



Department
of Public Service

The Clean Energy Standard

Getting to 50 by 30

2017 Hudson River Symposium

May 3, 2017

PSC vs DPS

The Public Service Commission

The Public Service Commission is the voting body that regulates the state's electric, gas, steam, telecommunications, and water utilities. The Commission also oversees the cable industry. The Commission is charged by law with the responsibility for setting rates and ensuring that adequate service is provided by New York's utilities. In addition, the Commission exercises jurisdiction over the siting of major gas and electric transmission facilities and has responsibility for ensuring the safety of natural gas and liquid petroleum pipelines.

Bipartisan by law since 1970, the Commission consists of up to five members, each appointed by the Governor and confirmed by the State Senate for a term of six years or to complete an unexpired term of a former Commissioner.

Department of Public Service

The primary mission of the New York State Department of Public Service is to ensure affordable, safe, secure, and reliable access to electric, gas, steam, telecommunications, and water services for New York State's residential and business consumers, while protecting the natural environment. The Department, the staff arm of the Public Service Commission, also seeks to stimulate effective competitive markets that benefit New York consumers through strategic investments, as well as product and service innovations.

Reforming the Energy Vision (REV)

REV

- Governor Cuomo's modernization initiative to transform the way electricity is distributed and used in New York State.
- Under REV, NY is spurring innovation to create a power system that uses more distributed, resilient, cleaner sources of supply to ensure NY customers benefit from cleaner electricity.

REV

- REV involves a make-over of utility planning processes, electricity market structures and rate design to eliminate barriers that hold back development and deployment of clean energy resources.
- While the DPS continues to work to implement REV initiatives, It is also pursuing implementation of the Clean Energy Standard.

Clean Energy Standard

Clean Energy Standard

- By Order issued August 1, 2016, the Public Service Commission adopted the State Energy Plan (SEP) goal that 50% of electricity consumed in New York is to be generated by renewable sources by 2030 as one strategy to reduce GHG emissions 40% by 2030.
- The 50% by 2030 goal is the Renewable Energy Standard (RES) and is the successor to the Renewable Portfolio Standard (RPS) that expired in 2016.
- The Order also discusses a number of other electricity sector strategies in furtherance of the GHG reduction goal, including preserving at-risk zero carbon-emitting nuclear resources (ZEC Program); accelerating development of offshore wind; CE market development through the Clean Energy Fund.

The Renewable Energy Standard

Renewable Energy Standard

- The RES establishes a mandatory obligation on electricity suppliers (Load Serving Entities or LSEs) to financially support new renewable generation resources to serve their retail customers so that by 2030, 50% of all electricity consumed in the State comes from renewable resources.
- One of the most aggressive renewable energy goals in the country.

The RES Forecast

Year	NYISO Statewide Energy Forecast (GWh)	Cumulative Additional Energy Efficiency (GWh)	CES Forecasted Consumption (GWh)
2017	165,800	6,680	159,120
2018	166,877	8,907	157,970
2019	168,670	11,133	157,537
2020	170,558	13,360	157,198
2021	171,198	15,587	155,611
2022	171,987	17,813	154,174
2023	172,745	20,040	152,705
2024	173,755	22,267	151,488
2025	174,229	24,493	149,736
2026	174,704	26,720	147,984
2027	175,181	28,947	146,234
2028	175,659	31,173	144,485
2029	176,138	33,400	142,738
2030	176,618	35,627	140,992

