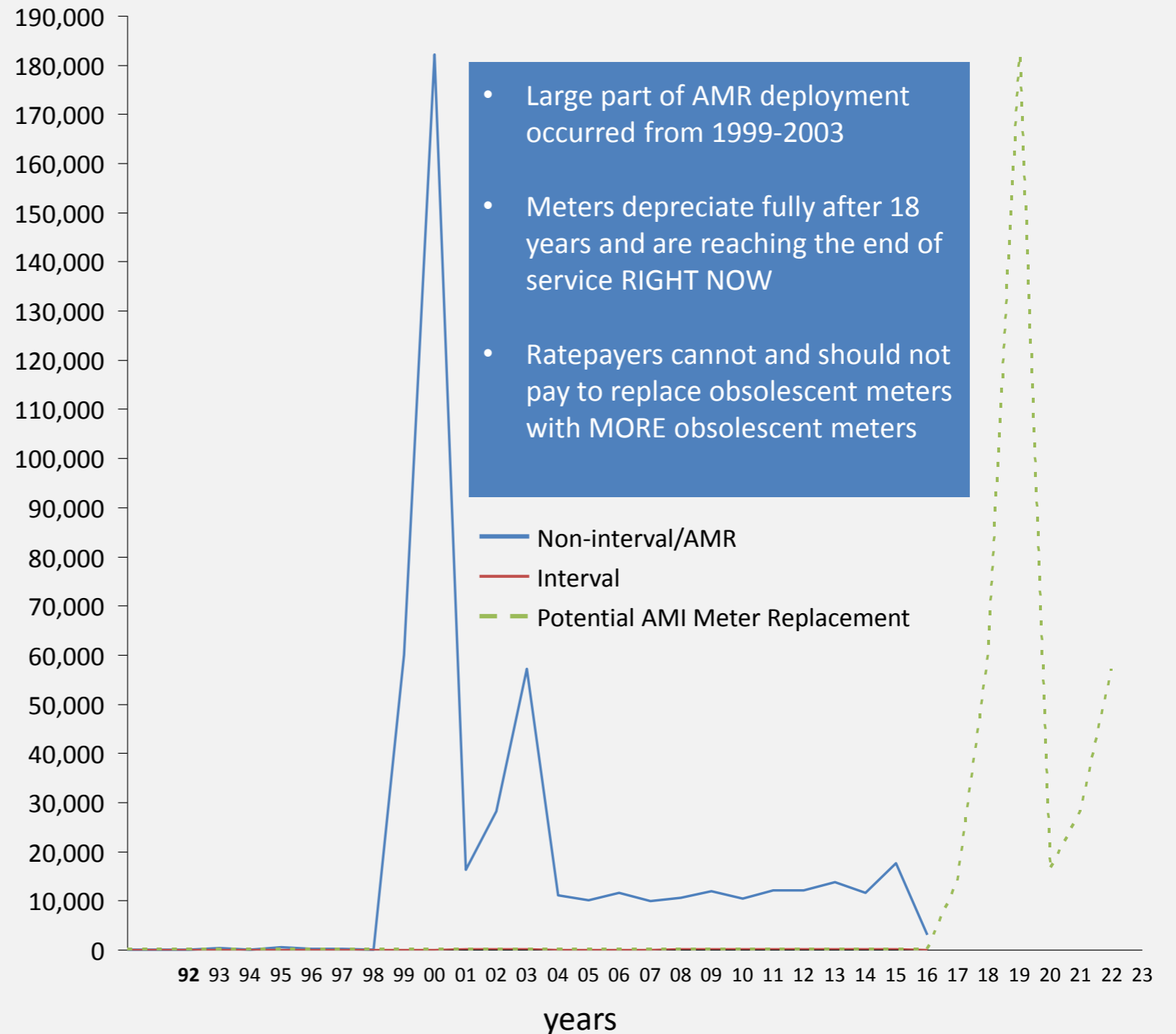


Build a Connected Distribution Grid

DEPLOY ADVANCED METERS

- The utility should develop an advanced meter roll-out plan to support two-way energy flow that includes:
 - Business case;
 - Time varying rates;
 - Implementation schedule;
 - List of capabilities to be delivered in response to those enumerated by the PST process

of meters



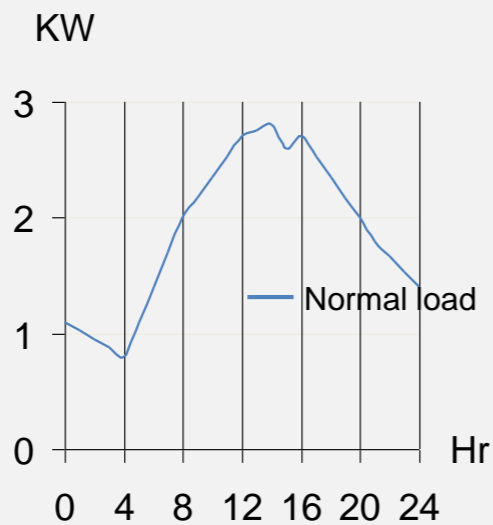
Build a Connected Distribution Grid

Traditional Utility Economics Do Not Align with Distributed Energy Technologies

Grid purchases, distributed generation, energy efficiency, and demand flexibility compared

