

S T A T E O F M I C H I G A N
B E F O R E T H E M I C H I G A N P U B L I C S E R V I C E C O M M I S S I O N

* * * *

In the matter of the application of)	
UPPER PENINSULA POWER COMPANY)	Case No. U- 21286
for authority to increase its rates for)	
the generation and distribution of)	
electricity and for other relief)	
_____)	

Q U A L I F I C A T I O N S A N D D I R E C T T E S T I M O N Y O F
J E S S I C A D U E L L
M I C H I G A N P U B L I C S E R V I C E C O M M I S S I O N

January 12, 2023

QUALIFICATIONS OF JESSICA DUELL
CASE NUMBER U-21286
PART I

1 Q. Please state your full name and business address for the record.

2 A. My name is Jessica Duell, and my business address is 7109 West Saginaw
3 Highway, Lansing, Michigan 48917.

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

5 A. I am employed by the Michigan Public Service Commission (MPSC or
6 Commission) as a Public Utilities Departmental Analyst in the Electric Operations
7 Section of the Energy Operations Division.

8 Q. Please describe your educational background.

9 A. I earned a Bachelor of Liberal Arts with a major in Biology and minor in
10 psychology at Olivet College in 2015.

11 Q. What is your professional background?

12 A. In 2015, I worked as a certified nurse assistant (CNA) at Green Acres of Ionia in
13 Ionia, Michigan. As a CNA, I would take care of patients with their daily needs.
14 In 2016, I started working for State of Michigan Department of Health and
15 Human Services (MDHHS) at the Hawthorn Center as a Childcare Worker. My
16 responsibilities were to watch over the children and take care of them while they
17 stayed at the hospital. I worked at the Hawthorn Center until January of 2018
18 when I then transferred to become an Eligibility Specialist for MDHHS. I worked
19 as an Eligibility Specialist from 2017-2022. As an eligibility specialist I had to
20 work with policy and procedures to determine each client's eligibility for state
21 benefits. I would process applications, conduct reviews, interview clients, speak
22 to clients on the phone, and process verifications received to determine eligibility
23 for each program. As an eligibility specialist I would contact utility companies

QUALIFICATIONS OF JESSICA DUELL
CASE NUMBER U-21286
PART I

1 when client’s utilities were turned off or in shut-off status. I would communicate
2 with the utilities to figure out how much the client owed and to determine what I
3 could do to get the client’s utility service turned back on or not shut off,
4 depending on the circumstances. Clients would submit an SER (State Emergency
5 Relief) application and I would then have to process the application to prevent a
6 shut off of their utilities. I also worked as a mentor for new workers. My
7 responsibilities as a mentor were to train new workers in every aspect of the job
8 and make sure they could complete the job precisely and accurately. In February
9 of 2022, I left MDHHS and started working at the MPSC in Electric Operations
10 as Departmental Analyst.

11 Q. Have you received any work-related training since starting your employment with
12 the MPSC?

13 A. Yes. The trainings I have completed so far include:

- 14 • FEMASID Training
- 15 • Introduction to Incident Command System, ICS-100
- 16 • Basic Incident Command System for Initial Response ICS-200
- 17 • An Introduction to the National Incident Management System
- 18 • National Response Framework, An Introduction,
- 19 • MI CIMS (WebEOC) End-User Training,
- 20 • Multicultural Self-Awareness,
- 21 • NRRI-RTI Training
- 22 • The Basics for the Electric Industry

QUALIFICATIONS OF JESSICA DUELL
CASE NUMBER U-21286
PART I

1 | • Root Cause Training

2 | Q. Have you previously testified before the Commission?

3 | A. No. This is my first opportunity to testify in front of the Commission.

DIRECT TESTIMONY OF JESSICA DUELL
CASE NUMBER U-21286
PART II

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

2 A. The purpose of my testimony is to present the Michigan Public Service
3 Commission Staff's (Staff) recommendations regarding Upper Peninsula Power
4 Company's (UPPCO or the Company) Fleet and Facility expenses.

5 Q. Are you sponsoring any exhibits?

6 A. Yes. I am sponsoring several exhibits:

7 Exhibit No. Description

8 Exhibit S-15.0. UPPCO's response to Staff Discovery question U-21286-2-
9 STAFF-UPPCO-5

10

11 Exhibit S-15.1 UPPCO's response to Staff discovery question U-21286-6-
12 STAFF-UPPCO-52

13

14 Exhibit S-15.2 UPPCO's response to Staff Discovery question U-21286-6-
15 STAFF-UPPCO-53

16

17 Exhibit S-15.3 UPPCO's response to Staff Discovery question U-21286-2-
18 STAFF-UPPCO-6

19

20 Exhibit S-15.4 UPPCO's response to Staff Discovery question U-21286-2-
21 STAFF-UPPCO-13

22

23 Exhibit S-15.5 UPPCO's response to Staff Discovery question U-21286-6-
24 STAFF-UPPCO-55

25

26 Exhibit S-15.6 UPPCO's response to Staff Discovery question U-21286-2-
27 STAFF-UPPCO-15

28

29

Fleet Expenses

30 Q. Please briefly describe the Company's Fleet program.

31 A. UPPCO's Fleet consists of trucks and other vehicles used for work purposes.

32 Q. Did Staff review Company's proposed projected test year for fleet expenditures?

DIRECT TESTIMONY OF JESSICA DUELL
CASE NUMBER U-21286
PART II

1 A. Yes, Staff reviewed the Company's proposed projected test year fleet spending of
2 \$2,111,197. This amount can be found in Company Exhibit A-7 (SSL-1), column
3 (f), line 6.

4 Q. Does Staff support Company's requested \$2,111,197 in fleet for projected test
5 year?

6 A. No, Staff first recommends a disallowance of \$268,265. Based on discovery
7 responses received from UPPCO, shown as Staff Exhibit S-15.0, Staff
8 recommends this disallowance because UPPCO stated the amount is for purchases
9 in Fleet that are unforeseen. Staff took the two unforeseen expense amounts
10 \$72,715 and \$195,550 and added them together which equals the \$268,265 in
11 total. UPPCO describes unforeseen as "budgeted unit(s) purchased every year
12 that were not planned. Typical purchases in this line item would be unit(s) that
13 had a major mechanical failure during the year, or a unit(s) that is needed to meet
14 company needs." See Staff Exhibit S-15.1. Staff does not recommend giving
15 funding for this unforeseen expense since there is no proof provided of what the
16 expense will be used for.

17 Q. Is Staff recommending other disallowances to Fleet?

18 A. Yes. Staff recommends disallowing another \$207,756. UPPCO stated that the
19 \$207,756 expense is going to be used for pickup, pool car, and UTV vehicles, as
20 shown in Staff Exhibit S-15.0. Another discovery response received from
21 UPPCO stated "These values are a budget level estimate. These units are
22 currently in the preliminary planning stages with no request for quotes sent out to

DIRECT TESTIMONY OF JESSICA DUELL
CASE NUMBER U-21286
PART II

1 vendors to date.” See Staff Exhibit S-15.2. Staff does not recommend giving
2 funding to utilities for expenses that are in preliminary stages.

3 Q. Is Staff recommending other disallowances to Fleet?

4 A. Yes. Staff recommends a disallowance of \$727,583 for year 2022 and \$139,110
5 for the first 6 months of 2023. UPPCO stated in a discovery response, shown as
6 Staff Exhibit S-15.3, that the actual capital expenditures for January 1-September 30,
7 2022 were \$1,083,130. However, Company Exhibit A-7 (SSL-1), Schedule B5, line
8 6 shows an amount of \$2,171,756 for 2022. Staff prorated the \$1,083,130 for the full
9 year, resulting in \$1,444,173, and took the difference between \$2,171,756 and
10 \$1,444,173 and that is how Staff came up with the \$727,583 disallowance.

11 UPPCO stated in Exhibit A-7 (SSL-1), Schedule B5, line 6 that the
12 Company was projected to spend \$460,180 for 6 months ending 2023. Staff
13 calculated the \$139,110 disallowance by applying the ratio of spending from 2022 to
14 the \$460,180 amount, resulting in \$321,070, or the amount the Company is likely to
15 spend in that time period. Staff then subtracted that amount from \$460,180. The ratio
16 of spending for 2022 is the prorated amount of \$1,444,173 divided by the Company’s
17 updated projection of \$2,069,888, which is shown in Staff Exhibit S-15.3.

18

19 **Facility Expenses**

20 Q. Please briefly describe the company’s Facilities program.

21 A. UPPCO’s Facility program consists of buildings and any upgrades needed for
22 these properties.

23 Q. Did Staff review Company’s proposed expenditures for Facility improvements?

DIRECT TESTIMONY OF JESSICA DUELL
CASE NUMBER U-21286
PART II

1 A. Yes, Staff reviewed the Company's proposed expenditures of \$77,909 for the
2 first six months of 2023 and \$1,926,544 for the test year. These amounts are
3 provided in Company Exhibit A-7 (SSL-1).

4 Q. Does Staff support the Company's requested amount of \$77,909 for the first six
5 months of 2023?

6 A. No. For the first six months of 2023, Staff recommends a disallowance of
7 \$64,275 to Other/Unforeseen/General Facility Improvements, which is a Facility
8 project shown in Company Exhibit A-27 (SSL 7), line 4. Staff calculated the
9 \$64,275 disallowance by taking half of \$128,549 amount projected for year 2023,
10 which is also shown in Exhibit A-27 (SSL-7). In two discovery responses, shown
11 as Staff Exhibits S-15.4 and S-15.5, UPPCO stated that the
12 Other/Unforeseen/General Facility Improvements expenses were in preliminary
13 stages. Staff does not recommend giving funding to utilities for expenses that are
14 in preliminary stages.

15 Q. Does Staff support the Company's requested amount of \$1,926,544 for the
16 projected test year?

17 A. No, Staff recommends a disallowance of \$128,549 to Other/Unforeseen/General
18 Facility Improvements. The \$128,549 disallowance comes from a discovery
19 response from the Company, shown as Staff Exhibit S-15.6. As shown in Staff
20 Exhibits S-15.4 and S-15.5, UPPCO stated that the Other/Unforeseen/General
21 Facility Improvements expenses were in preliminary stages. Staff does not
22 recommend giving funding to utilities for expenses that are in preliminary stages.

23 Q. Does this conclude your testimony?

DIRECT TESTIMONY OF JESSICA DUELL
CASE NUMBER U-21286
PART II

1 || A. Yes.

S T A T E O F M I C H I G A N
B E F O R E T H E M I C H I G A N P U B L I C S E R V I C E C O M M I S S I O N

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In the matter of the application of)	
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Q U A L I F I C A T I O N S A N D D I R E C T T E S T I M O N Y O F
A L L Y D U R F E E
M I C H I G A N P U B L I C S E R V I C E C O M M I S S I O N

January 12, 2023

QUALIFICATIONS OF ALLY DURFEE
CASE NUMBER U-21286
PART I

1 Q. Please state your full name and business address for the record.

2 A. My name is Ally Durfee, and my business address is 7109 West Saginaw
3 Highway, Lansing, Michigan 48917.

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

5 A. I am employed by the Michigan Public Service Commission (MPSC or
6 Commission) as a Public Utilities Engineer in the Electric Operations Section of
7 the Energy Operations Division.

8 Q. Please describe your educational background.

9 A. I earned a Bachelor of Science degree in Civil Engineering from Utah State
10 University in 2011.

11 Q. What is your professional background?

12 A. In 2013, I began working at Rocky Mountain West Telecom (RMWT), a
13 telecommunications engineering firm in Utah, as an Engineering Assistant. I was
14 later promoted to department manager. While working at RMWT I gained a lot of
15 experience working with many electric utilities to gain joint use rights on poles. I
16 completed many projects involving upwards of 500 poles and became very
17 familiar with the NCEES standards for pole attachments. I completed the CET
18 Design Methods and Procedures training course in 2021.

19 Q. Have you received any work-related training since starting your employment with
20 the MPSC?

21 A. Yes. In June of 2022, I completed the Michigan Infrastructure Council Asset
22 Management Champion Course through the Michigan Infrastructure Council. I
23 also completed Stray Voltage Training that same month. I completed the IPU's

QUALIFICATIONS OF ALLY DURFEE
CASE NUMBER U-21286
PART I

1 Annual Regulatory Studies Program Fundamentals Course, the Incident
2 Investigation, Root Cause Analysis Training, and the Basics Practical Regulatory
3 Training for the Electric Industry.

4 Q. Have you previously testified before the Commission?

5 A. Yes. I have filed testimony in the following case:

<u>Case No.</u>	<u>Company</u>	<u>Type of case</u>	<u>Assisted with</u>
7 U-21224	8 Consumers Energy	9 Electric Rate	10 Service Restoration, Line Clearing, and CVR

DIRECT TESTIMONY OF ALLY DURFEE
CASE NUMBER U-21286
PART II

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

2 A. The purpose of my testimony is to present the Michigan Public Service
3 Commission Staff's (Staff) recommendations regarding Upper Peninsula Power
4 Company's (UPPCO or the Company) Substation projects.

5 Q. Are you sponsoring any exhibits?

6 A. Yes. I am sponsoring several exhibits:

<u>Exhibit No.</u>	<u>Description</u>
8 Exhibit S-16.0	6-STAFF-UPPCO-51
9	
10 Exhibit S-16.1	2-AG-UPPCO-2.48
11	
12 Exhibit S-16.2	Attachment 2-AG-UPPCO-2.49-c-Substation
13	
14 Exhibit S-16.3	6-STAFF-UPPCO-50
15	
16 Exhibit S-16.4	6-STAFF-UPPCO-48
17	
18	

19 **Substation Projects**

20 Q. Did Staff review Company's proposed Substation projects?

21 A. Yes, Staff reviewed the Company's proposed funding for substation projects.

22 Q. Does Staff support Company's requested funding for the substation projects as
23 filed?

24 A. Staff supports the request in part and has recommendations for some of the
25 projects.

26 Q. Which projects does Staff have recommendations on?

27 A. Staff has recommendations for the following projects:

28 MTU Bank 1 Replace Aging Transformer (UHV-0695)

DIRECT TESTIMONY OF ALLY DURFEE
CASE NUMBER U-21286
PART II

1 Project Development for subsequent years

2 Battery Bank Replacement for Atlantic, Homer Road, Masonville, and

3 Munising Substations

4 **MTU Bank 1 Replace Aging Transformer (UHV-0695)**

5 Q. Did Staff review the Company's information on the MTU Bank 1 Replace aging
6 Transformer (UHV-0695) project?

7 A. Yes, Staff reviewed the information on the MTU Bank 1 project as presented by
8 the Company in its testimony, exhibits, and discovery responses.

9 Q. Please describe the MTU Bank 1 Replace aging Transformer (UHV-0695)
10 project.

11 A. MTU Bank 1 Replace Aging Transformer is a reliability improvement to upgrade
12 the existing Bank 1 power transformer, manufactured in 1967 and rated at
13 7.5/10MVA 69:12.47KV with a 10/14MVA transformer.

14 Q. What is Company's application regarding the MTU Bank 1 project?

15 A. UPPCO is requesting \$756,232 to upgrade the existing Bank 1 power transformer.
16 The Company calculated the cost of the project based on the estimated 50%
17 increase for equipment. See Exhibit S-16.0.

18 Q. Does Staff support Company's requested \$756,232 for the MTU Bank 1 Project?

19 A. No, Staff supports the MTU Bank 1 project but believes that the 50% increase for
20 equipment is too high. Staff is recommending a 22% equipment cost increase, a
21 difference of \$132,160 ($472,000 \times (50\% - 22\%)$), making the recommended cost of
22 the project \$624,072. The 22% is an average between the 41% equipment cost
23 increase mentioned in Exhibit S-16.0 and the 3.51% inflation rate used by the

DIRECT TESTIMONY OF ALLY DURFEE
CASE NUMBER U-21286
PART II

1 Company in this case. This number is further supported by the Company's lack of
2 consistency in percentage of equipment cost increase. In Exhibit S-16.1, page 3,
3 the Company states the average cost for power transformers that UPPCO
4 purchased increased 35% between 2021 and 2022. The Company also stated in
5 Exhibit S-16.2 that for the MTU BK1 Transformer Replacement project there is a
6 20% contingency for current supply chain challenges. Staff does not support the
7 use of contingency dollars to set rates. The Company can request in a future rate
8 case any reasonable and prudent expenditures above what is approved in this case.

9 **Project Development for Subsequent Years**

10 Q. Did Staff review the Company's information on the Project Development for
11 Subsequent Years?

12 A. Yes, Staff reviewed the information on the budget for project development for
13 subsequent years as presented by the Company in its testimony, exhibits, and
14 discovery responses.

15 Q. Please describe the Project Development for Subsequent Years.

16 A. Substation engineering labor to provide detailed project scopes, estimates and
17 designs prior to projects moving into the construction phase in the following year.

18 Q. What is Company's application regarding the project development for subsequent
19 years?

20 A. UPPCO is requesting \$103,878 for substation engineering labor to provide
21 detailed project scopes, estimates and designs prior to projects moving into the
22 construction phase in the following year.

DIRECT TESTIMONY OF ALLY DURFEE
CASE NUMBER U-21286
PART II

1 Q. Does Staff support Company’s requested \$103,878 for Project Development for
2 subsequent years?

3 A. No, Staff supports the Project Development for subsequent years but believes that
4 this amount is based upon a very high engineering salary-approximately \$228,000
5 plus benefits. This was calculated by taking the budgeted \$100,000, dividing by
6 the approximate 700 engineering manhours (See Exhibit S-16.3), dividing by a
7 benefit load factor of 1.3¹, then multiplying by 2,080 hours per year. Staff is
8 recommending that the cost be reduced by \$50,000, making the cost for Project
9 Development for subsequent years \$53,878.

10 **Battery Bank Replacement for Atlantic, Homer Road, Masonville, and Munising**

11 **Substations**

12 Q. Did Staff review the Company’s information on the Battery Bank Replacement
13 for Atlantic, Homer Road, Masonville, and Munising Substations?

14 A. Yes, Staff reviewed the information on the budget for Battery Bank Replacement
15 for Atlantic, Homer Road, Masonville, and Munising Substations as presented by
16 the Company in its testimony, exhibits, and discovery responses.

17 Q. Please describe the Battery Bank Replacement for Atlantic, Homer Road,
18 Masonville, and Munising Substations.

19 A. UPPCO’s 125VDC lead-acid substation battery banks are the sole electrical
20 source for substation protection/control and monitoring via the System Control

¹ “Bureau of Labor Statistics.” *Employer Costs for Employee Compensation- September 2022, 2022*, <https://www.bls.gov/news.release/pdf/ecec.pdf>.

