VERIFIED DIRECT TESTIMONY OF DANIEL L. DOUGLAS

Q1. Please state your name and business address.

A1. My name is Daniel L. Douglas. My business address is 801 East 86th Avenue, Merrillville, Indiana 46410. I am the Vice President, Corporate Strategy and Development for NiSource Inc. I am filing this testimony on behalf of Northern Indiana Public Service Company ("NIPSCO").

Q2. Please briefly describe your educational and business experience.

A2. I received a Bachelor of Arts degree in Finance and Accounting from Cedarville University. I also received a Master of Business Administration degree from the Kellogg School of Management at Northwestern University. I have been employed by NiSource, NIPSCO's parent company, and NIPSCO in various departments for over fifteen years. I began my employment with NiSource in 1997 in the unregulated businesses focused on financial budgeting and analysis. I continued to work in finance and strategic roles with increasing responsibility through August 2008. In September 2008, I began working for Exelon Corporation as Manager of Corporate Strategy. In September 2012, I returned to NIPSCO,

accepting a position as Director of the Transmission Commercial Operations. In June 2013, I became Executive Director of Strategic Planning for NIPSCO, and I accepted my current position of Vice President, Corporate Strategy and Development in June 2016.

Q3. What are your responsibilities as Vice President, Corporate Strategy and Development?

A3. As Vice President of Corporate Strategy and Development, I am responsible for providing strategic leadership across NiSource as well as leadership to NIPSCO's resource planning process. I oversee the integrated resource planning group which interacts collaboratively across NIPSCO to support resource planning decisions within NIPSCO.

Q4. Have you previously testified before this or any other regulatory commission?

A4. Yes. I previously provided testimony before the Indiana Utility Regulatory Commission in two of NIPSCO's Regional Transmission Organization tracker filings (Cause Nos. 44156-RTO-3 and RTO-4).

Q5. What is the purpose of your direct testimony in this proceeding?

A5. The purpose of my testimony is to present the results of the analysis undertaken to evaluate NIPSCO's options to comply with the (1) Coal Combustion Residual

rule that became effective October 19, 2015 (the "CCR Rule") and (2) Effluent Limitation Guidelines rule that became effective on January 4, 2016 (the "ELG Rule"), collectively referred to herein as the "Environmental Rules." The Environmental Rules are described in detail by NIPSCO Witness Kelly R. Carmichael. The analyses supporting NIPSCO's Environmental Compliance Project are described in detail by NIPSCO Witness Kurt W. Sangster.

Q6. Are you sponsoring any attachments to your direct testimony?

A6. Yes. I am sponsoring the following attachment which was prepared under my direction and supervision:

Attachment 5-A	NPV of Revenue Requirement by Retirement Portfolio for All Scenarios and Sensitivities

INTRODUCTION / METHODOLOGY

<u>CCR and ELG Rules</u>

Q7. How did NIPSCO consider the ELG and CCR Rules?

A7. As described by Mr. Carmichael, although the rules are separate, the compliance solutions are related. Because of this connection, NIPSCO jointly modeled compliance for ELG and CCR rules on affected NIPSCO generating units.

Q8. What NIPSCO generating facilities are subject to the Environmental Rules?

A8. NIPSCO's coal-fired units affected by the Environmental Rules included in the Environmental Compliance Project are as follows:

Station[1]	Unit
Bailly	7*
Bailly	8*
Michigan City	12
Schahfer	14
Schahfer	15
Schahfer	17*
Schahfer	18*

*These units are affected by the Environmental Rules, but NIPSCO's analysis, indicates that compliance is not preferred under Portfolio 4 as further discussed below.

Q9. How did NIPSCO approach the analyses associated with the Environmental Rules?