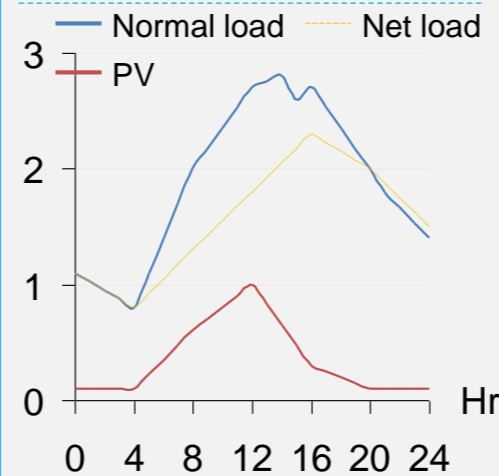
Grid Purchases

Buy kWh from the grid as and when needed



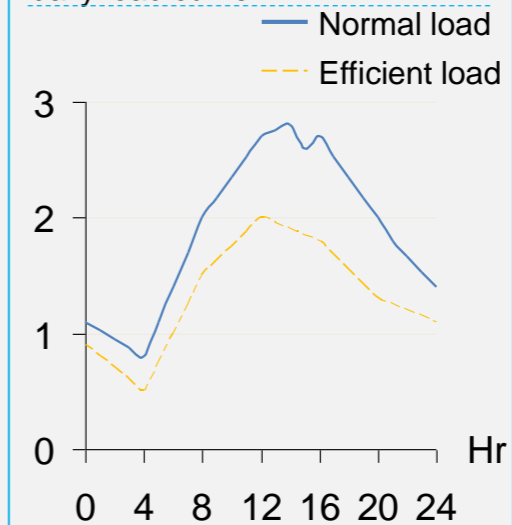
Distributed Generation

Generated electricity, changing the profile of net grid demand while reducing total grid demand



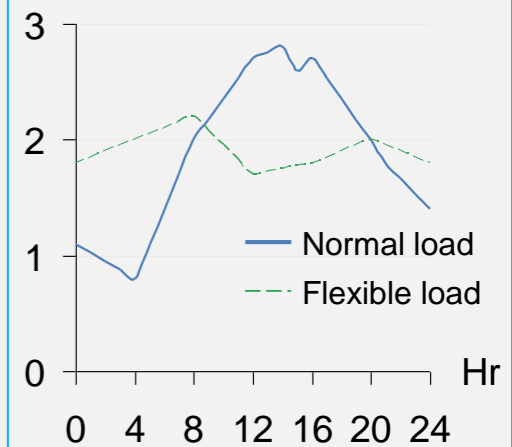
Energy Efficiency

Reduce demand whenever load is operated, thus lowering the daily load curve



Demand Flexibility

Shift eligible loads across the hours of a day to lower-cost times, reshaping the daily load curve



Distributed Generation, Demand Flexibility and Energy Efficiency can help manage peak load.

Demand Side Management (DSM)

- Load reduction and load shifting
 - Residential & small commercial (<200 kW)
 - C&I (loads or demand >200 kW)

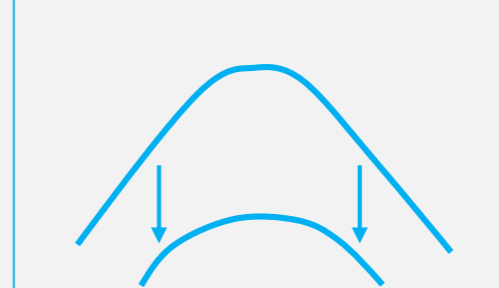
Distributed Generation (DG)

- Photovoltaic, wind, ...
- Fossil fuel (oil, diesel, etc.)
- Renewable biomass

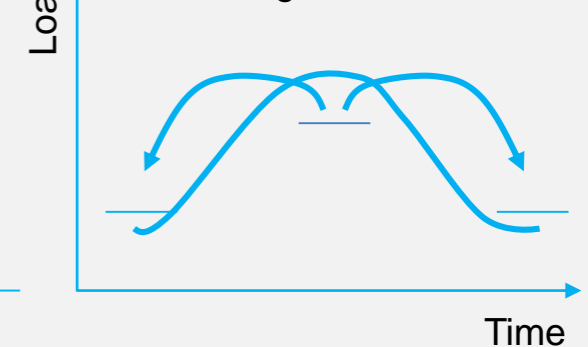
Energy Storage System (ESS)