DIRECT TESTIMONY OF ALLY DURFEE
CASE NUMBER U-21286
PART II

1 and Data Acquisition (SCADA) system. Having a reliable substation battery bank
2 and charger is key to consistent system operations reliability and monitoring.
3 UPPCO's preventative maintenance of lead-acid battery system is utilized to
4 assure reliable battery operation. There are two parts to the program: a routine
5 visual inspection and electrical testing. Based on annual test results and age of
6 equipment, UPPCO has typically budgeted for the upgrade of two battery banks
7 annually to insure their optimal performance. Due to supply chain constraints, the
8 Company has experienced delays in receiving ordered replacement batteries and
9 therefore has targeted the replacement of four substation batteries in the projected
10 test year to re-establish the regular replacement schedule.

11 Q. What is the Company's application regarding the Battery Bank Replacement for
12 Atlantic, Homer Road, Masonville, and Munising Substations?

13 A. UPPCO is requesting \$31,163 for each of the 4 battery bank replacements,
14 Atlantic, Homer Road, Masonville and Munising substations, making the total
15 request of \$124,652.

16 Q. Does Staff support Company's requested \$124,652, which is \$31,163 for each
17 Atlantic, Homer Road, Masonville, and Munising substation battery bank
18 replacement?

19 A. No, Staff supports the battery bank replacements but is recommending using the
20 \$26,577, 4-year average cost for the battery bank (see Exhibit S-16.4) instead of
21 \$30,000. This is a difference of \$3,423 per battery bank, for a total downward
22 adjustment of \$13,692. The Company did not explain what constitutes the
23 additional \$3,423 per battery bank.

DIRECT TESTIMONY OF ALLY DURFEE
CASE NUMBER U-21286
PART II

1 Q. Please summarize your recommendations.

2 A. Staff's recommendation are as follows:

3 1. Staff recommends a partial disallowance of \$132,160 for the MTU
4 Bank 1 Replace aging Transformer (UHV-0695) project.

5 2. Staff recommends a partial disallowance of \$50,000 for the Project
6 Development for subsequent years.

7 3. Staff recommends a partial disallowance of \$13,692 for the battery
8 bank replacement of Atlantic, Homer Road, Masonville, and Munising
9 Substations.

10 Q. Does this conclude your testimony?

11 A. Yes.

STATE OF MICHIGAN

BEFORE THE MICHIGAN PUBLIC SERVICE COMMISSION

* * * *

In the matter of the application of)
UPPER PENINSULA POWER COMPANY)
for authority to increase its rates for the)
generation and distribution of electricity)
and for other relief.)
_____)

Case No. U-21286

QUALIFICATIONS AND DIRECT TESTIMONY OF

NICHOLAS M. EVANS

MICHIGAN PUBLIC SERVICE COMMISSION

January 12, 2023

QUALIFICATIONS OF NICHOLAS M. EVANS

CASE NUMBER U-21286

PART I

1 Q. Please state your full name and business address for the record.

2 A. My name is Nicholas M. Evans, and my business address is 7109 West Saginaw
3 Highway, Lansing, Michigan 48917.

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

5 A. I am employed by the Michigan Public Service Commission (MPSC or Commission) as
6 Manager of the Electric Operations Section. This section is part of the Energy
7 Operations Division, which is responsible for ensuring safe, reliable, and accessible
8 energy supplies.

9 Q. Please describe your educational background.

10 A. I earned a Bachelor of Science in Electrical Engineering from Kettering University in
11 2005. In addition, I earned a Master of Public Administration degree from Western
12 Michigan University in 2012.

13 Q. What is your professional background?

14 A. In 2007, I began working at the State of Michigan Energy Office as a staff engineer,
15 where I performed energy audits on local government, school district, and state office
16 buildings and advised the building managers and other personnel on ways to conserve
17 energy and increase their buildings' energy efficiency. I also reviewed energy audits
18 from private contractors for these customers.

19 In April 2010, I began working for the MPSC in the Energy Efficiency Section as
20 a Public Utilities Engineer. In this Section, I reviewed filings made in the reconciliation
21 process of utility Energy Optimization plans. I was the case coordinator for Staff for six
22 electric cooperatives' cases and for Case Nos. U-16013 and U-16014. In addition, I

QUALIFICATIONS OF NICHOLAS M. EVANS

CASE NUMBER U-21286

PART I

1 participated in the MPSC Energy Optimization Collaborative and the MPSC Plug-in
2 Hybrid Electric Vehicle Task Force.

3 In November 2010, I was placed into the Smart Grid Section where I reviewed the
4 portions of utility rate case filings that pertained to Smart Grid, Advanced Metering
5 Infrastructure (AMI) and Automated Meter Reading (AMR). I testified in several rate
6 cases on AMI issues. I also assisted in writing the Staff Report in Case No. U-17000 and
7 was a member of the MPSC Smart Grid Collaborative.

8 In July 2013, I transferred to the Generation and Certificate of Need Section. My
9 primary responsibility was to review expenditures related to environmental compliance
10 and the purchase of new fossil generation in utility rate case filings. My other
11 responsibilities were to review portions of Certificate of Necessity applications and assist
12 with tracking and monitoring various environmental rules as they were proposed and
13 finalized. In 2017, I led two workgroups as part of the Integrated Resource Plan
14 Statewide Parameter Setting/Modeling stakeholder outreach process.

15 In November 2017, I was promoted to a Public Utilities Engineering Specialist
16 and began working in the Electric Operations section. My primary responsibilities were
17 to review distribution system expenditures and expenses in utility rate case filings and co-
18 lead the Interconnection Standards and Worker Safety workgroup, which is tasked with
19 updating Michigan's interconnection, distributed generation, and legally enforceable
20 obligation rules. My other responsibilities were to review distribution operations five-
21 year plans, log safety incidents associated with utility equipment, assist with
22 investigations, and assist with updating the Service Quality and Reliability Standards for
23 Electric Distribution Systems rules and the Technical Standards for Electric Service rules.

QUALIFICATIONS OF NICHOLAS M. EVANS

CASE NUMBER U-21286

PART I

1 In April 2020, I was promoted to Manager of the Electric Operations Section. As
2 manager, I continue to review utility rate case filings and co-lead the Interconnection
3 Standards and Worker Safety workgroup, and I now supervise and assist the workgroup
4 leads who are updating the Service Quality and Reliability Standards rules and the
5 Technical Standards for Electric Service rules. I also assist with Rule 411 cases and
6 serve as a point of contact for utilities when safety incidents associated with utility
7 equipment occur. Since 2020, I have been participating in the MPSC's Diversity, Equity,
8 and Inclusion (DEI) initiative.

9 Q. Have you received any work-related training since starting your employment with the
10 MPSC?

11 A. Yes. I have attended the following programs hosted by the Institute of Public Utilities at
12 Michigan State University: Forecasting for Regulators, Annual Regulatory Studies
13 Program, Advanced Regulatory Studies Program, Michigan Forum on Economic
14 Regulatory Policy, Introduction to Public Utility Regulation and Ratemaking, and the
15 IPU Ratemaking Course. I have attended various other training programs since 2007 to
16 further my professional development.

17 Q. Have you been awarded any certificates as a result of your regulatory training?

18 A. Yes. In 2014, I was awarded a Tier One Certificate of Continuing Regulatory Education
19 from the Institute of Public Utilities at Michigan State University. In July 2022, I
20 completed the Michigan Infrastructure Council Asset Management Champion Program.

21 Q. Have you previously testified before the Commission?

22 A. Yes. I have filed testimony in the following cases:

23 Case No Company Type of Case Subject of Testimony

QUALIFICATIONS OF NICHOLAS M. EVANS

CASE NUMBER U-21286

PART I

1	U-16180	Indiana-Michigan	Electric rate (settled)	gridSMART sm project
2	U-16472	Detroit Edison	Electric rate	AMI, SmartCurrents
3	U-16794	Consumers Energy	Electric rate	AMI/Smart Grid
4	U-16999	MichCon	Gas rate (settled)	AMI and AMR
5	U-15768	Detroit Edison	Remand – Electric rate	AMI pilot program
6	U-17087	Consumers Energy	Electric rate (settled)	AMI
7	U-17429	Consumers Energy	Certificate of Necessity (withdrawn)	Thetford Plant- IRP review
8				
9				
10	U-16472	DTE Electric	Remand – Electric rate	AMI (with Rebuttal)
11	U-17735	Consumers Energy	Electric rate	Environmental capital and O&M, Jackson Plant
12				
13				
14				
15	U-17990	Consumers Energy	Electric rate	Environmental capital and O&M
16				
17				
18	U-18224	Upper Michigan Energy Resources Corporation	Certificate of Necessity	RICE Units – Environmental review
19				
20				
21				
22	U-18322	Consumers Energy	Electric rate	Environmental capital and O&M
23				
24				
25	U-18370	Indiana-Michigan	Electric rate	Contingency and SCR
26	U-20162	DTE Electric	Electric rate	Distribution capital and O&M
27				
28				
29	U-20561	DTE Electric	Electric rate	Distribution capital and O&M
30				
31				
32	U-20697	Consumers Energy	Electric rate	Distribution capital and O&M
33				
34				
35	U-20963	Consumers Energy	Electric rate	Distribution capital and O&M (with Rebuttal)
36				
37				
38				

QUALIFICATIONS OF NICHOLAS M. EVANS

CASE NUMBER U-21286

PART I

1	U-20836	DTE Electric	Electric rate	Distribution system
2				programs, Vehicle
3				Fleet, outage credits
4				
5	U-21224	Consumers Energy	Electric rate	IT project, service
6				restoration, advanced lighting
7				controls.
8				

9 Q. Have you provided technical assistance in any other cases?

10 A. Yes, in multiple cases.

11	<u>Case No.</u>	<u>Company</u>	<u>Type of Case</u>	<u>Assisted with:</u>
12	U-17053	Detroit Edison	Tariff	Non-transmitting
13				meter provision
14				
15	U-15645	Consumers Energy	Remand – Electric rate	AMI pilot program.
16	U-18462	Northern States	Electric rate (settled)	Distribution system
17		Power		capital and O&M
18				
19	U-21045	Alpena Power	Electric rate (settled)	Distribution capital
20		Company		and O&M
21				
22	U-21097	Northern States	Electric rate (settled)	Distribution capital
23		Power		
24				
25	U-21138	Consumers Energy	Complaint (withdrawn)	Distribution system
26				operations

DIRECT TESTIMONY OF NICHOLAS M. EVANS

CASE NUMBER U-21286

PART II

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

2 A. The purpose of my testimony is to present the Michigan Public Service Commission
3 Staff's (Staff) opinion on and recommendations regarding Upper Peninsula Power
4 Company's (UPPCO or the Company) multiple undergrounding projects.

5 Q. Are you sponsoring any exhibits?

6 A. Yes, I am sponsoring one exhibit:

<u>Exhibit No.</u>	<u>Description</u>
7 Exhibit S-12.0	UPPCO's response to Staff discovery question 6-STAFF-UPPCO- 8 56. 9

10
11 Q. Please describe the Company's undergrounding projects.

12 A. The Company's overhead-to-underground projects are part of its System Hardening and
13 Reliability Projects ("SHARP") program and are listed in Exhibits A-30 (SSL-10) and A-
14 37 (JRR-7). The undergrounding projects aim to bolster system reliability and service
15 quality to customers.

16 Q. How many overhead-to-underground ("OH to UG") projects is the Company planning to
17 undertake in 2023 and 2024?

18 A. According to Company Exhibit A-37 (JRR-7), the Company is proposing approximately
19 ten OH to UG projects over the two-year period. Other SHARP projects shown in the
20 exhibit have an undergrounding component.

21 Q. What are the projected capital expenditures for the SHARP program?

22 A. The Company is projecting \$5,350,000 for 2023 and \$5,900,000 for 2024.

23 Q. How did UPPCO support its undergrounding projects?

DIRECT TESTIMONY OF NICHOLAS M. EVANS

CASE NUMBER U-21286

PART II

1 A. Company witness Jay Ringler provided descriptions of the projects on pages 23 to 36 of
2 his direct testimony. The Company also stated in a discovery response, shown as Staff
3 Exhibit S-12.0:

4 [U]sing UPPCO’s design and estimating tool based on typical installation
5 standards and practices and 2021 materials, labor, and equipment pricing, UPPCO
6 created by-foot installation costs to estimate project costs for budgeting purposes.
7 Using this methodology, the cost to convert a single-phase overhead line to
8 underground is actually less than to rebuild an overhead line back to overhead.
9 Rebuilding an overhead line was estimated to be about \$29 per foot, while
10 converting overhead to underground ranged from \$17 to \$23 per foot. For 3-
11 phase, the estimated cost to rebuild an overhead line was \$52 per foot, while
12 underground ranged from \$45 to \$63 per foot. The underground estimates have a
13 range depending on the amount of plowing versus boring the project may require.
14 Permitting, easements, outside engineering, line clearance, and special permitting
15 or equipment are not included in the estimates and these factors are taken into
16 consideration when the decision is made to pursue one project over another.
17

18 Q. Is Staff recommending any disallowances to the SHARP program?

19 A. No.

20 Q. Even though Staff is not recommending any adjustments to the Company’s SHARP
21 projections, does Staff have any concerns with UPPCO’s undergrounding initiative?

22 A. No. Staff does not specifically have any concerns with UPPCO’s initiative, but does
23 have concerns with undergrounding in general. As I explained in my direct testimony in
24 Case No. U-20836 on page 11:

25 Undergrounding existing overhead lines is far more expensive than building
26 overhead lines, so the potential for undergrounding being a cost-effective solution
27 for DTE Electric’s service territory is likely quite limited. On October 20, 2021,
28 Empowering Michigan, identified as “the Official Blog Powered by DTE
29 Energy”, published a post titled “Does DTE bury the power lines?” See Staff
30 Exhibit S-16.6. In the post, the Company states

31
32 [B]urying existing overhead power lines carries a hefty price tag –
33 about three to six times more expensive than installing overhead lines
34 (depending on the field conditions).
35

36 The blog also says

DIRECT TESTIMONY OF NICHOLAS M. EVANS

CASE NUMBER U-21286

PART II

1
2 Relocating existing overhead lines underground would cause massive
3 disruption to communities from existing trees and their root systems,
4 to swimming pools and swing sets. Established structures such as
5 sidewalks, street surfaces, curbs and driveways would also be affected.
6

7 Later in my direct testimony in Case No. U-20836, I stated:

8
9 In most cases it makes sense to underground new electric lines when a
10 subdivision or new development is being constructed. Commission Rule 460.512
11 subrule (1) supports this. There is a difference, however, between
12 undergrounding new electric lines during a construction project and
13 undergrounding existing lines that have been in place for decades, surrounded by
14 vegetation and man-made structures that would become obstacles in an
15 undergrounding project or program.
16

17 Q. What was the Commission’s recommendation in U-20836 regarding strategic
18 undergrounding?

19 A. On pages 110 – 112 of the November 18, 2022 Order in U-20836, the Commission
20 stated:

21 In the August 25, 2021 order in Case Nos. U-21122 *et al.* and the September 8
22 order, the Commission directed investor-owned utilities to provide strategic
23 undergrounding proposals so that the Commission may gain a better
24 understanding of the costs and benefits of undergrounding. On page 74 of the
25 September 8 order, the Commission noted that “this topic of undergrounding is
26 also raised in Case No. U-20836, DTE Electric’s pending general rate case”
27 Although DTE Electric claims that the Appoline pilot is complete and all
28 necessary learnings have been provided, the Commission disagrees. The
29 Commission’s directive for strategic undergrounding proposals was founded in
30 the fact that the Commission may gain a better understanding of costs and
31 benefits, and this information has not yet been communicated to the Commission.
32 As noted by the ALJ, the Commission and interested stakeholders would benefit
33 from a full report on the Appoline pilot including, but not limited to, a benefit/cost
34 analysis (BCA) that considers other less costly alternatives such as tree trimming,
35 an analysis of the interaction between undergrounding and grid hardening or
36 13.2kV conversion, a description of how undergrounding may be included in a
37 distribution plan, and a discussion of health, safety, reliability, and vulnerability.
38 Therefore, the Commission directs the company to submit a full report, including
39 a BCA and the other information noted above, in its next rate case.
40

41 Furthermore, the Commission does not intend to forestall the continued learnings
42 that could be derived from subsequent strategic undergrounding pilots as it awaits

DIRECT TESTIMONY OF NICHOLAS M. EVANS

CASE NUMBER U-21286

PART II

1 the submission of a full report on the Appoline pilot. For future proposed strategic
2 undergrounding pilots, however, the Commission expects DTE Electric to provide
3 how the benefit/cost of the proposed undergrounding pilot compares to that of
4 other solutions the company is currently employing to enhance the reliability of
5 the distribution system. This includes, but is not limited to, benefit/cost
6 comparisons of strategic undergrounding alongside the benefit/cost of employing
7 grid hardening, grid conversion, tree trimming, or other solutions.
8

9 Q. What are Staff's recommendations regarding the UPPCO undergrounding projects?

10 A. Staff recommends that in the Company's next rate case, it provide:

11 1. A report on all of the overhead to underground projects completed since January
12 1, 2022 that includes the following information for each project: total capital
13 expenditures to complete the project, number of miles undergrounded, ongoing capital
14 costs, annual O&M expense, number of customers affected, SAIDI and SAIFI reliability
15 benefits, and O&M savings compared to the overhead configuration. The report shall
16 also describe how the projects' costs and benefits compare to tree trimming, grid
17 hardening, and voltage conversion; a description of how undergrounding may be included
18 in a distribution plan; and a discussion of health, safety, reliability, and vulnerability.
19

20 2. For each strategic undergrounding project proposed in the next rate case, an
21 analysis of how the benefit/cost of the proposed undergrounding project compares to that
22 of other solutions the Company is currently employing to enhance the reliability of the
23 distribution system. This includes, but is not limited to, benefit/cost comparisons of
24 strategic undergrounding alongside the benefit/cost of employing grid hardening, grid
25 conversion, tree trimming, and other solutions.
26

27 Q. Are these recommendations consistent with the Commission's requirements for DTE
28 Electric, as described in the November 18, 2022 order in U-20836?

29 A. Yes.

30 Q. Does Staff have any other recommendations?

31 A. Yes. The Company should be required to work with Staff to develop and file a
32 distribution investment and maintenance plan. This plan shall be filed in Case No. U-
33 20147 by close of business on July 31, 2025. The distribution and investment plan shall
34 be consistent with the September 8, 2022 Order in Case No. U-20147.