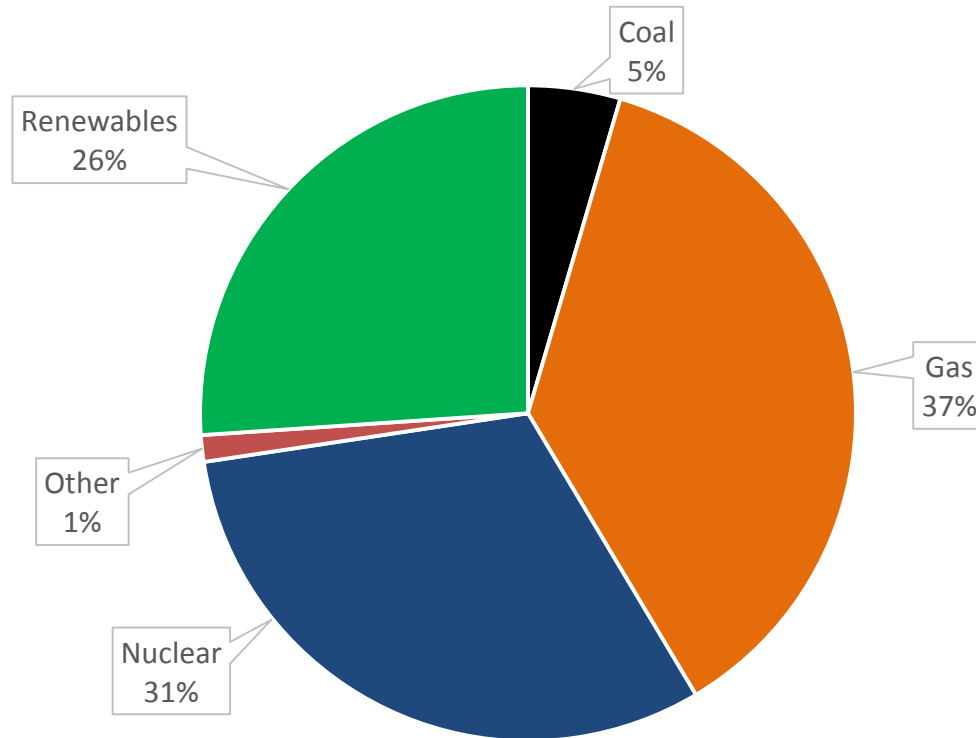


The RES Forecast

Forecasting Statewide Load

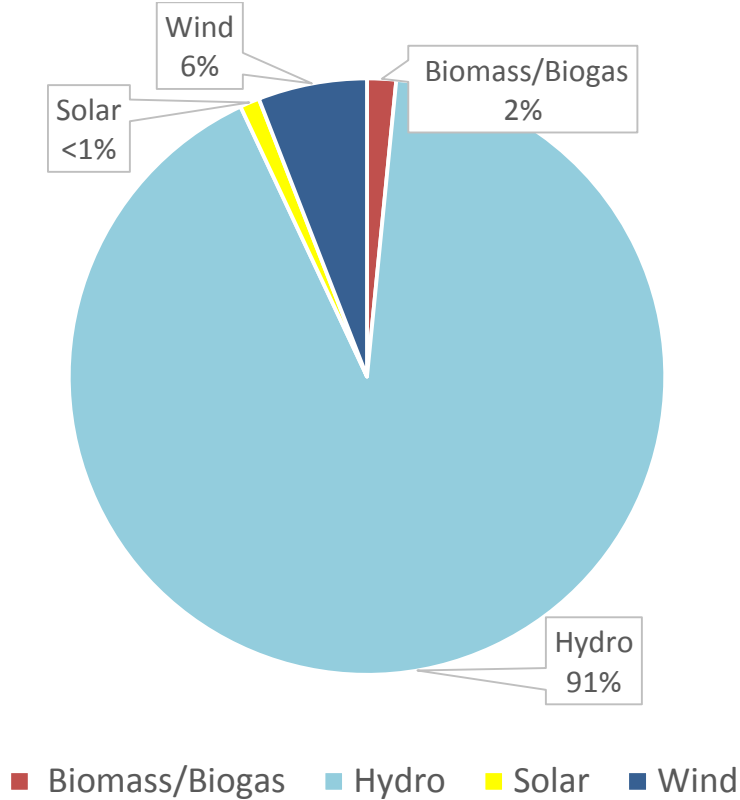
- Based on the calculation of the forecasted consumption in 2030 (140,992 GWhs), in order to reach the 50% by 2030 renewable energy goal, the level of renewable electricity consumed in NY in 2030 would be 70,496 GWh.
- The level of renewable energy consumed in NY in 2014 (the baseline) was approximately 41,296 GWh; this results in an incremental need of 29,200 GWh of renewable resources by 2030.

