OFFICIAL EXHIBITS

STATE OF INDIANA

INDIANA UTILITY REGULATORY COMMISSION

PETITION OF NORTHERN INDIANA PUBLIC SERVICE COMPANY FOR AUTHORITY TO MODIFY ITS RATES AND CHARGES FOR ELECTRIC UTILITY SERVICE AND FOR APPROVAL OF: (1) CHANGES TO ITS ELECTRIC SERVICE TARIFF INCLUDING A NEW SCHEDULE OF RATES AND CHARGES AND CHANGES TO THE GENERAL RULES AND REGULATIONS AND CERTAIN RIDERS; (2) REVISED DEPRECIATION ACCRUAL RATES; (3) INCLUSION IN ITS BASIC RATES AND CHARGES OF THE COSTS ASSOCIATED WITH CERTAIN PREVIOUSLY APPROVED QUALIFIED POLLUTION CONTROL PROPERTY, CLEAN COAL TECHNOLOGY, CLEAN ENERGY PROJECTS AND FEDERALLY MANDATED COMPLIANCE PROJECTS; AND (4) ACCOUNTING RELIEF TO ALLOW NIPSCO TO DEFER, AS A REGULATORY ASSET OR LIABILITY, CERTAIN COSTS FOR RECOVERY IN A FUTURE PROCEEDING.	CAUSE NO. 44688

Direct Testimony and Exhibits of

Brian C. Andrews

On behalf of

NIPSCO Industrial Group

IURC
INTERVENOR'S IG
EXHIBIT NO. 4
4-13-16 CC
DATE REPORTER

January 22, 2016

BAI
BRUBAKER & ASSOCIATES, INC.

Project 10143

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STATE OF INDIANA

INDIANA UTILITY REGULATORY COMMISSION

PETITION OF NORTHERN INDIANA PUBLIC SERVICE COMPANY FOR AUTHORITY TO MODIFY ITS RATES AND CHARGES FOR ELECTRIC UTILITY SERVICE AND FOR APPROVAL OF: (1) CHANGES TO ITS ELECTRIC SERVICE TARIFF INCLUDING A NEW SCHEDULE OF RATES AND CHARGES AND CHANGES TO THE GENERAL RULES AND REGULATIONS AND CERTAIN RIDERS; (2) REVISED DEPRECIATION ACCRUAL RATES; (3) INCLUSION IN ITS BASIC RATES AND CHARGES OF THE COSTS ASSOCIATED WITH CERTAIN PREVIOUSLY APPROVED QUALIFIED POLLUTION CONTROL PROPERTY, CLEAN COAL TECHNOLOGY, CLEAN ENERGY PROJECTS AND FEDERALLY MANDATED COMPLIANCE PROJECTS; AND (4) ACCOUNTING RELIEF TO ALLOW NIPSCO TO DEFER, AS A REGULATORY ASSET OR LIABILITY, CERTAIN COSTS FOR RECOVERY IN A FUTURE PROCEEDING.	CAUSE NO. 44688

Direct Testimony of Brian C. Andrews

1 **Q PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.**

2 A Brian C. Andrews. My business address is 16690 Swingley Ridge Road, Suite 140,

3 Chesterfield, MO 63017.

4 **Q WHAT IS YOUR OCCUPATION?**

5 A I am a Consultant in the field of public utility regulation with Brubaker & Associates,

6 Inc., energy, economic and regulatory consultants.

Q PLEASE DESCRIBE YOUR EDUCATIONAL BACKGROUND AND EXPERIENCE.

A This information is included in Appendix A to my testimony.

Q ON WHOSE BEHALF ARE YOU APPEARING IN THIS PROCEEDING?

A I am appearing on behalf of The NIPSCO Industrial Group ("Industrial Group"). Industrial Group members purchase substantial quantities of electricity from Northern Indiana Public Service Company ("NIPSCO" or "Company").

Q WHAT IS THE SUBJECT MATTER OF YOUR DIRECT TESTIMONY?

A My testimony will address NIPSCO's proposed depreciation expense. I will propose adjustments to the survivor curves utilized for several transmission and distribution ("T&D") accounts, the net salvage rate for Account 353, and the inflation factor utilized to determine the terminal net salvage value of the production plants.

My silence in regard to any issue shall not be construed as an endorsement of NIPSCO's position.

Q PLEASE SUMMARIZE YOUR CONCLUSIONS AND RECOMMENDATIONS.

A My conclusions and recommendations are summarized as follows:

1. NIPSCO has overstated its depreciation rates for several accounts. These rates produce an excessive amount of depreciation expense and overstate the test year revenue requirement.
2. NIPSCO has underestimated the average service lives of three T&D accounts.
3. NIPSCO has overstated the net salvage rate required for Account 353.
4. NIPSCO has overstated the terminal net salvage cost of the production plants due to an excessive estimate of future inflation.
5. My proposed adjustments to NIPSCO's depreciation rates result in a reduction of $6.2 million to NIPSCO's depreciation expense.

Book Depreciation Concepts

Q PLEASE EXPLAIN THE PURPOSE OF BOOK DEPRECIATION ACCOUNTING.

A Book depreciation is the recognition in a utility's income statement of the consumption or use of assets to provide utility service. Book depreciation is recorded as an expense and is included in the ratemaking formula to calculate the utility's overall revenue requirement.

Book depreciation provides for the recovery of the original cost of the utility's assets that are currently providing service. Book depreciation expense is not intended to provide for replacement of the current assets, but provides for capital recovery or return of current investment. Generally, this capital recovery occurs over the average service life of the investment or assets. As a result, it is critical that appropriate average service lives be used to develop the depreciation rates so no generation of ratepayers is disadvantaged.

In addition to capital recovery, depreciation rates also contain a provision for net salvage. Net salvage is simply the scrap or reused value less the removal cost of the asset being depreciated. Accordingly, a utility will also recover the net salvage costs over the useful life of the asset.

Q BEFORE YOU BEGIN YOUR DISCUSSION ON NIPSCO'S PROPOSED DEPRECIATION RATES, PLEASE DEFINE NET SALVAGE.

A Net salvage is simply the value received from the sale or reuse of retired property (salvage value), less the cost of retiring such property (cost of removal). Net salvage can be either positive or negative. If the salvage value exceeds the cost of removal, the net salvage is positive. If the cost of removal is greater than the salvage value

received as a result of retirement, the resulting net salvage is negative. For NIPSCO, negative net salvage is a significant component of its depreciation rates and expense.

Q ARE THERE ANY DEFINITIONS OF DEPRECIATION ACCOUNTING THAT ARE UTILIZED FOR RATEMAKING PURPOSES?

A Yes. One of the most quoted definitions of depreciation accounting is the one contained in the Code of Federal Regulations:

> "Depreciation, as applied to depreciable electric plant, means the loss in service value not restored by current maintenance, incurred in connection with the consumption of prospective retirement of electric plant in the course of service from causes which are known to be in current operation and against which the utility is not protected by insurance. Among the causes to be given consideration are wear and tear, decay, action of the elements, inadequacy, obsolescence, changes in the art, changes in demand and requirements of public authorities." (Electronic Code of Federal Regulations, Title 18, Chapter 1, Subchapter C, Part 101)

Effectively, depreciation accounting provides for the recovery of the original cost of an asset over its useful life adjusted for net salvage.

