I&M Exhibit: _____

Cause No. 45576

INDIANA MICHIGAN POWER COMPANY

PRE-FILED VERIFIED DIRECT TESTIMONY

OF

TIMOTHY C. KERNS

Content

DIRECT TESTIMONY OF TIMOTHY C. KERNS
ON BEHALF OF
INDIANA MICHIGAN POWER COMPANY

I. Introduction of Witness

Q1. Please state your name and business address.

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

Q2. By whom are you employed and in what capacity?

I am employed by American Electric Power Service Corporation (AEPSC) as the Vice President – Generating Assets for Indiana Michigan Power Company (I&M or Company) and Kentucky Power Company.

Q3. What are your responsibilities for I&M as Vice President – Generating Assets?

I am responsible for the safe, reliable, efficient, and environmentally compliant 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.

Q4. Briefly describe your educational background and professional experience.

I hold a Bachelor of Science in Mechanical Engineering Degree from West Virginia Institute of Technology and have been employed with AEP for 32 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 was promoted to my current position in October 2020.

Q5. Have you previously submitted testimony or testified before any state regulatory commissions?

Yes. I have submitted testimony and testified on behalf of I&M before the Indiana Utility Regulatory Commission (IURC) in Cause Nos. 44967, 44511, and 45235. I have submitted testimony and testified before the Michigan Public Service Commission (MPSC) in Cause Nos. U-18370, U-20070, and U-20359 and have also submitted testimony and testified on behalf of Kentucky Power Company before the Public Service Commission of Kentucky in Case No. 2020-00174.

II. Purpose of Testimony

Q6. What is the purpose of your testimony?

The purpose of my testimony 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 universal solar generating assets.

I support historical and forecasted O&M expenses 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, and environmentally compliant service to its customers.

More specifically, I support generation O&M expenses for the forward-looking 12-month test year period ending December 31, 2022 (the Test Year), as well as historical generation O&M expenses for the 12-month period ending December 31, 2020 (Historical Period). I also support I&M's forecasted generation capital expenditures during 2021 and 2022 (the Capital Forecast Period).

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

Q7. Are you sponsoring any workpapers?

Yes. I am supporting the following work papers:

- WP-TCK-1 – O&M
- WP-TCK-2 – Consumable Expense
- WP-TCK-3 – Capital
- WP-TCK-4 – Fuel Inventory

Q8. Were the workpapers that you sponsor prepared by you or under your direction?

Yes.

Q9. Please summarize your testimony.

I&M's hydro, fossil, and solar generating fleet are well-maintained, in good condition, and necessary to provide electric service to I&M's customers.

I&M's total forecast Test Year O&M expense for its generating fleet is slightly less than its total Historical Period O&M expense, reflecting I&M's continuous focus on keeping O&M costs low while maintaining the safe and reliable operation of its generating units.

Similarly, the Capital Forecast Period capital expenditures are reasonable and necessary for I&M to continue to operate its generating units in a safe, reliable, efficient, environmentally compliant manner for the benefit of its customers.

III. I&M's Generating Fleet

Q10. What generating units do you discuss in your testimony?

I discuss the coal-fired Rockport Plant, six run-of-river hydro facilities, and five 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.

Q11. Please describe the Rockport Plant.

I&M's Rockport Plant is located in Rockport, Indiana and consists of two similar, pulverized coal-fired generating units. The nominal net generating capacity of Rockport Unit 1 is 1320 MW, and the nominal net generating capacity of Rockport Unit 2 is 1300 MW. I&M operates both units.

I&M has a 50% direct ownership share of Rockport Unit 1, and Rockport Unit 2 is operated under a lease agreement. I&M is entitled to 50% of the output of both Units; in addition, I&M's affiliate AEP Generating Company (AEG) is entitled to 50% of the output of both Units, and I&M purchases 70% of AEG's entitlement under a Unit Power Agreement (UPA) between I&M and AEG.

Therefore, I&M is entitled to 85% of the total output of the Rockport Plant. Units 1 and 2 at the Rockport Plant were placed in service in 1984 and 1989, respectively, and have been efficient and reliable performers for I&M and its customers.

For over thirty years, the Rockport Plant has been a cornerstone of I&M's generation fleet and has achieved low emission rates of nitrogen oxides (NO_X) and sulfur dioxide (SO_2) by consuming predominantly low-sulfur coal from the Powder River Basin (PRB).