35 Q. Is Staff recommending any adjustments to test year electric distribution O&M expenses?

DIRECT TESTIMONY OF NICHOLAS M. EVANS
CASE NUMBER U-21286
PART II

1 A. No.

2 Q. Please summarize your recommendations.

3 A. Staff's recommendations are as follows:

4 1. In the Company's next rate case, the Company include a report on all of the
5 overhead to underground projects completed since January 1, 2022.

6
7 2. For each strategic undergrounding project proposed in the Company's next rate
8 case, an analysis of how the benefit/cost of the proposed undergrounding project
9 compares to that of other solutions.

10
11 3. The Company should be required to work with Staff to develop and file a
12 distribution investment and maintenance plan in Case No. U-20147 by close of business
13 on July 31, 2025.

14
15 Q. Does this conclude your direct testimony?

16 A. Yes.

17

STATE OF MICHIGAN
BEFORE THE MICHIGAN PUBLIC SERVICE COMMISSION

* * * *

In the matter of the application of)
UPPER PENINSULA POWER COMPANY)
for authority to increase its rates for)
the generation and distribution of)
electricity and for other relief.)
_____)

Case No. U-21286

QUALIFICATIONS AND DIRECT TESTIMONY OF
CODY S. MATTHEWS
MICHIGAN PUBLIC SERVICE COMMISSION

April 28, 2020

QUALIFICATIONS OF CODY S. MATTHEWS
CASE NUMBER U-21286
PART I

1 Q. Please state your name and business address.

2 A. My name is Cody S. Matthews. My business address is 7109 W. Saginaw Hwy.,
3 Lansing, Michigan 48917.

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

5 A. I am employed by the Michigan Public Service Commission (MPSC or
6 Commission) as a Public Utilities Engineer Specialist in the Interconnection and
7 Distributed Energy Resources Section of the Energy Operations Division.

8 Q. Please describe your educational background.

9 A. I earned a Bachelor of Science degree in Engineering from Michigan State
10 University in 2014.

11 Q. Would you please describe your professional background.

12 A. In 2014 I began working for the MPSC in the Smart Grid Section. I reviewed
13 sections of utility rate case filings that pertained to smart grid, advanced metering
14 infrastructure (AMI), demand response (DR), information technology (IT), and
15 cyber-security. In 2019 I was transferred into the Renewable Energy Section,
16 which was renamed the Interconnection and DER section as of August 2022 and
17 am focusing on electric provider's Renewable Energy Plan and reconciliation
18 filings, electric utility interconnection, integrated resource plan filings, energy
19 storage, and activities related to the Public Utility Regulatory Policies Act
20 (PURPA) of 1978.

21 Q. Have you received any work-related training since starting your employment with
22 the MPSC?

QUALIFICATIONS OF CODY S. MATTHEWS
CASE NUMBER U-21286
PART I

1 A. Yes. I have attended several programs hosted by the Institute of Public Utilities at
2 Michigan State University including Introduction to Public Utility Regulation, the
3 full two-week fundamental and intermediate course, and the Advanced
4 Regulatory Studies Program, as well as the Michigan Forum on Economic
5 Regulatory Policy and the Rate Making Course. Additionally, I have participated
6 in several conferences both in person and online concerning cyber security, IEEE
7 1547, and other renewable energy related topics.

8 Q. Have you previously testified before the Commission?

9 A. Yes, I have testified in the following cases:

<u>Case Number</u>	<u>Company</u>	<u>Case Type/Subject</u>
U-17767	DTE Electric Company	Rate Case
U-17999	Consumers Gas Company	Rate Case
U-18014	DTE Electric Company	Rate Case
U-18255	DTE Electric Company	Rate Case
U-18370	Indiana Michigan Power Co.	Rate Case
U-18999	DTE Gas Company	Rate Case
U-20137	Indiana Michigan Power Co.	Opt-Out Tariff
U-20162	DTE Electric Company	Rate Case
U-20165	Consumers Energy Company	IRP
U-15800	Commissions Motion	Transfer Price
U-18091	DTE Electric Company	Avoided Cost Update
U-20350	Upper Peninsula Power Co.	IRP
U-20471	DTE Electric Company	IRP

QUALIFICATIONS OF CODY S. MATTHEWS
CASE NUMBER U-21286
PART I

1	U-20485	Indiana Michigan Power Co.	RE Recon
2	U-20591	Indian Michigan Power Co.	IRP
3	U-20561	DTE Electric Company	Rate Case
4	U-18232	DTE Electric Company	RE Plan
5	U-20697	Consumers Energy Company	Rate Case
6	U-20713	DTE Electric Company	VGP
7	U-20851	DTE Electric Company	RE Plan
8	U-20963	Consumers Energy Company	Rate Case
9	U-21090	Consumers Energy Company	IRP
10	U-21009	Consumers Energy Company	RE Plan
11	U-21081	UMERC	IRP
12	U-21010	DTE Electric Company	RE Recon
13	U-21148	Consumers Energy Company	Rate Case
14	U-21189	Indiana Michigan Power Co.	IRP
15	U-20836	DTE Electric Company	Rate Case
16	U-21224	Consumers Energy Company	Rate Case

QUALIFICATIONS OF CODY S. MATTHEWS
CASE NUMBER U-21286
PART II

1 Q. What is the purpose of your testimony?

2 A. The purpose of my testimony is to present the MPSC Staff's (Staff)
3 recommendations concerning Upper Michigan Power Company's (UPPCO or the
4 Company) distributed generation (DG) program.

5 Q. Are you sponsoring any exhibits in the proceeding?

6 A. No.

7 Q. Please describe the status of UPPCOs distributed generation program.

8 A. As a part of settlement in Case No. U- 20995, UPPCO agreed to increase its
9 program cap from 2.0% to not less than 3.0% of its average in-state peak load.¹
10 Based on information provided by UPPCO for 2021, the Company had 238
11 customers enrolled in its category 1 DG program representing approximately
12 1,460 kW of participation. This means that the Company's DG program was
13 roughly 69% filled through 2021. The table below shows a breakdown of the
14 enrollment in UPPCOs DG program based on enrollment data through 12/31/2021
15 based on annual report data.²

	No. of Customers	Category size limit (kW)	Current participation Capacity (kW)	Space Remaining (kW)
Category 1	238	2,130	1,460	670
Category 2	7	1,065	280	785

16

17 Q. Does Staff have any concerns that UPPCOs DG program will reach its 3% cap?

¹ May 26, 2021, Commission order in Case No. U-20995

² <https://www.michigan.gov/mpsc/-/media/Project/Websites/mpsc/regulatory/reports/distributed-generation/DG-Staff-Report-for-Calendar-Year-2021-Final.pdf?rev=af32e70ad89c42f3aa3dd31861a567ba&hash=A667BC79515418992A51C2439EB9B3F0>

QUALIFICATIONS OF CODY S. MATTHEWS
CASE NUMBER U-21286
PART II

1 A. Yes. Given the trend of increasing costs of electric rates and the general
2 downward trend of renewable energy costs, it is highly likely that UPPCO will
3 reach its program cap. Given that the data used for this table is already 1 year old
4 it is also highly likely that UPPCO is much closer to reaching its cap than the data
5 in this table shows. Once the DG program cap is hit, the Company has the option
6 to stop enrolling customers, leaving limited options for customers that would like
7 to install and utilize renewable energy on their homes.

8 Q. Is lifting the DG program cap equitable for all UPPCO customers?

9 A. Yes. As I previously mentioned, the DG program is cost of service based so any
10 subsidies that may have existed have been minimized. Additionally, because the
11 cost to install solar on a residential customer home has dropped considerably,
12 customers who may not have been able to afford to install solar are now gaining
13 access to this technology. If the program were to fill up and be closed to new
14 participation, it's the customers who could not afford to install solar previously
15 that are harmed the most.

16 Q. Does Staff have any recommendations concerning UPPCO's DG program?

17 A. Yes. Staff recommends the Company voluntarily lift its program cap.

18 Q. Why does Staff believe it is appropriate for UPPCO to remove the cap that is in
19 place for its DG program?

20 A. Staff argues that because the Company's DG program is cost-of-service based, the
21 cap should be lifted. Because the DG program was developed utilizing cost of
22 service principals, any subsidization that was present in the net metering program
23 was minimalized. If the Company does not agree to voluntarily raise the cap, Staff

QUALIFICATIONS OF CODY S. MATTHEWS
CASE NUMBER U-21286
PART II

1 recommends that the Company opt to not enforce category-specific limits within
2 the total program size above the statutory minimum. Since the majority of
3 participation is currently category 1 customers, not enforcing the category-
4 specific capacity limits beyond the statutory requirement would allow more
5 customers to enroll in the DG program. Because the limits are currently set by
6 category rather than as a program, category 1 may reach its cap, while categories
7 2 and 3 may have large amounts of remaining space available. For this reason,
8 Staff supports the Company not enforcing category-specific limits and voluntarily
9 allocating space from categories 2 and 3 where it is needed until the total DG
10 program size is filled if UPPCO does not agree to lift the cap completely on its
11 DG program.

12 Q. Please summarize your recommendations.

13 A. Staff recommendations are as follows:

14 1. UPPCO lift the cap on its DG program.

15 2. If UPPCO elects to not lift its DG program cap, UPPCO should not enforce the
16 category specific limits within its total program size beyond its mandated
17 requirement for each category.

18 Q. Does this conclude your testimony?

19 A. Yes.

S T A T E O F M I C H I G A N
BEFORE THE MICHIGAN PUBLIC SERVICE COMMISSION

* * * *

In the matter of the Application of)	
UPPER PENINSULA POWER COMPANY)	Case No. U-21286
for authority to increase its rates for the)	
generation and distribution of electricity)	
and for other relief.)	
_____)	

QUALIFICATIONS AND DIRECT TESTIMONY OF
JING SHI, P.E.
MICHIGAN PUBLIC SERVICE COMMISSION

January 12, 2023

QUALIFICATIONS OF JING SHI
CASE NUMBER U-21286
PART I

1 Q. Please state your name and business address.

2 A. My name is Jing Shi. My business address is 7109 W. Saginaw Highway,
3 Lansing, Michigan 48917.

4 Q. Where are you currently employed and in what position?

5 A. I am employed by the Michigan Public Service Commission (MPSC or
6 Commission) as a Public Utilities Engineer in the Energy Cost Recovery &
7 Generation Operation Section within the Energy Operations Division.

8 Q. What are your responsibilities in your current position?

9 A. I perform technical analyses and reviews in Act 304 electric plan and
10 reconciliation proceedings. In these cases, I evaluate power supply cost recovery
11 (PSCR) plans and reconciliations and develop MPSC Staff's (Staff) position
12 regarding the related issues. In addition, I review power plant production
13 operation and maintenance expenses (O&M), capital expenditures, sales forecasts,
14 and PSCR related costs in rate case proceedings.

15 Q. Please describe your educational and training background.

16 A. I earned a bachelor's degree in Civil Engineering in Beijing, China, and a
17 master's degree in Environmental Engineering from Michigan State University
18 (MSU). I have also completed 80% of the required course work for an associate
19 degree in accounting at Lansing Community College. Additionally, I have
20 attended numerous advanced regulatory sessions hosted by the Institute of Public
21 Utilities at MSU, the 2015 Grid School and the 2019 Ratemaking Courses while
22 employed by the MPSC.

QUALIFICATIONS OF JING SHI
CASE NUMBER U-21286
PART I

1 Q. Please give a brief summary of your work experience before you were hired by
2 the MPSC.

3 A. I worked with the Michigan Biotechnology Institute (MBI); EFX, Inc.; and The
4 Retec, Inc. (all environmental remediation related companies) as a research
5 engineer after I graduated from MSU. During this period, my main work involved
6 studies of the removal of organic pollutants and other volatile organic compounds
7 from groundwater. I designed, constructed, and operated the pilot-scale reactors,
8 conducted chemical analyses, and prepared, presented, and published technical
9 papers in peer reviewed national journals and at national conferences.

10 In late 2002, I began accounting classes at Lansing Community College and
11 started working for The Pension Trend, LLC, and then later for The Rehmann
12 Group, Inc., as an Accounting Specialist. My responsibilities included
13 reconciling year-end balance sheets, complying with IRS rules, and building
14 client relationships. I also passed the RPF examination (Retirement Plan
15 Fundamental) of ASPPA (The American Society of Pension Professionals &
16 Actuaries).

17 Q. Do you hold any licenses?

18 A. Yes. I am a registered Professional Engineer in the State of Michigan and have
19 been since 1997.

20 Q. Have you previously presented testimony before the MPSC?

21 A. Yes. I have presented testimony in the following rate and PSCR cases:

<u>Case No.</u>	<u>Company</u>	<u>Description</u>
U-15768	DTE Electric Company	Electric Rate Case

**QUALIFICATIONS OF JING SHI
CASE NUMBER U-21286
PART I**

1	U-15981	Wisconsin Electric Power Company	Electric Rate Case
2	U-16166	UPPCO	Electric Rate Case
3	U-18014	DTE Electric Company	Electric Rate Case
4	U-18255	DTE Electric Company	Electric Rate Case
5	U-18403	DTE Electric Company	Electric PSCR Case
6	U-20221	DTE Electric Company	Electric PSCR Case
7	U-20561	DTE Electric Company	Electric Rate Case
8	U-20222	DTE Electric Company	Electric PSCR Recon
9	U-20527	DTE Electric Company	Electric PSCR Case
10	U-20528	DTE Electric Company	Electric PSCR Rec.
11	U-20802	CE Electric Company	Electric PSCR Plan
12	U-21048	CE Electric Company	Electric PSCR Plan
13	U-21224	CE Electric Company	Electric Rate Case

DIRECT TESTIMONY OF JING SHI
CASE NUMBER U-21286
PART II

1 Q. What is the purpose of your testimony?

2 A. The purpose of my testimony is to present Staff’s review and position for the
3 following:

4 1. Staff’s projected electric sales for Upper Peninsula Power Company’s
5 (UPPCO) test year ending June 30, 2024.

6 2. Staff’s Generation Capital Expenditure projection adjustments.

7 Q. Are you sponsoring any exhibits?

8 A. Yes. I am sponsoring the following exhibit:

9 Exhibit Description

10 S-18 The Company’s Response to Staff’s Discovery and Audit Requests

11 Q. Please describe this exhibit.

12 A. Exhibit S-18 is the Company’s written response to Staff’s discovery and audit
13 requests. It does not contain any electronic exhibits, workpapers nor any
14 confidential materials.

15

16 **Sales Adjustment**

17 Q. What is your understanding of how UPPCO projected its sales for the test period?

18 A. UPPCO developed its projected Test Period Power Supply Sales with either a
19 regression model or a simple moving average method, as Company witness
20 Nicole Bell stated in her testimony, page 5:

21 “The Residential forecast utilizes a regression model that includes
22 seasonal customers and sales. The historical period utilized as a basis for
23 the projection is April 1, 2013 through April 30, 2022, excluding 2020.”

24

25

DIRECT TESTIMONY OF JING SHI
CASE NUMBER U-21286
PART II

1 “The Commercial forecast utilizes a regression model that includes sales
2 to commercial customers within the service territory. The historical period
3 utilized as a basis for the projection is January 1, 2014, through April 30,
4 2022, excluding 2020.”
5

6 “The Industrial forecast utilizes a simple moving average method of
7 forecasting that uses historical data from May 1, 2019 – April 30, 2022.
8 The model averages the usage of Industrial customers within the service
9 territory over the last three years to determine a projection for the test
10 year.”
11

12 “The Company Use forecast utilizes a simple moving average method of
13 forecasting that uses historical data from May 1, 2018 – April 30, 2022.
14 The model averages the Company’s usage over the last four years to
15 determine a projection for the test year.”
16

17 The Company’s projected test year sales ending on June 30, 2024, are depicted in
18 Exhibit A-10, Schedule E1.2.

19 Q. What is Staff’s approach for reviewing the Company’s test year sales?

20 A. Staff reviewed the test year sales by examining UPPCO’s forecasting models and
21 seeking the historical data that was used by the Company in its models through
22 discovery requests, and then assessed the reasonableness of the projected sales.

23 Q. What did Staff find out from the discovery responses?

24 According to the discovery responses 1-STAFF-UPPCO-2 (f), Exhibit S-18 from
25 page 3, regarding the Commercial sales:

26 “Upon examination of the values entered for Exhibit A-5 and Exhibit A-
27 10, mapping error was identified in the Commercial customer class section
28 of these exhibits. Upon correction of this error, Exhibit A-5 and A-10
29 should reflect the following information for the Commercial customer
30 class.”
31

32 A similar claim was made for Industrial sales as well as for Company Use in the
33 Company’s discovery response 1-STAFF-UPPCO-3 (d) and 1-STAFF-UPPCO-4

DIRECT TESTIMONY OF JING SHI
CASE NUMBER U-21286
PART II

(d), Exhibit S-18 from page 7, these two forecasts were also projected with a mapping error.

Q. What is Staff's conclusion regarding the Company's actual sales and the forecasted sales that were provided in the Company's discovery responses?

A. After another thorough examination of the historical data provided in UPPCO's discovery responses and excluding the actual sales for Residential and Commercial classes during 2020 when the pandemic played nonrecurrent effects, Staff adopted the error-corrected actual sales and the forecasted test year sales from UPPCO's discovery responses.

The following tables summarize the forecast from the Company's initial projection and Staff's adjustment for the Overall Sales, as well as the Bundled Sales:

Overall Sales	UPPCO Projected	Staff's Adjusted	Variable
	kWh	kWh	
Residential	252,914,968	252,914,968	0%
Commercial	137,025,138	153,760,350	12%
Industrial	193,723,155	264,797,426	37%
Other	1,909,346	1,909,346	0%
Company Use	38,873,662	44,344,195	14%
Total	624,446,268	717,726,285	15%

Bundled Sales	UPPCO Projected	Staff's Adjusted	Variable
	kWh	kWh	
Residential	252,914,968	252,914,968	0%
Commercial	120,289,926	137,025,138	14%
Industrial	122,648,884	193,723,155	58%
Other	1,909,346	1,909,346	0%
Company Use	33,403,134	38,873,665	16%
Total	531,166,258	624,446,272	18%

DIRECT TESTIMONY OF JING SHI
CASE NUMBER U-21286
PART II

1 Staff's adjustment is based on the average of the forecasted sales for 2023 and
2 2024 for every sales category.

3

4 **Generation Capital Expenses**

5 Q. What is your understanding of UPPCO's projected Generation Capital
6 Expenditures for the test year?

7 A. UPPCO briefly listed the Generation Capital Expenditure in Exhibit A-7 (SSL-1),
8 Schedule B5, line 3 with actual expenses for 2021 and 2022 of \$1,643,359 and
9 \$2,941,439, respectively, then projected \$155,817 for the first half year of 2023,
10 along with \$3,097,256 of expenses for the 18 months ending 6/30/2023.