A9. NIPSCO used a number of factors in analyzing the Environmental Compliance Project, including costs to customers as measured by overall Net Present Value of Revenue Requirements ("NPVRR"), portfolio diversity, and the impacts to NIPSCO's employees, the environment, and the local economy. NIPSCO's plan

[1] As further described by Mr. Sangster, there are no CCR units at Sugar Creek Generating Station ("Sugar Creek"), and there are no CCR waste streams at Sugar Creek. There are no ELG or CCR compliance costs for Sugar Creek included in NIPSCO's Environmental Compliance Plan. Therefore, the analysis contained in Attachment 5-A did not evaluate any impacts to Sugar Creek.

will ensure that a reliable, compliant, flexible, diverse, and affordable supply is available to meet future customer needs.

Analyses were performed for each of NIPSCO's coal-fired units that evaluated the cost of ongoing operations (including any additional ELG and CCR environmental compliance requirements) versus replacement of the units with an alternative (as described below). This cost to customer as measured by overall NPVRR was one of the determinants in NIPSCO's decision to either install control equipment on or retire a unit.

NIPSCO believes that this analysis requires consideration of several factors in addition to overall economics. To that end, NIPSCO also considered the effect of the Environmental Compliance Project on its portfolio diversity, employees, the local economies of the communities it serves, and the environment. NIPSCO remains committed to providing service to its customers that is affordable and reliable, while also remaining compliant with environmental regulations and assuring that it achieves a greater portfolio flexibility and diversity. Other impacts, such as the loss of work for employees, service providers, and suppliers of the generating units, and the reduction of property tax base for surrounding communities also factored into NIPSCO's decision making process. While these

do not directly impact power supply costs to customers, NIPSCO believes they are factors that should be included in the analyses.

The costs of compliance with the Environmental Rules for the affected units were evaluated under six (6) environmental compliance portfolios as shown in the table below. The capital and operating costs of the affected units were input into Strategist®, the Integrated Resource Plan ("IRP") modeling tool, as discussed below. The economic analyses compare the ongoing costs and benefits of operating the existing unit, including retrofitting it to comply with Environmental Rules, to the costs and benefits of retiring and replacing a unit with an alternative (described below). The analyses were evaluated across all scenarios and sensitivities proposed in NIPSCO's IRP submitted November 1, 2016 ("2016 IRP").

Portfolios	Description	% Coal Retired
1	All coal units run to end of life (60 years of service) [Environmental Rules compliance on all units]	0%
2	Retire Bailly in 2023, all other coal units run to end of life [Environmental Rules compliance on units 12, 14, 15, 17, 18]	20%
3	Retire Bailly in 2018, all other coal units run to end of life [Environmental Rules compliance on units 12, 14, 15, 17, 18]	20%

Portfolios	Description	% Coal Retired
4	Retire Bailly in 2018, Schahfer Units 17 and 18 in 2023 and all other coal units run to end of life [Environmental Rules compliance on units 12, 14, 15]	50%
5	Retire Bailly in 2018, Schahfer Units 14, 15, 17 and 18 in 2023 and all other coal units run to end of life [Environmental Rules compliance on unit 12]	80%
6	Retire Bailly in 2018, Schahfer Units 14, 15, 17 and 18 by 2023 and Michigan City Unit 12 in 2023 [Environmental Rules compliance on no units]	100%

Q10. What Environmental Rule compliance alternatives at each affected generation station were included in the economic analyses?

A10. Viable compliance technologies for each affected unit were selected as described by Mr. Sangster. The economic analyses compared the cost of implementing these viable compliance technologies versus retirement of the unit and replacement with an alternative as described below.[2]

[2] Because NIPSCO is continuing to evaluate the different technological options available for compliance with the ELG Rule, Mr. Sangster does not recommend specific ELG compliance projects. However, for purposes of NIPSCO's IRP analysis, ELG compliance costs were modeled at an approximate level of $170,000,000, including AFUDC, of which approximately $165,000,000 is related to the zero-liquid discharge ("ZLD") project discussed by Mr. Sangster. This total is based on a Class 4 estimate for ELG compliance costs at the R.M. Schahfer Generating Station.

Q11. What model was used for the evaluation of the Environmental Compliance Project?