Q WHAT METHOD, PROCEDURE AND TECHNIQUE WERE USED TO CALCULATE THE PROPOSED DEPRECIATION RATES FOR NIPSCO?

A The proposed depreciation rates were calculated using the straight line method, the equal life group procedure and the remaining life technique. Under this method, procedure and technique of developing depreciation rates, the unrecovered plant in service adjusted for net salvage, is recovered over the remaining life of the asset or group of assets. At the end of the useful life, the asset is fully depreciated.

NIPSCO witness John Spanos discusses the depreciation calculation process in his pre-filed Application Attachment 10-B.

Book Depreciation Recommendations

Q PLEASE SUMMARIZE THE PROPOSED CHANGES THAT YOU ARE RECOMMENDING TO NIPSCO'S PROPOSED TRANSMISSION AND DISTRIBUTION DEPRECIATION RATES.

A The T&D book depreciation rates should be reduced by: (1) increasing the average service lives associated with the property contained in Accounts 356, 365, and 367 such that the survivor curves better fits the retirement data and (2) decreasing the amount of net salvage collected for Account 353 to better reflect the actual net salvage history in this account.

Q PLEASE SUMMARIZE THE PROPOSED CHANGES THAT YOU ARE RECOMMENDING TO NIPSCO'S PROPOSED STEAM PRODUCTION DEPRECIATION RATES.

A The steam production net salvage ratios used to calculate NIPSCO's proposed book depreciation rates should be reduced to more accurately reflect future inflation. My review of the workpaper provided in response to Industrial Group's Fifth Set of Data Requests, Question No. 3, has revealed that Mr. Spanos utilized an inflation rate of 2.5%. Mr. Spanos' use of this excessive inflation rate overstates the future dismantlement cost. The inflation or escalation rate utilized to increase the dismantlement cost of the production plants should be reduced from 2.5% to 2.0%. 2.0% is a better estimate of future inflation, as it is in line with the Federal Reserve's target for inflation, the current breakeven inflation rate, and the U.S. Energy Information Administration's ("EIA") forecast of inflation over the next 25 years.

BAI Depreciation Model

Q PLEASE DISCUSS THE DEPRECIATION MODEL YOU CREATED TO DETERMINE THE APPROPRIATE SURVIVOR CURVES FOR THE TRANSMISSION AND DISTRIBUTION ACCOUNTS.

A I created an Excel-based model ("BAI Model") that tests the fit of the various Iowa curves to the original life table data for the NIPSCO accounts. The BAI Model also calculates the annual accrual and accrual rate for the account being studied. In the fitting process, the model determines for each curve type, the average service life that minimizes the sum of the squared differences ("SSD") between the Iowa curves and the actual data points that were determined to be significant.[1] This analysis provides for each dispersion, the average service life that best fits the data. Once that analysis is preformed, I conducted a visual analysis of the curves that had the lowest SSD. After utilizing judgement to select the appropriate curve, the model then can calculate the annual accrual amount and the corresponding depreciation rate for the account. The annual accrual amount is calculated in the same manner as described in the NIPSCO Deprecation Study for the Equal Life Group method with the Remaining Life technique.

Q HOW DOES THE BAI MODEL DEPRECIATION MODEL COMPARE TO THE NIPSCO DEPRECATION MODEL WHEN THE SAME INPUTS ARE UTILIZED?

A For the accounts that I am recommending changes to, the annual accrual and accrual rate are nearly identical to what is calculated by NIPSCO. This comparison is shown below in Table 1.

[1]Significant data points were determined by dividing the exposures for each vintage by the Age 0 vintage exposures. If that ratio was greater than 1%, the data point was determined to be significant.

TABLE 1

Comparison of NIPSCO and BAI Depreciation Models with NIPSCO's Proposed Survivor Curves

	NIPSCO Model		BAI Model		Delta	
Account	Annual Accrual	Accrual Rate	Annual Accrual	Accrual Rate	Annual Accrual	Accrual Rate
356	2,936,417	1.97	2,931,260	1.96	(5,157)	(0.01)
365	5,348,864	2.53	5,349,195	2.53	331	0.00
367	8,101,883	2.93	8,101,125	2.93	(758)	0.00
Total	**$ 16,387,164**		**$ 16,381,580**		**$ (5,584)**	

As can be seen above in Table 1, the differences between the annual accrual amount between the BAI Model and NIPSCO's are insignificant. The total expense for these three accounts only differ by $5,584 which is only a difference of 0.03%.

Q WHAT CAN YOU CONCLUDE ABOUT THE RESULTS SHOWN ABOVE IN TABLE 1?

A Table 1 shows that the BAI deprecation model is an acceptable tool for calculating the annual accrual amount for T&D accounts when using survivor curves that differ from NIPSCO's proposal.

T&D Proposed Survivor Curves

Q WHICH T&D ACCOUNTS ARE YOU RECOMMENDING A SURVIVOR CURVE THAT DIFFERS FROM NIPSCO PROPOSALS?

A I am recommending that the survivor curves for Accounts 356, 365, and 367 be changed to reflect dispersions and average service lives that better fit the actual retirement data for the property in the account.

Q **PLEASE SUMMARIZE THE IMPACT ON THE DEPRECATION EXPENSE FOR THE ACCOUNTS WHICH YOU ARE RECOMMENDING SURVIVOR CURVES THAT DIFFER FROM NIPSCO'S RECOMMENDATIONS.**

A Table 2 below shows the impact on each account. The sum of these three adjustments is a reduction of $2.1 million to NIPSCO's depreciation expense.

TABLE 2

Industrial Group's Proposed Adjustments for Transmission and Distribution Accounts

	NIPSCO Model			BAI Model			Delta	
Account	Survivor Curve	Annual Accrual	Accrual Rate	Survivor Curve	Annual Accrual	Accrual Rate	Annual Accrual	Accrual Rate
356	60-R2.5	2,936,417	1.97	73-R2	2,336,782	1.56	(599,635)	(0.41)
365	55-R1.5	5,348,864	2.53	61-R1	4,965,790	2.35	(383,074)	(0.18)
367	50-R2.5	8,101,883	2.93	58-R2	6,959,355	2.51	(1,142,528)	(0.42)
Total		**$ 16,387,164**			**$ 14,261,927**		**$ (2,125,237)**	

Account 356

Q **WHAT TYPE OF PROPERTY IS CONTAINED IN ACCOUNT 356?**

A This account is for Overhead Conductors and Devices. According to the FERC Uniform System of Accounts, "This account shall include the cost installed of overhead conductors and devices used for transmission purposes." The items contained within this account include, circuit breakers, conductors, ground wires, insulators, lightning arresters, switches, and other line devices.

