
NJ Renewable Energy Incentives Past, Present and Future

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Office of Clean Energy
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NJ RE; by the numbers



- Four Primary RE Markets:
 1. Solar Photovoltaics; net metered and grid supply (wholesale)
 2. NJ Class I; wind, sustainable bio, solar, small hydro (LT 3 MW)
 3. Offshore Wind; carve out reduces the NJ Class I RPS required
 4. NJ Class II; MSW, large hydro (3 MW to 30 MW)
 - Three Primary Incentives
 1. Societal Benefits Charge
 2. Net Metering and Interconnection
 3. Renewable Energy Certificates (via the RPS)
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- Over 1.6 Gigawatts of Solar PV installed thru December 2015
 - 9.6 Megawatts of wind installed in NJ using NJCEP incentives
 - 33 MW of biopower installed in NJ using NJCEP incentives

NJ RE REGULATORY HISTORY

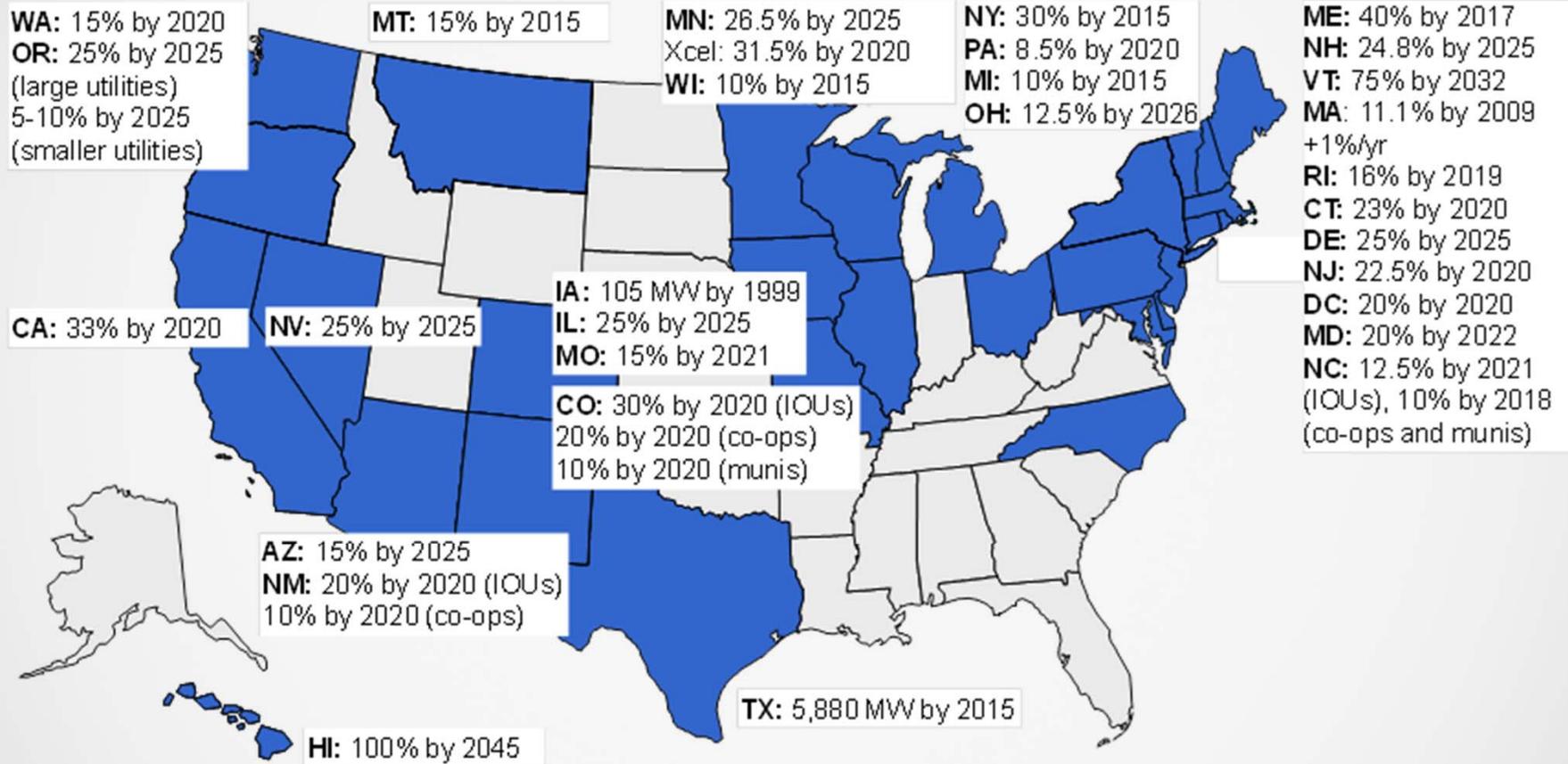


- Electric Discount and Energy Competition Act of 1999 (EDECA)
 - Definition of Class I & II Renewable Energy
 - Societal Benefits Charge / CRA process
 - Renewable Portfolio Standards
 - Net Metering and Interconnection
- Governor's Renewable Energy Task Force (04/24/03)
- RPS Rulemaking (2003, 2004, 2005, 2006, 2008, 2011, 2013, pending)
- The "Solar Transition" (Docket No.EO06100744, Orders 2006 thru 2013)
- Global Warming Response Act (L. 2007, c. 340, 1/13/08)
- New Jersey's Energy Master Plan (2008, 2011, pending)
- Solar Advancement Act of 2009 (L.1999 c.23)
- Offshore Wind Economic Development Act (L. 2010, c. 57, 08/19/10)
- The Solar Act of 2012 (L. 2012, c. 24, 07/23/12)
- The "RRF vs. Large Hydro Act" (L. 2015, c. 51, 05/07/15)

RPS ACROSS THE US



29 U.S. states and Washington D.C



Source: Berkeley Lab

A Retrospective Analysis of the Benefits and Impacts of U.S. Renewable Portfolio Standards, LBNL Draft Sept. 2015

BASIC RPS CONCEPTS (IN NJRPS)



- NJ RPS at N.J.A.C. 14:8-2
