STATE OF INDIANA

INDIANA UTILITY REGULATORY COMMISSION

PETITION OF INDIANA MICHIGAN POWER COMPANY, AN INDIANA CORPORATION, FOR (1) AUTHORITY TO INCREASE ITS RATES AND CHARGES FOR ELECTRIC UTILITY SERVICE THROUGH A PHASE IN RATE ADJUSTMENT; (2) APPROVAL OF: REVISED DEPRECIATION RATES; ACCOUNTING RELIEF; INCLUSION IN BASIC RATES AND CHARGES OF QUALIFIED POLLUTION CONTROL PROPERTY, CLEAN ENERGY PROJECTS AND COST OF BRINGING I&M'S SYSTEM TO ITS PRESENT STATE OF EFFICIENCY; RATE ADJUSTMENT MECHANISM PROPOSALS; COST DEFERRALS; MAJOR STORM DAMAGE RESTORATION RESERVE AND DISTRIBUTION VEGETATION MANAGEMENT PROGRAM RESERVE; AND AMORTIZATIONS; AND (3) FOR APPROVAL OF NEW SCHEDULES OF RATES, RULES AND REGULATIONS.	) CAUSE NO.	44967-NONE

SUBMISSION OF DIRECT TESTIMONY OF TIMOTHY C. KERNS

Petitioner, Indiana Michigan Power Company (I&M), by counsel, respectfully submits the direct testimony of Timothy C. Kerns in this Cause.

Teresa Morton Nyhart (Atty. No. 14044-49)
Nicholas K. Kile (Atty. No. 15023-23)
Jeffrey M. Peabody (Atty No. 28000-53)
Barnes & Thornburg LLP
11 South Meridian Street
Indianapolis, Indiana 46204
Nyhart Phone: (317) 231-7716
Kile Phone: (317) 231-7768
Peabody Phone: (317) 231-6465
Fax: (317) 231-7433
Email: tnyhart@btlaw.com
nkile@btlaw.com
jpeabody@btlaw.com

Attorneys for Indiana Michigan Power Company

CERTIFICATE OF SERVICE

The undersigned certifies that the foregoing was served upon the following via electronic email, hand delivery or First Class, or United States Mail, postage prepaid this 26th day of July, 2017 to:

William I. Fine
Abby R. Gray
Indiana Office of Utility Consumer Counselor
Office of Utility Consumer Counselor
115 West Washington Street
Suite 1500 South
Indianapolis, Indiana 46204
infomgt@oucc.in.gov
wfine@oucc.in.gov
agray@oucc.in.gov

Jeffrey M. Peabody

Teresa Morton Nyhart (No. 14044-49)
Nicholas K. Kile (No. 15023-23)
Jeffrey M. Peabody (No. 28000-53)
BARNES & THORNBURG LLP
11 South Meridian Street
Indianapolis, Indiana 46204
Nyhart Phone: (317) 231-7716
Kile Phone: (317) 231-7768
Peabody Phone: (317) 231-6465

Attorneys for INDIANA MICHIGAN POWER COMPANY

I&M Exhibit: _____

INDIANA MICHIGAN POWER COMPANY

PRE-FILED VERIFIED DIRECT TESTIMONY

OF

TIMOTHY C. KERNS

INDEX

PRE-FILED VERIFIED DIRECT TESTIMONY OF TIMOTHY C. KERNS
ON BEHALF OF
INDIANA MICHIGAN POWER COMPANY

Q. Please state your name and business address.

A. My name is Timothy C. Kerns, and my business address is 2791 N. US Highway 231, Rockport, IN 47635.

Q. By whom are you employed and in what capacity?

A. I am employed as Managing Director – Generating Assets for Indiana Michigan Power Company (I&M or the Company).

Q What are your responsibilities as Managing Director – Generating Assets for I&M?

A. I am responsible for the safe, reliable, efficient, environmentally-compliant, and low-cost performance of I&M's Fossil (Steam), Hydroelectric (or Hydro), and Universal Solar generating fleet. More specifically, I oversee and direct this fleet's operation and maintenance (O&M) and capital budget expenditures. I collaborate with I&M's Executive Leadership, American Electric Power's (AEP) Fossil & Hydro Generation group, AEP's Commercial Operations group, and the AEP Service Corporation (AEPSC) organization in support of such responsibilities.

Q. Please briefly describe your educational background and business experience.

A. I hold a Bachelor's of Science in Mechanical Engineering from West Virginia Institute of Technology and have been employed with AEP for 28 years. I have

worked at various power plants across the AEP system as a Performance Engineer, a Maintenance Engineer, and a Plant Manager. From 2001 to 2005, I was the Regional Services Organization Manager responsible for providing maintenance-related services to AEP's Fossil, Hydro, and Nuclear generating fleet. I have also held the positions of Regional Engineering Manager and Regional Outage Manager.

