Before the Minnesota Public Utilities Commission
State of Minnesota

In the Matter of the Application of Northern States Power Company
for Authority to Increase Rates for Electric Service in Minnesota

Docket No. E002/GR-15-826
Exhibit___(JM-1)

Multi-Year Rate Plan
O&M Escalation Indices

November 2, 2015
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I. INTRODUCTION

Q. PLEASE STATE YOUR NAME AND OCCUPATION.
A. My name is John Mothersole. I am employed by IHS Global Insight, Inc. (IHS) as Director of Research, Pricing and Purchasing Service.

Q. PLEASE SUMMARIZE YOUR QUALIFICATIONS AND EXPERIENCE.
A. I obtained my B.A. and M.A. in Economics from the University of Maryland. I joined IHS in 1980 as an associate economist and have served in a number of positions within the company. I help supervise the group’s price and wage forecasts, am directly responsible for its nonferrous metal industry forecasts, and am an editor of the Supply Manager, the service’s chief publication. I also provide inflation analysis for the IHS U.S. Economic Forecasting Service and project management for a wide range of cost escalation and cost benchmarking studies. A summary of my qualifications is provided as Exhibit__(JM-1), Schedule 1.

Q. ON WHOSE BEHALF ARE YOU TESTIFYING?
A. I am testifying on behalf of Northern States Power Company, doing business as Xcel Energy(the Company).

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY IN THIS PROCEEDING?
A. I provide information supporting the Operations and Maintenance (O&M) cost escalation indices used in developing the multi-year rate plan presented by Company witness Mr. Charles R. Burdick.
Q. PLEASE SUMMARIZE YOUR TESTIMONY.

A. My testimony explains the IHS utility-specific model that derives the O&M expense cost escalators used by Mr. Burdick to develop the Company’s 2017 and 2018 revenue requirements in this case. In addition, I reviewed Mr. Burdick’s O&M revenue requirements model and conclude the methodology employed is reasonable. Further, I confirm that where used in the model, the Company has correctly applied the IHS escalation factors by Federal Energy Regulatory Commission (FERC) account for 2017 and 2018.

Q. HOW IS YOUR TESTIMONY ORGANIZED?

A. First, I describe IHS and our utility-specific O&M modeling, which is the basis for the O&M cost escalators the Company used in this case. I then provide my analysis of the Company’s proposed O&M revenue requirements model.

II. IHS UTILITY O&M MODELING

Q. PLEASE DESCRIBE IHS.

A. IHS provides the most comprehensive economic, financial and political coverage of countries, regions and industries available from any source – covering more than 200 countries and spanning more than 100 industries – using a unique combination of expertise, models, data and software. Our analysis is presented within a unified analytical framework to support planning and decision making. The IHS Pricing and Purchasing Service provides timely, accurate cost and price analysis that helps corporations and government agencies better manage supplier relationships, assess supplier quotes and negotiate long-term contracts. The service includes 10-year
forecasts for up to 1,800 commodity prices and wages, as well as access to thousands of historical price and wage series from around the globe.

Q. DOES IHS PROVIDE ANALYSES AND MODELING SPECIFIC TO UTILITIES?
A. Yes. The IHS Power Planner Service maintains a model that provides cost escalators applicable to specific accounts within the FERC Uniform System of Accounts for electric and gas utilities. The information in the model can be used to determine inflation induced cost escalation rates for a utility’s O&M expenses. A utility subscriber can utilize those escalation rates to develop O&M expenditure forecasts, as applicable to that utility’s operations or needs.

A. Structure of IHS Utility O&M Model

Q. WHAT TYPES OF COST ESCALATION ARE REFLECTED IN YOUR O&M MODEL?
A. The O&M cost model maintained by the Power Planner Service is designed to measure and project escalation in electric and gas utility O&M costs exclusive of direct fuel costs. As defined, the O&M indices track cost movements resulting only from changes in the prices of the goods and services used in various O&M tasks. Cost increases resulting from capacity additions, regulatory requirements, environmental regulation, weather or internal organizational requirements (which generally cause expenditures to increase at a faster rate than an examination of just price inflation would suggest) are excluded.

Q. WHAT IS THE OVERALL STRUCTURE OF YOUR O&M MODEL?
A. The model has been structured in two parallel sets of equations – essentially interrelated versions. The first block of equations focuses solely on materials and services expenses while a second block reflects labor expenses to form a combined labor, materials and services model. My testimony includes a
discussion of the materials and services model, as the Company has used these escalation factors to determine the 2017 and 2018 revenue requirements in this case.