11 The Company's final Generation Capital Expenditure was forecasted as
12 \$3,066,288 for the test year ending June 30, 2024.

13 Q. What is the approach that Staff took for reviewing the Generation Capital
14 Expenses?

15 A. After preliminary review, Staff sent out a set of discovery requests to the
16 Company and asked UPPCO to provide a detailed historical and forecasted
17 generation capital project list and the cost for each individual task. A study of the
18 responses led to more Company directed questions. Then Staff assessed each of
19 the Generation Capital projects and the expenses for reasonableness and
20 prudence.

21 Q. Are there any disallowances stemming from Staff's assessment?

22 A. Yes.

DIRECT TESTIMONY OF JING SHI
CASE NUMBER U-21286
PART II

1 Staff has five disallowances for UPPCO’s projected test year Generation Capital
2 Expenditure which removed the following amounts from the Company’s request:

3	UPPCO’s Safety Projects:	\$51,939
4	Victoria Control Upgrade:	\$192,150
5	Annual New Equipment and Tools:	\$155,817
6	McClure Transformer 1 and 2:	\$657,348 X 2
7	Total:	\$1,714,600

8 Q. Please explain the reasons why Staff recommend to disallow the amount of
9 \$51,939 for Safety Projects.

10 A. UPPCO actually spent \$9,167 on Safety Projects during 2022 for handrail and
11 access platform rework and improvement (8-STAFF-UPPCO-58 (8.1) a ii),
12 Exhibit S-18, page 31), and projected expenses of \$51,939 for 2023 and 2024.
13 According to UPPCO’s discovery response 4-STAFF-UPPCO-30 c d, Exhibit S-
14 18 page 15, the Annual Safety Project is “to address unknown or unidentified
15 safety deficiencies/issues”.

16 The Company further explained the dollar amount in the response to 8-STAFF-
17 UPPCO -58 (8.1), Exhibit S-18 page 31, when Staff sought detailed information
18 regarding the projected amount of \$51,939 for both 2023 and 2024 expenses:

19 “were based on a general amount of \$50,000 inflated year over year.
20 These funds are to address unknown/unidentified safety
21 deficiencies/issues that are identified each year, and therefore do not have
22 a specific list. In UPPCO's experience, several such projects typically
23 occur each year on an unplanned basis and the \$50,000 amount represents
24 a reasonable estimation thereof.”
25

DIRECT TESTIMONY OF JING SHI
CASE NUMBER U-21286
PART II

1 The Company does not have a specific list of safety project expenditures over the
2 last 5 years, and the safety project funds which are to be utilized in conjunction
3 with different projects, as UPPCO explained in the same response.

4 Staff interpreted the explanation as meaning UPPCO does not have any clear plan
5 as to how it will spend the \$51,939 in the test year, nor what the Company has
6 spent on this category in the past.

7 There is also no basic information regarding the general spending amount of
8 \$50,000 which is mentioned by the Company in the same discovery response.

9 There is simply no reason for Staff to believe that UPPCO is going to spend the
10 Safety Project money prudently being as there is no plan as to how it will be spent
11 at this time. Therefore, Staff is asking Commission to disallow the requested
12 Safety Project amount of \$51,939.

13 Q. Please explain Staff's disallowance of \$192,150 for the Victoria Control Upgrade
14 project.

15 A. According to the Company's discovery response 4-STAFF-UPPCO-32 a b c,
16 Exhibit S-18 from page 18, UPPCO spent \$13,023 in 2021, \$509,340 (with
17 Governor Upgrade) in 2022; while it projected another \$488,277 to finish the
18 whole upgrade by the end of 2023.

19 The entire Victoria Control Upgrade project began in 2021, continued throughout
20 2022, and will be finished by the end of 2023. With any upgrade project like that,
21 the major spending, such as engineering planning, design, equipment
22 procurement, even the installation should be completed by the end of first half of
23 the final year or 2023. The Company projected spending \$436,288 in the second

DIRECT TESTIMONY OF JING SHI
CASE NUMBER U-21286
PART II

1 half of 2023, that is 90% of annual budget (\$436,288/\$488,277) for 2023; and
2 more than 43% ($\$436,288 / (\$13,023 + \$509,340 \text{ (with Governor Upgrade)} +$
3 $\$488,277)$ of the total Victoria Control Upgrade budget in the second half of
4 2023. Staff found it hard to justify the spending timeline unless the Company
5 could layout a strong rationale behind such an uneven expense pattern.

6 Therefore, Staff recommended evening out the spending by allowing half of the
7 \$488,277 to be spent in the second half of 2023. The disallowance amount would
8 be $\$436,288 - \$488,277/2 = \$192,150$ for the Victoria Control Upgrade.

9 Q. Please explain the reasons why Staff made the disallowance of \$155,817 for
10 Annual New Equipment and Tools category.

11 A. UPPCO projected an Annual New Equipment / Generation Misc. amount of
12 \$155,817 for 2023 and 2024 without any further explanation in its testimony.

13 Staff learned through the Company's discovery response that the expenditure is
14 "to address unknown or unidentified new equipment & tools".

15 Again, UPPCO claimed in 8-STAFF-UPPCO-59 (8.2) c, Exhibit S-18 from page
16 32 that,

17 "The Unknown/unidentified item is a standard budget item that is utilized
18 to account for items, tools, and equipment that are not specifically
19 identified during the budgeting process. These expenses occur each year,
20 and include items, materials, tools, or secondary projects that may also be
21 specialized to the task/facility."
22

23 Further, UPPCO stated:

24 "There is no specific list that was considered. From year to year the funds
25 are used to purchase unknown/unidentified items or to fund
26 unknown/unidentified projects, either as a component of another project or
27 as a discrete project. "

DIRECT TESTIMONY OF JING SHI
CASE NUMBER U-21286
PART II

1
2 Staff found it difficult to justify the amount of \$155,871 for unknown/unidentified
3 items, and no specific list has been provided for the test year spending.

4 Therefore, Staff is asking Commission to disallow the requested amount of
5 \$155,817.

6 Q. Please explain Staff’s disallowance of \$1,314,696 of the McClure Transformer 1
7 & 2 projects.

8 A. UPPCO projected these expenses as “Special Projects” in Exhibit A-26 (SSL-6),
9 line 19, which are included as the part of the Capital Expenditure for the test year
10 ended June 30, 2024.

11 According to the Discovery Response 4-STAFF-UPPCO-34, Exhibit 18 page 20
12 these “Special Projects” are for McClure Transformer 1 and 2. The reason for the
13 transformer projects’ implementation is because:

14 “Current transformers are 75 years old and potential/risk for catastrophic
15 failure is a concern. Additionally, long delivery times would result in a 10-
16 month minimum outage”.

17
18 When Staff asked for further information regarding the timeline for the
19 Transformer replacement projects, the Company laid out the timeline in the
20 discovery response 8-STAFF-UPPCO-61 (8.4), Exhibit S-18, page 36 as the
21 following:

	Year
22	
23 Planning & Development	2022
24 Engineering & Design	2022
25 Equipment Procurement	2022
26 Installation / Construction	2023
27 Inservice	2023
28	

**DIRECT TESTIMONY OF JING SHI
CASE NUMBER U-21286
PART II**

1 Nevertheless, at the time that the Company responded to the request on
2 12/15/2022, “A work plan has not been developed yet”, in addition, the steps and
3 associated costs for “Engineering & Design” as well as “Equipment Procurement”
4 are certainly not in place at this time. There are three tasks that UPPCO needed to
5 accomplish by the end of 2022; however, it appears that none of them have been
6 done.

7 Staff cannot justify allowing the Company to have \$1,314,696 for the test year
8 because there is absolutely no plan and nothing in place, therefore, this request
9 ought to be disallowed.

10
11 **Conclusion:**

12 A. Based upon Staff’s review above, its recommendations are:

13 a. Staff’s supported sales adjustment is contained in the following tables:

Overall Sales	UPPCO Projected	Staff’s Adjusted	Variable
	kWh	kWh	
Residential	252,914,968	252,914,968	0%
Commercial	137,025,138	153,760,350	12%
Industrial	193,723,155	264,797,426	37%
Other	1,909,346	1,909,346	0%
Company Use	38,873,662	44,344,195	14%
Total	624,446,268	717,726,285	15%

Bundled Sales	UPPCO Projected	Staff’s Adjusted	Variable
	kWh	kWh	
Residential	252,914,968	252,914,968	0%
Commercial	120,289,926	137,025,138	14%
Industrial	122,648,884	193,723,155	58%
Other	1,909,346	1,909,346	0%
Company Use	33,403,134	38,873,665	16%
Total	531,166,258	624,446,272	18%

**DIRECT TESTIMONY OF JING SHI
CASE NUMBER U-21286
PART II**

1 b. A total of \$1,714,600 for Generation Capital Expenditure disallowance it
2 itemized and recommended as follows:

3	UPPCO's Safety Project:	\$51,939
4	Victoria Control Upgrade:	\$192,150
5	Annual New Equipment and Tools:	\$155,817
6	McClure Transformer 1 and 2:	\$657,348 X 2
7	Total:	\$1,714,600

8 Q. Does this conclude your testimony?

9 A. Yes.

S T A T E O F M I C H I G A N
B E F O R E T H E M I C H I G A N P U B L I C S E R V I C E C O M M I S S I O N

* * * *

In the matter of the Application of)	
UPPER PENINSULA POWER COMPANY)	Case No. U-21286
for authority to increase its rates for the)	
generation and distribution of electricity)	
and for other relief.)	
_____)	

EXHIBITS OF
ENERGY OPERATIONS DIVISION
MICHIGAN PUBLIC SERVICE COMMISSION

January 12, 2023

**Upper Peninsula Power Company
MPSC Case No. U-21286
2022 Rate Case**

**Upper Peninsula Power Company's Responses to
MPSC Staff's
Sixth Discovery Request**

6-STAFF-UPPCO-56

Refer to Exhibit A-37 (JRR-7). For every project that has an overhead to undergrounding conversion component, provide a cost-benefit analysis prepared by the Company or a contractor that shows undergrounding to be more economical than rebuilding or relocating overhead lines.

UPPCO Response

Each of the projects listed in Exhibit A-37 are described in Jay Ringler's testimony beginning on page 24, which indicates the reason for the project and number of customers benefiting from the project.

UPPCO does not perform a detailed cost-benefit analysis for each overhead to underground project. However, using UPPCO's design and estimating tool based on typical installation standards and practices and 2021 materials, labor, and equipment pricing, UPPCO created by-foot installation costs to estimate project costs for budgeting purposes. Using this methodology, the cost to convert a single-phase overhead line to underground is actually less than to rebuild an overhead line back to overhead. Rebuilding an overhead line was estimated to be about \$29 per foot, while converting overhead to underground ranged from \$17 to \$23 per foot. For 3-phase, the estimated cost to rebuild an overhead line was \$52 per foot, while underground ranged from \$45 to \$63 per foot. The underground estimates have a range depending on the amount of plowing versus boring the project may require. Permitting, easements, outside engineering, line clearance, and special permitting or equipment are not included in the estimates and these factors are taken into consideration when the decision is made to pursue one project over another. Of course, the construction costs are only part of the equation.

Better reliability and improved customer value are intangible benefits that cannot always be easily measured in dollars. The reliability improvements achieved by converting end-of-life overhead facilities to underground are well-known and documented throughout the utility industry. Further, the MPSC has created various dockets encompassed in the MI Power Grid activities that require utilities to improve reliability to its customers. MI Power Grid may be referenced at:

<https://www.michigan.gov/mpsc/commission/workgroups/mi-power-grid/grid-security-and-reliability-standards>

Over the years, several MPSC dockets have required utilities to provide more expansive outage reports with the desired effect to improve reliability, and, through leading questioning in some dockets, the MPSC has encouraged utilities to consider rerouting overhead lines to underground in their distribution project planning processes.

Specifically, the Commission's Order in Case No. U-21122 asked utilities to provide:

- 1) A breakdown of the total cost to move a typical overhead back lot-constructed line and overhead front lot-construction line underground.
- 2) The difference in cost of maintenance of an overhead back lot, overhead front lot, and underground electric line, on an average annual basis.
- 3) The average measured reliability of an underground line compared to a comparable back lot and front lot overhead electrical line.

UPPCO's response in Docket U-21122 ("6-STAFF-UPPCO-6.56") correlates with Jay Ringler's testimony on pages 11-15 regarding the benefits of strategic undergrounding. Summary of the testimony provides that undergrounding overhead facilities results in better reliability, reduced maintenance costs, and overall improved customer value.

Evidence supporting the testimony regarding reliability improvement at UPPCO was provided in Exhibits A-33 (JRR-3) "Outages by Cause" and A-36 (JRR-6) "Underground Outage History Compared to All Outages". In addition, at page 12 of Jay Ringler's direct testimony, the historical maintenance costs of underground versus overhead systems for 2019 and 2020 was provided, and this section C demonstrated that the cost to maintain underground facilities is roughly 78% less per

mile compared to overhead lines. Reduced maintenance costs and a reduction in the number and duration of outage events results in greater customer value over the life of the underground facilities.

Response by: **Jay Ringler**

Dated: **11/29/2022**

**Upper Peninsula Power Company
 MPSC Case No. U-21286
 2022 Rate Case**

**Upper Peninsula Power Company's Responses to
 MPSC Staff's
 Second Discovery Request**

2-STAFF-UPPCO-5

Refer to Exhibit A-7 (SSL-1), Schedule B5. For the following time periods, please list every purchase over \$10,000 for line 6, Fleet. Include the cost of each item.

- a. The projected test year;
- b. Calendar year 2021;
- c. January 1, 2022 – September 30, 2022.

UPPCO Response

a.

Line	Projected Test Year Fleet over \$10k	
1	Pickup	51,939
2	Pool Car	51,939
3	Pool Car	51,939
4	UTV	51,939
5	Unforeseen	72,715
6	Meter Van	83,102
7	Skid Steer	88,296
8	Backhoe	103,878
9	Unforeseen	195,550
10	VST40 Bucket	228,532
11	VST40 Bucket	228,532
12	6x6 Saddle Pack Digger	389,543
13	6x6 Saddle Pack Digger	389,543

b.

Line	2021 Fleet over \$10k	
1	HVAC System Control Upgr	27,500
2	T21126 2021 Sauber Pole Trailer	34,059
3	T21128 2021 Sauber Pole Trailer	34,059
4	T21121 2021 Sauber Pole Trailer	34,059
5	E81613 2021 Kubota LX2610HSDC Tractor	34,785
6	E81107 2021 John Deere 3046R	44,628
7	V31928 - 2021 - Chevy 1500 Crew 4x4	48,492
8	V41505 2021 Chevy 3500 HD 4x4	50,874
9	T21817 2021 Sauber 1580-BT UTV Trailer	54,063
10	T21925 2021 Sauber 1580-BT UTV Trailer	54,063
11	V41905 Ford 350 4x4 Pick up Repl V43170	57,365
12	V41366 Ford F250 4x4 Pick Up Repl V49060	59,159
13	V41844 Ford F250 4x4 Pick Up Repl V43000	59,469

14	V91789 2021 Ford F450 Service Body Truck	101,513
15	E81203 2021 Pisten Bully Scout	177,829
16	V91567 2021 Ford F550 VST 40 Bucket Tr	185,351
17	V91234 2021 Ford F550 VST 40 Bucket	186,300
18	E81817 2021 UTV Achiever Tracked Bucket	340,128
19	E81925 2021 UTV Achiever Tracked Digger	354,471

c.

Line	2022 Fleet over \$10k	
1	E81107 2021 John Deere 3046R	11,895
2	Cardboard Baler Ishpeming North	16,357
3	E82824 - 2022 Lowe RX2070 Boat & trailer	18,414
4	V21498 2021 Ford Transit Van AWD	90,051
5	V21319 2021 Ford Transit Van AWD	102,598
6	V42818 2022 Ford F-550 Stake Bed	103,600
7	V92635 2022 VersaLift VST 40 Bucket Truc	219,822
8	V92995 2022 VersaLift VST 40 Bucket Truc	219,975
9	E82022 2022 UTV Achiever Tracked Di	406,183

Response by: Mary Sampeer

Dated: 10/31/2022

**Upper Peninsula Power Company
MPSC Case No. U-21286
2022 Rate Case**

**Upper Peninsula Power Company's Responses to
MPSC Staff's
Sixth Discovery Request**

6-STAFF-UPPCO-52

Please refer to UPPCO's response to 2-STAFF-UPPCO- 5. For Projected Test Year Fleet over \$10k, please describe:

- a. Line 9, Unforeseen
- b. Lines 10 and 11, VST40 Bucket

UPPCO Response

- a. "Unforeseen" are budgeted unit(s) purchased every year that were not planned. Typical purchases in this line item would be unit(s) that had a major mechanical failure during the year, or a unit(s) that is needed to meet company needs.
- b. VST40 Bucket is an aerial bucket truck that is used by the Distribution Department for linemen to access elevated portions of the distribution system.

Response by: Stephen Lillie

Dated: 11/29/2022

**Upper Peninsula Power Company
MPSC Case No. U-21286
2022 Rate Case**

**Upper Peninsula Power Company's Responses to
MPSC Staff's
Sixth Discovery Request**

6-STAFF-UPPCO-53

Please refer to UPPCO's response to 2-STAFF-UPPCO- 5. For Projected Test Year Fleet over \$10k, provide documentation from a dealer or manufacturer that supports the \$51,939 projection for one pickup, two pool cars, and one UTV.

UPPCO Response

These values are a budget level estimate. These units are currently in the preliminary planning stages with no request for quotes sent out to vendors to date.

Response by: Stephen Lillie

Dated: 11/29/2022

**Upper Peninsula Power Company
MPSC Case No. U-21286
2022 Rate Case**

**Upper Peninsula Power Company's Responses to
MPSC Staff's
Second Discovery Request**

2-STAFF-UPPCO-6

Please provide:

- a. The actual capital expenditures for Fleet for January 1, 2022 – September 30, 2022.
- b. The projected capital expenditures for Fleet for January 1, 2022 – September 30, 2022.
- c. The actual capital expenditures for Fleet for 2020.
- d. The initial projected capital expenditures for Fleet for 2020.
- e. The initial projected capital expenditures for Fleet for 2021.

