

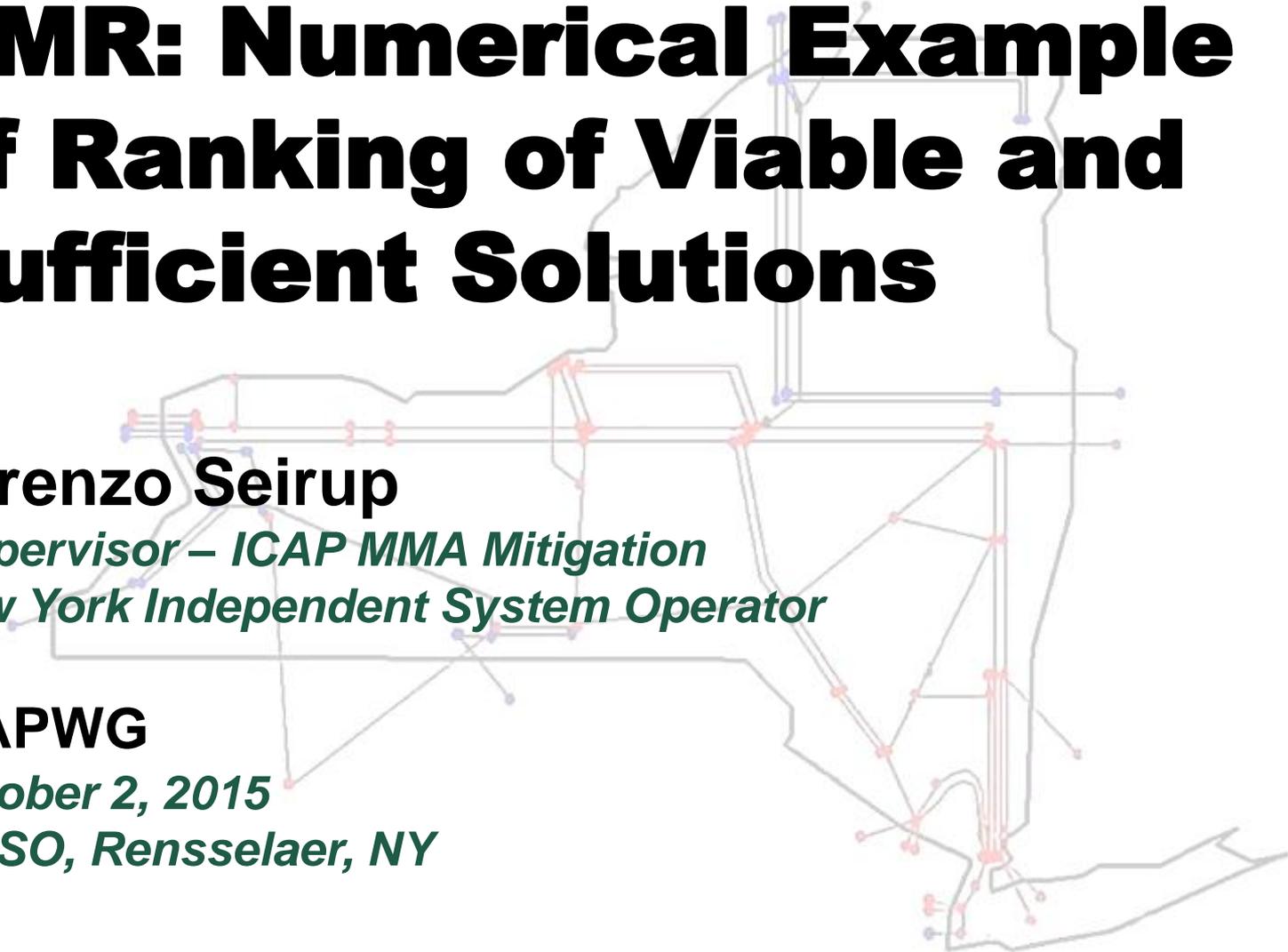
RMR: Numerical Example of Ranking of Viable and Sufficient Solutions