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 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.

Selective Catalytic Reduction (SCR) technology has been installed on both Rockport Units. These SCR installations reduce Rockport's NO_X emissions. Most recently, a Dry Sorbent Injection Enhancement (Enhanced DSI) was installed on both units to further reduce SO_2 emissions.

Each unit at the Rockport Plant currently consumes approximately 87% to 100% PRB sub-bituminous coal. This high percentage PRB blend results in lower emission rates of SO_2 and NO_x.

Q12. Please describe I&M's Run-of-River Hydro units.

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.

Figure TCK-1 provides information about I&M's six run-of-river hydroelectric facilities.

Figure TCK-1. I&M Hydro Facilities

Facility Name	Location	Units
Berrien Springs	Berrien Springs, MI	10
Elkhart Plant	Elkhart, IN	3
Buchanan	Buchanan, MI	10
Constantine	Constantine, MI	4
Mottville	White Pigeon, MI	4
Twin Branch	Mishawaka, IN	8

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.

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 is preparing a license renewal application for submission to FERC by September 30, 2021. I&M anticipates that FERC will approve the license renewal application and grant a 30-year extension through 2053 for operation of the Constantine Hydro facility.

As each of the Hydro facilities approaches the date of its license expiration, I&M will evaluate the feasibility of continuing to operate the facility and determine whether to apply to FERC for a license extension.

Q13. Please describe I&M's solar generation.

Figure TCK-3 provides information about I&M's five universal solar facilities. St. Joseph Solar was referred to as South Bend Solar in Cause No. 45245.

Figure TCK-3. I&M Universal Solar Facilities

Name	Location	In-Service Date	MW
Watervliet	Berrien County, MI	11/10/2016	4.6
Olive	St. Joseph County, IN	8/30/2016	5.0
Deer Creek	Grant County, IN	3/01/2016	2.5
Twin Branch	St. Joseph County, IN	8/18/2016	2.6
St. Joseph	South Bend, IN	3/31/2021	20.0

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 34.7 MW and provide another renewable energy resource to I&M's generation portfolio, which further reduces the Company's carbon emission profile.

IV. Operation and Maintenance Expense

Q14. Please summarize I&M's non-fuel generation O&M expense.

Non-fuel generation O&M expense includes costs associated with the operation, maintenance, administration, and support of I&M's generating units. These costs exclude fuel but 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, the Hydro Generation O&M expense, and the universal solar Generation O&M expense.

Q15. What are you sponsoring related to the non-fuel generation O&M expenses in this testimony?

I am sponsoring generation overall plant work plans, which include 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. O&M is prioritized to achieve greatest operational and customer benefits.

Q16. How is the total amount of O&M expense planned for I&M's generating fleet determined?

As also discussed by Company witness Lucas, I&M develops its O&M budget based on the costs that are necessary to maintain ongoing operations plus incremental O&M needs with a focus to optimize O&M costs whenever possible.

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 and/or customer benefit.

Q17. What is I&M doing to maintain a reasonable level of O&M expense for its generating fleet?

I&M is continuously looking for ways to keep its O&M expenses low, without compromising the safe or reliable operations of its units. For example, a change in the operations of the Rockport units from base load units to load following units has resulted in a reduction in Base Cost of Operations (BCO) and Planned Outage expenses.

Planned Outage expenses are reduced due to the reduced run time on equipment, which then requires less frequent maintenance. Similarly, fewer service hours reduces BCO expenses in areas such as process chemicals, consumables, and labor.

Q18. Please describe the major areas of Fossil (Steam), Hydro, and universal solar Generation O&M expense.

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

- 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.

Fossil Generation O&M expense, the Rockport Unit 2 Lease, emission allowances, and consumables are other items that would fall under this category. I present allowances and consumables separately in my testimony.

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 components.

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, and environmentally compliant 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. At times, system demands require the units to be returned to service due to a forced outage. Costs associated with forced outages are influenced by I&M’s historical unit performance and the unit’s assessed health.

This category also includes opportunity outages that 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.

Q19. Please provide the historical and Test Year levels of Fossil (Steam), Hydro, and universal solar Generation O&M expense by category.

