	1	2	3	4	5	6	7	8	11	12	15	16	1
SCENARIO:	Status Quo Case 0.28% S, Unit 1	Status Quo Case 0.28% S, Unit 2	No Equipment Installed 0.7% S, Unit 1	No Equipment Installed 0.7% S, Unit 2	No Equipment Installed 1.0% S, Unit 1	No Equipment Installed 1.0% S, Unit 2	Wet FGD 0.28% Sulfur Fuel, Unit 1	Wet FGD 0.28% Sulfur Fuel, Unit 2	Wet FGD 0.7% Sulfur Fuel, Unit 1	Wet FGD 0.7% Sulfur Fuel, Unit 2	Wet FGD 1.0% Sulfur Fuel, Unit 1	Wet FGD 1.0% Sulfur Fuel, Unit 2	2
	Unit 1	Unit 2	Unit 1	Unit 2	Unit 1	Unit 2	Unit 1	Unit 2	Unit 1	Unit 2	Unit 1	Unit 2	3
Pollutant System Which Sets First Year of Analysis	None	None	None	None	None	None	SO2	SO2	SO2	SO2	SO2	SO2	4
													5
Date Analysis Begins	2016	2016	2016	2016	2016	2016	2016	2016	2016	2016	2016	2016	6
													7
General													8
Gross Capacity (MW)	705	745	705	745	705	745	705	745	705	745	705	745	9
Net Capacity (MW)	665	700	665	700	665	700	665	700	665	700	665	700	10
Auxiliary Power (MW)	40	45	40	45	40	45	40	45	40	45	40	45	11
Net Plant Heat Rate (Btu/kWh)	10,448	10,067	10,448	10,067	10,448	10,067	10,448	10,067	10,448	10,067	10,448	10,067	12
URGE Heat Input to Boiler (mmBtu/hr)	6948.0	7047.0	6948.0	7047.0	6948.0	7047.0	6948.0	7047.0	6948.0	7047.0	6948.0	7047.0	13
Annual Heat Input to Boiler (mmBtu/yr)	60,864,480	61,731,720	60,864,480	61,731,720	60,864,480	61,731,720	60,864,480	61,731,720	60,864,480	61,731,720	60,864,480	61,731,720	14
Fuel sulfur percentage	0.28%	0.28%	0.70%	0.70%	1.00%	1.00%	0.28%	0.28%	0.70%	0.70%	1.00%	1.00%	15
Annual Capacity Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	16
													17
SO2 Emission													18
Control Technology (Type)	None	None	None	None	None	None	Wet FGD Absorber	Wet FGD Absorber	Wet FGD Absorber	Wet FGD Absorber	Wet FGD Absorber	Wet FGD Absorber	19
Control Efficiency (%)	15%	15%	15%	15%	15%	15%	97%	97%	97%	97%	98%	98%	20
Include SOX allowance costs/inventories in the economics? (Y/N)	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	21
Uncontrolled Rate (lb/mmBtu)	0.667	0.667	1.748	1.748	2.266	2.266	0.667	0.667	1.748	1.748	2.266	2.266	22
Controlled Rate (lb/mmBtu)	0.567	0.567	1.486	1.486	1.926	1.926	0.019	0.020	0.050	0.052	0.045	0.045	23
Annual Emission (tpy)	17,245	17,491	45,214	45,858	58,616	59,452	580	617	1,520	1,619	1,379	1,399	24
Annual Removed (tpy)	3,043	3,087	7,979	7,979	10,344	10,344	19,708	19,689	51,673	52,532	67,581	68,544	25
Allowance Equivalent Available (tpy)	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	26
Allowances Equivalent Used (tpy)	17,245	17,491	45,214	45,858	58,616	59,452	580	617	1,520	1,619	1,379	1,399	27
Allowances Equivalent Sold (+)/Bought (-) (tpy)	(3,493)	(3,739)	(31,462)	(32,107)	(44,865)	(45,700)	13,172	13,134	12,232	12,133	12,372	12,353	28
													29
Capital costs													64
SO2 Control, Direct Cost ($)	$0	$0	$0	$0	$0	$0	$272,480,000	$272,480,000	$272,480,000	$272,480,000	$272,480,000	$272,480,000	65
SO2 Control, Indirect Cost ($)	$0	$0	$0	$0	$0	$0	$76,877,000	$76,877,000	$76,877,000	$76,877,000	$76,877,000	$76,877,000	66
SO2 Control, Escalation ($)	$0	$0	$0	$0	$0	$0	$47,280,500	$39,783,500	$47,280,500	$39,783,500	$47,280,500	$39,783,500	67
SO2 Control, Sales/Use Tax ($) (incl. above)	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	68
SO2 Control, Contingency Cost ($)	$0	$0	$0	$0	$0	$0	$79,328,000	$77,828,000	$79,328,000	$77,828,000	$79,328,000	$77,828,000	69
SO2 Control, AFUDC ($)	$0	$0	$0	$0	$0	$0	$52,313,500	$51,316,500	$52,313,500	$51,316,500	$52,313,500	$51,316,500	70
Additional weeks of outage for installation	0	0	0	0	0	0	0	0	0	0	0	0	71
Months: start of engineering --> COD	0	0	0	0	0	0	14	14	14	14	14	14	72
Operational Commercial Operation Date (year)	2016	2016	2016	2016	2016	2016	2016	2016	2016	2016	2016	2016	73
													74
Fixed O&M (First Year)													109
Annual SO2 Control Maintenance, Material, and Labor ($)							3,000,000	3,000,000	3,000,000	3,000,000	3,000,000	3,000,000	110
Staff Needed for SO2 Control (#)							9.5	9.5	9.5	9.5	9.5	9.5	111
Annual Aux Power System Control Maintenance, Material, and Labor ($)							60,000	60,000	60,000	60,000	60,000	60,000	120
Staff Needed for Aux Power System (#)							0.5	0.5	0.5	0.5	0.5	0.5	121
													122
Consumables/Products													123
Limestone (tpy)	0	0	0	0	0	0	44,575	45,216	93,079	94,407	120,468	122,158	124
Lime (tpy)	0	0	0	0	0	0	0	0	0	0	0	0	125
Brominated Activated Carbon (tpy)	0	0	0	0	0	0	0	0	0	0	0	0	126
Urea (tpy)	0	0	0	0	0	0	0	0	0	0	0	0	127
Water (1000 gallons/yr) for SO2 system	0	0	0	0	0	0	517,160	536,112	532,433	551,354	528,754	547,150	128
Water (1000 gallons/yr) for NOx system	0	0	0	0	0	0	0	0	0	0	0	0	129
Power due to SO_2 Removal (MW)	0	0	0	0	0	0	13.7	13.7	15.8	15.8	15.8	15.8	130
Power due to Mercury Removal (MW)	0	0	0	0	0	0	0	0	0	0	0	0	131
Power due to NO_x Removal (MW)	0	0	0	0	0	0	0	0	0	0	0	0	132
Power from Particulate Control Equipment (MW)	0	0	0	0	0	0	0	0	0	0	0	0	133
Bags (not a function of capacity factor)	16474	16474	16474	16474	16474	16474	16474	16474	16474	16474	16474	16474	134
Bag Life (years)													135
Cages (not a function of capacity factor)													136
Fly Ash - Sold (tpy)	68,625	69,603	70,833	71,842	69,787	70,761	68,501	69,476	70,849	71,856	69,787	70,781	137
Fly Ash - Landfilled (tpy)	68,625	69,603	70,833	71,842	69,787	70,761	68,501	69,476	70,849	71,856	69,787	70,781	138
Availability Penalty (MW-hr/yr)							0	0	0	0	0	0	139
Catalyst m3 per year (not a function of capacity factor)							0	0	0	0	0	0	140
Solid Waste - Sold (tpy)							0	0	0	0	0	0	141
Solid Waste - Landfilled (tpy)							0	0	0	0	0	0	142
Gypsum - Sold (tpy)							0	0	0	0	0	0	143
Gypsum - Landfilled (tpy)							79,716	80,865	167,478	169,861	217,090	220,167	144
Heat Rate Degradation							0	0	0	0	0	0	145
Fuel Additive (gallons/yr)							0	0	0	0	0	0	146

Pro Forma Financial Model
NPPD Multi-Pollutant Removal Study
Economic Input Data

Sargent & Lundy LLC

Economic Parameters

Interest rate for construction financing	0.00%	(zero because now is in the capex estimate)
Interest rate for discounting	5.25%	
Interest rate for permanent debt	5.25%	
Owners' costs (adder to capital investment)	0.0%	(zero because now is in the capex estimate)
Sales tax applied to materials costs	0.00%	(zero because now is in the capex estimate)
Insurance, % of initial cost	0.000%	
Property tax rate, %	0.00%	
Escalation rate for capital costs	0.00%	(zero because now is in the capex estimate)
Fuel cost escalation rate	2.50%	
Maintenance cost escalation rate (labor + mat'l)	2.50%	
Base year for escalation, except coal	2011	
Base year for coal cost escalation	2011	
Year Hg allowances are first required	2016	

Schedule and Capacity Factor

Number of years in financial analysis	20
Final operating year in revenue req't analysis	2036
Construction spending lead time for DFGD, months	16
Construction spending lead time for WFGD, months	16
Capacity factor, %	80%

Prices

	Units	Base Price	Esc., %/yr	
Limestone	$/ton	$26.00	2.50%	(updated cost)
Lime (90% available CaO)	$/ton	$95.00	2.50%	
Powdered activated carbon	$/ton	$1,000	2.50%	(updated cost)
Brominated activated carbon	$/ton	$2,000	2.50%	
Fuel additive	$/gallon	$17.50	2.50%	
Urea	$/ton	$400.00	2.50%	(updated cost)
Dibasic acid	$/ton	$0.00	2.50%	
Water	$/1000 gallons	$1.00	2.50%	
SO_2 reduction agent (Na_2CO_3)	$/ton	$0.00	2.50%	
Power: energy charge (outage extension)	$/MWh	$31.90	2.50%	
Power: energy charge (aux. power))	$/MWh	$45.65	2.50%	
Power: capacity charge	$/kW/year	$46.00	2.50%	
Catalyst	$/cubic meter	$7,000	2.50%	
Bags	$/bag	$157	2.50%	
Bag change-out frequency, WFGD	years between changes	7		
Bag change-out frequency, DFGD	years between changes	5		
Cages	$/bag	$0	2.50%	
Cage change-out frequency, WFGD	years between changes	7		
Cage change-out frequency, DFGD	years between changes	5		
Bag change-out labor	$/bag	$15		(esc. like bag cost)
Flyash sell price	$/ton	$1.35	2.50%	
Flyash landfill cost	$/ton	$5.00	2.50%	
Solid waste sell price	$/ton	$0.00	2.50%	
Solid waste landfill cost	$/ton	$5.00	2.50%	
Gypsum sell price	$/ton	$0.00	2.50%	
Gypsum landfill cost	$/ton	$5.00	2.50%	
NOX allowance cost	$/ton	$0.00	2.50%	
Staff cost per man-hour today	$/man-hour	$40.60	2.50%	
Frequency of boiler upgrade spending	years between spending	0	2.50%	

Emissions Prior To Installation of Pollution Control Equipment

		Unit 1, 1.00%S	Unit 2, 1.00%S	Unit 1, 0.70%S	Unit 2, 0.70%S	Unit 1, 0.28%S	Unit 2, 0.28%S
Flyash sales	tpy	69,767	70,761	70,833	71,842	68,625	69,603
Flyash landfill quantity	tpy	69,767	70,761	70,833	71,842	68,625	69,603
SOX emissions, uncontrolled	tpy	68,960	69,943	53,193	53,951	20,288	20,577
NOX emissions, uncontrolled	tpy	6,999	7,099	6,999	7,099	6,999	7,099
Hg emissions, uncontrolled	oz./year	12,137	12,310	13,186	13,374	12,753	12,934

Allowances

	SOX (tons)		Hg (oz.)	
Year	tons / unit	factor	oz. / unit	factor
2012	13,752	1.00	0	1.0000
2014	13,752	1.00	0	1.0000
2020	13,752	1.00	0	1.0000
2025	13,752	1.00	0	1.0000

Sargent & Lundy LLC

Pro Forma Financial Model
NPPD Multi-Pollutant Removal Study

Summary of Results
BASE

Case	1	2	3	4	5	6	7	8	11	12	15	16
	Levelized Annual Revenue Requirement Over 20 Years											
Pollutant							SO2					
Equipment Option	Status Quo		No Eqp't Installed				WFGD		WFGD		WFGD	
Unit	Unit 1	Unit 2	Unit 1	Unit 2	Unit 1	Unit 2	Unit 1	Unit 2	Unit 1	Unit 2	Unit 1	Unit 2
Coal Sulfur Percentage	0.28%	0.28%	0.70%	0.70%	1.00%	1.00%	0.28%	0.28%	0.70%	0.70%	1.00%	1.00%
Year For Start of Levelizing	2016	2016	2016	2016	2016	2016	2016	2016	2016	2016	2016	2016
Investment cost, level $1000s/yr	$0	$0	$0	$0	$0	$0	$42,115	$41,318	$42,115	$41,318	$42,115	$41,318
Purchased power (outage extension)	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
O&M, level $1000s												
SOX fixed	$0	$0	$0	$0	$0	$0	$5,319	$5,319	$5,319	$5,319	$5,319	$5,319
SOX variable	$0	$0	$0	$0	$0	$0	$9,178	$9,224	$12,125	$12,199	$13,196	$13,283
NOX fixed	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
NOX variable	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Hg fixed	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Hg variable	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Particulate fixed	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Particulate variable	$803	$807	$812	$816	$807	$811	$802	$806	$812	$816	$807	$811
Allowances purch. (+) / sold (-)												
SOX	$33	$177	$16,431	$16,808	$24,288	$24,778	($9,738)	($9,716)	($9,187)	($9,129)	($9,269)	($9,258)
Hg	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Fuel, level $1000s	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Total level $1000s	$835	$983	$17,242	$17,624	$25,096	$25,589	$47,676	$46,951	$51,184	$50,522	$52,168	$51,474
Change from status quo, level $1000s	Base	Base	Base	Base	Base	Base	$46,841	$45,968	$50,349	$49,539	$51,333	$50,490
% change from status quo							5609%	4675%	6029%	5038%	6146%	5135%
Total Removal Cost, Level $/MWh	$0.18	$0.20	$3.70	$3.59	$5.38	$5.22	$10.23	$9.57	$10.98	$10.30	$11.19	$10.49

	Removal Costs in $/Ton SO2 Removed					
Investment	**$2,671**	**$2,624**	**$1,019**	**$987**	**$779**	**$753**
Purchased power	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**
Fixed O&M	**$337**	**$338**	**$129**	**$127**	**$98**	**$97**
Variable O&M	**$582**	**$586**	**$293**	**$291**	**$244**	**$242**
Total	**$3,591**	**$3,548**	**$1,441**	**$1,405**	**$1,121**	**$1,093**

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Question 1

Pro Forma Financial Model
NPPD Multi-Pollutant Removal Study
Revenue Requirement Determination