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Overview

- ◆ **Today the NYISO is presenting further numerical examples in relation to the RMR process**
- ◆ **Example includes the side by side evaluation of three possible RMR solutions**
- ◆ **The NYISO will perform the analysis to rank the potential solutions primarily by least cost NPV**
- ◆ **The NYISO will post the ranking of each named project on its web site**
- ◆ **The Public Service Commission would be responsible for the identification of any transmission or demand response Gap Solutions that were determined by the NYISO to be viable and sufficient**

Scenario

- ◆ **Generating unit sends Generator Deactivation Notice to the NYISO**
- ◆ **Reliability Need is determined**
 - *100 MW need for 3 year term*
 - *Reliability reason is not for Resource Adequacy*
- ◆ **Three solutions are determined to be viable and sufficient**
 - *Noticing Generator (250 MW)*
 - *Transmission Project (100 Miles)*
 - *Demand Response Resource (100 MW SCR)*

Generator Assumptions

- ◆ **Generator cost information used will be the same as in the 8/10/15 ICAPWG Agenda Item #3 presentation, slides 5-15 (also included as an Appendix to this presentation)**
 - *50 year old 250 MW Coal plant in Load Zone in western, NY*
 - *Capital Expenditures have been changed to \$10M/yr. for this presentation to align with current tariff proposal so amount does not need specific FERC approval*

Transmission Project



Assumptions

- ◆ Transmission solution incomplete at time of NYISO request for Gap Solutions
 - *Expedited construction schedule would satisfy Reliability Need*
- ◆ Solution has costs for accelerating construction schedule
- ◆ Project Parameters and Inputs
 - *100 mile 345 kV line*
 - *Costs to accelerate project total \$10M*
 - *Additional Capital Expenditures, \$5M*
 - *Construction costs on original schedule are approximately \$3M/mile, with 3 miles left to be constructed*
 - Costs not associated with accelerating construction of the transmission project as a Gap Solution are not considered
 - *Total costs to complete construction and accelerate the in-service date are \$24M, but only the \$15M associated with accelerating the in-service date would be considered costs in the NYISO's ranking*
 - Difference of \$9M accounts for original project costs for completing line, which is not taken into account in calculating additional avoidable costs

Demand Response Assumptions

- ◆ Existing Demand Response Resource
 - *100 MW*
 - *50 MW currently participating in the SCR Program*
- ◆ No telemetry installed; telemetry to follow basepoints is in proposal to be a Gap Solution in order to follow dispatch instructions
- ◆ Resource has Capital Expense and avoidable costs
 - *Installation of telemetry system*

Demand Response Assumptions con't

- ◆ Demand Response Resource costs
 - *Installation of telemetry system*
 - \$200K for technology
 - \$25K/yr for attributable labor
 - \$20K for 3 year service agreement
 - *Existing 50 MW not included in basecase reliability study*

APR Rates & NPV

Generator	RMR Contract Year		
	2015	2016	2017
O & M	\$ 14.8	\$ 13.8	\$ 14.3
Cap Ex 2015	\$ 10.0	\$ 10.0	\$ 10.0
RMR Gen Total Avoidable Costs	\$ 24.8	\$ 23.8	\$ 24.3
Gen APR Incentive (Max 25% of FOM/YR Value)	\$ 3.7	\$ 3.5	\$ 3.6
	+		
Initial Annual Cost	\$ 28.5	\$ 27.3	\$ 27.9
Energy Revenues	\$ (12.5)	\$ (12.6)	\$ (13.0)
ICAP Revenues	\$ (10.0)	\$ (10.5)	\$ (11.0)
Total Cost to Loads	\$ 6.0	\$ 4.2	\$ 3.9
NPV net to beneficiary loads	\$11.80		