UPPCO Response

- a. \$1,083,130 actual capital expenditures for January 1,– September 30, 2022.
- b. \$2,069,888 project capital expenditures for 2022
- c. \$961,199 actual capital expenditures for 2020
- d. \$1,040,000 initial projected capital expenditures for 2020.
- e. 2,100,000 initial projected capital expenditures for 2021

Response by: Mary Sampeer

Dated: 10/31/2022

**Upper Peninsula Power Company
MPSC Case No. U-21286
2022 Rate Case**

**Upper Peninsula Power Company's Responses to
MPSC Staff's
Second Discovery Request**

2-STAFF-UPPCO-13

Referring to Exhibit A-27 (SSL-7). Regarding the Other/Unforeseen/General Facility

Improvements, please breakout what these purchases will be and how much will be spent on each purchase.

UPPCO Response

Projects that fall within this category are typically identified and approved as we progress through the fall/winter and on into construction season.

Examples of these types of projects that are currently being considered for 2023 are:

- Cardboard baler for Houghton- Est \$15K
- Windows/siding and insulation upgrades – Est \$40K
- Additional material and vehicle storage facilities Iron River. Est \$50K

Examples of past projects for the category are listed below

- Roof replacement on Ontonagon Service Center - \$18K
- Cardboard baler to enhance our recycling processes and improve housekeeping - \$14K
- Restroom fixtures upgrades to replace residential quality fixtures with commercial to reduce water consumption along with maintenance costs - \$23K
- Overhead shop door upgrade to roll up door to allow for safe more efficient access for line trucks - \$18K
- Roof replacement Ishpeming south garage – \$113K

Response by: John Laforest

Dated: 10/31/2022

**Upper Peninsula Power Company
MPSC Case No. U-21286
2022 Rate Case**

**Upper Peninsula Power Company's Responses to
MPSC Staff's
Sixth Discovery Request**

6-STAFF-UPPCO-55

Please refer to UPPCO's response to 2-STAFF-UPPCO- 13.

- a. Provide a description of a cardboard baler, and a quote or quotes that support the \$15,000 estimate.
- b. Provide quotes that support the \$40,000 estimate for windows/siding and insulation upgrades.
- c. Provide quotes that support the \$50,000 estimate for additional material and vehicle storage facilities Iron River.

UPPCO Response

- a. The Cardboard baler is a unit used to compress cardboard dunnage into bales that are then sent to a recycling center. This project is in the preliminary discussion stage and the cost listed is an estimate from a similar install that was completed in 2021. See Attachments 6-STAFF-UPPCO-6.55 A & B. No additional design work, or contractor communication have taken place at this time.
- b. This project is in the preliminary discussion stage. The estimate is from an onsite meeting held with a local contractor on October 28, 2021. No design work, or additional contractor communication have taken place at this time.
- c. This project is in the preliminary discussion stage and the cost listed is only an internal estimate. No design work, or contractor communication have taken place at this time.

Response by: Stephen Lillie

Dated: 11/29/2022

**Upper Peninsula Power Company
MPSC Case No. U-21286
2022 Rate Case**

**Upper Peninsula Power Company's Responses to
MPSC Staff's
Second Discovery Request**

2-STAFF-UPPCO-15

Refer to Exhibit A-27 (SSL-7). Provide a breakdown of line items 1-7 for the test year, July 1, 2023- June 30, 2024.

UPPCO Response

Line	Test year, July 1, 2023- June 30, 2024	
1	Hancock Property / Utility Entrance & Road Work	311,634
2	Hancock Property Laydown Yard	415,512
3	Hancock Property Fencing	207,756
4	Other/ Unforeseen/General Facility Improvements	128,549
5	Hancock Property / Main Building Concrete	779,086
6	Hancock Property / Storage Building Concrete	207,756
7	TOTAL FACILITY CAPITAL	\$2,050,294

Response by: Mary Sampeer

Dated: 10/31/2022

**Upper Peninsula Power Company
MPSC Case No. U-21286
2022 Rate Case**

**Upper Peninsula Power Company's Responses to
MPSC Staff's
Sixth Discovery Request**

6-STAFF-UPPCO-51

Refer to Attachment to 02-STAFF-UPPCO- 2.17&2.18. Please explain the cost difference between line 8, Delta Bk 1 (UHV-3038) Aging Transformer and line 12, MTU Bank 1 Replace Aging Transformer (UHV-0695).

UPPCO Response

The budgeted amount for Line 8 for Delta Bank 1 replacement in 2023 for \$511,080 is based on \$472,000 for equipment and \$20,000 labor estimate to install (\$492,000 project budget total plus \$19,080 for Capital A&G OH). The Delta Bank 1 replacement quote dated 5/19/22 was for \$471,752. The actual price increase for power transformers (from 7/13/21 to 5/19/22) was 41%.

Based on recent 41% equipment cost increase trend, the 2024 project to replace MTU Bank 1 Transformer for \$756,232 (Line 12 in Exhibit A-28) was based on the \$492,000 Delta Bank 1 project with an estimated 50% increase for equipment. The MTU Bank 1 Transformer 2024 Budget item was estimated as follows: \$472,000 from 5/19/22 quote + \$236,000 (50% estimated equipment increase) + \$20,000 labor for a subtotal of \$728,000. After adding \$28,232 for Capital A&G OH, the Exhibit A-28 Line 12 total is \$756,232.

Response by: Stephen Lillie

Dated: 11/29/2022

**Upper Peninsula Power Company
MPSC Case No. U-21286
2022 Rate Case**

**Upper Peninsula Power Company's Responses to
Attorney General's
Second Discovery Request**

2-AG-UPPCO-2.48

Refer to Exhibit A-26. Please provide the following information in Excel:

- a. Expand this schedule to show the same actual information for each year 2017-2020.
- b. For each line item, provide the next level of detail showing more specific programs or projects where the capital expenditures are being made for each year 2017-2021 actual and forecasted for 2022 to 2024.
- c. Provide the number of work units, quantities, number of projects, and other data supporting the capital expenditures for each line item or sub-program for each year 2017 to 2024.
- d. Explain the reasons for the increase in spending on lines 3 and 4 year over year from 2021 to 2024. For each reason identify the related dollar amount.
- e. Explain the reasons for the increase in spending on line 11 year over year from 2021 to 2022. For each reason identify the related dollar amount.
- f. Explain the reasons for the increase in spending on line 12 year over year from 2021 to 2024. For each reason identify the related dollar amount.
- g. Explain the reasons for the increase in spending on line 17 year over year from 2021 to 2023. For each reason identify the related dollar amount.
- h. Explain the reasons for the increase in spending on line 19 in 2023. For each project identify the related dollar amount.
- i. Explain the reasons for the increase in spending on line 23 year over year from 2021 to 2022. For each reason identify the related dollar amount.
- j. Explain the reasons for the increase in spending on line 24 year over year from 2022 to 2024. For each reason identify the related dollar amount.
- k. Explain the reasons for the increase in spending on line 25 year over

year from 2021 to 2022. For each project identify the related dollar amount.

UPPCO Response

- a.) Please refer to the Attachment 2-AG-UPPCO -2.48
- b.) Please refer to the Attachment 2-AG-UPPCO -2.48
- c.) Please refer to the Attachment 2-AG-UPPCO -2.48
- d.) Line 3 represents both large and small capital distribution projects as outlined in Attachment 2-AG-UPPCO-2.48. This item is intended to address reliability improvements as well as system improvements driven by inspections, loading, age/condition, and safety along with associated Engineering & Design costs. Cost increases from 2021 through 2024 are due to several factors, including an increased focus on completing more projects to improve the overall reliability of the distribution system resulting from system inspections, performance, and analysis of reliability metrics by feeder level. Additionally, a significant driver of the year over year increase in capital expenditure for this item is due to significant increases in material costs, such as underground wire and components, distribution hardware, and higher transportation and fuel, as well as contractor costs. The number of projects, and scope of identified projects, varies from year to year. Therefore, the expected total cost attributed to this line item will vary depending on the projects included in any given budget year.

Of note, however, the Company observed significant material cost increases and lead time / availability signals through our suppliers beginning in 2021. This is a significant factor in the increase spend shown for 2023 & 2024 planning. Please see Attachment 2-AG-UPPCO-2.48d, which highlights a few major materials items commonly used in typical distribution construction projects and the price increases UPPCO has experienced in the last few years. This is referenced in Stephen Lillie's Testimony.

Line 4, as shown in expended detail in Attachment 2-AG-UPPCO-2.48, includes the purchase of capitalized and pre-capitalized items necessary for proper system operations and construction such as distribution transformers, voltage regulators, and reclosers, along with required metering testing equipment, new meters and metering devices for additions and replacements, and capitalized tool purchases for hot line construction and maintenance and power quality investigation and repairs. These year over year cost increases are driven by the much higher costs for these items as mentioned in the previously. However, the primary driver of the increased capital expense in 2023 & 2024 is the significant increase in the cost and lead times for distribution line transformers. Attachment "2-AG-UPPCo-2.48d" details these price trends for several commonly used items. These items, among others, have increased the Company's capital budget requirement from a 2021 actual cost of \$1,341,176 to a budgeted \$4,051,245 in 2023, an increase of \$2,710,069 over 2021, based on our current quoted prices and lead times. Again, this is driven by raw material, core steel, and component supply chain issues

required in their manufacturing. These impacts are not unique to UPPCO but are occurring industry wide. This is also referenced in Stephen Lillie’s Testimony.

- e.) In reference to the substation capital projects listed on line 11 of Exhibit A-26: Substation projects are never 100% identical between substation sites or budget years. Typically, substation projects vary from site to site based on the scope of the project, the number of power transformer banks involved, the number of 12KV feeders involved and the level of protective relaying each high voltage device requires. The increase in the substation capital project budget between 2021 and 2022 is primarily due to the scope of most of the projects in 2022 involving high voltage equipment upgrades (power transformer, high voltage circuit breakers, etc.). Whereas in 2021, most of the substation projects were SCADA (System control and data acquisition) type projects that have lower equipment costs per project. In addition, the average cost for power transformers that UPPCO purchased increased 35% between 2021 and 2022.
- f.) The substation capital projects listed on line 12 of Exhibit A-26 are classified as “special projects” (2000.08.04) that pertain to substation sites that have a more extensive scope than typical substation projects. Special project scopes include high voltage equipment, SCADA and protective relay upgrades. Refer to the table below for the 2021 and 2022 special project’s cost information. In 2023 & 2024 none of the planned substation projects are classified as “special projects” due to their scope not being as broad. These projects are detailed in the table below:

Special Project	2021 Actuals	2022 Budgeted
Forsyth Bank 2 Addition	\$504,063	0
Masonville Substation Reconfiguration	\$218,893	\$1,668,426
Gwinn Substation Reconfiguration	\$303,140	0
Total	\$1,026,096	\$1,668,426

- g.) This represents a project category and amounts will change from year to year depending on the types of projects executed and whether they fall into the category. For more specific detail on what is included the specific years please see the Attachment 2-AG-UPPCO-2.48
- h.) This is a category used to capture generation projects completed in generation plant substations. The increase in 2023 represents the replacement of McClure’s transformers. For more specific detail please see the Attachment 2-AG-UPPCO-2.48 in answer to question 2.48b., 2.48c. and 2.49c along with exhibit A-29 lines 13 and 14.
- i.) UPPCO altered our individual vehicle purchase plan due to uncertainty with the availability of some units from manufacturers. There were units added in the event some

units would not be delivered. Additionally, the actual price realized by UPPCO upon delivery of the unit exceeded the original estimates in many cases. Also, Fleet purchase plans vary from year to year depending on what units require replacement. Annual expenditures will vary based on this factor.

- j.) 2022 was lower due to having to alter the 2022 Fleet. The difference from 2023 to 2024 planned expenditure is the result of what specific projects are identified and estimated costs for each. Planned fleet and facility projects will vary year over year, and therefore the identified capital spend will also vary depending on the project identified in that capital budget year. Please refer to details included in Attachment 2-AG-UPPCO-2.48
- k.) Please refer to additional details included in Attachment 2-AG-UPPCO-2.48

Response by: **Stephen Lillie**

Dated: **11/4/2022**

Supplemented: **11/11/2022**

	<h2>Project Initial Scope Form</h2>	Document No.	PM-101
		Issue Date:	12/20/2017
		Revision No.	1

Name of Proposed Project: MTU BK1 XFMR Replacement		
Date Submitted: 10/28/2022	Submitted By: Nate Tobias	

Project Information
<p>Project Need/Justification:</p> <p>The existing 69:12.47KV 7.5/10.5MVA MTU BK1 transformer needs replacement. It was built in 1967 and has surpassed it's 50-year life expectancy. In the past few years some preventive maintenance testing prompted some bushing and surge arrestor upgrades. Based on its age and recent maintenance costs, it is best utility practice to replace this transformer to avoid an unplanned outage due to the possibility of catastrophic failure given the remaining service past life expectancy of this device. Power transformers typically have longer procurement lead times (approx. 40 weeks).</p>
<p>Project Scope Summary:</p> <p>The new transformer will be a 10/14MVA and will be ordered in 2023 to be placed in service in 2024. New high side protection (circuit switcher & relays) will be placed in service at the same time under a separate project/work order. In 2023, protective relays, RTU and control panels will be in service (prior to the transformer upgrade) . Initial budget amount has a 20% contingency added based on current supply chain challenges.</p>
<p>Budget Information:</p> <p><i>Budget vs. Non-Budget, Funding Project or HC, Value of Budgeted Item, RC to be Charged</i></p>
<p>Project Sponsor:</p>
<p>Expected In-Service Date: August 2024</p>
<p>Project Completion Date: November 2024</p>

Project Stakeholders / Approvals	
1.	Todd Lewis – Supv Sub Ops
2.	Dan Gervae – Manager – Sub Eng & Ops
3.	Bill Nelson – Dir Sys Ops & Sub Eng
4.	Keith Moyle - COO
5.	

Estimated Project Costs	
Category	Total
O&M	
Capital	\$669,000
Project Total	\$669,000

Project Assumptions	
ID	Description
1.	S&T West will provide labor for install
2.	Substation Engineering will provide commissioning support
3.	

Project Dependencies	
ID	Description
1.	Substation Engineering budget does not change
2.	
3.	

Project Risks	
ID	Description
1.	S&T support
2.	XFMR delivery
3.	

Revision History

Version	Revised By/Title	Description of Changes
01	Emily Rushford / Senior Administrative Specialist	Procedure Transfer to UPPCO Format

**Upper Peninsula Power Company
MPSC Case No. U-21286
2022 Rate Case**

**Upper Peninsula Power Company's Responses to
MPSC Staff's
Sixth Discovery Request**

6-STAFF-UPPCO-50

Refer to UPPCO's response to 2-STAFF-UPPCO- 20.

- a. Please provide calculations or supporting documentation for the \$100,000 budget for substation engineering labor.
- b. Please provide calculations for \$3,878 A&G OH expense.

UPPCO Response

For part (a) – The \$100,000 in Exhibit A-28, Line 5 titled “Project Development for Subsequent Years” is an annual budget item for engineering labor associated with future capital projects withing the next 1 to 2 construction seasons. Each year Engineering performs preliminary budget scope development and estimating for project upcoming years. For projects planned for the immediate next year, Engineering performs final budget scope documents and estimates. UPPCO's substation construction season is very limited due to weather conditions and state highway road weight restrictions. UPPCO's typical construction season is between June 1 and November 1. Due to the short construction season in the Upper Peninsula and extended delivery times for equipment (often over 26 weeks), early engineering efforts are needed so that capital equipment will be ordered/received in advance for the upcoming construction season. This \$100,000 budget item includes benefits loaders and equates to approximately seven hundred (700) engineering manhours that is typically allocated to multiple projects.

For part (b) - The Capital A&G OH Allocation is used to capture capital labor expense for supervisors and other non-union employees who are determined and documented during the Capital Planning process whose capital efforts cannot be reasonably captured using other methods of timekeeping/labor allocation.

Response by: Stephen Lillie

Dated: 11/29/2022

**Upper Peninsula Power Company
MPSC Case No. U-21286
2022 Rate Case**

**Upper Peninsula Power Company's Responses to
MPSC Staff's
Sixth Discovery Request**

6-STAFF-UPPCO-48

Refer to Attachment to 02-STAFF-UPPCO- 2.17&2.18.

- a. Please provide a description of the following projects:
 - i. Battery Bank 1 – Atlantic Sub
 - ii. Battery Bank 1 – Homer Road Sub
 - iii. Battery Bank 2 – Masonville Sub
 - iv. Battery Bank 2 – Munising Sub

- b. For each project listed in part (a), provide documentation that supports its \$31,163 cost.

UPPCO Response

For part (a) - UPPCO's 125VDC lead-acid substation battery banks are the sole electrical source for substation protection/control and monitoring via our System Control and Data Acquisition (SCADA) system. Having a reliable substation battery bank and charger is key to consistent system operations reliability and monitoring. UPPCO's preventative maintenance of lead-acid battery systems is utilized to assure reliable battery operation. There are two parts to the program, a routine visual inspection and electrical testing. Based on annual test results and age of equipment, UPPCO has typically budgeted for the upgrade of two battery banks annually to insure their optimal performance. Due to supply chain constraints, the Company has experienced delays in receiving ordered replacement batteries, and therefore has targeted the replacement of four substation batteries in the projected test year to re-establish the regular replacement schedule. The four substation batteries listed for replacement in Exhibit A-18 meet the criteria as the next battery banks that are candidates for upgrade in 2023 & 2024.

For part (b) – \$30,000 per battery is budgeted annually which is based on the historical cost of materials and labor to replace a substation battery and its associated battery charger (if needed). \$1,163 is A&G OH expense within the \$31,163 per battery bank total.

The Capital A&G OH Allocation is used to capture capital labor expense for supervisors and other non-union employees who are determined and documented during the Capital Planning process whose capital efforts cannot be reasonably captured using other methods of timekeeping/labor allocation.

