



Distributed Energy Resources Roadmap Kickoff

(Concepts for the Wholesale Market)

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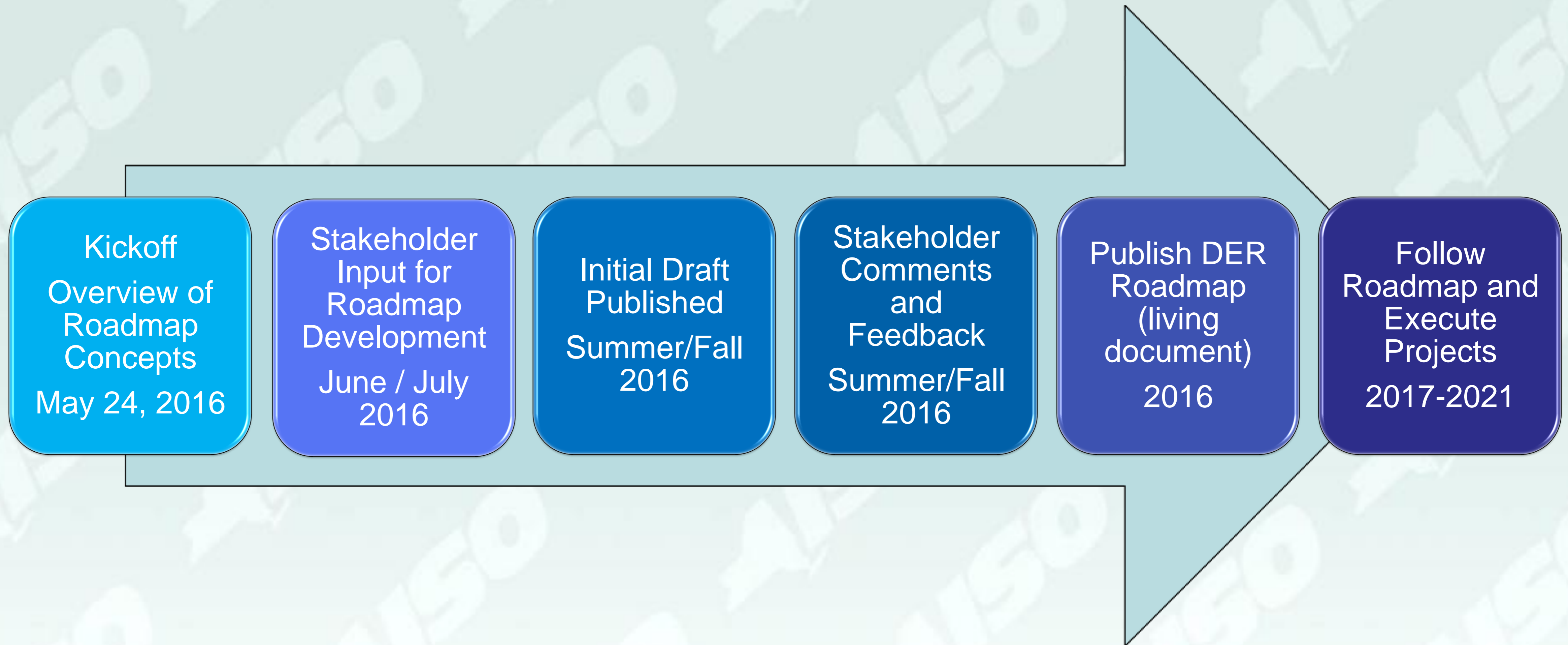
Background

- **Technology advancements and market interest is increasing for Distributed Energy Resources (DER)**
- **NYS PSC REV initiative is stimulating discussion on how DERs will participate in wholesale market**
- **Roadmap and subsequent design aligned with NYS REV, FERC Orders 719 and 745**

Initiative Scope

- **Roadmap for next 3-5 years for integration of DER and evolutionary changes current Demand Response Programs**
- **A DER is a small distributed behind the meter resource, participating in the wholesale market that does not meet the requirements of NYISO's current BTM:NG program**
 - *Curtailable load, behind the meter generation, storage or various combinations*
 - *Individual resources or aggregations*
 - *Net load or net generation*

DER Roadmap Development Process



Key Objectives

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

Current Wholesale DR Programs

Reliability Programs

Not fully integrated into Energy Markets

Purpose: Provide load reductions in response to NYISO Operations instructions for a discrete periods of time to maintain system reliability

Emergency Demand Response Program (EDRP)

Energy Payments for Voluntary Load Reduction

77 MW enrolled July 2015

Special Case Resources (SCR)

Capacity Payments and Energy Payments for Load Reductions

1248 MW enrolled July 2015

Economic Programs

Not fully integrated into Capacity Markets

Purpose: Load reduction, competing with generation, is scheduled by NYISO based upon economic offers

Price Response Load (PRL)

Day-Ahead Bids for Load Procurement

3%-5% of Day-Ahead Load Bids

Day-Ahead Demand Response Program (DADRP)

