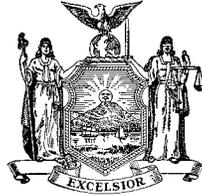


**STATE OF NEW YORK
PUBLIC SERVICE COMMISSION**



**NEW YORK RENEWABLE PORTFOLIO STANDARD
RECOMMENDED DECISION COST ANALYSIS**

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Table 1
Incremental RPS Targets

Year	RPS Percentages
2006	0.94%
2007	1.92%
2008	2.87%
2009	3.81%
2010	4.74%
2011	5.67%
2012	6.58%
2013	7.50%

Table 2
Calculation of RPS Targets (MWh's)

Year	SEP Forecast	Baseline	EO 111	Green Marketing	Increment Target	Total Renewables	Renewables Percentage	Incremental Percentage
2003	160,480,000	31,159,134	0	0	0	31,159,134	19.42%	0
2004	162,844,000	31,405,565	0	0	0	31,405,565	19.29%	0
2005	165,280,000	31,411,462	251,065	274,953	0	31,937,479	19.32%	0
2006	167,490,000	31,417,358	283,192	274,953	1,577,518	33,553,020	20.03%	0.94%
2007	169,977,000	31,411,491	315,338	274,953	3,255,600	35,257,382	20.74%	1.92%
2008	172,404,000	31,405,624	347,505	274,953	4,956,086	36,984,168	21.45%	2.87%
2009	174,658,000	31,399,758	379,691	274,953	6,652,656	38,707,057	22.16%	3.81%
2010	176,910,000	31,393,891	411,897	274,953	8,380,737	40,461,478	22.87%	4.74%
2011	179,031,000	31,388,024	394,132	274,953	10,159,859	42,216,968	23.58%	5.67%
2012	180,907,000	31,382,158	376,366	274,953	11,909,571	43,943,047	24.29%	6.58%
2013	182,866,999	31,376,291	358,601	274,953	13,706,906	45,716,750	25.00%	7.50%

Table 3
Quantity of Renewable Resources Reached Through 2013

ENERGY SOURCE BLOCK	Location	Market Index	MWs Reached	MWHs Reached
Landfill Gas Microturbines NY z2	NY Zone 2	NY Zone 2	1.06	8,841
Wind Clusters NY-z3b3	NY Zone 3	NY Zone 3	15.00	38,106
Off-Shore Wind LI NY-z3	NY Zone 3	NY Zone 3	499.68	1,488,241
Biomass Co-firing w/Coal NY-z1 b3	NY Zone 1	NY Zone 1	137.00	660,066
Hydro Upgrades Ontario	Ontario	NY Zone 1	800.00	3,000,000
Hydro Upgrades Quebec	Quebec	NY Zone 1	300.00	1,182,600
Wind Clusters NY-z1b2	NY Zone 1	NY Zone 1	150.00	433,620
Wind Farms PJM b1	PJM	NY Zone 1	250.00	722,700
Biomass Co-firing w/Coal NY-z1 b2	NY Zone 1	NY Zone 1	63.00	386,316
Wind Clusters NY-z3b2	NY Zone 3	NY Zone 3	15.00	43,362
Wind Farms NY-z1b3	NY Zone 1	NY Zone 1	1400.00	3,556,560
Landfill Gas IC Engines NY z3	NY Zone 3	NY Zone 3	3.18	26,505
Wind Clusters NY-z1b1	NY Zone 1	NY Zone 1	20.00	64,824
Wind Farms NY-z2b3	NY Zone 2	NY Zone 2	50.00	127,020
Wind Farms NY-z1b2	NY Zone 1	NY Zone 1	450.00	1,300,860
Biomass Co-firing w/Coal NY-z2	NY Zone 2	NY Zone 2	56.00	294,336
Wind Farms NY-z2b2	NY Zone 2	NY Zone 2	50.00	144,540
Wind Farms NY-z1b1	NY Zone 1	NY Zone 1	50.00	162,060
Biomass Co-firing w/Coal NY-z1 b1	NY Zone 1	NY Zone 1	38.00	233,016
Landfill Gas IC Engines NY z1	NY Zone 1	NY Zone 1	88.15	733,577
Landfill Gas IC Engines NY z2	NY Zone 2	NY Zone 2	25.73	214,117
Eligible Hydro Maintenance NY z1	NY Zone 1	NY Zone 1	41.53	127,333
		TOTALS	4,503.33	14,948,600
		NY RPS	4,129.26	13,706,906