Below is the historical battery bank replacement costs:

UPPCO Historical Substation Battery Bank Replacement Costs

Year	Average Cost	Comments
2021	\$23,489	Battery Only
2020	\$26,696	Battery Only
2019	\$28,298	Battery Only
2018	\$27,826	Battery Only
4-year Average	\$26,577	

Response by: Stephen Lillie

Dated: 11/29/2022

**Upper Peninsula Power Company
MPSC Case No. U-21286
2022 Rate Case**

**Upper Peninsula Power Company's Responses to
MPSC Staff's
First Discovery Request**

1-STAFF-UPPCO-1

1. Refer to Nicole E. Bell's testimony, page 5:

“The Residential forecast utilizes a regression model that includes seasonal customers and sales. The historical period utilized as a basis for the projection is April 1, 2013, through April 30, 2022, excluding 2020. The Company excluded 2020 to suppress the nonrecurrent effects of the pandemic on future sales volumes projections. The regression model utilizes seasonal, weather related, and autoregressive variables to project average residential customer usage. The product of the customer forecast yields the values depicted in Exhibit A-10, Schedule E1.2.”

Please answer the following questions:

- a. What regression model did UPPCO use to forecast the Residential sales?
- b. Please list the model and explain how the company applied the model to get to the test year's Residential sales.
- c. Please provide the historical Residential Sales and the number of the customers from April 1, 2013, to April 30, 2022, in spreadsheet.
- d. Please also explain why the Company used this period time as the historical data to project test year Residential Sales.
- e. Were there any other factors that the Company took into consideration when forecasting the Residential Sales?

UPPCO Response

1. See below:
 - a. UPPCO used Microsoft Excel to perform the regression analysis. An ordinary least square regression technique was employed to forecast Residential sales.
 - b. UPPCO used a common regression technique known as ordinary least squares (OLS) to perform a linear regression analysis on historic Residential sales. The OLS regression method minimizes the sum of square differences between historic and forecasted values to determine the line of best fit to predict data based on a set of variables. The Company utilized the coefficient results, heating and cooling degree day data, and Residential sales data to get to the Company's Residential sales forecast.
 - c. Please see "1-STAFF-UPPCO-1_Attachment.xlsx" for the historical residential sales and number of customers for April 1, 2013, to April 30, 2022.
 - d. The historical data period the Company used to forecast Residential sales provided an accurate and reliable set of data the Company had available where the time frame was long enough for the Company to observe correlations and trends.
 - e. Other factors that were taken into consideration when forecasting the Company's Residential sales included the following: historic monthly residential sales volumes, autoregressive terms based on historic monthly residential sales volumes, seasonal variables, and weather data.

Response by: Nicole Bell

Dated: October 12, 2022

**Upper Peninsula Power Company
MPSC Case No. U-21286
2022 Rate Case**

**Upper Peninsula Power Company's Responses to
MPSC Staff's
First Discovery Request**

1-STAFF-UPPCO-2

2. Refer to Nicole E. Bell's testimony, from page 5:

“The Commercial forecast utilizes a regression model that includes sales to commercial customers within the service territory. The historical period utilized as a basis for the projection is January 1, 2014, through April 30, 2022, excluding 2020. The Company excluded 2020 to suppress the nonrecurrent effects of the pandemic on future sales volumes projections. The regression model utilizes seasonal, weather-related, and autoregressive variables to project average commercial customer usage. The product of the customer forecast yields the commercial class values depicted in Exhibit A-10, Schedule E1.2”

Please answer the following questions:

- a. What regression model did UPPCO use to forecast the Commercial sales?
- b. Please list the model and explain how the company applied the model to get to the test year's Commercial Sales.
- c. Please provide the historical Commercial Sales and the number of the Commercial customers from January 1, 2014, to April 30, 2022, in spreadsheet.
- d. Please also explain why the Company used this period time as the historical data for the Commercial Sales.
- e. Were any other factors that the Company put into consideration when projecting the Commercial Sales for the test year?

- f. Please explain the reasons why there is significant decrease of the Commercial Sales for the test year period from 2021 actual sales.

UPPCO Response

2. See below:

- a. UPPCO used Microsoft Excel to perform the regression analysis. An ordinary least square regression technique was employed to forecast Commercial sales.
- b. UPPCO used a common regression technique known as ordinary least squares (OLS) to perform a linear regression analysis on historic Commercial sales. The OLS regression method minimizes the sum of square differences between historic and forecasted values to determine the line of best fit to predict data based on a set of variables. The Company utilized the coefficient results, heating and cooling degree day data, and Commercial sales data to get to the Company's Commercial sales forecast.
- c. Please see "1-STAFF-UPPCO-1_Attachment.xlsx" for the historical commercial sales and number of customers for January 1, 2014, to April 30, 2022.
- d. The historical data period the Company used to forecast Commercial sales provided an accurate and reliable set of data the Company had available where the time frame was long enough for the Company to observe correlations and trends.
- e. Other factors that were taken into consideration when forecasting the Company's Commercial sales included the following: historic monthly commercial sales volumes, autoregressive terms based on historic monthly commercial sales volumes, seasonal variables, and

weather data.

- f. Upon examination of the values entered for Exhibit A-5 and Exhibit A-10, mapping error was identified in the Commercial customer class section of these exhibits. Upon correction of this error, Exhibit A-5 and A-10 should reflect the following information for the Commercial customer class.

Annual Service Area Sales		Annual Bundled Sales	
Year	Commercial	Year	Commercial
<i>5-Year Historical</i>		<i>5-Year Historical</i>	
2017	161,910,465	2017	142,458,500
2018	162,547,304	2018	149,079,586
2019	158,233,823	2019	145,153,696
2020	145,840,439	2020	135,144,626
2021	149,480,393	2021	136,934,843
<i>5-Year Projected</i>		<i>5-Year Projected</i>	
2023	154,405,594	2023	137,670,382
2024	153,115,105	2024	136,379,893
2025	150,770,515	2025	134,035,303
2026	148,704,537	2026	131,969,325
2027	146,639,445	2027	129,904,233

Response by: Nicole Bell
 Dated: October 12, 2022

**Upper Peninsula Power Company
MPSC Case No. U-21286
2022 Rate Case**

**Upper Peninsula Power Company's Responses to
MPSC Staff's
First Discovery Request**

1-STAFF-UPPCO-3

3. Refer to Nicole Bell's testimony, page 6:

“The Industrial forecast utilizes a simple moving average method of forecasting that uses historical data from May 1, 2019 – April 30, 2022. The model averages the usage of Industrial customers within the service territory over the last three years to determine a projection for the test year. The product of the customer forecast yields the Industrial class values depicted in Exhibit A-10, Schedule E1.2.”

Please answer the following questions”

- a. Please provide the historical Industrial Sales from May 1, 2019, to April 30, 2022, in spreadsheet.
- b. Please also explain why the Company used this period time as the historical sales to project the test period Industrial Sales.
- c. Were any other factors that the Company took into consideration when forecasting the Industrial Sales?
- d. Please explain the reasons why there is significant decrease of the projected Industrial Sales for the test year period from 2021 actual sales.

UPPCO Response

3. See below:
- a. Please see “1-STAFF-UPPCO-1_Attachment.xlsx” for the historical Industrial sales and number of customers for May 1, 2019, to April 30, 2022.
 - b. UPPCO used this historical data set to forecast Industrial sales, because it provided an accurate and reliable set of data the Company had available where the time frame was long enough for the Company to observe trends, applicable to the Company’s Industrial customers. Utilizing three years provided the Company with enough data to establish trends, prevented the Company from incorporating past anomalous changes, and prioritized known changes to customers within this data set. As the customers that make up the Industrial customer class are significantly affected by a few of the larger customers, being able to incorporate known changes is essential to providing an accurate forecast for this customer class.
 - c. No, there were no other factors.
 - d. Upon examination of the values entered for Exhibit A-5 and Exhibit A-10, mapping error was identified in the Industrial customer class section of these exhibits. Upon correction of this error, Exhibit A-5 and A-10 should reflect the following information for the Industrial customer class.

Annual Service Area Sales		Annual Bundled Sales	
Year	Industrial	Year	Industrial
<i>5-Year Historical</i>		<i>5-Year Historical</i>	
2017	220,448,098	2017	153,453,460
2018	217,166,037	2018	146,969,616
2019	258,737,226	2019	188,788,091
2020	251,022,063	2020	176,467,092
2021	268,095,916	2021	189,431,905
<i>5-Year Projected</i>		<i>5-Year Projected</i>	
2023	264,797,426	2023	193,723,155
2024	264,797,426	2024	193,723,155
2025	264,797,426	2025	193,723,155
2026	264,797,426	2026	193,723,155
2027	264,797,426	2027	193,723,155

Response by: Nicole Bell

Dated: October 12, 2022

**Upper Peninsula Power Company
MPSC Case No. U-21286
2022 Rate Case**

**Upper Peninsula Power Company's Responses to
MPSC Staff's
First Discovery Request**

1-STAFF-UPPCO-4

4. Refer to Nicole Bell's testimony, page 6:

“The Company Use forecast utilizes a simple moving average method of forecasting that uses historical data from May 1, 2018 – April 30, 2022. The model averages the Company's usage over the last four years to determine a projection for the test year. The product of the customer forecast yields the Company Use values depicted in Exhibit A-10, Schedule E1.2.”

Please answer the following questions:

- a. Please provide the historical data of the Company Use from May 1, 2018, to April 30, 2022.
- b. Please explain why the Company chose this period time as the historical data for the Company Use forecasting.
- c. Were any other factors that the Company put into consideration when projecting the Company Use in test year?
- d. Please explain the reasons why there is significant drop of the projected Company Use for the test year period from the 2021 actual Company Use.

UPPCO Response

4. See below:

- a. Please see “1-STAFF-UPPCO-1_Attachment.xlsx” for the historical Company use

sales for May 1, 2018, to April 30, 2022.

- b. UPPCO used this historical data set to forecast Company Use, because it provided an accurate and reliable set of data the Company had available where the time frame was long enough for the Company to observe trends, applicable to the Company’s more recent usage. Utilizing three years provided the Company with enough data to establish trends and prioritize expected changes to Company usage.
- c. No, there were no other factors.
- d. As discussed above in the Commercial and Industrial customer class sections, there was a mapping error identified in the values entered for Exhibit A-5 and Exhibit A-10 for the Commercial and Industrial customers. The Company notes that column (g) of Schedule E1.2 in both Exhibit A-5 and Exhibit A-10 includes both calculated losses and company use. As a result, upon correcting for the mapping error mentioned previously, these values were also affected. The corrected values are provided below.

Annual Service Area Sales		Annual Bundled Sales	
Year	Company Use	Year	Company Use
<i>5-Year Historical</i>		<i>5-Year Historical</i>	
2017	41,961,143	2017	36,575,520
2018	42,456,556	2018	37,244,200
2019	44,321,868	2019	39,149,145
2020	43,610,463	2020	38,299,339
2021	45,002,067	2021	39,319,712
<i>5-Year Projected</i>		<i>5-Year Projected</i>	
2023	44,437,460	2023	38,966,929
2024	44,250,930	2024	38,780,400
2025	43,999,539	2025	38,529,009
2026	43,842,891	2026	38,372,360
2027	43,609,466	2027	38,138,936

Response by: Nicole Bell
 Dated: October 12, 2022

**Upper Peninsula Power Company
MPSC Case No. U-21286
2022 Rate Case**

**Upper Peninsula Power Company's Responses to
MPSC Staff's
First Discovery Request**

1-STAFF-UPPCO-5

5. Refer to Nicole Bell's testimony, page 7:

“[T]he effects of EWR on total sales in each applicable rate category are included in the forecast presented in this proceeding and are implicitly assumed to continue at average historical trend levels throughout the forecast period.”

Please answer the following questions:

- a. Please quantify how the EWR effects the projected Residential Sales.
- b. Please quantify how the EWR effects the projected Commercial Sales.
- c. Please quantify how the EWR effects the projected Industrial Sales.
- d. Please quantify how the EWR effects the projected Other Sales.
- e. Please quantify how the EWR effects the projected Company Use.

UPPCO Response:

5. See below:

- a. UPPCO has administered an EWR program in accordance with statute since 2009. As a result, EWR activities have impacted total electric sales in each year from 2009 to present. As a result, EWR is already present in the Company's data set that it utilizes to forecast future sales by customer class. UPPCO assumes EWR will continue at present levels going forward; therefore, there is no need to add a separate indication for how

EWR will affect Residential sales. To do so would result in overstating the impact of EWR on residential sales.

- b. See response to part (a). This response is also applicable to the Commercial class.
- c. See response to part (a). This response is also applicable to the Industrial class.
- d. See response to part (a). This response is also applicable to other sales.
- e. See response to part (a). This response is also applicable to Company Use sales.

Response by: Nicole Bell
Dated: October 12, 2022

Founded in 1852
by Sidney Davy Miller

MILLER CANFIELD

Miller, Canfield, Paddock and Stone, P.L.C.
120 N. Washington Square, Suite 900
One Michigan Avenue Building
Lansing, Michigan 48933
TEL (517) 487-2070
FAX (517) 374-6304
millercanfield.com

Paul Michael Collins
TEL +1.517.483.4908
FAX +1.517.374.6304
E-MAIL Collinsp@MillerCanfield.com

Case No.: U-21286
Exhibit No.: S-18
Witness: Jing Shi
Date: January 12, 2023
Page: 13 of 41

MICHIGAN
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QATAR

November 8, 2022

Via E-Mail

Heather Durian
Michigan Public Service Commission
1709 W. Saginaw Hwy.
Lansing, MI 48917

Monica Stephens
Michigan Public Service Commission
1709 W. Saginaw Hwy.
Lansing, MI 48917

Benjamin Holwerda
Michigan Public Service Commission
1709 W. Saginaw Hwy.
Lansing, MI 48917

Lori Mayabb
Michigan Public Service Commission
1709 W. Saginaw Hwy.
Lansing, MI 48917

Re: Upper Peninsula Power Company
2022-2023 Electric Rate Case
Michigan Public Service Commission Case No.: U-21286

Enclosed are Upper Peninsula Power Company's Partial Response to the Michigan Public Service Commission Staff's Fourth Discovery Request. The remaining Item 33 (4.4) will be served as soon as practicable.

Sincerely,

Miller, Canfield, Paddock and Stone, P.L.C.

By: _____
Paul Michael Collins

PC//ark

**Upper Peninsula Power Company
MPSC Case No. U-21286
2022 Rate Case**

**Upper Peninsula Power Company’s Responses to
MPSC Staff’s
Fourth Discovery Request**

4-STAFF-UPPCO-30

Refer to Exhibit A-26 (SSL-6), line 15 of “Facility”, please answer the following questions:

- a. Please list every Capital Expenditure project as well as the project’s cost that contributed to the \$82,290 expenses for 2021.
- b. Please list every Capital Expenditure project and the project’s cost that contributed to the \$393,750 expenses for 2022.
- c. Please list every projected Capital Expenditure item and cost that contributes to the \$186,981 expenses for year of 2023 and explain the reasons why UPPCO forecasted each of the Capital Expenditure, and when was the last time this Capital Expenditure occurred.
- d. Please list every projected Capital Expenditure and cost that contributes to the \$244,115 expenses for year of 2024, explain the reasons why UPPCO forecasted each of the Capital Expenditure, and when was the last time this Capital Expenditure occurred.

UPPCO Response

- a. Please see table below:

Project	Cost
McClure Building Brickwork	70,200
McClure Sluice Notch	12,090

b. Please see table below:

Project	Cost
Safety Projects	9,168
McClure Powerhouse Crane	45,331
Victoria Powerhouse Crane	132,428
Victoria Powerhouse Window Replacement	37,161
Victoria Shop Roof/HVAC/Insulation Work	67,589
Prickett Garage Bathroom/Doors	16,503
McClure Powerhouse Bridge Deck Replace	85,569

c. Please see table below:

Project	Cost	Reason	Previous Occurrence
Annual Safety Projects	51,939	To address unknown or unidentified safety deficiencies/issues	2022
Prickett Upgrade fire protection system	15,582	Recommendation / requirement by insurance	This is the first time that this project will be implemented.
Hoist Emergency Generators (Dam & Powerhouse)	103,878	Provide back-up hose power during power outages	This is the first time that this project will be implemented.
McClure Upgrade fire protection system	15,582	Recommendation / requirement by insurance	This is the first time that this project will be implemented.

d. Please see table below:

Project	Cost	Reason	Previous Occurrence
Annual Safety Projects	51,939	To address unknown or unidentified safety deficiencies/issues	2022
Victoria Powerhouse Insulation	20,776	To address ice build-up on the roof and potential falling ice safety issues	This is the first time that this project will be implemented.
Victoria Turbine Deck Window Replacement	51,939	To replace failing window systems and maintain powerhouse integrity	This is the first time that this project will be implemented.
Hoist dam right side handrail replacement	77,909	To address personnel safety issues and concerns when accessing the dam	This is the first time that this project will be implemented.
Hoist Upgrade fire protection system	15,582	Recommendation / requirement by insurance	This is the first time that this project will be implemented.
Hoist Buoy Replacements	25,970	To maintain public safety and meet FERC license requirements	8 to 10 years ago

Response by: Steve Lillie and Mary Sampeer

Dated: 11/8/2022

**Upper Peninsula Power Company
 MPSC Case No. U-21286
 2022 Rate Case**

**Upper Peninsula Power Company’s Responses to
 MPSC Staff’s
 Fourth Discovery Request**

4-STAFF-UPPCO-31

Refer to Exhibit A-26 (SSL-6), line 16 of “Improve Reliability / Load Growth”, please answer the following questions:

- a. Please list every Capital Expenditure project as well as the project’s cost that contributed to the \$190,837 expenses for 2021.
- b. Please list every projected Capital Expenditure and cost that contributes to the \$10,388 expenses for year of 2023 and explain the reasons why UPPCO forecasted each of the Capital Expenditure, and when was the last time this Capital Expenditure occurred.
- c. Please list every projected Capital Expenditure and cost that contributes to the \$93,490 expenses for year of 2024 and explain the reasons why UPPCO forecasted each of the Capital Expenditure, and when was the last time this Capital Expenditure occurred.

UPPCO Response

- a. Please see table below:

Project	Cost
Hoist - Generator Lead Replacements	190,837

- b. Please see table below:

Project	Cost	Reason	Previous Occurrence
Victoria Dam & Intake Building Electrical Upgrade (Emg Gen)	10,388	To upgrade the power system on the Dam to meet equipment needs	This is the first time that this project will be implemented.