- 1 RPS = 4 RE Markets Served = SREC + Class I + Class II + OREC
- Solar = PV connected to distribution serving NJ, 15 yrs. then Class I
- NJ Class I = solar, wind, sustainable bio, new hydro less than 3 MW
- NJ Class II = RRF & any hydro greater than 3 and less than 30 MW
- Compliance period Energy Year XX; June 1 to May 31, XX
- EY21 = 23.85% = 3.470% + 17.88% + 2.5%
- Compliance requirement placed on retail electric suppliers
- LSEs = TPS + BGS (not EDCs) comply in proportion to retail sales
- Compliance achieved through REC retirement and/or ACP payment
- RECs = Renewable Energy Certificates
- 1 REC = 1 MWh of eligible electricity
- RECs can trade without limit; by brokers, aggregators, LSEs, s.t.:

BASIC RPS CONCEPTS (IN NJRPS)



- Vintage or bankability varies; SREC = 5 yrs., Class I & OREC = 3 yrs.
- ACP = Alternative Compliance Payment (NJ Class I or NJ Class II)
- ACP traditionally \$50 per MWh
- SACP = Solar Alternative Compliance Payment, see Solar Act..
- 15 yr. Schedule: EY14 @ \$339 to EY28 @ \$239 per MWh
- SREC supply from eligible energy; net metered, grid supply certified by the Board as “connected to NJ distribution”
- SREC Registration Program established to facilitate the market
- SREC demand was a percent of retail sales, then absolute GWh requirement allocated by market share now back to %....
- REC supply from eligible energy generated within or delivered into PJM via dynamic scheduling of output to load N.J.A.C. 14:8-2.7
- No REC double counting; i.e., previously used N.J.A.C. 14:8-2.9 (h)

NJ'S EVOLVING SOLAR REQUIREMENTS



1. Original Interim Standards in EDECA, Adopted by NJBPU Passed Feb. 1999, Effective 2001 Contained No Solar Carve Out

2. RPS Rule revised 2004

- RY05 - 0.01%
- RY06 - 0.0170%
- RY07 - 0.0393%
- RY08 - 0.0817%
- RY09 - 0.1600%

3. Rule Revised 2006

- RY10 - 0.2210%
- RY11 - 0.3050%
- RY12 - 0.3940%
- RY13 - 0.4970%
- RY14 - 0.6210%
- RY15 - 0.7650%

4. Solar Advancement Act of 2010

"Energy Year"