- Dedicated batteries, electric vehicles
- Thermal, mechanical

Peak reduction



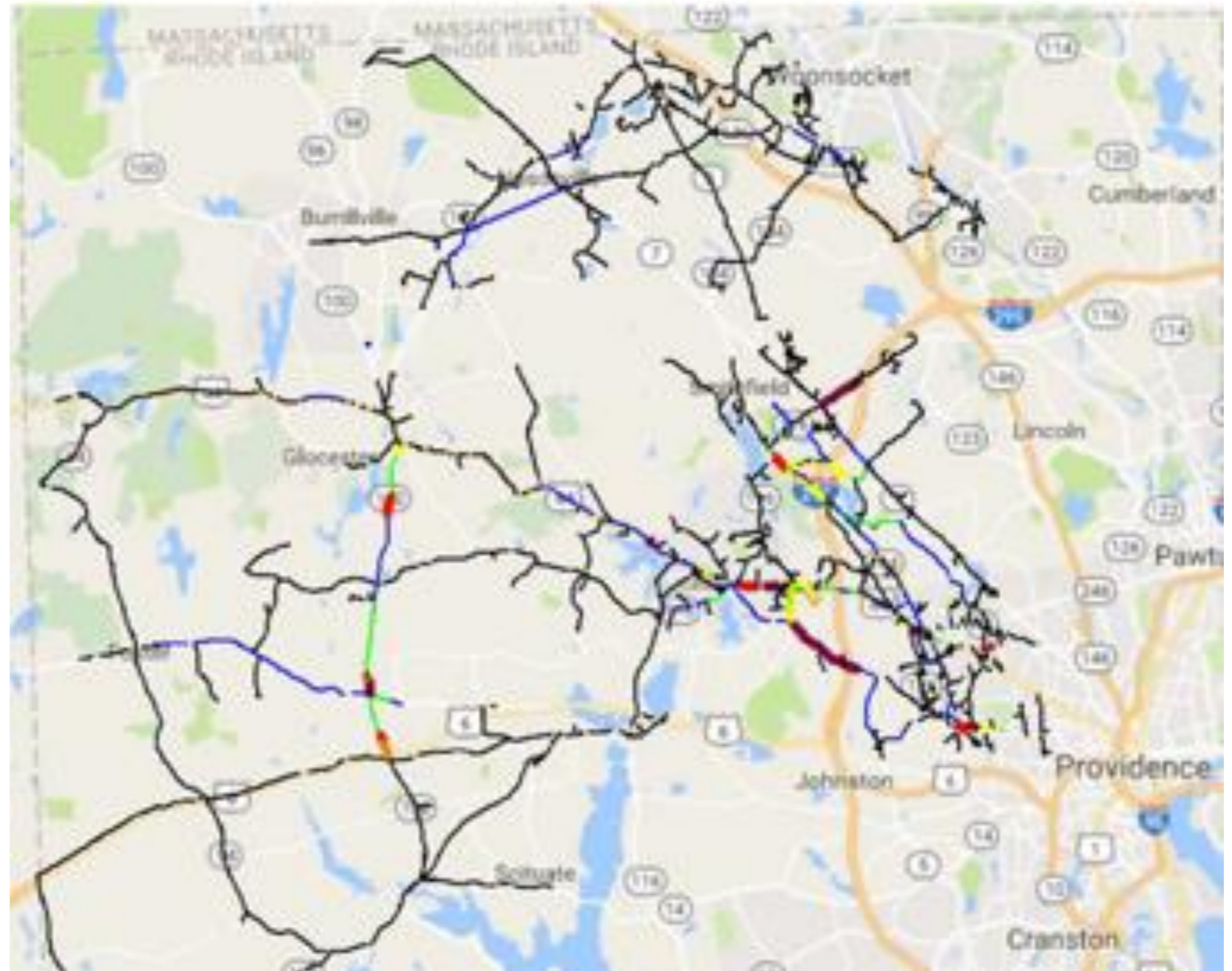
Load shifting



Leverage Distribution System Information

Heat Map Example Loading

State regulators and policymakers should develop an implementation strategy for compensating the locational value of distributed energy resources.



Modernize the Utility Business Model

Implementation Vehicles

THE RECOMMENDED ACTIONS WILL BE TAKEN THROUGH A VARIETY OF REGULATORY VEHICLES OVER 2017-2019 INCLUDING:

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- Rate Case Docket
 - ISR Docket
 - SRP Docket
 - EE Program Plan
 - Other, as needed
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Discussion