# Welcome


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# Innovative Solutions Coming from New York

## EDF Decarbonization White Paper

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**Environmental Defense Fund**

Leaders in Energy

# Driving Environmental Outcomes Through Utility Reform

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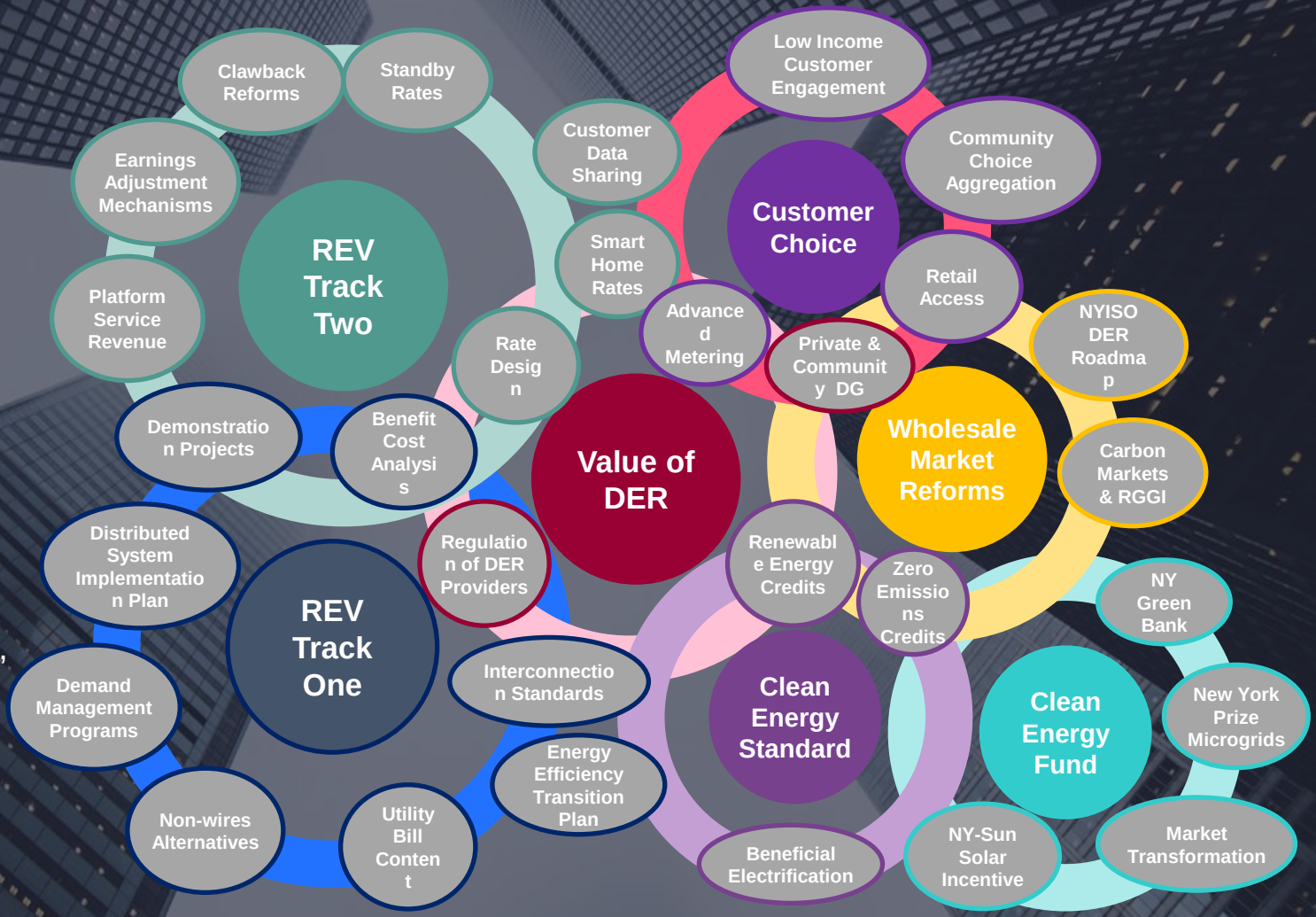
## Reforming the Energy Vision

REV is a web of interconnected proceedings that takes a holistic view of the regulatory framework that defines today's utility business model. It considers the role of the 21st century utility in light of changing customer expectations, improving technology, and clean energy policy goals.