I. PURPOSE OF TESTIMONY

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

A. The purpose of my testimony in this proceeding is to describe I&M's non-nuclear generating fleet, which is comprised of fossil fueled and hydro assets, as well as I&M's recently installed Universal Solar generating assets. I support historical and forecasted operation and maintenance (O&M) expense and capital investments for I&M's generating fleet. As described in more detail by Company witness Lucas, these forecasted costs are developed collaboratively as part of a work plan that fits within I&M's overall effort to continue to provide safe, reliable, efficient, environmentally-compliant, and low-cost service to its customers. More specifically, I support generation O&M expenses for the forward-looking 12-month test year period ending December 31, 2018 (the Test Year), as well as historical generation O&M expenses for the 12-month period ending December 31, 2016. I also support I&M's forecasted generation capital expenditures during 2017 and 2018 (the Capital Forecast Period). I also discuss the retirement of I&M's Tanners Creek Plant and associated costs.

All O&M expenses and capital investments that I present in my testimony, both historical and forecasted, represent total I&M levels and are not representative of the Indiana jurisdictional share. Company witness Stegall describes the Indiana jurisdictional allocation of the Test Year I&M expenses and investments.

II. I&M's GENERATING FLEET

Q. Please describe the portion of I&M's fleet of generating units that you support in your testimony.

A. The portion of I&M's generating fleet that I support consists of the coal-fired Rockport Plant, six run-of-river hydro facilities, and four Universal Solar generating sites. For simplicity, I will sometimes refer to these assets as I&M's "generating fleet." I&M also owns and operates the Cook Nuclear Plant generating facility, which is supported by Company witness Lies in this proceeding. The terms "generation" and "generating" in my testimony exclude Cook.

I&M's generating units are well maintained, in good condition, and necessary for I&M's provision of electric service to I&M's customers.

Q. Please describe the Rockport Plant.

A. I&M's Rockport Plant is located in Rockport, Indiana and consists of two similar 1,300 MW (nominal) generating units fired with pulverized coal. I&M operates both units, and has a 50% ownership interest in the output of both units. As discussed further by Company witness Thomas, I&M has a 50% direct ownership

share of Rockport Unit 1, and Rockport Unit 2 is operated under a lease agreement.

Units 1 and 2 at the Rockport Plant were placed in service in 1984 and 1989, respectively. Each unit is equipped with an Electrostatic Precipitator (ESP) for collection of particulate matter (PM, also referred to as flyash); low-NO_x burners (LNB) with overfire air (OFA) to minimize the formation of nitrogen oxides (NO_x) during combustion; Activated Carbon Injection (ACI) for the capture of mercury emissions; and Dry Sorbent Injection (DSI) for the reduction of acid gases and sulfur dioxide (SO_2) removal. In addition, Selective Catalytic Reduction (SCR) technology is being installed on Rockport Unit 1, and I&M plans to install SCR technology on Rockport Unit 2. These SCR installations will further reduce Rockport's NO_X emissions.

Each Unit at the Rockport Plant currently consumes a blend of approximately 87% Powder River Basin (PRB) sub-bituminous coal and 13% eastern bituminous coal. This high percentage PRB blend results in lower emission rates of SO_2 and NO_x relative to burning 100% eastern bituminous coal.

Q. What are Run-of-River Hydro units?

A. Run-of-River Hydro units are power stations situated along a river that utilize the river's flow for generation of power without materially altering the normal course of the river. A Run-of-River Hydro unit is advantageous in that it does not utilize a reservoir for power production and therefore has less of an impact on upstream ecosystems. Consequently, the output of these units is primarily dictated by river

flow conditions and varies accordingly. Additionally, Run-of-River Hydro units are renewable energy sources that help to reduce I&M's carbon footprint and achieve compliance with state renewable mandates to which I&M is subject.

Q. Please discuss I&M's Run-Of-River Hydro facilities.

A. I&M has six Run-of-River Hydroelectric facilities as shown on Figure TCK-1:

Figure TCK-1
I&M Hydro Facilities

Facility Name	Number of Units	Location
Berrien Springs	10 Units	600 S Mechanic St, Berrien Springs, MI, 49103
Elkhart Plant	3 Units	330 Johnson Street, Elkhart, IN, 46516
Buchanan Hydroelectric Plant	10 Units	15560 East River Rd, Buchanan, MI, 49107
Constantine Hydroelectric Plant	4 Units	155 North Washington Ave., Constantine, MI, 49042
Mottville Hydroelectric Plant	4 Units	10005 North River Road, White Pigeon, MI, 49099
Twin Branch	8 Units	2900 South Shore Dr, Mishawaka, IN, 45644

These facilities combine for a total of 22.4 megawatts (MW) of installed capacity and consistently produce, on average, approximately 100,000 MWH of emission-free renewable energy annually. With a proper maintenance schedule, these facilities will be viable generating assets for many more years.