2014 Statewide Fuel Mix - Electricity Generation

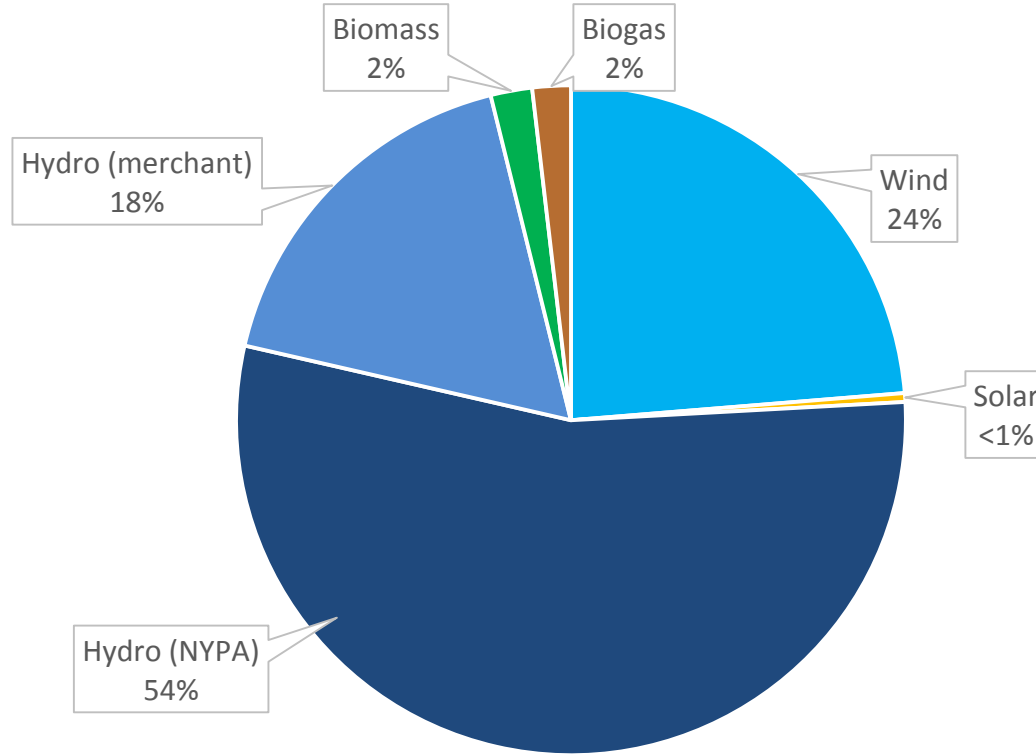


■ Coal ■ Gas ■ Nuclear ■ Other ■ Renewables

2014 Statewide Renewable Fuel Mix - Electricity Generation MWh

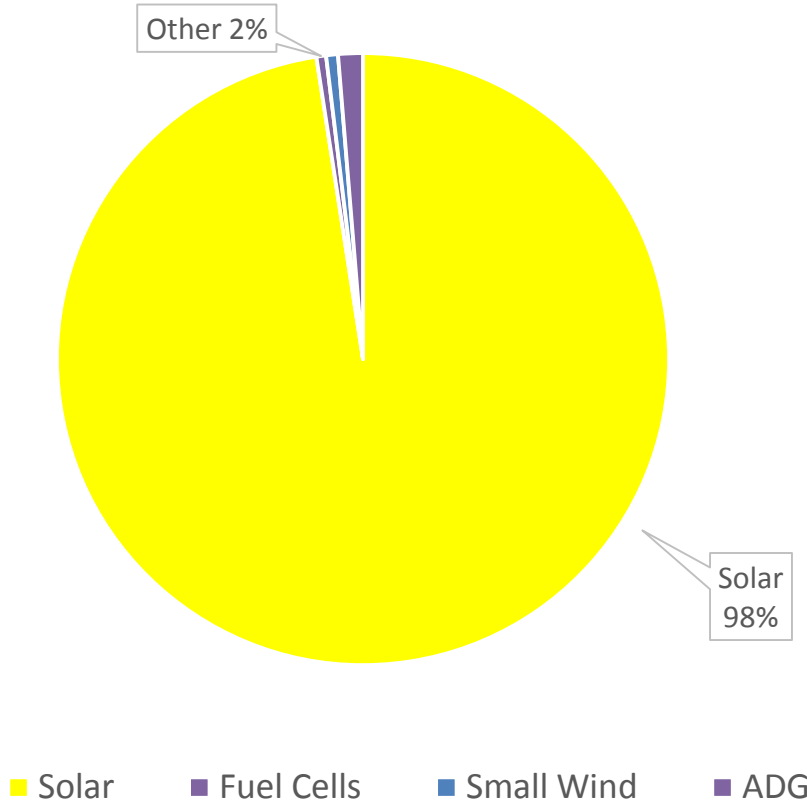


Mix of Installed Renewable Capacity (MW)



■ Wind ■ Solar ■ Hydro (NYPA) ■ Hydro (merchant) ■ Biomass ■ Biogas

Mix of Customer-Sited Renewables (MW)



Eligibility of Resources for the RES

RES Eligibility of Resources (Tier 1)

- Eligible resources include biogas, biomass, liquid biofuels, fuel cells, hydroelectric (no new impoundments), solar, tidal/ocean, and wind.
- Facilities must be located in NY, or in a control area adjacent to NY. All electricity must be delivered into the NYISO control market in the NY control area.
- To be eligible a facility must have entered commercial operation on or after January 1, 2015.