**“Two-pronged strategy for deep decarbonization:**

**1. Clean up electricity.**
**2. Electrify everything.**

**Simple.”**

*- David Roberts at Vox*

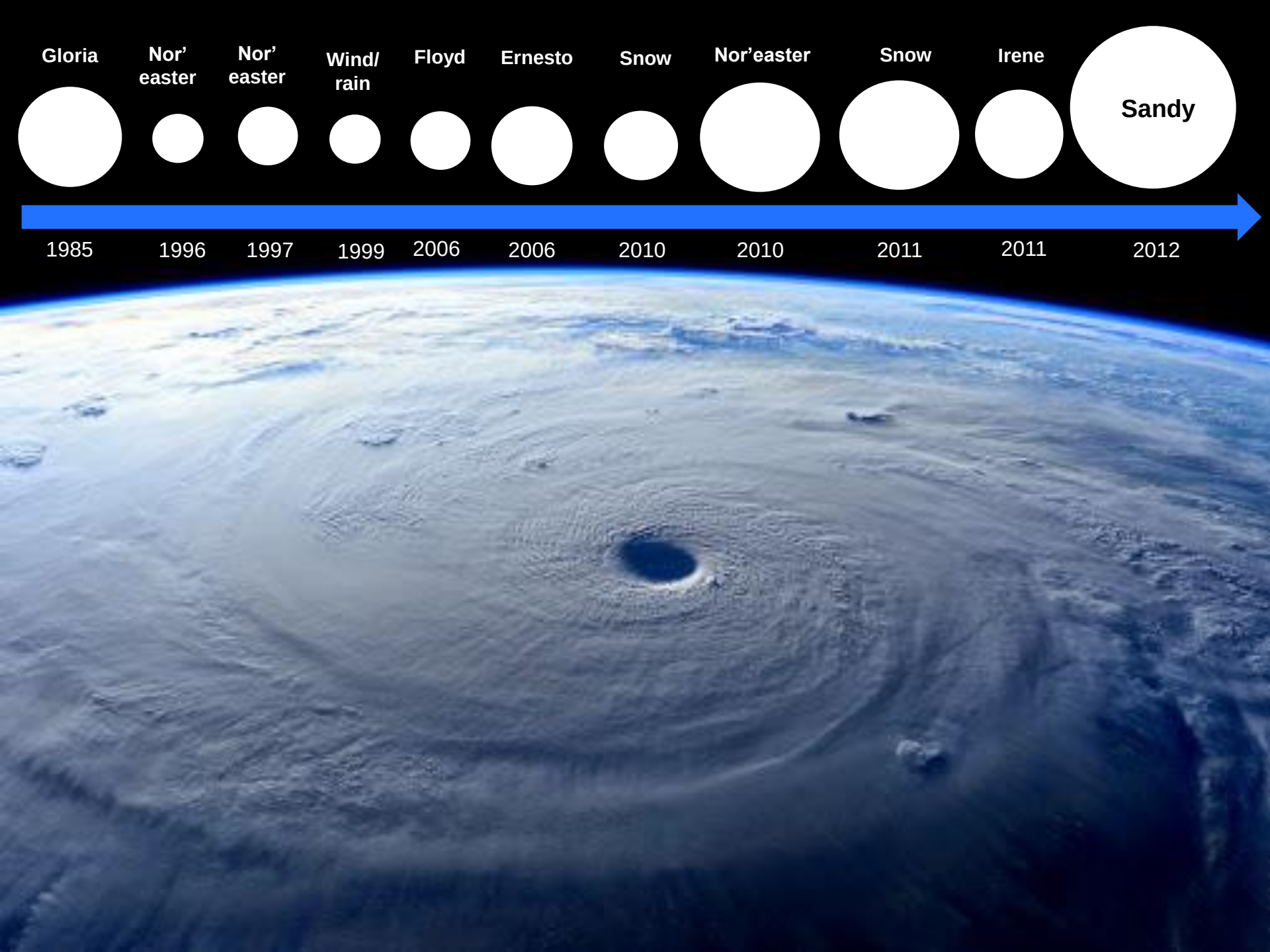
# The REV transformation and favorable environmental outcomes

- Building a smart platform
- Aligning utility earnings with environmental outcomes
- Engaging Customers: Transforming passive electricity buyers into market participants