Q. Please discuss the license expiration dates for the Hydro facilities.

A. Figure TCK-2 identifies the license expiration dates for each of I&M's Hydro facilities.

Figure TCK-2
I&M Hydro Facilities' License Expirations

Hydro Facility	Year Installed	License Expiration	Life Span (Years)
Berrien Springs	1908	2036	128
Buchanan	1919	2036	117
Constantine	1921	2053*	132
Elkhart	1913	2030	117
Mottville	1923	2033	110
Twin Branch	1904	2036	132

*Anticipated 30 year extension of current license by FERC

The current operating license for the Constantine Hydro facility, issued to I&M by the Federal Energy Regulatory Commission (FERC), expires September 30, 2023. I&M has initiated the necessary internal steps to prepare a license renewal application for submission to FERC by September 30, 2021. It is anticipated that I&M's license renewal application will be approved by FERC and a 30-year extension through 2053 will be granted for operation of the Constantine Hydro facility. As each of the Hydro facilities approaches the date of their license expiration, I&M will evaluate the feasibility of license extension.

Q. Please discuss I&M's Universal Solar generation.

A. By the end of 2016, I&M had completed the installation of four Universal Solar facilities: the Deer Creek, Twin Branch, the Watervliet, and Olive facilities. The power output of these units is dictated by the amount of solar energy they are able to receive and transform into electric energy for consumption. Correspondingly, the time of day and the amount of atmospheric interference (e.g., cloud cover) dictate these units' generation output. Together, I&M's

Universal Solar generating units have an installed capacity of 14.7 MW[1] and provide another renewable energy resource to I&M's generation portfolio, which further reduces the Company's carbon emission profile. Figure TCK-3 identifies I&M's four Universal Solar facilities, their locations, and the corresponding capacity values.

Figure TCK-3
I&M Universal Solar Facilities

Facility #	Name	Location	In-Service Date	MW
1	Watervliet	Berrien County, MI	11/10/2016	4.6
2	Olive	St Joseph County, IN	8/30/2016	5.0
3	Deer Creek	Grant County, IN	12/31/2016	2.5
4	Twin Branch	St Joseph County, IN	8/18/2016	2.6

Q. Has I&M retired any generating plants since its most recent base rate case?

A. Yes. Previously I&M operated the four-unit, coal-fired Tanners Creek Plant located in Lawrenceburg, Indiana. As described in Cause Nos. 44075, 44422, and 44555, it was necessary to retire all four generating units at this plant on May 31, 2015. I further discuss the Tanners Creek Plant below.

III. FORECASTED GENERATION CAPITAL INVESTMENT

Q. What is the projected capital period considered in this filing?

A. The projected period with respect to capital investment (Capital Forecast Period) is the period from January 1, 2017 through December 31, 2018. The Capital Forecast Period includes all of the Company's projected capital expenditures in 2017 and 2018. The investment outlined in this testimony relates to the work

[1] References to MW are in alternating current (AC).

plans developed by I&M to manage its system. This level of capital is included in the forecast presented by Company witness Lucas.

Q. How is the total amount of capital investment to be made in I&M's generating fleet determined?

A. As discussed by Company witness Lucas, I&M bases its investment on work plans developed by the Company and vetted through multiple steps. The plant and I&M staff work collaboratively with AEPSC's Environmental, Engineering, and Project Management teams to evaluate the needs of each generating unit to maintain reliability, safety, environmental compliance, and other unit performance parameters. The timing of capital investments depends on economic evaluations between competing projects and regulatory, safety, environmental, or reliability requirements. All of these factors serve as inputs to the capital projects approval process for I&M's generating fleet.

Q. What is the amount of capital to be invested in the Company's generating units during the Capital Forecast Period?

A. Total generation capital expenditures during the Capital Forecast Period are approximately $176 million (excluding AFUDC), as shown on Figure TCK-4 below.[2]

[2] Figure DAL-1 of Company witness Lucas's testimony shows how AFUDC is added to capital expenditures.