Sargent & Lundy LLC

Case 1: Status Quo Case 0.28% S, Unit 1

	NPV RR	Levelized	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Analysis Year			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Calendar Year			2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Discount factor			0.9501	0.9027	0.8577	0.8149	0.7743	0.7356	0.6989	0.6641	0.6310	0.5996	0.5696	0.5412	0.5142	0.4885	0.4642	0.4410	0.4190	0.3981	0.3783	0.3594
Capacity factor			80.00%	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%
Energy production, GWh (with NPV) 1	58,458		4,660	4,660	4,660	4,660	4,660	4,660	4,660	4,660	4,660	4,660	4,660	4,660	4,660	4,660	4,660	4,660	4,660	4,660	4,660	4,660
Available SOX allowances, tons			13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752
SOX allowance surrender rate			1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Equivalent available SOX allowances, tons			13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752
Equivalent SOX allowances used, tons (i.e., emissions)			(13,796)	(13,796)	(13,796)	(13,796)	(13,796)	(13,796)	(13,796)	(13,796)	(13,796)	(13,796)	(13,796)	(13,796)	(13,796)	(13,796)	(13,796)	(13,796)	(13,796)	(13,796)	(13,796)	(13,796)
Equivalent SOX allowances sold(+)/bought(-)			(44)	(44)	(44)	(44)	(44)	(44)	(44)	(44)	(44)	(44)	(44)	(44)	(44)	(44)	(44)	(44)	(44)	(44)	(44)	(44)
Tons SOX removed			2,435	2,435	2,435	2,435	2,435	2,435	2,435	2,435	2,435	2,435	2,435	2,435	2,435	2,435	2,435	2,435	2,435	2,435	2,435	2,435
Available Hg allowances, oz.			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hg allowance surrender rate			1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Equivalent available Hg allowances, oz.			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hg allowances used, oz. (i.e., emissions)			(10,549)	(10,549)	(10,549)	(10,549)	(10,549)	(10,549)	(10,549)	(10,549)	(10,549)	(10,549)	(10,549)	(10,549)	(10,549)	(10,549)	(10,549)	(10,549)	(10,549)	(10,549)	(10,549)	(10,549)
Hg allowances sold(+)/bought(-)			(10,548)	(10,548)	(10,548)	(10,548)	(10,548)	(10,548)	(10,548)	(10,548)	(10,548)	(10,548)	(10,548)	(10,548)	(10,548)	(10,548)	(10,548)	(10,548)	(10,548)	(10,548)	(10,548)	(10,548)
Ounces Hg removed			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tons NOX removed			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tons particulates removed			109,800	109,800	109,800	109,800	109,800	109,800	109,800	109,800	109,800	109,800	109,800	109,800	109,800	109,800	109,800	109,800	109,800	109,800	109,800	109,800
SOX allowance cost, $/ton (escalated values)			$1,000	$1,000	$1,500	$1,500	$1,500	$1,300	$1,100	$900	$700	$500	$300	$100	$100	$100	$100	$100	$100	$100	$100	$100
Hg allowance cost, $/oz (escalated values)			$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Control system operating period masks																						
SOX			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Hg			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
NOX			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Particulates			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Fixed charge rates																						
SOX			10.25%	9.99%	9.73%	9.48%	9.20%	8.94%	8.68%	8.41%	8.15%	7.89%	7.63%	7.36%	7.10%	6.84%	6.58%	6.31%	6.05%	5.79%	5.53%	5.26%
Hg			10.25%	9.99%	9.73%	9.48%	9.20%	8.94%	8.68%	8.41%	8.15%	7.89%	7.63%	7.36%	7.10%	6.84%	6.58%	6.31%	6.05%	5.79%	5.53%	5.26%
NOX			10.25%	9.99%	9.73%	9.48%	9.20%	8.94%	8.68%	8.41%	8.15%	7.89%	7.63%	7.36%	7.10%	6.84%	6.58%	6.31%	6.05%	5.79%	5.53%	5.26%
Particulates			10.25%	9.99%	9.73%	9.48%	9.20%	8.94%	8.68%	8.41%	8.15%	7.89%	7.63%	7.36%	7.10%	6.84%	6.58%	6.31%	6.05%	5.79%	5.53%	5.26%
Total																						
Fixed charges on investment, $1000s	**NPV RR**	**Levelized**																				
SOX	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Hg	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
NOX	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Particulates	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Total	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Extended outage purch power, $1000s																						
SOX	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Hg	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
NOX	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Particulates	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Total	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Fixed O&M expense, $1000s																						
For SOX control:																						
Maintenance (labor + mat'l)	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Operating labor	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
For Hg control:																						
Maintenance (labor + mat'l)	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Operating labor	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
For NOX control:																						
Maintenance (labor + mat'l)	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Operating labor	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Total fixed O&M cost	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Variable O&M expense, $1000s																						
For SOX control:																						
Limestone	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Lime (90% available CaO)	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Dibasic acid	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Water for SOX removal	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
SO_3 reduction agent (Na_2CO_3)	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Solid waste sales revenue	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Solid waste landfill cost	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Gypsum sales revenue	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Gypsum landfill cost	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Purchases (+) or sales (-) of allowances	$409	$33	$44	$44	$67	$67	$67	$68	$49	$40	$31	$22	$13	$4	$4	$4	$4	$4	$4	$4	$4	$4
Aux. power, energy charge	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Aux. power, capacity charge	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
For Hg control:																						
Powdered activated carbon	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Brominated activated carbon	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Fuel additive	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Purchases (+) or sales (-) of allowances	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Aux. power, energy charge	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Aux. power, capacity charge	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
For NOX control:																						
Urea	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Catalyst	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Water for NOX removal	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Purchases (+) or sales (-) of allowances	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Aux. power, energy charge	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Aux. power, capacity charge	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
For particulate control:																						
Bags	$8,551	$522	$0	$0	$0	$0	$0	$0	$3,718	$0	$0	$0	$0	$0	$0	$4,410	$0	$0	$0	$0	$0	$0
Cages	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Flyash sales	($1,300)	($104)	($84)	($86)	($88)	($90)	($93)	($95)	($97)	($100)	($102)	($105)	($107)	($110)	($113)	($116)	($118)	($121)	($124)	($128)	($131)	($134)
Flyash landfill cost	$4,817	$384	$311	$318	$326	$334	$343	$351	$360	$369	$378	$388	$398	$407	$418	$428	$439	$450	$461	$473	$484	$496
Aux. power, energy charge	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Aux. power, capacity charge	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Total variable O&M cost	$10,476	$835	$271	$277	$305	$311	$317	$314	$4,030	$309	$307	$305	$304	$302	$309	$4,736	$325	$333	$341	$349	$358	$367
Fuel expense, $1000	$0	$0																				
Total revenue requirement, $1000s	$10,476	$835	$271	$277	$305	$311	$317	$314	$4,030	$309	$307	$305	$304	$302	$309	$4,736	$325	$333	$341	$349	$358	$367
Summary Revenue Requirements	**NPV RR**	**Levelized**																				
Investment cost	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Extended outage purchased power	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Fixed O&M	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Variable O&M w/o allowances or aux. pwr.	$10,067	$803	$227	$232	$238	$244	$250	$257	$3,981	$269	$276	$283	$290	$297	$305	$4,732	$320	$328	$337	$346	$354	$362
Auxiliary power, energy charge	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Auxiliary power, capacity charge	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Allowances	$409	$33	$44	$44	$67	$67	$67	$68	$49	$40	$31	$22	$13	$4	$4	$4	$4	$4	$4	$4	$4	$4
Fuel	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Total	$10,476	$835	$271	$277	$305	$311	$317	$314	$4,030	$309	$307	$305	$304	$302	$309	$4,736	$325	$333	$341	$349	$358	$367

NPPDRH114_0000898

ED_005798_00000158-00004

Question 1

Pro Forma Financial Model
NPPD Multi-Pollutant Removal Study
Revenue Requirement Determination

Sargent & Lundy LLC

Case 2: Status Quo Case 0.28% S, Unit 2

Analysis Year			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Calendar Year			2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Discount factor			0.9501	0.9027	0.8577	0.8149	0.7743	0.7356	0.6989	0.6641	0.6310	0.5996	0.5696	0.5412	0.5142	0.4885	0.4642	0.4410	0.4190	0.3981	0.3783	0.3594
Capacity factor			80.00%	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%
Energy production, GWh (with NPV)		61,534	4,906	4,906	4,906	4,906	4,906	4,906	4,906	4,906	4,906	4,906	4,906	4,906	4,906	4,906	4,906	4,906	4,906	4,906	4,906	4,906
Available SOX allowances, tons			13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752
SOX allowance surrender rate			1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Equivalent available SOX allowances, tons			13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752
Equivalent SOX allowances used, tons (i.e., emissions)			(13,993)	(13,993)	(13,993)	(13,993)	(13,993)	(13,993)	(13,993)	(13,993)	(13,993)	(13,993)	(13,993)	(13,993)	(13,993)	(13,993)	(13,993)	(13,993)	(13,993)	(13,993)	(13,993)	(13,993)
Equivalent SOX allowances sold(+)/bought(-)			(241)	(241)	(241)	(241)	(241)	(241)	(241)	(241)	(241)	(241)	(241)	(241)	(241)	(241)	(241)	(241)	(241)	(241)	(241)	(241)
Tons SOX removed			2,469	2,469	2,469	2,469	2,469	2,469	2,469	2,469	2,469	2,469	2,469	2,469	2,469	2,469	2,469	2,469	2,469	2,469	2,469	2,469
Available Hg allowances, oz.			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hg allowance surrender rate			1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Equivalent available Hg allowances, oz.			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hg allowances used, oz. (i.e., emissions)			(10,699)	(10,699)	(10,699)	(10,699)	(10,699)	(10,699)	(10,699)	(10,699)	(10,699)	(10,699)	(10,699)	(10,699)	(10,699)	(10,699)	(10,699)	(10,699)	(10,699)	(10,699)	(10,699)	(10,699)
Hg allowances sold(+)/bought(-)			(10,698)	(10,698)	(10,698)	(10,698)	(10,698)	(10,698)	(10,698)	(10,698)	(10,698)	(10,698)	(10,698)	(10,698)	(10,698)	(10,698)	(10,698)	(10,698)	(10,698)	(10,698)	(10,698)	(10,698)
Ounces Hg removed			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tons NOX removed			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tons particulates removed			111,364	111,364	111,364	111,364	111,364	111,364	111,364	111,364	111,364	111,364	111,364	111,364	111,364	111,364	111,364	111,364	111,364	111,364	111,364	111,364
SOX allowance cost, $/ton (escalated values)			$1,000	$1,000	$1,500	$1,500	$1,500	$1,300	$1,100	$900	$700	$500	$300	$100	$100	$100	$100	$100	$100	$100	$100	$100
Hg allowance cost, $/oz (escalated values)			$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Control system operating period masks																						
SOX			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Hg			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
NOX			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Particulates			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Fixed charge rates																						
SOX			10.25%	9.99%	9.73%	9.48%	9.20%	8.94%	8.68%	8.41%	8.15%	7.89%	7.63%	7.36%	7.10%	6.84%	6.58%	6.31%	6.05%	5.79%	5.53%	5.26%
Hg			10.25%	9.99%	9.73%	9.48%	9.20%	8.94%	8.68%	8.41%	8.15%	7.89%	7.63%	7.36%	7.10%	6.84%	6.58%	6.31%	6.05%	5.79%	5.53%	5.26%
NOX			10.25%	9.99%	9.73%	9.48%	9.20%	8.94%	8.68%	8.41%	8.15%	7.89%	7.63%	7.36%	7.10%	6.84%	6.58%	6.31%	6.05%	5.79%	5.53%	5.26%
Particulates			10.25%	9.99%	9.73%	9.48%	9.20%	8.94%	8.68%	8.41%	8.15%	7.89%	7.63%	7.36%	7.10%	6.84%	6.58%	6.31%	6.05%	5.79%	5.53%	5.26%
Total																						
Fixed charges on investment, $1000s	**NPV RR**	**Levelized**																				
SOX	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Hg	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
NOX	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Particulates	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Total	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Extended outage purch power, $1000s																						
SOX	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Hg	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
NOX	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Particulates	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Total	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Fixed O&M expense, $1000s																						
For SOX control:																						
Maintenance (labor + mat'l)	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Operating labor	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
For Hg control:																						
Maintenance (labor + mat'l)	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Operating labor	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
For NOX control:																						
Maintenance (labor + mat'l)	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Operating labor	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Total fixed O&M cost	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**
Variable O&M expense, $1000s																						
For SOX control:																						
Limestone	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Lime (90% available CaO)	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Dibasic acid	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Water for SOX removal	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
SO_3 reduction agent (Na_2CO_3)	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Solid waste sales revenue	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Solid waste landfill cost	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Gypsum sales revenue	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Gypsum landfill cost	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Purchases (+) or sales (-) of allowances	$2,216	$177	$241	$241	$362	$362	$362	$313	$265	$217	$169	$121	$72	$24	$24	$24	$24	$24	$24	$24	$24	$24
Aux. power, energy charge	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Aux. power, capacity charge	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
For Hg control:																						
Powdered activated carbon	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Brominated activated carbon	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Fuel additive	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Purchases (+) or sales (-) of allowances	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Aux. power, energy charge	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Aux. power, capacity charge	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
For NOX control:																						
Urea	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Catalyst	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Water for NOX removal	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Purchases (+) or sales (-) of allowances	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Aux. power, energy charge	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Aux. power, capacity charge	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
For particulate control:																						
Bags	$6,551	$522	$0	$0	$0	$0	$0	$0	$3,718	$0	$0	$0	$0	$0	$0	$4,410	$0	$0	$0	$0	$0	$0
Cages	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Flyash sales	($1,319)	($105)	($85)	($87)	($89)	($92)	($94)	($96)	($99)	($101)	($104)	($106)	($109)	($112)	($114)	($117)	($120)	($123)	($126)	($129)	($133)	($136)
Flyash landfill cost	$4,885	$389	$315	$323	$331	$339	$348	$356	$365	$374	$384	$393	$402	$413	$424	$434	$445	$456	$468	$479	$491	$504
Aux. power, energy charge	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Aux. power, capacity charge	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Total variable O&M cost	**$12,333**	**$983**	**$471**	**$477**	**$603**	**$609**	**$615**	**$573**	**$4,250**	**$490**	**$449**	**$408**	**$367**	**$326**	**$333**	**$4,760**	**$349**	**$357**	**$365**	**$374**	**$383**	**$392**
Fuel expense, $1000	**$0**	**$0**																				
Total revenue requirement, $1000s	**$12,333**	**$983**	**$471**	**$477**	**$603**	**$609**	**$615**	**$573**	**$4,250**	**$490**	**$449**	**$408**	**$367**	**$326**	**$333**	**$4,760**	**$349**	**$357**	**$365**	**$374**	**$383**	**$392**
Summary Revenue Requirements	**NPV RR**	**Levelized**																				
Investment cost	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Extended outage purchased power	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Fixed O&M	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Variable O&M w/o allowances or aux. pwr.	$10,118	$807	$230	$236	$242	$248	$254	$260	$3,985	$273	$280	$287	$294	$302	$309	$4,736	$325	$333	$341	$350	$359	$368
Auxiliary power, energy charge	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Auxiliary power, capacity charge	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Allowances	$2,216	$177	$241	$241	$302	$362	$362	$313	$265	$217	$169	$121	$72	$24	$24	$24	$24	$24	$24	$24	$24	$24
Fuel	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Total	$12,333	$983	$471	$477	$603	$609	$615	$573	$4,250	$490	$449	$408	$367	$326	$333	$4,760	$349	$357	$365	$374	$383	$392

NPPDRH114_0000899

ED_005798_00000158-00005

Pro Forma Financial Model
NPPD Multi-Pollutant Removal Study
Revenue Requirement Determination