2030 Preview

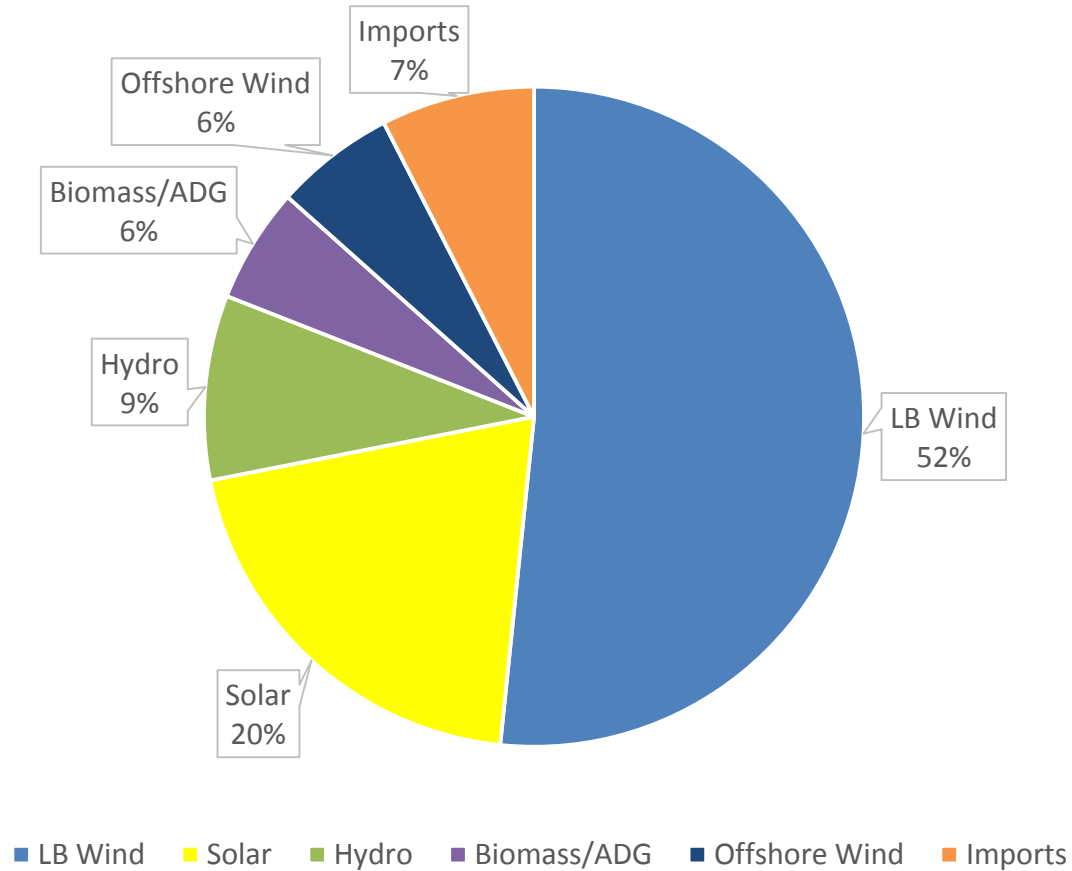
The 2030 Analysis

- An analysis was conducted on the amounts and types of new renewable generation that could potentially be built to meet the RES goal.
- The analysis considered a portfolio of renewables that was developed using a supply curve model. The model develops a least-cost plan of annual incremental renewable capacity additions needed to meet the target, based on a projection of demand growth, market data, cost estimates, and other factors.