Figure TCK-4
I&M Generation Capital Expenditures
($000 – Total Company – Excluding AFUDC)

Category	2017 Capital Expenditures	2018 Capital Expenditures	2017-2018 Total Capital Expenditures
Major Projects	$75,487	$63,213	$138,700
Other Capital Investments	$14,577	$22,655	$37,232
Total	**$90,064**	**$85,868**	**$175,932**

Approximately $192.6 million of generation capital (including AFUDC) is forecasted to be placed in service during the Capital Forecast Period, as shown on Figure TCK-5 below.[3]

Figure TCK-5
I&M Generation Additions to Electric Plant in Service (EPIS)
($000 – Total Company – Including AFUDC)

Category	2017-2018 Additions to EPIS
Major Projects	$159,248
Other Capital Investments	$33,307
Total	**$192,555**

In the Major Projects category, I have included all generation capital projects with capital expenditures exceeding $1 million during the Capital Forecast Period. I describe these in detail below.

The Other Capital Investment category includes capital expenditures associated with multiple smaller projects. For example, it includes work on the Rockport Unit 1 soot blower header control system, replacement of the North and

[3] Figure DAL-2 of Company witness Lucas's testimony shows how generation additions to Electric Plant in Service (EPIS) are used to forecast total Company Plant in Service activity during the Capital Forecast Period.

South pyrite tanks, and replacement of a Rockport Unit 1 Generation Step-Up high voltage bushing. The projects in the Other Capital Investment category represent the type of continuous investment that is necessary to maintain the availability and reliability of the generating units. These planned projects are reasonable and should be included as typical projects in a typical year.

Q. Please identify the in-service generation projects with capital expenditures greater than $1 million during the Capital Forecast Period.

A. Figure TCK-6 shows generation projects that will involve capital expenditures greater than $1 million during the Capital Forecast Period. Figure TCK-6 shows projects that will be placed in service by the end of the Test Year. It excludes projects that will involve capital expenditures greater than $1 million during the Capital Forecast Period but will be placed in service after the Test Year (e.g., the Rockport Unit 2 SCR, which will be placed in service in 2019). Total forecasted project costs on Figure TCK-6 include AFUDC and present I&M's ownership share of the investment.

Figure TCK-6
I&M Generation Major Projects Capital Expenditures
(Total Company – Including AFUDC)

	I&M Projects > $1M		Project In Service Date	Historical Period	Capital Forecast Period	I&M Total Project Cost through end of Capital Forecast Period ($000s)
	Number	Title		Through 12/31/2016 ($000s)	1/1/2017 through 12/31/2018 ($000s)	
Capital Placed in Service During the Capital Forecast Period	1	RKU001SCR Rockport U1 SCR	6/30/2017	$101,915	$32,636	$134,551
	2	RKIMC1506 RK15CIU1 LP TurbRtr and BldCar	6/6/2017	$10,224	$4,321	$14,545
	3	RKIMC0506 Replace Furn Ash Hopper Slope	6/30/2017	$824	$5,817	$6,641
	4	RKIMC1601 RK16 U1 Precip Roof IM	5/28/2017	$0	$4,428	$4,428
	5	EKH000068 EKH SPILLWAY GATE REPLACEMENT	12/31/2017	$0	$1,882	$1,882
	6	RKIMC1712 RK17CIU1 Reserve Aux Transform	12/30/2017	$0	$1,703	$1,703

Q. Please summarize the projects identified in Figure TCK-6.

A. The following projects will be placed in service during the Capital Forecast Period:

- Project 1 – Rockport Unit 1 SCR. The Rockport Unit 1 SCR Project will allow I&M to meet the requirements set forth in I&M's New Source Review (NSR) Consent Decree. The Commission granted a Certificate of Public Convenience and Necessity (CPCN) for this project in Cause No. 44331. The Rockport Unit 1 SCR is forecasted to be placed in service by June 30, 2017 at a total cost of $134.551 million (including AFUDC). I discuss the Rockport Unit 1 SCR operation later in my testimony.
- Project 2 – Rockport Unit 1 Low Pressure Turbine Upgrade. I&M will install an upgraded steam path in the four Low Pressure (LP) turbines including rotors, stationary blade carriers, and associated components

on Rockport Unit 1. The current LP rotors have exceeded their useful life and their replacement with upgraded rotors will allow the unit to meet the parasitic load associated with the DSI and SCR systems in addition to a 6% turbine efficiency improvement. This project is forecasted to be placed in service by July 1, 2017 at a total cost of $14.545 million (including AFUDC).