Case 3: No Equipment Installed 0.7% S, Unit 1

Analysis Year			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Calendar Year			2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Discount factor			0.9501	0.9027	0.8577	0.8149	0.7743	0.7356	0.6989	0.6641	0.6310	0.5996	0.5696	0.5412	0.5142	0.4885	0.4642	0.4410	0.4190	0.3981	0.3783	0.3594
Capacity factor			80.00%	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%
Energy production, GWh (with NPV)	1	58,458	4,660	4,660	4,660	4,660	4,660	4,660	4,660	4,660	4,660	4,660	4,660	4,660	4,660	4,660	4,660	4,660	4,660	4,660	4,660	4,660
Available SOX allowances, tons			13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752
SOX allowance surrender rate			1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Equivalent available SOX allowances, tons			13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752
Equivalent SOX allowances used, tons (i.e., emissions)			(36,171)	(36,171)	(36,171)	(36,171)	(36,171)	(36,171)	(36,171)	(36,171)	(36,171)	(36,171)	(36,171)	(36,171)	(36,171)	(36,171)	(36,171)	(36,171)	(36,171)	(36,171)	(36,171)	(36,171)
Equivalent SOX allowances sold(+)/bought(-)			(22,420)	(22,420)	(22,420)	(22,420)	(22,420)	(22,420)	(22,420)	(22,420)	(22,420)	(22,420)	(22,420)	(22,420)	(22,420)	(22,420)	(22,420)	(22,420)	(22,420)	(22,420)	(22,420)	(22,420)
Tons SOX removed			6,383	6,383	6,383	6,383	6,383	6,383	6,383	6,383	6,383	6,383	6,383	6,383	6,383	6,383	6,383	6,383	6,383	6,383	6,383	6,383
Available Hg allowances, oz.			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hg allowance surrender rate			1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Equivalent available Hg allowances, oz.			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hg allowances used, oz. (i.e., emissions)			(10,549)	(10,549)	(10,549)	(10,549)	(10,549)	(10,549)	(10,549)	(10,549)	(10,549)	(10,549)	(10,549)	(10,549)	(10,549)	(10,549)	(10,549)	(10,549)	(10,549)	(10,549)	(10,549)	(10,549)
Hg allowances sold(+)/bought(-)			(10,548)	(10,548)	(10,548)	(10,548)	(10,548)	(10,548)	(10,548)	(10,548)	(10,548)	(10,548)	(10,548)	(10,548)	(10,548)	(10,548)	(10,548)	(10,548)	(10,548)	(10,548)	(10,548)	(10,548)
Ounces Hg removed			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tons NOX removed			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tons particulates removed			113,332	113,332	113,332	113,332	113,332	113,332	113,332	113,332	113,332	113,332	113,332	113,332	113,332	113,332	113,332	113,332	113,332	113,332	113,332	113,332
SOX allowance cost, $/ton (escalated values)			$1,000	$1,000	$1,500	$1,500	$1,500	$1,300	$1,100	$900	$700	$500	$300	$100	$100	$100	$100	$100	$100	$100	$100	$100
Hg allowance cost, $/oz (escalated values)			$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Control system operating period masks																						
SOX			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Hg			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
NOX			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Particulates			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Fixed charge rates																						
SOX			10.25%	9.99%	9.73%	9.48%	9.20%	8.94%	8.68%	8.41%	8.15%	7.89%	7.63%	7.36%	7.10%	6.84%	6.58%	6.31%	6.05%	5.79%	5.53%	5.26%
Hg			10.25%	9.99%	9.73%	9.48%	9.20%	8.94%	8.68%	8.41%	8.15%	7.89%	7.63%	7.36%	7.10%	6.84%	6.58%	6.31%	6.05%	5.79%	5.53%	5.26%
NOX			10.25%	9.99%	9.73%	9.48%	9.20%	8.94%	8.68%	8.41%	8.15%	7.89%	7.63%	7.36%	7.10%	6.84%	6.58%	6.31%	6.05%	5.79%	5.53%	5.26%
Particulates			10.25%	9.99%	9.73%	9.48%	9.20%	8.94%	8.68%	8.41%	8.15%	7.89%	7.63%	7.36%	7.10%	6.84%	6.58%	6.31%	6.05%	5.79%	5.53%	5.26%
Total																						
Fixed charges on investment, $1000s	**NPV RR**	**Levelized**																				
SOX	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Hg	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
NOX	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Particulates	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Total	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Extended outage purch power, $1000s																						
SOX	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Hg	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
NOX	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Particulates	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Total	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Fixed O&M expense, $1000s																						
For SOX control:																						
Maintenance (labor + mat'l)	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Operating labor	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
For Hg control:																						
Maintenance (labor + mat'l)	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Operating labor	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
For NOX control:																						
Maintenance (labor + mat'l)	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Operating labor	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Total fixed O&M cost	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Variable O&M expense, $1000s																						
For SOX control:																						
Limestone	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Lime (90% available CaO)	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Dibasic acid	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Water for SOX removal	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
SO_3 reduction agent (Na_2CO_3)	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Solid waste sales revenue	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Solid waste landfill cost	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Gypsum sales revenue	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Gypsum landfill cost	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Purchases (+) or sales (-) of allowances	$206,099	$16,431	$22,420	$22,420	$33,629	$33,629	$33,629	$29,146	$24,662	$20,178	$15,694	$11,210	$6,726	$2,242	$2,242	$2,242	$2,242	$2,242	$2,242	$2,242	$2,242	$2,242
Aux. power, energy charge	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Aux. power, capacity charge	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
For Hg control:																						
Powdered activated carbon	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Brominated activated carbon	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Fuel additive	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Purchases (+) or sales (-) of allowances	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Aux. power, energy charge	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Aux. power, capacity charge	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
For NOX control:																						
Urea	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Catalyst	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Water for NOX removal	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Purchases (+) or sales (-) of allowances	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Aux. power, energy charge	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Aux. power, capacity charge	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
For particulate control:																						
Bags	$6,551	$522	$0	$0	$0	$0	$0	$0	$3,718	$0	$0	$0	$0	$0	$0	$4,410	$0	$0	$0	$0	$0	$0
Cages	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Flyash sales	($1,342)	($107)	($87)	($89)	($91)	($93)	($96)	($98)	($100)	($103)	($105)	($108)	($111)	($114)	($116)	($119)	($122)	($125)	($128)	($132)	($135)	($138)
Flyash landfill cost	$4,972	$396	$321	$329	$337	$345	$354	$363	$372	$381	$391	$400	$410	$421	$431	$442	$453	$464	$476	$488	$500	$512
Aux. power, energy charge	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Aux. power, capacity charge	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Total variable O&M cost	$216,280	$17,242	$22,654	$22,659	$33,875	$33,881	$33,888	$29,416	$28,651	$20,456	$15,979	$11,502	$7,025	$2,549	$2,557	$6,984	$2,573	$2,581	$2,589	$2,598	$2,607	$2,616
Fuel expense, $1000	$0	$0																				
Total revenue requirement, $1000s	$216,280	$17,242	$22,654	$22,659	$33,875	$33,881	$33,888	$29,410	$28,651	$20,456	$15,979	$11,502	$7,025	$2,549	$2,557	$6,924	$2,573	$2,581	$2,589	$2,598	$2,607	$2,616
Summary Revenue Requirements	**NPV RR**	**Levelized**																				
Investment cost	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Extended outage purchased power	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Fixed O&M	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Variable O&M w/o allowances or aux. pwr.	$10,181	$812	$234	$240	$246	$252	$258	$265	$3,989	$272	$285	$292	$300	$307	$316	$4,742	$331	$339	$347	$356	$365	$374
Auxiliary power, energy charge	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Auxiliary power, capacity charge	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Allowances	$206,099	$16,431	$22,420	$22,420	$33,629	$33,629	$33,629	$29,146	$24,662	$20,178	$15,694	$11,210	$6,726	$2,242	$2,242	$2,242	$2,242	$2,242	$2,242	$2,242	$2,242	$2,242
Fuel	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Total	$216,280	$17,242	$22,654	$22,659	$33,875	$33,881	$33,888	$29,410	$28,651	$20,456	$15,979	$11,502	$7,025	$2,549	$2,557	$6,984	$2,573	$2,581	$2,589	$2,598	$2,607	$2,616

Pro Forma Financial Model
NPPD Multi-Pollutant Removal Study
Revenue Requirement Determination

Case 4: No Equipment Installed 0.7% S, Unit 2

Analysis Year			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Calendar Year			2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Discount factor			0.9501	0.9027	0.8577	0.8149	0.7743	0.7356	0.6989	0.6641	0.6310	0.5996	0.5696	0.5412	0.5142	0.4885	0.4642	0.4410	0.4190	0.3981	0.3783	0.3594
Capacity factor			80.00%	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%
Energy production, GWh (with NPV)	1	61,534	4,906	4,906	4,906	4,906	4,906	4,906	4,906	4,906	4,906	4,906	4,906	4,906	4,906	4,906	4,906	4,906	4,906	4,906	4,906	4,906
Available SOX allowances, tons			13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752
SOX allowance surrender rate			1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Equivalent available SOX allowances, tons			13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752
Equivalent SOX allowances used, tons (i.e., emissions)			(36,686)	(36,686)	(36,686)	(36,686)	(36,686)	(36,686)	(36,686)	(36,686)	(36,686)	(36,686)	(36,686)	(36,686)	(36,686)	(36,686)	(36,686)	(36,686)	(36,686)	(36,686)	(36,686)	(36,686)
Equivalent SOX allowances sold(+)/bought(-)			(22,935)	(22,935)	(22,935)	(22,935)	(22,935)	(22,935)	(22,935)	(22,935)	(22,935)	(22,935)	(22,935)	(22,935)	(22,935)	(22,935)	(22,935)	(22,935)	(22,935)	(22,935)	(22,935)	(22,935)
Tons SOX removed			6,383	6,383	6,383	6,383	6,383	6,383	6,383	6,383	6,383	6,383	6,383	6,383	6,383	6,383	6,383	6,383	6,383	6,383	6,383	6,383
Available Hg allowances, oz.			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hg allowance surrender rate			1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Equivalent available Hg allowances, oz.			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hg allowances used, oz. (i.e., emissions)			(10,699)	(10,699)	(10,699)	(10,699)	(10,699)	(10,699)	(10,699)	(10,699)	(10,699)	(10,699)	(10,699)	(10,699)	(10,699)	(10,699)	(10,699)	(10,699)	(10,699)	(10,699)	(10,699)	(10,699)
Hg allowances sold(+)/bought(-)			(10,698)	(10,698)	(10,698)	(10,698)	(10,698)	(10,698)	(10,698)	(10,698)	(10,698)	(10,698)	(10,698)	(10,698)	(10,698)	(10,698)	(10,698)	(10,698)	(10,698)	(10,698)	(10,698)	(10,698)
Ounces Hg removed			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tons NOX removed			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tons particulates removed			114,947	114,947	114,947	114,947	114,947	114,947	114,947	114,947	114,947	114,947	114,947	114,947	114,947	114,947	114,947	114,947	114,947	114,947	114,947	114,947
SOX allowance cost, $/ton (escalated values)			$1,000	$1,000	$1,500	$1,500	$1,500	$1,300	$1,100	$900	$700	$500	$300	$100	$100	$100	$100	$100	$100	$100	$100	$100
Hg allowance cost, $/oz.(escalated values)			$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Control system operating period masks																						
SOX			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Hg			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
NOX			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Particulates			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Fixed charge rates																						
SOX			10.25%	9.99%	9.73%	9.48%	9.20%	8.94%	8.68%	8.41%	8.15%	7.89%	7.63%	7.36%	7.10%	6.84%	6.58%	6.31%	6.05%	5.79%	5.53%	5.26%
Hg			10.25%	9.99%	9.73%	9.48%	9.20%	8.94%	8.68%	8.41%	8.15%	7.89%	7.63%	7.36%	7.10%	6.84%	6.58%	6.31%	6.05%	5.79%	5.53%	5.26%
NOX			10.25%	9.99%	9.73%	9.48%	9.20%	8.94%	8.68%	8.41%	8.15%	7.89%	7.63%	7.36%	7.10%	6.84%	6.58%	6.31%	6.05%	5.79%	5.53%	5.26%
Particulates			10.25%	9.99%	9.73%	9.48%	9.20%	8.94%	8.68%	8.41%	8.15%	7.89%	7.63%	7.36%	7.10%	6.84%	6.58%	6.31%	6.05%	5.79%	5.53%	5.26%
Total																						
Fixed charges on investment, $1000s	**NPV RR**	**Levelized**																				
SOX	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Hg	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
NOX	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Particulates	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Total	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**
Extended outage purch power, $1000s																						
SOX	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Hg	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
NOX	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Particulates	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Total	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Fixed O&M expense, $1000s																						
For SOX control:																						
Maintenance (labor + mat'l)	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Operating labor	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
For Hg control:																						
Maintenance (labor + mat'l)	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Operating labor	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
For NOX control:																						
Maintenance (labor + mat'l)	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Operating labor	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Total fixed O&M cost	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**
Variable O&M expense, $1000s																						
For SOX control:																						
Limestone	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Lime (90% available CaO)	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Dibasic acid	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Water for SOX removal	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
SO_3 reduction agent (Na_2CO_3)	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Solid waste sales revenue	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Solid waste landfill cost	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Gypsum sales revenue	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Gypsum landfill cost	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Purchases (+) or sales (-) of allowances	$210,837	$16,808	$22,935	$22,935	$34,402	$34,402	$34,402	$29,815	$25,228	$20,641	$16,054	$11,467	$6,880	$2,293	$2,293	$2,293	$2,293	$2,293	$2,293	$2,293	$2,293	$2,293
Aux. power, energy charge	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Aux. power, capacity charge	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
For Hg control:																						
Powdered activated carbon	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Brominated activated carbon	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Fuel additive	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Purchases (+) or sales (-) of allowances	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Aux. power, energy charge	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Aux. power, capacity charge	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
For NOX control:																						
Urea	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Catalyst	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Water for NOX removal	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Purchases (+) or sales (-) of allowances	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Aux. power, energy charge	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Aux. power, capacity charge	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
For particulate control:																						
Bags	$6,551	$522	$0	$0	$0	$0	$0	$0	$3,718	$0	$0	$0	$0	$0	$0	$4,410	$0	$0	$0	$0	$0	$0
Cages	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Flyash sales	($1,361)	($109)	($88)	($90)	($92)	($95)	($97)	($99)	($102)	($104)	($107)	($110)	($112)	($115)	($118)	($121)	($124)	($127)	($130)	($134)	($137)	($140)
Flyash landfill cost	$5,042	$402	$325	$333	$342	$350	$359	$368	$377	$386	$396	$406	$416	$427	$437	$448	$459	$471	$483	$495	$507	$520
Aux. power, energy charge	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Aux. power, capacity charge	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Total variable O&M cost	**$221,069**	**$17,624**	**$23,172**	**$23,178**	**$34,652**	**$34,658**	**$34,664**	**$30,084**	**$29,222**	**$20,924**	**$16,344**	**$11,764**	**$7,184**	**$2,605**	**$2,613**	**$7,040**	**$2,629**	**$2,637**	**$2,646**	**$2,655**	**$2,664**	**$2,673**
Fuel expense, $1000	**$0**	**$0**																				
Total revenue requirement, $1000s	**$221,069**	**$17,624**	**$23,172**	**$23,178**	**$34,652**	**$34,658**	**$34,664**	**$30,084**	**$29,222**	**$20,924**	**$16,344**	**$11,764**	**$7,184**	**$2,605**	**$2,613**	**$7,040**	**$2,629**	**$2,637**	**$2,646**	**$2,655**	**$2,664**	**$2,673**
Summary Revenue Requirements	**NPV RR**	**Levelized**																				
Investment cost	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Extended outage purchased power	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Fixed O&M	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Variable O&M w/o allowances or aux. pwr.	$10,232	$816	$237	$243	$249	$256	$262	$269	$3,993	$282	$289	$296	$304	$311	$319	$4,747	$336	$344	$352	$361	$370	$379
Auxiliary power, energy charge	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Auxiliary power, capacity charge	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Allowances	$210,837	$16,808	$22,935	$22,935	$34,402	$34,402	$34,402	$29,815	$25,228	$20,641	$16,054	$11,467	$6,880	$2,293	$2,293	$2,293	$2,293	$2,293	$2,293	$2,293	$2,293	$2,293
Fuel	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Total	$221,069	$17,624	$23,172	$23,178	$34,652	$34,658	$34,664	$30,084	$29,222	$20,924	$16,344	$11,764	$7,184	$2,605	$2,613	$7,040	$2,629	$2,637	$2,646	$2,655	$2,664	$2,673

Question 1

Pro Forma Financial Model
NPPD Multi-Pollutant Removal Study
Revenue Requirement Determination

