



# **Distributed Energy Resource Roadmap**

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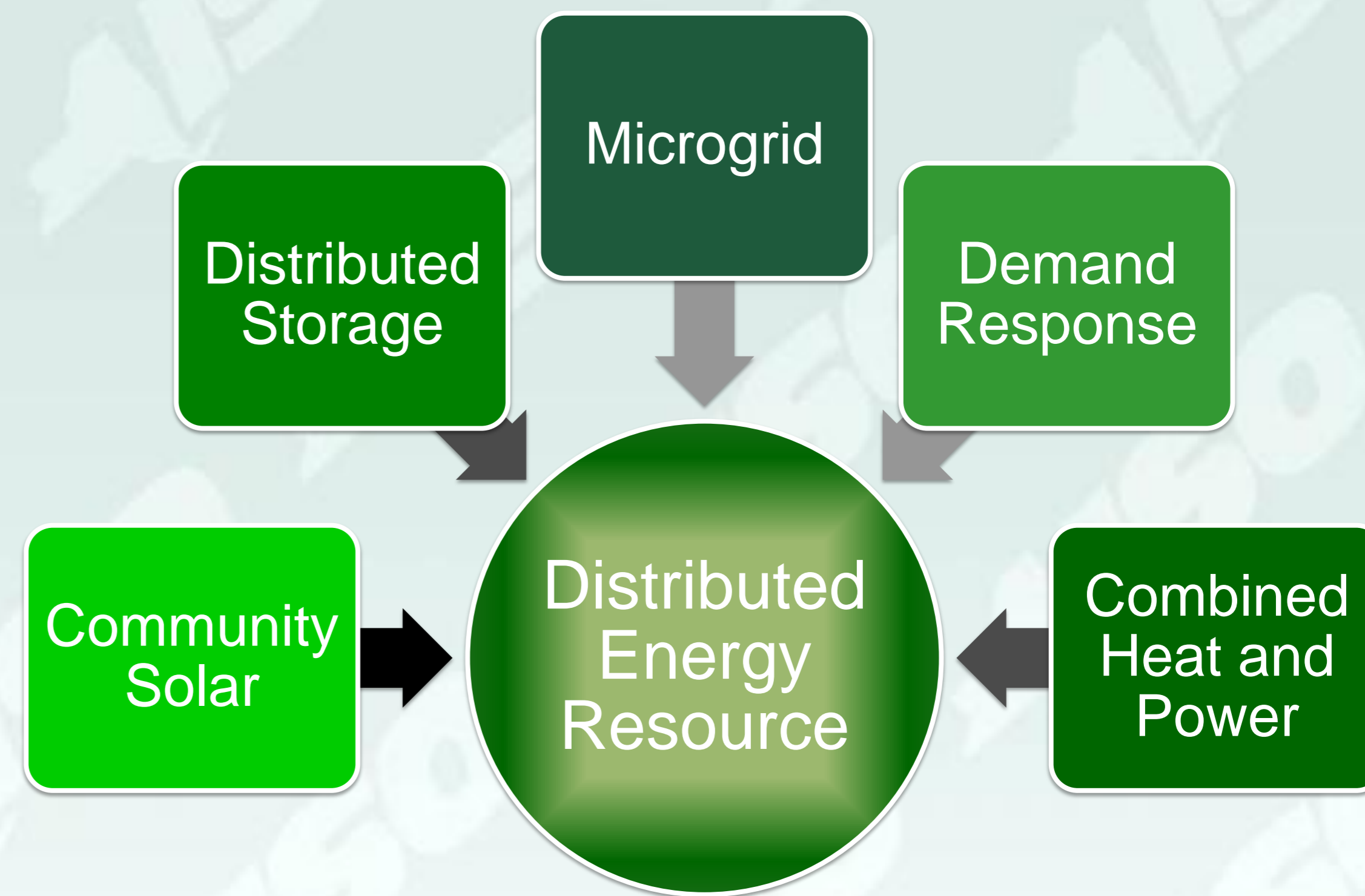
**Distributed Energy Resource Roadmap Workshop**