- Project 3 – Rockport Unit 1 Ash Hopper Slope Replacement. The existing ash hopper slope is original to the unit and over time numerous slag fall events have caused extensive damage across the slope tubing including the underlying truss support structure. This portion of the ash hopper is at the end of its useful life and its replacement is expected to avoid future forced outages as a result of failures related to the ash hopper slope. This project is forecasted to be placed in service by June 30, 2017 at a total cost of $6.641 million (including AFUDC).
- Project 4 – Rockport Unit 1 Electrostatic Precipitator Roof. The condition of the Rockport Unit 1 electrostatic precipitator (ESP) roof has deteriorated over time due to normal wear and tear, reducing the structural integrity of the ESP while contributing to high opacity levels and associated curtailments of the Unit. This project will replace the Unit's existing ESP roof. The project is forecasted to be placed in

service by May 28, 2017 at a total cost of $4.428 million (including AFUDC).

- Project 5 – Elkhart Spillway Gate Replacement. The Elkhart Hydroelectric Plant has eleven spillway gates that are used to pass flood waters and were installed in 1913 during the plant's original construction. A structural analysis of these spillway gates indicated that they did not meet the current factor of safety standard required by the FERC. FERC has directed I&M to comply with the required safety factor, and in response to this, the spillway gates at the Elkhart facility will be replaced. This project is forecasted to be placed in service by December 31, 2017 at a total cost of $1.882 million (including AFUDC).
- Project 6 – Reserve Auxiliary Transformers. This project involves the purchase of two reserve auxiliary transformers. These transformers will ensure the units are able to maintain power to critical systems during outages. This project is forecasted to be placed in service by December 30, 2017 at a total cost of $1.703 million (including AFUDC).

Q. Is the amount of capital to be invested in the Company's generating fleet during the Capital Forecast Period reasonable?

A. Yes. The components of generating fleet deteriorate, fail, or become obsolete over time and must be replaced to maintain safe, reliable, efficient, environmentally-compliant, and low-cost service. Additionally, capital investment must be made in response to evolving environmental regulatory requirements.

The amount of capital investment to be made during the Capital Forecast Period represents an appropriate spend built upon the needs of the generating facilities to maintain this expected level of service.

IV. GENERATION O&M EXPENSE

Q. What is I&M's non-fuel generation O&M expense?

A. Non-fuel generation O&M expense includes the costs associated with the operation, maintenance, administration, and support of I&M's generating units. These costs exclude fuel but do include labor, material and supplies, contractor services, consumables, allowances, and other miscellaneous expenses for I&M's generating facilities. For ease of reference, I will present these costs separately as the Fossil (Steam) Generation O&M expense for I&M's Fossil generation, the Hydro Generation O&M expense for I&M's Hydro generation, and the Universal Solar Generation O&M expense for I&M's Solar generation.

Q. What are you sponsoring related to the non-fuel generation O&M expenses in this testimony?

A. I am sponsoring generation overall plant work plans, which includes the Fossil (Steam), Hydro, and Universal Solar Generation O&M expenses presented in my testimony. As further discussed by Company witness Lucas, I participate in the prioritization and allocation of I&M's O&M expenses based on the work plan development.

Q. How is the total amount of O&M investment to be made in I&M's generating fleet determined?

A. As discussed by Company witness Lucas, I&M develops its O&M budget based on the costs necessary to maintain ongoing operations plus incremental O&M needs. Ongoing operations costs typically include labor, fringe benefits, consumable materials and chemicals, mandated fees, and other ongoing expenses, and are largely non-discretionary within a given year. Incremental O&M includes the cost associated with scheduled outages and maintenance at major generating facilities. Once ongoing operations O&M has been approved, the generation incremental needs are evaluated and prioritized against other business units by I&M management, and the available resources are allocated in order of greatest operational benefit.

Q. What are the historical and Test Year levels of non-fuel generation O&M expenses that you are supporting in this filing?

A. Fossil (Steam) Generation O&M expense was $112.830 million in 2016, and the projected Test Year Fossil (Steam) Generation O&M expense is $130.664 million. This includes FERC Accounts 500, 502, and 505-515. Hydro Generation O&M expense was $3.583 million in 2016, and the projected Test Year Hydro Generation O&M expense is $4.816 million. This includes FERC Accounts 535-545. Lastly, Universal Solar Generation O&M expense was $0.168 million in 2016, and the projected Test Year Universal Solar Generation expense is $0.851 million. This includes costs contained in FERC Account 549.

