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Making the Most of Michigan's Energy Future

MIRPP & Filing Requirements

Advanced Planning Stakeholder Meeting
December 16, 2021

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Welcome Back!

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Workgroup Instructions

1. This meeting is being recorded.
2. Please be sure to mute your lines.
3. There will be opportunities for discussion throughout each presentation. Please use the raised hand function and the presenter will call on you when it is your turn to speak or type your comment in the chat.
4. Please be respectful and courteous when others are speaking.
5. We will be requesting comments after all meetings. All comments will be posted to the webpage.
6. The presentations for all meetings are posted to the Advanced Planning webpage.
7. If you are having technical difficulty, please contact Merideth Hadala at HadalaM@Michigan.gov .

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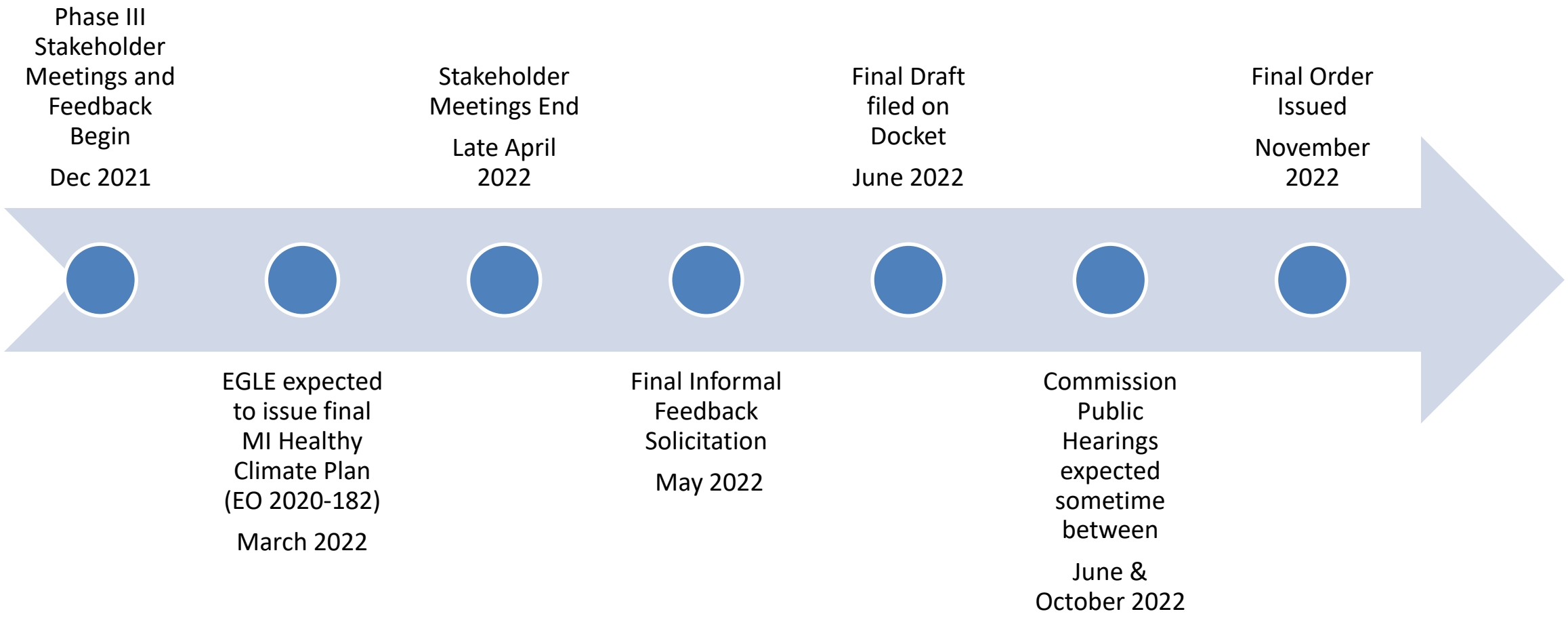
Agenda Items		
9:00 a.m.	Introduction	Naomi Simpson (MPSC)
9:20 a.m.	Integrated Resource Plan Filing Requirements Overview	Jesse Harlow (MPSC)
10:15 a.m.	Break (5 min)	
10:20 a.m.	Michigan Integrated Resource Planning Parameters Overview	Naomi Simpson (MPSC)
11:15 a.m.	Break	
11:25 a.m.	Demand Response Potential Study Results Overview	Roger Doherty (MPSC)
11:55 a.m.	Energy Waste Reduction Potential Study Results Overview	Katie Smith (MPSC)
12:25 p.m.	Closing	Naomi Simpson (MPSC)
12:30	Adjourn	