- EY 2011 - 306 gwh
- EY 2012 - 442 gwh
- EY 2013 - 596 gwh
- EY 2014 - 772 gwh
- EY 2015 - 965 gwh
- EY 2016 - 1,150 gwh
- EY 2017 - 1,357 gwh
- EY 2018 - 1,591 gwh
- EY 2019 - 1,858 gwh
- EY 2020 - 2,164 gwh
- EY 2021 - 2,518 gwh
- EY 2022 - 2,928 gwh
- EY 2023 - 3,433 gwh
- EY 2024 - 3,989 gwh
- EY 2025 - 4,610 gwh
- EY 2026 - 5,316 gwh
- EY 2027+> 5,316 gwh

...5. from Solar Act signed 07.23.12

- EY 2011 - 306 (Gwhrs)
- EY 2012 - 442 Gwhrs
- EY 2013 - 596 Gwhrs
- EY 2014 - 2.050%
- EY 2015 - 2.450%
- EY 2016 - 2.750%
- EY 2017 - 3.000%
- EY 2018 - 3.200%
- EY 2019 - 3.290%
- EY 2020 - 3.380%
- EY 2021 - 3.470%
- EY 2022 - 3.560%
- EY 2023 - 3.650%
- EY 2024 - 3.740%
- EY 2025 - 3.830%
- EY 2026 - 3.920%
- EY 2027 - 4.010%
- EY 2028 - 4.100%,

THE COST OF COMPLIANCE



Compliance Period	EY 2014 GWh & %	EY 2015(%) Preliminary Est.	EY 2016(%) Rough Estimate	Total\$ Since 2004
Notes:				
Total Retail Sales of Regulated LSEs (MWh)	76,512,600	76,131,351	76,131,351	-
Class I RPS Percentage Requirement	7.977%	8.807%	9.649%	-
Class I REC Obligation (MWh)	6,103,410	6,704,888	7,345,914	-
Class I RECs Retired for RPS (MWh)	6,103,398	tbd	tbd	-
Estimated Year End Weighted Average Price	\$6.83	\$10	\$10	-
Estimated Dollar Value of Class I RECs Retired	\$41,686,208.34	\$67,048,881	\$73,459,141	\$355 million
Class I ACPs Submitted (MWh)	4	tbd	tbd	-
ACP Level (\$ per MWh)	\$50	\$50	\$50	-
Cost of Class I ACPs (\$)	\$200.00	tbd	tbd	\$40,520
Class II RPS Percentage Requirement	2.50%	2.50%	2.50%	-
Class II REC Obligation (MWh)	1,912,815	1,903,284	1,903,284	-
Class II RECs Retired for RPS (MWh)	1,912,860	tbd	tbd	-
Estimated Year End Weighted Average Price	\$2.87	\$5.50	\$5.50	-
Estimated Dollar Value of Class II RECs Retired	\$5,489,908	\$10,468,061	\$10,468,061	\$49 million
Class II ACPs Submitted (MWh)	7	tbd	tbd	-
ACP Level (\$ per MWh)	\$50	\$50	\$50	-
Cost of Class II ACPs (\$)	\$350.00	tbd	tbd	\$4,000
Retail Sales Obligated by RPS for solar (+)	76,512,600	76,131,351	76,131,351	-
Solar RPS Percentage Requirement	2.050%	2.450%	2.750%	-
SREC Obligation (MWh)	1,568,508	1,865,218	2,093,612	-
SRECs Retired for RPS (MWh)	1,568,503	tbd	tbd	-
Percentage of Obligation met via SRECs	100.00%	tbd	tbd	-
Year End Cumulative Weighted Average Price	\$175.80	\$193	\$193	-
Estimated Dollar Value of SRECs Retired	\$275,742,827	~> \$360 million	~> \$400 million	\$1.6 billion
SACP Level (\$ per MWh)	\$339	\$331	\$323	-
SACPs Submitted(\$)	\$339	tbd	tbd	\$88 million
Estimated Solar RPS Expenditures (SACP + SREC)	\$275,743,166.40	~ \$360 m	~ \$400 m	\$1.6 billion
Estimated Class I RPS Expenditures (ACP + CI-REC)	\$41,686,408.34	~ \$67 m	~ \$73 m	\$355 million
Estimated Class II RPS Expenditures (ACP + CII-REC)	\$5,490,258.20	~ \$11 m	~ \$11 m	\$49 million
Estimated Total RPS Expenditures (REC + SREC + ACP + SACP)	\$322,919,832.94	~ \$438 million	~ \$484 million	\$2 billion
Percentage Requirements Summed:	12.527%	13.757%	14.899%	-

