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April 19, 2019

Ms. Kavita Kale  
Executive Secretary  
Michigan Public Service Commission  
7109 W. Saginaw Highway, 3rd Floor  
Lansing, MI 48917

Re: In the matter of Upper Michigan Energy Resources Corporation for Approval  
of an Integrated Resource Plan under MCL 460.6t and for other relief.  
Case No. U-20470

Dear Ms. Kale:

Enclosed for filing in the above-captioned case are Upper Michigan Energy Resources Corporation's Application and Letter of Transmittal. Also enclosed are the supporting Testimony and Exhibits of Dennis M. Derricks, Kim M. Keller, and James O. Sherman, Jr.

The proposed Notice of Hearing has also been e-mailed to Angela Sanderson.

Should you have any questions, please kindly advise.

Very truly yours,

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

By: \_\_\_\_\_  
Sherri A. Wellman

SAW/kf

Enclosures

cc: Dennis M. Derricks  
Theodore Eidukas  
Koby Bailey

**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 ) <b>UPPER MICHIGAN ENERGY RESOURCES</b> ) <b>CORPORATION</b> for approval of its integrated ) resource plan pursuant to MCL 460.6t and for ) other relief. )	Case No. U-20470
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**APPLICATION**

Upper Michigan Energy Resources Corporation (“UMERC” or the “Company”) respectfully requests the Michigan Public Service Commission (“MPSC” or the “Commission”) to approve the Company’s Integrated Resource Plan (“IRP”) pursuant to Section 6t of 2016 PA 341, MCL 460.6t (“Act 341”). In support of this Application, UMERC respectfully represents to the Commission as follows:

**I. Introduction**

1. UMERC is a public service corporation organized under the laws of Michigan with service centers located at 800 Industrial Park Drive, Iron Mountain, Michigan, and 1717 Tenth Avenue, Menominee, Michigan. On December 9, 2016, the Commission issued its order approving settlement agreement in Case No. U-18061, pursuant to which, effective January 1, 2017, UMERC was formed as a Michigan jurisdictional regulated utility to provide, among other things, electric service to all retail customers within the former public utility service territories of Wisconsin Electric Power Company (“WEPCo”) and Wisconsin Public Service Company (“WPS Corp.”) in the state of Michigan, with the initial exception of Tilden Mining Company, L.C. (“Tilden”) and the Empire Iron Mining Partnership (“Empire”) (collectively the “Mines”).

However, pursuant to the Commission's order issued in U-18061 and the March 31, 2019 start-up of commercial operations at UMERC's reciprocating internal combustion engine ("RICE") generator facilities and the retirement of WEPCo's Presque Isle Power Plant, WEPCo transferred the Mines to UMERC as customers effective April 1, 2019.

2. UMERC provides retail electric service to the public in service areas located in the Upper Peninsula, including the Counties of Alger, Baraga, Delta, Dickinson, Gogebic, Houghton, Iron, Marquette, Menominee, and Ontonagon.

3. UMERC's retail electric business is subject to the jurisdiction of the Commission pursuant to various provisions of 1909 PA 106, as amended, MCL 460.551 et seq., 1919 PA 419, as amended, MCL 460.54 et seq., and 1939 PA 3, as amended, MCL 460.1, et seq. Pursuant to these statutory provisions the Commission has the power and jurisdiction to regulate UMERC's retail electric rates.

4. On December 21, 2016, in Case Nos. U-15896 and U-18461 the Commission issued its Order approving filing instructions for IRPs and establishing the application deadline filing schedule. Subsequently, on August 28, 2018, the Commission issued its order amending its filing schedule, specifically directing UMERC to file its first IRP no later than April 19, 2019.

5. On February 4, 2019, pursuant to the Commission's IRP requirements regarding electric utilities with fewer than 1,000,000 customers, UMERC filed a Motion for a waiver from certain IRP filing requirements in Case No. U-20470. In its Motion, UMERC explained that following the completion of the RICE generation facilities, it "will have adequate generation capacity for the foreseeable future and will not be requesting approval of new generation resources" thereby making many of the formal IRP filing requirements superfluous. Specifically, UMERC requested waivers from the Requirements (i) Pre-Filing Requests for

Proposals, (ii) Stakeholder Engagement and Public Outreach Process, (iii) Risk Assessment Methodology, and (iv) Approval of Costs. On February 28, 2019, the Commission Staff filed a report recommending approval of the requested waivers.

6. On March 21, 2019, the Commission issued its Order in Case No. U-20470 granting UMERC's waiver requests and specifically directing UMERC to comply with the remaining requirements as follows:

1. Executive Summary
2. Table of Contents
3. Table of Figures  
As needed.
4. Introduction
5. Existing Supply-Side (Generation) Resources  
UMERC should include any power purchase agreements or other contractual supply arrangements in addition to the RICE units and any owned generation resources.
6. Demand-Side Resources  
UMERC should include any existing demand-side resources and include plans for near-term energy waste reduction specifying continued use of the State Administrator or outline revised plans.
7. Renewables and Renewable Portfolio Standards Goals
8. Peak Demand and Energy Forecasts  
A 15-year forecast of UMERC's sales and peak demand should be included in the filing. UMERC's forecast should include a high load forecast.
9. Capacity and Reliability Requirements
10. Proposed Course of Action
11. Exhibits and Workpapers  
As needed.

7. In this filing, UMERC is presenting its IRP as modified by the March 21 Order. In developing this IRP, the Company assessed its capacity resource portfolio in light of regulatory and environmental compliance and the planning objectives as set forth by the Commission and the Company. Further, pursuant to the Commission's directive made in its March 21, 2019 Order, UMERC stands ready to work with all parties to this proceeding to provide recommendations regarding the timing as well as what issues should be analyzed in the Company next IRP filing.

## **II. Overview of IRP**

8. The required components of an IRP filing are specifically provided in MCL 460.6t(5)(a)-(o). As noted above, some of these requirements were waived by the Commission in light of UMERC's unique capacity status. MCL 460.6t(8) provides that the Commission shall approve a proposed IRP if the Commission determines that the IRP represents the most reasonable and prudent means of meeting the electric utility's energy and capacity needs.

9. The Company's IRP meets the statutory requirements for an IRP filed before the Commission. The Company's testimony and exhibits which accompany this Application address the components required to be included in an IRP, as modified by the Commission's March 21, 2019 Order, and address the factors which the Commission shall consider in approving UMERC's IRP, and establish that the Company's plan represents "the most reasonable and prudent means of meeting the electric utility's energy and capacity needs."

10. Specifically, the Company's planning period for the IRP is 15 years starting in 2020. As approved by the Commission in Case No. U-18224, UMERC has a generation fleet of 10 RICE units for total capacity of 183 MW. These RICE units sufficiently cover the needs of its customers, including the Tilden contract (U-17682) and a firm load obligation of

approximately 81.1 MW. The IRP reflects the operation of the RICE units and represents the most prudent means of meeting the Company's energy and capacity needs for the 15 year planning period. The IRP does not recommend any changes to UMERC's energy waste reduction and renewable energy arrangements. Further, the report does not identify any environmental concerns. The IRP report is sponsored as Exhibit A-2 (KMK-1).

### **III. Testimony and Exhibits, and Other Matters**

11. Concurrently with this Application, UMERC is filing the direct testimony and exhibits of Dennis M. Derricks, James Sherman and Kim M. Keller in support of its IRP.

12. In addition to the issues described above, it is possible that other pending or to-be-filed proceedings or other events may have impacts upon the Company's requests in this proceeding. These impacts will be evaluated for materiality and may need to be considered in the results of this proceeding.

13. All portions of UMERC's IRP are integrally part of the Company's plan. Since the Company's IRP is a fully integrated proposal, modification to or rejection of a position made in the plan may impact the plan's viability and the Company's willingness to execute on the remaining portions of the plan not modified or rejected. As such, the Company reserves the right to abandon or amend its plan if the Commission rejects or modifies any of the Company's proposals presented in this IRP.

14. As required in the Commission's IRP filing requirements approved in Case No. U-15896 *et al.*, the Company has included a Letter of Transmittal as Attachment A to this Application. The Company's Letter of Transmittal expresses a commitment to the Company's approved resource plan and resource acquisition strategy, and has been signed by an officer of the Company who has authority to commit the Company to the resource acquisition strategy

acknowledging that the Company reserves the right to make changes to its resource acquisition strategies as appropriate due to changing circumstances.

