

Indiana Michigan Power Company

46097

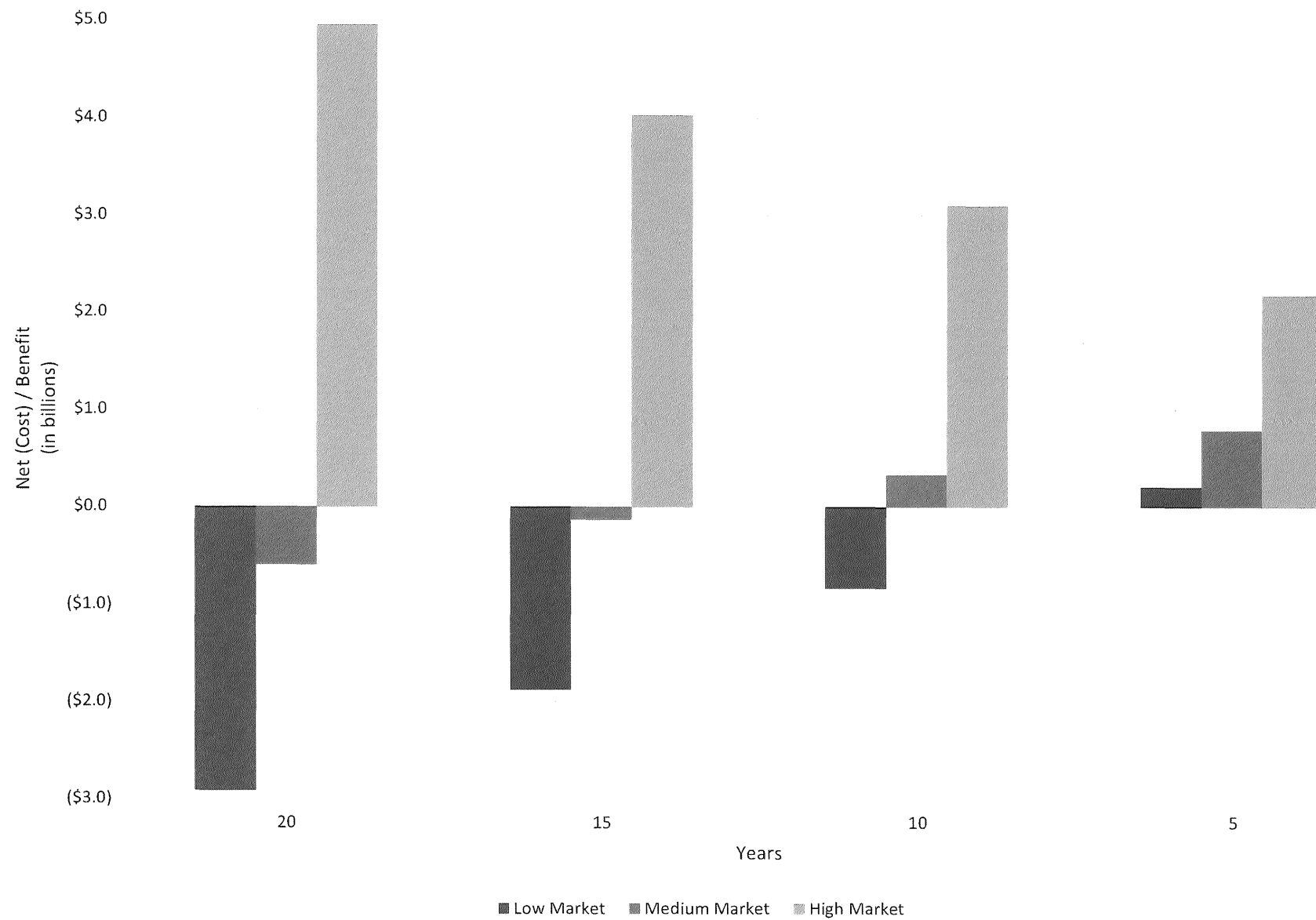
Workpaper AJW-1

FILED
July 19, 2024
INDIANA UTILITY
REGULATORY COMMISSION

OFFICIAL
EXHIBITS

IURC
PETITIONER'S
EXHIBIT NO. 7
DATE 12-20-24 REPORTER AT

Net Benefit / (Cost)
At Assumed Average Resource Cost



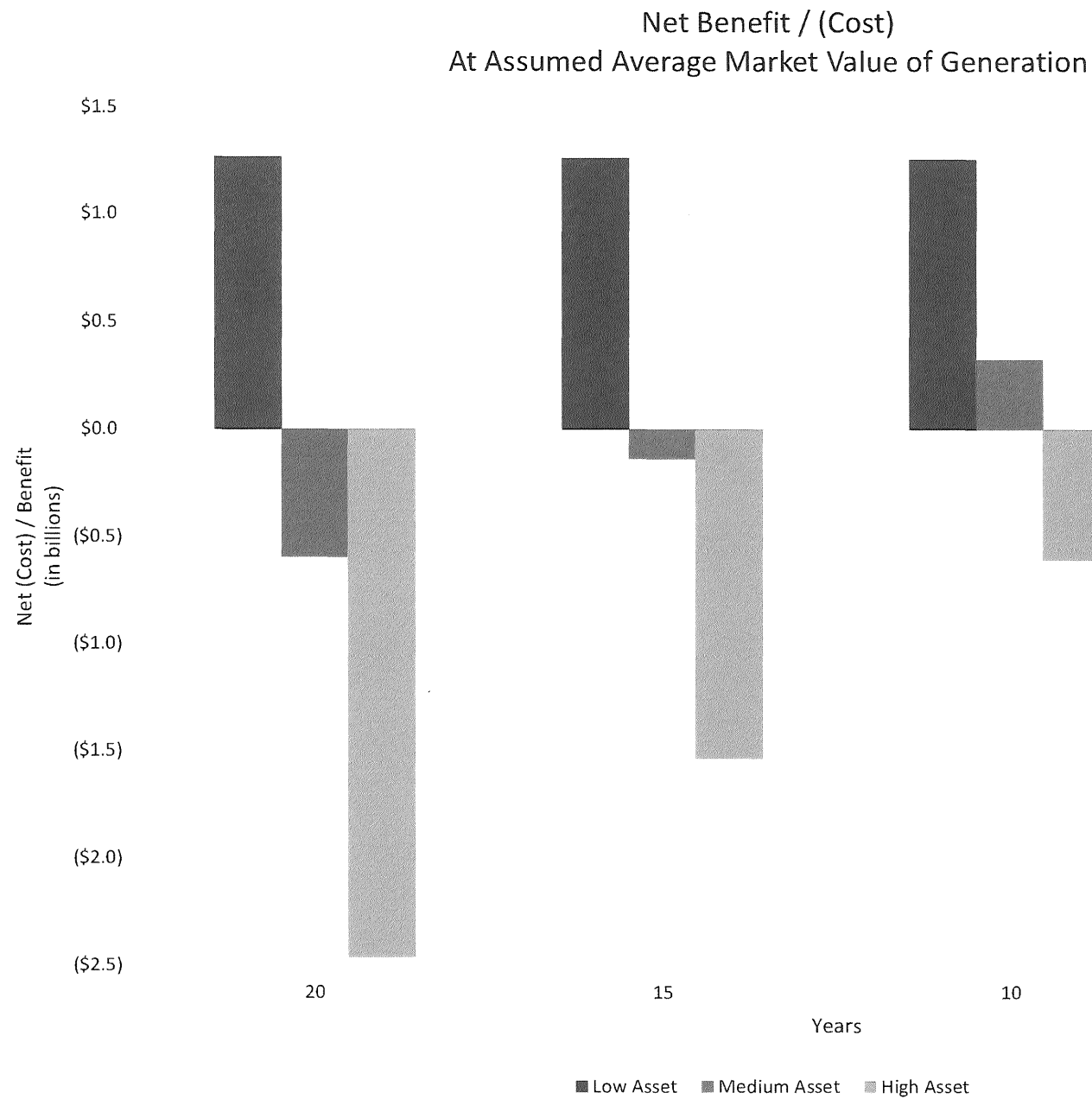


Figure AJW-1 Support

Load Addition	1,000	MW
Load Factor	85%	
Energy	7,446,000	MWh
Reserve Margin	18%	

Low Market				Medium Market				High Market			
	Capacity	Energy	Total	Capacity	Energy	Total		Capacity	Energy	Total	
New Resource Costs											
Cost of Generation - Production Demand (\$)	\$103,368,000	\$270,289,800		\$103,368,000	\$270,289,800			\$103,368,000	\$270,289,800		
Generation Capability (2025/26 UCAP MW)	1,180			1,180				1,180			
Net Energy (MWh)		7,446,000			7,446,000				7,446,000		