Q **WHAT SURVIVOR CURVE IS NIPSCO RECOMMENDING FOR ACCOUNT 356?**

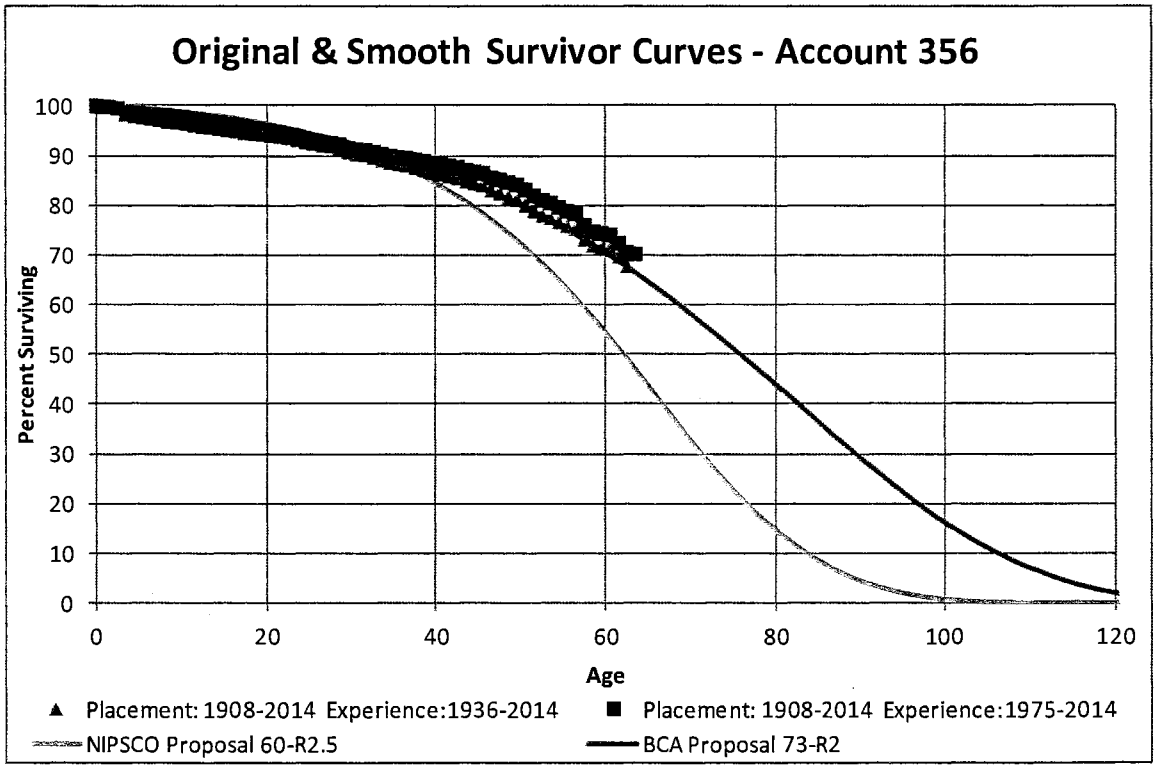
A NIPSCO is proposing to use a 60-R2.5 survivor curve. That is the Iowa R2.5 dispersion curve with an average service life of 60 years. This proposal yields a

composite remaining life for this account of 35.6 years and an annual depreciation expense of $2,936,417.

Q DO YOU AGREE WITH NIPSCO'S RECOMMENDATION FOR THE SURVIVOR CURVE TO UTILIZE FOR ACCOUNT 356?

A No, I do not. According to the BAI Model and my visual fitting analysis, there are curves that fit the data better. Figure 1 below shows NIPSCO's proposed survivor curve, green line, and my proposed survivor curve, purple line, as well as the actual plant surviving data.

Figure 1



As Figure 1 shows, NIPSCO's proposed 60-R2.5 survivor curve, the green line, begins to deviate significantly from the actual data around property aged 40 years. My recommendation of a 73-R2 survivor cure, the purple line, produces a

better fit for the actual retirement data and will more accurately determine the remaining lives of the property in this account. The SSD measurement from the BAI model for my recommendation is only 104 versus NIPSCO's curve that has an SSD of 2,952. Statistically speaking, the lower the SSD, the better the fit. My recommendation of a 73-R2 survivor curve fits NIPSCO's actual retirement data, through the significant data points, much better than NIPSCO's proposal of a 60 R2.5 Iowa curve.

Q WHAT IS THE IMPACT ON THE ANNUAL ACCRUAL AND ACCRUAL RATE FOR ACCOUNT 356 DUE TO A CHANGE IN THE SURVIVOR CURVE?

A Changing the survivor curve for Account 356 from a 60-R2.5 to a 73-R2 reduces the annual accrual by $599,635 to $2,336,782. This also reduces the accrual rate to 1.56%, down from the NIPSCO proposal of 1.97%. The recommendation results in a composite remaining life of 44.7 years versus NIPSCO's proposal of 35.6 years.

Account 365

Q WHAT TYPE OF PROPERTY IS CONTAINED IN ACCOUNT 365?

A This account is for Overhead Conductors and Devices. According to the FERC Uniform System of Accounts, "This account shall include the cost installed of overhead conductors and devices used for distribution purposes." The items contained within this account include, circuit breakers, conductors, ground wires, insulators, lightning arresters, railroad and highway crossing guards, switches, the initial cost of tree trimming including permits, and other line devices.

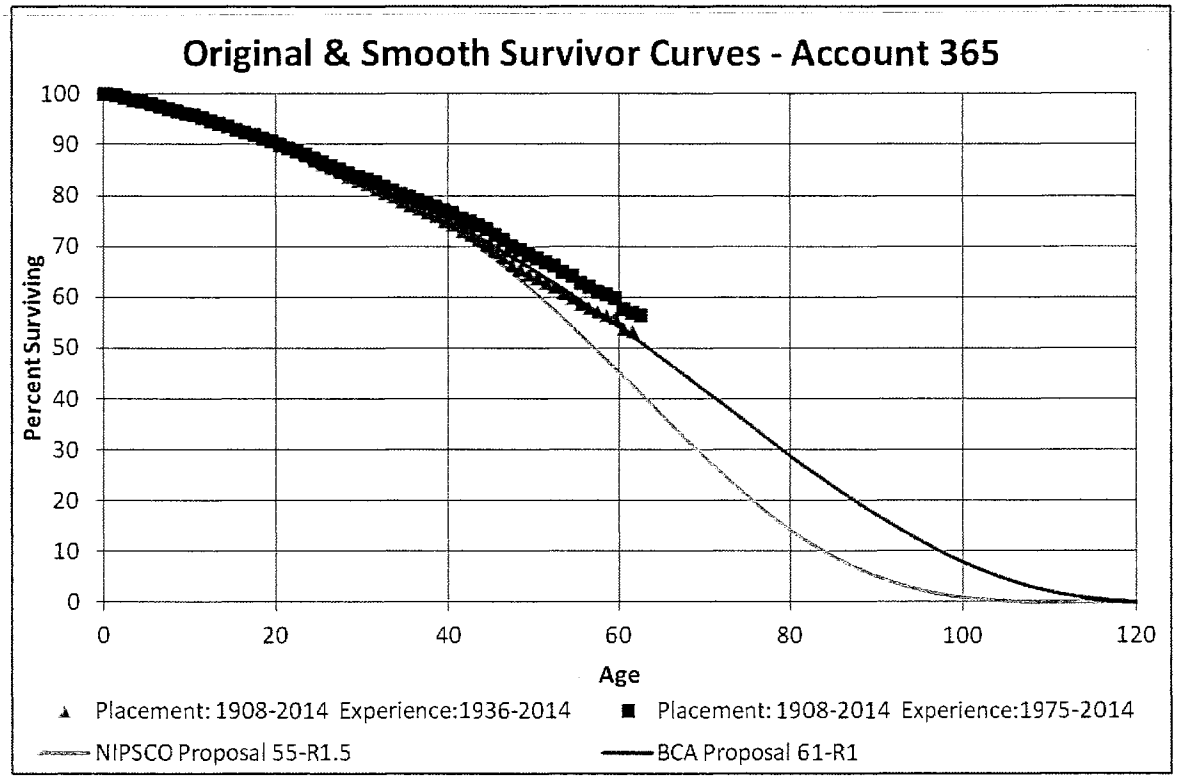
Q WHAT SURVIVOR CURVE IS NIPSCO RECOMMENDING FOR ACCOUNT 365?