A11. NIPSCO used the Strategist® Proview ("Strategist") software and its own analysis to evaluate the Environmental Compliance Project. The Strategist® model supports electric utility decision analysis through a variety of supply- and demand-side resource options to reliably and cost-effectively meet projected customer electric load. Strategist® incorporates a wide variety of expansion planning parameters in order to develop a coordinated integrated plan under a prescribed sets of constraints and assumptions. Strategist® does not consider some costs and/or savings necessary to include in the retirement analyses including property taxes and income taxes. Therefore, the Strategist® revenue requirements outputs were adjusted to account for these savings to customers when a unit is retired.

Q12. What process did NIPSCO use to complete this modeling analysis?

A12. In analysis of the Environmental Rules, the costs and benefits of retrofitting and continuing to operate the affected units with the appropriate ELG and CCR compliance technologies were compared to costs and benefits of retiring and replacing the units with an alternative. (See below for a discussion of the

alternative.) The analysis was evaluated across all scenarios and sensitivities proposed in NIPSCO's 2016 IRP.

RISKS

Q13. How was risk assessed in the analyses?

A13. NIPSCO incorporated risk analysis through the use of scenarios and sensitivities that capture risks and uncertainties about potential future states of the world. These scenarios and sensitivities were developed for the 2016 IRP and represent a future that is possible, but distinctly different from the other futures imagined in the other scenarios. Each scenario was modeled separately through the use of different datasets that are correlated to the specific future world, and these data sets were modeled using Strategist®. These risk scenarios and sensitivities are shown in the table below.

Base (B)	**Base Load**	**Base**	**Base**	**Base**	**No**
No CO_2 Price (Bs1)	Base Load	No	Base No CO_2	Base No CO_2	No
Low Load (Bs2)	Low Load	Base	Base	Base	No
High Gas Price (Bs3)	Base Load	Base	High	High	No
Loss of Major Industrial Load (Bs4)	Base, Loss Major Industrial	Base	Base	Base	No
Challenged Economy (CE)	**Low Load**	**Base**	**Low**	**Low**	**No**
No CO_2 Price (CEs1)	Low Load	No	Low No CO_2	Low No CO_2	No
Loss of Major Industrial Load (CEs2)	Low, Loss Major Industrial	Base	Low	Low	No
Aggressive Environmental Regulation (AE)	**Base Load**	**High**	**High**	**High**	**No**
High Renewables & Increasing Load (AEs1)	High Load	High	Very High	Very High	Yes
High Renewables & Decreasing Load (AEs2)	Low Load	High	Very High	Very High	Yes
Booming Economy (BE)	**High Load**	**Base**	**High**	**High**	**No**
No CO_2 Price (BEs1)	High Load	No	Base no CO_2	Base no CO_2	No
Major Industrial Load (BEs2)	Base, Loss Major Industrial	Base	High	High	No
Base Delayed Carbon (BDC)	**Base Load**	**Base BDC**	**Base BDC**	**Base BDC**	**No**

Q14. How did NIPSCO incorporate future decision risk mitigation into the risk scenarios?

A14. In developing the scenarios and sensitivities, NIPSCO identified key risks and uncertainties that could potentially affect its business environment. The drivers included load, regulations, environmental compliance, economy, technology, and commodity prices. These drivers formed the building blocks to construct the scenarios and sensitivities, which were assessed for diversity and robustness to ensure that they cover a wide range of uncertainties.

Q15. What future risks were considered in the Environmental Compliance Project analyses?

A15. The risks and uncertainties assessed in the analysis included carbon dioxide ("CO_2") emissions pricing, renewable energy adoption, load growth, power prices, and prices for fuel (natural gas and coal). These risks are addressed by evaluating the Environmental Compliance Project under a number of scenarios and sensitivities identified and described below.