Q. PLEASE PROVIDE AN ILLUSTRATION OF HOW THE OVERALL O&M MODEL IS STRUCTURED.

A. Figure 1 presents a simplified diagram showing the structure of the materials and services model from the overall O&M index to the basic cost components in a FERC account. The electric transmission plant index is used as the example.

Figure 1
Structure of the Electric O&M Model
Q. **FOR ELECTRIC UTILITIES, HOW ARE O&M EXPENSES CLASSIFIED?**

A. Within the electric utility model, O&M expenses are classified by the seven major expense categories detailed in the FERC Uniform System of Accounts: power production; transmission; distribution; customer accounts; customer services and information; sales; and administrative and general expenses. The major expense category for power production is further divided by plant type: steam; nuclear; hydro; and other (combustion turbine).

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Q. **HOW ARE THOSE MAJOR EXPENSE CATEGORIES MODELED?**

A. For each major expense category, a composite O&M index and separate operation and maintenance component indices are defined. Each O&M index is further delineated into subcategories corresponding to individual FERC accounts.

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Q. **WHAT DO THOSE INDIVIDUAL FERC ACCOUNTS REPRESENT?**

A. As defined in the Uniform System of Accounts, each FERC account contains certain types of materials and services — *i.e.*, the basic cost elements — required to perform the necessary O&M tasks.

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**B. Methodology for the IHS Utility O&M Indices**

Q. **HOW ARE THE O&M INDICES FOR THE MATERIALS AND SERVICES MODEL DEVELOPED?**

A. As stated earlier, the methodology used to specify the O&M indices progresses through several levels and relies on detailed information contained in the FERC Uniform System of Accounts for Electric Utilities and Natural Gas Pipeline Companies. The accounts are published in the *Code of Federal*
Regulations, Conservation of Power and Water Resources, Title 18 and can be accessed through the FERC website.¹

Q. **HOW ARE THE BASIC COST ELEMENTS, REPRESENTED BY FERC ACCOUNT, INCORPORATED INTO THE O&M MODEL?**

A. The FERC account descriptions are used in identifying specific escalation measures to serve as proxies for individual O&M costs. These basic cost elements are assigned a detailed price index, based on analysis by IHS, from data published by the Bureau of Labor Statistics, Bureau of Economic Analysis or private industry data sources. The model is defined at a quarterly frequency.

Q. **DESCRIBE THE PROCESS FOR RE-EVALUATING OR UPDATING THE O&M INDICES FOR THE MATERIALS AND SERVICES MODEL.**

A. At a minimum, the indices are evaluated annually to ensure that the FERC account descriptions used in the model reflect current practice. This evaluation is based on a review of the operation and maintenance functions as described in the FERC System of Accounts. IHS staff reviews each update to the System of Accounts as published in the Code of Federal Regulations to ensure that the proxy assignments in the model reflect both the current FERC account descriptions in the Code of Federal Regulations and the best available information within the IHS Pricing and Purchasing Service model. If, based on its annual review, IHS updates the indices, it does so utilizing data that dates back as early as the 1970s.

Q. HOW ARE FORECASTS GENERATED FOR EACH FERC ACCOUNT?
A. To generate forecasts of each FERC account, projections of the selected price indices are prepared by the IHS Pricing and Purchasing Service and IHS U.S. Economic Forecasting Service. The FERC account indices are then aggregated to reflect price changes in plant O&M expenses. These O&M indices are then combined into plant composite indices for each major expense category. The final step is the aggregation of all the major expense category indices into overall electric and gas O&M indices.

Q. HOW ARE THE MODEL INPUTS WEIGHTED?
A. The relative weights used in compiling the model are derived from expenditure data for major electric utilities and major natural gas pipeline companies published by the Department of Energy. Because of the lack of data detailing relative expenditures below the FERC level, all basic cost indices within each FERC level equation are assigned equal weights.