RESOURCES USED FOR COMPLIANCE

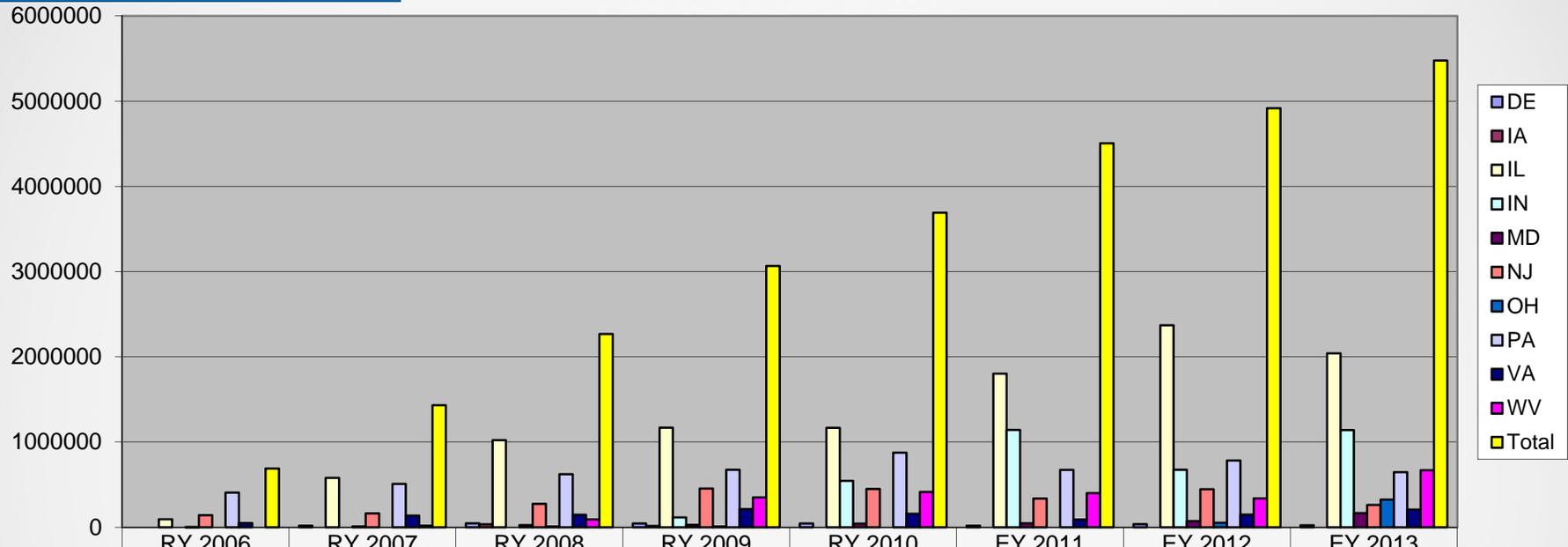


NJ	Location	Fuel Type	EY 2011	EY 2012	EY 2013	EY 2014
Class I	DE	DE LFG	17,147	35,181	22,747	17,678
	IA	IA WND	0	0	0	0
	IL	IL LFG	98,073	82,688	120,078	61,015
		IL WND	1,704,048	2,287,319	1,920,509	2,364,669
	IN	IN LFG	0	0	0	0
		IN WND	1,141,053	673,878	1,139,678	712,240
	MD	MD LFG	45,004	50,022	69,598	28,771
		MD WND	0	21,458	95,680	29,267
	MI	MI LFG				22,587
	NJ	NJ LFG	304,528	418,461	249,512	533,464
		NJ OBG	32,224	27,103	8,166	47,585
		NJ WND	0	0	3,036	4,280
	OH	OH LFG	0	1,176	0	43,744
		OH WND	0	50,656	323,889	270,842
	PA	PA LFG	317,023	309,172	244,228	308,172