SCENARIO ASSUMPTIONS

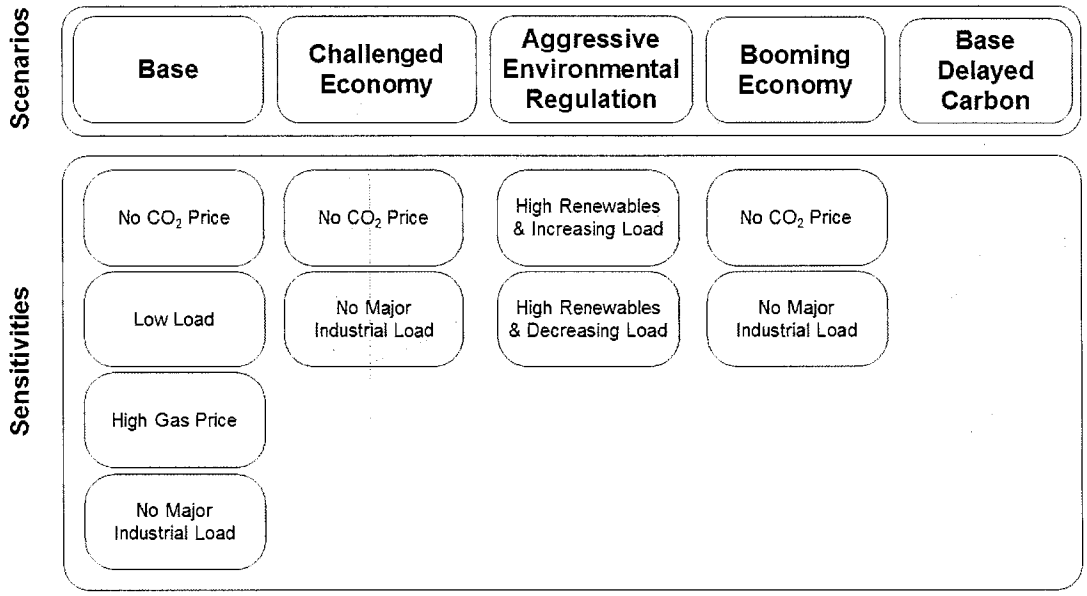
Q16. How did NIPSCO analyze the Environmental Compliance Project?

A16. The capital and operating costs of the affected units were input into the IRP model as discussed above. Environmental Compliance Projects associated with existing units were analyzed for the six (6) retirement options and compared the NPVRRs of the six (6) retirement options under the 2016 IRP scenarios and sensitivities.

Q17. What scenarios and sensitivities were considered by NIPSCO?

A17. In the 2016 IRP process, NIPSCO evaluated five (5) different scenarios and included ten (10) sensitivities to address risks associated with CO_2 emissions pricing, renewable energy adoption, load growth, power prices, and prices for fuel

(natural gas and coal). These different scenarios and sensitivities can be seen in the chart below.



Each of the scenarios and sensitivities was modeled separately through the use of different datasets that correspond to the specific future world. For example, a scenario that imagines a future with exceptionally strong economic growth must include forecasts for load growth and commodity prices that reflect strong economic performance. Alternatively, a scenario that captures a future with exceptionally weak economic growth must rely on different load and commodity price forecasts.

Q18. What commodities price assumptions were used in the analyses?

A18. The analyses used commodities price assumptions as described in NIPSCO's 2016 IRP. These include coal prices for two types of coal, Powder River Basin and Illinois Basin, MISO Indiana capacity prices, and on-peak and off-peak market energy prices.

Q19. What Environmental Compliance Project costs were used in the evaluation?

A19. The economic analyses uses Environmental Compliance Project costs that are described by Mr. Sangster for compliance with the CCR Rule. For the preferred retirement option of retiring 50% of the NIPSCO coal fleet, the modeled compliance costs for the CCR Rule were $221.8 million of direct and indirect costs which includes 3.0% capital costs escalation, and $6.7 million in AFUDC. As noted above, because NIPSCO is continuing to evaluate the different technological options available for compliance with the ELG Rule, Mr. Sangster does not recommend specific ELG compliance projects. However, for purposes of NIPSCO's IRP analysis, ELG compliance costs were modeled at an approximate level of $170,000,000, including AFUDC, of which approximately $165,000,000 is related to the zero-liquid discharge ("ZLD") project discussed by Mr. Sangster. This brings the total cost for compliance with the CCR Rule and ELG Rule to $385.8

million of direct and indirect costs which includes 3.0% capital costs escalation, and $13.1 million in AFUDC, for a total project cost of approximately $399 million.