Case 5: No Equipment Installed
1.0% S, Unit 1

	NPV RR	Levelized																				
Analysis Year			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Calendar Year			2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Discount factor			0.9501	0.9027	0.8577	0.8149	0.7743	0.7356	0.6989	0.6641	0.6310	0.5996	0.5696	0.5412	0.5142	0.4885	0.4642	0.4410	0.4190	0.3981	0.3783	0.3594
Capacity factor			80.00%	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%
Energy production, GWh (with NPV)	1	58,458	4,660	4,660	4,660	4,660	4,660	4,660	4,660	4,660	4,660	4,660	4,660	4,660	4,660	4,660	4,660	4,660	4,660	4,660	4,660	4,660
Available SOX allowances, tons			13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752
SOX allowance surrender rate			1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Equivalent available SOX allowances, tons			13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752
Equivalent SOX allowances used, tons (i.e., emissions)			(46,893)	(46,893)	(46,893)	(46,893)	(46,893)	(46,893)	(46,893)	(46,893)	(46,893)	(46,893)	(46,893)	(46,893)	(46,893)	(46,893)	(46,893)	(46,893)	(46,893)	(46,893)	(46,893)	(46,893)
Equivalent SOX allowances sold(+)/bought(-)			(33,142)	(33,142)	(33,142)	(33,142)	(33,142)	(33,142)	(33,142)	(33,142)	(33,142)	(33,142)	(33,142)	(33,142)	(33,142)	(33,142)	(33,142)	(33,142)	(33,142)	(33,142)	(33,142)	(33,142)
Tons SOX removed			8,275	8,275	8,275	8,275	8,275	8,275	8,275	8,275	8,275	8,275	8,275	8,275	8,275	8,275	8,275	8,275	8,275	8,275	8,275	8,275
Available Hg allowances, oz.			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hg allowance surrender rate			1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Equivalent available Hg allowances, oz.			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hg allowances used, oz. (i.e., emissions)			(9,710)	(9,710)	(9,710)	(9,710)	(9,710)	(9,710)	(9,710)	(9,710)	(9,710)	(9,710)	(9,710)	(9,710)	(9,710)	(9,710)	(9,710)	(9,710)	(9,710)	(9,710)	(9,710)	(9,710)
Hg allowances sold(+)/bought(-)			(9,709)	(9,709)	(9,709)	(9,709)	(9,709)	(9,709)	(9,709)	(9,709)	(9,709)	(9,709)	(9,709)	(9,709)	(9,709)	(9,709)	(9,709)	(9,709)	(9,709)	(9,709)	(9,709)	(9,709)
Ounces Hg removed			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tons NOX removed			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tons particulates removed			111,627	111,627	111,627	111,627	111,627	111,627	111,627	111,627	111,627	111,627	111,627	111,627	111,627	111,627	111,627	111,627	111,627	111,627	111,627	111,627
SOX allowance cost, $/ton (escalated values)			$1,000	$1,000	$1,500	$1,500	$1,500	$1,300	$1,100	$900	$700	$500	$300	$100	$100	$100	$100	$100	$100	$100	$100	$100
Hg allowance cost, $/oz (escalated values)			$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Control system operating period masks																						
SOX			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Hg			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
NOX			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Particulates			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Fixed charge rates																						
SOX			10.25%	9.99%	9.73%	9.48%	9.20%	8.94%	8.68%	8.41%	8.15%	7.89%	7.63%	7.36%	7.10%	6.84%	6.58%	6.31%	6.05%	5.79%	5.53%	5.26%
Hg			10.25%	9.99%	9.73%	9.48%	9.20%	8.94%	8.68%	8.41%	8.15%	7.89%	7.63%	7.36%	7.10%	6.84%	6.58%	6.31%	6.05%	5.79%	5.53%	5.26%
NOX			10.25%	9.99%	9.73%	9.48%	9.20%	8.94%	8.68%	8.41%	8.15%	7.89%	7.63%	7.36%	7.10%	6.84%	6.58%	6.31%	6.05%	5.79%	5.53%	5.26%
Particulates			10.25%	9.99%	9.73%	9.48%	9.20%	8.94%	8.68%	8.41%	8.15%	7.89%	7.63%	7.36%	7.10%	6.84%	6.58%	6.31%	6.05%	5.79%	5.53%	5.26%
Total																						
Fixed charges on investment, $1000s	**NPV RR**	**Levelized**																				
SOX	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Hg	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
NOX	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Particulates	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Total	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**
Extended outage purch power, $1000s																						
SOX	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Hg	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
NOX	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Particulates	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Total	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Fixed O&M expense, $1000s																						
For SOX control:																						
Maintenance (labor + mat'l)	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Operating labor	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
For Hg control:																						
Maintenance (labor + mat'l)	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Operating labor	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
For NOX control:																						
Maintenance (labor + mat'l)	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Operating labor	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Total fixed O&M cost	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**
Variable O&M expense, $1000s																						
For SOX control:																						
Limestone	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Lime (90% available CaO)	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Dibasic acid	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Water for SOX removal	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
SO_3 reduction agent (Na_2CO_3)	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Solid waste sales revenue	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Solid waste landfill cost	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Gypsum sales revenue	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Gypsum landfill cost	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Purchases (+) or sales (-) of allowances	$304,665	$24,288	$33,142	$33,142	$49,712	$49,712	$49,712	$43,084	$36,456	$29,827	$23,199	$16,571	$9,942	$3,314	$3,314	$3,314	$3,314	$3,314	$3,314	$3,314	$3,314	$3,314
Aux. power, energy charge	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Aux. power, capacity charge	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
For Hg control:																						
Powdered activated carbon	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Brominated activated carbon	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Fuel additive	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Purchases (+) or sales (-) of allowances	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Aux. power, energy charge	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Aux. power, capacity charge	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
For NOX control:																						
Urea	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Catalyst	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Water for NOX removal	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Purchases (+) or sales (-) of allowances	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Aux. power, energy charge	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Aux. power, capacity charge	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
For particulate control:																						
Bags	$8,551	$522	$0	$0	$0	$0	$0	$0	$3,718	$0	$0	$0	$0	$0	$0	$4,410	$0	$0	$0	$0	$0	$0
Cages	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Flyash sales	($1,322)	($105)	($85)	($87)	($90)	($92)	($94)	($96)	($99)	($101)	($104)	($106)	($109)	($112)	($115)	($118)	($120)	($123)	($127)	($130)	($133)	($136)
Flyash landfill cost	$4,897	$390	$316	$324	$332	$340	$349	$357	$366	$375	$385	$394	$404	$414	$425	$435	$446	$457	$469	$480	$492	$505
Aux. power, energy charge	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Aux. power, capacity charge	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Total variable O&M cost	**$314,791**	**$25,096**	**$33,372**	**$33,378**	**$49,955**	**$49,961**	**$49,967**	**$43,345**	**$40,441**	**$30,101**	**$23,480**	**$16,859**	**$10,238**	**$3,617**	**$3,624**	**$8,051**	**$3,640**	**$3,648**	**$3,656**	**$3,665**	**$3,674**	**$3,683**
Fuel expense, $1000	**$0**	**$0**																				
Total revenue requirement, $1000s	**$314,791**	**$25,096**	**$33,372**	**$33,378**	**$49,955**	**$49,961**	**$49,967**	**$43,345**	**$40,441**	**$30,101**	**$23,480**	**$16,859**	**$10,238**	**$3,617**	**$3,624**	**$8,051**	**$3,640**	**$3,648**	**$3,656**	**$3,665**	**$3,674**	**$3,683**
Summary Revenue Requirements	**NPV RR**	**Levelized**																				
Investment cost	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Extended outage purchased power	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Fixed O&M	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Variable O&M w/o allowances or aux. pwr.	$10,126	$807	$230	$236	$242	$248	$254	$261	$3,985	$274	$281	$288	$295	$302	$310	$4,737	$326	$334	$342	$351	$359	$368
Auxiliary power, energy charge	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Auxiliary power, capacity charge	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Allowances	$304,665	$24,288	$33,142	$33,142	$49,712	$49,712	$49,712	$43,084	$36,456	$29,827	$23,199	$16,571	$9,942	$3,314	$3,314	$3,314	$3,314	$3,314	$3,314	$3,314	$3,314	$3,314
Fuel	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Total	$314,791	$25,096	$33,372	$33,378	$49,955	$49,961	$49,967	$43,345	$40,441	$30,101	$23,480	$16,859	$10,238	$3,617	$3,624	$8,051	$3,640	$3,648	$3,656	$3,665	$3,674	$3,683

NPPDRH114_0000902

ED_005798_00000158-00008

Question 1

Pro Forma Financial Model
NPPD Multi-Pollutant Removal Study
Revenue Requirement Determination

Sargent & Lundy LLC

Case 6: No Equipment Installed 1.0% S, Unit 2

	NPV RR	Levelized	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Analysis Year			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Calendar Year			2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Discount factor			0.9501	0.9027	0.8577	0.8149	0.7743	0.7356	0.6989	0.6641	0.6310	0.5996	0.5696	0.5412	0.5142	0.4885	0.4642	0.4410	0.4190	0.3981	0.3783	0.3594
Capacity factor			80.00%	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%
Energy production, GWh (with NPV)		61,534	4,906	4,906	4,906	4,906	4,906	4,906	4,906	4,906	4,906	4,906	4,906	4,906	4,906	4,906	4,906	4,906	4,906	4,906	4,906	4,906
Available SOX allowances, tons			13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752
SOX allowance surrender rate			1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Equivalent available SOX allowances, tons			13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752
Equivalent SOX allowances used, tons (i.e., emissions)			(47,561)	(47,561)	(47,561)	(47,561)	(47,561)	(47,561)	(47,561)	(47,561)	(47,561)	(47,561)	(47,561)	(47,561)	(47,561)	(47,561)	(47,561)	(47,561)	(47,561)	(47,561)	(47,561)	(47,561)
Equivalent SOX allowances sold(+)/bought(-)			(33,810)	(33,810)	(33,810)	(33,810)	(33,810)	(33,810)	(33,810)	(33,810)	(33,810)	(33,810)	(33,810)	(33,810)	(33,810)	(33,810)	(33,810)	(33,810)	(33,810)	(33,810)	(33,810)	(33,810)
Tons SOX removed			8,275	8,275	8,275	8,275	8,275	8,275	8,275	8,275	8,275	8,275	8,275	8,275	8,275	8,275	8,275	8,275	8,275	8,275	8,275	8,275
Available Hg allowances, oz.			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hg allowance surrender rate			1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Equivalent available Hg allowances, oz.			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hg allowances used, oz. (i.e., emissions)			(9,848)	(9,848)	(9,848)	(9,848)	(9,848)	(9,848)	(9,848)	(9,848)	(9,848)	(9,848)	(9,848)	(9,848)	(9,848)	(9,848)	(9,848)	(9,848)	(9,848)	(9,848)	(9,848)	(9,848)
Hg allowances sold(+)/bought(-)			(9,847)	(9,847)	(9,847)	(9,847)	(9,847)	(9,847)	(9,847)	(9,847)	(9,847)	(9,847)	(9,847)	(9,847)	(9,847)	(9,847)	(9,847)	(9,847)	(9,847)	(9,847)	(9,847)	(9,847)
Ounces Hg removed			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tons NOX removed			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tons particulates removed			113,217	113,217	113,217	113,217	113,217	113,217	113,217	113,217	113,217	113,217	113,217	113,217	113,217	113,217	113,217	113,217	113,217	113,217	113,217	113,217
SOX allowance cost, $/ton (escalated values)			$1,000	$1,000	$1,500	$1,500	$1,500	$1,300	$1,100	$900	$700	$500	$300	$100	$100	$100	$100	$100	$100	$100	$100	$100
Hg allowance cost, $/oz (escalated values)			$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Control system operating period masks																						
SOX			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Hg			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
NOX			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Particulates			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Fixed charge rates																						
SOX			10.25%	9.99%	9.73%	9.48%	9.20%	8.94%	8.68%	8.41%	8.15%	7.89%	7.63%	7.36%	7.10%	6.84%	6.58%	6.31%	6.05%	5.79%	5.53%	5.26%
Hg			10.25%	9.99%	9.73%	9.48%	9.20%	8.94%	8.68%	8.41%	8.15%	7.89%	7.63%	7.36%	7.10%	6.84%	6.58%	6.31%	6.05%	5.79%	5.53%	5.26%
NOX			10.25%	9.99%	9.73%	9.48%	9.20%	8.94%	8.68%	8.41%	8.15%	7.89%	7.63%	7.36%	7.10%	6.84%	6.58%	6.31%	6.05%	5.79%	5.53%	5.26%
Particulates			10.25%	9.99%	9.73%	9.48%	9.20%	8.94%	8.68%	8.41%	8.15%	7.89%	7.63%	7.36%	7.10%	6.84%	6.58%	6.31%	6.05%	5.79%	5.53%	5.26%
Total																						
Fixed charges on investment, $1000s	**NPV RR**	**Levelized**																				
SOX	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Hg	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
NOX	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Particulates	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Total	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**
Extended outage purch power, $1000s																						
SOX	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Hg	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
NOX	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Particulates	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Total	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Fixed O&M expense, $1000s																						
For SOX control:																						
Maintenance (labor + mat'l)	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Operating labor	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
For Hg control:																						
Maintenance (labor + mat'l)	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Operating labor	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
For NOX control:																						
Maintenance (labor + mat'l)	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Operating labor	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Total fixed O&M cost	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**
Variable O&M expense, $1000s																						
For SOX control:																						
Limestone	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Lime (90% available CaO)	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Dibasic acid	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Water for SOX removal	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
SO_3 reduction agent (Na_2CO_3)	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Solid waste sales revenue	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Solid waste landfill cost	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Gypsum sales revenue	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Gypsum landfill cost	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Purchases (+) or sales (-) of allowances	$310,807	$24,778	$33,810	$33,810	$50,715	$50,715	$50,715	$43,953	$37,191	$30,429	$23,667	$16,905	$10,143	$3,381	$3,381	$3,381	$3,381	$3,381	$3,381	$3,381	$3,381	$3,381
Aux. power, energy charge	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Aux. power, capacity charge	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
For Hg control:																						
Powdered activated carbon	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Brominated activated carbon	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Fuel additive	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Purchases (+) or sales (-) of allowances	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Aux. power, energy charge	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Aux. power, capacity charge	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
For NOX control:																						
Urea	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Catalyst	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Water for NOX removal	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Purchases (+) or sales (-) of allowances	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Aux. power, energy charge	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Aux. power, capacity charge	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
For particulate control:																						
Bags	$6,551	$522	$0	$0	$0	$0	$0	$0	$3,718	$0	$0	$0	$0	$0	$0	$4,410	$0	$0	$0	$0	$0	$0
Cages	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Flyash sales	($1,341)	($107)	($86)	($89)	($91)	($93)	($95)	($98)	($100)	($103)	($105)	($108)	($111)	($113)	($116)	($119)	($122)	($125)	($128)	($132)	($135)	($138)
Flyash landfill cost	$4,907	$396	$320	$326	$336	$345	$353	$362	$371	$381	$390	$400	$410	$420	$431	$441	$452	$464	$475	$487	$499	$512
Aux. power, energy charge	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Aux. power, capacity charge	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Total variable O&M cost	**$320,984**	**$25,589**	**$34,044**	**$34,049**	**$50,960**	**$50,966**	**$50,973**	**$44,217**	**$41,180**	**$30,707**	**$23,952**	**$17,197**	**$10,442**	**$3,688**	**$3,695**	**$8,123**	**$3,711**	**$3,720**	**$3,728**	**$3,737**	**$3,746**	**$3,755**
Fuel expense, $1000	$0	$0																				
Total revenue requirement, $1000s	**$320,984**	**$25,589**	**$34,044**	**$34,049**	**$50,960**	**$50,966**	**$50,973**	**$44,217**	**$41,180**	**$30,707**	**$23,952**	**$17,197**	**$10,442**	**$3,688**	**$3,695**	**$8,123**	**$3,711**	**$3,720**	**$3,728**	**$3,737**	**$3,746**	**$3,755**
Summary Revenue Requirements	**NPV RR**	**Levelized**																				
Investment cost	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Extended outage purchased power	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Fixed O&M	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Variable O&M w/o allowances or aux. pwr.	$10,177	$811	$234	$240	$246	$252	$258	$264	$3,989	$278	$285	$292	$299	$307	$314	$4,742	$330	$339	$347	$356	$365	$374
Auxiliary power, energy charge	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Auxiliary power, capacity charge	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Allowances	$310,807	$24,778	$33,810	$33,810	$50,715	$50,715	$50,715	$43,953	$37,191	$30,429	$23,667	$16,905	$10,143	$3,381	$3,381	$3,381	$3,381	$3,381	$3,381	$3,381	$3,381	$3,381
Fuel	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Total	$320,984	$25,589	$34,044	$34,049	$50,960	$50,966	$50,973	$44,217	$41,180	$30,707	$23,952	$17,197	$10,442	$3,688	$3,695	$8,123	$3,711	$3,720	$3,728	$3,737	$3,746	$3,755

NPPDRH114_0000903

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Question 1

Pro Forma Financial Model
NPPD Multi-Pollutant Removal Study
Revenue Requirement Determination