# Background

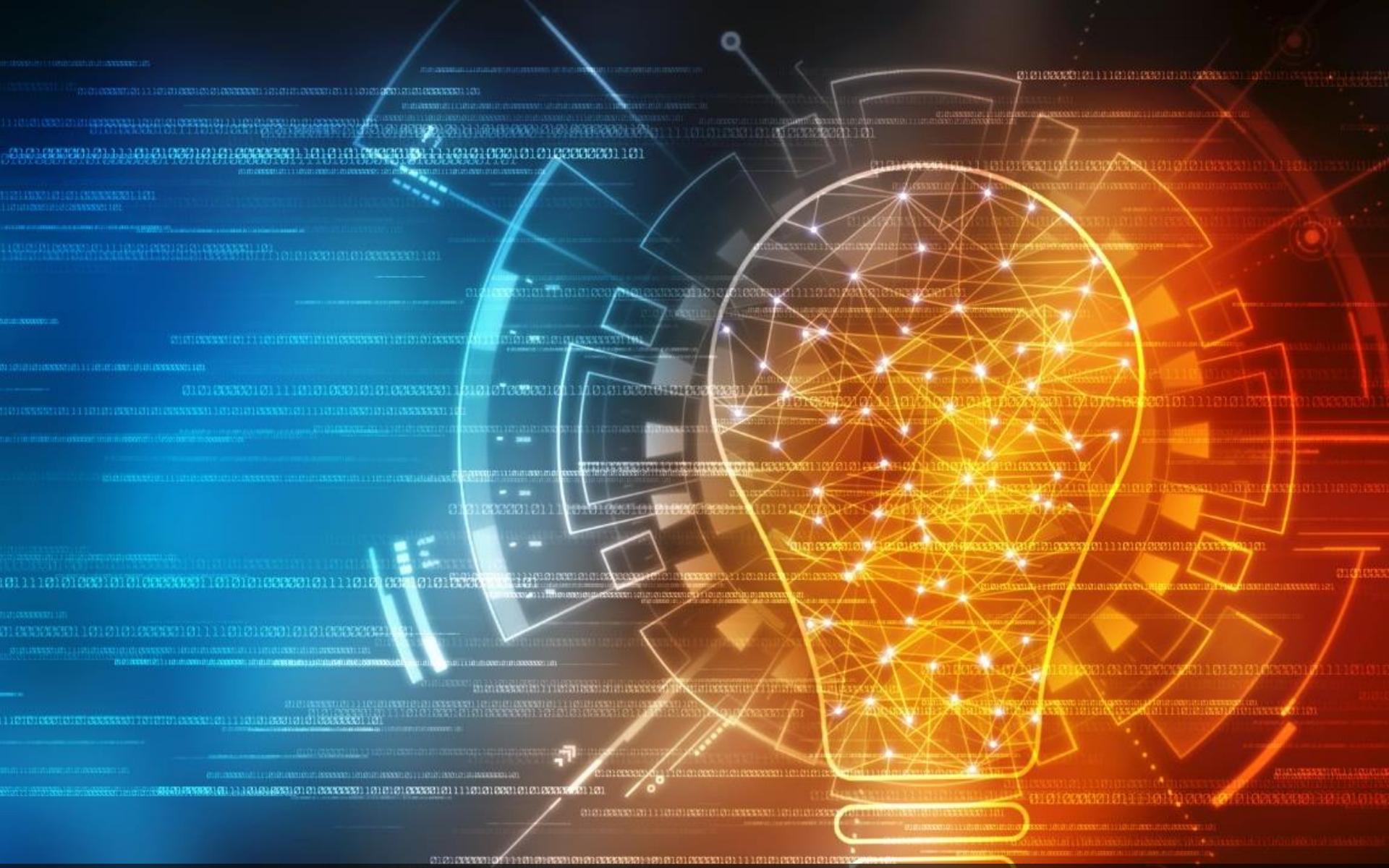
# Drivers of Utility Reform in New York

- Rising System Costs
  - Obsolescence
  - Exacerbated by increasingly peaky energy consumption – very low capacity utilization, getting worse
- Perceived need to make “distributed clean energy resources” a “core source of electric value” rather than “peripheral elements of the electric system”
  - Slow DER uptake in NY
  - Emerging utility hostility to DER in regions with high PV levels
- Resiliency


Gloria
1985
Nor' easter
1996
Nor' easter
1997
Wind/ rain
1999
Floyd
2006
Ernesto
2006
Snow
2010
Nor'easter
2010
Snow
2011
Irene
2011
Sandy
2012

# Reforming the Energy Vision ("REV")

- A more "animated" marketplace
  - Customers should have more opportunity to procure their own resources
  - Utilities should embrace customer-procured resources for the value they provide to the grid
  - Ratepayers save money by avoiding overinvestment in rate base
- Electric utilities get a new job: Distributed System Platform Provider
- GHG emissions reductions were expected…
  - … but have become a more salient and urgent priority over the years as REV has unfolded.