Q. Please describe the major areas of Fossil (Steam), Hydro, and Universal Solar Generation O&M expense.

A. There are four major categories into which Fossil (Steam), Hydro, and Universal Solar Generation O&M expense is divided. These include:

- Base Cost of Operations (BCO)
- Planned Outages
- Forced and Opportunity Outages
- Non-Outage Maintenance and Inspection (NOMI)

The largest portion of the Fossil (Steam) and Hydro Generation O&M expense is the BCO category, which includes costs involved in normal operation and maintenance that are relatively consistent from year-to-year. An example of BCO costs would include maintenance on parts and equipment that is typically routine and predictable, along with their attendant labor costs. For Fossil (Steam) Generation O&M expense, emission allowances and consumables are other items that would fall under this category, but I will present them separately in my testimony below. BCO also constitutes a large portion of the Universal Solar Generation O&M expense and represents annual contracted fixed-cost services for all four solar generating facilities including, among other things, continuous monitoring of weather conditions, plant equipment, alarms, operating parameters, electrical generation, and other key operating metrics of the plant.

Planned Outages also represent a significant portion of the Fossil (Steam) and Hydro Generation O&M expense. Planned outages are outages that can

include repair and major overhaul of large systems and components such as the boiler, turbine, or generator. These types of outages are scheduled and planned months or years in advance and often require long lead times on equipment and engineering of new or replacement materials. The O&M costs associated with planned outages can vary significantly from outage to outage, depending on the needs of each individual operating unit, but are necessary to maintain the safe, reliable, efficient, environmentally-compliant, and low-cost operation of I&M's Fossil (Steam) & Hydro generating units.

The Forced and Opportunity Outage category includes unplanned and unscheduled outages that require the unit to be taken offline because of an unanticipated event or failure. Due to system demand, it is often necessary to quickly bring the units back into operation as expeditiously as possible when out of service due to a forced outage. Costs associated with forced outages are influenced by I&M's historic unit performance and the unit's assessed health. This category also includes opportunity outages which are outages of a short duration scheduled typically just hours or days in advance with the purpose of mitigating an emergent issue. Opportunity outages are only scheduled if allowed by the level of system demand.

Lastly, the NOMI category of Fossil (Steam), Hydro, and Universal Solar Generation O&M expense represents maintenance work that can be performed while the generating unit remains in service.

Q. Are there any other significant costs included in the Fossil (Steam) Generation BCO category?

A. Yes. As discussed by Company witness Thomas, Rockport Unit 2 is not directly owned by I&M and the Company must make an annual lease payment to the Unit's owners. This cost, approximately $73.9 million per year (both in 2016 and in the 2018 Test Year), is included in the BCO category of the Fossil (Steam) Generation O&M expense. This cost is consistent from year to year and does not fluctuate based on the operation and maintenance of the unit.

Q. Please provide the historical and Test Year levels of Fossil (Steam), Hydro, and Universal Solar Generation O&M expense by category.

A. Figure TCK-7 provides the historical and Test Year Fossil (Steam) and Hydro Generation O&M expense, by category:

Figure TCK-7
Historical & Test Year Fossil (Steam), Hydro, and Universal Solar Generation O&M Expense by Category

O&M Type	Generation O&M Category	2016 ($000s)	Test Year ($000s)
Fossil (Steam) Generation O&M Expense*	BCO	$91,928	$95,368
	Planned Outage	$797	$4,724
	NOMI	$1,167	$2,303
	Forced & Opportunity Outage	$1,212	$561
	Allowances	$1,693	$1,529
	Consumables	$16,033	$26,180
	Total	$112,830	$130,665
Hydro Generation O&M Expense	BCO	$2,515	$2,791
	Planned Outage	$296	$320
	NOMI	$772	$1,705
	Total	$3,583	$4,816
Solar Generation O&M Expense**	BCO	$168	$408
	NOMI	$0	$444
	Total	$168	$851

Notes:
* 2016 Fossil (Steam) Generation O&M Expense excludes Tanners Creek costs
** Solar O&M is in account 5490000 in "Other Generation" account group

Q. What is responsible for the increase in Fossil (Steam) Generation O&M expense BCO category between 2016 and the Test Year?

A. The primary driver for the increase in Fossil (Steam) Generation O&M expense BCO category is related to the AEPSC charges that I&M incurs in support of its generating units. The AEPSC organization provides key support services to I&M's generating fleet, including technical, operational, and maintenance expertise in support of providing safe, reliable, efficient, environmentally-compliant, and low-cost service to I&M's customers. This is support that I&M would not have access to without the corporate structure that exists today.

Q. Please explain the difference in Fossil (Steam) Generation O&M expense planned outage category between 2016 and the Test Year?