Transmission	RMR Contract Year		
	2015	2016	2017
O & M	\$ 10.0		
Cap Ex 2015	\$ 5.0	\$ -	\$ -
Total Avoidable Costs (RMR/YR)	\$ 15.0	\$ -	\$ -
Gen APR Incentive (Max 25% of FOM/YR Value)		N/A	
	+		
Initial Annual Cost	\$ 15.0	\$ -	\$ -
Energy Revenues		N/A	
ICAP Revenues		N/A	
Total Cost to Loads	\$ 15.0	\$ -	\$ -
NPV net to beneficiary loads	\$13.64		

DR	RMR Contract Year		
	2015	2016	2017
O & M	\$ 0.025	\$ 0.025	\$ 0.025
Cap Ex 2015	\$ 0.22	\$ -	\$ -
Total Avoidable Costs (RMR/YR)	\$ 0.245	\$ 0.025	\$ 0.025
Gen APR Incentive (Max 25% of FOM/YR)		N/A	
	+		
Initial Annual Cost	\$ 0.245	\$ 0.025	\$ 0.025
Energy Revenues	\$ (0.50)	\$ (0.50)	\$ (0.50)
ICAP Revenues	\$ (3.00)	\$ (3.07)	\$ (3.14)
Total Cost to Loads	\$ (3.26)	\$ (3.55)	\$ (3.62)
NPV net to beneficiary loads	(\$8.61)		

(all values in millions)

- ♦ APR Incentive rate has been adjusted from 10% to 25% for this presentation, from the 08/10/15 materials
- ♦ Discount rate used for this example is 10%

APR Rates & NPV Summary

<u>Generator</u>	RMR Contract Year			<u>Transmission</u>	RMR Contract Year			<u>DR</u>	RMR Contract Year		
	2015	2016	2017		2015	2016	2017		2015	2016	2017
Total Cost to Loads	\$ 6.0	\$ 4.2	\$ 3.9	Total Cost to Loads	\$ 15.0	\$ -	\$ -	Total Cost to Loads	\$ (3.26)	\$ (3.55)	\$ (3.62)
NPV net to beneficiary loads	\$11.80			NPV net to beneficiary loads	\$13.64			NPV net to beneficiary loads	(\$8.61)		

(all values in millions)

- ◆ Net NPV costs to beneficiary loads span three years for the generator solution
- ◆ Initial costs for both transmission and Demand Response solutions are front-loaded
- ◆ Least cost NPV evaluation provides clear and distinct ranking

Ranking

- ♦ NYISO will post on its web site the ranking of each project that was determined to be a Viable and Sufficient Gap Solution, identifying each project, but not its cost
 1. *Demand Response (\$8.61M)*
 - *Top ranked least cost solution*
 2. *Generator \$11.80M*
 3. *Transmission Project \$13.64M*
- ♦ MMU will publish a report including comment on rankings
- ♦ If alternative solution is not identified by the PSC, NYISO will present Generator with its determination of the APR, and offer an opportunity for the Generator to enter into an RMR agreement
 - *Assuming FERC acceptance, agreement will become effective*
 - *Generator will be subject to an RMR UCAP Offer Price*
 - RMR UCAP Offer Price will be in effect beginning with the intended implementation date of the proposed lower cost alternative solution
 - i.e., in this scenario, the date the Demand Response solution from today's presentation is reasonably estimated to begin participation in the NYISO Market
 - *RMR Generator will not be subject to RMR UCAP Offer Price if alternative solution was identified but is determined to be reasonably delayed*

The New York Independent System Operator (NYISO) is a not-for-profit corporation responsible for operating the state's bulk electricity grid, administering New York's competitive wholesale electricity markets, conducting comprehensive long-term planning for the state's electric power system, and advancing the technological infrastructure of the electric system serving the Empire State.