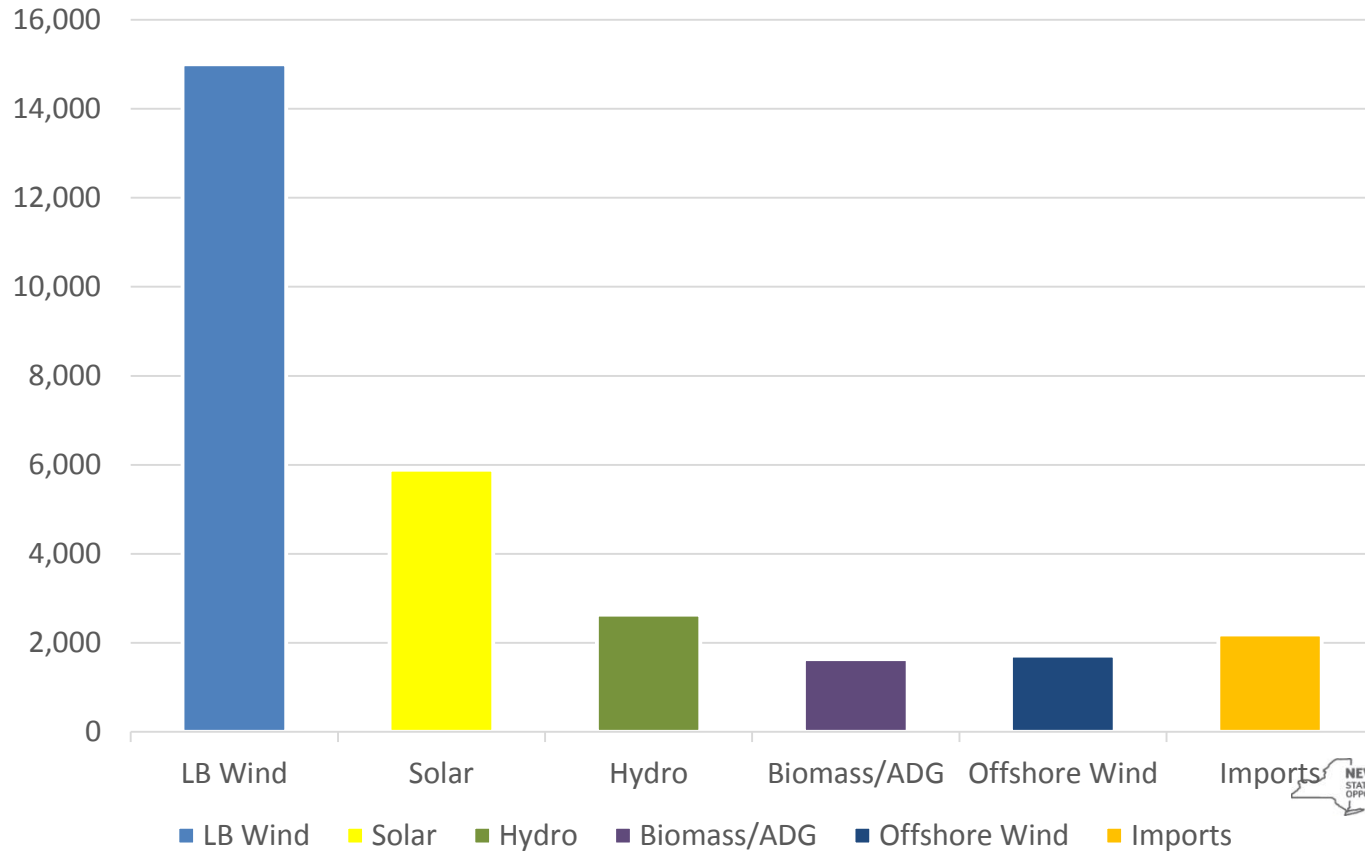
The 2030 Analysis

- The model considers several types of renewable resources individually, including multiple size categories of land-based wind, utility-scale solar, upgraded hydroelectric