**WHEREFORE**, Upper Michigan Energy Resources Corporation respectfully requests that the Commission to issue its order:

A. Finding that the Company's Integrated Resource Plan as supported by its testimony and exhibits meets the requirements of MCL 460.6 and represents the most reasonable and prudent means of meeting the electric utility's energy and capacity needs.

B. Granting such other and further relief as shall be lawful and proper.

Respectfully submitted,

UPPER MICHIGAN ENERGY RESOURCES  
CORPORATION

Dated: April 19, 2019

By: \_\_\_\_\_  
One of Its Attorneys  
Sherri A. Wellman (P38989)  
Paul M. Collins (P69719)  
Miller Canfield Paddock and Stone P.L.C.  
One Michigan Avenue, Suite 900  
Lansing, MI 48933  
(517) 487-2070

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STATE OF MICHIGAN

BEFORE THE MICHIGAN PUBLIC SERVICE COMMISSION

\* \* \* \*

In the matter of the application of )  
**UPPER MICHIGAN ENERGY RESOURCES** )  
**CORPORATION** for approval of its integrated )  
resource plan pursuant to MCL 460.6t and for )  
other relief. )


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Case No. U-20470

LETTER OF TRANSMITTAL

I, Kevin Fletcher, President and Chief Executive Officer, hereby express Upper Michigan Energy Resources Corporation's commitment to the Company's proposed Integrated Resource Plan, which represents the Company's preferred resource plan and resource acquisition strategy, and hereby sign this Letter of Transmittal as an officer of the Company having the authority to commit the Company to the Plan, acknowledging that the Company reserves the right to make changes to its Plan as appropriate due to changing circumstances.

Dated: April 19, 2019

  
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**STATE OF MICHIGAN**

**BEFORE THE MICHIGAN PUBLIC SERVICE COMMISSION**

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In the matter of the application of )  
**UPPER MICHIGAN ENERGY RESOURCES** )  
**CORPORATION** for approval of its integrated )  
resource plan pursuant to MCL 460.6t )  
and other relief )

Case No. U-20470

**DIRECT TESTIMONY**

**OF**

**DENNIS M. DERRICKS**

**ON BEHALF OF**

**UPPER MICHIGAN ENERGY RESOURCES CORPORATION**

1 **PART I**

2 **Q. Please state your name and business address.**

3 A. My name is Dennis M. Derricks. My office address is P.O. Box 19001, Green Bay,  
4 Wisconsin 54307-9001.

5 **Q. On whose behalf are you testifying?**

6 A. I am testifying on behalf of Upper Michigan Energy Resources Corporation (“UMERC”).

7 **Q. By whom are you employed and what is your position?**

8 A. I am Director of Regulatory Affairs at WEC Energy Group, Inc. (“WEC Energy Group”).

9 **Q. Please briefly describe your education and professional background.**

10 A. Regarding my educational background, I graduated from Michigan Technological  
11 University in 1988 with a Bachelor of Science degree in Electric Engineering, with an  
12 emphasis on Electric Power Systems. In 1998, I received a Master’s degree in Business  
13 Administration from the University of Wisconsin Oshkosh.

14 Regarding my professional background, prior to joining Wisconsin Public Service  
15 Corporation (“WPS Corp”) in 1991, I was a distribution engineer for Ohio Edison and a  
16 project engineer with a large paper making company. I joined WPS Corp in 1991 as  
17 Rates Engineer and was promoted in 1996 to Electric Rates Supervisor with  
18 responsibilities in electric rate design, electric tariff and service rule development and  
19 administration, and rate related engineering studies. In 2003, I was promoted to Director  
20 of Electric Regulatory Policy with responsibilities for retail tariffs and polices in both  
21 Wisconsin and Michigan, and wholesale tariffs and rates at FERC. In February 2013, I  
22 assumed the position of Assistant VP of Regulatory Affairs with responsibility for the  
23 development and implementation of the regulatory plan and activities including rate  
24 cases, fuel, and tariff filings for Integrys Energy Group, Inc. (“TEG”). Effective with the  
25 acquisition of TEG by Wisconsin Energy Corporation in June 2015, now known as WEC

1 Energy Group, my title is Director of Regulatory Affairs.

2 **Q. Have you ever testified in any regulatory proceedings before the Michigan Public**  
3 **Service Commission (“Commission”)?**

4 A. Yes, I have. I have testified before this Commission, the Public Service Commission of  
5 Wisconsin, the Federal Energy Regulatory Commission and the Illinois Commerce  
6 Commission in various rate case, fuel and policy dockets on behalf of WPS Corp, Upper  
7 Peninsula Power Company, The Peoples Gas Light and Coke Company, and the North  
8 Shore Gas Company.

9 **PART II**

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

11 A. The purpose of my testimony is to provide a general overview of UMERC’s Integrated  
12 Resource Plan (“IRP”). Specifically, I will:

- 13 1.) Provide an overview of UMERC including background on the formation of the utility;
- 14 2.) Provide an overview of UMERC’s request and Commission approval of waivers from  
15 certain IRP filing requirements.
- 16 3.) Provide an overview of this filing by introducing the other UMERC witnesses in this  
17 proceeding and the topics they will address
- 18 4.) Provide a general overview of UMERC’s use of the State of Michigan Energy Waste  
19 Reduction (“EWR”) Administrator.
- 20 5.) Summarize the Demand Side Resource tariffs and customer participation.
- 21 6.) Describe how this filing meets the requirements established.
- 22 7.) Recommend that the Commission approve the IRP.

23 **Q. Please provide some background information on UMERC.**

1 A. Yes. Pursuant to the understandings reached in the settlement agreement approved in the  
2 Commission's April 23, 2015 order in Case No. U-17682 (regarding the acquisition of  
3 TEG by WEC Energy Group), and by Commission order in Case No. U-18061, UMER  
4 was established as a Michigan jurisdictional regulated utility providing service only to  
5 electric and natural gas customers in Michigan that were previously served by either  
6 Wisconsin Electric Power Company ("WEPCo") or WPS Corp. Currently, UMER  
7 is engaged as a public utility in the business of generating, purchasing, distributing and  
8 selling electric energy to approximately 36,500 full service customers, as well providing  
9 electric distribution service only to approximately 80 customers that qualify for Retail  
10 Access Service. On October 25, 2017, UMER received approval from the Commission  
11 in Case No. U-18224 to construct 183 MW of natural gas fired generation. UMER  
12 placed this generation into commercial operation on March 31, 2019. On April 1, 2019,  
13 Tilden Mine began taking service under a special contract approved by the Commission  
14 in Case No. U-18224. The total firm peak load of UMER is approximately 81 MW  
15 (winter peak) and annual retail energy sales are approximately 1,900,000 MWH.  
16 UMER does not provide service to any wholesale customers but is a market participant  
17 in the Mid Continent ISO.

18 **Q. Is UMER seeking approval of any new electric generation facilities as part of this**  
19 **IRP?**

20 A. No. As demonstrated in this filing as well as Case No. U-18224 in which the  
21 Commission approved the Certificate of Need for UMER to build the 183 MW of  
22 natural gas fired generation; UMER has sufficient generating capacity to meet the  
23 existing retail electric capacity requirements now and for the foreseeable future. Thus,

1 U MERC is not seeking approval for any additional generation and simply seeking  
2 approval of this IRP to meet the requirements of MCL 460.t.