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Appendix

- ◆ 8/10/15 ICAPWG Agenda Item #3 presentation, slides 5-15

Input Assumptions

- ◆ **50 year old 250 MW Coal plant located in Western Zone that receives fuel via barge**
 - *Average Capacity Factor of 35%*
 - *2 week planned maintenance outages in Spring and Fall*
 - *24-28 hrs to fix forced outages due to tube leaks*
- ◆ **Planning finds the unit is needed for reliability for 3 years until permanent solution can be in place**
 - *MMA finds that this is least cost RMR Generator*
 - *No other gap solutions (Transmission or DR) were identified as viable and sufficient*
- ◆ **EIA data used to estimate emissions and Variable O&M**
- ◆ **Capital expenditures required to make plant viable and compliant with regulations**
- ◆ **Going Forward Cost (GFC) template is used for the example. The actual file is still under development.**

Input Spreadsheet

- The inputs will be shown in sections because of the size of the file
- This is the Administrative Section



Directions: Please fill out all of the Orange Cells. If the value is 0, please insert 0. Add lines to Capacity Costs as needed, filling in one cost per line item.

Confidential Communication -- Market Participant Specific Mitigation Information-- Do not release

	(A). Input	(B). Comment	(C). Documentation Reference
General Unit Information			
1	Owner Operator and / or Billing Organization	American Coal Company	
2	Station Unit	Black Thunder Generating Station	
3	PTID	8675309	
4	Installed Date	6/4/1965	
5	Unit Summer ICAP Capability (MW)	250	Single Unit
6	Unit Winter ICAP Capability (MW)	250	
7	CRIS Adjusted DMNC	250	
8	Date of the Analysis (MM/DD/YYYY)	1/15/2014	
Energy Model Inputs / Physical Parameters			
9	Net Plant Heat Rate (BTU/kWh)(HHV)	12400	
10	Fuel Required to Start	120000	Gas to start unit
11	Mingen	65	
12	EFORd	7.800%	
13	Primary Fuel	Coal	Barge delivery system only, no oil
14	Secondary Fuel, if applicable		
15	Nox Rate (tons/MMBtu)		
16	CO2 Emission Rate (tons/MMBtu)		
17	Sox Emission Rate (tons/MMBtu)		
18	Variable O&M (\$/MWh)	5.15	
19	WACC	6.000%	
20	Age of the Plant	48.62	

Input Spreadsheet (cont)



- ◆ This is the revenue and variable costs section.
- ◆ We are requiring 5 years of historic and 5 years of future plan. Template shows 6 years of both.

	(D). Historical						(E). Projected					
	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Revenues												
21 Energy	\$ 25,500,000	\$ 29,835,000	\$ 12,000,000	\$ 8,000,000	\$ 8,240,000	\$ 15,656,000	\$ 16,125,680	\$ 9,888,000	\$ 8,404,800	\$ 7,144,080	\$ 6,072,468	\$ 5,161,598
22 Ancillary - Spinning and Non-Spinning Reserves	\$ 1,000,000	\$ 1,000,000	\$ 1,000,000	\$ 1,000,000	\$ 1,000,000	\$ 1,000,000	\$ 1,000,000	\$ 750,000	\$ 650,000	\$ 650,000	\$ 650,000	\$ 650,000
23 Ancillary - Regulation	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
24 Ancillary - Voltage Support Service	\$ 750,000	\$ 750,000	\$ 750,000	\$ 750,000	\$ 750,000	\$ 750,000	\$ 750,000	\$ 750,000	\$ 750,000	\$ 750,000	\$ 750,000	\$ 750,000
25 Ancillary - Black Start Service	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
26 Other												
Variable Costs												
27 Fuel (\$/MWhr)	\$ 32.3	\$ 27.7	\$ 27.1	\$ 28.3	\$ 28.3	\$ 29.0	\$ 28.4	\$ 27.9	\$ 27.3	\$ 27.92	\$ 28.56	\$ 29.22
28 NOX (\$/Ton)	\$ 2.00	\$ 2.00	\$ 2.00	\$ 1.68	\$ 1.69	\$ 1.70	\$ 1.96	\$ 2.26	\$ 2.60	\$ 2.66	\$ 2.72	\$ 2.78
29 SO2 (\$/Ton)	\$ 3.00	\$ 3.00	\$ 3.00	\$ 3.43	\$ 3.27	\$ 3.33	\$ 3.16	\$ 3.37	\$ 3.58	\$ 3.67	\$ 3.75	\$ 3.84
30 CO2 (\$/Ton)	\$ 2.00	\$ 2.00	\$ 2.00	\$ 1.93	\$ 2.00	\$ 5.80	\$ 5.80	\$ 6.24	\$ 6.77	\$ 6.92	\$ 7.08	\$ 7.24
31 Startup/Shutdown Gas/Station Light & Power (\$/Start)	\$ 8,005	\$ 8,035	\$ 8,065	\$ 8,095	\$ 8,125	\$ 8,155	\$ 8,343	\$ 8,534	\$ 8,731	\$ 8,932	\$ 9,137	\$ 9,347
32 BOP Maintenance, Materials, Services & Consumables (\$/MWhr)	\$ 3.96	\$ 3.99	\$ 3.99	\$ 4.48	\$ 4.48	\$ 4.99	\$ 4.99	\$ 5.58	\$ 5.58	\$ 5.71	\$ 5.84	\$ 5.97
33 Long Term Service Agreement (LTSA) Variable												
34 Other												