Unit Cost (\$/MW-Day and \$/MWh)	\$240.00	\$36.30	\$373,657,800	\$240.00	\$36.30	\$373,657,800		\$240.00	\$36.30	\$373,657,800	
Market Values:											
RPM Capacity Price (\$/MW-day)	\$29.40			\$66.62				\$142.16			
LMP - AEPIM_RESID_AGG (\$/MWh)		\$20.45			\$33.94				\$66.86		
			\$164,961,149			\$281,424,472				\$559,074,875	
Calculation:											
Difference (Asset Cost - Spot Market)	\$210.60	\$15.85		\$173.38	\$2.36			\$97.84	(\$30.56)		
Customer Load Obligation (MW and MWh)	1,180	7,446,000		1,180	7,446,000			1,180	7,446,000		
Annual Difference (\$)	\$90,707,353	\$117,989,299	\$208,696,651	\$74,675,044	\$17,558,284	\$92,233,328		\$42,137,938	(\$227,555,013)	(\$185,417,075)	
Estimated Early Termination Costs											
	Contract Year	Liquidation Years	Liquidation Cost		Liquidation Years	Liquidation Cost			Liquidation Years	Liquidation Cost	
	0	20	\$4,301,176,525		20	\$1,971,910,047			20	(\$3,581,098,012)	
	5	15	\$3,257,693,268		15	\$1,510,743,409			15	(\$2,654,012,635)	
	10	10	\$2,214,210,010		10	\$1,049,576,771			10	(\$1,726,927,258)	
	15	5	\$1,170,726,753		5	\$588,410,133			5	(\$799,841,881)	
	20	5	\$1,170,726,753		5	\$588,410,133			5	(\$799,841,881)	
1 Year of Transmission Costs											
	\$127,243,495										

Chart 1 Data

Years	Low Market	Medium Market	High Market	less	Contract Termination Fee
20	(\$2,925,294,025)	(\$596,027,547)	\$4,956,980,512	\$	1,375,882,500
15	(\$1,881,810,768)	(\$134,860,909)	\$4,029,895,135	\$	1,375,882,500
10	(\$838,327,510)	\$326,305,729	\$3,102,809,758	\$	1,375,882,500
5	\$205,155,747	\$787,472,367	\$2,175,724,381	\$	1,375,882,500