Q. PLEASE PROVIDE AN ILLUSTRATION OF HOW THE MODEL DEVELOPS PRICE INDICES BY FERC ACCOUNT.
A. This example uses FERC Account 537 – Hydraulic Power Generation, Operation, Hydraulic Expenses, within the major expense category of hydraulic power. The description of this account reads:

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Labor

1. Supervising hydraulic operation.
2. Removing debris and ice from trash racks, reservoirs, and waterways.
3. Patrolling reservoirs and waterways.
4. Operating intakes, spillways, sluiceways, and outlet works.
5. Operating bubbler, heater, or other deicing systems.
6. Ice and log jam work.
7. Operating navigation facilities.
8. Operations relating to conservation of game, fish, forests, etc.
9. Insect control activities.

Materials and expenses

10. Insect control materials.
11. Lubricants, packing, and other supplies used in operation of hydraulic equipment.
12. Transportation expense.

Focusing on the “Materials and Expenses” section, items 10 through 12 list the types of material expenses that should be recorded in this account and suggest the kinds of cost elements that should be included in forming a non-labor cost index. Based on this information, and on analysis by the IHS Pricing and Purchasing Service Team, the following price indices are assigned to the listed cost items:

<table>
<thead>
<tr>
<th>Item</th>
<th>Proxy</th>
</tr>
</thead>
<tbody>
<tr>
<td>10. Insect control materials</td>
<td>Producer Price Index, Pesticide, Fertilizer, and Other Agricultural Chemicals</td>
</tr>
<tr>
<td>11. Lubricants, packing, etc.</td>
<td>Producer Price Index, Finished Lubricants</td>
</tr>
<tr>
<td>12. Transportation expense</td>
<td>Consumer Price Index, Private Transportation</td>
</tr>
</tbody>
</table>

Using this correspondence and assigning equal weights for each of the indices identified, the FERC account materials and services cost index is defined. A
similar procedure is used for the other FERC accounts included in hydraulic
operation expenses. Weighting factors for these aggregations are derived from
United States Department of Energy data (FERC Form 1). These formed
material and services FERC account indices are then combined using weights
derived from United States Department of Energy data to yield the total
hydraulic operation cost index.

Q. PLEASE PROVIDE AN ILLUSTRATION OF HOW INDIVIDUAL FERC ACCOUNTS
ARE USED WITHIN THE MODEL.

A. Transmission plant operation expenses, for example, are defined at the
subcategory level by supervision and engineering expenses (FERC account
560), load dispatching (account 561), station expenses (account 562), lines
expenses (accounts 563, overhead lines, and 564, underground lines, are
combined), miscellaneous transmission plant expenses (account 566) and rents
(account 567). Account 565, transmission of electricity by others, is not
modeled. Table 1, below, summarizes the IHS O&M model in terms of
FERC account coverage.
<table>
<thead>
<tr>
<th>Major Expense Categories</th>
<th>FERC Account Numbers</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1. Power Production Expenses</strong></td>
<td></td>
</tr>
<tr>
<td>A. Steam Plant</td>
<td></td>
</tr>
<tr>
<td>Operation</td>
<td>500-502, 505-507</td>
</tr>
<tr>
<td>Maintenance</td>
<td>510-514</td>
</tr>
<tr>
<td>B. Nuclear Plant</td>
<td></td>
</tr>
<tr>
<td>Operation</td>
<td>517, 519, 520, 523-525</td>
</tr>
<tr>
<td>Maintenance</td>
<td>528-532</td>
</tr>
<tr>
<td>C. Hydro Plant</td>
<td></td>
</tr>
<tr>
<td>Operation</td>
<td>535, 537-540</td>
</tr>
<tr>
<td>Maintenance</td>
<td>541-545</td>
</tr>
<tr>
<td>D. Other (Combustion Turbine)</td>
<td></td>
</tr>
<tr>
<td>Operation</td>
<td>546-550</td>
</tr>
<tr>
<td>Maintenance</td>
<td>551-554</td>
</tr>
<tr>
<td><strong>2. Transmission Expenses</strong></td>
<td></td>
</tr>
<tr>
<td>Operation</td>
<td>560-564, 566-567</td>
</tr>
<tr>
<td>Maintenance</td>
<td>568-573</td>
</tr>
<tr>
<td><strong>4. Distribution Expenses</strong></td>
<td></td>
</tr>
<tr>
<td>Operation</td>
<td>580-589</td>
</tr>
<tr>
<td>Maintenance</td>
<td>590-598</td>
</tr>
<tr>
<td><strong>5. Customer Account Expenses</strong></td>
<td>901-903, 905</td>
</tr>
<tr>
<td><strong>6. Customer Service and Information Expenses</strong></td>
<td>907-910</td>
</tr>
<tr>
<td><strong>7. Sales Expenses</strong></td>
<td>911-913, 916</td>
</tr>
<tr>
<td><strong>8. Administrative and General Expenses</strong></td>
<td>920, 921, 923-925, 926 928, 930, 931</td>
</tr>
<tr>
<td>Operation</td>
<td>935</td>
</tr>
<tr>
<td>Maintenance</td>
<td></td>
</tr>
</tbody>
</table>
Q. DO THE IHS O&M FORECASTS ACCOUNT FOR PRODUCTIVITY GROWTH?
A. Yes they do. All of the selected proxies used as inputs in the model are measures of output prices or costs. As such they fully capture the effects of productivity changes over time on the prices of the goods and services being purchased by the company for plant operation and maintenance.