Sargent & Lundy LLC

Case 7: Wet FGD
0.28% Sulfur Fuel, Unit 1

	NPV RR	Levelized	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Analysis Year			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Calendar Year			2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Discount factor			0.9501	0.9027	0.8577	0.8149	0.7743	0.7356	0.6989	0.6641	0.6310	0.5996	0.5696	0.5412	0.5142	0.4885	0.4642	0.4410	0.4190	0.3981	0.3783	0.3594
Capacity factor			80.00%	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%
Energy production, GWh (with NPV)	1	58,458	4,660	4,660	4,660	4,660	4,660	4,660	4,660	4,660	4,660	4,660	4,660	4,660	4,660	4,660	4,660	4,660	4,660	4,660	4,660	4,660
Available SOX allowances, tons			13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752
SOX allowance surrender rate			1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Equivalent available SOX allowances, tons			13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752
Equivalent SOX allowances used, tons (i.e., emissions)			(464)	(464)	(464)	(464)	(464)	(464)	(464)	(464)	(464)	(464)	(464)	(464)	(464)	(464)	(464)	(464)	(464)	(464)	(464)	(464)
Equivalent SOX allowances sold(+)/bought(-)			13,288	13,288	13,288	13,288	13,288	13,288	13,288	13,288	13,288	13,288	13,288	13,288	13,288	13,288	13,288	13,288	13,288	13,288	13,288	13,288
Tons SOX removed			15,767	15,767	15,767	15,767	15,767	15,767	15,767	15,767	15,767	15,767	15,767	15,767	15,767	15,767	15,767	15,767	15,767	15,767	15,767	15,767
Available Hg allowances, oz.			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hg allowance surrender rate			1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Equivalent available Hg allowances, oz.			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hg allowances used, oz. (i.e., emissions)			(10,202)	(10,202)	(10,202)	(10,202)	(10,202)	(10,202)	(10,202)	(10,202)	(10,202)	(10,202)	(10,202)	(10,202)	(10,202)	(10,202)	(10,202)	(10,202)	(10,202)	(10,202)	(10,202)	(10,202)
Hg allowances sold(+)/bought(-)			(10,201)	(10,201)	(10,201)	(10,201)	(10,201)	(10,201)	(10,201)	(10,201)	(10,201)	(10,201)	(10,201)	(10,201)	(10,201)	(10,201)	(10,201)	(10,201)	(10,201)	(10,201)	(10,201)	(10,201)
Ounces Hg removed			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tons NOX removed			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tons particulates removed			109,602	109,602	109,602	109,602	109,602	109,602	109,602	109,602	109,602	109,602	109,602	109,602	109,602	109,602	109,602	109,602	109,602	109,602	109,602	109,602
SOX allowance cost, $/ton (escalated values)			$1,000	$1,000	$1,500	$1,500	$1,500	$1,300	$1,100	$900	$700	$500	$300	$100	$100	$100	$100	$100	$100	$100	$100	$100
Hg allowance cost, $/oz (escalated values)			$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Control system operating period masks																						
SOX			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Hg			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
NOX			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Particulates			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Fixed charge rates																						
SOX			10.25%	9.99%	9.73%	9.46%	9.20%	8.94%	8.68%	8.41%	8.15%	7.89%	7.63%	7.36%	7.10%	6.84%	6.58%	6.31%	6.05%	5.79%	5.53%	5.26%
Hg			10.25%	9.99%	9.73%	9.46%	9.20%	8.94%	8.68%	8.41%	8.15%	7.89%	7.63%	7.36%	7.10%	6.84%	6.58%	6.31%	6.05%	5.79%	5.53%	5.26%
NOX			10.25%	9.99%	9.73%	9.46%	9.20%	8.94%	8.68%	8.41%	8.15%	7.89%	7.63%	7.36%	7.10%	6.84%	6.58%	6.31%	6.05%	5.79%	5.53%	5.26%
Particulates			10.25%	9.99%	9.73%	9.46%	9.20%	8.94%	8.68%	8.41%	8.15%	7.89%	7.63%	7.36%	7.10%	6.84%	6.58%	6.31%	6.05%	5.79%	5.53%	5.26%
Total																						
Fixed charges on investment, $1000s	**NPV RR**	**Levelized**																				
SOX	$528,279	$42,115	$54,149	$52,762	$51,375	$49,988	$48,602	$47,215	$45,828	$44,441	$43,055	$41,668	$40,281	$38,895	$37,508	$36,121	$34,734	$33,348	$31,961	$30,574	$29,187	$27,801
Hg	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
NOX	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Particulates	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Total	**$528,279**	**$42,115**	**$54,149**	**$52,762**	**$51,375**	**$49,988**	**$48,602**	**$47,215**	**$45,828**	**$44,441**	**$43,055**	**$41,668**	**$40,281**	**$38,895**	**$37,508**	**$36,121**	**$34,734**	**$33,348**	**$31,961**	**$30,574**	**$29,187**	**$27,801**
Extended outage purch power, $1000s																						
SOX	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Hg	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
NOX	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Particulates	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Total	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Fixed O&M expense, $1000s																						
For SOX control:																						
Maintenance (labor + mat'l)	$52,641	$4,197	$3,394	$3,479	$3,566	$3,655	$3,747	$3,840	$3,936	$4,035	$4,136	$4,239	$4,345	$4,454	$4,565	$4,679	$4,796	$4,916	$5,039	$5,165	$5,294	$5,426
Operating labor	$14,077	$1,122	$908	$930	$954	$977	$1,002	$1,027	$1,053	$1,079	$1,106	$1,134	$1,162	$1,191	$1,221	$1,251	$1,283	$1,315	$1,347	$1,381	$1,416	$1,451
For Hg control:																						
Maintenance (labor + mat'l)	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Operating labor	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
For NOX control:																						
Maintenance (labor + mat'l)	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Operating labor	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Total fixed O&M cost	**$66,718**	**$5,319**	**$4,302**	**$4,409**	**$4,520**	**$4,633**	**$4,749**	**$4,867**	**$4,989**	**$5,114**	**$5,241**	**$5,372**	**$5,507**	**$5,644**	**$5,786**	**$5,930**	**$6,078**	**$6,230**	**$6,386**	**$6,546**	**$6,710**	**$6,877**
Variable O&M expense, $1000s																						
For SOX control:																						
Limestone	$16,259	$1,297	$1,049	$1,075	$1,102	$1,130	$1,158	$1,187	$1,217	$1,247	$1,278	$1,310	$1,343	$1,376	$1,411	$1,446	$1,482	$1,519	$1,557	$1,596	$1,636	$1,677
Lime (90% available CaO)	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Dibasic acid	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Water for SOX removal	$7,260	$579	$468	$480	$492	$504	$517	$530	$543	$556	$570	$585	$599	$614	$630	$645	$661	$678	$695	$712	$730	$748
SO_3 reduction agent (Na_2CO_3)	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Solid waste sales revenue	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Solid waste landfill cost	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Gypsum sales revenue	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Gypsum landfill cost	$5,595	$446	$361	$370	$379	$389	$398	$408	$418	$429	$440	$451	$462	$473	$485	$497	$510	$522	$535	$549	$563	$577
Purchases (+) or sales (-) of allowances	($122,152)	($9,738)	($13,288)	($13,288)	($19,932)	($19,932)	($19,932)	($17,274)	($14,617)	($11,959)	($9,301)	($6,644)	($3,986)	($1,329)	($1,329)	($1,329)	($1,329)	($1,329)	($1,329)	($1,329)	($1,329)	($1,329)
Aux. power, energy charge	$77,130	$6,149	$4,973	$5,096	$5,225	$5,356	$5,490	$5,627	$5,767	$5,912	$6,059	$6,211	$6,366	$6,525	$6,688	$6,856	$7,027	$7,203	$7,383	$7,567	$7,757	$7,950
Aux. power, capacity charge	$8,872	$707	$572	$586	$601	$616	$631	$647	$663	$680	$697	$714	$732	$751	$769	$789	$808	$829	$849	$870	$892	$915
For Hg control:																						
Powdered activated carbon	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Brominated activated carbon	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Fuel additive	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Purchases (+) or sales (-) of allowances	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Aux. power, energy charge	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Aux. power, capacity charge	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
For NOX control:																						
Urea	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Catalyst	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Water for NOX removal	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Purchases (+) or sales (-) of allowances	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Aux. power, energy charge	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Aux. power, capacity charge	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
For particulate control:																						
Bags	$6,551	$522	$0	$0	$0	$0	$0	$0	$3,718	$0	$0	$0	$0	$0	$0	$4,410	$0	$0	$0	$0	$0	$0
Cages	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Flyash sales	($1,296)	($103)	($84)	($86)	($88)	($90)	($92)	($95)	($97)	($99)	($102)	($105)	($107)	($110)	($113)	($115)	($118)	($121)	($124)	($127)	($131)	($134)
Flyash landfill cost	$4,808	$383	$310	$318	$326	$334	$342	$351	$360	$369	$378	$387	$397	$407	$417	$427	$438	$449	$460	$472	$484	$496
Aux. power, energy charge	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Aux. power, capacity charge	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Total variable O&M cost	**$3,035**	**$242**	**($5,638)**	**($5,447)**	**($11,895)**	**($11,694)**	**($11,488)**	**($8,619)**	**($2,028)**	**($2,866)**	**$19**	**$2,909**	**$5,806**	**$8,708**	**$8,959**	**$13,636**	**$9,480**	**$9,750**	**$10,027**	**$10,311**	**$10,602**	**$10,900**
Fuel expense, $1000	**$0**	**$0**																				
Total revenue requirement, $1000s	**$598,032**	**$47,676**	**$52,812**	**$51,724**	**$44,000**	**$42,927**	**$41,862**	**$43,463**	**$48,789**	**$46,689**	**$48,315**	**$49,950**	**$51,594**	**$53,247**	**$52,252**	**$55,687**	**$50,293**	**$49,328**	**$48,374**	**$47,431**	**$46,499**	**$45,573**
Summary Revenue Requirements	**NPV RR**	**Levelized**																				
Investment cost	$528,279	$42,115	$54,149	$52,762	$51,375	$49,988	$48,602	$47,215	$45,828	$44,441	$43,055	$41,668	$40,281	$38,895	$37,508	$36,121	$34,734	$33,348	$31,961	$30,574	$29,187	$27,801
Extended outage purchased power	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Fixed O&M	$66,718	$5,319	$4,302	$4,409	$4,520	$4,633	$4,748	$4,867	$4,989	$5,114	$5,241	$5,372	$5,507	$5,644	$5,786	$5,930	$6,078	$6,230	$6,386	$6,546	$6,710	$6,877
Variable O&M w/o allowances or aux. pwr.	$39,165	$3,124	$2,104	$2,157	$2,211	$2,266	$2,323	$2,381	$6,158	$2,501	$2,564	$2,628	$2,694	$2,761	$2,830	$7,320	$2,973	$3,047	$3,124	$3,202	$3,282	$3,364
Auxiliary power, energy charge	$77,130	$6,149	$4,973	$5,096	$5,225	$5,356	$5,490	$5,627	$5,767	$5,912	$6,059	$6,211	$6,366	$6,525	$6,688	$6,856	$7,027	$7,203	$7,393	$7,567	$7,757	$7,950
Auxiliary power, capacity charge	$8,872	$707	$572	$586	$601	$616	$631	$647	$663	$680	$697	$714	$732	$751	$768	$788	$808	$829	$849	$870	$892	$915
Allowances	($122,152)	($9,738)	($13,288)	($13,288)	($19,932)	($19,932)	($19,932)	($17,274)	($14,617)	($11,959)	($9,301)	($6,644)	($3,986)	($1,329)	($1,329)	($1,329)	($1,329)	($1,329)	($1,329)	($1,329)	($1,329)	($1,329)
Fuel	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Total	$598,032	$47,676	$52,812	$51,724	$44,000	$42,927	$41,862	$43,463	$48,789	$46,689	$48,315	$49,950	$51,594	$53,247	$52,252	$55,687	$50,293	$49,328	$48,374	$47,431	$46,499	$45,573

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Pro Forma Financial Model
NPPD Multi-Pollutant Removal Study
Revenue Requirement Determination

Case 8: Wet FGD
0.28% Sulfur Fuel, Unit 2

Analysis Year			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Calendar Year			2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Discount factor			0.9501	0.9027	0.8577	0.8149	0.7743	0.7356	0.6989	0.6641	0.6310	0.5996	0.5696	0.5412	0.5142	0.4885	0.4642	0.4410	0.4190	0.3981	0.3783	0.3594
Capacity factor			80.00%	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%
Energy production, GWh (with NPV)	1	61,534	4,906	4,906	4,906	4,906	4,906	4,906	4,906	4,906	4,906	4,906	4,906	4,906	4,906	4,906	4,906	4,906	4,906	4,906	4,906	4,906
Available SOX allowances, tons			13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752
SOX allowance surrender rate			1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Equivalent available SOX allowances, tons			13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752
Equivalent SOX allowances used, tons (i.e., emissions)			(494)	(494)	(494)	(494)	(494)	(494)	(494)	(494)	(494)	(494)	(494)	(494)	(494)	(494)	(494)	(494)	(494)	(494)	(494)	(494)
Equivalent SOX allowances sold(+)/bought(-)			13,258	13,258	13,258	13,258	13,258	13,258	13,258	13,258	13,258	13,258	13,258	13,258	13,258	13,258	13,258	13,258	13,258	13,258	13,258	13,258
Tons SOX removed			15,744	15,744	15,744	15,744	15,744	15,744	15,744	15,744	15,744	15,744	15,744	15,744	15,744	15,744	15,744	15,744	15,744	15,744	15,744	15,744
Available Hg allowances, oz.			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hg allowance surrender rate			1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Equivalent available Hg allowances, oz.			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hg allowances used, oz. (i.e., emissions)			(10,347)	(10,347)	(10,347)	(10,347)	(10,347)	(10,347)	(10,347)	(10,347)	(10,347)	(10,347)	(10,347)	(10,347)	(10,347)	(10,347)	(10,347)	(10,347)	(10,347)	(10,347)	(10,347)	(10,347)
Hg allowances sold(+)/bought(-)			(10,346)	(10,346)	(10,346)	(10,346)	(10,346)	(10,346)	(10,346)	(10,346)	(10,346)	(10,346)	(10,346)	(10,346)	(10,346)	(10,346)	(10,346)	(10,346)	(10,346)	(10,346)	(10,346)	(10,346)
Ounces Hg removed			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tons NOX removed			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tons particulates removed			111,165	111,165	111,165	111,165	111,165	111,165	111,165	111,165	111,165	111,165	111,165	111,165	111,165	111,165	111,165	111,165	111,165	111,165	111,165	111,165
SOX allowance cost, $/ton (escalated values)			$1,000	$1,000	$1,500	$1,500	$1,500	$1,300	$1,100	$900	$700	$500	$300	$100	$100	$100	$100	$100	$100	$100	$100	$100
Hg allowance cost, $/oz (escalated values)			$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Control system operating period masks																						
SOX			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Hg			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
NOX			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Particulates			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Fixed charge rates																						
SOX			10.25%	9.99%	9.73%	9.48%	9.20%	8.94%	8.68%	8.41%	8.15%	7.89%	7.63%	7.36%	7.10%	6.84%	6.58%	6.31%	6.05%	5.79%	5.53%	5.26%
Hg			10.25%	9.99%	9.73%	9.48%	9.20%	8.94%	8.68%	8.41%	8.15%	7.89%	7.63%	7.36%	7.10%	6.84%	6.58%	6.31%	6.05%	5.79%	5.53%	5.26%
NOX			10.25%	9.99%	9.73%	9.48%	9.20%	8.94%	8.68%	8.41%	8.15%	7.89%	7.63%	7.36%	7.10%	6.84%	6.58%	6.31%	6.05%	5.79%	5.53%	5.26%
Particulates			10.25%	9.99%	9.73%	9.48%	9.20%	8.94%	8.68%	8.41%	8.15%	7.89%	7.63%	7.36%	7.10%	6.84%	6.58%	6.31%	6.05%	5.79%	5.53%	5.26%
Total																						
Fixed charges on investment, $1000s	**NPV RR**	**Levelized**																				
SOX	$518,285	$41,318	$53,124	$51,764	$50,403	$49,043	$47,682	$46,322	$44,961	$43,601	$42,240	$40,880	$39,519	$38,159	$36,798	$35,438	$34,077	$32,717	$31,356	$29,996	$28,635	$27,275
Hg	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
NOX	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Particulates	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Total	**$518,285**	**$41,318**	**$53,124**	**$51,764**	**$50,403**	**$49,043**	**$47,682**	**$46,322**	**$44,961**	**$43,601**	**$42,240**	**$40,880**	**$39,519**	**$38,159**	**$36,798**	**$35,438**	**$34,077**	**$32,717**	**$31,356**	**$29,996**	**$28,635**	**$27,275**
Extended outage purch power, $1000s																						
SOX	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Hg	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
NOX	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Particulates	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Total	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Fixed O&M expense, $1000s																						
For SOX control:																						
Maintenance (labor + mat'l)	$52,641	$4,197	$3,394	$3,479	$3,566	$3,655	$3,747	$3,840	$3,936	$4,035	$4,136	$4,239	$4,345	$4,454	$4,565	$4,679	$4,796	$4,916	$5,039	$5,165	$5,294	$5,426
Operating labor	$14,077	$1,122	$906	$930	$954	$977	$1,002	$1,027	$1,053	$1,079	$1,106	$1,134	$1,162	$1,191	$1,221	$1,251	$1,283	$1,315	$1,347	$1,381	$1,416	$1,451
For Hg control:																						
Maintenance (labor + mat'l)	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Operating labor	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
For NOX control:																						
Maintenance (labor + mat'l)	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Operating labor	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Total fixed O&M cost	**$66,718**	**$5,319**	**$4,302**	**$4,409**	**$4,520**	**$4,633**	**$4,749**	**$4,867**	**$4,989**	**$5,114**	**$5,241**	**$5,372**	**$5,507**	**$5,644**	**$5,786**	**$5,930**	**$6,078**	**$6,230**	**$6,386**	**$6,546**	**$6,710**	**$6,877**
Variable O&M expense, $1000s																						
For SOX control:																						
Limestone	$16,501	$1,315	$1,064	$1,091	$1,118	$1,146	$1,174	$1,204	$1,234	$1,265	$1,296	$1,329	$1,362	$1,396	$1,431	$1,467	$1,503	$1,541	$1,579	$1,619	$1,659	$1,701
Lime (90% available CaO)	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Dibasic acid	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Water for SOX removal	$7,526	$600	$485	$497	$510	$523	$536	$549	$563	$577	$591	$606	$621	$637	$653	$669	$686	$703	$720	$738	$757	$778
SO_3 reduction agent (Na_2CO_3)	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Solid waste sales revenue	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Solid waste landfill cost	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Gypsum sales revenue	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Gypsum landfill cost	$5,675	$452	$366	$375	$384	$394	$404	$414	$424	$435	$446	$457	$468	$480	$492	$504	$517	$530	$543	$557	$571	$585
Purchases (+) or sales (-) of allowances	($121,875)	($9,716)	($13,258)	($13,258)	($19,886)	($19,886)	($19,886)	($17,235)	($14,583)	($11,932)	($9,280)	($6,629)	($3,977)	($1,326)	($1,326)	($1,326)	($1,326)	($1,326)	($1,326)	($1,326)	($1,326)	($1,326)
Aux. power, energy charge	$77,130	$6,149	$4,973	$5,096	$5,225	$5,356	$5,490	$5,627	$5,767	$5,912	$6,059	$6,211	$6,366	$6,525	$6,688	$6,856	$7,027	$7,203	$7,383	$7,567	$7,757	$7,960
Aux. power, capacity charge	$8,872	$707	$572	$586	$601	$616	$631	$647	$663	$680	$697	$714	$732	$751	$769	$788	$808	$829	$849	$870	$892	$915
For Hg control:																						
Powdered activated carbon	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Brominated activated carbon	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Fuel additive	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Purchases (+) or sales (-) of allowances	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Aux. power, energy charge	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Aux. power, capacity charge	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
For NOX control:																						
Urea	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Catalyst	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Water for NOX removal	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Purchases (+) or sales (-) of allowances	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Aux. power, energy charge	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Aux. power, capacity charge	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
For particulate control:																						
Bags	$8,551	$522	$0	$0	$0	$0	$0	$0	$3,718	$0	$0	$0	$0	$0	$0	$4,410	$0	$0	$0	$0	$0	$0
Cages	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Flyash sales	($1,317)	($105)	($85)	($87)	($89)	($91)	($94)	($96)	($98)	($101)	($103)	($106)	($109)	($111)	($114)	($117)	($120)	($123)	($126)	($129)	($132)	($136)
Flyash landfill cost	$4,876	$389	$314	$322	$330	$339	$347	$356	$365	$374	$383	$393	$402	$413	$423	$433	$444	$455	$467	$478	$490	$503
Aux. power, energy charge	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Aux. power, capacity charge	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Total variable O&M cost	**$3,939**	**$314**	**($5,568)**	**($5,375)**	**($11,607)**	**($11,605)**	**($11,398)**	**($8,534)**	**($1,943)**	**($2,791)**	**$89**	**$2,975**	**$5,867**	**$8,764**	**$9,016**	**$13,694**	**$9,540**	**$9,817**	**$10,090**	**$10,375**	**$10,668**	**$10,968**
Fuel expense, $1000	**$0**	**$0**																				
Total revenue requirement, $1000s	**$568,942**	**$46,951**	**$51,858**	**$50,798**	**$43,116**	**$42,078**	**$41,933**	**$42,654**	**$48,003**	**$45,923**	**$47,571**	**$49,227**	**$50,893**	**$52,567**	**$51,600**	**$55,062**	**$49,696**	**$48,759**	**$47,832**	**$46,917**	**$46,013**	**$45,120**
Summary Revenue Requirements	**NPV RR**	**Levelized**																				
Investment cost	$518,285	$41,318	$53,124	$51,764	$50,403	$49,043	$47,682	$46,322	$44,961	$43,601	$42,240	$40,880	$39,519	$38,159	$36,798	$35,438	$34,077	$32,717	$31,356	$29,996	$28,635	$27,275
Extended outage purchased power	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Fixed O&M	$66,718	$5,319	$4,302	$4,409	$4,520	$4,633	$4,748	$4,867	$4,989	$5,114	$5,241	$5,372	$5,507	$5,644	$5,786	$5,930	$6,078	$6,230	$6,386	$6,546	$6,710	$6,877
Variable O&M w/o allowances or aux. pwr.	$39,812	$3,174	$2,145	$2,198	$2,253	$2,310	$2,367	$2,426	$6,205	$2,549	$2,613	$2,678	$2,745	$2,814	$2,884	$7,376	$3,030	$3,106	$3,184	$3,263	$3,345	$3,429
Auxiliary power, energy charge	$77,130	$6,149	$4,973	$5,096	$5,225	$5,356	$5,490	$5,627	$5,767	$5,912	$6,059	$6,211	$6,366	$6,525	$6,688	$6,856	$7,027	$7,203	$7,383	$7,567	$7,757	$7,960
Auxiliary power, capacity charge	$8,872	$707	$572	$586	$601	$616	$631	$647	$663	$680	$697	$714	$732	$751	$769	$788	$808	$829	$849	$870	$892	$915
Allowances	($121,875)	($9,716)	($13,258)	($13,258)	($19,886)	($19,886)	($19,886)	($17,235)	($14,583)	($11,932)	($9,280)	($6,629)	($3,977)	($1,326)	($1,326)	($1,320)	($1,326)	($1,326)	($1,326)	($1,326)	($1,326)	($1,326)
Fuel	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Total	$568,942	$46,951	$51,858	$50,798	$43,116	$42,070	$41,933	$42,654	$48,003	$45,923	$47,571	$49,227	$50,893	$52,567	$51,600	$55,062	$49,696	$48,759	$47,832	$46,917	$46,013	$45,120