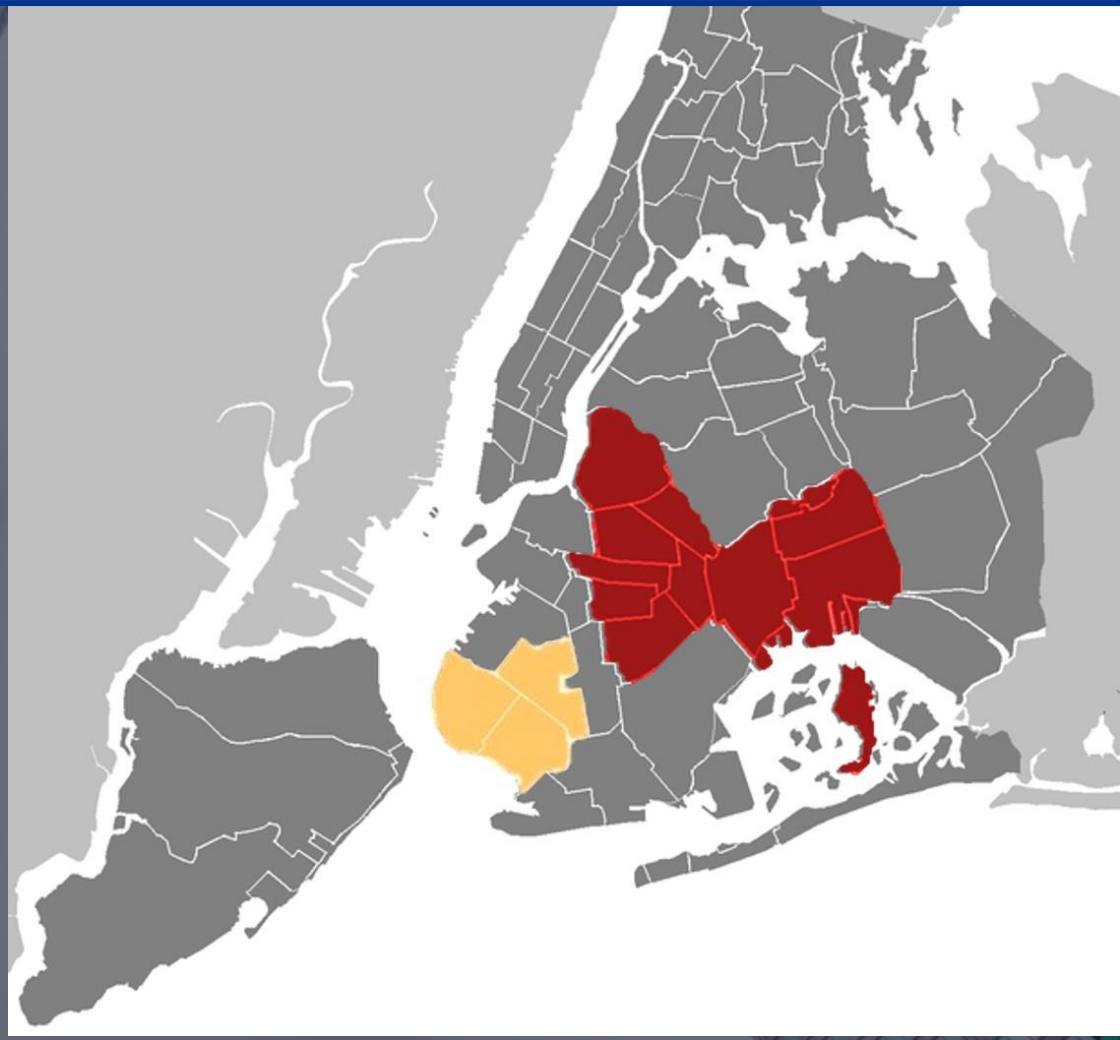
# Building a Smart Platform

# The platform needs to be efficiently sized & build in flexibility and visibility

- Accurate benefit-cost analysis that accounts for environmental impacts
- Non-wires alternatives
- Leveraging many values of energy efficiency and other distributed energy resources
- Increased visibility into system planning, harnessing the marketplace to help build a better system