*September 22, 2016*

*Albany, NY*

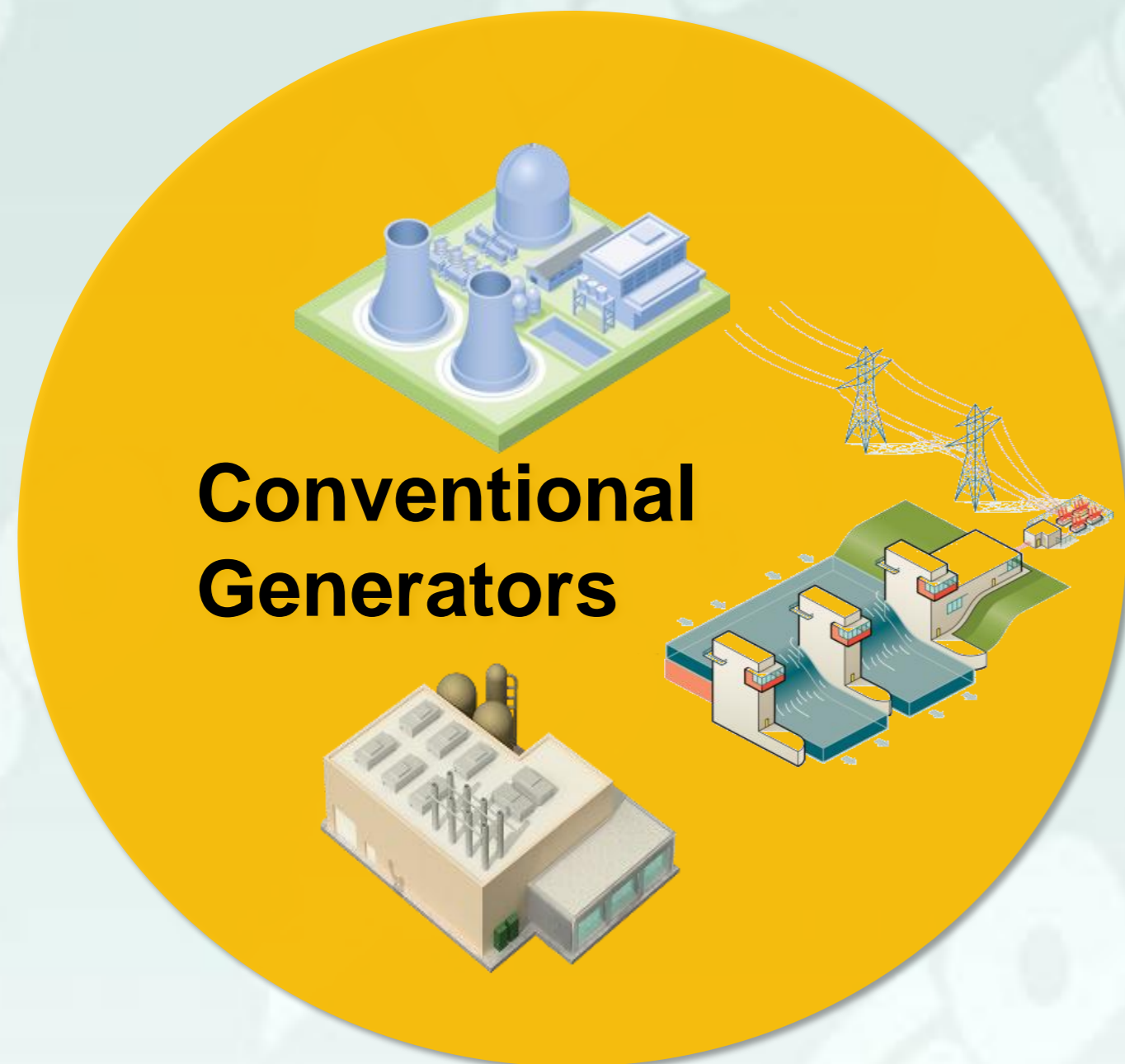
# Defining DER

- **DER is a resource or set of resources -- typically located on an end-use customer's premises and operated for the purpose of supplying customer electric load -- that seeks to provide NYISO wholesale market services**
  - *Curtailable load, generation, storage or various combinations*
  - *Individual resources or aggregations*
  - *Net load or net generation*