Figure TCK-4 provides the historical and Test Year Fossil (Steam) and Hydro Generation O&M expense, by category:

Figure TCK-4. Historical & Adjusted Test Year Fossil (Steam), Hydro, and Universal Solar Generation O&M Expense by Category ($000)

O&M Type	Generation O&M Category	2020	Test Year
Fossil (Steam) Generation O&M Expense	BCO	$90,833	$87,228
	Planned Outage	$1,315	$2,725
	NOMI	$847	$170
	Forced and Opportunity Outage	$1,500	$1,076
	Allowances	$386	$158
	Consumables[1]	$7,721	$6,635
	Total	**$102,602**	**$97,991**
Hydro Generation O&M Expense	BCO	$2,346	$2,862
	Planned Outage	$134	$215
	NOMI	$622	$1,495
	Forced and Opportunity Outage	$104	$0
	Total	**$3,206**	**$4,572**
Solar Generation O&M Expense[2]	BCO	$97	$310

Q20. Please explain the difference in Fossil (Steam) Generation O&M expense planned outage category between 2020 and the Test Year.

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 forecast to be greater in Test Year as compared to 2020

[1] Includes deferred consumable DSI expense

[2] Solar O&M in Account 5490000 in "other generation" account group

because there will be more planned outage work in 2022 involving a larger scope. Specifically, outage costs in 2020 involved planned outages on Rockport Unit 1 totaling 39 days and planned outages on Rockport Unit 2 totaling 92 days, whereas the 2022 Test Year outage costs include a 72-day planned outage for Rockport Unit 2 and a 72-day planned fall outage on Rockport Unit 1.

Q21. Please explain the difference in Hydro Generation O&M expense NOMI category between 2020 and the Test Year.

The increase in the Hydro Generation O&M expense NOMI category is driven by concrete repairs that are required at the Twin Branch facility. These repairs will be completed in conjunction with the larger stabilization project at Twin Branch.

Q22. What consumables are included in the Test Year fossil O&M expense?

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

Additionally, I&M has completed the installation of SCR technology on both Rockport Units 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-3* above.

Q23. Are consumable costs significant, variable, and largely outside I&M's control?

Yes. It is important to recognize that consumable costs vary in the same way that fuel costs vary with respect to generation levels. As the generation produced by the Rockport Plant increases or decreases, the amount of consumables used changes.

As explained further below, Rockport's operation is largely dictated by PJM market prices. These factors create variability and are largely outside the control of I&M. This variation in generation leads to a corresponding variation in consumable use that can be significant. In addition to variability in the level of consumables use, there is also variability in the price of the consumables that I&M purchases for use at the Rockport Plant.

Several factors contribute to the variability of the price of consumables used at the Rockport Plant. Many of these factors are not within the Company's control. For instance, the Company utilizes a competitive Request for Proposal (RFP) process to procure consumables, which helps ensure the best available market pricing. However, the RFP prices are market driven, meaning the Company does not have full control to maintain a steady procurement price.

Activated Carbon, for example, is used for mercury control, and Anhydrous Ammonia is used for NO_X control. These consumables generally must be procured using short, two- to three-year term contracts, which means pricing will fluctuate based on market conditions. The Activated Carbon price reduction I&M has realized in 2020 is an example of such a fluctuation, as demonstrated in *Figure TCK-5* below.

Anhydrous Ammonia has a price index, meaning the cost represents a normalized average price for the consumable in a given region during a given interval of time. This cost is variable and based on current market conditions. Additionally, transportation charges associated with consumables are variable.

Figure TCK-5 shows I&M's portion of the annual consumables expense for Activated Carbon, Sodium Bicarbonate, and Anhydrous Ammonia for historical years 2017-2020, as well as for forecasted years 2021 and 2022.

Figure TCK-5. I&M Annual Consumables Expense ($000)

Year	Activated Carbon	Anhydrous Ammonia	Sodium Bicarbonate	Total
2017	$6,455	$11	$9,567	$16,033
2018	$3,384	$300	$10,413	$14,097
2019	$1,837	$181	$7,919	$9,937
2020	$897	$178	$6,096	$7,170
2021	$1,102	$365	$6,283	$7,749
2022	$925	$315	$5,394	$6,635

Figure TCK-4 demonstrates that the cost of the consumables used at Rockport vary significantly over time. The two largest drivers of variability are PJM market prices and the fuel mixture. As with fuel usage, usage rates of consumables at Rockport vary significantly depending on several factors, including generating unit output, coal blend being fired, and emission removal targets.

The generating unit output, which is determined by unit outages, weather, grid demand, power prices, and other factors, will directly impact the amount of air emissions in the flue gas and require varying amounts of consumables.