III. ANALYSIS OF THE COMPANY’S O&M REVENUE REQUIREMENTS MODEL

Q. PLEASE DESCRIBE AT A HIGH LEVEL THE COMPANY’S MULTI-YEAR RATE PLAN PROPOSAL.
A. I understand the Company is proposing a multi-year rate plan that uses 2016 as the base test year, with 2017 and 2018 revenue requirements developed using forecasted capital additions and a combination of forecasted and escalated O&M expenses. My analysis focuses on the Company’s O&M revenue requirements model for 2017 and 2018.

Q. WHAT MATERIALS AND INFORMATION DID THE COMPANY PROVIDE FOR YOU TO COMPLETE YOUR ASSESSMENT OF THE O&M REVENUE REQUIREMENTS MODEL FOR 2017 AND 2018?
A. The Company provided the following information to allow me to complete my assessment and analyze the reasonableness of the Company’s O&M revenue requirements model for 2017 and 2018:

- data for operating expenses by FERC account;
- data showing the calculation of the composite escalation factor;
- the Company’s rate base and income statement; and
• data showing the calculation of FERC account escalation factors from IHS forecast data.

In addition to reviewing these materials, I was given the opportunity to speak with Mr. Burdick and other Company representatives regarding the proposed multi-year rate plan and use of O&M escalation indices.

Q. YOU MENTIONED THE COMPANY IS USING A COMBINATION OF FORECASTED AND ESCALATED O&M EXPENSES IN ITS MODEL. PLEASE ELABORATE.

A. The Company’s model handles O&M expenses by FERC account. Depending on the nature of the expense in each FERC account, and whether IHS provides an escalation index for that FERC account, the Company has used one of the following methods to determine 2017 and 2018 O&M expense levels:

• apply the IHS escalation index for that FERC account;

• apply the IHS escalation index for that FERC account after amortized expenses have been removed;

• keep costs at the 2016 budgeted level;

• apply a composite escalation factor; or

• use the Company’s budgeted costs as forecasted.

Q. YOU MENTIONED EARLIER THAT THE COMPANY IS USING IHS ESCALATION INDICES BASED ON THE MATERIALS AND SERVICES MODEL, WHICH DO NOT INCORPORATE A LABOR ESCALATION FACTOR. WHAT REASON DOES THE COMPANY GIVE FOR USING THE MATERIALS AND SERVICES ONLY ESCALATORS?

A. Mr. Burdick states in his testimony that the Company reviewed a number of escalation factors as they were developing their revenue requirements model.
for this case. He indicates that the Company’s model produces higher revenue
deficiencies in 2017 and 2018 when using the factors including labor,
compared to those without. The Company determined use of the lower
escalation factors was better inline with the Company’s budget goals and
demonstrates a measure of efficiency the Company will attempt to achieve.

Q. **DO YOU THINK THIS APPROACH IS REASONABLE?**
A. I do. I understand this is the first time the Company is proposing to use
escalation factors in developing revenue requirements in Minnesota, and as
such, I believe the Company’s conservative approach is reasonable. The
Company indicated that as they gain experience with the use of escalation
factors, they may reevaluate escalation factors for use in future rate cases.

Q. **FOR WHICH FERC ACCOUNTS HAS THE COMPANY APPLIED IHS ESCALATION INDICES?**
A. The Company has used IHS escalation indices for the majority of FERC
accounts as shown in Mr. Budick’s Direct Testimony, Exhibit___(CRB-1),
Schedule 8. I discuss the exceptions in detail below.