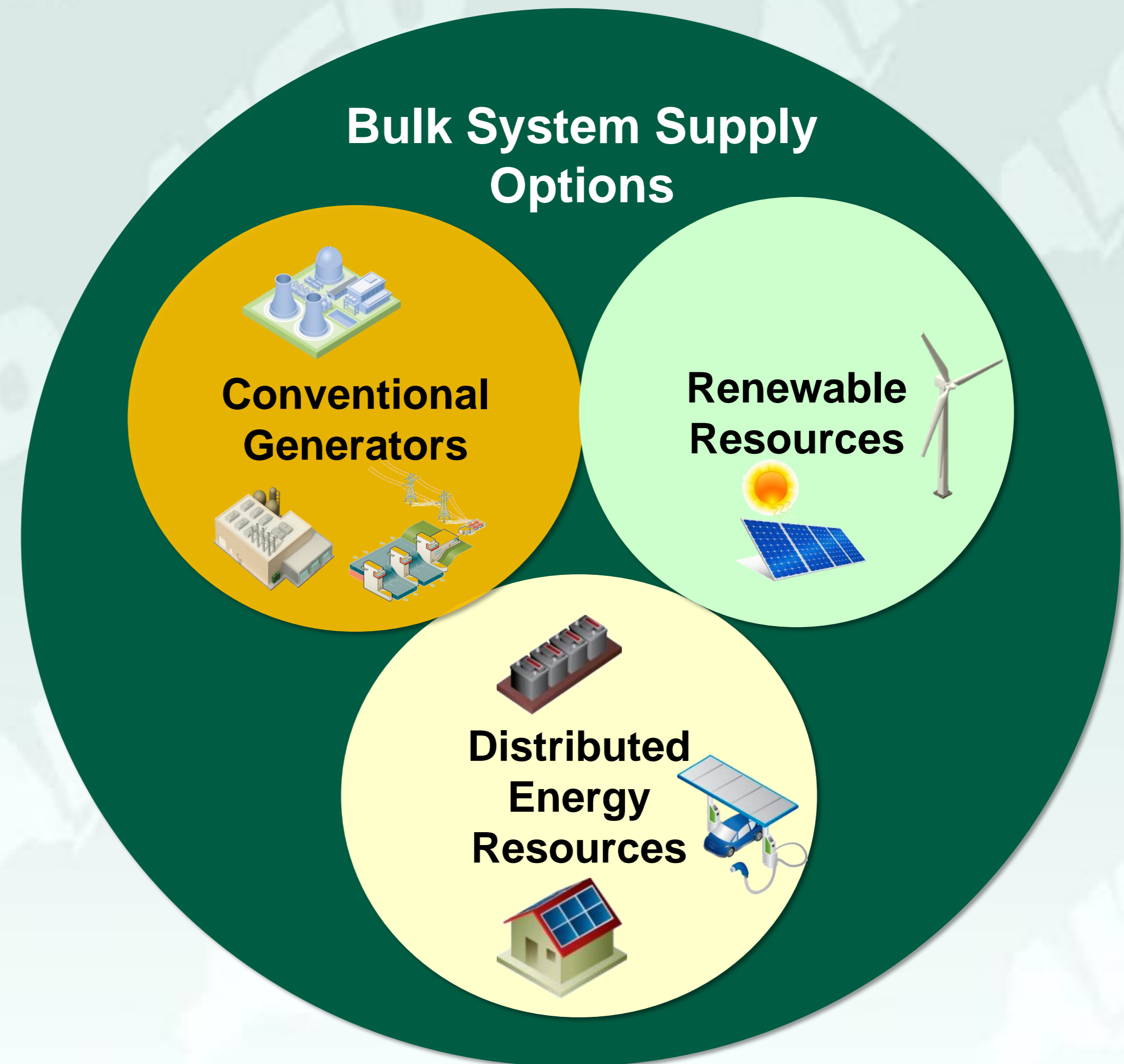


# Why Do We Need a Roadmap?

## Yesterday's Energy Sources



## Tomorrow's Energy Sources



# DER Roadmap

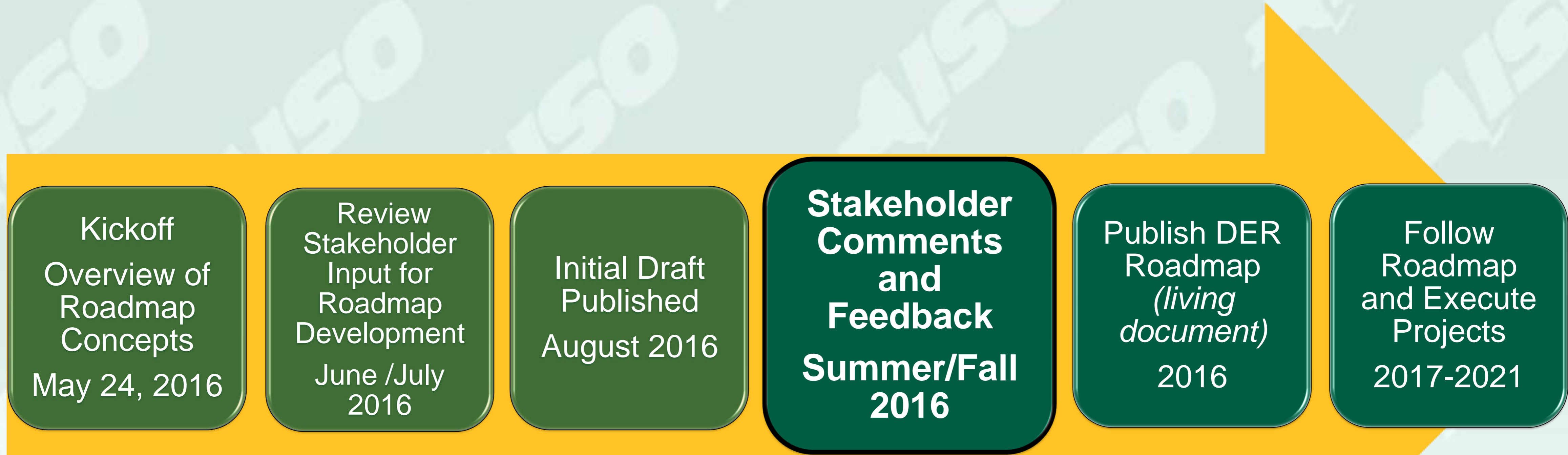
## Building the Platform for Tomorrow's Grid

- The roadmap will establish the framework for how DER will be integrated into New York's wholesale market
  - *This framework will guide the next three to five years of wholesale market development efforts for DER*