3 **Q. Did U MERC request a waiver of some IRP filing requirements?**

4 A. Yes. Since U MERC does not need additional electric generation facilities, U MERC filed  
5 on February 4, 2019, a request that the Commission waive several IRP formal filing  
6 requirements. Generally, U MERC sought waiver of 1) pre-filing Request for Proposals,  
7 2) stakeholder engagement and public outreach process, 3) risk assessment methodology,  
8 and 4) approval of costs. On February 29, 2018, Commission staff filed a memo  
9 generally supporting this request. The Commission issued an order on March 21, 2019,  
10 approving a limited waiver and identifying items for U MERC's IRP filing that are not  
11 waived and should be included. These are listed below:

- 12 1.) Executive Summary
- 13 2.) Table of Contents
- 14 2.) Table of Figures
- 15 3.) Introduction
- 16 3.) Existing Supply-Side Generation Resources
- 17 4.) Demand Side Resources
- 18 5.) Renewables and Renewable Portfolio Standards Goals
- 19 6.) Peak Demand and Energy Forecasts
- 20 8.) Capacity and Reliability Requirements
- 21 9.) Proposed Course of Action
- 22 10.) Exhibits and Work Papers (as needed)

23 **Q. Please discuss who is providing evidence in this application in addition to you.**

24 A. Kim Keller will be the sponsor of the IRP and will address all of the areas except for  
25 renewables, EWR and demand response programs. This includes describing the existing  
26 supply side resources, peak demand and energy forecasts and capacity and reliability  
27 requirements.

1 James Sherman will address Renewables and the Renewable Portfolio Standards Goals  
2 which are consistent with the last UMERC renewable energy plan filing approved by the  
3 Commission in Case No. U-18236 on January 23, 2018.

4 **Q. How does UMERC comply with the Energy Waste Reduction requirements in**  
5 **Michigan?**

6 A. Since in the implementation of Public Act 295 of 2008, WEPCo and WPS Corp., and  
7 now UMERC, have utilized the option provided in PA 295 to use the EWR administrator  
8 selected by the Commission.

9 **Q. Please summarize UMERC EWR participation in the state selected administrator.**

10 A. UMERC filed its last EWR case in Case No. U-18266 and the Commission approved this  
11 plan on December 20, 2017. The surcharges currently in place for UMERC collect an  
12 amount equal to 2% of UMERC 2017 retail electric revenues. In addition, Tilden began  
13 taking service from UMERC as of April 1, 2019, and will continue to pay an EWR  
14 surcharge, now to UMERC. There are also two larger retail electric customers that  
15 continue to choose to do self-directed EWR plans.

16 **Q. Does the Company have any plans to stop using the state selected EWR**  
17 **administrator?**

18 A. No, not at this time.

19 **Q. Does UMERC utilize Demand Side Resources to meet some of its capacity**  
20 **requirements?**

21 A. Yes, in fact, UMERC has more electric interruptible load than firm load. UMERC has  
22 approximately 81 MW of firm load and 195 MW of interruptible load.

23 **Q. Please describe the interruptible service to Tilden.**

24 A. Service to Tilden is provided pursuant to the special contract approved by the

1 Commission in Case No. U-18224. This special contract includes interruptible electric  
2 service. At this time, the entire load at Tilden is being served as interruptible and  
3 UMERC utilizes this as a Load Modifying Resource (“LMR”) with MISO.

4 **Q. Does UMERC have other customers participate in interruptible rates that UMERC**  
5 **utilizes as LMR at MISO?**

6 A. Yes. There are interruptible rates that existing UMERC customers in both the WPSC and  
7 WEPCo Rate Zones take service under that UMERC utilizes as part of its LMR with  
8 MISO. These rates are open to new participation by both new customers/load and  
9 existing customers that are taking firm service. In addition, these interruptible rates also  
10 allow, with appropriate notice, for customers participating in these interruptible rates to  
11 return to firm service.

12 **Q. Do you believe that UMERC has adequate demand side resources?**

13 A. Yes I do. While new customers and more load is eligible to participate in the various  
14 interruptible rates pursuant to the rates approved by the Commission, I do not believe it is  
15 necessary for UMERC to implement additional programs or aggressively pursue more  
16 demand side resources. UMERC already has sufficient electric generation capacity for  
17 the foreseeable future and has a very high percentage of total load already participating in  
18 an interruptible rate as compared to other electric utilities in the MISO footprint.

19 **Q. Please describe the WPS Rate zone interruptible tariff and customer participation.**

20 A. The CpI tariff – Large Commercial and Industrial Service Interruptible Rider is contained  
21 on rate sheets D122 - D130. There are currently 2 customers taking service under this  
22 tariff with portions of their load as interruptible. The approximate Installed Capacity  
23 (“ICAP”) for these loads is approximately 14 MW.

24 **Q. Please describe the WEPCOo Rate Zone interruptible tariff and customer**

1        **participation.**

2        A.        There are three interruptible retail electric tariffs in the WEPCo Rate Zone; General  
3        Primary Full Requirements Curtailable Rate – CP-3, General Secondary Full  
4        Requirements Service Curtailable Rate – Cg-2, and General Primary Full Requirements  
5        and Retail Access Service – Large Curtailable Contract Rate (CpLC). There is also a  
6        special contract approved in Case No. U-10959 that provides for interruptible service.  
7        There are currently 2 customers taking service under The CP-3 curtailable rate and 1  
8        customer served under special contracts with portions of their load as interruptible. The  
9        approximate ICAP for these loads is approximately 6 MW.

10      **Q.        Does this IRP filing meet the filing requirements approved the Commission in this**  
11      **docket on March 21, 2019.**

12      A.        Yes. See below for listing of requirements and the location(s) of the information.

- 13            1.) Executive Summary – Exhibit A-2(KMK-1), page 2.
- 14            2.) Table of Contents – Exhibit A-2(KMK-1), page 3.
- 15            3.) Table of Figures - Exhibit A-2(KMK-1), page 3.
- 16            4.) Introduction – Exhibit A-2(KMK-1), page 4.
- 17            5.) Existing Supply-Side Generation Resources - Exhibit A-2(KMK-1), pages 3-4.
- 18            6.) Demand Side Resources - Exhibit A-2(KMK-1), pages 5-6; Dennis M. Derricks  
19            testimony pages 5-7.
- 20            7.) Renewables and Renewable Portfolio Standards Goals – Exhibit A-2(KMK-1), page  
21            6.) James O. Sherman testimony plus Exhibit A-1(JOS-1).
- 22            8.) Peak Demand and Energy Forecasts – Exhibit A-2(KMK-1), pages 7-9.
- 23            9.) Capacity and Reliability Requirements - Exhibit A-2(KMK-1), page 9.
- 24            10.) Proposed Course of Action - Exhibit A-2(KMK-1), page 10.
- 25            11.) Exhibits and Work Papers (as needed) - Exhibit A-2(KMK-1), page 11.

26      **Q.        Are you recommending the Commission approve UMERC’s IRP?**

27      A.        Yes. The IRP filed in this docket presents a prudent plan for UMERC to provide electric  
28      generation service to its customers for the foreseeable future. This IRP is consistent with



1 the UMERC Certificate of Need issued in Case No. U-18224 as well as the Renewable  
2 Energy Plan approved by the Commission in Case No. U-18236 and EWR plan in Case  
3 No. U-18266. No new or additional resources are needed at this time.

4 **Q. Does this conclude your direct testimony?**

5 A. Yes it does.

**STATE OF MICHIGAN**

**BEFORE THE MICHIGAN PUBLIC SERVICE COMMISSION**

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In the matter of the application of )  
**UPPER MICHIGAN ENERGY RESOURCES** )  
**CORPORATION** for approval of its integrated )  
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and other relief )

Case No. U-20470

**DIRECT TESTIMONY AND EXHIBIT**

**OF**

**KIM M. KELLER**

**ON BEHALF OF**

**UPPER MICHIGAN ENERGY RESOURCES CORPORATION**

1 **Q. Please state your name and title.**

2 A. My name is Kim M. Keller. My title is Manager of Fuel Cost Planning in the Wholesale  
3 Energy and Fuels Department representing Wisconsin Electric Power Company  
4 (“WEPCo”), Wisconsin Public Service Corporation (“WPS Corp”), and Upper Michigan  
5 Energy Resource Corporation (“UMERC” or “the Company”).

6 **Q. Please describe your educational and business experience.**

7 A. I received a Bachelor of Science Degree with a major in Finance from the University of  
8 Wisconsin – Madison in 1989. I have been employed by Wisconsin Electric for 17 years,  
9 working in a number of positions in Finance (Closing, Consolidations, External  
10 Reporting and Accounting Research, and Finance - Power Generation) before joining  
11 Wholesale Energy and Fuels. For the last several years, I was an Accounting Manager  
12 for the External Reporting and Accounting Research Group. I became the Manager of  
13 Fuel Cost Planning in May 2018. In this position I am responsible for supporting all of  
14 Wisconsin Electric’s, WPSC’s and UMERC’s fuel cost recovery filings in the Wisconsin  
15 and Michigan jurisdictions.