		PA WND	355,148	473,581	402,833	812,733
	VA	VA LFG	90,488	147,716	207,090	282,353
	WV	WV LFG	0	11,228	0	8,957
		WV WND	401,440	327,052	669,559	557,775
				4,506,176	4,916,691	5,476,603

EY 2011	EY14%
DE	0.3%
IA	0.0%
IL	39.7%
IN	11.7%
MD	1.0%
MI	0.4%
NJ	9.6%
OH	5.2%
PA	18.4%
VA	4.6%
WV	9.3%
Total	100.0%
NJ	10%
OOS	90%

	EY 2011	EY 2012	EY 2013	EY 2014	EY14%
LFG	872,263	1,055,644	913,253	1,306,741	21.4%
Wind	3,601,689	3,833,944	4,555,184	4,751,806	77.8%
OBG	32224	27,103	8,166	47,585	0.8%
TOTAL	4,506,176	4,916,691	5,476,603	6,106,132	100.0%

The Source: Class I RECs Retired by State



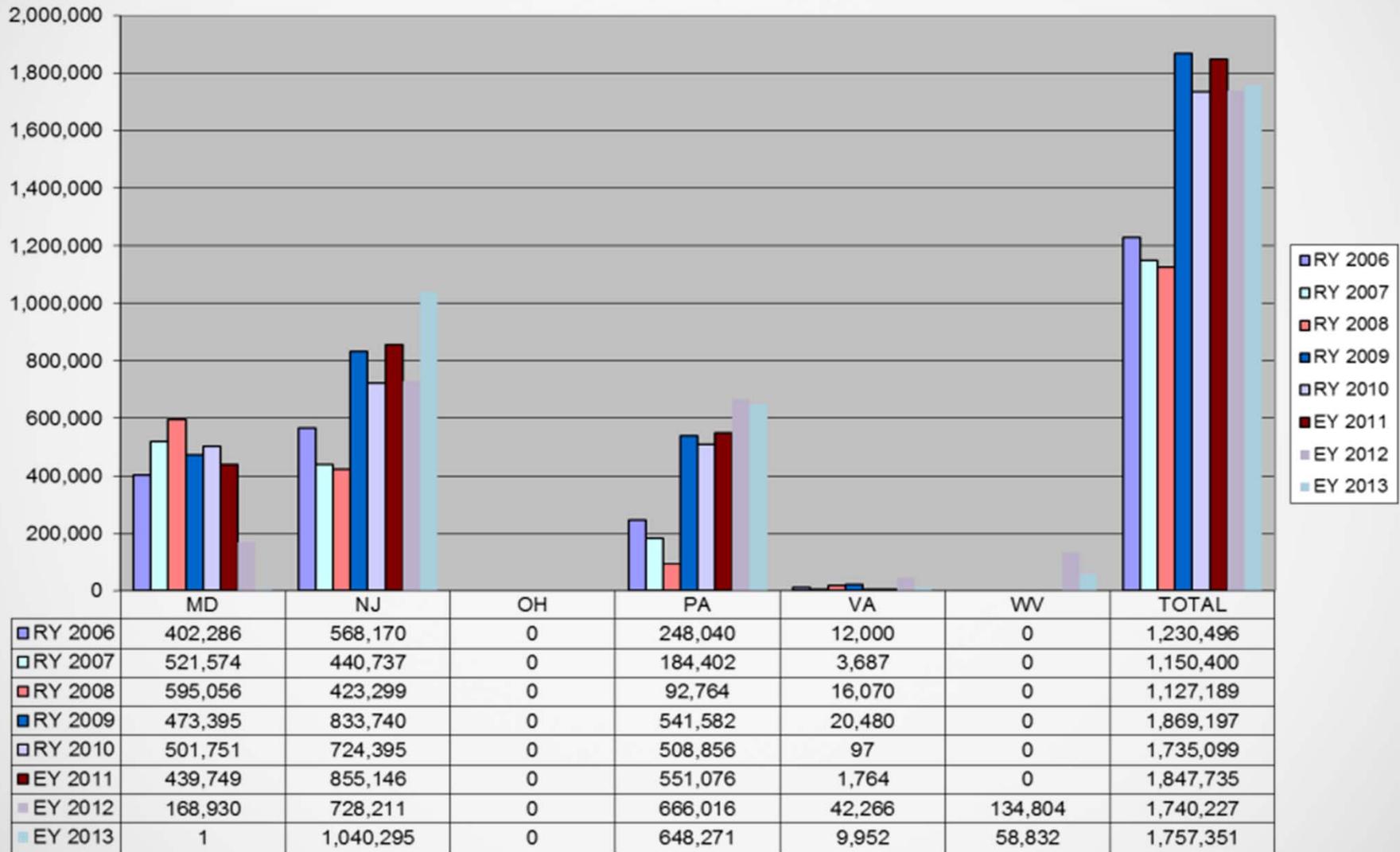
	RY 2006	RY 2007	RY 2008	RY 2009	RY 2010	EY 2011	EY 2012	EY 2013
DE	0	17625	46360	44584	44126	17147	35,181	22,747
IA	0	0	33300	15000	0	0	0	0
IL	92,971	579,531	1,021,760	1,168,417	1,166,063	1,802,121	2,370,007	2,040,587
IN	0	0	0	113918	544861	1141053	673,878	1,139,678
MD	882	9890	23962	27879	41850	45004	71,480	165,278
NJ	140,701	162,506	274,360	453,742	448,331	336,752	445,564	260,714
OH	0	0	7885	7390	0	0	51,832	323,889
PA	406,438	508,344	621,008	674,680	874,315	672,171	782,753	647,061
VA	48,953	135,676	146,404	211,310	157,519	90,488	147,716	207,090
WV	0	18374	91731	349557	414803	401440	338,280	669,559
Total	689,945	1,431,946	2,266,770	3,066,477	3,691,868	4,506,176	4,916,691	5,476,603