Figure AJW-2 Support

Load Addition	1,000	MW
Load Factor	85%	
Energy	7,446,000	MWh
Reserve Margin	18%	

Low Asset (25% less "average")				Medium Asset ("average")			High Asset (25% above "average")		
	Capacity	Energy	Total	Capacity	Energy	Total	Capacity	Energy	Total
<u>New Resource Costs</u>									
Cost of Generation - Production Demand (\$)	\$77,526,000	\$202,717,350		\$103,368,000	\$270,289,800		\$129,210,000	\$337,862,250	
Generation Capability (2025/26 UCAP MW)	1,180			1,180			1,180		
Net Energy (MWh)		7,446,000			7,446,000			7,446,000	
Unit Cost (\$/MW-Day and \$/MWh)	\$180.00	\$27.23	\$280,243,350	\$240.00	\$36.30	\$373,657,800	\$300.00	\$45.38	\$467,072,250
<u>Market Values:</u>									
RPM Capacity Price (\$/MW-day)	\$66.62			\$66.62			\$66.62		
LMP - AEPIM_RESID_AGG (\$/MWh)		\$33.94			\$33.94			\$33.94	
			\$281,424,472			\$281,424,472			\$281,424,472
<u>Calculation:</u>									
Difference (Asset Cost - Spot Market)	\$113.38	(\$6.72)		\$173.38	\$2.36		\$233.38	\$11.43	
Customer Load Obligation (MW and MWh)	1,180	7,446,000		1,180	7,446,000		1,180	7,446,000	
Annual Difference (\$)	\$48,833,044	(\$50,014,166)	(\$1,181,122)	\$74,675,044	\$17,558,284	\$92,233,328	\$100,517,044	\$85,130,734	\$185,647,778
Estimated Early Termination Costs	<u>Contract Year</u>	<u>Liquidation Years</u>	<u>Liquidation Cost</u>	<u>Liquidation Years</u>	<u>Liquidation Cost</u>		<u>Liquidation Years</u>	<u>Liquidation Cost</u>	
	0	20	\$103,621,047	20	\$1,971,910,047		20	\$3,840,199,047	
	5	15	\$109,526,659	15	\$1,510,743,409		15	\$2,911,960,159	
	10	10	\$115,432,271	10	\$1,049,576,771		10	\$1,983,721,271	
	15	5	\$121,337,883	5	\$588,410,133		5	\$1,055,482,383	
	20	5	\$121,337,883	5	\$588,410,133		5	\$1,055,482,383	
1 Year of Transmission Costs	\$127,243,495								

Chart 1 Data

Years	Low Asset	Medium Asset	High Asset	less	Contract Termination Fee
20	\$1,272,261,453	(\$596,027,547)	(\$2,464,316,547)		\$ 1,375,882,500
15	\$1,266,355,841	(\$134,860,909)	(\$1,536,077,659)		\$ 1,375,882,500
10	\$1,260,450,229	\$326,305,729	(\$607,838,771)		\$ 1,375,882,500
5	\$1,254,544,617	\$787,472,367	\$320,400,117		\$ 1,375,882,500

Contract Termination Fee Calculation

**Indiana Michigan Power Company - Indiana
Industrial Power - Transmission Voltage
Tariff Code: 324**

Base Rates, Rider Rates in Effect as of 5/31/2024

Billing Parameters		
On-Peak Demand:	1,000,000	
kWh Usage:	620,500,000	85%
Excess kVAR	-436,659	99.8%

Standard Tariff Billing				
Base Rate Billing	Units		Rates	Tariff Billing
Service Charge			\$ 275.00	\$ 275
Energy Charge	620,500,000 kWh			
Step 1	410,000,000 kWh	x \$	0.05058 /kWh	\$ 20,737,800
Step 2	210,500,000 kWh	x \$	0.01286 /kWh	\$ 2,707,030
Demand Charge	1,000,000.0 kW	x \$	10.194 /kW	\$ 10,194,000
Reactive Demand Charge	-436,659.0 kVar	x \$	1.50 /kVar	\$ (654,989)
Base Rate Total				\$ 32,984,117