16 **Q. Do you hold a professional license or belong to any professional organizations?**

17 A. I am licensed as a Certified Public Accountant in the State of Wisconsin and belong to  
18 the Wisconsin Institute of CPAs.

19 **Q. Have you ever testified in other cases?**

20 A. Yes. I testified in WEPCo’s 2017 power supply cost recovery (“PSCR”) reconciliation  
21 (Case No. U-20231).

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

23 A. The purpose of my testimony is to support UMERC’s Integrated Resource Plan (“IRP”)

1 Application filed in this case. My testimony will provide supply side resources, peak  
2 demand and energy forecasts, capacity and reliability requirements and environmental  
3 compliance.

4 **Q. Are you sponsoring any exhibits to accompany your testimony?**

5 A. Yes. I am sponsoring Exhibit A-2 (KMK-1) – “2020 Integrated Resource Plan for  
6 UMERC beginning in 2020.” This is the IRP to which I referred earlier in this testimony.

7 **Q. Was this exhibit prepared by you or at your direction?**

8 A. Yes.

9 **Q. Does the IRP demonstrate that the power supplied by UMERC’s generation  
10 facilities represents the most prudent means of meeting its energy and capacity  
11 needs?**

12 A. Yes, UMERC has a generation fleet of 10 Reciprocating Internal Combustion Engine  
13 (“RICE”) units spread between two sites for a total of 183 MW. With the mines contract  
14 (U-17682) and a firm load obligation of approximately 81 MW, the fleet adequately  
15 covers the needs of customers.

16 **Q. What customers are you planning for in this IRP?**

17 A. The IRP is for UMERC customers, including Tilden. Tilden became UMERC’s  
18 customer after UMERC’s fleet began operation in April, 2019. So specifically, this IRP  
19 is for UMERC customers after April 2019.

20 **Q. What is the planning period covered by this IRP?**

21 A. The planning period for the IRP is 15 years starting in 2020.

22 **Peak Demand and Energy Forecasts**

23 **Q. Please describe the load forecast used to establish the amount of energy and demand**

1           **to be served by U MERC.**

2    A.    Load and peak demand for U MERC is forecast to be flat – not growing or shrinking –  
3           from 2020 through 2034. For planning purposes, the growth rate in the latter years of the  
4           forecast is used to extrapolate energy and peak demand out 15 years. Since the forecast  
5           is flat, the extrapolation is flat. U MERC is winter peaking at 81 MW with a summer  
6           peak demand of 78 MW.

7    **Q.    What sensitivities are analyzed in the IRP?**

8    A.    The purpose of sensitivity analyses is to check the robustness of the least cost plan if key  
9           assumptions turn out to be wrong. The primary sensitivity performed in this IRP is a 2%  
10           per year demand forecast growth.

11   **Q.    Can the Company still meet its demand obligations in the high growth forecast?**

12   A.    Yes. Under a high load growth scenario where the 2020 demand forecast grows at 2%  
13           per year the demand obligation with reserves will be about 125 MW in 2034. U MERC's  
14           generation fleet is capable of providing 183 MW.

15   **Q.    What reserve margin is assumed for U MERC?**

16   A.    A reserve margin is used to ensure adequate generation is available at peak demand. The  
17           MISO ICAP reserve margin requirements are 16.8% for the planning years 2020 – 2023 in  
18           the MISO's 2019-2020 Loss of Load Expectation Study. Starting in PY2024 the MISO  
19           planning reserve margin actually begins to decrease but as U MERC meets the reserve  
20           margin either way, 16.8% was used throughout the planning period for simplicity.

21   **Q.    What if some of the RICE units are not available to meet U MERC's demand  
22           obligation?**

23   A.    The U MERC generating fleet was designed and built with reliability in mind. Even in

1 the unlikely event that two units are completely unavailable at the same time, the  
2 Company is still capable of meeting its demand obligations with planning reserves for the  
3 entire planning period.

4 **Q. Do the load forecasts in the IRP include existing and projected energy efficiency**  
5 **savings?**

6 A. Yes.

7 **Environmental Regulations, Costs and Constraints**

8 **Q. How does the IRP address current and future environmental costs and constraints?**

9 A. The IRP focuses on the environmental costs and constraints associated with continued  
10 operation of the UMERC generation fleet for the planning period in the IRP of 15 years  
11 starting in 2020.

12 **Q. Which environmental regulations are applicable to the utility fleet? Please identify**  
13 **which regulations apply to which resources.**

14 A. The UMERC RICE generating units are subject to the New Source Performance  
15 Standards (“NSPS”) codified at 40 CFR Part 60 Subpart JJJJ and the National Emission  
16 Standards for Hazardous Air Pollutants (“NESHAP”) for Stationary RICEs codified at 40  
17 CFR Part 63 Subpart ZZZZ. The current permits to install (PTIs) contain emission limits  
18 for nitrogen oxides, carbon monoxide, volatile organic compounds, and particulate  
19 matter. The PTIs contain monitoring recordkeeping requirements applicable to each  
20 generating facility.

21 The generating facilities are major sources subject to the Michigan Renewable Operating  
22 Permit (“ROP”) program. It is expected any future ROPs issued by MDEQ will contain  
23 the same emission limits, monitoring, and recordkeeping requirements as the existing

1 PTIs.

2 The generating facilities are required to comply with existing federal regulations  
3 regarding solid and hazardous waste disposal and oil spill prevention measures. The  
4 generating facilities are not required to obtain any other state or federal permits.

5 **Q. What are the capital costs for compliance with new and reasonably expected**  
6 **environmental regulations for existing fleet assets in the utility IRP?**

7 A. No capital costs for compliance with environmental regulations are expected.

8 **Q. What is the proposed course of action?**

9 A. The Company is already positioned to provide service in the most reasonable and  
10 prudent way.

11 **Q. Does that conclude your direct testimony?**

12 A. Yes.

**STATE OF MICHIGAN**  
**BEFORE THE MICHIGAN PUBLIC SERVICE COMMISSION**

\*\*\*\*\*

In the matter of the application of )  
**UPPER MICHIGAN ENERGY RESOURCES** )  
**CORPORATION** for approval of its integrated )  
resource plan pursuant to MCL 460.6t )  
and other relief )

Case No. U-20470

**DIRECT TESTIMONY AND EXHIBIT**  
  
**OF**  
  
**JAMES O. SHERMAN, JR.**  
  
**ON BEHALF OF**  
  
**UPPER MICHIGAN ENERGY RESOURCES CORPORATION**



1 **Q. Please state your name and business address.**

2 A. My name is James O. Sherman, Jr. My business address is 231 W. Michigan Street,  
3 Milwaukee, Wisconsin 53203.

4 **Q. By whom are you employed and what is your position?**

5 A. I am employed by Wisconsin Electric Power Company (“WEPCo”), a subsidiary of WEC  
6 Energy Group, Inc. (“WEC Energy Group”) as Director – Wholesale and Customer  
7 Solutions and work for all of WEC Energy Group’s electric utilities in this capacity.

8 **Q. Please describe your educational and business experience.**

9 A. My education includes a Bachelor of Science degree in Electrical Engineering from  
10 Purdue University (1990) and a Master’s degree in Business Administration from Olivet  
11 Nazarene University (1996).

