STATE OF MICHIGAN

BEFORE THE MICHIGAN PUBLIC SERVICE COMMISSION

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In the matter of the application of **UPPER PENINSULA POWER COMPANY** for authority to increase retail electric rates.	))))	Case No. U-16417

DIRECT TESTIMONY AND EXHIBITS OF

HARRY W. JOHN

FOR

UPPER PENINSULA POWER COMPANY

June 30, 2011

STATE OF MICHIGAN

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QUALIFICATIONS
OF
HARRY W. JOHN
PART I

Q. Please state your name, position and business address.

A. My name is Harry W. John. My business address is Integrys Business Support, LLC ("IBS"), 700 North Adams Street, P.O. Box 19001, Green Bay, WI 54307-9001. I am a Senior Load Forecaster in the Budgets and Forecasts Department of Integrys Energy Group, Inc ("Integrys"). Both IBS and Upper Peninsula Power Company ("UPPCO") are wholly-owned subsidiaries of Integrys.

Q. For whom are you providing testimony?

A. I am providing testimony on behalf of UPPCO.

Q. Please describe briefly your educational, professional, and utility background.

A. I hold a Ph.D. Degree in Economics from Kansas State University – Manhattan, Kansas. I also hold a Master of Arts Degree in Economics from University of Central Missouri, Warrensburg, Missouri. My undergraduate Degree is in Economics, with a minor in Communications, from Rhode Island College, Providence, Rhode Island. In December of 2005, I was hired as a Senior Load Forecaster in the Sales and Revenue Forecasting Department. As a Senior Load Forecaster, I have carried out duties including various aspects of the development of the short-term and long-term

electric and gas forecasts for Integrys' regulated utility subsidiaries, including UPPCO.

HARRY W. JOHN
DIRECT TESTIMONY
PART II

Q. What is the purpose of your pre-filed direct testimony?

A. The purpose of my pre-filed direct testimony is to provide an explanation of the methodology used to the develop UPPCO's sales, fixed charge count, and demand forecasts for the 2012 test year.

Q. Are you sponsoring any exhibits in this proceeding?

A. Yes, I am. I am sponsoring:

1. Exhibit A-5 (HWJ-1), Schedules E1, E1.1, E1.2, E2 and E3, and
2. Exhibit A-15 (HWJ-2), Schedules E1.2, E3 and E4

Q. Were these exhibits prepared by you or under your direction and supervision?

A. Yes, they were.

Q. Please describe Exhibit A-5 (HWJ-1) Schedules E1, E1.1, E1.2, E2 and E3.

A. Exhibit A-5 (HWJ-1) Schedule E1 summarizes the sales forecast for the years 2012 – 2016.

Exhibit A-5 (HWJ-1) Schedule E1.1 summarizes the 2012 projected test year sales forecast at the revenue class level. This is the level for which various models were developed to forecast sales.

Exhibit A-5 (HWJ-1) Schedule E1.2 summarizes the sales forecast at the rate schedule level for the 2012 projected test year.

Exhibit A-5 (HWJ-1) Schedule E2 summarizes the 2012 projected test year demand

unit forecast.

Exhibit A-5 (HWJ-1) Schedule E3 summarizes the 2011 projected test year fixed charge count forecast.

Q. Please describe Exhibit A-15 (HWJ-2) Schedules E1.2, E3, and E4.

A. Exhibit A-15 (HWJ-2) Schedule E1.2 summarizes the 2010 historical test year sales by rate schedule level.

Exhibit A-15 (HWJ-2) Schedule E3 summarizes the 2010 historic test year fixed charge count by rate schedule.

Exhibit A-15 (HWJ-2) Schedule E4 summarizes historical test year annual system sales, maximum demands, and load factors for the historical periods of 2005 through 2010, and the 2012 forecasted test year.

Q. Please explain how the UPPCO 2012 sales forecast was developed.

A. Separate forecasts were developed for the Integrated and Iron River systems.

The Residential forecast used two regression models, a customer model and a use-per-customer model. The customer model and the use-per-customer model are monthly models. The models include Seasonal customers and sales. Historical data from 2000 through 2010 were used in these models.

The customer forecast is based on a regression model using the number of households in the service territory as the driver.

The use-per-customer forecast is based on a regression model called Statistically Adjusted End-Use ("SAE"), which uses multiplicative variables representing Heating, Cooling and Other electric usage. Built into the three variables are billing Heating Degree Days ("HDD"), billing Cooling Degree Days ("CDD"), appliance saturation and efficiency trends, home size (people per household) and efficiency, real personal income, and real price to the customer. The SAE methodology will be explained in more detail below.