- c. Please see table below:

Project	Cost	Reason	Previous Occurrence
---------	------	--------	---------------------

Victoria Dam & Intake Building Electrical Upgrade (Emg Gen)	93,490	To upgrade the power system on the Dam to meet equipment needs	Project starts in 2023
---	--------	---	------------------------

Response by: Steve Lillie and Mary Sampeer

Dated: 11/8/2022

**Upper Peninsula Power Company
MPSC Case No. U-21286
2022 Rate Case**

**Upper Peninsula Power Company's Responses to
MPSC Staff's
Fourth Discovery Request**

4-STAFF-UPPCO-32

Refer to Exhibit A-26 (SSL-6), line 17 of "New Equipment / Equipment Upgrade", please answer the following questions:

- a. Please list every Capital Expenditure project as well as the project's cost that contributed to the \$63,906 expenses for 2021.
- b. Please list every Capital Expenditure project and the project's cost that contributed to the \$1,800,595 expenses for 2022.
- c. Please list every projected Capital Expenditure and cost that contributes to the \$1,16,690 expenses for year of 2023 and explain the reasons why UPPCO forecasted each of the Capital Expenditure, and when was the last time this Capital Expenditure happened.
- d. Please list every projected Capital Expenditure and cost that contributes to the 0637,811 expenses for year of 2024 and explain the reasons why UPPCO forecasted each of the Capital Expenditure, and when was the last time this Capital Expenditure happened.

UPPCO Response

- a. Please see table below:

Project	Cost
Victoria Controls Upgrade	13,023

Prickett Battery	13,794
Annual New Equipment / Generation Misc. < 20k	37,089

b. Please see table below:

Project	Cost
Victoria - Controls upgrade (incl Governor Upgrade)	509,340
Victoria - RTU	162,989
Gladstone Battery Bank	36,672
Hoist - Unit 2 Mechanical Overhaul, Excitation, & Rewind	834,159
Victoria Shop Emergency Generator	54,499
Hoist Unit 3 - Penstock Valve Replacement	36,672
IM potential saving	44,822
Annual New Equipment / Generation Misc. < 20k	113,190
Victoria Buoys	8,251

c. Please see table below:

Project	Cost	Reason	Previous Occurrence
Victoria - Controls upgrade	488,227	Current controls are over 20 years old and have reached obsolescence	Over 20 years ago
Victoria Governors	135,042	Current governors are over 90 years old and updating to new electronic ones concurrent with the controls project has savings and efficiencies	This is the first time that this project will be implemented.
Victoria - Spillway RTU	25,970	Obsolescence – replacement required to maintain operations	This is the first time that this project will be implemented.
Hoist Unit 3 - Penstock Valve Replacement	311,634	The current/original valve (82 years old) does not seal and cannot be repaired.	This is the first time that this project will be implemented.
Annual New Equipment / Generation Misc. < 20k	155,817	To address unknown or unidentified new equipment & tools	2022

d. Please see table below:

Project	Cost	Reason	Previous Occurrence
Prickett RTU Upgrade	103,878	Obsolescence – replacement required to maintain operations	This is the first time that this project will be implemented.
Victoria - Spillway RTU	51,939	Obsolescence – replacement required to maintain operations	This is the first time that this project will be implemented.
McClure Unit 1 generator clean/rewind, exciter refurb	311,634	Electrical testing indicates developing issues and insurance has identified asbestos & asphalt windings are a fire hazard.	This is the first time that this project will be implemented.
Annual New Equipment / Generation Misc. < 20k	155,817	To address unknown or unidentified new equipment & tools	2022
McClure Buoy Replacements	14,543	To maintain public safety and meet FERC license requirements	8 to 10 years

Response by: Steve Lillie and Mary Sampeer

Dated: 11/8/2022

**Upper Peninsula Power Company
MPSC Case No. U-21286
2022 Rate Case**

**Upper Peninsula Power Company's Responses to
MPSC Staff's
Fourth Discovery Request**

4-STAFF-UPPCO-34

Refer to Exhibit A-26 (SSL-6), line 19 of "Special Projects", please answer the following questions:

- a. Please list every projected Capital Expenditure and cost that contributes to the \$1,315,696 expenses for year of 2023 and explain the reasons why UPPCO forecasted each of the Capital Expenditure, and when was the last time this Capital Expenditure spent.

UPPCO Response

- a. Please see table below:

Project	Cost	Reason	Previous Occurrence
McClure Transformer 1	657,348	Current transformers are 75 years old and potential/risk for catastrophic failure is a concern. Additionally, long delivery times would result in a 10-month minimum outage	This is the first time that this project will be implemented.
McClure Transformer 2	657,348	Current transformers are 75 years old and potential/risk for catastrophic failure is a concern. Additionally, long delivery times would result in a 10-month minimum outage	This is the first time that this project will be implemented.

Response by: Steve Lillie and Mary Sampeer

Dated: 11/8/2022

**Upper Peninsula Power Company
MPSC Case No. U-21286
2022 Rate Case**

**Upper Peninsula Power Company’s Responses to
MPSC Staff’s
Fourth Discovery Request**

4-STAFF-UPPCO-35

Refer to Exhibit A-26, line 20, column E and F, UPPCO has forecasted the Capital Expenditure for 2023 and 2024 are \$2,885,541 and \$2,564,751, please explain how UPPCO projected the Capital expenditure for the test year (ended in June of 2024) for \$3,066,288?

UPPCO Response

The Company projected the capital expenditure for the test year based upon the last 6 months of 2023 and the first 6 months of 2024 for the following generation projects and associated values:

Business Driver	Description	last 6 2023	first 6 2024	Projected Test Year
Facility	Annual Safety Projects	41,551	10,388	\$ 51,939
Facility	Victoria Powerhouse Insulation	-	20,776	\$ 20,776
Facility	Victoria Turbine Deck Window Replacement	-	10,388	\$ 10,388
Facility	Prickett Upgrade fire protection system	15,582	-	\$ 15,582
Facility	Hoist Emergency Generators (Dam & Powerhouse)	51,939	-	\$ 51,939
Facility	Hoist dam right side handrail replacement	-	46,745	\$ 46,745
Facility	Hoist Upgrade fire protection system	-	15,582	\$ 15,582
Facility	Hoist Buoy Replacements	-	25,970	\$ 25,970
Improve Reliability	Victoria Dam & Intake Building Electrical Upgrade(Emg Gen)	10,388	-	\$ 10,388
New Equipment/Equipment Upgrade	Victoria - Controls upgrade	436,288	-	\$ 436,288
New Equipment/Equipment Upgrade	Victoria Governors	114,266	-	\$ 114,266
New Equipment/Equipment Upgrade	Victoria - Spillway RTU	25,970	-	\$ 25,970
New Equipment/Equipment Upgrade	Prickett RTU Upgrade	-	31,163	\$ 31,163
New Equipment/Equipment Upgrade	Hoist Unit 3 - Penstock Valve Replacement	311,634	-	\$ 311,634
New Equipment/Equipment Upgrade	McClure Unit 1 generator clean/rewind, exciter refurb	-	155,817	\$ 155,817
New Equipment/Equipment Upgrade	Annual New Equipment / Generation Misc. < 20k	72,715	83,102	\$ 155,817

New Equipment/Equipment Upgrade	McClure Buoy Replacements	-	14,543	\$ 14,543
Contractual/Regulatory/Statutory	Victoria Gate Automation Design & Construction	116,551	62,327	\$ 178,878
Contractual/Regulatory/Statutory	Bond Falls Right Embankment Groin Filter	103,878	-	\$ 103,878
Contractual/Regulatory/Statutory	Bond Falls Intake Outlet Pipe Lining	36,357	20,776	\$ 57,133
Special Projects	McClure Transformer 1	615,797	-	\$ 615,797
Special Projects	McClure Transformer 2	615,797	-	\$ 615,797

Response by: Steve Lillie and Mary Sampeer

Dated: 11/8/2022

**Upper Peninsula Power Company
MPSC Case No. U-21286
2022 Rate Case**

**Upper Peninsula Power Company's Responses to
MPSC Staff's
Fourth Discovery Request**

4-STAFF-UPPCO-36

Refer to Exhibit A-8 (NLW-26), please answer the following questions:

- a. Please list the past five years Fuel expenses.
- b. Please list the past five years Purchased Power expenses.
- c. Please list the past five years Transmission (PSCR Related) expenses.

UPPCO Response

- a. Please see columns E-I at row 79 of tab GLN5250M included in 4-STAFF-UPPCO-36 Workpaper – Haehnel GLN5250M 3501 DETAILED COMPARATIVE INC STMT.
- b. Please see columns E-I at row 109 of tab GLN5250M included in 4-STAFF-UPPCO-36 Workpaper – Haehnel GLN5250M 3501 DETAILED COMPARATIVE INC STMT.
- c. Please see columns E-I at row 121 and 125 of tab GLN5250M included in 4-STAFF-UPPCO-36 Workpaper – Haehnel GLN5250M 3501 DETAILED COMPARATIVE INC STMT.

Response by: Eric Stocking

Dated: 11/8/2022

**Upper Peninsula Power Company
MPSC Case No. U-21286
2022 Rate Case**

**Upper Peninsula Power Company's Responses to
MPSC Staff's
Fourth Discovery Request**

4-STAFF-UPPCO-37

Refer to Exhibit A-8 (NLW-27), line 3 "O&M Expenses for Production": please answer the following questions:

- a. Please list the historical O&M expenses for the past five years.
- b. How did UPPCO projected the amount of \$5,677,818 for test year's O&M expenses?
- c. Had UPPCO projected the O&M expense with inflation rate? If so, what were the inflation rates be used?

UPPCO Response

- a. See 4-STAFF-UPPCO-4.8 – Workpaper – Haehnel GLN5250M 3501 DETAILED COMPARATIVE INC STMT.xlsm Summary Table tab.
- b. See GLN5250M tab of 4-STAFF-UPPCO-4.8 – Workpaper – Haehnel GLN5250M 3501 DETAILED COMPARATIVE INC STMT.xlsm, cells CF62, AF76, AF87, AF108 to see calculation for projected \$5,677,818 for test year's Production expenses. These were calculated with inflation and Salary and Wage Adjustments.
- c. Yes. UPPCO utilized a 3.51% inflation factor.

Response by: Natasha Wonch

Dated: 11/8/2022

Founded in 1852
by Sidney Davy Miller

MILLER CANFIELD

Miller, Canfield, Paddock and Stone, P.L.C.
120 N. Washington Square, Suite 900
One Michigan Avenue Building
Lansing, Michigan 48933
TEL (517) 487-2070
FAX (517) 374-6304
millercanfield.com

Paul Michael Collins
TEL +1.517.483.4908
FAX +1.517.374.6304
E-MAIL Collinsp@MillerCanfield.com

Case No.: U-21286
Exhibit No.: S-18
Witness: Jing Shi
Date: January 12, 2023
Page: 25 of 41

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November 10, 2022

Via E-Mail

Heather Durian
Michigan Public Service Commission
1709 W. Saginaw Hwy.
Lansing, MI 48917

Monica Stephens
Michigan Public Service Commission
1709 W. Saginaw Hwy.
Lansing, MI 48917

Benjamin Holwerda
Michigan Public Service Commission
1709 W. Saginaw Hwy.
Lansing, MI 48917

Lori Mayabb
Michigan Public Service Commission
1709 W. Saginaw Hwy.
Lansing, MI 48917

Re: Upper Peninsula Power Company
2022-2023 Electric Rate Case
Michigan Public Service Commission Case No.: U-21286

Enclosed are Upper Peninsula Power Company's Remaining Responses to the Michigan Public Service Commission Staff's Fourth Discovery Request.

Sincerely,

Miller, Canfield, Paddock and Stone, P.L.C.

By: _____
Paul Michael Collins

PC//ark

Upper Peninsula Power Company
MPSC Case No. U-21286
2022 Rate Case
Upper Peninsula Power Company's Responses to
MPSC Staff's
Fourth Discovery Request

4-STAFF-UPPCO-33

Refer to Exhibit A-26 (SSL-6), line 18 of "Contractual/Regulatory/Statutory", please answer the following questions:

- a. Please list every Capital Expenditure project as well as the project's cost that contributes to the \$1,306,327 expenses for 2021.
- b. Please list every Capital Expenditure project and the project's cost that contributes to the \$747,093 expenses for 2022.
- c. Please list every projected Capital Expenditure and cost that contributes to the \$256,786 expenses for year of 2023 and explain the reasons why UPPCO forecasted each of the Capital Expenditure, and when was the last time this Capital Expenditure occurred.
- d. Please list every projected Capital Expenditure and cost that contributes to the \$1,589,335 expenses for year of 2024 and explain the reasons why UPPCO forecasted each of the Capital Expenditure, and when was the last time this Capital Expenditure occurred.

UPPCO Response

- a. Please see table below:

Project	Cost
Prickett Right Abutment Reinforcement	749,622

VIC Slope Stabilization Drain Install	(47,180)
Prickett Intake Structure	14,932
Hoist LLO - work (O&M ro Capital)	384,558
Victoria Gate Automation Design	27,269
Vic Penstock Rapid Closure	45,800
Bond Falls Control Dam Conduit Pipe Joint Sealing	131,326

b. Please see table below:

Project	Cost
Cisco Fishway Bulkhead & Spillway	91,681
Bond Falls Right Embankment Groin Filter	30,700
Hoist Dam Intake Rehabilitation Project	203,736
Victoria Stop Logs	18,336
Prickett Intake Drain Modifications	83,965
McClure Dam Debris Slot	127,335
Prickett Spillway Stop Logs	63,056
Victoria Tainter Gate Refurbishment	128,283

c. Please see table below:

Project	Cost	Reason	Previous Occurrence
Victoria Gate Automation Design & Construction	116,551	Current hoist is over 90 years old and presents personnel safety risks and Dam Safety risks	This is the first time that this project will be implemented.
Bond Falls Right Embankment Groin Filter	103,878	FERC required project to address fine migration	This is the first time that this project will be implemented.
Bond Falls Intake Outlet Pipe Lining	36,357	The outlet pipe walls are corroding and showing signs of failure	This is the first time that this project will be implemented.

d. Please see table below:

Project	Cost	Reason	Previous Occurrence
Victoria Gate Automation Design & Construction	810,249	Current hoist is over 90 years old and presents personnel safety risks and Dam Safety risks	Project starts in 2023
Victoria Tainter Gate Heaters	207,756	Ice forming on the gates can lead to inoperable gates resulting in overtopping	This is the first time that this project will be implemented.
Victoria Tainter Gate Refurbishment	363,573	Gates coating system has failed resulting in corrosion. If not addressed could lead to significant damage.	This is the first time that this project will be implemented.
Bond Falls Intake Outlet Pipe Lining	155,817	The outlet pipe walls are corroding and showing signs of failure	Project starts in 2023
Hoist Dam Concrete Refurbishment (2021 Part 12)	25,970	Engineering/Design to address deficiencies identified during a FERC Part 12 Inspection	This is the first time that this project will be implemented.

McClure Dam Concrete Refurbishment (2021 Part 12)	25,970	Engineering/Design to address deficiencies identified during a FERC Part 12 Inspection	This is the first time that this project will be implemented.
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Response by: Steve Lillie and Mary Sampeer

Dated: 11/10/2022

Founded in 1852
by Sidney Davy Miller

MILLER CANFIELD

Miller, Canfield, Paddock and Stone, P.L.C.
120 N. Washington Square, Suite 900
One Michigan Avenue Building
Lansing, Michigan 48933
TEL (517) 487-2070
FAX (517) 374-6304
millercanfield.com

Paul Michael Collins
TEL +1.517.483.4908
FAX +1.517.374.6304
E-MAIL Collinsp@MillerCanfield.com

Case No.: U-21286
Exhibit No.: S-18
Witness: Jing Shi
Date: January 12, 2023
Page: 30 of 41

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QATAR

December 15, 2022

Via E-Mail

Heather Durian
Michigan Public Service Commission
1709 W. Saginaw Hwy.
Lansing, MI 48917

Monica Stephens
Michigan Public Service Commission
1709 W. Saginaw Hwy.
Lansing, MI 48917

Lori Mayabb
Michigan Public Service Commission
1709 W. Saginaw Hwy.
Lansing, MI 48917

Re: Upper Peninsula Power Company
2022-2023 Electric Rate Case
Michigan Public Service Commission Case No.: U-21286

Enclosed is Upper Peninsula Power Company's Responses to the Michigan Public Service Commission Staff's Eighth and Ninth Discovery Requests.

Sincerely,

Miller, Canfield, Paddock and Stone, P.L.C.

By: _____
Paul Michael Collins

PC//ark

**Upper Peninsula Power Company
MPSC Case No. U-21286
2022 Rate Case**

**Upper Peninsula Power Company's Responses to
MPSC Staff's
Eighth Discovery Request**

8-STAFF-UPPCO-58 (8.1)

Referring to the Company's discovery response 4-STAFF-UPPCO-30, please answer the following questions:

- a. Please explain in detail what the Safety Projects entail, including the following:
 - i. What is the definition of the Safety Project? Please give some examples.
 - ii. What did UPPCO accomplish for \$9,168 Safety Projects during the year of 2022? Please list the projects and cost on each project.
 - iii. How did UPPCO forecast the amount of \$51,939 Safety Project for the year of 2023 and 2024? Please list the projects and cost on each project.
 - iv. Please provide the Safety Projects expenditure for the past five years. List each individual project with expense.
- b. Please explain why the expenditure for McClure Powerhouse Crane was \$45,331, while the Victoria Powerhouse Crane was \$132,428.

UPPCO Response

- a) See below:
 - i) In general, a safety project is a discrete project or a component of another project that improves employee safety or reduces risk associated with employee safety incidents.
 - ii) The funds were used for handrail and access platform rework and improvements.
 - iii) Forecasts were based on a general amount of \$50,000 inflated year over year. These funds are to address unknown/unidentified safety deficiencies/issues that are identified each year, and therefore do not have a specific list. In UPPCO's experience, several such projects typically occur each year on an unplanned basis and the \$50,000 amount represents a reasonable estimation thereof.
 - iv) There is no specific list of safety project expenditure over the last 5 years. From year to year the safety project funds are utilized in conjunction to different projects as a part or as a whole to address safety issues/concerns identified during the project.
- b) The project scopes are different. McClure required a new manual hoist be replaced and Victoria requires a new motorized hoist and trolley be replaced.