- The values the NYISO developed were based on educated estimates from personnel who had previously worked at plants.
- The items included in each line can be found in the GFC template that is on the MMA page of the website in the ICAP Market Mitigation, Data Submission section
- The information is representative of what the NYISO expects to see.

Input Spreadsheet (cont)



- ◆ Fixed Cost Section
- ◆ 49 Employees is the what this plant will have for labor

		(D). Historical						(E). Projected					
		2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Fixed Costs													
35	Plant Labor	\$ 4,800,000	\$ 4,944,000	\$ 5,092,320	\$ 5,245,090	\$ 5,402,442	\$ 5,564,516	\$ 5,731,451	\$ 5,903,395	\$ 6,080,496	\$ 6,262,911	\$ 6,450,799	\$ 6,644,323
36	Plant Labor - Overtime	\$ 250,000	\$ 257,500	\$ 265,225	\$ 273,182	\$ 281,377	\$ 289,819	\$ 298,513	\$ 307,468	\$ 316,693	\$ 326,193	\$ 335,979	\$ 346,058
37	Contract Labor/Services	\$ 3,500,000	\$ 3,605,000	\$ 3,713,150	\$ 3,824,545	\$ 3,939,281	\$ 4,057,459	\$ 4,179,183	\$ 4,304,559	\$ 4,433,695	\$ 4,566,706	\$ 4,703,707	\$ 4,844,819
38	Labor Benefits	\$ 2,100,000	\$ 2,163,000	\$ 2,227,890	\$ 2,294,727	\$ 2,363,569	\$ 2,434,476	\$ 2,507,510	\$ 2,582,735	\$ 2,660,217	\$ 2,740,024	\$ 2,822,224	\$ 2,906,891
39	Maintenance	\$ 1,500,000	\$ 1,545,000	\$ 1,591,350	\$ 1,639,091	\$ 1,688,263	\$ 1,738,911	\$ 1,791,078	\$ 1,844,811	\$ 1,900,155	\$ 1,957,160	\$ 2,015,875	\$ 2,076,351
40	LTSA Fixed	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
41	Balance of Plant	\$ 400,000	\$ 412,000	\$ 424,360	\$ 437,091	\$ 450,204	\$ 463,710	\$ 477,621	\$ 491,950	\$ 506,708	\$ 521,909	\$ 537,567	\$ 553,694
42	Environmental/Security/Safety	\$ 475,000	\$ 489,250	\$ 503,928	\$ 519,045	\$ 534,617	\$ 550,655	\$ 567,175	\$ 584,190	\$ 601,716	\$ 619,767	\$ 638,360	\$ 657,511
43	Plant Utilities & Aux Load	\$ 950,000	\$ 978,500	\$ 1,007,855	\$ 1,038,091	\$ 1,069,233	\$ 1,101,310	\$ 1,134,350	\$ 1,168,380	\$ 1,203,432	\$ 1,239,535	\$ 1,276,721	\$ 1,315,022
44	Administrative Expense	\$ 240,000	\$ 247,200	\$ 254,616	\$ 262,254	\$ 270,122	\$ 278,226	\$ 286,573	\$ 295,170	\$ 304,025	\$ 313,146	\$ 322,540	\$ 332,216
45	Property Tax Expense	\$ 2,750,000	\$ 2,832,500	\$ 2,917,475	\$ 3,004,999	\$ 3,095,149	\$ 3,188,004	\$ 3,283,644	\$ 3,382,153	\$ 3,483,618	\$ 3,588,126	\$ 3,695,770	\$ 3,806,643
46	Employee Expenses	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
47	Travel & Entertainment	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
48	Office Expense	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
49	Training	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
50	Information Technology	\$ 250,000	\$ 257,500	\$ 265,225	\$ 273,182	\$ 281,377	\$ 289,819	\$ 298,513	\$ 307,468	\$ 316,693	\$ 326,193	\$ 335,979	\$ 346,058