Energy Payments for Load Reduction

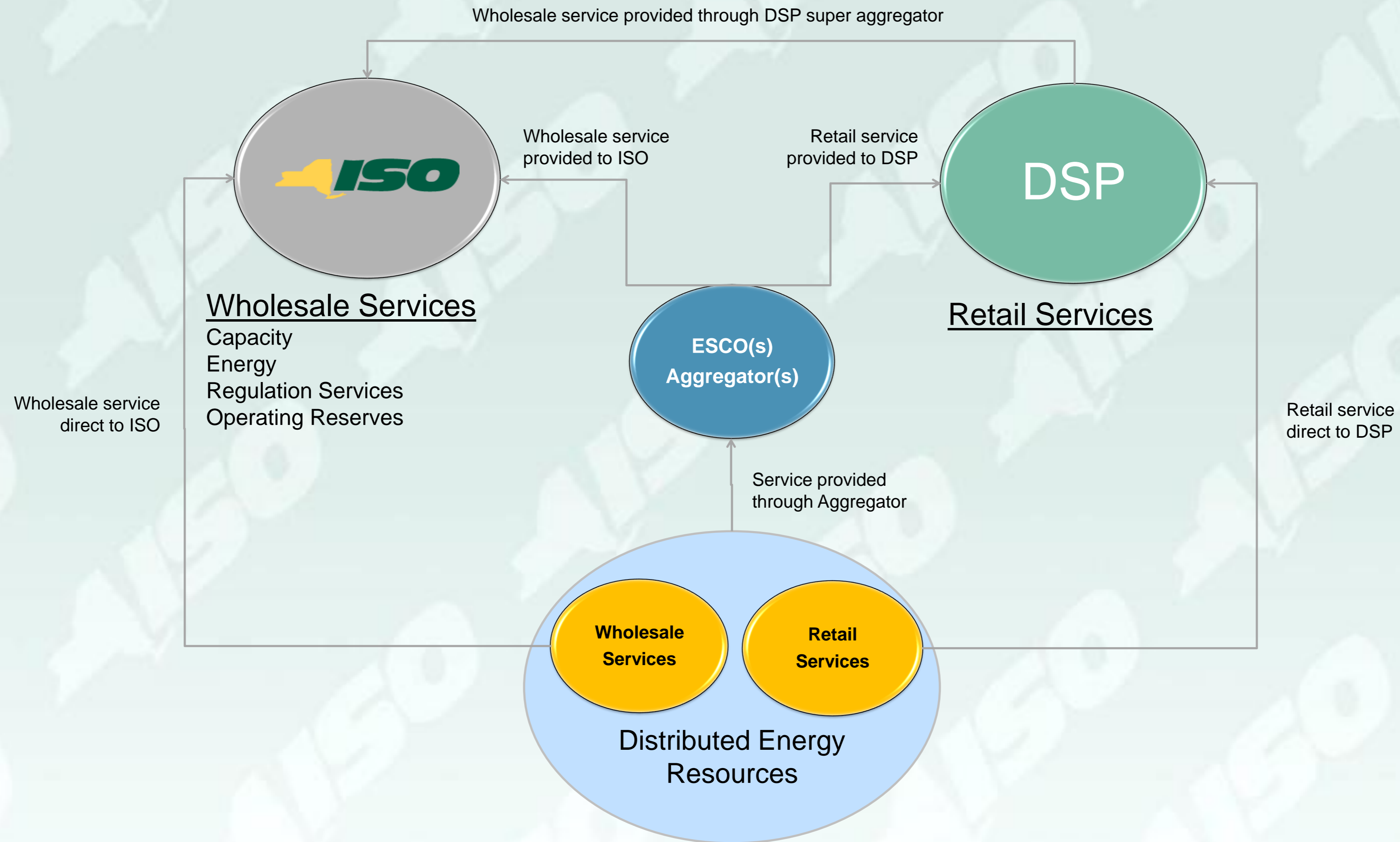
Zero MW enrolled July 2015

Demand Side Ancillary Services Program (DSASP)

Ancillary Services Payments, No Energy Payments for Load Reduction

126 MW enrolled July 2015

Integrating DERs into the Wholesale Market



Future Wholesale Programs

		Capacity	Energy	Ancillary Services
Reliability	Non - Dispatchable	<p><u>SCR Program</u></p> <ul style="list-style-type: none"> Manual Activation Flexible performance and payment options 	<p><u>EDRP</u></p> <ul style="list-style-type: none"> Manual Activation Voluntary Load Reduction 	
		<p><u>Load Modifier</u></p> <ul style="list-style-type: none"> Self-managed Load Reductions to reduce capacity obligation 	<p><u>Price Responsive Load</u></p> <ul style="list-style-type: none"> Economic DA Load Procurement 	
Economic	Real Time Dispatchable	<p><u>Distributed Energy Resource Program (DERP)</u></p> <ul style="list-style-type: none"> Comparable to a Generator Supports Aggregations of DERs Fully integrated in both Capacity and Energy Markets <ul style="list-style-type: none"> Capacity with Daily Energy Must-Offer Obligation Flexible performance and payment options 		

DER Roadmap Development and Input

- **Provide comments and input by June 8, 2016**
- **Review input with Stakeholders at MIWG in June**
- **Additional Stakeholder Discussion Summer 2016**
- **DER Workshop, following publication of draft Roadmap**

- **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*

- ***www.nyiso.com***