Phase II Recap

- Phase II stakeholder meetings were held from September 2020 thru March 2021.
- During this time, Governor Whitmer issued ED 2020-10 that included carbon goals.
- The Commission issued an order providing interim guidance related to the ED.
- Staff issued its final Phase II report in May of 2021.
- The Commission issued an order adopting Staff's report on September 24, 2021.

Phase III Tentative Timeline



Phase III Stakeholder Meetings – Tentative Plan

- Meeting #1 December 16th
  - Initial Staff Drafts, Review Potential Study Results, Solicit Feedback
- Meeting #2 January 31st
  - Review Stakeholder Feedback Highlights on MIRPP and Filing Requirements, Base Case Scenario Stakeholder Discussion, Climate Change Stakeholder Discussion.
- Meeting #3 Late February
  - Review Environmental Rules/Laws in MIRPP, Review Environmental Considerations in Filing Requirements, Demo EJ Tool, Electrification and Decarbonization Scenario Discussion including Carbon Counting.
- Meeting #4 Late March
  - TBD
- Meeting #5 Late April
  - Review Refined Drafts with Stakeholders and Solicit final Feedback Due in May.

Major Changes to Highlight

Staff is proposing:

1. The MIRPP contain 2 scenarios.
2. Eliminating the UP only scenario.
3. Inclusion of Environmental Considerations developed by EGLE in the IRP Filing Requirements.
4. Scale back the IRP Report to a public facing summary.
5. Present the detail currently in the IRP Report and supporting data in the actual filing.

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Integrated Resource Plan Filing Requirements

Jesse Harlow

MPSC

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Ways to Submit Feedback

- Through discussion here:
  - We will be taking notes and recording
- Email:
  - Gibbsk2@Michigan.gov - Kayla Gibbs
  - Please include written changes in ~~Strike~~ **Bold**

Explanation for Filing Requirement Changes

- Changes and updates resulted from:
  - Experience with first round of IRPs
  - MI Power Grid Stakeholder Meetings in U-20633
  - Executive Directive 2020-10
  - Coordination with Utilities, Department of Energy and Great Lakes, and other Stakeholders.

General Changes and Overall Theme

- “Preferred Plan” => “Proposed Resource Plan”
- Inclusion of more comprehensive risk assessment.
- More robust EJ and Carbon analysis consistent with ED 2020-10.
  - (Need ideas for counting carbon from market purchases)
- More robust storage evaluation.
  - (evaluation of combinations of resources as a single asset)
- Detail included in IRP with less emphasis on annual report.
- More in depth evaluations of resources and methods.

Stakeholder Engagement and Public Outreach Process

- All presentations, recordings, comments, and transcripts should be maintained on a website in a location open to the public for the duration of the stakeholder outreach process and the duration of the IRP case, until a final commission order is published.

Approval of Costs

- For both Section I and II - Supply side resources less than 225 MW and Renewable resources.
  - n/k) Procurement strategy, including power purchase agreements and company owned. Reference the most recent Commission approved Competitive Procurement Guidelines.
  - o/l) A description of the decommissioning process, costs, and how the utility intends to provide assurance of proper disposal with consideration of material salvage and recycling.
- Separated Demand Response and Distributed Energy Resources out of Section III (Energy Waste Reduction) and created Section IV.
  - IV) i. and ii. – changed “portfolio” to “program”
    - This change will help gain greater insight into the costs of each individual program as opposed to an aggregated portfolio.