Q20. What alternative was the Environmental Compliance Project evaluated against in the economic analyses?

A20. In the CCR/ELG and retirement analysis, the total cost of complying, maintaining and operating an existing unit was compared against the cost of a proxy resource scaled to the same megawatts as the existing resource. The replacement capacity was assumed to be purchased in MISO market and priced at MISO's cost of new entry ("CONE") and any required energy was purchased in the market and priced at PIRA-supplied price curves. Capacity prices were set at the MISO CONE price of $282/MW-day with 3% inflation. Although capacity may be available for purchase at a lower price, using CONE represents a high-end of capacity prices that would be available for NIPSCO to purchase in the market.

ENVIRONMENTAL COMPLIANCE PROJECT MODELING AND ECONOMIC ANALYSIS RESULTS

Q21. Please describe the results of the Environmental Compliance Project analyses.

A21. The detailed modeling results for all of the scenarios are presented in Attachment 5-A. The six (6) environmental compliance portfolios shown in the table above were evaluated across all scenarios and sensitivities proposed in the 2016 IRP. In

the base case, Portfolio 6 (where 100% of the coal portfolio is retired by 2023 rather than compliance with environmental rules and continued operations) is the lowest cost option, and Portfolio 1 (where all coal units run to 60 years of service) is the highest cost option. In the base scenario, Portfolio 4 (which retires Bailly in 2018, Schahfer Units 17 and 18 in 2023, and all other coal units run to end of life) is the third lowest cost option. Portfolio 4 is more expensive than the least cost alternative but represents a significant cost savings over retirement Portfolios 1 through 3. The cost to customer ranking remained broadly consistent across the 15 risk cases analyzed.

The results in Attachment 5-A show the cost to customer magnitude and ranking for all risk scenarios and sensitivities analyzed and described above. In all scenarios and sensitivities, retirement of all coal units and replacement with an alternative is the least cost or second least cost portfolio. In 13 out of 15 risk cases analyzed, NIPSCO's preferred portfolio, reflecting CCR and ELG compliance capital on Units 12, 14, and 15, is the third least expensive option of the generation portfolios analyzed and was the fourth lowest cost combination in the remaining two cases.

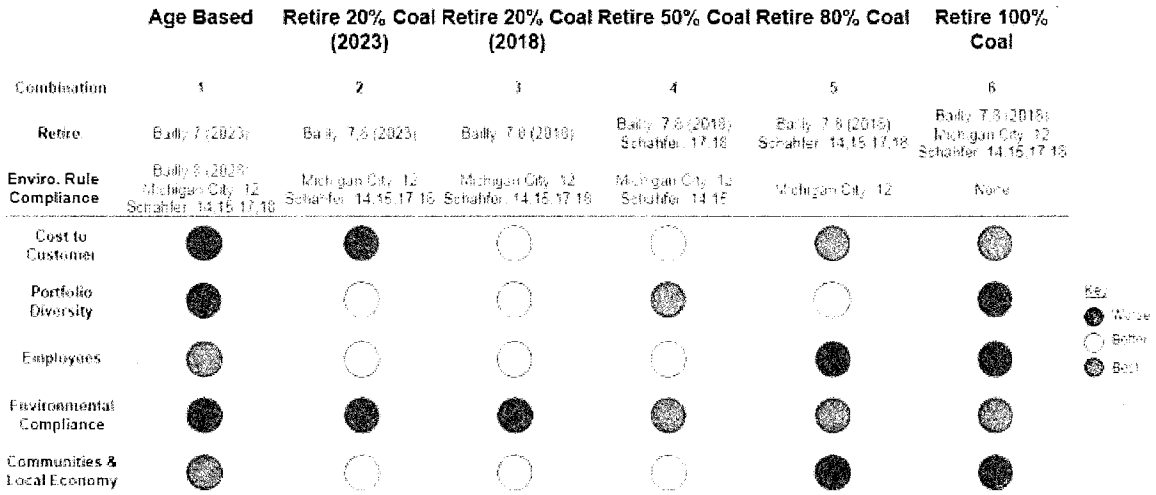
In addition to the NPVRR ranking which takes into consideration the overall costs to customers, NIPSCO also considered portfolio diversity, reliability of the system, employee and community impacts, and readiness to meet the proposed Clean Power Plan compliance targets, if and when promulgated.