Table 4
Quantity of SBC-Like Tier Renewable Resources Through 2013

	<u>MWh's</u>	<u>MW's</u>
Solar PV	24,519	18.66
Wind Small	1,361	0.78
<u>Fuel Cells</u>	<u>248,258</u>	<u>31.49</u>
Totals	274,138	50.93

Table 5
Annual Cost Premiums to Achieve the RPS – Cost Based Approach (2003\$)

	<u>2006</u>	<u>2007</u>	<u>2008</u>	<u>2009</u>
RPS Main Tier	\$15,901,306	\$41,883,864	\$73,578,940	\$108,460,885
RPS SBC-Like Tier	<u>\$24,741,325</u>	<u>\$24,741,325</u>	<u>\$24,741,325</u>	<u>\$17,743,804</u>
Total Cost to Achieve RPS	\$40,642,631	\$66,625,189	\$98,320,265	\$126,204,689
	<u>2010</u>	<u>2011</u>	<u>2012</u>	<u>2013</u>
RPS Main Tier	\$139,601,134	\$172,932,249	\$201,711,887	\$236,443,268
RPS SBC-Like Tier	<u>\$17,743,804</u>	<u>\$17,743,804</u>	<u>\$10,746,282</u>	<u>\$10,746,282</u>
Total Cost to Achieve RPS	\$157,344,937	\$190,676,053	\$212,458,169	\$247,189,551

Table 6
Annual Cost Premiums to Achieve the RPS – Market Clearing Approach (2003\$)

	<u>2006</u>	<u>2007</u>	<u>2008</u>	<u>2009</u>
RPS Main Tier	\$24,302,252	\$59,903,103	\$94,583,228	\$132,449,400
RPS SBC-Like Tier	<u>\$24,741,325</u>	<u>\$24,741,325</u>	<u>\$24,741,325</u>	<u>\$17,743,804</u>
Total Cost to Achieve RPS	\$49,043,577	\$84,644,429	\$119,324,554	\$150,193,204
	<u>2010</u>	<u>2011</u>	<u>2012</u>	<u>2013</u>
RPS Main Tier	\$166,206,145	\$203,897,066	\$239,978,395	\$280,323,981
RPS SBC-Like Tier	<u>\$17,743,804</u>	<u>\$17,743,804</u>	<u>\$10,746,282</u>	<u>\$10,746,282</u>
Total Cost to Achieve RPS	\$183,949,949	\$221,640,870	\$250,724,677	\$291,070,264

Table 7
Cumulative Cost Premiums to Achieve the RPS – Cost Based Approach (2003\$)

	<u>2006-2013</u>
RPS Main Tier	\$990,513,532
RPS SBC-Like Tier	<u>\$148,947,952</u>
Total Cost to Achieve RPS	\$1,139,461,484

Table 8
Cumulative Cost Premiums to Achieve the RPS – Market Clearing Approach (2003\$)

	<u>2006-2013</u>
RPS Main Tier	\$1,201,643,572
RPS SBC-Like Tier	\$148,947,952
Total Cost to Achieve RPS	\$1,350,591,524

Table 9
Annual Wholesale Energy Cost Reductions Due to RPS – Statewide Totals (2003\$)

Year	Reductions
2006	-\$18,546,150
2009	-\$37,852,103
2013	-\$137,480,320

Table 10
UCAP Payments to Renewable Generators (2003\$)

<u>2006</u>	<u>2007</u>	<u>2008</u>	<u>2009</u>	<u>2010</u>	<u>2011</u>	<u>2012</u>	<u>2013</u>
\$450,099	\$2,871,035	\$5,291,972	\$7,712,908	\$11,299,626	\$14,886,343	\$18,473,060	\$22,059,778

Table 11
Annual Capacity Cost Changes Due to RPS – Statewide Totals (2003\$)

Year	Changes
2006	-\$15,612,921
2009	+\$22,972,581
2013	-\$784,459

Table 12
Comparison of Net Present Value in Year 2003 (2003\$)

	RD Case Cost Based Approach	RD Case Market Clearing Approach
Net Present Value	\$158,019,463	\$327,981,553