IRP Filing, Data, and Documentation ~~Report and Documentation~~

- V) Analytical Approach:
  - b) iii. **If multiple forms of risk assessment are presented the utility shall explain why certain risk variables could not be included in or are unsuited for one type of risk assessment or another. Considering a risk variable under multiple forms of risk assessment is not discouraged.**
  - **d) Interactions between risk variables should be captured to the extent that it is practical. Evaluation of variables in isolation is acceptable so long as there exists a comprehensive evaluation of resource plans risks that captures interactions and shows overall risk of appropriate build plans. A comprehensive risk assessment should at least include optimized build plans from the required MIRPP scenarios for the proposed resource plan and any alternative resource plans presented by the utility.**

IRP Filing, Data, and Documentation ~~Report and Documentation~~ (cont.)

- VIII) Demand-Side Resources
  - a) ii. **Historic performance of existing demand-side programs and how the utility used such information in its demand response resource decisions;**
- X) Peak Demand and Energy Forecasts:
  - b) vii. **Include detailed information about how the forecasts used for IRP modeling align with forecasts used for distribution planning.**
  - b) vii. **Detail information about distributed energy resource adoption and operation, including distribution connected generation and storage.**
  - b) ix. **Detail electric vehicle adoption assumptions and impacts to overall peak demand and energy forecasts.**
  - b) x. **Detail additional electrification adoption assumptions and impacts to overall peak demand and energy forecasts.**

IRP Filing, Data, and Documentation ~~Report and Documentation~~ (cont.)

- XII) Transmission Analysis:
  - b) **Include an analysis of any transmission system benefits associated with transmission interconnected storage**
  - c) A detailed description of the utility's efforts to engage local transmission owners ~~in~~**throughout** the utility's IRP process. **In an effort to inform the IRP process and assumptions, a meeting schedule should be set in advance.** The filing should **include the pre-decided meeting schedule, any documentation that supports requested extensions of the initial pre-decided timing**, **and** ~~including~~ a summary of meetings that **ultimately took** place;
  - d) **Detailed meeting minutes for utility/transmission owner meetings should include any requested studies, discussions about assumptions and any conclusions made during the meeting, alternatives that were reviewed, any other pertinent information that can be made public or provided through typical contested case confidentiality agreements.**
  - f) **(5) estimated interconnection costs for new resources (6) potential siting locations that may provide transmission system benefits**.

IRP Filing, Data, and Documentation ~~Report and Documentation~~ (cont.)

- XII) Transmission Analysis: (cont.)
  - g) **Any information regarding (1) identification of system locations or regions where energy resources can interconnect to the transmission system with minimal transmission investment, (2) recent studies that indicate ways in which the capacity import or export capabilities can be increased or may change and the resulting impacts to the local clearing requirement.**
  - h) **Any transmission studies that support the resource plan proposed by the utility.**
  - i) **Include an analysis of transmission costs for access to out of state resources conducted by either the RTO, transmission owner(s), and/or utility.**
  - j) **Provide RTO reports or web links to report locations that contain information relied upon to support model assumptions or other IRP decisions.**

IRP Filing, Data, and Documentation ~~Report and Documentation~~ (cont.)

- XIV) Resource Screen:
  - Describe the utility's options of resources, including combinations of resources **constructed as a single facility (such as storage combined with a generation source)**, to serve future electric load such as utilizing existing and planned ~~generation~~ resources, build a new facility, purchasing capacity from the market on a short-term basis, and purchasing capacity through a power purchase agreement. The following sections shall discuss each option in detail and options shall be considered in combination to serve future electric load. As described below, workpapers with information on the costs of each resource option and combination of resource options shall be provided with the utility's filing:
    - b) iii. New energy integration of storage technology and operating assumptions, **including both long and short duration storage**;
    - b) v. **Development costs and operating assumptions for combinations of resources constructed as a single facility.**

IRP Filing, Data, and Documentation ~~Report and Documentation~~ (cont.)

- XV) Modeling Results:
  - b) ~~Scenario and sensitivity~~ Results **for all MIRPP required scenarios and sensitivities, additional utility scenarios and sensitivities, and the proposed resource plan that** include annual revenue requirements, present value of annual revenue requirements and net present value of revenue requirements, and portfolio capacity including additions and retirements. Include monthly and annual energy pricing, and resource capacity and load factors;
  - e) Risk assessment **presented with graphics and data that illustrate stochastic risk analysis results in such a way that the probability distributions are clearly conveyed along with relative positions of the distributions so that plans can be directly compared on a single graph. The use of a box and whisker plot and/or efficient frontier plot is recommended.**

IRP Filing, Data, and Documentation ~~Report and Documentation~~ (cont.)