Q. **HAS THE COMPANY CORRECTLY APPLIED THE IHS ESCALATION INDICES IN ITS MODEL?**
A. Yes. I reviewed the Company’s application of the IHS O&M indexes. Based
on this review, I confirm that the Company has used the most recent
escalation indices provided to IHS subscribers in July 2015. The Company
has applied these factors correctly by FERC account and by year in its revenue
requirements model for 2017 and 2018.
Q. **You note there are FERC accounts for which IHS does not develop escalation indices. Please identify these FERC accounts and discuss why a general escalation index is not appropriate in these cases.**

A. There are 15 FERC accounts which IHS does not model within the operation and maintenance cost model. These are:

- 503 Steam from other sources
- 504 Steam – credit
- 515 Maintenance of steam production plant (non-major utilities)
- 518 Nuclear fuel expense
- 521 Steam from other sources
- 522 Stream – credit
- 536 Water for power
- 555 Purchased power
- 556 System control and load dispatching
- 557 Other expenses
- 565 Transmission of electricity of others
- 575 and 576 Regional Market Expenses
- 904 Uncollectible accounts – credit
- 922 Administrative expenses transferred – credit
- 929 Duplicate charges – credit

The accounts 504, 522, 904, 922 and 929 represent credits for expenses charged to other companies or other departments within the company, duplicate charges or loss provisions. These are primarily offsetting charges for expenses incurred elsewhere, i.e. they are best covered by other indexes in the model.
Accounts 518, 536, and 555 are direct fuel or purchased power expenses are not modeled for methodological reasons. The IHS O&M is designed to measure and forecast operation and maintenance cost inflation exclusive of direct fuel costs. These expenses are best forecasted using specific projections for the types of energy purchased.

The accounts 503, 521, 556, 557 and 565 all represent charges for operation or maintenance tasks performed by others but similar in nature to internally performed tasks are general miscellaneous expenses. All of these expense categories are modeled elsewhere within the IHS O&M model. For example, the types of expenses chargeable under account 503, steam from other sources, are no different than those modeled in account 502, steam expenses.

Accounts 575 and 576, Regional Market Expenses have not been modeled, although their inclusion is an area of active research at IHS.

Q. **How has the Company treated O&M costs in its model for those FERC accounts that do not have an applicable IHS escalation index?**

A. For FERC accounts for which IHS does not develop an escalation index, the Company model either keeps O&M costs at the level budgeted for 2016 or applies a composite escalation factor that the Company developed.

Q. **For which FERC accounts has the Company removed amortized expenses before applying the IHS escalation factor?**
A. Amortized expenses from accounts 517-532 were removed before the IHS escalation factors were applied.

Q. **What reasons does the company give to support this approach?**
A. The removed expenses are accounted for elsewhere. Their escalation using an IHS factor would have overinflated future year expenses.

Q. **Do you believe this approach is reasonable?**
A. Yes, I believe this approach is reasonable and appropriate.

Q. **For which FERC accounts has the company held O&M costs at the level included in the 2016 budget?**
A. Expenses in accounts 501, 518, 547 and 908 were held constant at the 2016 level.

Q. **What reason does the company give to support this approach?**
A. Items in these expense categories all have separate true-up mechanisms.

Q. **Do you believe this approach is reasonable?**
A. Yes, I believe this approach is reasonable and appropriate.

Q. **Please describe how the company developed the composite escalation index you mentioned above.**
A. For all accounts where an escalation factor was available (either IHS escalators or an assumption of no change), estimated costs for 2016 were multiplied by the escalation factor, projecting costs by account for 2017. Projected costs by account were generated for 2018 in the same way. Costs by account were
then summed in each year to derive projected total Company-wide O&M expenses. Company-wide escalation for 2017 and 2018 was then calculated from these projected annual sums.

Q. **DO YOU BELIEVE THE COMPANY’S DEVELOPMENT OF THIS COMPOSITE ESCALATION INDEX IS REASONABLE?**

A. I do. What the Company has done is create an overall measure of operation and maintenance cost escalation that reflects its own experience. This is certainly better than using an ad hoc inflation adjustment based on some aggregate measure of inflation such as the consumer price index.