Table 13

Range of Bill Impact – Current Bills to Lowest and Highest of Years 2006, 2009 & 2013 (2003\$)

	RD Case Both Approaches
Residential	-1.16% to +1.83%
Commercial	-1.00% to +1.95%
Industrial	-1.98% to +2.38%

Table 14
Range of Bill Impact by Utility – Current Bills to Years 2006, 2009 & 2013

PRIME CASE Cost Based Approach	2006	2009	2013
CENTRAL HUDSON			
Residential Bill Impact Range	-0.13% to 0.00%	0.00% to +1.35%	0.00% to +1.25%
Commercial Bill Impact Range	-0.15% to -0.04%	+1.07% to +1.61%	+0.83% to +1.49%
Industrial Bill Impact Range	-0.22% to -0.06%	+1.45% to +2.26%	+1.12% to +2.08%
CON EDISON			
Residential Bill Impact Range	0.00% to +0.07%	0.00% to +0.68%	0.00% to +0.83%
Commercial Bill Impact Range	+0.01% to +0.05%	+0.32% to +0.54%	+0.34% to +0.66%
Industrial Bill Impact Range	+0.01% to +0.06%	+0.42% to +0.67%	+0.46% to +0.82%
NYSEG			
Residential Bill Impact Range	-0.07% to 0.00%	0.00% to +0.27%	-0.83% to 0.00%
Commercial Bill Impact Range	-0.07% to -0.01%	+0.09% to +0.26%	-0.82% to -0.42%
Industrial Bill Impact Range	-0.11% to -0.03%	+0.15% to +0.41%	-1.28% to -0.74%
NIAGARA MOHAWK			
Residential Bill Impact Range	-0.17% to 0.00%	0.00% to +0.21%	-1.16% to 0.00%
Commercial Bill Impact Range	-0.15% to 0.00%	0.00% to +0.18%	-1.00% to 0.00%
Industrial Bill Impact Range	-0.29% to -0.09%	+0.04% to +0.35%	-1.98% to -0.75%
O&R			
Residential Bill Impact Range	-0.38% to 0.00%	0.00% to +1.83%	0.00% to +1.55%
Commercial Bill Impact Range	-0.41% to -0.19%	+1.01% to +1.95%	+0.75% to +1.65%
Industrial Bill Impact Range	-0.50% to -0.32%	+1.65% to +2.38%	+1.23% to +2.01%
RG&E			
Residential Bill Impact Range	0.00% to +0.09%	0.00% to +0.55%	-0.32% to +0.02%
Commercial Bill Impact Range	+0.01% to +0.08%	+0.19% to +0.48%	-0.28% to +0.02%
Industrial Bill Impact Range	+0.02% to +0.12%	+0.31% to +0.72%	-0.41% to +0.03%

Table 15
Fuel Usage Changes – Year 2013

FUEL TYPE	UNITS	VOLUME	GENERATION (MWh)
Coal	TONS	(247,193)	(599,595)
Oil	BBL	(1,289,856)	(730,472)
Gas	MCF	(47,207,817)	(6,154,568)
Nuclear	MBTU	(6)	(1)
Wood	TONS	(176)	(162)
Refuse	TONS	(434)	(215)
Landfill Gas	MBTU	13,300,569	980,991
TOTAL GENERATION:			(6,504,022)

Table 16
Air Emissions Reductions with RPS (x 1,000 tons)

2006					
	Emission	Base Case	RPS Case	Net Change	Percentage Change
Total Statewide Emissions	NO _x	59	58	(1)	-1.02%
	SO ₂	165	163	(2)	-1.47%
	CO ₂	50,009	49,232	(777)	-1.55%
Total NYC/Long Island Emissions	NO _x	22	22	(1)	-2.28%
	SO ₂	22	21	(1)	-3.84%
	CO ₂	25,750	25,315	(435)	-1.69%
2009					
	Emission	Base Case	RPS Case	Net Change	Percentage Change
Total Statewide Emissions	NO _x	51	51	(1)	-1.39%
	SO ₂	161	157	(3)	-2.07%
	CO ₂	51,041	48,964	(2,077)	-4.07%
Total NYC/Long Island Emissions	NO _x	17	17	(0)	-2.13%
	SO ₂	19	18	(1)	-3.57%
	CO ₂	27,690	26,308	(1,382)	-4.99%
2013					
	Emission	Base Case	RPS Case	Net Change	Percentage Change
Total Statewide Emissions	NO _x	55	52	(4)	-6.80%
	SO ₂	168	158	(10)	-5.89%
	CO ₂	53,927	49,798	(4,129)	-7.66%
Total NYC/Long Island Emissions	NO _x	19	17	(2)	-9.26%
	SO ₂	22	20	(2)	-9.81%
	CO ₂	29,642	26,998	(2,645)	-8.92%