A NIPSCO is proposing to use a 55-R1.5 survivor curve. That is the Iowa R1.5 dispersion curve with an average service life of 55 years. This proposal yields a composite remaining life for this account of 32.3 years and an annual depreciation expense of $5,348,864.

Q DO YOU AGREE WITH NIPSCO'S RECOMMENDATION FOR THE SURVIVOR CURVE TO UTILIZE FOR ACCOUNT 365?

A No, I do not. According to the BAI Model and my visual fitting analysis, there are curves that fit the data better. Figure 2 below shows NIPSCO's proposed survivor curve, the green line, and my recommended survivor curve, the purple line, as well as the actual plant surviving data.

Figure 2



As Figure 2 shows, NIPSCO's proposed 55-R1.5 survivor curve begins to deviate significantly from the actual retirement data around property aged 50 years. My recommendation of a 61-R1 survivor curve produces a better fit for the significant data points and will more accurately determine the remaining lives of the property in this account. Additionally, the more recent experience band, the red squares, shows that the lives of this property are increasing with newer vintages. The SSD measurement from the BAI model for my recommended curve is only 31 versus 670 for NIPSCO's curve. Again, a lower SSD represents a better statistical fit. The purple line clearly is a more accurate representation of the life characteristics of NIPSCO's property in this account as it matches the actual data for property aged 0 to 62 years.

Q WHAT IS THE IMPACT ON THE ANNUAL ACCRUAL AND ACCRUAL RATE FOR ACCOUNT 365 DUE TO A CHANGE IN THE SURVIVOR CURVE?

A Changing the survivor curve for Account 365 from a 55-R1.5 to a 61-R1 reduces the annual accrual by $383,074 to $4,965,790. This also reduces the accrual rate to 2.35%, down from the NIPSCO proposal of 2.53%. This recommendation increases the composite remaining life to 34.8 years, versus NIPSCO's proposal which results in a remaining life of 32.3 years.

Account 367

Q WHAT TYPE OF PROPERTY IS CONTAINED IN ACCOUNT 367?

A This account is for Underground Conductors and Devices. According to the FERC Uniform System of Accounts, "This account shall include the cost installed of underground conductors and devices used for distribution purposes." The items contained within this account include, circuit breakers, armored conductors, insulators, insulating materials, splicing, fireproofing, inspections, permits, cable racking, lightning arresters, switches, and other line devices.

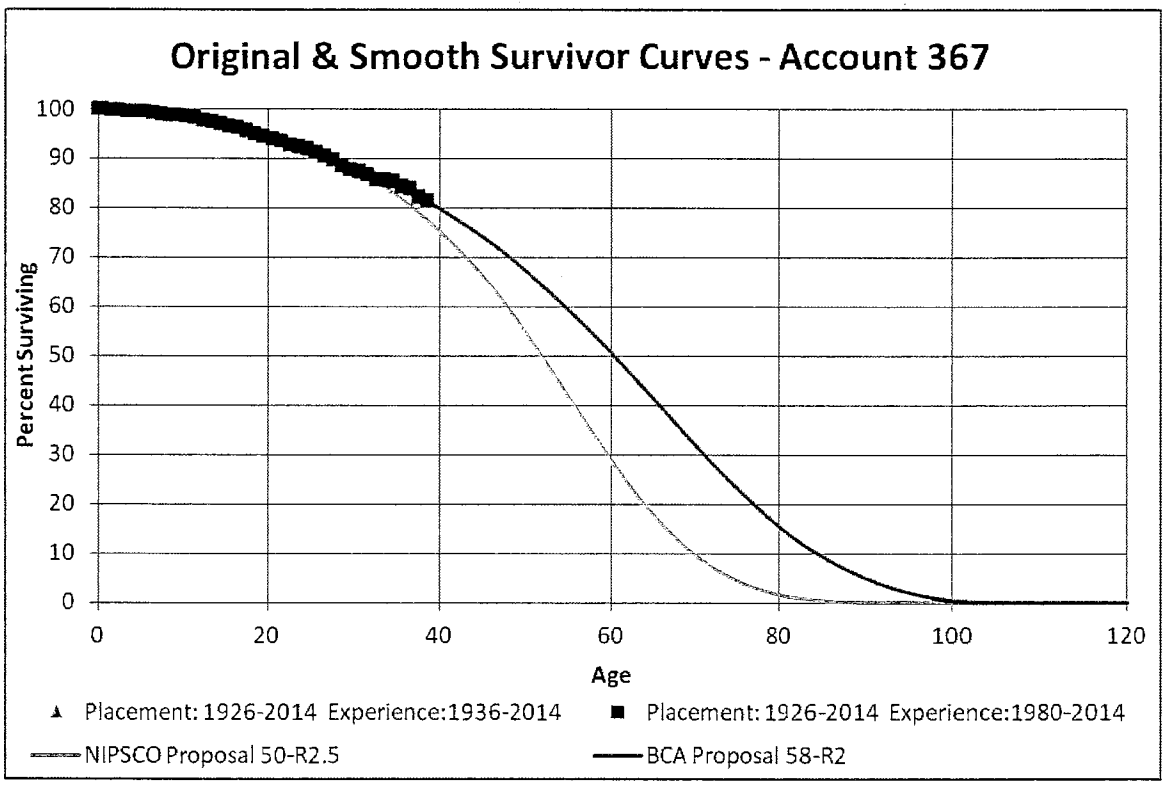
Q WHAT SURVIVOR CURVE IS NIPSCO RECOMMENDING FOR ACCOUNT 367?

A NIPSCO is proposing to use a 50-R2.5 survivor curve. That is the Iowa R2.5 dispersion curve with an average service life of 50 years. This proposal yields a composite remaining life for this account of 31.9 years and an annual depreciation expense of $8,101,883.