RESOURCES USED FOR COMPLIANCE



			EY 2011	EY 2012	EY 2013	EY 2014	EY14%
Class II	MD	MD MSW	439,749	166,377	0	0	0.0%
		MD WAT	0	2,553	0	75,697	4.2%
	NJ	NJ MSW	835,870	712,244	1,024,607	983,229	54.9%
		NJ WAT	19,276	15,967	15,688	495	0.0%
	OH	OH WAT	0	0	0	77,008	4.3%
	PA	PA MSW	452,242	558,367	530,083	512,147	28.6%
		PAWAT	98,834	107,649	118,188	133,368	7.5%
	VA	VA WAT	1,764	42,266	9,952	0	0.0%
	WV	WV WAT	0	134,804	58,832	8,224	0.5%
				1,847,735	1,740,227	1,757,350	1,790,168

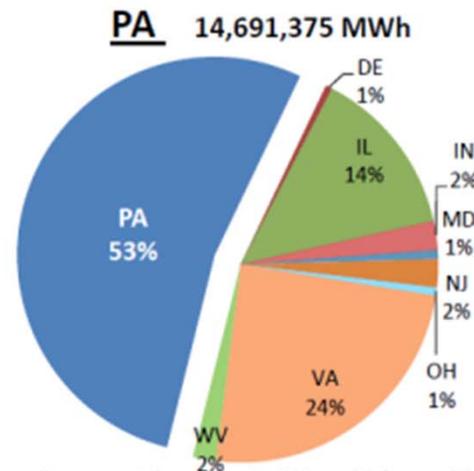
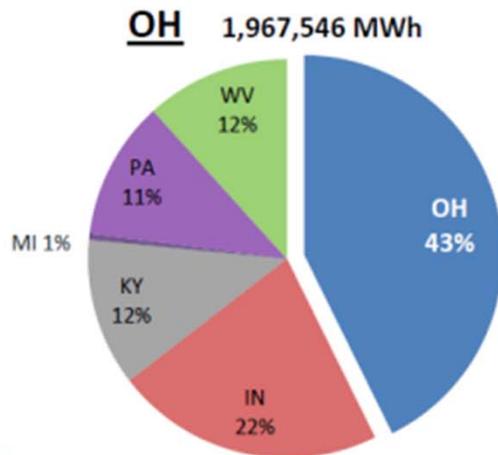
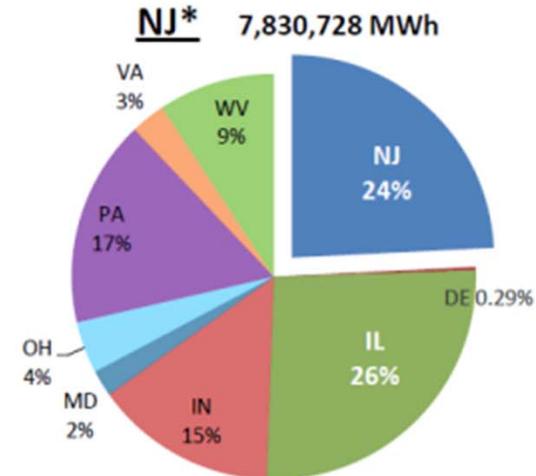
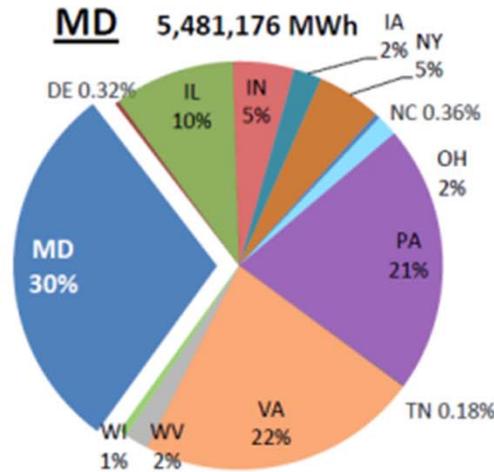
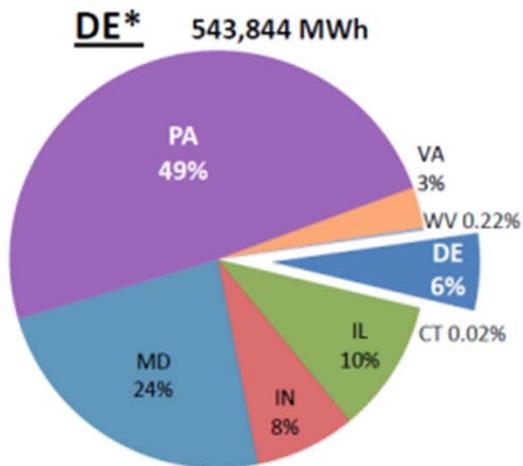
The Source: Class II RECs by State of Origin



RESOURCES USED FOR COMPLIANCE (2012)



- Mid-Atlantic states used 6% to 53% in-state RECs and sourced out-of-state RECs mostly from the Mid-Atlantic and Midwest.



* See Notes slide

NOTES: State data representing less than 0.01% of 2012 compliance are not shown here. See Notes and Reference slides for more information on data sources.