A. Planned outages are cyclical in nature and are necessary to maintain the operation of the units. The Fossil (Steam) Generation O&M Expense Planned Outage Category is greater in the Test Year as opposed to 2016 based on the increased quantity and the differences in scope of work for Rockport Plant's planned outages. Included in the Test Year are costs associated with a thirty-day planned spring outage for Rockport Unit 2 and two nine-day planned fall outages on Rockport Units 1 and 2, whereas 2016 consisted of a single twenty-six day planned outage on Rockport Unit 1. Additionally, the planned outage that took place in 2016 was minimal in scope, whereas the Rockport Unit 2 planned spring outage in 2018 has significant precipitator, turbine, and steam generator maintenance associated with its scope.

Q. What consumables are included in the Test Year Fossil (Steam) Generation O&M expense?

A. I&M has installed DSI control technology and upgraded the existing ACI system on Rockport Units 1 and 2 to meet emission limitations required by the MATS Rule. The DSI and ACI systems inject sodium bicarbonate and activated carbon, respectively, into the flue gas stream, allowing Rockport Plant to remove hazardous acid gases and mercury for compliance with the MATS Rule.

Additionally, I&M is completing the installation of SCR technology on Rockport Unit 1 to further reduce NO_X emissions. As part of the SCR process,

anhydrous ammonia is vaporized and injected into the flue gas where, in the presence of the SCR catalyst, it reacts with the NO_X, transforming it into nitrogen, an inert gas, and water. These three consumables (sodium bicarbonate, activated carbon, and anhydrous ammonia) are included in the Test Year Fossil (Steam) Generation O&M expense identified in Figure TCK-7 above.

Q. Are the consumables included in the Historical Period different than those included in the Test Year Fossil (Steam) Generation O&M expense?

A. Yes. Sodium bicarbonate and activated carbon are included in the 2016 and Test Year Fossil (Steam) Generation O&M expense. However, because the SCR is not yet installed on Rockport Unit 1 (expected in-service date in late July 2017), no costs associated with anhydrous ammonia were incurred during 2016. Because the SCR on Rockport Unit 1 will be placed in service prior to the beginning of the Test Year, anhydrous ammonia has been included in the Test Year Fossil (Steam) Generation O&M expense.

Q. Are the sodium bicarbonate and activated carbon costs in 2016 different than the Test Year level for these two consumables?

A. Yes. The Rockport Plant utilizes the DSI system to meet reduced sulfur dioxide (SO_2) emission limits required under the Plant's air permit. This SO_2 limit becomes more stringent over multiple years, with a new lower SO_2 emission limit taking scheduled to take effect on January 1, 2018. In response to this reduced SO_2 limit, it will be necessary to increase the injection rate of sodium bicarbonate. As a result of this increased usage during the Test Year, the historical sodium

bicarbonate consumable expense in Fossil (Steam) Generation O&M does not represent the on-going level needed to compliantly operate Rockport Plant. Both the 2016 and Test Year Level of consumable expense are identified in Figure TCK-7 above.

Q. Are the consumable costs included in the Test Year Fossil (Steam) generation O&M expense expected to be variable and unpredictable going forward?

A. Yes. It is important to recognize that consumable costs vary in the same way fuel costs vary with respect to generation levels. As the MWs of generation produced by the Rockport Plant increase or decrease, the amount of consumables used changes proportionally. This variation in generation leads to a corresponding variation in consumable use that can be significant. This variability is further complicated from the mandated step-change decreases in the Rockport Plant's SO_2 emissions limit as described previously in this testimony.

Q. What is driving the difference in the Hydro Generation O&M expense NOMI category in the Test Year as compared to 2016?

A. In 2016, the only major maintenance project completed at I&M's Hydro facilities was the restoration of the concrete spillway at the Elkhart Plant. In 2018, the Berrien Springs Plant is scheduled to undergo penstock concrete repairs, exterior structural steel painting, and retaining wall repairs. Additionally, the Twin Branch Plant is scheduled to also have exterior steel painting completed.

Q. Why is the Universal Solar Generation O&M expense greater in the Test Year as compared to 2016?

A. As identified previously in Figure TCK-3, I&M's four Universal Solar facilities were not all placed in service and operating at the beginning of 2016. All four of these Universal Solar facilities have now been placed in service, and this is reflected by the increased O&M associated with their operation in the Test Year.

Q. Is the Test Year level of generation O&M expense reflected in the Company's filing reasonably representative of I&M's expected activities and expenses necessary to provide ongoing safe, reliable, efficient, environmentally-compliant, and low-cost generation of electricity for I&M's Customers?

A. Yes. I&M has a long history of safely and reliably operating its generating fleet, which allows for experienced forecasting of O&M expenditures. The Test Year level of generation O&M expense represents a reasonable level going forward. These generation O&M expenses have been scrutinized at the plant, operating company, and corporate levels, and are representative of the level of O&M expense necessary to continue providing on-going safe, reliable, efficient, environmentally-compliant, and low-cost electric generation to I&M's customers.