Response by: Stephen Lillie

Dated: 12/15/2022

**Upper Peninsula Power Company
MPSC Case No. U-21286
2022 Rate Case**

**Upper Peninsula Power Company’s Responses to
MPSC Staff’s
Eighth Discovery Request**

8-STAFF-UPPCO-59(8.2)

Referring to the Company’s discovery response 4-STAFF-UPPCO-32, please answer the following questions:

- a. Please explain in detail the Victoria Controls Upgrade project, including the following:
 - i. What did UPPCO do for the upgrade?
 - ii. What is the total budget for the upgrade?
 - iii. What is the timeline for upgrading?
 - iv. What is the complete percentage of the upgrade by the end of 2022?
 - v. How much did UPPCO spend on this upgrade project during 2022?
- b. Please detail explain the Hoist Unit 3 Penstock valve replacement capital expenditure, including the following:
 - i. Please describe the valve replacement work.
 - ii. Did UPPCO have a work plan to do the replacement work? If so, please provide a copy of it.
- c. Please explain in detail the item “Annual New Equipment / Generation Misc.”, including the following:
 - i. What is included in the “unknown or unidentified new equipment & tools”?
 - ii. How did UPPCO forecast the “unknown or unidentified new equipment & tools” for the 2023 and 2024?
 - iii. Please list any of the possible new equipment and tools that UPPCO took into consideration when forecasting the expenditure. List the cost for each item and explain the reason the Company must have the equipment and tools.

UPPCO Response

- a) See below
 - i) The project consists of complete replacement of the facility's controls system
 - ii) The total budget for the upgrade is \$925,330.
 - iii) Please see table below

Phase	Year
-------	------

Planning & Development	2021-2022
Engineering & Design	2022-2023
Equipment Procurement	2023
Installation/Construction	2023
Inservice	2023

- iv) Engineering & Design is 90% complete
- v) Current forecasts for 2022 are \$424,080
- b) See below
 - i) The project scope will include replacement of the isolation valve. This will require the basement access stairs to be removed, the old valve will need to be removed and hoisted through the stair opening. The new valve will be lowered through the stair opening and set in place. The original valve operator will be removed and replaced with an electric actuator.
 - ii) A work plan has not been developed yet.
- c) See below.
 - i) The Unknown/unidentified item is a standard budget item that is utilized to account for items, tools, and equipment that are not specifically identified during the budgeting process. These expenses occur each year, and include items, materials, tools, or secondary projects that may also be specialized to the task/facility.
 - ii) Forecasts are based on the general amount of \$150,000 inflated year over year.
 - iii) There is no specific list that was considered. From year to year the funds are used to purchase unknown/unidentified items or to fund unknown/unidentified projects, either as a component of another project or as a discrete project.

Response by: Stephen Lillie
Dated: 12/15/2022

**Upper Peninsula Power Company
MPSC Case No. U-21286
2022 Rate Case**

**Upper Peninsula Power Company's Responses to
MPSC Staff's
Eighth Discovery Request**

8-STAFF-UPPCO-60 (8.3)

Referring to the Company's discovery response 4-STAFF-UPPCO-33, please answer the following questions:

- a. Please explain in detail the Hoist LLO – work (O&M ro Capital) in response a, including the following:
 - i. What did UPPCO do for the Hoist LLO?
 - ii. What does LLO stand for?
 - iii. What does “O&M ro Capital” mean?
- b. Please explain in detail the Victoria Gate Automation Design & Construction capital expenditure in response c and d, including the following:
 - i. Please describe the Victoria Gate Automation Design & Construction work.
 - ii. What is the total budget for the Victoria Gate Automation Design & Construction?
 - iii. What is the timeline for the Victoria Gate Automation Design & Construction?
- c. Please explain in detail the item Bond Falls intake Outlet Pipe Lining in response c and d, including the following:
 - i. What is included in the Bond Falls intake Outlet Pipe Lining work?
 - ii. What is the total budget for the item Bond Falls intake Outlet Pipe Lining?
 - iii. What is the timeline for the item Bond Falls intake Outlet Pipe Lining?

UPPCO Response

- a) See below
 - i) Refurbished/repared the intake area to the Low Level Outlet (LLO).
 - ii) “LLO” stands for Low Level Outlet
 - iii) The “(O&M or Capital)” is a typo and is not part of the project title.
- b) See below
 - i) The traveling gate hoist that currently operates three of the four spillway gates will be replaced with three independent hoists. Existing support structure will be removed and replaced with new

structure to support hoists and incorporate increased personnel safety such as fall restraint and rotating equipment guarding.

- ii) The total budget for the project is \$954,069.
- iii) Please see table below

Phase	Year
Planning & Development	2021
Engineering & Design	2021-2022
Equipment Procurement	2023
Installation/Construction	2024
Inservice	2024

- c) See below.
 - i) Installation of a lining within the existing outlet pipes.
 - ii) The total budget for the project is \$192,174.
 - iii) Please see table below

Phase	Year
Planning & Development	2023
Engineering & Design	2023
Installation/Construction	2024
Inservice	2024

Response by: Stephen Lillie
Dated: 12/15/2022

**Upper Peninsula Power Company
MPSC Case No. U-21286
2022 Rate Case**

**Upper Peninsula Power Company's Responses to
MPSC Staff's
Eighth Discovery Request**

8-STAFF-UPPCO-61 (8.4)

Referring to the Company's discovery response 4-STAFF-UPPCO-34, please answer the following questions:

- a. Please describe the McClure Transformer 1 and 2, including the following:
 - i. Is there any work plan? If so, please provide a copy of it.
 - ii. Is there any budget plan? If so, please provide a copy of it.
 - iii. How did UPPCO project these two projects with \$657,348 each?
 - iv. What is the timeline for the Transformers replacement project?

UPPCO Response

- a) See below.
 - i) A work plan has not been developed yet.
 - ii) The budget plan was provided as part of UPPCO's response to the Fourth Discovery Request 4-STAFF-UPPCO-34
 - iii) Each project represents the replacement of a unit transformer, and the transformers are identical. Therefore, the estimate for each project is the same. The estimate for these projects was based upon quotes from the transformer manufacturer, plus estimated installation costs.
 - iv) Please see the table below

Phase	Year
Planning & Development	2022
Engineering & Design	2022
Equipment Procurement	2022
Installation/Construction	2023
Inservice	2023

Response by: Stephen Lillie

Dated: 12/15/2022

**Upper Peninsula Power Company
MPSC Case No. U-21286
2022 Rate Case**

**Upper Peninsula Power Company's Responses to
MPSC Staff's
Ninth Discovery Request**

9-STAFF-UPPCO-62 (9.1)

Please list every overhead-to-underground project completed by the Company between January 1, 2018, and December 31, 2021. For each project, please provide the following:

- a. The actual capital expenditures needed to complete the project by year,
- b. The total number of feet or miles replaced by year,
- c. The O&M expense by year,
- d. The number of customers served by the project,
- e. The motivations for undergrounding this infrastructure,
- f. The average depth of the trench for undergrounding,
- g. Whether rock boring or other issues occurred during undergrounding,
- h. A brief description of the selected underground wire characteristics, such as its materials and ability to withstand adverse conditions, such as flooding, ground fires, etc.
- i. Whether the undergrounding crews were contractors or Company staff,
- j. The estimated SAIDI and SAIFI benefits, and
- k. Any other estimated benefits of the project.

UPPCO Response

- a. Please see Attachment 9-Staff-UPPCO-1&2. This list includes all large CapEx projects involving the replacement of overhead facilities with underground facilities from 2018 through 2021. Large CapEx projects are those over \$50,000 in capital expenses. Other smaller scale projects may have been completed during the period, which are not captured in this list. These small-scale projects are unforeseen that arise over the course of the year due to storm activity or identified through normal maintenance and operational activities.
- b. Please see Attachment 9-Staff-UPPCO-1&2.

- c. Please see Attachment 9-Staff-UPPCO-1&2.
- d. Please see Attachment 9-Staff-UPPCO-1&2.
- e. The areas chosen for these projects vary. Some were due to aged facilities, such as replacement of poles at or near end of life, or brittle copper overhead conductor. Others were due to rerouting of off-road ROW overhead lines to underground. Some projects address a potential safety or code issue. As described in Jay Ringler’s testimony, the motivation, or reason, UPPCO chooses certain project are classified as follows: R – Reliability/Storm Hardening; A – Age & Condition; S – Safety; C – Compliance/Voltage; and L – Load/Capacity. These classifications are shown for each project in Attachment 9-Staff-UPPCO-1&2. It is common for a project to have more than one RASCL classification within its justification.
- f. An excerpt from UPPCO’s underground installation standards is below indicating the minimum depth requirements, which our underground installation contractors follow. Note, some counties require standard burial depths in the ROW at 42”. Additionally, individual counties and MDOT may require additional depths for road crossings as specified through the road permitting process.

<u>Cable</u>	<u>Solo Trench or Joint with Communications</u>
Primary Cable	36”
Secondary Cable	30”
Service Cable at or Below 480V	30”
Service Cable Above 480V	36”
Streetlight Cable	30”

- g. Reviewing UPPCO’s underground contractor invoice records from 2018 to 2021 indicates that none of the projects listed in Attachment 9-Staff-UPPCO-1&2 required any rock boring. In fact, rock boring is rarely performed at UPPCO. Review of UPPCO’s underground contractor invoices from 2018 to 2021 indicates that the rock boring paylines, I232 -I236, were only used to install 430 feet of underground cable company-wide. Additionally, the rock peeling payline, I108, was used to install 1,865 feet and the rock sawing paylines, I250-I252, were used to install 1,478 feet over that period. By way of comparison, 71,224 feet was installed under the trench or backhoe payline, I101, and 389,192 feet was installed under the plowing payline, I102. Standard boring paylines, I212-I2181, were used to install 87,846 feet of cable.
- h. UPPCO uses high quality underground primary and secondary cable. UPPCO exclusively installs jacketed primary cable (type: tree retardant cross-linked polyethylene (“TR-XLP”)) to add protection to the cable insulation and reduce the effects of concentric neutral corrosion. In addition, UPPCO installs “abuse-resistant” underground service and secondary conductor which add protection to the triplex cable assembly. Further, UPPCO designs conduit installations for those areas where cable crosses roads or when rocky conditions are present. In UPPCO’s experience, flooding and fires have not warranted any special design considerations.
- i. All of the underground cable projects listed in Attachment 9-Staff-UPPCO-1&2 were installed by

contractor crews. In general, all UPPCO's underground cable is installed by contractors, who are chosen on a competitive bid basis. In general, the contractor also places junction enclosures and other pad mounted equipment, including the first section of u-guard on a riser pole. UPPCO crews typically terminate and energize the cables installed by the contractor. UPPCO does not have plow, trench, or bore equipment to install cable on a regular basis. UPPCO only performs underground cable work when failures occur, and the line must be located and repaired to restore power to customers. In these circumstances, UPPCO crews may use a backhoe or dig by hand. On a very rare occasion, UPPCO crews may place a conduit or pull a short section of cable in an existing conduit for extremely small projects.

- j. The decrease in SAIDI and SAIFI are nearly impossible to predict primarily due to the randomness of storm locations and severity. Even if the device feeding a section of customers was impacted by a similar event, several factors can influence SAIDI and SAIFI. One factor is crew response time. Crew response to any specific area is dependent on factors such as the time of day, weather conditions, and crews responding to other areas. In addition, UPPCO's service territory is extremely rural with some circuits extending more than 100 miles. This results in several in-series stages of overcurrent protection devices, such as breakers, fuses, and reclosers, feeding customers along the circuit path. In general, overhead to underground reliability improvement projects may only replace ½ mile to up to a few miles of overhead line, so exposure to weather and trees still exists for much of the circuit.

- k. As discussed in Jay Ringler's testimony on page 11-14, strategic undergrounding of existing overhead lines increases reliability and customer value and decreases UPPCO maintenance costs and customer costs over the life of the asset. Customers directly affected by the overhead to underground project will experience fewer outages and a reduction in the duration of outages and the company will observe decreased maintenance costs. However, all customers may benefit from the conversion or relocation of problematic portions of our distribution system by helping to minimize or avoid the substantial cost of maintenance incurred to repair and maintain these lines, especially in severe weather events. A single storm may cause hundreds of thousands of dollars to restore power to the customers affected, with little or no improvements in reliability stemming from this cost. Storm restoration in most cases is geared for fast restoration of power by cutting off the downed trees and putting the wire back up as quickly as possible, only to have the same thing potentially happen again. This is the essence of why UPPCO is looking to bury or relocate these facilities for a more comprehensive and lasting solution in a managed and strategic fashion.

Response by: Jay Ringler
Dated: December 15, 2022

**Upper Peninsula Power Company
MPSC Case No. U-21286
2022 Rate Case**

**Upper Peninsula Power Company's Responses to
MPSC Staff's
Ninth Discovery Request**

9-STAFF-UPPCO-63 (9.2)

For each of the overhead-to-underground projects listed in response to Question 1, please also provide the following:

- a. The year the prior overhead infrastructure was installed,
- b. The total capital cost of installing the overhead infrastructure,
- c. The condition of the overhead infrastructure at time of replacement,
- d. The O&M costs of the prior overhead infrastructure for the last ten years, with the estimated tree trimming costs for the length undergrounded broken out, and
- e. The number of times the overhead infrastructure was fixed or replaced due to damage of any sort in the last 50 years with details on the time of occurrence, why it required O&M or replacement, and estimated total cost for each.

UPPCO Response

- a. Pole and conductor age is one factor used to determine which areas to convert existing overhead system to underground. The data for removed facilities no longer exists within UPPCO's GIS. UPPCO is evaluating an alternative method to obtain this information from other systems. However, per Attachment 9-Staff-UPPCO-1&2, most projects had an "A" designation in the RASCL classification indicating aged facilities. Based on 2022 GIS records, more than 50% of UPPCO's poles are more than 40 years old and more than 25% are 50 years old or older. In general, overhead line sections chosen to convert to underground have experienced poor reliability, which may be indicative of the timeframe when they were built, i.e. under older construction standards with less pole strength and smaller clearance requirements than poles installed under more current standards.
- b. As mentioned above, the data for removed facilities no longer exists within UPPCO's GIS. UPPCO is evaluating an alternative method to obtain this information from other systems.
- c. Per Attachment 9-Staff-UPPCO-1&2, most projects had an "A" designation in the RASCL classification indicating they were aged facilities at the time of replacement. Aged facilities include poles at or near end of life and/or brittle copper overhead conductor. In general, UPPCO overhead facilities chosen for replacement with underground are in areas that have some of the oldest facilities in the system. Please refer to the response to item a, above.

- d. UPPCO does not have 10 years of O&M data for prior overhead facilities replaced in the individual projects listed in Attachment 9-Staff-UPPCO-1&2 that were replaced by underground facilities. However, over the 5-year period of 2017-2021, the average cost to maintain UPPCO's overhead system, including tree trimming, was nearly \$1,800 per mile and the cost to maintain underground, including tree trimming, was less than \$450 per mile. Based upon these values, the cost of maintaining underground facilities is nearly 75% less than the cost to maintain overhead facilities.
- e. UPPCO does not possess the requested 50 years of data relating to outage cause, repair or replacement costs, or other specific details related to the projects provided in response to question 1. UPPCO, as a small utility, does not track maintenance costs by span or circuit, and I am not explicitly aware of the Company being able to do so for much of the time frame referenced by this question. Although the Company cannot provide the detail requested by this question, the data and reliability information that are utilized to identify circuits or line segments that necessitate capital improvement has been thoroughly discussed in my direct testimony (Direct Testimony and Exhibits of Jay Ringler).

FERC account 593 is utilized to capture the maintenance-related costs of the overhead distribution facilities and has been used as such for numerous decades. The overall overhead distribution maintenance costs from FERC 593 have been provided in several places along with the FERC account 594, which is similarly utilized to capture the maintenance-related costs for underground distribution facilities. UPPCO has cited these costs previously within the case, both in testimony and in response to discovery requests, and will reiterate that the observed cost to maintain underground facilities is approximately 75% less than the cost to maintain overhead systems. This result is not surprising to UPPCO, considering that most of the outages experienced by the company are due to trees, snow, wind, and other factors that affect above ground facilities. This cost differential is further exacerbated by the observed increase in vegetation management expenses.

UPPCO, due to its large geographical footprint, dense tree cover, and sparse customer density, has more trees along its power line than almost anywhere else in the state of Michigan. UPPCO utilizes outage data, as well as knowledge of our system and the equipment on it, to prioritize reliability-driven projects in areas where they are needed most.

UPPCO is committed to addressing electric distribution system reliability in a meaningful way. Prioritizing reliability projects in the most problematic areas, which are identified by both observed outage data and experience, moving overhead segments or circuits underground where it is practical and prudent to do so, and relocating or hardening where overhead systems must remain, will ultimately provide a methodical and well-engineered solution that will bring about improved reliability over time.

Response by: Jay Ringler
Dated: December 15, 2022

STATE OF MICHIGAN
BEFORE THE MICHIGAN PUBLIC SERVICE COMMISSION

* * * * *

In the matter of the application of)
UPPER PENINSULA POWER COMPANY) Case No. U- 21286
for authority to increase its rates for)
the generation and distribution of)
electricity and for other relief)
_____)

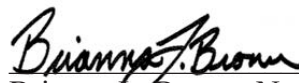
PROOF OF SERVICE

Michelle L. Conarton, being duly sworn, deposes and says that on January 12, 2023, A.D., she emailed a copy of the attached MPSC Testimony and Exhibits to the persons as shown on the attached list.

**Michelle L.
Conarton**  Digitally signed by
Michelle L. Conarton
Date: 2023.01.12
07:36:19 -05'00'

Michelle L. Conarton

Subscribed and sworn to before me
this 12th day of January 2023.



Brianna L. Brown, Notary Public
State of Michigan, County of Gratiot
My Commission Expires July 4, 2028

Upper Peninsula Power Company:

Paul Collins
Sherri Wellman
collinsp@millercanfield.com
wellmans@millercanfield.com

MPSC Staff:

Heather Durian
Monica Stephens
durianh@michigan.gov
stephensm11@michigan.gov

ALJ:

Sharon Feldman
feldmans@michigan.gov

AG:

Michael Moody
Amanda Churchill
Moodym2@michigan.gov
Churchilla1@michigan.gov

Sebastian Coppola
sebcoppola@corplytics.com

Douglas Jester
djester@5lakesenergy.com

CUB:

John Liskey
john@liskeypllc.com

Billerud Americas Corp.:

Laura Chappelle
Tim Lundgren
Justin Ooms
lchappelle@potomaclaw.com
tlundgren@potomaclaw.com
jooms@potomaclaw.com

ABATE:

Stephen Campbell
Michael Pattwell
scampbell@clarkhill.com
mpattwell@clarkhill.com

Jim Dauphinais
Jessica York
jdauphinais@consultbai.com
jyork@consultbai.com

Michigan Technological Institute

Calumet Electronics:

Kyle Asher
kasher@dykema.com