- XVI) **Proposed Resource Plan**:
  - a) The type of energy resource generation technology proposed for a generation facility **or combination of resources constructed as a single facility** contained in the plan and the proposed capacity of the generation facility **or combination of resources constructed as a single facility**, including projected fuel costs under various reasonable scenarios;

The utility shall develop an implementation plan that specifies the major tasks, schedules, and milestones necessary to implement the **proposed resource plan** ~~preferred resource plan~~ over the implementation period. The utility shall describe and document its implementation plan, which shall contain:

- **e) A detailed analysis of any benefits from resources that provide co-benefits to distribution or transmission planning such as distributed energy resources when those benefits are unable to be captured through capacity expansion modeling runs, to the extent that the co-benefits were relied upon for justification of resource decisions.**
- **f) A description of how, to the extent practical, the construction or investment in new resources in this state will be completed using a workforce composed of residents of this state.**
- **g) A description of, to the extent practical, the construction of new resources in this state will be completed using materials sourced from this state.**

XVIII) Environmental **Considerations and Environmental Justice**:

Describe how the utility's **resource plan and any alternative resource plans presented in the application** ~~proposed IRP~~ will comply with all applicable local, state, and federal environmental regulations, laws, and rules:

- c) **If the Company is proposing retirement of an existing resource, clearly identify the capital cost for environmental regulations and other capital investments in the facility that is avoided capital cost, becomes cost of removal, or is truly avoidable cost.**

Removed previous c) and d) –

~~c) Provide an annual projection of the following emissions for the studyperiod differentiating between existing and new resources within theproposed IRP:~~

~~i. Tons of sulfur oxides;~~

~~ii. Tons of oxides of nitrogen;~~

~~iii. Tons of carbon dioxide;~~

~~iv. Tons of particulate matter; and~~

~~v. Pounds of mercury.~~

~~d) Provide the total projected emissions of the items listed below through thestudy period for the utility's proposed plan, as well as the scenarios identified in the MIRPP as approved in Case No. U-18418, or modified byCommission order:~~

~~i. Tons of sulfur oxides;~~

~~ii. Tons of oxides of nitrogen;~~

~~iii. Tons of carbon dioxide;~~

~~iv. Tons of particulate matter; and~~

~~v. Pounds of mercury.~~

XVIII) Environmental **Considerations and Environmental Justice: (cont.)**

- **f) Hold a technical conference with MPSC and EGLE staff within 30 days of the filing to discuss the environmental and emission related data included in the filing testimony, exhibits, and workpapers.**
- **g) Identify, quantify, and provide testimony that compares the expected changes in criteria pollutants, mercury, VOCs, and GHG emissions of the proposed resource plan in the base case to the previously approved build plan in the base case. The previously approved build plan may include a refresh that takes into account the updated load forecast and additional resources to meet any increase in load, but leave the previous base generation assumptions in place. The Company will use a proxy to determine the emissions from MISO purchases and will run the base case scenario with two build plans: the previously approved base build plan and the proposed resource plan.**
- **h) Analyze multiple build plans, including the proposed resource plan and the optimal build plan from the MIRPP required scenarios to identify and both qualitatively and quantitatively assess the potential impacts to vulnerable communities. This assessment should address water quality, water use, water discharge, waste disposal, air emissions, public health, climate, environmental justice, early retirement, and other considerations that were taken into account in the Company's decision. The Michigan Environmental Justice Screening Tool or equivalent should be used for the identification of vulnerable areas.**
- **i) Identify and assess the impact of the proposed resource plan to any non-attainment areas within the electric utility service territory and qualitatively support in testimony. Impacts should consider SO_2 and ozone, as well as their precursors NO_x and $PM_{2.5}$.**