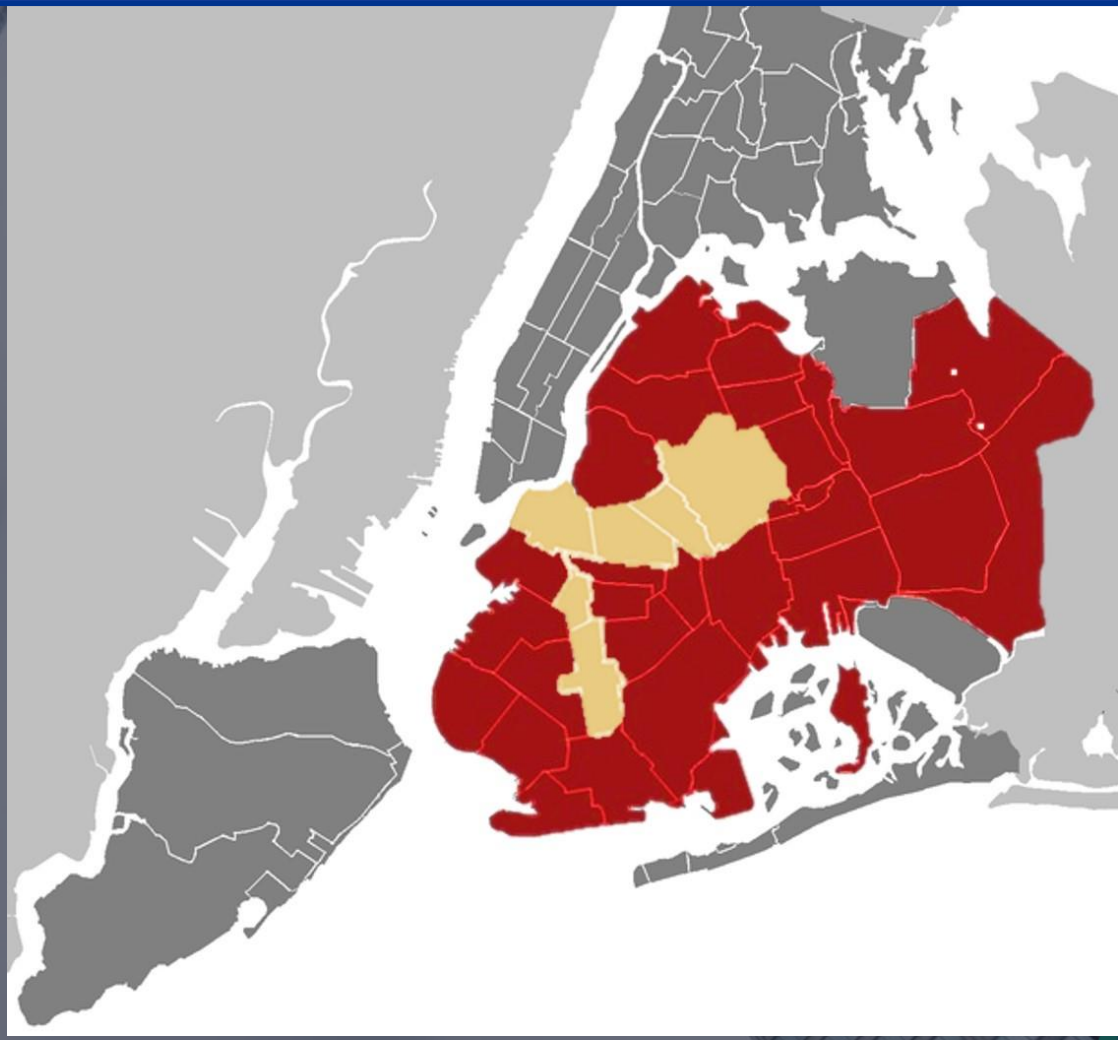
# 2014 Network

US$ 1B



# 2023 Network

**US$ 10B+**



# Aligning utility earnings with environmental outcomes

# Can utilities make money from facilitating decarbonization?

- Platform Service Revenues?
- NWA compensation
- Earnings Adjustment Mechanisms

# Engaging customers

# From passive price-takers to market participants….

- Customer access to timely, detailed information
- Market signals that reward efficient use of the electric system
- Market signals that reward efficient deployment of distributed energy resources
- Include low-income and vulnerable consumers