51	Insurance	\$ 750,000	\$ 772,500	\$ 795,675	\$ 819,545	\$ 844,132	\$ 869,456	\$ 895,539	\$ 922,405	\$ 950,078	\$ 978,580	\$ 1,007,937	\$ 1,038,175
52	Lease payments	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
53	Legal	\$ 100,000	\$ 103,000	\$ 106,090	\$ 109,273	\$ 112,551	\$ 115,927	\$ 119,405	\$ 122,987	\$ 126,677	\$ 130,477	\$ 134,392	\$ 138,423
54	Procurement	\$ 100,000	\$ 103,000	\$ 106,090	\$ 109,273	\$ 112,551	\$ 115,927	\$ 119,405	\$ 122,987	\$ 126,677	\$ 130,477	\$ 134,392	\$ 138,423
55	Other (Coal Handling and Stack test in 2009 and 2015)	\$ 2,500,000	\$ 1,339,000	\$ 1,379,170	\$ 1,420,545	\$ 1,463,161	\$ 1,507,056	\$ 2,802,268	\$ 1,598,836	\$ 1,646,801	\$ 1,696,205	\$ 1,747,091	\$ 1,799,504

- The key points on this slide is all the categories that are considered Fixed.
- The information that MPs will submit to justify these values is critical during this stage so that we can arrive at the formulaic rate.

Input Spreadsheet (cont)



- ◆ Capital Expense Section
- ◆ Periodicity/Life of Equipment and Comment section will be on next slide
 - *The more important information is on the next slide*
 - *The detailed plan that is a requirement for the submittal starting the 12 month clock will aid in determining how and what is included in the final numbers*

56 Capital Expense (Description)	2009		2010		2011		2012		2013		2014		2015		2016		2017		
57 Critical Welds	\$	2,300,000	\$	-	\$	2,300,000	\$	-	\$	2,300,000	\$	-	\$	2,300,000	\$	-	\$	-	
58 Water Wall repair	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	20,000,000	\$	20,000,000	\$	-	
59 D8 Bull Dozer for coal pile	\$	-	\$	-	\$	-	\$	950,000	\$	-	\$	-	\$	-	\$	-	\$	1,000,000	
60 Condenser retube	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	12,000,000	\$	-	\$	-	
61 Generator Rewind	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	8,000,000	
62 Turbine Rotor	\$	1,000,000	\$	1,000,000	\$	10,000,000	\$	1,000,000	\$	1,000,000	\$	1,000,000	\$	1,000,000	\$	10,000,000	\$	1,000,000	
63 Controls Upgrade	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	3,000,000	\$	3,000,000	\$	-	
64 Turbine Valve repairs	\$	-	\$	-	\$	3,000,000	\$	-	\$	-	\$	-	\$	-	\$	3,500,000	\$	-	
65 ID and FD fan replacement	\$	600,000	\$	600,000	\$	450,000	\$	450,000	\$	-	\$	600,000	\$	600,000	\$	450,000	\$	450,000	
66 Circulating Water Pump Repair	\$	-	\$	500,000	\$	-	\$	-	\$	500,000	\$	-	\$	500,000	\$	-	\$	-	
67 Traveling Water Screens replacement	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	17,000,000	\$	17,000,000	\$	-	
Coal Handling Equipment	\$	-	\$	4,750,000	\$	-	\$	-	\$	-	\$	-	\$	4,892,500	\$	-	\$	-	
													Total	\$	61,292,500	\$	53,950,000	\$	10,450,000