Q DO YOU AGREE WITH NIPSCO'S RECOMMENDATION FOR THE SURVIVOR CURVE TO UTILIZE FOR ACCOUNT 367?

A No, I do not. According to the BAI Model and my visual fitting analysis, there are curves that fit the data better. Figure 3 below shows NIPSCO's proposed survivor curve, the green line, and my recommended survivor curve, the purple line, as well as the actual plant surviving data.

Figure 3



As Figure 3 shows, NIPSCO's proposed 50-R2.5 survivor curve begins to deviate from the actual data around property aged 35 years. The SSD measurement from the BAI model for my recommended curve is only 10 versus 55 for NIPSCO's proposal. The line with the lowest SSD will provide for the statistically best fitting curve. My recommendation of a 58-R2 survivor curve produces a better fit for the data and will more accurately determine the remaining lives of the property in this

account. The recommendation is in line with all significant data points and does not deviate from the data prematurely as NIPSCO's proposal does.

Q WHAT IS THE IMPACT ON THE ANNUAL ACCRUAL AND ACCRUAL RATE FOR ACCOUNT 367 DUE TO A CHANGE IN THE SURVIVOR CURVE?

A Changing the survivor curve for Account 367 from a 50-R2.5 to a 58-R2 reduces the annual accrual by $1,142,528 to $6,959,355. This also reduces the accrual rate to 2.51%, down from the NIPSCO proposal of 2.93%. The 58-R2 recommendation results in a composite remaining life of 37.1 years versus NIPSCO's proposal of 31.9 years.

Account 353 Net Salvage Rate

Q WHAT TYPE OF PROPERTY IS CONTAINED IN ACCOUNT 353?

A This account is for Station Equipment. According to the FERC Uniform System of Accounts, "This account shall include the cost installed of transforming, conversion, and switching equipment used for the purpose of changing the characteristics of electricity in connection with its transmission or for controlling transmission circuits." This includes much of the equipment located within the fence at a transmission substation, including the busses, conduit, control equipments, transformers, switching equipment, insulators, general station equipment, etc.

Q PLEASE DESCRIBE THE NET SALVAGE ANALYSIS CONDUCTED BY MR. SPANOS FOR ACCOUNT 353.

A Mr. Spanos, for Account 353 as well as all other accounts, compared the net salvage cost (gross salvage less cost of removal) to the amount of property retired each for

the period spanning form 1984 to 2014. He then created three year moving averages of the net salvage rate to smooth the annual values and a five year average of 2010-2014. The 31 year retirement history has shown the overall net salvage rate to be -2%. The three most recent moving 3 year averages have ranged from 0% to +19%, and the most recent 5 year average has shown a net salvage rate of +5%. Mr. Spanos' net salvage analysis for Account 353 is shown on my Exhibit BCA-1. In spite of all of this evidence suggesting the net salvage rate for Account 353 should be less negative, Mr. Spanos has recommended that the currently approved net salvage rate of -5% be changed to -10%.

Q DO YOU AGREE THAT THE NET SALVAGE RATE FOR ACCOUNT 353 SHOULD BE CHANGED?

A No, the retirement history for this account indicates that the currently approved net salvage rate of -5% should be made less negative, or even positive to reflect recent history. However, I am only recommending the Commission retain the currently approved net salvage rate of -5%. This results in a reduction to the annual depreciation expense of $996,559. The deprecation rate for this account is reduced to 2.59%, down from NIPSCO's proposal of 2.80%.

Production Terminal Net Salvage

Q HOW DID NIPSCO ESTIMATE THE FINAL RETIREMENT COSTS OF ITS PRODUCTION PLANTS?

A NIPSCO relied on the dismantlement studies conducted by Burns & McDonnell and sponsored by NIPSCO witness Victor F. Ranalleta. These dismantlement studies provided estimates of the cost to demolish the existing plants and return the sites to

industrial condition. These estimates are provided in 2015 dollars. In order to estimate the cost to retire the plants in the year in which they are retired, Mr. Spanos escalated the 2015 dismantlement costs by an inflation factor of 2.5%.

Q DO YOU HAVE AN ISSUE WITH THE INFLATION RATE UTILIZED BY NIPSCO TO ESCALATE FINAL RETIREMENT COSTS OF ITS PRODUCTION PLANTS?

A Yes, the inflation rate utilized to escalate the prices is not just and reasonable.

Q PLEASE DISCUSS YOUR CONCERN WITH THE INFLATION RATE USED TO ESCALATE THESE COSTS.

A NIPSCO has utilized an inflation factor of 2.5% annually. This inflation rate is excessive; recent history, the Federal Reserve's target for inflation, current breakeven inflation rates and EIA forecasts of the inflation rate of the Consumer Price Index ("CPI") and the Wholesale Price Index (otherwise known as the Producer Price Index or "PPI"), all indicate that this inflation factor should be reduced.

According to the All Urban CPI, inflation during the 10 year period between 2005-2014 averaged under 2.0%. Additionally, the 25 year period between 1990-2014 experienced inflation that averaged 2.4%, which is still lower that what is being recommended by NIPSCO. These figures can be seen in my Exhibit BCA-2.

It is the stated monetary policy of the Federal Reserve to aim for an inflation target of 2% for both the medium and long term horizons, see Exhibit BCA-3. Additionally, the current breakeven inflation rate inherent in the difference between the nominal yield on 30-year treasury bonds and 30-year inflation indexed treasury bonds suggests that market participants are expecting inflation over the next 30 years to only average 1.7%. I have shown this calculation of the breakeven inflation rate in

Exhibit BCA-4. I would also note that NIPSCO witness Mr. Paul R. Moul has utilized an inflation rate of 1.91%,[2] based on his estimate of the breakeven rate at the time of filing, in his calculation of the fair value rate of return.

The EIA's 2015 Annual Energy Outlook, contains forecasts of both the CPI and the PPI. Its estimate of the inflation rate of CPI between 2013 and 2040 is 2.0% and for the PPI over the same time horizon is 1.9%. This is shown in my Exhibit BCA-5.

For all of these reasons discussed above, it will be more appropriate to escalate the final retirement estimates for the production plants with an inflation rate of 2.0% annually rather than 2.5%. 2.5% inflation is excessive and results in the overstatement of the net salvage rates required for the production plants, both Steam and Gas Turbine.

Q WHAT IS THE IMPACT OF REDUCING THE INFLATION RATE TO 2.0% FOR THE PURPOSES OF ESCALATING THE FINAL DISMANTLEMENT COSTS ASSOCIATED WITH THE PRODUCTION PLANTS?

A The reduction of the inflation rate to 2.0% results in the net salvage rates being reduced for the Michigan City, RM Schahfer, and Sugar Creek production plants. These changes are shown below in Table 3.

[2]Direct Testimony of Mr. Paul R. Moul at page 56, lines 7-15.

TABLE 3

Production Net Salvage Rates

Plant	NIPSCO Proposed	BCA Proposed
Steam Production		
Michigan City Unit 12	-26%	-24%
R M Schahfer Units 14, 15, 17 AND 18	-25%	-23%
Sugar Creek	-28%	-27%
Gas Turbine		
R M Schahfer Units 16A AND 16B	-14%	-13%
Sugar Creek	-6%	-5%

The reduction in the net salvage rates for the steam production plants reduces the annual depreciation expense by $2,979,968 and reduces the depreciation expense for gas turbine plants by $75,732.