Itron is a technology provider to energy and water industries worldwide that developed both the multiplicative variables and the SAE regression model. They provide technology regarding metering, meter data collection, energy information management, load forecasting, analysis and consulting services to over 3,000 utilities. The models are developed in MetrixND, a statistical modeling tool developed by Itron.

The Small Commercial and Industrial ("SC&I") forecast uses two regression models, a customer model and a use-per-customer model. The models used historical data from 2000 through 2010. The models exclude Company Use sales.

The customer forecast is based on a regression model driven by non-manufacturing employment.

The use-per-customer sales forecast is based on a regression model using multiplicative variables that represent Heating, Cooling and Other electric usage. Built into the three variables are billing HDD, billing CDD, equipment saturation and efficiency, and real price to the customer.

The Large Commercial and Industrial ("LC&I") forecast was developed on a customer-by-customer basis using information provided by the Account Executives for each customer.

Street Lighting Sales are based on a regression model driven by the trend in street lighting sales.

Company Use is based on a regression model driven by the trend in Company Use sales.

UPPCO will not serve any wholesale energy or capacity load in 2012, as discussed in the pre-filed direct testimony of Mr. Charles W. Severance.

The monthly forecasts were aggregated to the Integrated System and the Iron River System, and finally summed to the UPPCO company level (See Exhibit A-5 (HWJ-1) Schedule E1.1).

The transmission and distribution loss factors were applied to this customer level forecast to derive the generation forecast. Sales were then allocated to the rate schedule level using 2010 actual sales (See Exhibit A-5 (HWJ-1) Schedule E1.2).

For modeling purposes, 8,648 Billing HDD, and 216 Billing CDD were assumed in the forecast. This corresponds to 8,697 Calendar HDD, and 216 Calendar CDD.

Further, consistent with the weather normalization methods used in Case No. U-16166, UPPCO's most recent general rate case, weather sensitive sales were weather normalized based on 20 year weather normalization data from 1991-2010.

Q. Please explain in more detail how the SAE models work in the use-per-customer models.

A. I will use the residential electric forecast model as an example. The model design considers billing sales, price, structural changes, and appliance saturation and efficiency trends. It then imposes a model structure through the SAE specification, which will be further explained below.

Instead of constructing a regression model with many explanatory variables, this approach constructs a model with three high-level end-use variables: Heating, Cooling, and Other Use. The model structure then embeds forecast drivers into the three constructed variables. These forecast drivers include: HDD, CDD, price, income, household size (people per household), and end-use saturation and efficiency trends.

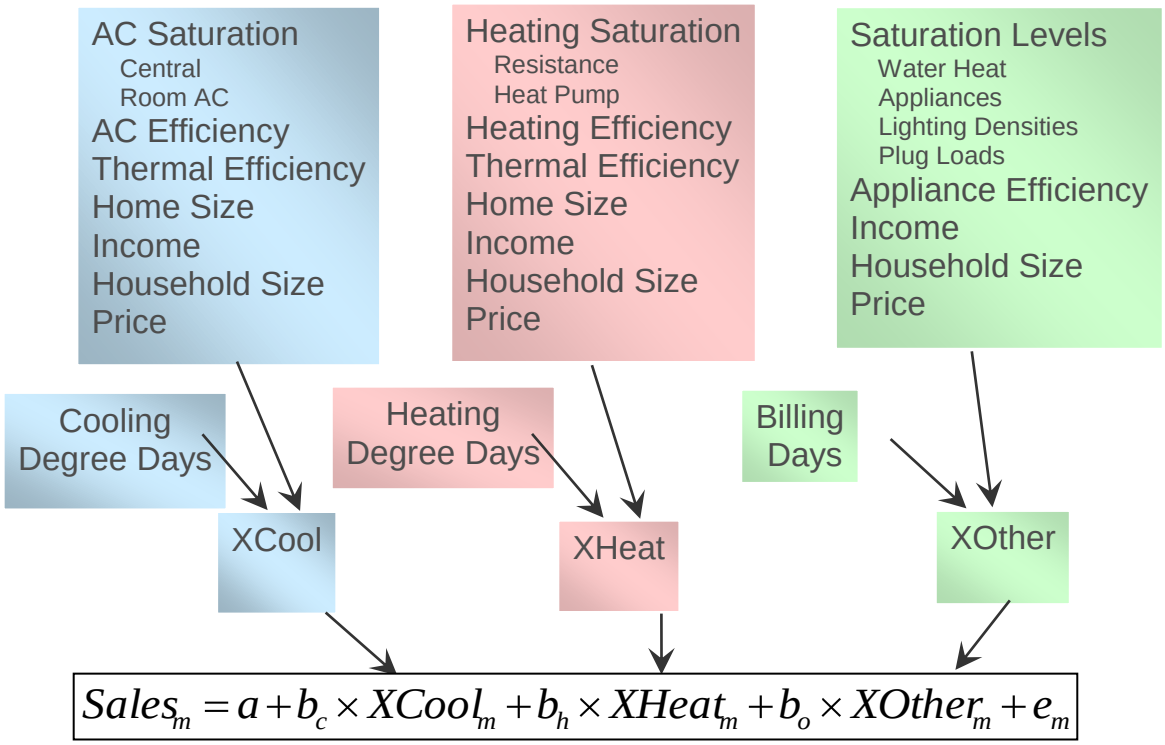
The estimated average use per customer regression model using the constructed end-use variables is:

$$AvgUse_t = B_0 + B_1 XCool_t + B_2 XHeat_t + B_3 XOther_t + e_t$$

The model structure incorporates consumer behavior to changes in various explanatory variables (elasticity). By focusing on consumer behavior in response to various changes in price, heating, cooling, income, etc. (explanatory variables), UPPCO can capture the appropriate impacts of changes in economic conditions and how they interrelate with end-use variables. UPPCO incorporates this consumer behavior based on upon studies that Itron has researched.

The graphic below explains in more detail the economic and various end-use saturation and efficiency variables, developed from the Energy Information

Administration ("EIA") energy efficiency forecasts that make up the three main explanatory variables.



The XHeat variable above, for example, has two components:

$$XHeat_{y,m} = HeatIndex_y \times HeatUse_{y,m}$$

HeatIndex is expanded below:

$$HeatIndex_y = Structural\ \ Index_y \times \sum_{Type} Weight^{Type} \times \frac{\left(Sat_y^{Type} / Eff_y^{Type} \right)}{\left(Sat_{01}^{Type} / Eff_{01}^{Type} \right)}$$

Heatuse is expanded below:

$$HeatUse_{y,m} = \left(\frac{HDD_{y,m}}{HDD_{01}}\right) \times \left(\frac{HHSize_{y,m}}{HHSize_{01}}\right)^{a} \times \left(\frac{Income_{y,m}}{Income_{01}}\right)^{b} \times \left(\frac{\text{Pr}\,ice_{y,m}}{\text{Pr}\,ice_{01}}\right)^{c}$$

Factors Impacting Other Use or XOther include:

1. Non-weather-sensitive end-use saturation and efficiency trends,
2. Number of billing days,
3. Hours of light,
4. Household size and income, Ground Water temperature (electric water heating), and
5. Prices.

Q. Why does UPPCO employ such a sophisticated modeling approach?

A. A regression model has distinct advantages over any simple trend model. A regression model considers not only the trend of historical sales data, but also what drives that trend. Then, based on a set of forecasted data with specific assumptions of the future including economic forecasts from Moody's Economy.com, energy efficiency forecasts from EIA, and "normal" weather, the forecast reflects changes to the drivers and trends in energy consumption. A trend model cannot recognize changes in the economy such as the start or end of an economic recession, nor the implementation of the new federal energy efficiency standards put in place by the Energy Independence & Security Act ("EISA") of 2007. UPPCO's models and forecasts account for these changes, and are therefore based on the best and most current information available.

Q. Please explain the procedures used to develop fixed charge counts for the 2012 test year.

A. The fixed charge forecasts for the Residential and SC&I sectors in both the

Integrated System and the Iron River System were developed using a 31-month trend analysis of actual billed historical data at the rate schedule level, including both lamps and monthly fixed charges. The 31-month period used was June 2008 through December 2010. The analysis produced meaningful rates of change for rate schedules A-1, A-2, AH-1, C-1, Z-3, Z-4, SL-5, SL-6, and SL-10. The trend analysis for other rate schedules within the Residential and SC&I sectors produced no significant rate of change, and therefore a factor of 1.0 was used. The rate of change factors were extrapolated out through the forecast period, using the 2010 actuals as the base, to develop the 2012 test year forecast.

The forecasts for the LC&I sector in both the Integrated System and the Iron River Systems were performed at the individual customer level, and represent the current expectation of specific customers who will be taking service during the 2012 test year.

UPPCO will not serve any wholesale energy or capacity load in 2012, as discussed in the pre-filed direct testimony of Mr. Charles W. Severance.

Q. Please explain how demands were developed for the 2012 test year.

A. Forecasted demand units were created using a kilowatt ("kW") to kilowatt-hour ("kWh") ratio applied against forecasted 2012 test year sales. The kW to kWh ratio was calculated using the 2010 calendar year actuals.

Q. Please explain how revenues were developed.

A. Please see Exhibit A-6 (JMB-1), Schedule F3 of the pre-filed direct testimony of Mr. James M. Beyer.

Q. Does this complete your pre-filed direct testimony?

A. Yes, it does.