Pro Forma Financial Model
NPPD Multi-Pollutant Removal Study
Revenue Requirement Determination

Case 11: Wet FGD
0.7% Sulfur Fuel, Unit 1

	NPV RR	Levelized	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Analysis Year			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Calendar Year			2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Discount factor			0.9501	0.9027	0.8577	0.8149	0.7743	0.7356	0.6989	0.6641	0.6310	0.5995	0.5696	0.5412	0.5142	0.4885	0.4642	0.4410	0.4190	0.3981	0.3783	0.3594
Capacity factor			80.00%	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%
Energy production, GWh (with NPV)	1	58,458	4,660	4,660	4,660	4,660	4,660	4,660	4,660	4,660	4,660	4,660	4,660	4,660	4,660	4,660	4,660	4,660	4,660	4,660	4,660	4,660
Available SOX allowances, tons			13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752
SOX allowance surrender rate			1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Equivalent available SOX allowances, tons			13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752
Equivalent SOX allowances used, tons (i.e., emissions)			(1,216)	(1,216)	(1,216)	(1,216)	(1,216)	(1,216)	(1,216)	(1,216)	(1,216)	(1,216)	(1,216)	(1,216)	(1,216)	(1,216)	(1,216)	(1,216)	(1,216)	(1,216)	(1,216)	(1,216)
Equivalent SOX allowances sold(+)/bought(-)			12,536	12,536	12,536	12,536	12,536	12,536	12,536	12,536	12,536	12,536	12,536	12,536	12,536	12,536	12,536	12,536	12,536	12,536	12,536	12,536
Tons SOX removed			41,338	41,338	41,338	41,338	41,338	41,338	41,338	41,338	41,338	41,338	41,338	41,338	41,338	41,338	41,338	41,338	41,338	41,338	41,338	41,338
Available Hg allowances, oz.			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hg allowance surrender rate			1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Equivalent available Hg allowances, oz.			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hg allowances used, oz. (i.e., emissions)			(10,549)	(10,549)	(10,549)	(10,549)	(10,549)	(10,549)	(10,549)	(10,549)	(10,549)	(10,549)	(10,549)	(10,549)	(10,549)	(10,549)	(10,549)	(10,549)	(10,549)	(10,549)	(10,549)	(10,549)
Hg allowances sold(+)/bought(-)			(10,549)	(10,549)	(10,549)	(10,549)	(10,549)	(10,549)	(10,549)	(10,549)	(10,549)	(10,549)	(10,549)	(10,549)	(10,549)	(10,549)	(10,549)	(10,549)	(10,549)	(10,549)	(10,549)	(10,549)
Ounces Hg removed			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tons NOX removed			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tons particulates removed			113,358	113,358	113,358	113,358	113,358	113,358	113,358	113,358	113,358	113,358	113,358	113,358	113,358	113,358	113,358	113,358	113,358	113,358	113,358	113,358
SOX allowance cost, $/ton (escalated values)			$1,000	$1,000	$1,500	$1,500	$1,500	$1,300	$1,100	$900	$700	$500	$300	$100	$100	$100	$100	$100	$100	$100	$100	$100
Hg allowance cost, $/oz.(escalated values)			$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Control system operating period masks																						
SOX			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Hg			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
NOX			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Particulates			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Fixed charge rates																						
SOX			10.25%	9.99%	9.73%	9.48%	9.20%	8.94%	8.68%	8.41%	8.15%	7.89%	7.63%	7.36%	7.10%	6.84%	6.58%	6.31%	6.05%	5.79%	5.53%	5.26%
Hg			10.25%	9.99%	9.73%	9.48%	9.20%	8.94%	8.68%	8.41%	8.15%	7.89%	7.63%	7.36%	7.10%	6.84%	6.58%	6.31%	6.05%	5.79%	5.53%	5.26%
NOX			10.25%	9.99%	9.73%	9.48%	9.20%	8.94%	8.68%	8.41%	8.15%	7.89%	7.63%	7.36%	7.10%	6.84%	6.58%	6.31%	6.05%	5.79%	5.53%	5.26%
Particulates			10.25%	9.99%	9.73%	9.48%	9.20%	8.94%	8.68%	8.41%	8.15%	7.89%	7.63%	7.36%	7.10%	6.84%	6.58%	6.31%	6.05%	5.79%	5.53%	5.26%
Total																						
Fixed charges on investment, $1000s	**NPV RR**	**Levelized**																				
SOX	$528,279	$42,115	$54,149	$52,762	$51,375	$49,988	$48,602	$47,215	$45,828	$44,441	$43,055	$41,668	$40,281	$38,895	$37,508	$36,121	$34,734	$33,348	$31,961	$30,574	$29,187	$27,801
Hg	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
NOX	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Particulates	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Total	**$528,279**	**$42,115**	**$54,149**	**$52,762**	**$51,375**	**$49,988**	**$48,602**	**$47,215**	**$45,828**	**$44,441**	**$43,055**	**$41,668**	**$40,281**	**$38,895**	**$37,508**	**$36,121**	**$34,734**	**$33,348**	**$31,961**	**$30,574**	**$29,187**	**$27,801**
Extended outage purch power, $1000s																						
SOX	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Hg	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
NOX	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Particulates	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Total	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Fixed O&M expense, $1000s																						
For SOX control:																						
Maintenance (labor + mat'l)	$52,641	$4,197	$3,394	$3,479	$3,566	$3,655	$3,747	$3,840	$3,936	$4,035	$4,136	$4,239	$4,345	$4,454	$4,565	$4,679	$4,796	$4,916	$5,039	$5,165	$5,294	$5,426
Operating labor	$14,077	$1,122	$908	$930	$954	$977	$1,002	$1,027	$1,053	$1,079	$1,106	$1,134	$1,162	$1,191	$1,221	$1,251	$1,283	$1,315	$1,347	$1,381	$1,416	$1,451
For Hg control:																						
Maintenance (labor + mat'l)	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Operating labor	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
For NOX control:																						
Maintenance (labor + mat'l)	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Operating labor	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Total fixed O&M cost	**$66,718**	**$5,319**	**$4,302**	**$4,409**	**$4,520**	**$4,633**	**$4,748**	**$4,867**	**$4,989**	**$5,114**	**$5,241**	**$5,372**	**$5,507**	**$5,644**	**$5,786**	**$5,930**	**$6,078**	**$6,230**	**$6,386**	**$6,546**	**$6,710**	**$6,877**
Variable O&M expense, $1000s																						
For SOX control:																						
Limestone	$33,972	$2,708	$2,190	$2,245	$2,301	$2,359	$2,418	$2,478	$2,540	$2,604	$2,669	$2,736	$2,804	$2,874	$2,946	$3,020	$3,095	$3,172	$3,252	$3,333	$3,416	$3,502
Lime (90% available CaO)	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Dibasic acid	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Water for SOX removal	$7,474	$596	$482	$494	$506	$519	$532	$545	$559	$573	$587	$602	$617	$632	$648	$664	$681	$698	$715	$733	$752	$770
SO_3 reduction agent (Na_2CO_3)	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Solid waste sales revenue	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Solid waste landfill cost	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Gypsum sales revenue	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Gypsum landfill cost	$11,755	$937	$758	$777	$796	$816	$837	$858	$879	$901	$923	$947	$970	$994	$1,019	$1,045	$1,071	$1,098	$1,125	$1,153	$1,182	$1,212
Purchases (+) or sales (-) of allowances	($115,236)	($9,187)	($12,536)	($12,536)	($18,803)	($18,803)	($18,803)	($16,296)	($13,789)	($11,282)	($8,775)	($6,268)	($3,761)	($1,254)	($1,254)	($1,254)	($1,254)	($1,254)	($1,254)	($1,254)	($1,254)	($1,254)
Aux. power, energy charge	$88,694	$7,071	$5,719	$5,862	$6,008	$6,159	$6,313	$6,470	$6,632	$6,796	$6,968	$7,142	$7,321	$7,504	$7,691	$7,884	$8,081	$8,283	$8,490	$8,702	$8,920	$9,142
Aux. power, capacity charge	$10,202	$813	$658	$674	$691	$708	$726	$744	$763	$782	$802	$822	$842	$863	$885	$907	$930	$953	$977	$1,001	$1,026	$1,052
For Hg control:																						
Powdered activated carbon	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Brominated activated carbon	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Fuel additive	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Purchases (+) or sales (-) of allowances	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Aux. power, energy charge	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Aux. power, capacity charge	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
For NOX control:																						
Urea	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Catalyst	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Water for NOX removal	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Purchases (+) or sales (-) of allowances	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Aux. power, energy charge	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Aux. power, capacity charge	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
For particulate control:																						
Bags	$6,551	$522	$0	$0	$0	$0	$0	$0	$3,718	$0	$0	$0	$0	$0	$0	$4,410	$0	$0	$0	$0	$0	$0
Cages	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Flyash sales	($1,343)	($107)	($87)	($89)	($91)	($93)	($96)	($98)	($100)	($103)	($105)	($108)	($111)	($114)	($116)	($119)	($122)	($125)	($129)	($132)	($135)	($138)
Flyash landfill cost	$4,973	$396	$321	$329	$337	$345	$354	$363	$372	$381	$391	$400	$410	$421	$431	$442	$453	$464	$476	$488	$500	$513
Aux. power, energy charge	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Aux. power, capacity charge	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Total variable O&M cost	**$47,049**	**$3,750**	**($2,475)**	**($2,244)**	**($8,254)**	**($7,990)**	**($7,720)**	**($4,936)**	**$1,573**	**$654**	**$3,459**	**$6,272**	**$9,093**	**$11,921**	**$12,251**	**$17,008**	**$12,934**	**$13,289**	**$13,653**	**$14,025**	**$14,497**	**$14,799**
Fuel expense, $1000	**$0**	**$0**																				
Total revenue requirement, $1000s	**$642,037**	**$51,184**	**$55,956**	**$54,928**	**$47,641**	**$46,631**	**$45,630**	**$47,146**	**$52,390**	**$50,208**	**$51,755**	**$53,313**	**$54,881**	**$56,460**	**$55,544**	**$59,059**	**$53,747**	**$52,867**	**$52,000**	**$51,145**	**$50,304**	**$49,477**
Summary Revenue Requirements	**NPV RR**	**Levelized**																				
Investment cost	$528,279	$42,115	$54,149	$52,762	$51,375	$49,988	$48,602	$47,215	$45,828	$44,441	$43,055	$41,668	$40,281	$38,895	$37,508	$36,121	$34,734	$33,348	$31,961	$30,574	$29,187	$27,801
Extended outage purchased power	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Fixed O&M	$66,718	$5,319	$4,302	$4,409	$4,520	$4,633	$4,748	$4,867	$4,989	$5,114	$5,241	$5,372	$5,507	$5,644	$5,786	$5,930	$6,078	$6,230	$6,386	$6,546	$6,710	$6,877
Variable O&M w/o allowances or aux. pwr.	$63,362	$5,053	$3,684	$3,756	$3,850	$3,946	$4,045	$4,146	$7,967	$4,356	$4,466	$4,576	$4,691	$4,808	$4,928	$9,471	$5,176	$5,307	$5,440	$5,576	$5,716	$5,858
Auxiliary power, energy charge	$88,694	$7,071	$5,719	$5,862	$6,008	$6,159	$6,313	$6,470	$6,632	$6,796	$6,968	$7,142	$7,321	$7,504	$7,691	$7,884	$8,081	$8,283	$8,490	$8,702	$8,920	$9,142
Auxiliary power, capacity charge	$10,202	$813	$658	$674	$691	$708	$726	$744	$763	$782	$802	$822	$842	$863	$885	$907	$930	$953	$977	$1,001	$1,026	$1,052
Allowances	($115,236)	($9,187)	($12,536)	($12,536)	($18,803)	($18,803)	($18,803)	($16,296)	($13,789)	($11,282)	($8,775)	($6,268)	($3,761)	($1,254)	($1,254)	($1,254)	($1,254)	($1,254)	($1,254)	($1,254)	($1,254)	($1,254)
Fuel	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Total	$642,037	$51,184	$55,956	$54,928	$47,641	$46,631	$45,630	$47,146	$52,390	$50,208	$51,755	$53,313	$54,881	$56,460	$55,544	$59,059	$53,747	$52,867	$52,000	$51,145	$50,304	$49,477

Pro Forma Financial Model
NPPD Multi-Pollutant Removal Study
Revenue Requirement Determination