# Traditional Mass Market Rates

- Most residential customers pay two part rate:
  - Fixed: Flat fee/month
  - Volumetric: $/kWh
- Fixed fee generally arbitrary, determined via negotiations
- Utilities bundle all costs (including generation, transmission and distribution), place most of those costs into volumetric portion

# Efficient Tariff to Reflect Costs

- Generation:
  - Time and locational variant volumetric rate ($/kWh), environmental costs should be built in
  - Time variant capacity charge ($/kW)
- Distribution:
  - Fixed charge ($/month)
  - Connection charge ($/month/size of customer)
  - Time and locational variant volumetric rate ($/kWh)
  - Time and locational variant demand charge ($/kW)

# Time of Use

- Price for electric service varies based on a pre-determined schedule of peak and off-peak periods and peak and off-peak prices.
- Usually two or three types of periods (there may be a “shoulder period”)
- Has been available in many jurisdictions as far back as the 1980s. Recently has been used to encourage optimal charging of EVs.
- California PUC has directed PG&E, SDG&E, and SCE to introduce default TOU rates in 2019.

# Real-time pricing (for supply)

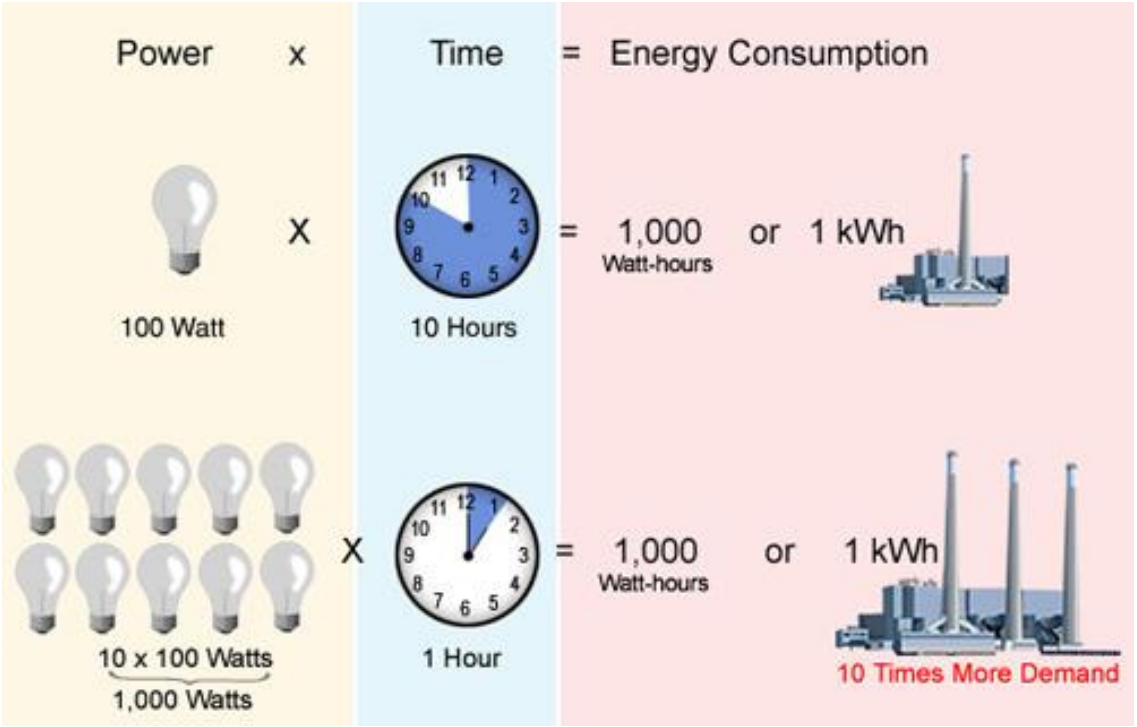
- Based on the price of energy in the wholesale market (where utilities buy energy in a wholesale market) or short-run marginal generation costs (where utilities are vertically integrated)
- Available to residential customers in Illinois (ComEd and Ameren)
- Expected to be piloted in New York

# Critical Peak Pricing

- Extra-high prices to be deployed for several hours during times of expected shortages or anticipated high-usage days.
- Applicable hours usually announced the day before.
- Sacramento Municipal Utility District piloted in combination with TOU in 2012 and 2013.
- A variation: “Critical Peak Rebates” (e.g. Baltimore Gas and Electric)