Rider Billing				
Fuel Cost Adjustment Rider	620,500,000 kWh	x \$	(0.002099) /kWh	\$ (1,302,430)
DSM / EE Program Cost Rider	620,500,000 kWh	x \$	0.000107 /kWh	\$ 66,394
Environmental Cost Rider	620,500,000 kWh	x \$	0.000351 /kWh	\$ 217,796
Environmental Cost Rider	1,000,000 kW	x \$	0.622 /kW	\$ 622,000
OSS/PJM Rider	620,500,000 kWh	x \$	(0.000469) /kWh	\$ (291,015)
OSS/PJM Rider	1,000,000 kW	x \$	8.593 /kW	\$ 8,593,000
Life Cycle Management Rider	1,000,000 kW	x \$	- /kW	\$ -
Resource Adequacy Rider	1,000,000 kW	x \$	0.116 /kW	\$ 116,000
Solar Power Rider	1,000,000 kW	x \$	0.044 /kW	\$ 44,000
Phase-In Rate Adjustment	620,500,000 kWh	x \$	(0.000047) /kWh	\$ (29,164)
Phase-In Rate Adjustment	1,000,000 kW	x \$	(0.503) /kW	\$ (503,000)
TAX Rider	1,000,000 kW	x \$	- /kW	\$ -
Rider Total				\$ 7,533,582

Total Billing : \$ 40,517,698

Less: Phase-In Rider \$ 41,049,862

Annual Bill \$ 492,598,338

Minimum Billing			
Units		Rates	Tariff Billing
		\$ 275.00	\$ 275
900,000 kW	x	\$ 14.700 /kW	\$ 13,230,000
			\$ 13,230,275

0 kWh	x	\$ (0.000185) /kWh	\$ -
0 kWh	x	\$ 0.001205 /kWh	\$ -
0 kWh	x	\$ 0.000464 /kWh	\$ -
900,000 kW	x	\$ 0.697 /kW	\$ 627,300
0 kWh	x	\$ 0.000533 /kWh	\$ -
900,000 kW	x	\$ 9.375 /kW	\$ 8,437,500
900,000 kW	x	\$ - /kW	\$ -
900,000 kW	x	\$ 0.662 /kW	\$ 595,800
900,000 kW	x	\$ 0.045 /kW	\$ 40,500
0 kWh	x	\$ (0.000005) /kWh	\$ -
900,000 kW	x	\$ (0.548) /kW	\$ (493,200)
900,000 kW	x	\$ - /kW	\$ -
			\$ 9,207,900

\$ 22,438,175

\$ 22,931,375

Annual Min Bill @ 90% \$ 275,176,500

Annual Min Bill @ 60% \$ 183,452,100

PJM Base Residual Auction Clearing Price

Final Zonal Capacity Price

2020 / 2021	\$77.31
2021 / 2022	\$142.16
2022 / 2023	\$50.05
2023 / 2024	\$34.18
2024 / 2025	\$29.40
Average	\$66.62

AEP LSE OATT PJM Incremental Cost Estimate

<u>NSPL</u>	Existing MW	%	NSPL Change	Adjusted MW	%
AEP (Including CRES)	19,332	84.70%	1,000	20,332	85.34%
Non-Affiliate	3,493	15.30%		3,493	14.66%
	22,826			23,826	
	% Increase			4.38%	

<u>12CP</u>	Existing MW	%	12 CP Change	Adjusted MW	%
AP - 12CP	4,588	27.89%		4,588	26.29%
OP - 12CP	7,180	43.65%		7,180	41.14%
IM - 12CP	2,838	17.25%	1,000	3,838	21.99%
KP - 12CP	924	5.62%		924	5.30%
WPC - 12CP	605	3.68%		605	3.47%
KGP - 12CP	316	1.92%		316	1.81%
Operating Company Sum	16,451	100.00%		17,451	100.00%

NITS Expense

OpCo ATRR	\$	1,287,054,780	2024 PTRR
Transco ATRR	\$	1,576,044,856	2024 PTRR
AMP Transmission	\$	750,621	2024 PTRR
Schedule 12 Expense (RTEP)	\$	196,781,778	
Total Zonal ATRR		3,060,632,035	

	Existing	Add Project	Increase/(Decrease)
Allocated to AEP %	84.70%	85.34%	0.642%
Allocated to AEP \$	2,592,223,499	2,611,883,383	19,659,884

This Section Demonstrates the AEP Transmission Agreement Allocation Impact from a Load Addition