V. TANNERS CREEK PLANT

Q. Please describe the Tanners Creek Plant.

A. The Tanners Creek Plant is located in Lawrenceburg, Indiana and consisted of four coal-fired generating units.

Q. Has Tanners Creek Plant been retired?

A. Yes. As described in IURC Cause Nos. 44075, 44422, and 44555, I&M retired all four of the Tanners Creek Units on May 31, 2015. These retirements were in response to current and impending environmental regulations at the time of those decisions.

Since the retirement of the Tanners Creek Plant, I&M has now transferred ownership of the Tanners Creek Plant and site to Environmental Liability Transfer Inc. (ELT), a company that has a proven record of accomplishment in remediating and repurposing sites for productive use. As part of the transfer, ELT has assumed all responsibility and liability for environmental remediation obligations and demolition associated with the plant. I&M will verify this work is completed as it progresses.

Q. Do you support any costs associated with the Tanners Creek Plant in your testimony?

A. Yes. I support the Test Year O&M expense associated with the verification of ELT's remediation efforts. I also support the costs associated with the remaining materials and supplies for Tanners Creek Plant at the time of its retirement and the capital work performed prior to the decision to retire the Tanners Creek Plant.

Q. What type of activities did I&M undertake as part of Tanners Creek Plant's retirement?

A. In response to the retirement of Tanners Creek Plant, plant personnel made a concerted effort to reduce the on-site materials, equipment, and coal pile

inventory. As part of this effort, a system was established to determine the need for replacement of storeroom parts typically maintained at an operational generating facility. These actions ensured that only those parts that were needed for the operation of the facility through its planned retirement date were maintained, and the Plant's storeroom inventory was reduced. Additionally, the Plant was able to transfer certain pieces of equipment such as turbine oil conditioners, a fire truck, certain pickup trucks, and a dozer to the Rockport Plant for their continued use. Lastly, plant personnel were able to use all of the coal in the plant's coal pile for electric generation, resulting in a $0 remaining coal inventory balance. This was an extremely difficult undertaking as the coal pile is contained within a clay pit that had to be delicately scraped clean or risk having a curtailment to generation. Correspondingly, the Plant's scheduled dispatch had to be carefully evaluated and predicted to coincide with the final load of coal removed from the coal pile. All of these actions were undertaken to reduce the remaining balances associated with Tanners Creek Plant at its retirement.

Q. Was any work performed for Tanners Creek Plant Unit 4 prior to the decision to retire the Unit?

A. Yes. Prior to the decision to retire Tanners Creek Unit 4, necessary and reasonable engineering work for that Unit was performed to preserve the Unit's ongoing operation. This work ceased following the final decision to retire Tanners Creek Unit 4.

Q. Were the costs associated with the work performed on Tanners Creek Unit 4 reasonably incurred?

A. Yes. Prior to I&M's decision to retire Tanners Creek Unit 4, the Company employed parallel project planning to evaluate the different possible compliance scenarios applicable to the future of Tanners Creek Unit 4. As part of this planning process it was necessary to maintain the Unit's critical operational infrastructure and to perform the preliminary engineering and investigation required in determining the feasibility of these different compliance scenarios and their respective cost estimates. The majority of the dollars associated with this work assessed and developed the estimate cost of the replacement of the Unit's high pressure heaters, the installation of an Activated Carbon Injection (ACI) system, and the refueling of the Unit to run on natural gas. These cost estimates were then used by the Company to make an informed decision regarding the future of the Unit. The costs associated with this work represent the reasonable and strategic planning necessary to make the best decision for I&M's customers.

Q. At the time Tanners Creek Plant was retired, were there any remaining costs associated with the Plant?

A. Yes. As described above, a concerted effort was made to gain value out of the existing equipment, material, and supplies at Tanners Creek Plant prior to its retirement. The remaining materials and supplies had a balance of approximately $11.6 million upon the plant's retirement. Additionally, the work performed on Tanners Creek Plant to determine its ongoing operation totaled

approximately $3.9 million. Company witness Cash further discusses the treatment of these final remaining costs associated with Tanners Creek Plant.

Q. Does this conclude your pre-filed verified direct testimony?

A. Yes.

VERIFICATION

I, Timothy C. Kerns, Managing Director – Generating Assets of Indiana Michigan Power, affirm under penalties of perjury that the foregoing representations are true and correct to the best of my knowledge, information, and belief.

Date: 7/20/2017

Timothy C. Kerns