12 My work experience began in 1990 with Commonwealth Edison, where I held various  
13 retail services and retail account management positions. In 1998, I joined Cooper Power  
14 Systems, which is now a part of Eaton Corporation, where I served as their product post-  
15 shipment Service Manager and product line manager for parts sales and services. I  
16 joined WEPCo in 2008 as a Wholesale Account Manager in the Wholesale Energy  
17 Marketing group and moved into the position of Power Marketer in this same group in  
18 2009. My responsibilities included wholesale account and contract management of  
19 wholesale customers, power marketing of available capacity and energy, and  
20 procurement of renewable energy to meet the company’s renewable portfolio standard  
21 requirements in all jurisdictions. In 2015, I became Manager – Wholesale Energy  
22 Marketing and assumed the added responsibility for Wisconsin Public Service  
23 Corporation’s (“WPS Corp”) wholesale and renewable activities as a result of the

1 acquisition by WEC Energy Group (then known as Wisconsin Energy Corporation) of  
2 Integrys Energy Group, Inc. in June, 2015. In 2016, I became the Director – Wholesale  
3 and Customer Solutions. In this role, I am responsible for the management of the  
4 Wholesale Energy Marketing group and the Customer Solutions group which is  
5 responsible for retail account management of the largest commercial and industrial  
6 customers for WEC Energy Group’s electric utilities, including Upper Michigan Energy  
7 Resources Corporation (“UMERC”), WEPCo and WPS Corp.

8 **Q. Do you hold a professional license or belong to any professional organizations?**

9 A. Yes, I am a licensed Engineer Intern in the State of Indiana and received my license in  
10 1990 (# ET00900529).

11 **Q. Have you previously submitted testimony to the Michigan Public Service  
12 Commission (“MPSC” or the “Commission”) or any other regulatory agency?**

13 A. Yes, I provided testimony before the MPSC in Case No. U-18224.

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

15 A. The purpose of my testimony is to discuss UMERC’s Renewables and Renewable  
16 Portfolio Standards (“RPS”) Goals.

17 **Q. Are you sponsoring any exhibits to accompany your testimony?**

18 A. Yes. I am sponsoring the following exhibit: Exhibit A-1(JOS-1) – Renewable Energy  
19 Plan Summary for both the WEPCo and WPS Rate Zones.

20 **Q. Was UMERC required to file a revised Renewable Energy (“RE”) Plan with the  
21 approval of UMERC formation in docket U-18061?**

22 A. Yes. UMERC made a revised RE plan filing on March 9, 2017 in case U-18236. The  
23 Commission approved a settlement agreement in this case on January 23, 2018.

1 **Q. Did the settlement agreement address Tilden sales in the RE targets?**

2 A. Yes. On page 7 of the settlement agreement, 6(j.) contains the following provision:  
3 “Pursuant to MCL 460.1045(2), in determining the number of [Renewable Energy  
4 Credits] REC’s to be included in UMERC’s annual REC portfolio targets, UMERC shall  
5 not include any Tilden sales beyond those REC’s than can be obtained through RE  
6 surcharges collected from Tilden.”

7 **Q. Please describe this in more detail.**

8 A. Public Act 295 of 2008 capped the amount of the surcharge to \$187.50/per month to  
9 Tilden, or \$2,250 annually. The settlement agreement limits the costs of REC’s obtained  
10 to RE surcharge dollars that can be collected from Tilden. Thus, UMERC will obtain  
11 approximately \$2,250 in REC’s on an annual basis for the Tilden retail sales.

12 **Q. How will UMERC meet its compliance with the existing renewable energy  
13 standards?**

14 A. UMERC will utilize a combination of existing RECs from its bank and third party  
15 purchases of RECs as necessary. The RE plan approved by the Commission forecasted  
16 the UMERC REC bank to be sufficient to meet the RE requirements until approximately  
17 2022 for each rate zone. When future REC purchases will be made, settlement agreement  
18 provision 6.(m) in Docket U-18361 provides that “UMERC will utilize a competitive  
19 solicitation process for REC purchases, which may include issuing a Request for  
20 Proposal.”

21 **Q. How will UMERC determine the quantity of MWh to be used in the calculation of  
22 the REC portfolio requirements?**

23 A. UMERC’s determination of the REC portfolio requirements will be based on the average

1 number of MWh of electricity sold by UMERC annually during the previous three years  
2 to its Michigan retail customers.

3 **Q. Can you provide some detail on the REC's needed in 2022 and beyond and current**  
4 **costs for REC's?**

5 A. Yes. As shown in Exhibit A-1 (JOS-1), the annual RE requirement for UMERC without  
6 the Tilden Mine load is approximately 94,000 mwhs. The current estimated procurement  
7 cost is in the range of \$1 to \$3 per REC.

8 **Q. How is UMERC's plan for renewable energy consistent with the goals required by**  
9 **the Michigan Legislature?**

10 A UMERC will meet the increased renewable energy procurement level of 12.5% for 2019  
11 and 2020 and 15% thereafter.

12 **Q. What options does UMERC offer related to customer-initiated renewable energy**  
13 **procurement?**

14 A. UMERC offers its retail customers a green energy procurement program, in both rate  
15 zones, whereby customers are able to procure all or a portion of their energy needs with  
16 renewable energy. The estimated green energy program sales for both rate zones are ~  
17 500 MWh annually.

18 **Q. How will UMERC meet the demand for its green energy programs?**

19 A. UMERC will include the demand for its green energy programs in its overall  
20 procurement strategy for obtaining RECs in order to maintain compliance with the RPS  
21 requirements. The strategy may include a portfolio of banked RECs, third party REC  
22 only purchases in accordance with RPS requirements or from owned renewable  
23 generation, at such point that renewable generation is included in UMERC's generation

1 portfolio.

2 **Q. Please provide the sales forecast showing UMEREC's compliance with the renewable**  
3 **energy standard.**

4 A. Please see Exhibit A-1(JOS-1) – Renewable Energy Plan Summary for both the WEPCo  
5 and WPSC Rate Zones.

6 **Q. Please describe UMEREC's resource plan and planned renewable energy credit**  
7 **portfolio for compliance with the renewable energy standard.**

8 A. As stated previously, UMEREC's overall procurement strategy for obtaining RECs in  
9 order to maintain compliance with the RPS requirements may include a portfolio of  
10 banked RECs, third party REC only purchases in accordance with RPS requirements or  
11 from owned renewable generation, at such point that renewable generation is included in  
12 UMEREC's generation portfolio.

13 **Q. What is UMEREC's forecasted quantity of RECs obtained via Michigan incentive**  
14 **RECs?**

15 A. Approximately 560 incentive RECs are forecasted for 2019. For 2020 and beyond,  
16 UMEREC does not own any generation resources or have any REC procurement contracts  
17 in place for procurement of RECs from generation resources eligible for incentive RECs  
18 at this time.

19 **Q. What are the expected compliance levels by year to meet the renewable portfolio**  
20 **targets?**

21 A. 12.5% in 2019 and 2020 and 15% starting in 2021.

22 **Q. What are the key assumptions used in developing UMEREC's forecasts and the**  
23 **proposed resource portfolio?**

1 A. The key assumptions are relatively steady load, no changes in the RPS compliance levels  
2 from current requirements, use of banked RECs toward compliance before their  
3 expiration and availability of Michigan RPS compliant RECs from third party suppliers.

4 **Q. Please identify any risks which may drive performance to vary.**

5 A. Changes in UMEREC's load, further adjustments to the RPS requirements and availability  
6 of Michigan compliant RECs.

7 **Q. Does this conclude your testimony?**

8 A. Yes it does.

**Renewable Energy Plan Summary**  
**WEPCO & WPSC Rate Zones**

Case U-20470  
 Exhibit A-1(JOS-1)  
 April, 2019  
 Page 1 of 1

		Wepco Rate Zone			WPSC Rate Zone			UMERC
YEAR	RE Goal %	Sales MWH	3 Yr Avg MWH	RE MWH	Sales MWH	3 Yr Avg MWH	MWH	RE MWH
2020	12.5%	369,064	363,015	45,377	257,973	253,309	31,664	77,041
2021	15.0%	367,747	363,135	54,470	257,492	235,521	35,328	89,798
2022	15.0%	367,855	363,287	54,493	257,403	253,368	38,005	92,498
2023	15.0%	367,949	368,222	55,233	257,141	257,623	38,643	93,877
2024	15.0%	368,021	367,850	55,178	258,024	257,345	38,602	93,779
2025	15.0%	368,104	367,942	55,191	259,039	257,523	38,628	93,820
2026	15.0%	368,190	368,025	55,204	260,124	258,068	38,710	93,914
2027	15.0%	368,280	368,105	55,216	261,340	259,062	38,859	94,075
2028	15.0%	368,369	368,191	55,229	262,949	260,168	39,025	94,254
2029	15.0%	367,146	368,280	55,242	262,287	261,471	39,221	94,463
2030	15.0%	366,840	367,932	55,190	262,933	262,192	39,329	94,519
2031	15.0%	366,534	367,452	55,118	263,580	262,723	39,408	94,526
2032	15.0%	366,228	366,840	55,026	264,226	262,933	39,440	94,466
2033	15.0%	365,922	366,534	54,980	264,873	263,580	39,537	94,517
2034	15.0%	365,616	366,228	54,934	265,519	264,226	39,634	94,568