Case 12: Wet FGD
0.7% Sulfur Fuel, Unit 2

	NPV RR	Levelized	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Analysis Year			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Calendar Year			2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Discount factor			0.9501	0.9027	0.8577	0.8149	0.7743	0.7356	0.6989	0.6641	0.6310	0.5996	0.5696	0.5412	0.5142	0.4886	0.4642	0.4410	0.4190	0.3981	0.3783	0.3594
Capacity factor			80.00%	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%
Energy production, GWh (with NPV)		61,534	4,906	4,906	4,906	4,906	4,906	4,906	4,906	4,906	4,906	4,906	4,906	4,906	4,906	4,906	4,906	4,906	4,906	4,906	4,906	4,906
Available SOX allowances, tons			13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752
SOX allowance surrender rate			1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Equivalent available SOX allowances, tons			13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752
Equivalent SOX allowances used, tons (i.e., emissions)			(1,295)	(1,295)	(1,295)	(1,295)	(1,295)	(1,295)	(1,295)	(1,295)	(1,295)	(1,295)	(1,295)	(1,295)	(1,295)	(1,295)	(1,295)	(1,295)	(1,295)	(1,295)	(1,295)	(1,295)
Equivalent SOX allowances sold(+)/bought(-)			12,457	12,457	12,457	12,457	12,457	12,457	12,457	12,457	12,457	12,457	12,457	12,457	12,457	12,457	12,457	12,457	12,457	12,457	12,457	12,457
Tons SOX removed			41,866	41,866	41,866	41,866	41,866	41,866	41,866	41,866	41,866	41,866	41,866	41,866	41,866	41,866	41,866	41,866	41,866	41,866	41,866	41,866
Available Hg allowances, oz.			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hg allowance surrender rate			1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Equivalent available Hg allowances, oz.			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hg allowances used, oz. (i.e., emissions)			(10,699)	(10,699)	(10,699)	(10,699)	(10,699)	(10,699)	(10,699)	(10,699)	(10,699)	(10,699)	(10,699)	(10,699)	(10,699)	(10,699)	(10,699)	(10,699)	(10,699)	(10,699)	(10,699)	(10,699)
Hg allowances sold(+)/bought(-)			(10,698)	(10,698)	(10,698)	(10,698)	(10,698)	(10,698)	(10,698)	(10,698)	(10,698)	(10,698)	(10,698)	(10,698)	(10,698)	(10,698)	(10,698)	(10,698)	(10,698)	(10,698)	(10,698)	(10,698)
Ounces Hg removed			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tons NOX removed			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tons particulates removed			114,970	114,970	114,970	114,970	114,970	114,970	114,970	114,970	114,970	114,970	114,970	114,970	114,970	114,970	114,970	114,970	114,970	114,970	114,970	114,970
SOX allowance cost, $/ton (escalated values)			$1,000	$1,000	$1,500	$1,500	$1,500	$1,300	$1,100	$900	$700	$500	$300	$100	$100	$100	$100	$100	$100	$100	$100	$100
Hg allowance cost, $/oz (escalated values)			$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Control system operating period masks																						
SOX			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Hg			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
NOX			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Particulates			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Fixed charge rates																						
SOX			10.25%	9.99%	9.73%	9.48%	9.20%	8.94%	8.68%	8.41%	8.15%	7.89%	7.63%	7.36%	7.10%	6.84%	6.58%	6.31%	6.05%	5.79%	5.53%	5.26%
Hg			10.25%	9.99%	9.73%	9.48%	9.20%	8.94%	8.68%	8.41%	8.15%	7.89%	7.63%	7.36%	7.10%	6.84%	6.58%	6.31%	6.05%	5.79%	5.53%	5.26%
NOX			10.25%	9.99%	9.73%	9.48%	9.20%	8.94%	8.68%	8.41%	8.15%	7.89%	7.63%	7.36%	7.10%	6.84%	6.58%	6.31%	6.05%	5.79%	5.53%	5.26%
Particulates			10.25%	9.99%	9.73%	9.48%	9.20%	8.94%	8.68%	8.41%	8.15%	7.89%	7.63%	7.36%	7.10%	6.84%	6.58%	6.31%	6.05%	5.79%	5.53%	5.26%
Total																						
Fixed charges on investment, $1000s	**NPV RR**	**Levelized**																				
SOX	$518,285	$41,318	$53,124	$51,764	$50,403	$49,043	$47,682	$46,322	$44,961	$43,601	$42,240	$40,880	$39,519	$38,159	$36,798	$35,438	$34,077	$32,717	$31,356	$29,996	$28,636	$27,275
Hg	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
NOX	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Particulates	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Total	**$518,285**	**$41,318**	**$53,124**	**$51,764**	**$50,403**	**$49,043**	**$47,682**	**$46,322**	**$44,961**	**$43,601**	**$42,240**	**$40,880**	**$39,519**	**$38,159**	**$36,798**	**$35,438**	**$34,077**	**$32,717**	**$31,356**	**$29,996**	**$28,635**	**$27,275**
Extended outage purch power, $1000s																						
SOX	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Hg	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
NOX	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Particulates	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Total	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Fixed O&M expense, $1000s																						
For SOX control:																						
Maintenance (labor + mat'l)	$52,641	$4,197	$3,394	$3,479	$3,566	$3,655	$3,747	$3,840	$3,936	$4,035	$4,136	$4,239	$4,345	$4,454	$4,565	$4,679	$4,796	$4,916	$5,039	$5,165	$5,294	$5,426
Operating labor	$14,077	$1,122	$908	$930	$954	$977	$1,002	$1,027	$1,053	$1,079	$1,106	$1,134	$1,162	$1,191	$1,221	$1,251	$1,283	$1,315	$1,347	$1,381	$1,416	$1,451
For Hg control:																						
Maintenance (labor + mat'l)	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Operating labor	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
For NOX control:																						
Maintenance (labor + mat'l)	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Operating labor	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Total fixed O&M cost	**$66,718**	**$5,319**	**$4,302**	**$4,409**	**$4,520**	**$4,633**	**$4,749**	**$4,867**	**$4,989**	**$5,114**	**$5,241**	**$5,372**	**$5,507**	**$5,644**	**$5,786**	**$5,930**	**$6,078**	**$6,230**	**$6,386**	**$6,546**	**$6,710**	**$6,877**
Variable O&M expense, $1000s																						
For SOX control:																						
Limestone	$34,456	$2,747	$2,222	$2,277	$2,334	$2,393	$2,452	$2,514	$2,576	$2,641	$2,707	$2,775	$2,844	$2,915	$2,988	$3,063	$3,139	$3,218	$3,298	$3,381	$3,465	$3,552
Lime (90% available CaO)	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Dibasic acid	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Water for SOX removal	$7,740	$617	$499	$512	$524	$537	$551	$565	$579	$593	$608	$623	$639	$655	$671	$688	$705	$722	$741	$759	$778	$798
SO_3 reduction agent (Na_2CO_3)	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Solid waste sales revenue	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Solid waste landfill cost	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Gypsum sales revenue	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Gypsum landfill cost	$11,922	$950	$769	$788	$808	$828	$849	$870	$891	$914	$937	$960	$984	$1,009	$1,034	$1,060	$1,086	$1,113	$1,141	$1,170	$1,199	$1,229
Purchases (+) or sales (-) of allowances	($114,512)	($9,129)	($12,457)	($12,457)	($18,685)	($18,685)	($18,686)	($16,194)	($13,702)	($11,211)	($8,720)	($6,228)	($3,737)	($1,246)	($1,246)	($1,246)	($1,246)	($1,246)	($1,246)	($1,246)	($1,246)	($1,246)
Aux. power, energy charge	$88,694	$7,071	$5,719	$5,862	$6,008	$6,159	$6,313	$6,470	$6,632	$6,798	$6,968	$7,142	$7,321	$7,504	$7,691	$7,884	$8,081	$8,283	$8,490	$8,702	$8,920	$9,142
Aux. power, capacity charge	$10,202	$813	$658	$674	$691	$708	$726	$744	$763	$782	$802	$822	$842	$863	$885	$907	$930	$953	$977	$1,001	$1,026	$1,052
For Hg control:																						
Powdered activated carbon	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Brominated activated carbon	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Fuel additive	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Purchases (+) or sales (-) of allowances	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Aux. power, energy charge	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Aux. power, capacity charge	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
For NOX control:																						
Urea	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Catalyst	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Water for NOX removal	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Purchases (+) or sales (-) of allowances	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Aux. power, energy charge	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Aux. power, capacity charge	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
For particulate control:																						
Bags	$6,551	$522	$0	$0	$0	$0	$0	$0	$3,718	$0	$0	$0	$0	$0	$0	$4,410	$0	$0	$0	$0	$0	$0
Cages	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Flyash sales	($1,362)	($109)	($88)	($90)	($92)	($95)	($97)	($99)	($102)	($104)	($107)	($110)	($112)	($115)	($118)	($121)	($124)	($127)	($130)	($134)	($137)	($140)
Flyash landfill cost	$5,043	$402	$325	$333	$342	$350	$359	$368	$377	$387	$396	$406	$416	$427	$437	$448	$459	$471	$483	$495	$507	$520
Aux. power, energy charge	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Aux. power, capacity charge	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Total variable O&M cost	**$48,735**	**$3,885**	**($2,353)**	**($2,100)**	**($8,070)**	**($7,895)**	**($7,533)**	**($4,762)**	**$1,733**	**$799**	**$3,591**	**$6,390**	**$9,196**	**$12,011**	**$12,343**	**$17,102**	**$13,030**	**$13,387**	**$13,753**	**$14,128**	**$14,513**	**$14,906**
Fuel expense, $1000	$0	$0																				
Total revenue requirement, $1000s	**$633,738**	**$50,522**	**$56,073**	**$54,673**	**$46,853**	**$45,871**	**$44,898**	**$46,427**	**$51,683**	**$49,513**	**$51,072**	**$52,642**	**$54,222**	**$55,814**	**$54,926**	**$58,470**	**$53,186**	**$52,335**	**$51,496**	**$50,670**	**$49,857**	**$49,058**
Summary Revenue Requirements	**NPV RR**	**Levelized**																				
Investment cost	$518,285	$41,318	$53,124	$51,764	$50,403	$49,043	$47,682	$46,322	$44,961	$43,601	$42,240	$40,880	$39,519	$38,159	$36,798	$35,438	$34,077	$32,717	$31,356	$29,996	$28,635	$27,275
Extended outage purchased power	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Fixed O&M	$66,718	$5,319	$4,302	$4,409	$4,520	$4,633	$4,748	$4,867	$4,989	$5,114	$5,241	$5,372	$5,507	$5,644	$5,786	$5,930	$6,078	$6,230	$6,386	$6,546	$6,710	$6,877
Variable O&M w/o allowances or aux. pwr.	$64,351	$5,130	$3,727	$3,820	$3,916	$4,013	$4,114	$4,217	$8,040	$4,430	$4,541	$4,654	$4,771	$4,890	$5,012	$9,557	$5,266	$5,398	$5,533	$5,671	$5,813	$5,958
Auxiliary power, energy charge	$88,694	$7,071	$5,719	$5,862	$6,006	$6,159	$6,313	$6,470	$6,632	$6,796	$6,968	$7,142	$7,321	$7,504	$7,691	$7,884	$8,081	$8,283	$8,490	$8,702	$8,920	$9,142
Auxiliary power, capacity charge	$10,202	$813	$658	$674	$691	$708	$726	$744	$763	$782	$802	$822	$842	$863	$885	$907	$930	$953	$977	$1,001	$1,026	$1,052
Allowances	($114,512)	($9,129)	($12,457)	($12,457)	($18,685)	($18,685)	($18,686)	($16,194)	($13,702)	($11,211)	($8,720)	($6,228)	($3,737)	($1,246)	($1,246)	($1,246)	($1,246)	($1,246)	($1,246)	($1,246)	($1,246)	($1,246)
Fuel	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Total	$633,738	$50,522	$56,073	$54,673	$46,853	$45,871	$44,898	$46,427	$51,683	$49,513	$51,072	$52,642	$54,222	$55,814	$54,926	$58,470	$53,186	$52,335	$51,496	$50,670	$49,857	$49,058

Pro Forma Financial Model
NPPD Multi-Pollutant Removal Study
Revenue Requirement Determination

Case 15: Wet FGD
1.0% Sulfur Fuel, Unit 1

Analysis Year			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Calendar Year			2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Discount factor			0.9501	0.9027	0.8577	0.8149	0.7743	0.7356	0.6989	0.6641	0.6310	0.5996	0.5696	0.5412	0.5142	0.4885	0.4642	0.4410	0.4190	0.3981	0.3783	0.3594
Capacity factor			80.00%	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%
Energy production, GWh (with NPV)	1	58,458	4,660	4,660	4,660	4,660	4,660	4,660	4,660	4,660	4,660	4,660	4,660	4,660	4,660	4,660	4,660	4,660	4,660	4,660	4,660	4,660
Available SOX allowances, tons			13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752
SOX allowance surrender rate			1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Equivalent available SOX allowances, tons			13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752
Equivalent SOX allowances used, tons (i.e., emissions)			(1,103)	(1,103)	(1,103)	(1,103)	(1,103)	(1,103)	(1,103)	(1,103)	(1,103)	(1,103)	(1,103)	(1,103)	(1,103)	(1,103)	(1,103)	(1,103)	(1,103)	(1,103)	(1,103)	(1,103)
Equivalent SOX allowances sold(+)/bought(-)			12,648	12,648	12,648	12,648	12,648	12,648	12,648	12,648	12,648	12,648	12,648	12,648	12,648	12,648	12,648	12,648	12,648	12,648	12,648	12,648
Tons SOX removed			54,065	54,065	54,065	54,065	54,065	54,065	54,065	54,065	54,065	54,065	54,065	54,065	54,065	54,065	54,065	54,065	54,065	54,065	54,065	54,065
Available Hg allowances, oz.			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hg allowance surrender rate			1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Equivalent available Hg allowances, oz.			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hg allowances used, oz. (i.e., emissions)			(9,710)	(9,710)	(9,710)	(9,710)	(9,710)	(9,710)	(9,710)	(9,710)	(9,710)	(9,710)	(9,710)	(9,710)	(9,710)	(9,710)	(9,710)	(9,710)	(9,710)	(9,710)	(9,710)	(9,710)
Hg allowances sold(+)/bought(-)			(9,709)	(9,709)	(9,709)	(9,709)	(9,709)	(9,709)	(9,709)	(9,709)	(9,709)	(9,709)	(9,709)	(9,709)	(9,709)	(9,709)	(9,709)	(9,709)	(9,709)	(9,709)	(9,709)	(9,709)
Ounces Hg removed			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tons NOX removed			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tons particulates removed			111,658	111,658	111,658	111,658	111,658	111,658	111,658	111,658	111,658	111,658	111,658	111,658	111,658	111,658	111,658	111,658	111,658	111,658	111,658	111,658
SOX allowance cost, $/ton (escalated values)			$1,000	$1,000	$1,500	$1,500	$1,500	$1,300	$1,100	$900	$700	$500	$300	$100	$100	$100	$100	$100	$100	$100	$100	$100
Hg allowance cost, $/oz (escalated values)			$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Control system operating period masks																						
SOX			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Hg			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
NOX			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Particulates			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Fixed charge rates																						
SOX			10.25%	9.99%	9.73%	9.46%	9.20%	8.94%	8.68%	8.41%	8.15%	7.89%	7.63%	7.36%	7.10%	6.84%	6.58%	6.31%	6.05%	5.79%	5.53%	5.26%
Hg			10.25%	9.99%	9.73%	9.46%	9.20%	8.94%	8.68%	8.41%	8.15%	7.89%	7.63%	7.36%	7.10%	6.84%	6.58%	6.31%	6.05%	5.79%	5.53%	5.26%
NOX			10.25%	9.99%	9.73%	9.46%	9.20%	8.94%	8.68%	8.41%	8.15%	7.89%	7.63%	7.36%	7.10%	6.84%	6.58%	6.31%	6.05%	5.79%	5.53%	5.26%
Particulates			10.25%	9.99%	9.73%	9.46%	9.20%	8.94%	8.68%	8.41%	8.15%	7.89%	7.63%	7.36%	7.10%	6.84%	6.58%	6.31%	6.05%	5.79%	5.53%	5.26%
Total																						
Fixed charges on investment, $1000s	**NPV RR**	**Levelized**																				
SOX	$528,279	$42,115	$54,149	$52,762	$51,375	$49,988	$48,602	$47,215	$45,828	$44,441	$43,055	$41,668	$40,281	$38,895	$37,508	$36,121	$34,734	$33,348	$31,961	$30,574	$29,187	$27,801
Hg	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
NOX	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Particulates	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Total	**$528,279**	**$42,115**	**$54,149**	**$52,762**	**$51,375**	**$49,988**	**$48,602**	**$47,215**	**$45,828**	**$44,441**	**$43,055**	**$41,668**	**$40,281**	**$38,895**	**$37,508**	**$36,121**	**$34,734**	**$33,348**	**$31,961**	**$30,574**	**$29,187**	**$27,801**
Extended outage purch power, $1000s																						
SOX	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Hg	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
NOX	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Particulates	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Total	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Fixed O&M expense, $1000s																						
For SOX control:																						
Maintenance (labor + mat'l)	$52,641	$4,197	$3,394	$3,479	$3,566	$3,655	$3,747	$3,840	$3,936	$4,035	$4,136	$4,239	$4,345	$4,454	$4,565	$4,679	$4,796	$4,916	$5,039	$5,165	$5,294	$5,426
Operating labor	$14,077	$1,122	$908	$930	$954	$977	$1,002	$1,027	$1,053	$1,079	$1,106	$1,134	$1,162	$1,191	$1,221	$1,251	$1,283	$1,315	$1,347	$1,381	$1,416	$1,451
For Hg control:																						
Maintenance (labor + mat'l)	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Operating labor	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
For NOX control:																						
Maintenance (labor + mat'l)	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Operating labor	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Total fixed O&M cost	**$66,718**	**$5,319**	**$4,302**	**$4,409**	**$4,520**	**$4,633**	**$4,749**	**$4,867**	**$4,989**	**$5,114**	**$5,241**	**$5,372**	**$5,507**	**$5,644**	**$5,786**	**$5,930**	**$6,078**	**$6,230**	**$6,386**	**$6,546**	**$6,710**	**$6,877**
Variable O&M expense, $1000s																						
For SOX control:																						
Limestone	$43,987	$3,505	$2,835	$2,906	$2,978	$3,053	$3,129	$3,207	$3,288	$3,370	$3,454	$3,540	$3,629	$3,720	$3,813	$3,908	$4,006	$4,106	$4,209	$4,314	$4,422	$4,532
Lime (90% available CaO)	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Dibasic acid	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Water for SOX removal	$7,422	$592	$479	$491	$503	$515	$528	$541	$555	$569	$583	$598	$613	$628	$644	$660	$676	$693	$710	$728	$746	$765
SO_3 reduction agent (Na_2CO_3)	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Solid waste sales revenue	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Solid waste landfill cost	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Gypsum sales revenue	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Gypsum landfill cost	$15,237	$1,215	$982	$1,007	$1,032	$1,058	$1,084	$1,112	$1,139	$1,168	$1,197	$1,227	$1,258	$1,289	$1,321	$1,354	$1,388	$1,423	$1,458	$1,495	$1,532	$1,571
Purchases (+) or sales (-) of allowances	($116,272)	($9,269)	($12,648)	($12,648)	($18,972)	($18,972)	($18,972)	($16,443)	($13,913)	($11,383)	($8,854)	($6,324)	($3,794)	($1,265)	($1,265)	($1,265)	($1,265)	($1,265)	($1,265)	($1,265)	($1,265)	($1,265)
Aux. power, energy charge	$88,694	$7,071	$5,719	$5,862	$6,008	$6,159	$6,313	$6,470	$6,632	$6,798	$6,968	$7,142	$7,321	$7,504	$7,691	$7,884	$8,081	$8,283	$8,490	$8,702	$8,920	$9,142
Aux. power, capacity charge	$10,202	$813	$658	$674	$691	$708	$726	$744	$763	$782	$802	$822	$842	$863	$885	$907	$930	$953	$977	$1,001	$1,026	$1,052
For Hg control:																						
Powdered activated carbon	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Brominated activated carbon	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Fuel additive	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Purchases (+) or sales (-) of allowances	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Aux. power, energy charge	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Aux. power, capacity charge	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
For NOX control:																						
Urea	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Catalyst	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Water for NOX removal	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Purchases (+) or sales (-) of allowances	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Aux. power, energy charge	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Aux. power, capacity charge	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
For particulate control:																						
Bags	$6,551	$522	$0	$0	$0	$0	$0	$0	$3,718	$0	$0	$0	$0	$0	$0	$4,410	$0	$0	$0	$0	$0	$0
Cages	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Flyash sales	($1,323)	($105)	($85)	($87)	($90)	($92)	($94)	($96)	($99)	($101)	($104)	($106)	($109)	($112)	($115)	($118)	($120)	($124)	($127)	($130)	($133)	($136)
Flyash landfill cost	$4,898	$390	$316	$324	$332	$340	$349	$357	$366	$375	$385	$394	$404	$414	$425	$435	$446	$457	$469	$481	$493	$505
Aux. power, energy charge	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Aux. power, capacity charge	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Total variable O&M cost	**$59,378**	**$4,734**	**($1,745)**	**($1,472)**	**($7,517)**	**($7,231)**	**($6,937)**	**($4,106)**	**$2,449**	**$1,577**	**$4,431**	**$7,293**	**$10,163**	**$13,041**	**$13,399**	**$18,185**	**$14,141**	**$14,526**	**$14,921**	**$15,326**	**$15,741**	**$16,166**
Fuel expense, $1000	$0	$0																				
Total revenue requirement, $1000s	**$654,375**	**$52,169**	**$56,706**	**$55,699**	**$48,378**	**$47,391**	**$46,413**	**$47,976**	**$53,266**	**$51,132**	**$52,727**	**$54,333**	**$55,951**	**$57,580**	**$56,692**	**$60,236**	**$54,954**	**$54,104**	**$53,268**	**$52,446**	**$51,638**	**$50,844**
Summary Revenue Requirements	**NPV RR**	**Levelized**																				
Investment cost	$528,279	$42,115	$54,149	$52,762	$51,375	$49,988	$48,602	$47,215	$45,828	$44,441	$43,055	$41,668	$40,281	$38,895	$37,508	$36,121	$34,734	$33,348	$31,961	$30,574	$29,187	$27,801
Extended outage purchased power	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Fixed O&M	$66,718	$5,319	$4,302	$4,409	$4,520	$4,633	$4,748	$4,867	$4,989	$5,114	$5,241	$5,372	$5,507	$5,644	$5,786	$5,930	$6,078	$6,230	$6,386	$6,546	$6,710	$6,877
Variable O&M w/o allowances or aux. pwr.	$76,754	$6,119	$4,527	$4,640	$4,756	$4,875	$4,996	$5,121	$8,967	$5,381	$5,516	$5,653	$5,794	$5,939	$6,088	$10,659	$6,396	$6,556	$6,720	$6,888	$7,060	$7,236
Auxiliary power, energy charge	$88,694	$7,071	$5,719	$5,862	$6,008	$6,159	$6,313	$6,470	$6,632	$6,796	$6,968	$7,142	$7,321	$7,504	$7,691	$7,884	$8,081	$8,283	$8,490	$8,702	$8,920	$9,142
Auxiliary power, capacity charge	$10,202	$813	$658	$674	$691	$708	$726	$744	$763	$782	$802	$822	$842	$863	$885	$907	$930	$953	$977	$1,001	$1,026	$1,052
Allowances	($116,272)	($9,269)	($12,648)	($12,648)	($18,972)	($18,972)	($18,972)	($16,443)	($13,913)	($11,383)	($8,854)	($6,324)	($3,794)	($1,265)	($1,265)	($1,265)	($1,265)	($1,265)	($1,265)	($1,265)	($1,265)	($1,265)
Fuel	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Total	$654,375	$52,169	$56,706	$55,699	$48,378	$47,391	$46,413	$47,976	$53,266	$51,132	$52,727	$54,333	$55,951	$57,580	$56,692	$60,236	$54,954	$54,104	$53,268	$52,446	$51,638	$50,844