Conclusion

Q PLEASE SUMMARIZE YOUR CONCLUSIONS AND RECOMMENDATIONS.

A My conclusions and recommendations are summarized as follows:

1. NIPSCO has overstated its depreciation rates for several accounts. These rates produce an excessive amount of depreciation expense and overstate the test year revenue requirement.
2. NIPSCO has underestimated the average service lives of three T&D accounts.
3. NIPSCO has overstated the net salvage rate required for Account 353.
4. NIPSCO has overstated the terminal net salvage cost of the production plants due to an excessive estimate of future inflation.
6. My proposed adjustments to NIPSCO's depreciation rates result in a reduction of $6.2 million to NIPSCO's depreciation expense.

Q DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?

A Yes, it does.

Qualifications of Brian C. Andrews

Q PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A Brian C. Andrews. My business address is 16690 Swingley Ridge Road, Suite 140, Chesterfield, MO 63017.

Q PLEASE STATE YOUR OCCUPATION.

A I am a Consultant in the field of public utility regulation with the firm of Brubaker & Associates, Inc. ("BAI"), energy, economic and regulatory consultants.

Q PLEASE STATE YOUR EDUCATIONAL BACKGROUND AND PROFESSIONAL EMPLOYMENT EXPERIENCE.

A I received a Bachelor of Science Degree in Electrical Engineering from the Washington University in St. Louis/University of Missouri - St. Louis Joint Engineering Program. I have also received a Master of Science Degree in Applied Economics from Georgia Southern University.

I have attended training seminars on multiple topics including class cost of service, depreciation, power risk analysis, production cost modeling, cost-estimation for transmission projects, transmission line routing, MISO load serving entity fundamentals and more.

Additionally, I am a certified Engineer Intern in the State of Missouri, and I am a member of the Society of Depreciation Professionals.

In January 2012, I accepted the position of Engineer Intern with BAI. Upon graduation, in May 2012, I was offered the position of Assistant Engineer. In January 2014, I was promoted to Associate Consultant and in January 2016, I was promoted

to Consultant. At BAI, I have been involved with several regulated and competitive electric service issues. These have included book depreciation, fuel and purchased power cost, transmission planning, transmission line routing, resource planning including renewable portfolio standards compliance, electric price forecasting, class cost of service, power procurement, and rate design. This has involved use of power flow, production cost, cost of service, and various other analyses and models to address these issues, utilizing, but not limited to, various programs such as STRATEGIST, RealTime, PSS/E, MatLab, R Studio, ArcGIS, Excel, and the United States Department of Energy/Bonneville Power Administration's Corona and Field Effects ("CAFÉ") Program. Additionally, I have received extensive training on the PLEXOS Integrated Energy Model.

BAI was formed in April 1995. BAI provides consulting services in the economic, technical, accounting, and financial aspects of public utility rates and in the acquisition of utility and energy services through RFPs and negotiations, in both regulated and unregulated markets. Our clients include large industrial and institutional customers, some utilities and, on occasion, state regulatory agencies. We also prepare special studies and reports, forecasts, surveys and siting studies, and present seminars on utility-related issues.

In general, we are engaged in energy and regulatory consulting, economic analysis and contract negotiation. In addition to our main office in St. Louis, the firm also has branch offices in Phoenix, Arizona and Corpus Christi, Texas.

NORTHERN INDIANA PUBLIC SERVICE COMPANY
ELECTRIC PLANT

ACCOUNT 353.00 STATION EQUIPMENT

SUMMARY OF BOOK SALVAGE

YEAR	REGULAR RETIREMENTS	COST OF REMOVAL AMOUNT	PCT	GROSS SALVAGE AMOUNT	PCT	NET SALVAGE AMOUNT	PCT
1984	1,855,305	604,725	33	746,233	40	141,508	8
1985	2,246,787	210,172	9	1,556,313	69	1,346,141	60
1986	2,180,513	454,752	21		0	454,752-	21-
1987	5,084,242	929,933	18	589,664	12	340,269-	7-
1988	3,349,443	240,881	7	316,848	9	75,967	2
1989	738,053	369,855	50	548,796	74	178,941	24
1990	337,048	648,250	192	3,688,766		3,040,516	902
1991	1,741,983	362,462	21	168,403	10	194,059-	11-
1992	2,530,759	185,566	7	63-	0	185,629-	7-
1993	2,386,027	538,191	23	142,872	6	395,319-	17-
1994	2,549,808	308,248	12	1,167,969	46	859,721	34
1995	1,384,756	503,674	36	781,515	56	277,841	20
1996	728,597	676,857	93	1,365,313-	187-	2,042,170-	280-
1997	7,084,354	581,916	8	446,373	6	135,543-	2-
1998	1,263,354	449,292	36	199,867-	16-	649,159-	51-
1999	3,325,797	532,901	16	250,350	8	282,551-	8-
2000	3,887,891	522,562	13	8,129-	0	530,691-	14-
2001	1,734,826	565,605	33		0	565,605-	33-
2002	2,580,002	373,411	14	671,741	26	298,331	12
2003	6,313,830	436,577-	7-	1,072-	0	435,505	7
2004	8,765,811	136,624	2	677	0	135,947-	2-
2005	2,809,768	1,326,975	47	11,072	0	1,315,903-	47-
2006	7,042,957	222,362	3	7,881	0	214,480-	3-
2007	11,908,476	1,577,899	13	52,878	0	1,525,021-	13-
2008	2,623,968	358,927	14		0	358,927-	14-
2009	1,351,891	205,861	15	453	0	205,408-	15-
2010	4,241,306	226,301	5	24,329	1	201,971-	5-
2011	5,338,328	408,945	8	820	0	408,125-	8-
2012	3,023,244	281,215	9	902,251	30	621,036	21
2013	2,208,798	278,626-	13-		0	278,626	13
2014	2,529,541	580,018-	23-		0	580,018	23
TOTAL	105,147,463	12,509,142	12	10,501,761	10	2,007,381-	2-
THREE-YEAR MOVING AVERAGES							
84-86	2,094,202	423,216	20	767,515	37	344,299	16
85-87	3,170,514	531,619	17	715,326	23	183,707	6
86-88	3,538,066	541,855	15	302,171	9	239,685-	7-
87-89	3,057,246	513,556	17	485,103	16	28,454-	1-
88-90	1,474,848	419,662	28	1,518,137	103	1,098,475	74