Input Spreadsheet (cont)



- ◆ Capital Expense Section
- ◆ Periodicity/Life of Equipment and Comment section

Capital Expense (Description)	(F) Periodicity/ Life of equipment	
57 Critical Welds	3	Steam system piping and anchor repairs every year
58 Water Wall repair	20	Water wall tubes have not been replaced in 20 years, outlived their life and numerous tubes blocked or leaking
59 D8 Bull Dozer for coal pile	5	2 bull dozers on pile, cycle is 10 years before we replace the older one
60 Condenser retube	20	Last replced 20 years ago, Eddy current testing is showing extreme wear and numerous tube leaks over the past few years
61 Generator Rewind	25	Every 150,000 hrs we rewind for safety and insurance reasons
62 Turbine Rotor	1	4 year rotation between HP, Then IP and finally LP, wait a year start over
63 Controls Upgrade	10	Every 10 years, update controls due to techno;logy gains and envirmmental changes needed for controlling operations of plant emissions
64 Turbine Valve repairs	4	year before, during and after major that occurs every 6 years
65 ID and FD fan replacement	4	ID fan one year, FD fan the next year, major overhaul
66 Circulating Water Pump Repair	3	Done at each major overhaul
67 Traveling Water Screens replacement	20	Major repair and replacement program, 2 screens on system, 1 done every 6 years
Coal Handling Equipment	5	

- In our example, the Traveling Water Screens is a environmental requirement.

- ◆ **Based on the data submittal**
 - *Number of operating hours per year estimated*
 - Expected outages and maintenances
 - EFORd
 - Number of starts
 - *Variable cost estimates are the product of*
 - Expected hours of operation
 - Capacity factor and UOL
 - Cost to run \$/MWh

	2015	2016	2017
Variable Cost	\$41.02	\$41.50	\$41.51
Run hours	2,455	2,153	2,153

Fixed Costs Estimate

- ◆ As submitted, Fixed Cost for each year is the top row of the table below.
- ◆ Second row is the avoidable fixed costs were determined to be appropriate by NYISO (shown on next slide)
- ◆ Third row is the difference between submitted fixed cost and the NYISO determined avoidable fixed costs.

Fixed *	2015	2016	2017	Avg
Total as Submitted	24.5	23.9	24.7	24.4
After review	14.8	13.8	14.3	14.3
Delta	9.7	10.1	10.4	10.1

*Values in table are shown in Millions of Dollars

Fixed Cost Section after Avoided Applied



If you compare slide 7 to the picture below, you will note that a lot of items went to zero (Maint, LTSA, BOP, Coal handling and Stack Testing, etc), some were reduced (insurance) and legal went up.