The diversity of each environmental compliance portfolio was evaluated from fuel, technology, and duration of commitments perspectives. Fuel and technology diversity is important as over-reliance on a single fuel source may leave a utility and its customers unnecessarily exposed to various operational and financial risks from fuel supply disruptions and/or price volatility. Fuel and technology diversity is quantified by the capacity mix by the end of the planning period. Duration diversity is a measure of the length of commitment to any supply option. Electric generating plants are generally long-lived and capital-intensive, making these investments inherently risky for utilities and highly-sensitive to forecasts of fuel prices and availability. NIPSCO views a supply portfolio with diversity of fuel, technology, and duration of commitments to provide less risk for its stakeholders than one with less diversity.

As previously discussed, NIPSCO also considered other impacts of coal unit comply/retire decisions on surrounding communities. These impacts include the

loss of work for NIPSCO employees and its service providers/suppliers, as well as reductions to the property tax base for surrounding communities. While these factors do not directly impact power supply costs for customers, NIPSCO believes they are important considerations in selection of its environmental compliance decisions.

Based on the above criteria, NIPSCO created a scorecard to explore relative differences between the environmental compliance portfolios using a number of quantitative and qualitative measures. The scorecard simplifies considerations into a red, yellow, or green measure. A red measure is viewed as worse; a yellow is better; and a green measure is viewed as good. Selecting an environmental compliance portfolio with a red measure may have significant difficulties or hurdles to overcome. No environmental compliance combination has a green score across all measures, but combination 4 scores best among all combinations.



Portfolio 4, representing CCR and ELG compliance on Units 12, 14, and 15 and 50% coal retirement, was selected as the preferred portfolio option. In this option, NIPSCO has balanced stakeholder risk through fuel diversity and duration of commitment to the communities it serves.

CONCLUSION

Q22. Please summarize NIPSCO's evaluation of the modeling results for the Environmental Compliance Project.

A22. NIPSCO evaluated the Environmental Compliance Project under fifteen (15) separate risk scenarios and sensitivities. Although not the least expensive solution, in all modeling analyses, implementing the Environmental Compliance Project (CCR compliance on units 12, 14, and 15) along with ELG compliance

projects results in savings to customers over alternatives. This option balances other non-economic considerations such as portfolio diversity, reliability of the system, employee and community impacts, and readiness to meet the proposed Clean Power Plan compliance targets, if and when promulgated.

The preferred solution reached following these analyses (Portfolio 4) is consistent with the plan presented in NIPSCO's 2016 IRP.

Q23. Based on your analysis, do you believe that incurring the costs associated with the Environmental Compliance Project along with ELG compliance projects is a reasonable and necessary option for serving the capacity and energy needs of NIPSCO's customers?

A23. Yes. The preferred plan of installing CCR and ELG controls on Units 12, 14, and 15 aligns with NIPSCO's reliability, compliance, diversity, and flexibility criteria and has lower costs to customers than environmental compliance on all coal units across all scenarios and sensitivities evaluated. The Environmental Compliance Project also balances stakeholder risk through fuel diversity and duration of commitment to the communities it serves.

Q24. Does this conclude your prefiled direct testimony?

A24. Yes.

VERIFICATION

I, Daniel L. Douglas, Vice President, Corporate Strategy and Development for NiSource Inc., affirm under penalties of perjury that the foregoing representations are true and correct to the best of my knowledge, information and belief.