# DER Roadmap Development

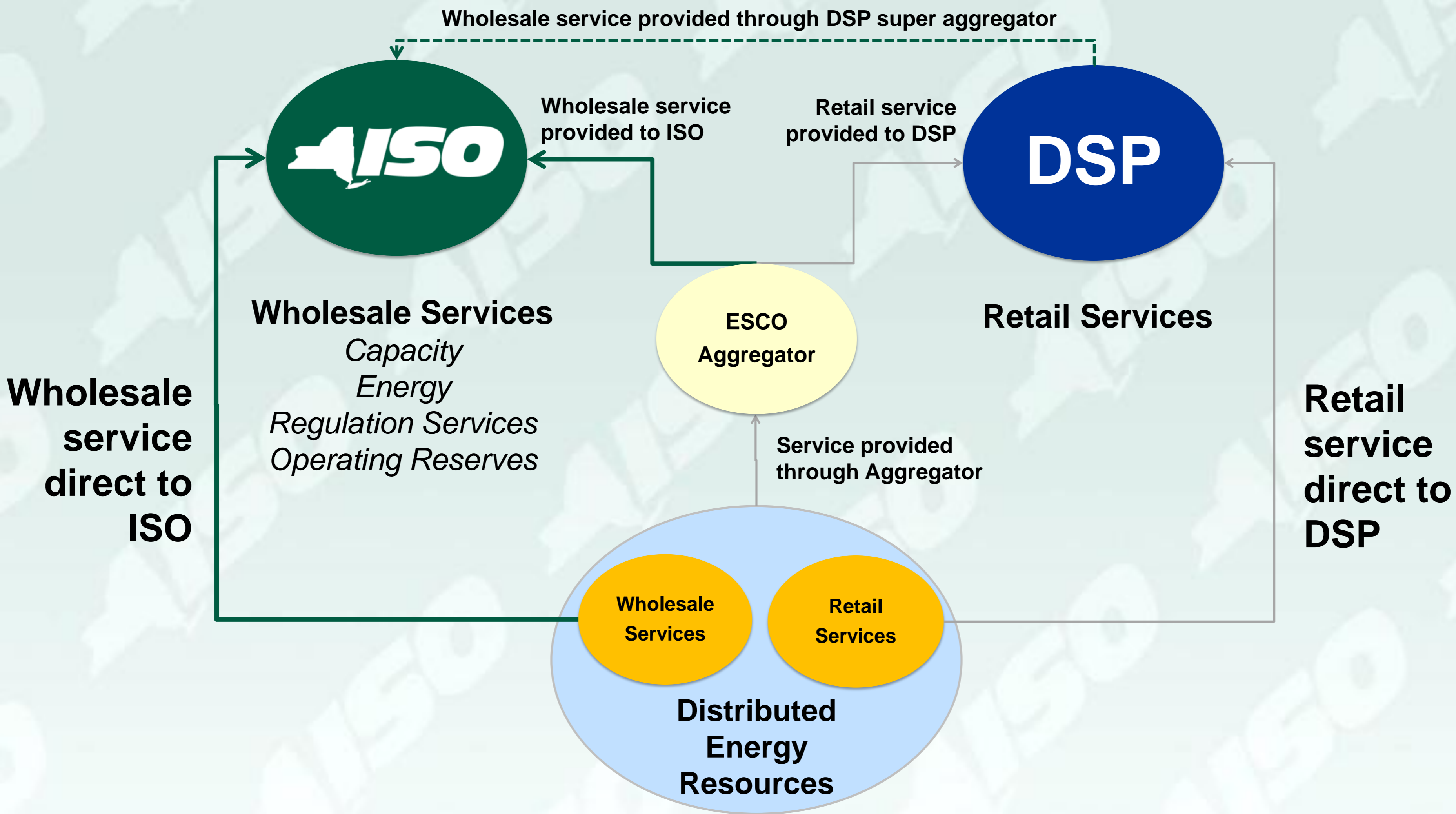
*Where are We?*



# DER Roadmap Key Objectives

- **Integrate DERs into wholesale markets**
  - *Ability for real-time scheduling*
  - *Minimize out-of-market actions*
- **Align with goals of NYS REV**
- **Appropriate Measurement and Verification**
- **Align payments with performance**
- **Focus on wholesale market**