Allocated to APCo	722,943,982	686,686,054	(36,257,928)
Allocated to OPCo	1,131,379,705	1,074,637,432	(56,742,272)
Allocated to I&M	447,122,340	574,365,835	127,243,495
Allocated to KPCo	145,653,219	138,348,249	(7,304,970)
Allocated to WPCo	95,348,751	90,566,709	(4,782,042)
Allocated to KGPCo	49,775,503	47,279,104	(2,496,399)

Average PJM Day-Ahead LMP Prices for I&M Residual Aggregate

<u>Year</u>	<u>DA LMP</u>	<u># of Hours</u>
2016	28.10	8784
2017	29.26	8760
2018	33.91	8760
2019	26.29	8760
2020	20.45	8784
2021	36.82	8760
2022	66.86	8760
2023	29.85	8760
Grand Total	33.94	70,128

Indiana Michigan Power Company

46097

Workpaper AJW-2

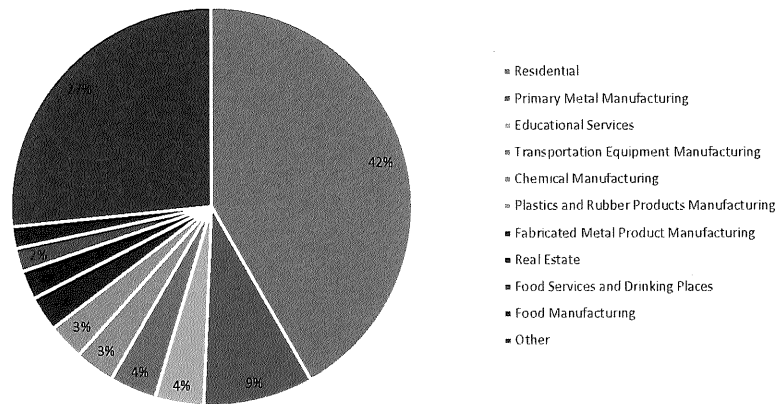
FILED
July 19, 2024
INDIANA UTILITY
REGULATORY COMMISSION