Additionally, I&M makes an effort to manage its dispatch costs for the benefit of customers, but there are many factors outside our control that impact the price of energy in PJM that ultimately impacts Rockport's dispatch and volume of consumables.

Likewise, different coal blends fired at Rockport will result in different levels of air emissions in the flue gas. Low sulfur blends will result in lower NO_X and SO_2 levels in the flue gas, while high sulfur blends will result in higher NO_X and SO_2

levels in the flue gas. The different air emissions quantities caused by varying coal blends require alternate injection rates of consumables.

Further, as environmental rules are modified or enacted, air emissions removal targets for the Rockport Plant will potentially vary, impacting the rate of consumables required to meet the targets.

Q24. Are allowance costs variable, largely outside I&M's control, and potentially significant?

Yes, similar to consumables costs, the allowance-related costs I&M incurs varies based on the dispatch of both Rockport Units. This dispatch is largely determined by PJM based on market energy prices and local needs for generation support, which is largely outside the control of I&M.

Additionally, future changes in environmental regulations such as the regulation of carbon could cause significant increases in annual allowance costs. Company witness Seger-Lawson discusses I&M's proposal to continue to track allowance costs along with consumables costs.

Q25. Is the Test Year O&M expense representative of I&M's expected activities and expenses necessary to provide ongoing safe and reliable generation to its customers?

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, and environmentally compliant electric generation to I&M's customers.

V. Capital Expenditures

Q26. What is the Capital Forecast Period considered in this filing?

The projected period with respect to capital investment (Capital Forecast Period) is the period from January 1, 2021 through December 31, 2022. The Capital Forecast Period includes all of the Company's projected generation capital expenditures in 2021 and 2022.

The investment outlined in this testimony relates to the work plans developed by I&M to manage its system. This level of capital is included in the Capital Forecast presented by Company witness Lucas.

Q27. How is the total amount of capital investment to be made in I&M's generating fleet determined?

As discussed by Company witness Lucas, I&M bases its investment on work plans developed by the Company and vetted through multiple steps. 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.

Q28. What is the amount of capital forecasted to be invested in the Company's generating fleet during the Capital Forecast Period?

Figure TCK-6 establishes that I&M has forecast total generation capital expenditures during the Capital Forecast Period of approximately $67.5 million.

Figure TCK-6. I&M Generation Capital Expenditures ($000, excluding AFUDC)

Category	2021	2022	Total
Major Projects	$7,607	$15,790	$23,397
Other Capital Investments	$21,807	$22,262	$44,070
Total	$29,414	$38,052	$67,466

Q29. Are there any Rockport Environmental Compliance projects greater than $1 million during the Capital Forecast Period?

Yes. Coal Combustion Residual Rules (CCR) and Steam Electric Effluent Limitations Guidelines (ELG) Environmental Compliance projects were included in the capital forecast at the time it was prepared and forecasted to be placed in-service after the Test Year. The CCR Compliance projects involve the development and implementation of a comprehensive plan for Rockport plant compliance with the CCR. I&M 2021-2022 Total Capital Expenditures (excluding AFUDC) for the two CCR projects are approximately $2.760 million.

The Unit 2 ELG Compliance project involves the development and implementation of a comprehensive plan for the Rockport Plant to be in compliance with the ELG, which requires Rockport to cease the discharging of bottom ash transport water as soon as possible.

I&M 2021-2022 Total Capital Expenditures (excluding AFUDC) for the ELG project is approximately $20.007 million; however, this investment would be avoided if the plant is retired by 2028. Company witness Williamson addresses the ratemaking treatment related to these Environmental Compliance projects.

Q30. What is the amount of Electric Plant in Service to be invested in the Company's generating fleet during the Capital Forecast Period?

Figure TCK-7 establishes that I&M forecasts approximately $83.6 million of generation capital (including AFUDC) to be placed in service during the Capital Forecast Period.

Figure TCK-7. Generation Additions to Electric Plant in Service ($000, incl. AFUDC)

Category	2021 - 2022
Major Projects	$60,991
Other Capital Investments	$22,597
Total	$83,589

Q31. Please summarize the type of capital expenditures forecasted for the generating fleet during the Capital Forecast Period.