Daniel L. Douglas

Dated: June 22, 2017

NPV of Revenue Requirement by Retirement Portfolio for All Scenarios and Sensitivities

Scenario Sensitivity	Retire Portfolio	% Coal Retired	NPV	Rank (1=lowest)
Base	1	0%	12,288,366	6
	2	20%	12,243,769	5
	3	20%	12,086,840	4
	4	50%	12,055,714	3
	5	80%	11,773,978	2
	6	100%	11,773,581	1
Base	1	0%	9,640,577	6
No CO2 Price	2	20%	9,583,590	5
	3	20%	9,420,039	4
	4	50%	9,299,591	3
	5	80%	8,919,568	2
	6	100%	8,835,308	1
Base	1	0%	11,050,508	6
Low Load	2	20%	10,897,068	5
	3	20%	10,654,617	4
	4	50%	10,584,933	3
	5	80%	10,302,687	1
	6	100%	10,303,652	2
Base	1	0%	13,289,990	6
High Gas Price	2	20%	13,240,772	5
	3	20%	13,083,842	3
	4	50%	13,090,523	4
	5	80%	12,912,176	1
	6	100%	12,961,758	2
Base	1	0%	8,448,461	6
No Major Industrial Load	2	20%	8,288,250	5
	3	20%	8,037,657	4
	4	50%	7,882,205	3
	5	80%	7,530,481	2
	6	100%	7,525,155	1
Base Delayed Carbon	1	0%	11,154,586	6
	2	20%	11,088,449	5
	3	20%	10,945,510	4
	4	50%	10,874,773	3
	5	80%	10,516,545	2
	6	100%	10,460,903	1
Aggressive Environmental Regulation	1	0%	13,805,972	6
	2	20%	13,752,461	5
	3	20%	13,595,530	4
	4	50%	13,498,631	3
	5	80%	13,167,483	2
	6	100%	13,121,376	1

Scenario Sensitivity	Retire Portfolio	% Coal Retired	NPV	Rank (1=lowest)
Aggressive Environmental Regulation	1	0%	16,757,596	6
High Renewables & Increasing Load	2	20%	16,724,043	5
	3	20%	16,713,923	4
	4	50%	16,683,190	3
	5	80%	16,435,019	1
	6	100%	16,435,354	2
Aggressive Environmental Regulation	1	0%	13,577,002	6
High Renewables & Decreasing Load	2	20%	13,422,104	5
	3	20%	13,201,894	4
	4	50%	13,113,683	3
	5	80%	12,832,961	1
	6	100%	12,871,612	2
Challenged Economy	1	0%	10,406,511	6
	2	20%	10,252,461	5
	3	20%	10,016,116	4
	4	50%	9,927,875	3
	5	80%	9,563,196	2
	6	100%	9,512,999	1
Challenged Economy	1	0%	8,356,677	6
No CO2 Price	2	20%	8,196,546	5
	3	20%	7,955,883	4
	4	50%	7,821,113	3
	5	80%	7,400,401	2
	6	100%	7,286,803	1
Challenged Economy	1	0%	7,703,605	6
No Major Industrial Load	2	20%	7,540,331	5
	3	20%	7,293,435	4
	4	50%	7,058,127	3
	5	80%	6,649,333	2
	6	100%	6,600,656	1
Booming Economy	1	0%	14,617,519	6
	2	20%	14,584,068	5
	3	20%	14,522,331	3
	4	50%	14,556,166	4
	5	80%	14,375,612	1
	6	100%	14,421,851	2
Booming Economy	1	0%	10,482,986	6
No CO2 Price	2	20%	10,434,638	5
	3	20%	10,358,420	4
	4	50%	10,245,709	3
	5	80%	9,862,630	2
	6	100%	9,775,096	1
Booming Economy	1	0%	9,061,611	6
No Major Industrial Load	2	20%	8,897,925	5
	3	20%	8,644,995	4
	4	50%	8,489,335	3
	5	80%	8,196,569	1
	6	100%	8,239,867	2

Note: NPV reflects Strategist® outputs adjusted for property tax and income taxes