Figure AJW-5 Support

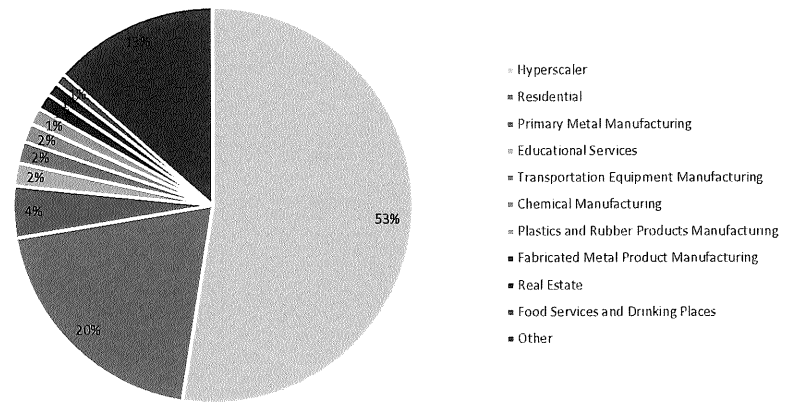
Summary of Annual I&M Revenues by Sector						
Current - Top 10 Sectors		MWH	BASE	FUEL	REV	% of Total Rev
	1 Residential	5,176,396	\$ 733,493,317	\$ 95,480,934	\$ 828,974,251	42%
	2 Primary Metal Manufacturing	2,810,290	\$ 132,675,210	\$ 43,143,918	\$ 175,819,128	9%
	3 Educational Services	688,860	\$ 64,830,788	\$ 13,174,529	\$ 78,005,317	4%
	4 Transportation Equipment Manufacturing	705,805	\$ 60,771,948	\$ 14,122,575	\$ 74,894,523	4%
	5 Chemical Manufacturing	853,822	\$ 50,373,514	\$ 13,400,045	\$ 63,773,559	3%
	6 Plastics and Rubber Products Manufacturing	565,143	\$ 48,116,485	\$ 10,621,276	\$ 58,737,761	3%
	7 Fabricated Metal Product Manufacturing	469,704	\$ 47,312,340	\$ 8,643,248	\$ 55,955,589	3%
	8 Real Estate	343,091	\$ 40,033,938	\$ 6,365,984	\$ 46,399,922	2%
	9 Food Services and Drinking Places	300,686	\$ 32,129,155	\$ 6,051,805	\$ 38,180,960	2%
	10 Food Manufacturing	385,288	\$ 28,097,801	\$ 6,790,133	\$ 34,887,933	2%
	Other	5,210,061	\$ 464,851,575	\$ 62,320,730	\$ 527,172,305	27%
	Total	17,509,146	1,702,686,072	280,115,177	1,982,801,249	100%
Add 4.4 GW of Data Center Load - Top 10 Sectors		MWH	BASE	FUEL	REV	% of Total Rev
	1 Hyperscaler	34,689,600	\$ 1,817,041,222	\$ 377,492,227	\$ 2,194,533,449	53%
	2 Residential	5,176,396	\$ 733,493,317	\$ 95,480,934	\$ 828,974,251	20%
	3 Primary Metal Manufacturing	2,810,290	\$ 132,675,210	\$ 43,143,918	\$ 175,819,128	4%
	4 Educational Services	688,860	\$ 64,830,788	\$ 13,174,529	\$ 78,005,317	2%
	5 Transportation Equipment Manufacturing	705,805	\$ 60,771,948	\$ 14,122,575	\$ 74,894,523	2%
	6 Chemical Manufacturing	853,822	\$ 50,373,514	\$ 13,400,045	\$ 63,773,559	2%
	7 Plastics and Rubber Products Manufacturing	565,143	\$ 48,116,485	\$ 10,621,276	\$ 58,737,761	1%
	8 Fabricated Metal Product Manufacturing	469,704	\$ 47,312,340	\$ 8,643,248	\$ 55,955,589	1%
	9 Real Estate	343,091	\$ 40,033,938	\$ 6,365,984	\$ 46,399,922	1%
	10 Food Services and Drinking Places	300,686	\$ 32,129,155	\$ 6,051,805	\$ 38,180,960	1%
	Other	5,595,349	\$ 492,949,376	\$ 69,110,863	\$ 562,060,239	13%
	Adjusted Total for New Data Load	52,198,746	3,519,727,294	657,607,404	4,177,334,698	100%

Figure AJW-5 Support Charts

Summary of Annual I&M Revenue by Sector



Summary of Annual I&M Revenue by Sector with Hyperscalers



Indiana Michigan Power Company
Cause No. 46097

Workpaper Attachment AJW-3 Corrected

FILED
October 3, 2024
INDIANA UTILITY
REGULATORY COMMISSION

**Indiana Michigan Power Company - Indiana
Industrial Power - Transmission Voltage
Tariff Code: 324**

Base Rates, Rider Rates in Effect as of 5/31/2024

Billing Parameters		
On-Peak Demand:	1,000,000	
kWh Usage:	620,500,000	85%
Excess kVAR	-436,659	99.8%