Fixed Costs		2015	2016	2017
35	Plant Labor	\$ 5,731,451	\$ 5,903,395	\$ 6,080,496
36	Plant Labor - Overtime	\$ 298,513	\$ 307,468	\$ 316,693
37	Contract Labor/Services	\$ -	\$ -	\$ -
38	Labor Benefits	\$ 1,671,673	\$ 1,721,823	\$ 1,773,478
39	Maintenance	\$ -	\$ -	\$ -
40	LTSA Fixed	\$ -	\$ -	\$ -
41	Balance of Plant	\$ -	\$ -	\$ -
42	Environmental/Security/Safety	\$ -	\$ -	\$ -
43	Plant Utilities & Aux Load	\$ 1,134,350	\$ 1,168,380	\$ 1,203,432
44	Administrative Expense	\$ 286,573	\$ 295,170	\$ 304,025
45	Property Tax Expense	\$ 2,189,096	\$ 2,254,769	\$ 2,322,412
46	Employee Expenses	\$ -	\$ -	\$ -
47	Travel & Entertainment	\$ -	\$ -	\$ -
48	Office Expense	\$ -	\$ -	\$ -
49	Training	\$ -	\$ -	\$ -
50	Information Technology	\$ 298,513	\$ 307,468	\$ 316,693
51	Insurance	\$ 44,777	\$ 46,120	\$ 47,504
52	Lease payments	\$ -	\$ -	\$ -
53	Legal	\$ 250,000	\$ 119,405	\$ 122,987
54	Procurement	\$ 119,405	\$ 122,987	\$ 126,677
55	Other (Coal Handling and Stack test in 2009 and 2015)	\$ 2,802,268	\$ 1,598,836	\$ 1,646,801

Capital Cost Development



- ◆ As submitted on Slide 8 Capital Cost for the following years is the top row.
- ◆ Second row is the values after the eligible Capital expenditures were determined by the NYISO (shown on Next Slide)
- ◆ Third row is the delta between submitted and eligible

Capital*	2015	2016	2017	Avg
Total as Submitted	61.3	54.0	10.5	41.9
After review	39.3	15.5	7.5	20.7
Delta	22.0	38.5	3.0	21.2

*Values in table are shown in Millions of Dollars

Capital Cost Section after Avoided Applied



If you compare slide 8 to the picture below, you will note that a lot of items were decreased or changed based on discussions.

Capital Expense (Description)	2015	2016	2017
Critical Welds	\$ 2,300,000	\$ -	\$ -
Water Wall repair	\$ 8,000,000	\$ 2,000,000	\$ 2,000,000
D8 Bull Dozer for coal pile	\$ -	\$ -	\$ 1,000,000
Condenser retube	\$ 4,000,000	\$ 2,000,000	\$ 2,000,000
Generator Rewind	\$ -	\$ -	\$ -
Turbine Rotor Tune-up	\$ 2,000,000	\$ 1,000,000	\$ 2,000,000
Controls Upgrade	\$ -	\$ -	\$ -
Turbine Valve repairs	\$ -	\$ -	\$ -
ID and FD fan replacement	\$ 600,000	\$ 450,000	\$ 450,000
Circulating Water Pump Repair	\$ 500,000	\$ -	\$ -
Traveling Water Screens replacement	\$ 17,000,000	\$ 10,000,000	\$ -
Coal Handling Equipment	\$ 4,892,500	\$ -	\$ -
Total	\$ 39,292,500	\$ 15,450,000	\$ 7,450,000

Capital Cost Accelerated Recovery



- Once we know what the Capital costs are, and we have the depreciation or life of the item(s), the annualized cost recovery values can be determined, as well as the annual depreciation value(s).
- The chart below shows what the accelerated values are for each of the capital expenditure items we evaluated.

Capital Expense (Description)	Replacement period	CapEx Accelerated Recovery Period	Cumulative Capital Expense
Critical Welds	3	3	\$2,435,243
Water Wall repair	20	3	\$12,352,808
D8 Bull Dozer for coal pile	5	3	\$942,329
Condenser retube	20	3	\$8,117,603
Generator Rewind	25	3	\$0
Turbine Rotor Tune-up	1	3	\$5,001,131
Controls Upgrade	10	3	\$0
Turbine Valve repairs	4	3	\$0
ID and FD fan replacement	4	3	\$1,508,820
Circulating Water Pump Repair	3	3	\$529,401
Traveling Water Screens replacement	20	3	\$27,988,315
Coal Handling Equipment	5	3	\$5,180,186
Total			\$64,055,836