Table 17
Displacement of Generation Resources (GWh's)

	Base Case	Renewables Case	Difference
Oil	4,948	4,218	730
Gas	60,350	54,195	6,155
All Other	62,127	62,506	(379)
Totals	127,425	120,919	6,506

Table 18
Reduction in Fuel Price & Supply Risk (GWh's)

	Base Case	Renewables Case	Difference
Oil & Gas	65,298	58,413	6,885
Percent	100%	89%	11%

Table 19
Comparison of Year 2003 Present Value of 2006-2013 Bill Impacts (2003\$)

Present Value:	Cost-Based Approach	Market Clearing Approach
RD Case:	\$158,019,463	\$327,981,553
No Production Tax Credit Sensitivity:	\$388,520,444	\$627,464,659
Strawman "A" Scenario:	\$147,113,376	\$194,377,841
Strawman "B" Scenario:	\$442,135,650	\$455,163,373

Table 20
Comparison of Absolute Worst Case Bill Impact, NYPA-IN – NYPA-OUT

NYPA-IN	NYPA-OUT
+2.24%	+2.38%

Table 21
Comparison of Target Year Effect on RPS Incremental Steps

25% Target Year:	RPS Increment (MWhs)		
	<u>2013</u>	<u>2014</u>	<u>2015</u>
2006	1,559,713	1,427,658	1,322,014
2007	3,220,009	2,951,977	2,737,551
2008	4,902,730	4,494,941	4,168,710
2009	6,594,897	6,044,070	5,603,408
2010	8,318,580	7,621,168	7,063,239
2011	10,093,272	9,246,344	8,568,802
2012	11,838,553	10,840,117	10,041,369
2013	13,631,458	12,478,026	11,555,280
2014	13,921,931	13,921,931	12,877,787
2015	14,212,061	14,212,061	14,212,061

Table 22
Incremental RPS Regulatory Targets for LSEs other than NYPA & MUNIs

Year	RPS Increment
2006	1.11%
2007	2.25%
2008	3.38%
2009	4.48%
2010	5.58%
2011	6.68%
2012	7.75%
2013	8.82%

Table 23
List of RD Cost Analysis Spreadsheet Files to be Posted on DPS Website

RDCase-Results-6-03-04.xls
RDCase-No-PTC-Results-6-03-04.xls
RD-Strawman-A-Results-6-03-04.xls
RD-Strawman-B-Results-6-03-04.xls
Bill-Impacts-RDCase-NYPA-IN-NewFuel-CB-5-26-04.xls
Bill-Impacts-RDCase-NYPA-IN-NewFuel-MCA-5-26-04.xls
Bill-Impacts-RDCase-NYPA-IN-SEP-Fuel-CB-5-26-04.xls
Bill-Impacts-RDCase-NYPA-IN-SEP-Fuel-MCA-5-26-04.xls
Bill-Impacts-RDCase-NYPA-OUT-NewFuel-CB-5-26-04.xls
Bill-Impacts-RDCase-NYPA-OUT-NewFuel-MCA-5-26-04.xls
Bill-Impacts-RDCase-NYPA-OUT-SEP-Fuel-CB-5-26-04.xls
Bill-Impacts-RDCase-NYPA-OUT-SEP-Fuel-MCA-5-26-04.xls
Bill-Impacts-RD-NO-PTC-NYPA-OUT-NewFuel-CB-5-27-04.xls
Bill-Impacts-RD-NO-PTC-NYPA-OUT-NewFuel-MCA-5-27-04.xls
Company Load and Price RD STUDY 5-19.xls
RPS emissions RD STUDY 5-19-04.xls
RPS Fuel Use RD BASE RD PRIME SEP fuel prices 2006 2013 5-19-04.xls
RD-UCAP INPUTS-6-03-04.xls