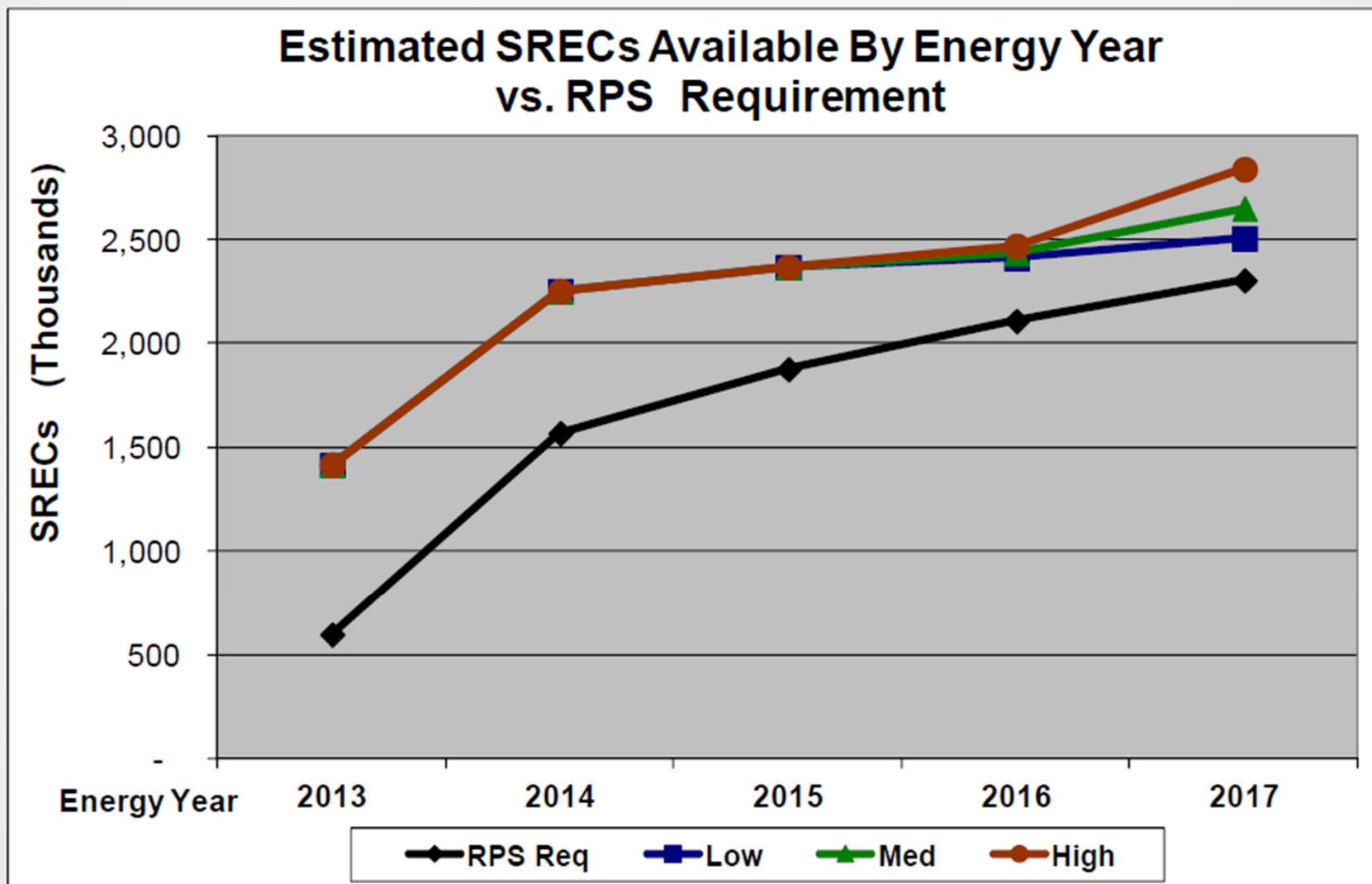
NJ SREC Forecasts



NJ Solar RPS Requirement By Energy Year				
Energy Yr	Retail Sales Est (MWh)	RPS %	Est RPS Req (MWh)	Retail Sales estimates used to estimate RPS MWh requirement for EY 2015-2017
2015	76,600,000	2.45%	1,876,700	
2016	76,700,000	2.75%	2,109,250	
2017	76,800,000	3.00%	2,304,000	

Estimated SRECs Available By Energy Year - 3 Scenarios As of 09/30/15				
Energy Yr	RPS Req	Low	Med	High
2013	596,000	1,416,668	1,416,668	1,416,668
2014	1,568,508	2,252,168	2,252,168	2,252,168
2015	1,876,700	2,368,160	2,368,160	2,368,160
2016	2,109,250	2,412,360	2,438,660	2,471,160
2017	2,304,000	2,507,410	2,651,710	2,840,010

NJ SREC Forecasts



RPS RESOURCES



- njcleanenergy.com/renewable-energy
- njcep.com = > RPS background page
- cesa.org/projects/state-federal-rps-collaborative
- emp.lbl.gov/rps
- pjm-eis.com
- solarrec-auction.com
- dsireusa.org