facilities, retrofitting non-powered dams, off-shore wind, anaerobic digestion, and additional biomass-source generation.

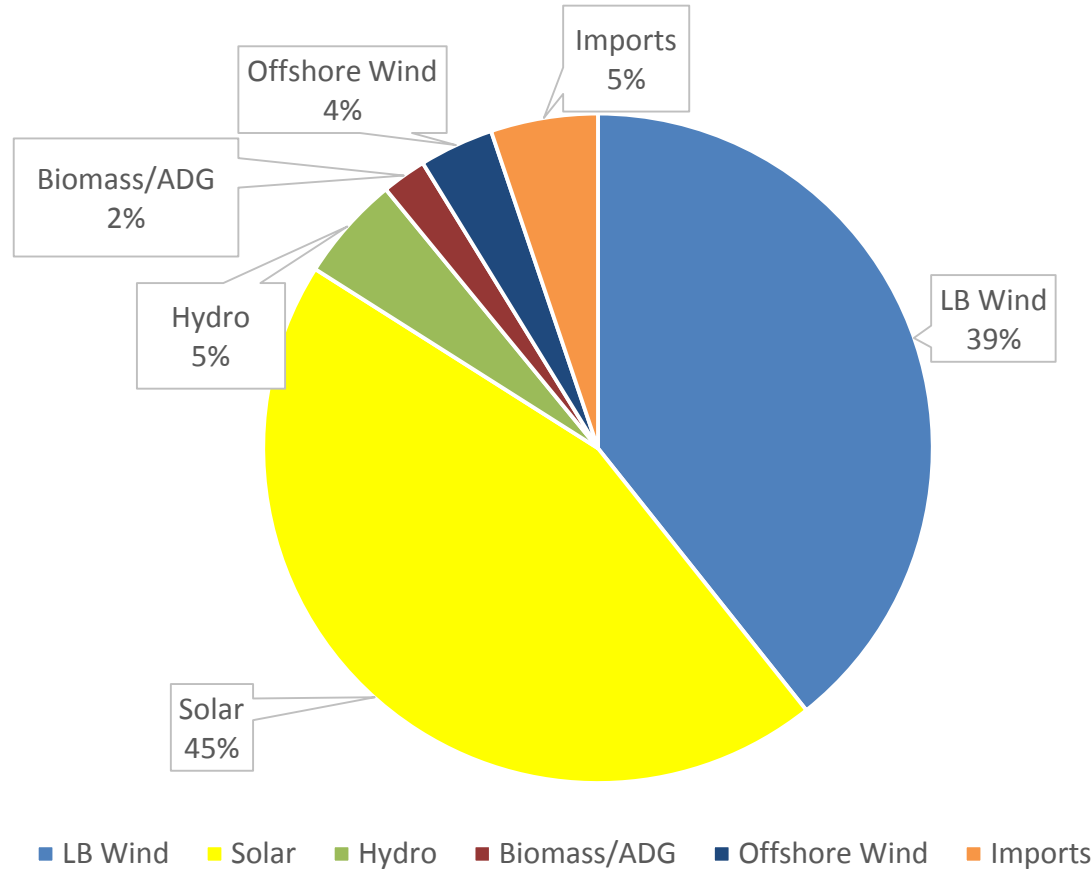
Projected Incremental Renewable Generation (GWh) by 2030