NORTHERN INDIANA PUBLIC SERVICE COMPANY
ELECTRIC PLANT

ACCOUNT 353.00 STATION EQUIPMENT

SUMMARY OF BOOK SALVAGE

YEAR	REGULAR RETIREMENTS	COST OF REMOVAL AMOUNT	PCT	GROSS SALVAGE AMOUNT	PCT	NET SALVAGE AMOUNT	PCT
THREE-YEAR MOVING AVERAGES							
89-91	939,028	460,189	49	1,468,655	156	1,008,466	107
90-92	1,536,597	398,759	26	1,285,702	84	886,943	58
91-93	2,219,590	362,073	16	103,737	5	258,336-	12-
92-94	2,488,865	344,002	14	436,926	18	92,924	4
93-95	2,106,864	450,038	21	697,452	33	247,414	12
94-96	1,554,387	496,260	32	194,724	13	301,536-	19-
95-97	3,065,902	587,482	19	45,808-	1-	633,291-	21-
96-98	3,025,435	569,355	19	372,936-	12-	942,291-	31-
97-99	3,891,168	521,370	13	165,619	4	355,751-	9-
98-00	2,825,681	501,585	18	14,118	0	487,467-	17-
99-01	2,982,838	540,356	18	80,740	3	459,616-	15-
00-02	2,734,240	487,193	18	221,204	8	265,989-	10-
01-03	3,542,886	167,480	5	223,556	6	56,077	2
02-04	5,886,548	24,486	0	223,782	4	199,296	3
03-05	5,963,136	342,341	6	3,559	0	338,782-	6-
04-06	6,206,179	561,987	9	6,544	0	555,444-	9-
05-07	7,253,734	1,042,412	14	23,944	0	1,018,468-	14-
06-08	7,191,800	719,729	10	20,253	0	699,476-	10-
07-09	5,294,778	714,229	13	17,777	0	696,452-	13-
08-10	2,739,055	263,696	10	8,261	0	255,435-	9-
09-11	3,643,842	280,369	8	8,534	0	271,835-	7-
10-12	4,200,959	305,487	7	309,133	7	3,646	0
11-13	3,523,457	137,178	4	301,023	9	163,845	5
12-14	2,587,194	192,476-	7-	300,750	12	493,227	19
FIVE-YEAR AVERAGE							
10-14	3,468,243	11,563	0	185,480	5	173,917	5

Consumer Price Index All Urban: All Items

Year	Value	Years Until 2014	Average Growth Through 2014
(1)	(2)	(3)	(4) = (236.7/(Col 2))^(1/(Col 3) -1
1985	107.6	29	2.7%
1986	109.7	28	2.7%
1987	113.6	27	2.7%
1988	118.3	26	2.6%
1989	123.9	25	2.5%
1990	130.7	24	2.4%
1991	136.2	23	2.3%
1992	140.3	22	2.3%
1993	144.5	21	2.3%
1994	148.2	20	2.3%
1995	152.4	19	2.2%
1996	156.9	18	2.2%
1997	160.5	17	2.2%
1998	163.0	16	2.2%
1999	166.6	15	2.2%
2000	172.2	14	2.1%
2001	177.0	13	2.1%
2002	179.9	12	2.1%
2003	184.0	11	2.1%
2004	188.9	10	2.1%
2005	195.3	9	1.9%
2006	201.6	8	1.8%
2007	207.3	7	1.7%
2008	215.3	6	1.4%
2009	214.6	5	1.7%
2010	218.1	4	1.7%
2011	224.9	3	1.3%
2012	229.6	2	1.0%
2013	233.0	1	0.8%
2014	236.7	0	0.0%

Source: Bureau of Labor Statistics via the Federal Reserve Economic Database ("FRED") Excel Add-in.

Current FAQs

Informing the public about the Federal Reserve

Why does the Federal Reserve aim for 2 percent inflation over time?

The Federal Open Market Committee (FOMC) judges that inflation at the rate of 2 percent (as measured by the annual change in the price index for personal consumption expenditures, or PCE) is most consistent over the longer run with the Federal Reserve's mandate for price stability and maximum employment. Over time, a higher inflation rate would reduce the public's ability to make accurate longer-term economic and financial decisions. On the other hand, a lower inflation rate would be associated with an elevated probability of falling into deflation, which means prices and perhaps wages, on average, are falling--a phenomenon associated with very weak economic conditions. Having at least a small level of inflation makes it less likely that the economy will experience harmful deflation if economic conditions weaken. The FOMC implements monetary policy to help maintain an inflation rate of 2 percent over the medium term.

Related Information

FOMC statement of longer-run goals and policy strategy

FOMC economic projections FAQs

Monetary Policy Report to the Congress

Bureau of Labor Statistics

Related Questions

What is inflation and how does the Federal Reserve evaluate changes in the rate of inflation?

Calculation of the 30-Year Breakeven Inflation Rate

Date	30 Year Treasury Constant Maturity Rate	30 Year Treasury Inflation-indexed Security, Constant Maturity	Breakeven Inflation Rate
(1)	(2)	(3)	(4) = (1+Col (2)/100) / (1+Col (3)/100) - 1
10/1/2015	2.9	1.2	1.60%
10/2/2015	2.8	1.2	1.62%
10/5/2015	2.9	1.2	1.65%
10/6/2015	2.9	1.2	1.66%
10/7/2015	2.9	1.2	1.68%
10/8/2015	3.0	1.2	1.71%
10/9/2015	2.9	1.2	1.68%
10/13/2015	2.9	1.2	1.65%
10/14/2015	2.8	1.2	1.63%
10/15/2015	2.9	1.2	1.63%
10/16/2015	2.9	1.2	1.61%
10/19/2015	2.9	1.3	1.60%
10/20/2015	2.9	1.3	1.64%
10/21/2015	2.9	1.2	1.61%
10/22/2015	2.9	1.2	1.64%
10/23/2015	2.9	1.2	1.69%
10/26/2015	2.9	1.2	1.66%
10/27/2015	2.9	1.2	1.66%
10/28/2015	2.9	1.2	1.65%
10/29/2015	3.0	1.2	1.70%
10/30/2015	2.9	1.2	1.72%
11/2/2015	3.0	1.2	1.73%
11/3/2015	3.0	1.2	1.74%
11/4/2015	3.0	1.2	1.74%
11/5/2015	3.0	1.3	1.72%
11/6/2015	3.1	1.3	1.76%
11/9/2015	3.1	1.3	1.78%
11/10/2015	3.1	1.3	1.76%
11/12/2015	3.1	1.3	1.75%
11/13/2015	3.1	1.3	1.73%
11/16/2015	3.1	1.3	1.72%
11/17/2015	3.0	1.3	1.74%
11/18/2015	3.0	1.3	1.75%
11/19/2015	3.0	1.2	1.75%
11/20/2015	3.0	1.2	1.79%
11/23/2015	3.0	1.2	1.78%
11/24/2015	3.0	1.2	1.78%
11/25/2015	3.0	1.2	1.78%
11/27/2015	3.0	1.2	1.78%
11/30/2015	3.0	1.2	1.77%
12/1/2015	2.9	1.1	1.75%
12/2/2015	2.9	1.2	1.73%
12/3/2015	3.1	1.3	1.78%
12/4/2015	3.0	1.2	1.78%
12/7/2015	3.0	1.2	1.74%
12/8/2015	3.0	1.2	1.75%
12/9/2015	3.0	1.2	1.72%
12/10/2015	3.0	1.3	1.70%
12/11/2015	2.9	1.2	1.64%
12/14/2015	3.0	1.3	1.62%
12/15/2015	3.0	1.3	1.66%
12/16/2015	3.0	1.3	1.66%
12/17/2015	2.9	1.3	1.64%
12/18/2015	2.9	1.3	1.62%
12/21/2015	2.9	1.3	1.62%
12/22/2015	3.0	1.3	1.64%
12/23/2015	3.0	1.3	1.69%
12/24/2015	3.0	1.3	1.68%
12/28/2015	3.0	1.2	1.69%
12/29/2015	3.0	1.3	1.71%
12/30/2015	3.0	1.3	1.71%
12/31/2015	3.0	1.3	1.71%
		3 Month Average	**1.70%**

Source: Board of Governors of the Federal Reserve System (US) via the Federal Reserve Economic Database ("FRED") Excel Add-in.