	Standard Tariff Billing				Minimum Billing at 90% demand				Minimum Billing at 60% demand			
	Units		Rates	Tariff Billing	Units		Rates	Tariff Billing	Units		Rates	Tariff Billing
Base Rate Billing												
Service Charge			\$ 275.00	\$ 275			\$ 275.00	\$ 275			\$ 275.00	\$ 275
Energy Charge	620,500,000 kWh											
Step 1	410,000,000 kWh	x	\$ 0.05058 /kWh	\$ 20,737,800								
Step 2	210,500,000 kWh	x	\$ 0.01286 /kWh	\$ 2,707,030								
Demand Charge	1,000,000.0 kW	x	\$ 10.194 /kW	\$ 10,194,000	900,000 kW	x	\$ 14.700 /kW	\$ 13,230,000	600,000 kW	x	\$ 14.700 /kW	\$ 8,820,000
Reactive Demand Charge	-436,659.0 kVar	x	\$ 1.50 /kVar	\$ (654,989)								
Base Rate Total				\$ 32,984,117				\$ 13,230,275				\$ 8,820,275
Rider Billing												
Fuel Cost Adjustment Rider	620,500,000 kWh	x	\$ (0.002099) /kWh	\$ (1,302,430)	0 kWh	x	\$ (0.002099) /kWh	\$ -	0 kWh	x	\$ (0.002099) /kWh	\$ -
DSM / EE Program Cost Rider	620,500,000 kWh	x	\$ 0.000107 /kWh	\$ 66,394	0 kWh	x	\$ 0.000107 /kWh	\$ -	0 kWh	x	\$ 0.000107 /kWh	\$ -
Environmental Cost Rider	620,500,000 kWh	x	\$ 0.000351 /kWh	\$ 217,796	0 kWh	x	\$ 0.000351 /kWh	\$ -	0 kWh	x	\$ 0.000351 /kWh	\$ -
Environmental Cost Rider	1,000,000 kW	x	\$ 0.622 /kW	\$ 622,000	900,000 kW	x	\$ 0.622000 /kW	\$ 559,800	600,000 kW	x	\$ 0.622000 /kW	\$ 373,200
OSS/PJM Rider	620,500,000 kWh	x	\$ (0.000469) /kWh	\$ (291,015)	0 kWh	x	\$ (0.000469) /kWh	\$ -	0 kWh	x	\$ (0.000469) /kWh	\$ -
OSS/PJM Rider	1,000,000 kW	x	\$ 8.593 /kW	\$ 8,593,000	900,000 kW	x	\$ 8.593000 /kW	\$ 7,733,700	600,000 kW	x	\$ 8.593000 /kW	\$ 5,155,800
Life Cycle Management Rider	1,000,000 kW	x	\$ - /kW	\$ -	900,000 kW	x	\$ - /kW	\$ -	600,000 kW	x	\$ - /kW	\$ -
Resource Adequacy Rider	1,000,000 kW	x	\$ 0.116 /kW	\$ 116,000	900,000 kW	x	\$ 0.116000 /kW	\$ 104,400	600,000 kW	x	\$ 0.116000 /kW	\$ 69,600
Solar Power Rider	1,000,000 kW	x	\$ 0.044 /kW	\$ 44,000	900,000 kW	x	\$ 0.044000 /kW	\$ 39,600	600,000 kW	x	\$ 0.044000 /kW	\$ 26,400
Phase-In Rate Adjustment	620,500,000 kWh	x	\$ (0.000047) /kWh	\$ (29,164)	0 kWh	x	\$ (0.000047) /kWh	\$ -	0 kWh	x	\$ (0.000047) /kWh	\$ -
Phase-In Rate Adjustment	1,000,000 kW	x	\$ (0.503) /kW	\$ (503,000)	900,000 kW	x	\$ (0.503000) /kW	\$ (452,700)	600,000 kW	x	\$ (0.503000) /kW	\$ (301,800)
TAX Rider	1,000,000 kW	x	\$ - /kW	\$ -	900,000 kW	x	\$ - /kW	\$ -	600,000 kW	x	\$ - /kW	\$ -
Rider Total				\$ 7,533,582				\$ 7,984,800				\$ 5,323,200
Total Billing :				\$ 40,517,698				\$ 21,215,075				\$ 14,143,475
Less: Phase-In Rider				\$ 41,049,862				\$ 21,667,775				\$ 14,445,275
Yearly Billing (less Phase-In Rider):				\$ 492,598,338				\$ 260,013,300				\$ 173,343,300

Figure AJW-4 Support

	Expected Bill	Min Bill @ 90%	Min Bill @ 60%
Bill	\$ 492,598,338	\$ 260,013,300	\$ 173,343,300