# Integrating DER in Wholesale Markets



# Future Wholesale DER Participation

Capacity

Energy

Ancillary Services

Reliability

Non - Dispatchable

## Special Case Resource (SCR) Program

- *Manual Activation*
- *Flexible Performance & Payment Options*

## Emergency Demand Response Program (EDRP)

- *Manual Activation*
- *Voluntary Load Reduction*

## Load Modifier

- *Self-managed Load Reductions to Reduce Capacity Obligation*

## Price Capped Load Bid

- *Economic Day Ahead Load Procurement*

Economic

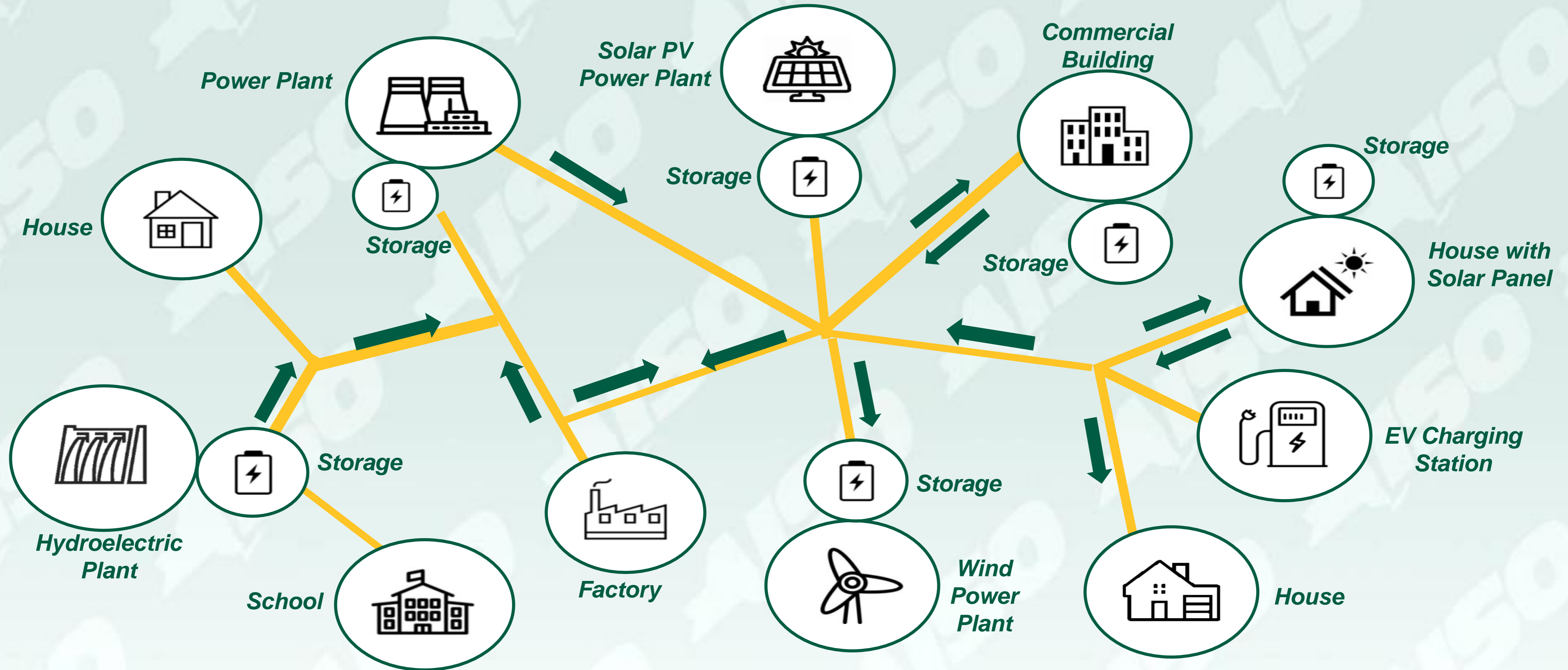
Real -Time Dispatchable

## Dispatchable Distributed Energy Resources

- *Comparable to a Generator*
- *Supports Aggregations of DER*
- *Fully integrated in both Capacity and Energy Markets*
  - *Capacity with Daily Energy Must-Offer Obligation*
- *Flexible performance & payment options*



# Tomorrow's Grid



**Bi-directional flow of electricity**

# Market Development Efforts

## 2016

- DER Roadmap Released
- Granular Pricing Pilot
- NYISO Pilot Framework Development

## 2017

- Dispatchable DER Design
- Granular Pricing Design
- NYISO Policy Framework Implementation
- Meter Data Policy Study