Q. **FOR WHICH FERC ACCOUNTS HAS THE COMPANY APPLIED THE COMPOSITE ESCALATION INDEX?**

A. The composite index was applied to accounts 450, 451, 454, 556, 922 and 929.

Q. **WHAT REASON DOES THE COMPANY GIVE TO SUPPORT THIS APPROACH?**

A. The composite escalation index was applied to those accounts where no IHS factor was available.

Q. **IS THE USE OF THIS COMPOSITE ESCALATION INDEX APPROPRIATE FOR THESE FERC ACCOUNTS?**

A. It is. The use of a Company-wide measure of escalation is inherently superior to using forecasts of broader, more general measures of inflation such as the producer price index or consumer price index. The Company-specific composite index takes into account the company’s cost structure and utilizes a set of escalation factors that reflect the kinds of materials and services being
purchased for its operation and maintenance functions. Broader measures of inflation will include many components of no relevance to the Company’s purchasing pattern (for example, alcoholic beverages in the case of the consumer price index). More particularly, this type of misspecification introduces error into a forward-looking approach to rate making.

Q. WHAT IS YOUR OVERALL CONCLUSION AFTER YOUR REVIEW OF THE COMPANY’S O&M REVENUE REQUIREMENTS MODEL?
A. Based on my review discussed above, I conclude that the Company’s use of a combination of IHS escalation factors, a composite escalator and forecasted O&M costs by FERC account is a reasonable method to calculate the Company’s O&M revenue requirements for 2017 and 2018.

IV. CONCLUSION

Q. PLEASE SUMMARIZE YOUR TESTIMONY.
A. I have describe the methodology and structure of the IHS O&M cost inflation model and reviewed its application in developing the multi-year rate plan presented by Mr. Burdick. I find that the use of the escalation factors from was appropriate and that the calculations made using these factors was correct.

Q. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?
A. Yes, it does.
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John Mothersole is a senior member of the IHS Pricing and Purchasing Service. He helps supervise the group’s price and wage forecasts, is directly responsible for its nonferrous metal industry forecasts, and is an editor of the Supply Manager, the service’s chief publication. Other duties have included providing inflation analysis for the IHS U.S. Economic Forecasting Service and project manager for a wide range of cost escalation and cost benchmarking studies.

In addition to his work with IHS clients, Mr. Mothersole has provided inflation analysis and industry commentary to various news organizations including the New York Times, Wall Street Journal, Washington Post, ABC News, Fortune, American Metal Market, and Engineering-News Record. He has also provided commentary on inflation for ABC News, Bloomberg’s Commodities Corner, the Nightly Business Report, the Dow Jones New Service's morning newscast and USA Today's First Business report.

Mr. Mothersole joined Global Insight in 1980 as an associate economist and has served in a number of positions within IHS Global Insight and IHS. He received his B.A. and M.A. in Economics from the University of Maryland. Mr. Mothersole is a member of the National Association of Business Economists. He has also been a member of Purchasing Magazine's Commodity Council.

Publications, Papers and Project Reports

“Lessons From the Fading Commodity Supercycle” with Farid Abolfathi and John Anton, IHS Quarterly, forthcoming.

“Cost Indexes, PEG/IHS Cost Survey” -- diffusion indexes of construction costs, developed in conjunction with the Procurement Executives Group (a forum for the Engineering and Construction Industry), on-going.


“Long-Term Copper Market Analysis,” prepared for Emerson Electric Corporation, July 2013.
“Rare Earth’s: Is the Genie Out of the Bottle?” with Kris Rawls, IHS Global Insight perspectives, November 2011.


“Major Consumables, A Forward Look” with John Anton, Mary Novak, and Margaret Rhodes, an outlook of major steel making input costs prepared for USX Corporation, July 2004.


“Weak Holiday Sales Highlight a Larger Problem for U.S. Retailers” with Fred Karp, Our Perspective, IHS Global Insight on-line publication, January 2003


**Testimony Delivered**

Testified before the New Mexico Public Regulation Commission on behalf of Southwestern Public Service Company in its application for revision of its retail rates. August 2013, Case No. 2-00350-UT

Testified before the New Hampshire Nuclear Decommissioning Financing Committee on behalf of NextEra Energy Seabrook and TLG Engineering regarding proposed decommissioning cost escalation factors. September 2011, NDFC Docket No. 2011-1

Testified before the New Hampshire Nuclear Decommissioning Financing Committee on behalf of NextEra Energy Seabrook and TLG Engineering regarding proposed decommissioning cost escalation factors. October 2009, NDFC Docket No. 2009-1