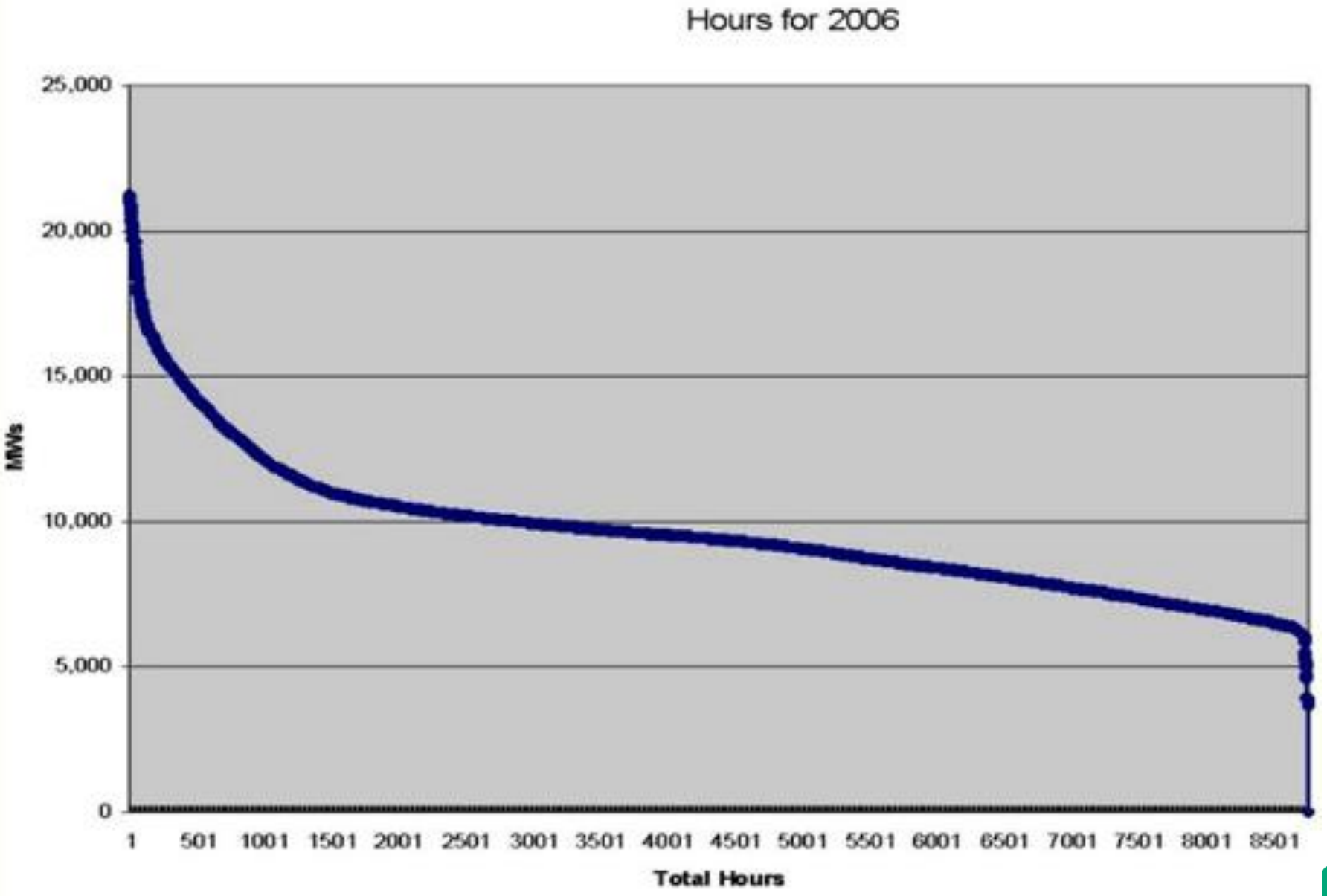
# Demand vs Consumption

- Consumption: electrons consumed (kWh)
- Demand: rate of consumption (kW)