XVIII) Environmental **Considerations and Environmental Justice: (cont.)**

- **j) Using the areas identified as vulnerable by the Michigan Environmental Justice Screening Tool, or equivalent (see h) above) complete a more comprehensive evaluation of PM2.5 impacts to these communities, describing expected air quality impacts, including the effect of an early retirement. Conduct dispersion modeling for PM2.5 using standard permit modeling protocols and methods. The base case emissions should be used to establish a baseline modeling demonstration by which to compare the previously referenced least emitting and potential early retirement scenarios in the area where emissions are expected to occur.**
- **k) Include metrics to quantify health benefits related to air emission reductions in the scenarios listed above. The following EPA reports and tools provide guidance and are listed in order of preference: the Environmental Benefits Mapping and Analysis Program – Community Edition (BenMAP-CE), the "Co-Benefits Risk Assessment (COBRA) Health Impacts Screening and Mapping Tool" and "Quantifying the Emissions and Health Benefits of Energy Efficiency and Renewable Energy".)".**
- **i) Identify, quantify and provide evidence in the filing that shows progress in meeting any state, federal or utility announced carbon reduction goals. Illustrate how each optimized build plan for each MIRPP scenario, the proposed resource plan, and the previously approved plan perform in meeting those goals throughout the planning period.**

XIX Exhibits and Workpapers:

- **a) The Company shall include an exhibit containing a table that designates where each filing requirement is included within its testimony, exhibits, and workpapers with appropriate page and section numbers.**
- **b)** Cost data**,** ~~and~~ estimates**, and co-benefit analyses** that were used in the resource screening process **or in any other way to deterimine resource selection of** ~~to evaluate~~ each electric resource that was considered either individually or in combination with other resources **constructed as a single facility**, including **distributed energy resources, storage, and** renewable **energy resources.** ~~alternatives, such as solar, wind, or solar plus battery storage~~;
- **n) A stacked bar chart that includes all existing resources and proposed resources color designated by resource type in each of the planning years with the inclusion of a line representing expected load over the length of the planning period.**; and

Questions/Discussion

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Break

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Michigan Integrated Resource Planning Parameters

Naomi Simpson

MPSC

Michigan Public Service Commission

Michigan PA 341 of 2016

Sec. 6t. (1) The commission shall, within 120 days of the effective date of the amendatory act that added this section and every 5 years thereafter, commence a proceeding and, in consultation with the Michigan agency for energy, the department of environmental quality, and other interested parties, do all of the following as part of the proceeding:

- (f) Establish the modeling scenarios and assumptions each electric utility should include in addition to its own scenarios and assumptions in developing its integrated resource plan filed under subsection (3), including, but not limited to, all of the following:
  - (*i*) Any required planning reserve margins and local clearing requirements.
  - (*ii*) All applicable state and federal environmental regulations, laws, and rules identified in this subsection.
  - (*iii*) Any supply-side and demand-side resources that reasonably could address any need for additional generation capacity, including, but not limited to, the type of generation technology for any proposed generation facility, projected energy waste reduction savings, and projected load management and demand response savings.
  - (*iv*) Any regional infrastructure limitations in this state.
  - (*v*) The projected costs of different types of fuel used for electric generation.

MIRPP Proposed Updates

The Big Change:

2 Scenarios for all Michigan rate regulated utilities.

- *Scenario #1* is a Base Case that is conceptually built around MISO Future #1.
- *Scenario #2* is an Electrification and Decarbonization future that is conceptually built around MISO Future #3.

*Both include Michigan attaining State and Federal GHG goals.

Scenario #1: Base Case

Built using MISO Future 1 as a starting point. This scenario reflects substantial achievement of state and utility announcements.

- While Scenario One incorporates 100% of utility integrated resource plan (IRP) announcements throughout the MISO footprint, state and utility goals and that are not legislated are applied at 85% of their respective announcements to hedge the uncertainty of meeting these goals.

- Emissions decline as driven by state goals and utility plans throughout the MISO footprint creating a trajectory of 63% reduction in carbon emissions by 2039 from the baseline year of 2005.

- This scenario assumes that demand and energy growth are driven by existing economic factors, with small increases in EV adoption, resulting in an annual energy growth rate of 0.5%.

Scenario #1: Base Case

Many overall descriptors of this scenario remain the same as in the previous MIRPP:

- Natural gas prices use the most recent EIA Reference Case.
- Existing generation retirement age assumptions and costs.
- New unit assumptions.
- 35% of the state's electric needs should be met through a combination of EWR and RE by 2025.
- Technology cost assumptions, DR and EWR cost assumptions.
- PURPA renewal.