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. Each project is summarized in a Project Life File (Capital Forecast by Project), included as WP-DAL-2 to Company witness Lucas' testimony. For example, this category includes replacement of a transformer and breakers at Berrien Springs, auxiliary boiler controls on both Rockport Units, and a Battery installation at the Mottville Hydroelectric Plant.

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.

Q32. Please identify the in-service generation projects with capital expenditures greater than $1 million during the Capital Forecast Period.

Figure TCK-8 shows generation projects that will involve capital expenditures greater than $1 million during the Capital Forecast Period. 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. These costs include AFUDC and present I&M's ownership share of the investment.

Figure TCK-8. I&M Generation Major Project Capital Expenditures ($000)[3]

	Project Title	In-Service	2021-2022	Total Cost[4]
1	000025681: St. Joseph Solar	Mar-21	$1,468	$29,630
2	EKH000128: Elkhart Spillway Cut Off Wall	Dec-22	$5,472	$5,231
3	RKIMC2102: Rockport Unit 1 Catalyst Replacement Layer 2	Nov-21	$1,446	$1,446
4	RKIMC2106: Rockport Unit 1 Dust Collector	Oct-21	$1,040	$1,040
5	RKIMC2201: Rockport Unit 2 SCR Catalyst Replacement Layer 1	May-22	$1,722	$1,722
6	RKIMC2203: RK22CIU2 Replace LP Turbine Rotors (LP3 and LP4 rotors)	May-22	$1,570	$1,570
7	RKIMU1DSI: Rockport U1 DSI Improvements	Mar-21	$1,363	$10,518
8	RKU002SCR: Rockport Unit 2 SCR [5]	May-20	$1,023	$1,023
9	TBH000422: Twin Branch Cutoff Wall Spillway	Dec-22	$8,810	$8,810

[3] Total company, including AFUDC

[4] Total project cost through end of Capital Forecast Period

[5] Capital forecast of $1.023 million represents final costs. $111.6 million of project was placed in service in 2020

Q33. Please summarize the projects identified in *Figure TCK-8*.

The following projects have been or will be placed in service during the Capital Forecast Period:

- *Project 1 - St. Joseph Solar Project*. St. Joseph Solar Project (SJSP) was approved by the Commission in Cause No. 45245. The construction and installation of the solar facility was be performed by a Solar Engineering, Procurement and Construction (EPC) contractor. The SJSP was placed in service in March, 2021 at a total cost of $29.630 million (including AFUDC), excluding land costs and contingency. The SJSP is being tracked separately pursuant to the settlement agreement.

- *Project 2 – Elkhart Spillway Cutoff Wall*. Structural stability improvements are needed at the 107-year old Elkhart Hydro dam to comply with regulatory requirements. Seven different options were evaluated, including full dam removal. The selected remediation consists of a steel sheet pile cut-off wall and a new concrete apron. This option was selected because the construction materials and techniques will result in a durable and robust structure. The spillway modification will improve the stability of the structure to meet the FERC required factor of safety. The improvements are forecasted to be placed in service in December 2022 at a total cost of $5.231 million (including AFUDC).

- *Project 3 – Rockport Unit 1 SCR Catalyst Layer 2*. The second layer Selective Catalytic Reduction (SCR) replacement is required to maintain adequate NO_x removal efficiency to continue to comply with emission limits. Regularly replacing SCR catalyst layers as they are exhausted allows I&M to efficiently operate the SCR to achieve the required NO_x removal. The Commission granted a Certificate of Public Convenience and Necessity (CPCN) for the installation of the SCR on Rockport Unit 1 in Cause No. 44523. The second catalyst layer replacement is forecasted to be placed in service in November 2021 at a total cost of $1.446 million (including AFUDC).

- *Project 4 – Rockport Unit 1 Dust Collector*. This project involves removal of the baghouse and replacement of it with a wet dust collection system in the interest of plant safety. This project is being executed to remove the safety hazard posed by the existing bag house style dust collector. Rockport is systematically replacing all of the original constructed bag house style collectors with wet dust collectors. The dust collector is forecasted to be placed in service in October 2021 at a total cost of $1.040 million (including AFUDC).
- *Project 5 – Rockport Unit 2 SCR Catalyst Layer 1*. The first layer Unit 2 SCR catalyst replacement is required to maintain NO_x removal effectiveness. Regularly replacing SCR catalyst layers as they are exhausted allows I&M to efficiently operate the SCR to achieve the required NO_x removal. The Commission granted a CPCN for the installation of the SCR on Rockport Unit 2 in Cause No. 44871. The first catalyst layer replacement is forecasted to be placed in service in May 2022 at a total cost of $1.722 million (including AFUDC).
- *Project 6 – Rockport Unit 2 Replace LP Turbine Rotors.* This project involves the installation of the system spare non-upgraded rotors (LP3 and LP4 rotors) during the scheduled outage in 2022. An LP turbine rebuild is recommended to address any steampath, rotor and casing degradation which increases the probability of an in service failure that will result in higher repair costs during a forced outage relative to a planned turbine rebuild. It is advised that LP turbine rebuilds be evaluated and planned as accumulated operating hours since the last turbine inspection approach 100,000 operating hours. The LP Turbine Rotors are forecasted to be placed in service in May 2022 at a total cost of $1.570 million (including AFUDC).