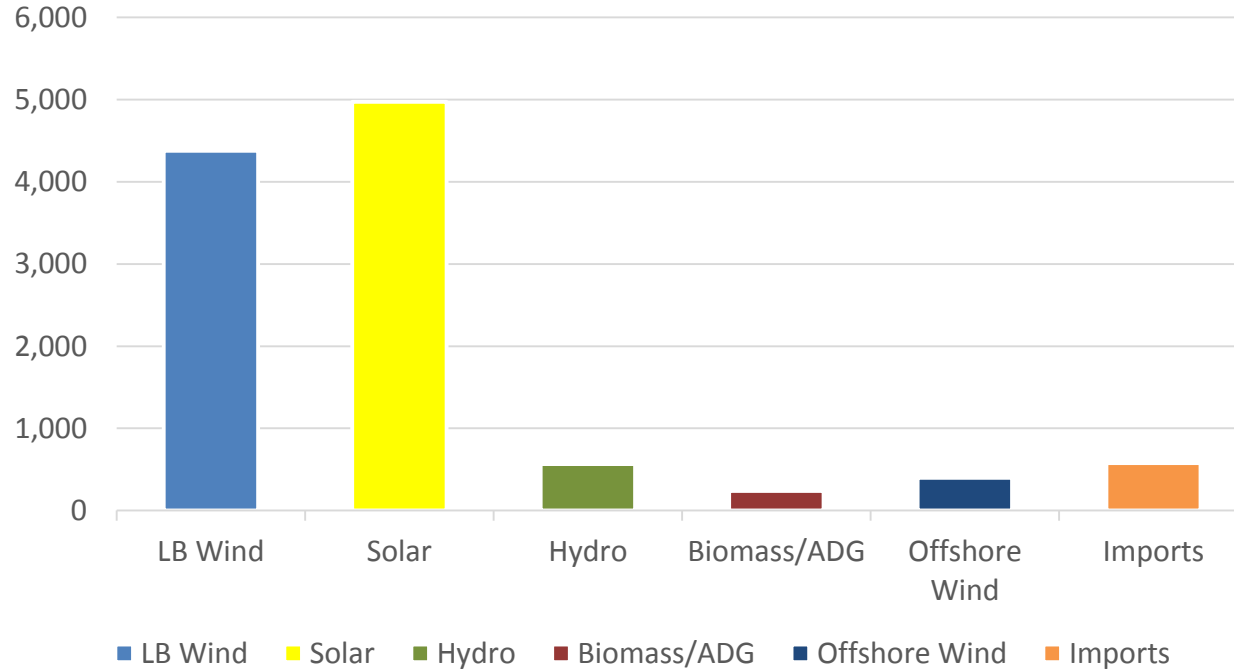
Projected Incremental Renewable Generation (GWh) by 2030



Projected Incremental Installed Capacity (MW) by 2030



Projected incremental Installed Capacity (MW) by 2030



Procuring New Renewable Supply

Renewable Energy Standard

The cornerstone of the RES is the obligation placed on all LSEs under the Commission's jurisdiction to acquire an increasing portion of their annual retail electric load from new (in service on or after Jan. 1, 2015) renewable resources. The Order set, through 2021, the annual obligation in total statewide energy load (MWh) translated as a percentage of each LSEs load:

Year	MWWhs	LSE Obligation Percentage of LSE Load
2017	974,000	0.6%
2018	1,741,270	1.1%
2019	3,124,100	2.0%
2020	5,302,371	3.4%
2021	7,530,642	4.8%

Renewable Energy Standard

An LSE may satisfy its obligation by one of the following ways:

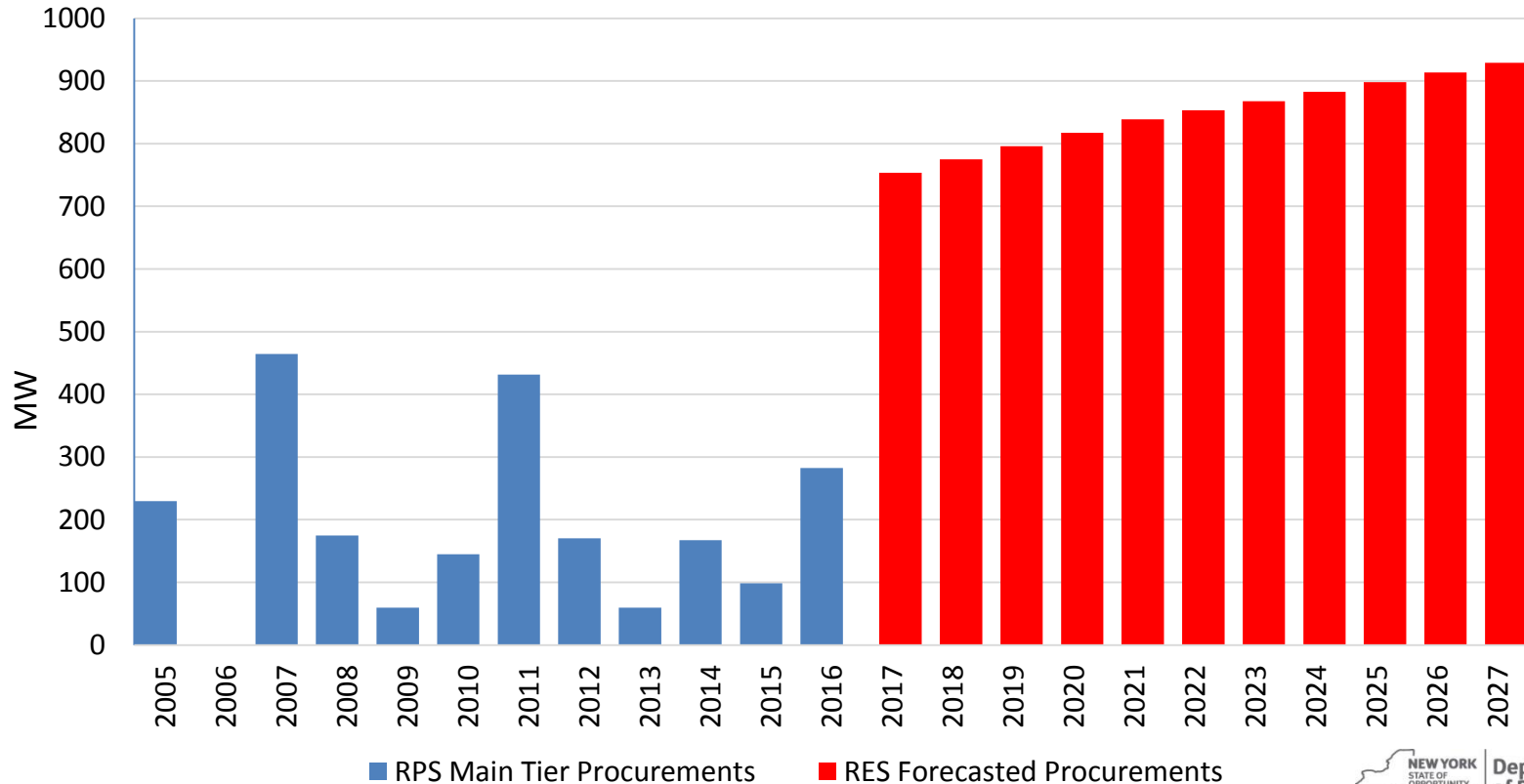
- LSEs may purchase RECs from NYSERDA;
The Commission directed NYSERDA to conduct REC procurement solicitations at least once annually.
- LSEs may enter directly into agreements, including long-term power purchase agreements (PPAs), with renewable energy resources;
- LSEs may pay an alternative compliance payment (ACPs);
- Or some combination of the three.

- All generation will be tracked through NYGATS a web portal that will manage the buying and selling of RECs and report compliance with the RES.

REC Procurement and Contracting

- The New York State Energy Research and Development Authority (NYSERDA) will administer the RES program.
- The CES Order directed NYSERDA to conduct annual solicitations for Renewable Energy Credits (RECs) from new supply (Tier 1 eligible) at least once annually.
- The first RES Solicitation will be released in Spring 2017.
- NYSERDA will sign 20-year contracts to secure new renewable supply through the duration of the program.

Comparison of Annual RPS Procurements to Expected RES Procurements



RES Program