## 2018

- Dispatchable DER Design & Development
- Granular Pricing Development

## 2019

- Dispatchable DER Development
- Granular Pricing Implementation

## 2020

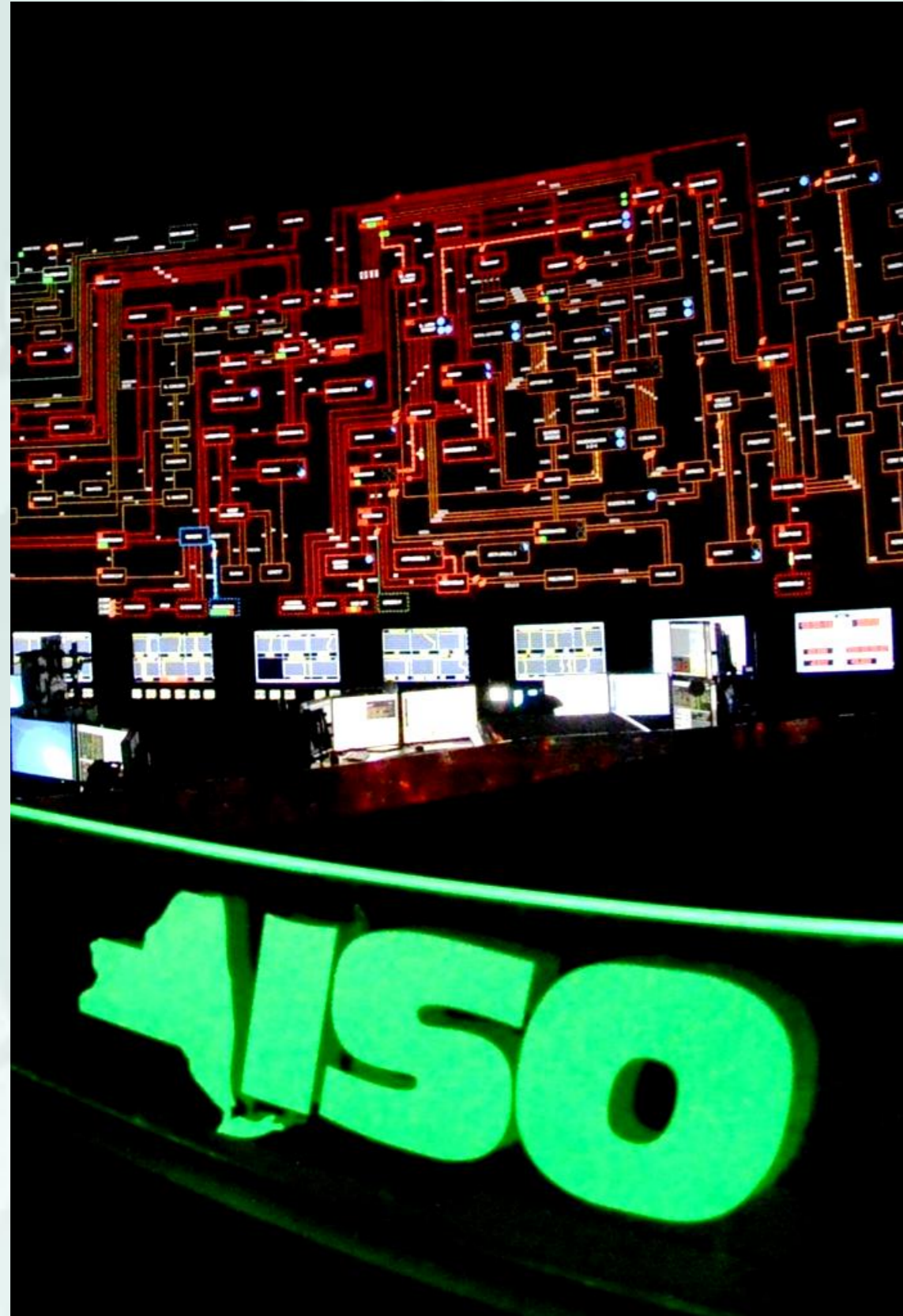
- Dispatchable DER Implementation

These are targeted dates and subject to change.

# DER Roadmap Feedback

- Please provide feedback to [DER\\_Feedback@nyiso.com](mailto:DER_Feedback@nyiso.com)
- We are also interested in your comments at today's workshop
- We will continue to develop the DER Roadmap with market participants at future Market Issues Working Group (MIWG) meetings





**The Mission of the New York Independent System Operator, in collaboration with its stakeholders, is to serve the public interest and provide benefit to consumers by:**

- *Maintaining and enhancing regional reliability*
- *Operating open, fair and competitive wholesale electricity markets*
- *Planning the power system for the future*
- *Providing factual information to policy makers, stakeholders and investors in the power system*

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