Pro Forma Financial Model
NPPD Multi-Pollutant Removal Study
Revenue Requirement Determination

Sargent & Lundy LLC

Case 16: Wet FGD
1.0% Sulfur Fuel, Unit 2

Analysis Year			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Calendar Year			2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Discount factor			0.9501	0.9027	0.8577	0.8149	0.7743	0.7356	0.6989	0.6641	0.6310	0.5995	0.5696	0.5412	0.5142	0.4885	0.4642	0.4410	0.4190	0.3981	0.3783	0.3594
Capacity factor			80.00%	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%
Energy production, GWh (with NPV)	61,534		4,906	4,906	4,906	4,906	4,906	4,906	4,906	4,906	4,906	4,906	4,906	4,906	4,906	4,906	4,906	4,906	4,906	4,906	4,906	4,906
Available SOX allowances, tons			13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752
SOX allowance surrender rate			1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Equivalent available SOX allowances, tons			13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752	13,752
Equivalent SOX allowances used, tons (i.e., emissions)			(1,119)	(1,119)	(1,119)	(1,119)	(1,119)	(1,119)	(1,119)	(1,119)	(1,119)	(1,119)	(1,119)	(1,119)	(1,119)	(1,119)	(1,119)	(1,119)	(1,119)	(1,119)	(1,119)	(1,119)
Equivalent SOX allowances sold(+)/bought(-)			12,632	12,632	12,632	12,632	12,632	12,632	12,632	12,632	12,632	12,632	12,632	12,632	12,632	12,632	12,632	12,632	12,632	12,632	12,632	12,632
Tons SOX removed			54,835	54,835	54,835	54,835	54,835	54,835	54,835	54,835	54,835	54,835	54,835	54,835	54,835	54,835	54,835	54,835	54,835	54,835	54,835	54,835
Available Hg allowances, oz.			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hg allowance surrender rate			1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Equivalent available Hg allowances, oz.			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hg allowances used, oz. (i.e., emissions)			(9,848)	(9,848)	(9,848)	(9,848)	(9,848)	(9,848)	(9,848)	(9,848)	(9,848)	(9,848)	(9,848)	(9,848)	(9,848)	(9,848)	(9,848)	(9,848)	(9,848)	(9,848)	(9,848)	(9,848)
Hg allowances sold(+)/bought(-)			(9,847)	(9,847)	(9,847)	(9,847)	(9,847)	(9,847)	(9,847)	(9,847)	(9,847)	(9,847)	(9,847)	(9,847)	(9,847)	(9,847)	(9,847)	(9,847)	(9,847)	(9,847)	(9,847)	(9,847)
Ounces Hg removed			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tons NOX removed			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tons particulates removed			113,250	113,250	113,250	113,250	113,250	113,250	113,250	113,250	113,250	113,250	113,250	113,250	113,250	113,250	113,250	113,250	113,250	113,250	113,250	113,250
SOX allowance cost, $/ton (escalated values)			$1,000	$1,000	$1,500	$1,500	$1,500	$1,300	$1,100	$900	$700	$500	$300	$100	$100	$100	$100	$100	$100	$100	$100	$100
Hg allowance cost, $/oz (escalated values)			$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Control system operating period masks																						
SOX			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Hg			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
NOX			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Particulates			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Fixed charge rates																						
SOX			10.25%	9.99%	9.73%	9.48%	9.20%	8.94%	8.68%	8.41%	8.15%	7.89%	7.63%	7.36%	7.10%	6.84%	6.58%	6.31%	6.05%	5.79%	5.53%	5.26%
Hg			10.25%	9.99%	9.73%	9.48%	9.20%	8.94%	8.68%	8.41%	8.15%	7.89%	7.63%	7.36%	7.10%	6.84%	6.58%	6.31%	6.05%	5.79%	5.53%	5.26%
NOX			10.25%	9.99%	9.73%	9.48%	9.20%	8.94%	8.68%	8.41%	8.15%	7.89%	7.63%	7.36%	7.10%	6.84%	6.58%	6.31%	6.05%	5.79%	5.53%	5.26%
Particulates			10.25%	9.99%	9.73%	9.48%	9.20%	8.94%	8.68%	8.41%	8.15%	7.89%	7.63%	7.36%	7.10%	6.84%	6.58%	6.31%	6.05%	5.79%	5.53%	5.26%
Total																						
Fixed charges on investment, $1000s	**NPV RR**	**Levelized**																				
SOX	$518,285	$41,318	$53,124	$51,764	$50,403	$49,043	$47,682	$46,322	$44,961	$43,601	$42,240	$40,880	$39,519	$38,159	$36,798	$35,438	$34,077	$32,717	$31,356	$29,996	$28,635	$27,275
Hg	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
NOX	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Particulates	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Total	**$518,285**	**$41,318**	**$53,124**	**$51,764**	**$50,403**	**$49,043**	**$47,682**	**$46,322**	**$44,961**	**$43,601**	**$42,240**	**$40,880**	**$39,519**	**$38,159**	**$36,798**	**$35,438**	**$34,077**	**$32,717**	**$31,356**	**$29,996**	**$28,635**	**$27,275**
Extended outage purch power, $1000s																						
SOX	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Hg	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
NOX	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Particulates	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Total	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Fixed O&M expense, $1000s																						
For SOX control:																						
Maintenance (labor + mat'l)	$52,641	$4,197	$3,394	$3,479	$3,566	$3,655	$3,747	$3,840	$3,936	$4,035	$4,136	$4,239	$4,345	$4,454	$4,565	$4,679	$4,796	$4,916	$5,039	$5,165	$5,294	$5,426
Operating labor	$14,077	$1,122	$908	$930	$954	$977	$1,002	$1,027	$1,053	$1,079	$1,106	$1,134	$1,162	$1,191	$1,221	$1,251	$1,283	$1,315	$1,347	$1,381	$1,416	$1,451
For Hg control:																						
Maintenance (labor + mat'l)	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Operating labor	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
For NOX control:																						
Maintenance (labor + mat'l)	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Operating labor	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Total fixed O&M cost	**$66,718**	**$5,319**	**$4,302**	**$4,409**	**$4,520**	**$4,633**	**$4,749**	**$4,867**	**$4,989**	**$5,114**	**$5,241**	**$5,372**	**$5,507**	**$5,644**	**$5,786**	**$5,930**	**$6,078**	**$6,230**	**$6,386**	**$6,546**	**$6,710**	**$6,877**
Variable O&M expense, $1000s																						
For SOX control:																						
Limestone	$44,585	$3,554	$2,875	$2,947	$3,020	$3,096	$3,173	$3,253	$3,334	$3,417	$3,503	$3,590	$3,680	$3,772	$3,866	$3,963	$4,062	$4,164	$4,268	$4,374	$4,484	$4,596
Lime (90% available CaO)	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Dibasic acid	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Water for SOX removal	$7,681	$612	$495	$508	$520	$533	$547	$560	$574	$589	$603	$618	$634	$650	$666	$683	$700	$717	$735	$754	$772	$792
SO_3 reduction agent (Na_2CO_3)	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Solid waste sales revenue	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Solid waste landfill cost	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Gypsum sales revenue	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Gypsum landfill cost	$15,454	$1,232	$996	$1,021	$1,047	$1,073	$1,100	$1,127	$1,156	$1,185	$1,214	$1,244	$1,276	$1,307	$1,340	$1,374	$1,408	$1,443	$1,479	$1,516	$1,554	$1,593
Purchases (+) or sales (-) of allowances	($116,126)	($9,258)	($12,632)	($12,632)	($18,949)	($18,949)	($18,949)	($16,422)	($13,896)	($11,369)	($8,843)	($6,316)	($3,790)	($1,263)	($1,263)	($1,263)	($1,263)	($1,263)	($1,263)	($1,263)	($1,263)	($1,263)
Aux. power, energy charge	$88,694	$7,071	$5,719	$5,862	$6,008	$6,159	$6,313	$6,470	$6,632	$6,796	$6,968	$7,142	$7,321	$7,504	$7,691	$7,884	$8,081	$8,283	$8,490	$8,702	$8,920	$9,142
Aux. power, capacity charge	$10,202	$815	$658	$674	$691	$708	$726	$744	$763	$782	$802	$822	$842	$863	$885	$907	$930	$953	$977	$1,001	$1,026	$1,052
For Hg control:																						
Powdered activated carbon	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Brominated activated carbon	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Fuel additive	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Purchases (+) or sales (-) of allowances	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Aux. power, energy charge	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Aux. power, capacity charge	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
For NOX control:																						
Urea	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Catalyst	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Water for NOX removal	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Purchases (+) or sales (-) of allowances	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Aux. power, energy charge	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Aux. power, capacity charge	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
For particulate control:																						
Bags	$8,551	$522	$0	$0	$0	$0	$0	$0	$3,718	$0	$0	$0	$0	$0	$0	$4,410	$0	$0	$0	$0	$0	$0
Cages	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Flyash sales	($1,341)	($107)	($86)	($89)	($91)	($93)	($95)	($98)	($100)	($103)	($105)	($108)	($111)	($113)	($116)	($119)	($122)	($125)	($128)	($132)	($135)	($138)
Flyash landfill cost	$4,968	$396	$320	$326	$337	$345	$354	$362	$371	$381	$390	$400	$410	$420	$431	$442	$453	$464	$476	$487	$500	$512
Aux. power, energy charge	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Aux. power, capacity charge	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Total variable O&M cost	**$60,666**	**$4,836**	**($1,655)**	**($1,381)**	**($7,416)**	**($7,128)**	**($6,832)**	**($4,003)**	**$2,552**	**$1,679**	**$4,532**	**$7,393**	**$10,262**	**$13,140**	**$13,500**	**$18,288**	**$14,247**	**$14,635**	**$15,032**	**$15,440**	**$15,857**	**$16,285**
Fuel expense, $1000	$0	$0																				
Total revenue requirement, $1000s	**$645,669**	**$51,474**	**$55,771**	**$54,792**	**$47,507**	**$46,548**	**$45,599**	**$47,186**	**$52,502**	**$50,393**	**$52,013**	**$53,645**	**$55,288**	**$56,943**	**$56,084**	**$59,656**	**$54,403**	**$53,582**	**$52,775**	**$51,981**	**$51,202**	**$50,437**
Summary Revenue Requirements	**NPV RR**	**Levelized**																				
Investment cost	$518,285	$41,318	$53,124	$51,764	$50,403	$49,043	$47,682	$46,322	$44,961	$43,601	$42,240	$40,880	$39,519	$38,159	$36,798	$35,438	$34,077	$32,717	$31,356	$29,996	$28,635	$27,275
Extended outage purchased power	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Fixed O&M	$66,718	$5,319	$4,302	$4,409	$4,520	$4,633	$4,748	$4,867	$4,989	$5,114	$5,241	$5,372	$5,507	$5,644	$5,786	$5,930	$6,078	$6,230	$6,386	$6,546	$6,710	$6,877
Variable O&M w/o allowances or aux. pwr.	$77,898	$6,210	$4,600	$4,715	$4,833	$4,954	$5,078	$5,205	$9,053	$5,468	$5,605	$5,745	$5,889	$6,036	$6,187	$10,761	$6,600	$6,663	$6,829	$7,000	$7,175	$7,354
Auxiliary power, energy charge	$88,694	$7,071	$5,719	$5,862	$6,008	$6,159	$6,313	$6,470	$6,632	$6,796	$6,968	$7,142	$7,321	$7,504	$7,691	$7,884	$8,081	$8,283	$8,490	$8,702	$8,920	$9,142
Auxiliary power, capacity charge	$10,202	$813	$658	$674	$691	$708	$726	$744	$763	$782	$802	$822	$842	$863	$885	$907	$930	$953	$977	$1,001	$1,026	$1,052
Allowances	($116,126)	($9,258)	($12,632)	($12,632)	($18,949)	($18,949)	($18,949)	($16,422)	($13,896)	($11,369)	($8,843)	($6,316)	($3,790)	($1,263)	($1,263)	($1,263)	($1,263)	($1,263)	($1,263)	($1,263)	($1,263)	($1,263)
Fuel	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Total	$645,669	$51,474	$55,771	$54,792	$47,507	$46,548	$45,599	$47,186	$52,502	$50,393	$52,013	$53,645	$55,288	$56,943	$56,084	$59,656	$54,403	$53,582	$52,775	$51,981	$51,202	$50,437

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