- *Project 7 – Rockport U1 DSI Improvements.* The Enhanced DSI enhances the performance of the DSI equipment by injecting sodium bicarbonate into the flue gas stream upstream of its current location, allowing the Rockport Plant to remove additional SO_2. Previously, sodium bicarbonate was injected after the air pre-heater and before the electrostatic precipitators. The Enhanced DSI project relocated the sodium bicarbonate injection points upstream of the SCR. This relocation of the DSI system coupled with an increase in the sodium bicarbonate injection rate enables the Rockport Plant to remove additional SO_2. The system is operational and was placed in service by the end of 2020, however, punch list items remained to be completed in 2021. The remaining punch list items were placed in service in March 2021 at a total cost of $10.518 million (including AFUDC) and was an approved project in Cause No. 45235.
- *Project 8 – Rockport Unit 2 SCR.* The Rockport Unit 2 SCR Project allows 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. 44871. The Rockport Unit 2 SCR is operational was placed into service in May 2020. However, punch list items remain and will be completed in 2021 at a cost of $1.023 million (including AFUDC).
- *Project 9 – Twin Branch Cutoff Wall Spillway.* Stability improvements and seepage control of spillway section and north abutment at Twin Branch is needed. Four different options were considered, including permeation grout rollways and north abutment, new spillway cap supported by micropiles, dam removal, and complete dam replacement. The selected project was recommended as it allows for quick construction that is minimally invasive to appurtenant structures on the dam and will create a robust dam. The Cutoff Wall Spillway project is forecasted to be placed in

service in December 2022 at a total cost of $8.810 million (including AFUDC).

Q34. Is the forecasted level of capital expenditures reasonable and necessary?

Yes. The components of I&M's generating fleet deteriorate, fail, or become obsolete over time and must be replaced to maintain safe, reliable, efficient, and environmentally compliant service. Environmental compliance is a key performance driver in the Capital Forecast Period.

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 is prudent and reasonable based on the needs of the generating facilities to maintain the expected level of service.

VI. Fuel Inventories

Q35. Please describe I&M's coal management during the Forecast period.

I&M's Rockport Generating Station (Rockport) is projected to receive coal deliveries during the forecasted years of 2021and 2022. SO_2 emissions at Rockport are limited by the facility's air permit.

As stated earlier, compliance with the emission limit is achieved by using a blend consisting primarily of Powder River Basin (PRB) low-sulfur subbituminous coal from Wyoming along with low-sulfur bituminous coal from various Central Appalachian (CAPP) sources.

Q36. What are the projected fuel inventories for the forecasted years of 2021 and 2022?

Figure TCK-9 shows I&M's portion of the yearly fuel inventory for forecast years 2021 and 2022.

Figure TCK-9. I&M Fuel Inventory Values ($000s)

2020 Ending Balance	$ 86,019
Change in Inventory	$ (18,508)
2021 Ending Balance	$ 67,511
Change in Inventory	$ (3,886)
2022 Ending Balance	$ 63,625

The amount of fuel projected to be consumed is based on load forecasts for the applicable years. Delivery requirements were then determined by taking into consideration inventory, forecasted consumption, and any contingencies that would necessitate the increase or decrease in inventory level.

Q37. Are I&M's fuel inventories reasonable as projected during the Forecast Period?

Yes. I&M has and continues to prudently manage its fuel supplies in a manner to reduce overall fuel costs, manage its inventory positon, and monitor conditions in the fuel market.

Q38. Does this conclude your pre-filed verified direct testimony?

Yes.

VERIFICATION

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

Date: 6/22/2021 ______________________

Timothy C. Kerns