- The more you consume at one time, the higher your demand

# Capacity Needs and the Peak



# 3-part rates/demand charges

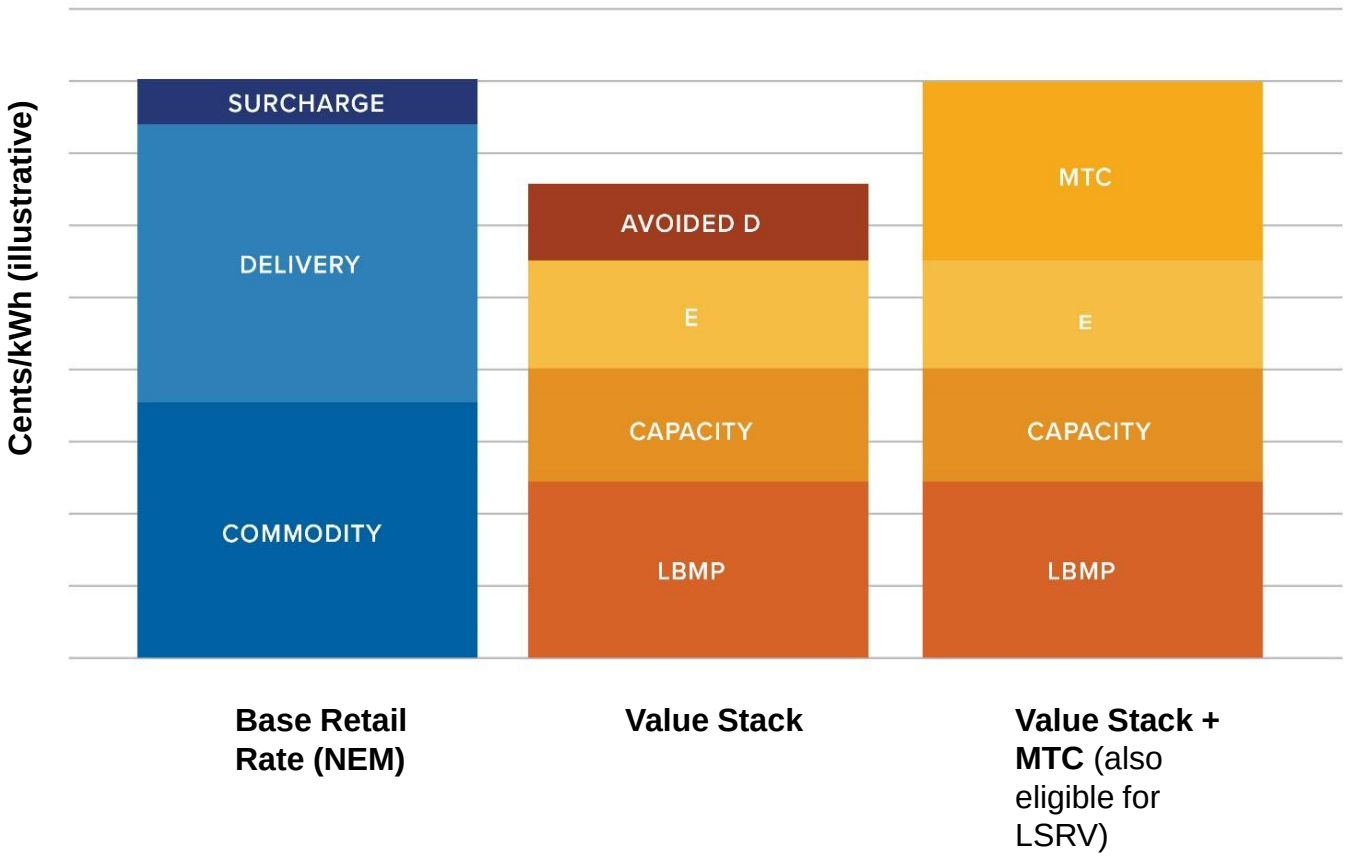
•Demand charges are available to residential customers in 50 utility service territories in 21 states (Source: The Brattle Group, January 2018)

•Whereas traditional “flat rates” have 2 components – a fixed customer charge and a volumetric (per kWh) usage charge – “3-part rates” have three components.

- Fixed monthly charge for customer-related costs
- Demand charge (per kW) for delivery service
- Volumetric charge (per kWh) for variable costs of energy

•Examples: Arizona Public Service, Oklahoma Gas & Electric

# Value Stack Components




- **Avoided D** – Includes demand reduction value (DRV) & locational system relief value (LSRV)
- **E** – environmental benefit
- **Capacity** – ICAP
- **LBMP** – energy commodity
- **MTC** – market transition credit for mass market portion of CDG projects, non-mass market portion receives DRV

Source: NY Department of Public Service

# Just transition – Including low-income and vulnerable customers

- Community Distributed Generation
- Apartment dwellers – may not be metered, may not be electric customers.
- More is needed!

# Thank you!

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