3 year average sales taken from RE Plan Case U-18236

**Upper Michigan Energy Resources Corporation**

# **Integrated Resource Plan**

## **April 2019**

**Case No. U-20470**





## 2020 Integrated Resource Plan (IRP) for UMERC beginning in 2020

### I. Executive Summary

Upper Michigan Energy Resource Company (UMERC) is a public utility in the business of generating, purchasing, distributing, and selling electric energy to its customers. UMERC was formed from the previous Michigan portions of Wisconsin Electric Power Company (WEPCo) and Wisconsin Public Service Corp. (WPS Corp) service territories as ordered in Case No. U-18061. Located entirely in the Upper Peninsula (UP) of Michigan, UMERC has some unique challenges that it has considered and met within this IRP to provide reliable electric service to its customers.

UMERC has a firm load obligation of 81 MW<sup>1</sup> in the year 2020. Under the High Growth Scenario the Company has a firm obligation of 107 MW<sup>2</sup> at the end of the 15 year study. The Company's load obligation and reserve margins are met with its existing generation fleet which provides 183 MW<sup>3</sup> of generation capacity. For all scenarios there is no need for additional generation or demand side resources.

When it comes to meeting regulatory standards, there are no plans to add additional generation. UMERC expects to continue to utilize the State of Michigan Energy Waste Reduction ("EWR") Administrator for implementation of EWR. The Company expects to meet Renewable Portfolio Standards (RPS) with a mix of existing Renewable Energy Credits (REC's) and purchasing any additional needs from the market. On the Environmental front, UMERC is in good shape, seeing no need for capital projects during the study period.

UMERC is positioned to meet the IRP requirements in the most reasonable and prudent manner with no action required at this time.

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<sup>1</sup> Table 2: Load Forecast

<sup>2</sup> Table 3: Load Forecast – High Growth Scenario

<sup>3</sup> Table 1: Existing Generation Resources

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### **III. Introduction**

Pursuant to the Commission's December 9, 2016 approval of the settlement agreement signed by all the parties in Case No. U-18061, on January 1, 2017, UMERG was established as a Michigan jurisdictional regulated utility providing service to electric and natural gas customers in Michigan. UMERG is engaged as a public utility in the business of generating, purchasing, distributing, and selling electric energy to approximately 36,500 full requirements customers, as well as any distribution-only customers who qualify for retail access service ("RAS"). UMERG also provides retail natural gas service to approximately 5,300 full requirements customers, and natural gas transportation service to approximately 17 transportation customers.

The Company is presenting this IRP in accordance with Public Act 341 of 2016 along with its associated cases (Case No. U-15896, Case No. U-18418). The IRP being presented represents the most prudent means of meeting the Company's energy and capacity needs for the 15 year planning timeframe.

UMERG has a generation fleet of 10 Reciprocating Internal Combustion Engine ("RICE") spread between two sites for a total of 183 MW. These units were built for the reasons detailed in Case No. U-18224 and provide the necessary generation and reliability that is needed to support UMERG customers located in the UP. With the mines contract (Case No. U-17682) and a non-mine firm load obligation of approximately 81 MW, the fleet adequately covers the needs of UMERG customers. The IRP being filed by the Company shows that no additional generation or demand reduction is required during the 15-year planning timeframe and recommends no additional action be taken at this time.

The RICE units began commercial operation March 31, 2019 and were built with the expectation of meeting all environmental regulations known at the time. Since there haven't been any dramatic changes these new units are expected to meet all environment standards for the duration of the study.

It is the Company's belief that this is the most reasonable and prudent means of serving its customers and should be accepted.

### **IV. Existing Supply Side Generation Resources**

UMERG owns two Power Plants for a total of 183 MWs of generating capacity. The A.J. Mihm Generating Station in Baraga Township has three 18.3MW natural gas fueled RICE units totaling 54.9 MW. The F.D. Kuester Generating Station in Negaunee Township has seven 18.3MW natural gas fueled RICE units for a total of 128.1 MW. Both power plants began commercial operation April, 2019.

**Table 1: Existing Generation Resources**

<b>Plant</b>	<b>Unit</b>	<b>Fuel</b>	<b>Capacity</b>
A.J. Mihm	1	Natural Gas	18.3 MW
A.J. Mihm	2	Natural Gas	18.3 MW
A.J. Mihm	3	Natural Gas	18.3 MW
F.D. Kuester	1	Natural Gas	18.3 MW
F.D. Kuester	2	Natural Gas	18.3 MW
F.D. Kuester	3	Natural Gas	18.3 MW
F.D. Kuester	4	Natural Gas	18.3 MW
F.D. Kuester	5	Natural Gas	18.3 MW
F.D. Kuester	6	Natural Gas	18.3 MW
F.D. Kuester	7	Natural Gas	18.3 MW
<b>Total</b>			<b>183.0 MW</b>

## V. Demand Side Resources

### Energy Waste Reduction

Since the implementation of Act 295 of 2008, WEPCo and WPS Corp, and now UMERC, have utilized the option provided in PA 295 to use the EWR administrator selected by the Commission. UMERC has no plans at this time to change this.

UMERC filed its last EWR case in Case No. U-18266 and the Commission approved this plan on December 20, 2017. The surcharges in place for UMERC collect an amount equal to 2% of UMERC 2017 retail electric revenues. Two larger retail electric customers continue to choose to do self-directed EWR plans. UMERC is not planning to make changes to implementation of EWR. UMERC will be filing its next EWR case by July 1, 2019.

### Demand Response Programs

UMERC has a significant amount of electric non-firm load on its system, more than the amount of firm load requirements. The non-firm load is obtained from six larger industrial customers of UMERC that take service under a retail tariff or special contract approved by the Commission that includes a non-firm service option. The retail tariffs are open to additional customers to participate, both new customers to the UMERC system or existing customers currently taking firm service and desiring to take non-firm service. Due to the amount of existing non-firm load and the fact that UMERC has excess capacity, UMERC does not see a need to actively pursue more non-firm load.

Below is a listing of the various electric non-firm load options for UMERC.

### **WEPCO RATE ZONE**

Tilden Special Contract. As of April 1, 2019, Tilden takes electric service from UMERC under a special contract approved by the Commission in Case No. U-18224. This

special contract includes interruptible service and at this time the entire electric load of Tilden is being served as non-firm. UMERC utilizes this as a Load Modifying Resource (“LMR” with MISO).

General Primary Full Requirements and Retail Access Service – Large Curtailable Contract Rate – CpLC. This tariff is contained on rate sheets D-40.00-D43.00 and is available to customers taking service at 13.8 kilovolts or higher with a minimum of 50 megawatts of curtailable load. No customers are currently taking service under this rate schedule.

General Primary Full Service Requirements Service Interruptible Rate Cp2. This tariff is contained on rate sheets D-27.00 – D28.00 and is available to customers taking service at 2,400 volts or higher with at least 1,000 kilowatts of interruptible load. No customers are currently taking non-firm service under this rate schedule.

General Primary Full Requirements Service – Curtailable Contract Rate – Cp3. This tariff is contained on rate sheets D-29.00-D32.00 and is available to customers taking service at 2,400 volts or higher with a minimum of 500 kilowatts of curtailable load. Two customers are currently taking non-firm service under this rate schedule UMERC utilizes this as a Load Modifying Resource (“LMR” with MISO) with a capacity of approximately 6 MW.

Special Contract. A customer takes electric service from UMERC under a special contract approved by the Commission in Case No. U-10959. This special contract includes interruptible service. UMERC utilizes this as a Load Modifying Resource (“LMR” with MISO).