Table A20. Macroeconomic indicators

(billion 2009 chain-weighted dollars, unless otherwise noted)

Indicators	Reference case							Annual growth 2013-2040 (percent)
	2012	2013	2020	2025	2030	2035	2040	
Real gross domestic product	**15,369**	**15,710**	**18,801**	**21,295**	**23,894**	**26,659**	**29,898**	**2.4%**
Components of real gross domestic product								
Real consumption	10,450	10,700	12,832	14,484	16,275	18,179	20,476	2.4%
Real investment	2,436	2,556	3,531	4,025	4,474	4,984	5,634	3.0%
Real government spending	2,954	2,894	2,985	3,098	3,286	3,469	3,691	0.9%
Real exports	1,960	2,020	2,813	3,807	4,815	6,010	7,338	4.9%
Real imports	2,413	2,440	3,334	4,079	4,888	5,859	7,037	4.0%
Energy intensity (thousand Btu per 2009 dollar of GDP)								
Delivered energy	4.47	4.53	3.93	3.49	3.13	2.83	2.56	-2.1%
Total energy	6.14	6.18	5.36	4.79	4.31	3.90	3.54	-2.0%
Price indices								
GDP chain-type price index (2009=1.000)	1.05	1.07	1.21	1.31	1.43	1.57	1.73	1.8%
Consumer price index (1982-4=1.00)								
All-urban	2.30	2.33	2.63	2.89	3.18	3.54	3.95	2.0%
Energy commodities and services	2.46	2.44	2.55	2.98	3.42	4.03	4.85	2.6%
Wholesale price index (1982=1.00)								
All commodities	2.02	2.03	2.25	2.47	2.71	3.02	3.39	1.9%
Fuel and power	2.12	2.12	2.26	2.67	3.08	3.69	4.56	2.9%
Metals and metal products	2.20	2.14	2.43	2.62	2.85	3.13	3.42	1.8%
Industrial commodities excluding energy	1.94	1.96	2.22	2.40	2.61	2.85	3.12	1.7%
Interest rates (percent, nominal)								
Federal funds rate	0.14	0.11	3.40	3.56	3.69	3.76	4.04	--
10-year treasury note	1.80	2.35	4.12	4.14	4.28	4.41	4.63	--
AA utility bond rate	3.83	4.24	6.15	6.06	6.33	6.47	6.71	--
Value of shipments (billion 2009 dollars)								
Non-industrial and service sectors	23,989	24,398	28,468	32,023	34,968	37,767	40,814	1.9%
Total industrial	6,822	7,004	8,467	9,212	9,870	10,614	11,463	1.8%
Agriculture, mining, and construction	1,813	1,858	2,344	2,441	2,540	2,601	2,712	1.4%
Manufacturing	5,009	5,146	6,123	6,771	7,330	8,012	8,751	2.0%
Energy-intensive	1,675	1,685	1,946	2,084	2,168	2,237	2,317	1.2%
Non-energy-intensive	3,334	3,461	4,177	4,687	5,162	5,776	6,433	2.3%
Total shipments	**30,810**	**31,402**	**36,935**	**41,235**	**44,838**	**48,380**	**52,277**	**1.9%**
Population and employment (millions)								
Population, with armed forces overseas	315	317	334	347	359	370	380	0.7%
Population, aged 16 and over	249	251	267	277	288	298	307	0.7%
Population, aged 65 and over	43	45	56	65	73	78	80	2.2%
Employment, nonfarm	134	136	149	154	159	163	169	0.8%
Employment, manufacturing	11.8	11.9	11.8	11.3	10.7	10.3	9.7	-0.7%
Key labor indicators								
Labor force (millions)	155	155	166	170	174	179	185	0.6%
Nonfarm labor productivity (2009=1.00)	1.05	1.05	1.20	1.34	1.48	1.62	1.78	2.0%
Unemployment rate (percent)	8.08	7.35	5.40	4.96	5.03	5.02	4.85	--
Key indicators for energy demand								
Real disposable personal income	11,676	11,651	14,411	16,318	18,487	20,610	22,957	2.5%
Housing starts (millions)	0.84	0.99	1.69	1.70	1.66	1.62	1.62	1.8%
Commercial floorspace (billion square feet)	82.3	82.8	89.0	94.1	98.4	103.2	109.1	1.0%
Unit sales of light-duty vehicles (millions)	14.4	15.5	17.0	17.2	17.5	17.7	18.2	0.6%

GDP = Gross domestic product.
Btu = British thermal unit.
-- = Not applicable.
Sources: 2012 and 2013: IHS Economics, Industry and Employment models, November 2014. **Projections:** U.S. Energy Information Administration, AEO2015 National Energy Modeling System run REF2015.D021915A.

STATE OF INDIANA

INDIANA UTILITY REGULATORY COMMISSION

PETITION OF NORTHERN INDIANA PUBLIC SERVICE COMPANY FOR AUTHORITY TO MODIFY ITS RATES AND CHARGES FOR ELECTRIC UTILITY SERVICE AND FOR APPROVAL OF: (1) CHANGES TO ITS ELECTRIC SERVICE TARIFF INCLUDING A NEW SCHEDULE OF RATES AND CHARGES AND CHANGES TO THE GENERAL RULES AND REGULATIONS AND CERTAIN RIDERS; (2) REVISED DEPRECIATION ACCRUAL RATES; (3) INCLUSION IN ITS BASIC RATES AND CHARGES OF THE COSTS ASSOCIATED WITH CERTAIN PREVIOUSLY APPROVED QUALIFIED POLLUTION CONTROL PROPERTY, CLEAN COAL TECHNOLOGY, CLEAN ENERGY PROJECTS AND FEDERALLY MANDATED COMPLIANCE PROJECTS; AND (4) ACCOUNTING RELIEF TO ALLOW NIPSCO TO DEFER, AS A REGULATORY ASSET OR LIABILITY, CERTAIN COSTS FOR RECOVERY IN A FUTURE PROCEEDING.	CAUSE NO. 44688

Verification

I, Brian C. Andrews, a Consultant of Brubaker & Associates, Inc., affirm under penalties of perjury that the foregoing representations are true and correct to the best of my knowledge, information and belief.

Brian C. Andrews
1/22/2016