### **WPSC RATE ZONE**

CPI. This tariff is contained on rate sheets D-122.00 - D130.00 and is available to customers taking service on the Cp-1M rate schedule with a minimum of 200 kilowatts of interruptible load. Two customers are currently taking non-firm service under this rate schedule UMERC utilizes this as a Load Modifying Resource (“LMR” with MISO) with a capacity of approximately 14 MW.

## **VI. Renewables and Renewable Portfolio Standard Goals**

The Renewable Energy (RE) plan approved by the Commission in Case U-18236 forecasted existing Renewable Energy Credits (REC’s) to be sufficient until 2022. When UMERC’s REC bank runs out, future REC purchases will be made subject to settlement agreement provision 6.(m) in Docket U-18361. Procuring the REC’s are expected to cost \$1-\$3 per REC, substantially cheaper than building generation for the sole purpose of REC’s.

As detailed in the direct testimony provided by James O. Sherman, Jr. accompanying this filing, the Company has a prudent plan to meet the known renewables standards.

## VII. Peak Demand and Energy Forecasts

Overview: Both peak demand and energy forecasts for UMERC are expected to be flat over the next 15 years. UMERC is winter peaking at 81 MW with a summer peak demand of 78 MW.

A summary of the forecasts of monthly energy and firm peak demand requirements for the UMERC system is provided in the Table 1. A summary of the high growth scenario forecasts of monthly energy and firm peak demand requirements for the UMERC system is provided in Table 2. The high growth scenario assumes annual growth of two percent excluding the Cliffs' mining operations.

The UMERC service territory is divided into two distinct geographic areas. The geographic area in which UMERC provides electric service to former Wisconsin Electric Power Company customers is known as the "WEPCo Rate Zone," and the geographic area in which UMERC provides electric service to former Wisconsin Public Service Corporation customers is known as the "WPSC Rate Zone".

The energy forecasts for both rate zones were prepared by customer classes. Examples of customer classes included residential, small commercial and industrial, and large commercial and industrial. Forecasts for each customer class were developed primarily by using statistical models<sup>4</sup> which identified a historical relationship between energy and factors that influenced the use of energy including weather, economic, operational, energy efficiency, and trend variables. Forecasts of these variables were then used to estimate future energy use for each customer class. Customer specific estimates were also incorporated into the class forecasts for the largest customers with guidance and input from account management personnel. Next, distribution losses were added to produce forecasts of generation requirements by rate zone. Finally, the energy forecasts for the two rate zones were added together to produce the UMERC energy forecast.

The demand forecast for UMERC was prepared by adding together the UMERC – WEPCo Rate Zone demand forecast<sup>5</sup> and the UMERC – WPSC Rate Zone forecast<sup>6</sup>.

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<sup>4</sup> The UMERC – WEPCo Rate Zone energy forecasts were developed using the SAS Forecast Studio software application. This application utilized a combination of statistical methods including econometric linear regression models, autoregressive integrated moving average (or ARIMA) models, and exponential smoothing. The UMERC – WPSC Rate Zone energy forecasts were developed using the Itron MetrixND software application. The models for residential use-per-customer and small commercial and industrial use-per-customer utilized the statistically adjusted end-use (or SAE) models.

<sup>5</sup> The UMERC – WEPCo Rate Zone demand forecast was based on an econometric specification taking into account generation level energy, weather, customers, air conditioner saturation rates, and a number of binary variables. Load research data relating energy sales to peak demand were used to convert the UMERC – WEPCo Rate Zone energy forecast to a corresponding peak demand forecast. Interruptible and curtailable demands were subtracted from the result to arrive at the forecast of firm demand.

<sup>6</sup> The UMERC – WPSC Rate Zone demand forecast was based on monthly historical data for total demand, firm demand, and interruptible demand. A monthly average was taken of the historical period, and these averages were used for the forecast period. Interruptible and curtailable demand were subtracted from the result to arrive at the forecast of firm demand.

Load associated with sales to wholesale customers and deliveries to Retail Access Service (RAS) customers is not included in these forecasts.

Table 2: Load Forecast

Native System Energy (MWh)													
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Sum
2020	164,848	151,629	160,737	152,140	156,804	152,203	160,206	160,244	150,824	154,976	152,073	162,178	1,878,862
2021	164,754	145,538	160,709	152,111	156,784	152,218	160,206	160,216	150,817	154,988	152,077	162,145	1,872,563
2022	164,721	145,480	160,712	152,113	156,794	152,251	160,231	160,223	150,829	155,008	152,089	162,132	1,872,582
2023	164,681	145,455	160,698	152,101	156,786	152,253	160,224	160,208	150,823	155,005	152,078	162,102	1,872,414
2024	164,702	145,628	160,743	152,155	156,850	152,335	160,312	160,295	150,909	155,090	152,167	162,185	1,873,370
2025	164,792	145,621	160,838	152,251	156,951	152,448	160,425	160,408	151,011	155,187	152,262	162,272	1,874,468
2026	164,891	145,676	160,936	152,354	157,057	152,561	160,540	160,521	151,113	155,281	152,353	162,356	1,875,639
2027	164,984	145,770	161,033	152,458	157,165	152,682	160,665	160,648	151,227	155,390	152,461	162,462	1,876,945
2028	165,101	146,026	161,152	152,582	157,296	152,824	160,813	160,799	151,363	155,516	152,587	162,585	1,878,643
2029	165,009	144,550	161,108	152,539	157,260	152,810	160,787	160,755	151,336	155,501	152,565	162,535	1,876,757
2030	165,045	144,197	161,162	152,596	157,323	152,889	160,864	160,827	151,405	155,570	152,631	162,588	1,877,098
2031	165,081	143,845	161,216	152,653	157,387	152,967	160,942	160,899	151,474	155,638	152,696	162,641	1,877,438
2032	165,117	143,492	161,270	152,711	157,450	153,045	161,019	160,971	151,543	155,706	152,761	162,695	1,877,779
2033	165,153	143,139	161,323	152,768	157,514	153,123	161,096	161,043	151,612	155,774	152,827	162,748	1,878,119
2034	165,189	142,787	161,377	152,826	157,577	153,201	161,173	161,115	151,681	155,843	152,892	162,801	1,878,460
Native System Firm Peak Demand (MW)													
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Max
2020	81.1	69.9	68.7	63.2	59.2	72.4	78.2	69.8	67.6	59.3	67.9	72.3	81.1
2021	81.1	69.6	68.7	63.2	59.3	72.4	78.2	69.8	67.6	59.3	67.9	72.3	81.1
2022	81.1	69.6	68.7	63.2	59.3	72.4	78.2	69.8	67.6	59.3	67.9	72.3	81.1
2023	81.1	69.6	68.7	63.3	59.3	72.4	78.2	69.8	67.6	59.3	67.9	72.2	81.1
2024	81.1	69.6	68.7	63.3	59.3	72.5	78.2	69.8	67.6	59.3	67.8	72.2	81.1
2025	81.1	69.6	68.7	63.3	59.3	72.5	78.3	69.8	67.6	59.3	67.8	72.2	81.1
2026	81.1	69.5	68.7	63.3	59.3	72.5	78.3	69.8	67.7	59.3	67.8	72.2	81.1
2027	81.1	69.5	68.7	63.3	59.3	72.5	78.3	69.8	67.7	59.3	67.8	72.2	81.1
2028	81.1	69.5	68.7	63.3	59.3	72.5	78.3	69.8	67.7	59.3	67.8	72.2	81.1
2029	81.1	69.5	68.7	63.4	59.4	72.5	78.3	69.9	67.7	59.3	67.8	72.2	81.1
2030	81.1	69.4	68.7	63.4	59.4	72.6	78.3	69.9	67.7	59.3	67.8	72.2	81.1
2031	81.1	69.4	68.7	63.4	59.4	72.6	78.3	69.9	67.7	59.3	67.8	72.2	81.1
2032	81.1	69.4	68.7	63.4	59.4	72.6	78.3	69.9	67.7	59.3	67.8	72.1	81.1
2033	81.1	69.4	68.7	63.5	59.4	72.6	78.3	69.9	67.7	59.3	67.8	72.1	81.1
2034	81.0	69.3	68.7	63.5	59.4	72.6	78.3	69.9	67.7	59.3	67.8	72.1	81.0

Table 3: Load Forecast – High Growth Scenario

Native System Energy (MWh)													
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Sum
2020	164,848	151,629	160,737	152,140	156,804	152,203	160,206	160,244	150,824	154,976	152,073	162,178	1,878,862
2021	166,014	148,210	161,820	153,142	157,808	153,206	161,279	161,318	151,799	155,944	153,073	163,290	1,886,902
2022	167,203	149,313	162,925	154,163	158,833	154,228	162,373	162,412	152,794	156,931	154,093	164,424	1,899,693
2023	168,416	150,438	164,052	155,205	159,878	155,272	163,489	163,529	153,808	157,938	155,134	165,581	1,912,741
2024	169,653	151,585	165,202	156,268	160,944	156,336	164,627	164,669	154,843	158,966	156,195	166,762	1,926,049
2025	170,914	152,755	166,375	157,352	162,032	157,421	165,788	165,831	155,899	160,014	157,278	167,966	1,939,623
2026	172,201	153,949	167,571	158,457	163,141	158,528	166,973	167,016	156,975	161,083	158,382	169,193	1,953,469
2027	173,514	155,167	168,791	159,585	164,273	159,657	168,181	168,225	158,073	162,173	159,508	170,446	1,967,592
2028	174,853	156,409	170,035	160,735	165,427	160,809	169,413	169,458	159,193	163,285	160,657	171,723	1,981,998
2029	176,218	157,676	171,305	161,909	166,604	161,984	170,670	170,716	160,336	164,419	161,829	173,027	1,996,691
2030	177,611	158,968	172,599	163,106	167,805	163,182	171,952	171,999	161,501	165,576	163,024	174,356	2,011,678
2031	179,032	160,286	173,920	164,326	169,029	164,405	173,260	173,307	162,690	166,756	164,243	175,711	2,026,966
2032	180,481	161,630	175,267	165,572	170,279	165,651	174,593	174,642	163,902	167,960	165,486	177,094	2,042,558
2033	181,960	163,001	176,641	166,842	171,553	166,923	175,954	176,003	165,139	169,188	166,755	178,505	2,058,463
2034	183,468	164,400	178,042	168,137	172,852	168,220	177,342	177,392	166,401	170,440	168,048	179,943	2,074,686
Native System Firm Peak Demand (MW)													
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Max
2020	81.1	69.9	68.7	63.2	59.2	72.4	78.2	69.8	67.6	59.3	67.9	72.3	81.1
2021	82.7	71.3	70.1	64.5	60.4	73.8	79.8	71.2	68.9	60.5	69.2	73.7	82.7
2022	84.4	72.7	71.5	65.8	61.6	75.3	81.4	72.6	70.3	61.7	70.6	75.2	84.4
2023	86.1	74.2	72.9	67.1	62.9	76.8	83.0	74.1	71.7	63.0	72.0	76.7	86.1
2024	87.8	75.7	74.4	68.4	64.1	78.4	84.7	75.6	73.2	64.2	73.4	78.2	87.8
2025	89.5	77.2	75.9	69.8	65.4	79.9	86.3	77.1	74.6	65.5	74.9	79.8	89.5
2026	91.3	78.7	77.4	71.2	66.7	81.5	88.1	78.6	76.1	66.8	76.4	81.4	91.3
2027	93.2	80.3	78.9	72.6	68.1	83.2	89.8	80.2	77.6	68.2	77.9	83.0	93.2
2028	95.0	81.9	80.5	74.1	69.4	84.8	91.6	81.8	79.2	69.5	79.5	84.7	95.0
2029	96.9	83.5	82.1	75.5	70.8	86.5	93.5	83.4	80.8	70.9	81.1	86.4	96.9
2030	98.9	85.2	83.8	77.0	72.2	88.3	95.3	85.1	82.4	72.3	82.7	88.1	98.9
2031	100.8	86.9	85.4	78.6	73.7	90.0	97.2	86.8	84.0	73.8	84.4	89.9	100.8
2032	102.8	88.7	87.2	80.2	75.1	91.8	99.2	88.5	85.7	75.3	86.1	91.7	102.8
2033	104.9	90.4	88.9	81.8	76.6	93.7	101.2	90.3	87.4	76.8	87.8	93.5	104.9
2034	107.0	92.2	90.7	83.4	78.2	95.5	103.2	92.1	89.2	78.3	89.5	95.4	107.0

## VIII. Capacity and Reliability Requirements

UMERC currently has 81 MW of firm load, far less than the 183 MW of capacity owned by the Company. Under a high load growth scenario where the 2020 demand forecast is grown at 2% per year the Company maintains plenty of capacity to fulfil its demand obligation with reserves. The UMERC generating fleet was designed and built with reliability of the Upper Peninsula in mind. From a reliability perspective the fleet is capable of providing 146 MW of power in an N-2 contingency. With the High Growth Scenario shown in the Demand for 2034 is 107 MW. Applying MISO’s Planning Reserve Margin of 16.8%<sup>7</sup> yields 125 MW. Even in the unlikely event that 2 units are completely unavailable at the same time, the Company is still capable of meeting its demand obligations with planning reserve margin for the entirety of the study. The units were also split between two sites for reliability reasons, reducing the need for transmission to provide similar system support.

<sup>7</sup> As sourced from “Planning Year 2019-2020 Loss of Load Expectation Study Report” pg. 22  
<https://cdn.misoenergy.org/2019%20LOLE%20Study%20Report285051.pdf>



**IX. Proposed Course of Action**

The proposed course of action is to move forward with the existing fleet. UMERC is a relatively new utility and its entire fleet of generators recently became commercial. All planning assumptions that led to the building of the generators are still valid today and under all reasonable circumstances still serve as the most reasonable and prudent means to provide customers with reliable electric service.

**X. Environmental**

UMERC’s 10 RICE generators are subject to the New Source Performance Standards (“NSPS”) codified at 40 CFR Part 60 Subpart JJJJ and the National Emission Standards for Hazardous Air Pollutants (“NESHAP”) For Stationary Reciprocating Internal Combustion Engines codified at 40 CFR Part 63 Subpart ZZZZ. The current Permits to Install (PTIs) for the generators contain emission limits for nitrogen oxides, carbon monoxide, volatile organic compounds, and particulate matter as well as specifying monitoring and recordkeeping requirements.

The generating facilities are subject to the Michigan Renewable Operating Permit (ROP) program and it is the Companies expectation that any future ROPs issued by the Michigan Department of Environmental Quality (MDEQ) will contain the same emission limits, monitoring, and recordkeeping requirements. Finally, the generating facilities have to comply with existing Federal regulations regarding solid and hazardous waste disposal and oil spill prevention measures.

There are no other State or Federal permits required for the generators at this time. There are no additional facilities planned during the study period and the existing fleet anticipates no capital projects to meet expected environmental regulations during the study period.

For all scenarios the emissions expectations are:

Table 4: Annual Emissions

Estimated Actual Emissions (10 RICE generating units)		
POLLUTANT		Estimated Annual Emissions
		ton/year (except Hg)
Sulfur Dioxide	SO <sub>2</sub>	2.7
Nitrogen Oxides	NO <sub>x</sub>	159
Carbon Dioxide	CO <sub>2</sub>	503,088
Particulate Matter	PM	103
Mercury	Hg	0.01 pounds

**XI. Exhibits and Work Papers**

Table 5: Capacity versus Demand

<b>System Capacity vs Native System Firm Peak Demand (MW)</b>				
	Capacity	Demand	Reserve (15%)	Excess/Deficient
2020	183.000	81.093	12.164	89.743
2021	183.000	81.087	12.163	89.750
2022	183.000	81.085	12.163	89.752
2023	183.000	81.085	12.163	89.752
2024	183.000	81.080	12.162	89.758
2025	183.000	81.076	12.161	89.763
2026	183.000	81.073	12.161	89.766
2027	183.000	81.069	12.160	89.771
2028	183.000	81.069	12.160	89.771
2029	183.000	81.064	12.160	89.776
2030	183.000	81.061	12.159	89.780
2031	183.000	81.058	12.159	89.783
2032	183.000	81.055	12.158	89.787
2033	183.000	81.052	12.158	89.790
2034	183.000	81.049	12.157	89.794