Scenario #1: Base Case

New Additions to the scenario:

- Moderate EV adoption and customer electrification result in moderate footprint-wide[22] demand and energy growth rates remain at historic 3-year average levels for the first 3 years of the planning horizon, then are blended for 2 years to result at the load growth level consistent with the most recently available MISO Future 1 after the fifth year of the planning horizon;

- The plan meets current state and federal goals for greenhouse gas emissions. (Footnotes to both the ED 2020-10 and Federal Goal are included.)

- Long and short duration storage resources are considered. Energy storage resources are modeled using available best practice methodologies to the extent that such guidelines exist.

Scenario #1: Base Case

Minor changes and deletions:

- A correction from business-as-usual projections to “the Reference Case” projections from EIA AEO.
- Storage has been included with RE referencing production/investment tax credits.
- Storage is included with solar and other emerging technologies that are assumed to have declining costs with experience.
- Deletion: For all other electric utilities, EWR should not exceed the mandated targets for electric energy savings of 1% per year and should be based upon an average cost of MWh saved.

Scenario #1 Sensitivities

- Fuel Projections: high EIA gas price as specified in the most recent EIA Low Oil and Gas Supply forecast.
- Load projections: High load growth at 1.5%, Low load growth due to slower than expected EV adoption, Retail choice load returns at 50% by 2027.
- Ramp EWR savings to at least 2% of prior year sales.
- Perform a model run that optimizes the resource build that considers only legislatively mandated carbon goals and does not consider non-legislatively mandated carbon goals.
- Out-of-State transmission congestion cost increases due to changing resource mix across the region. Assume transmission cost increases of XX%.

Scenario #2: Electrification and Decarb

Built using MISO Future 3 as a starting point. This scenario reflects 100% achievement of state and utility announcements.

- This scenario requires a minimum penetration of wind and solar across the MISO region consistent with the most recent MISO Future 3.
- Energy purchases are modeled at a carbon intensity consistent with the MISO system average.
- Electrification drives a total energy growth by 2040 that is consistent with the most recent MISO Future 3. Utility load profiles and peak demand are adjusted to reflect the increased EV and electrification.

Scenario #2: Electrification and Decarb

Many overall descriptors of this scenario remain the same as in the previous MIRPP:

- Natural gas prices use the most recent EIA Reference Case.
- DR, EWR, DG programs remain and grow as economic.
- Existing generation retirement age assumptions and costs.
- New unit assumptions.
- 35% of the state's electric needs should be met through a combination of EWR and RE by 2025.
- Technology cost assumptions, DR and EWR cost assumptions.
- PURPA renewal.

Scenario #2: Electrification and Decarb

New Additions to the scenario:

- EV adoption and customer electrification cause adjustments in overall load profiles as electrification and EV's are adopted through the planning horizon consistent with the most recent MISO Future 3.
- The plan meets current state and federal goals for greenhouse gas emissions. (Footnotes to both the ED 2020-10 and Federal Goal are included.)
- Existing renewable energy production and storage tax credits and renewable energy investment tax credits continue pursuant to current law.
- Existing renewable energy production and storage tax credits and renewable energy investment tax credits continue pursuant to current law.

Scenario #2: Electrification and Decarb

Minor changes and deletions:

- A correction from business-as-usual projections to “the Reference Case” projections from EIA AEO.
- Storage has been included with RE referencing PTC/ITC.
- Storage is included with solar and other emerging technologies that are assumed to have declining costs with experience.
- Technology costs for wind, solar, storage and other renewables decline with commercial experience and forecasted at levels **30%** lower than the Base Case.
- Deletion: For all other electric utilities, EWR should not exceed the mandated targets for electric energy savings of 1% per year and should be based upon an average cost of MWh saved.
- Deletion: Tax credits for renewables continue until 2022 to model existing policy. (replaced by PTC/ITC addition).
- Deletion: Demand and energy growth rates are modeled at a level equivalent to a 50/50 forecast and are consistent with the business as usual projections.

Scenario #2 Sensitivities

- Fuel Projections: high EIA gas price as specified in the most recent EIA Low Oil and Gas Supply forecast.
- *No load Sensitivity.*
- 80% carbon reduction in the utility service territory, modeled as a hard cap on the amount of carbon emissions by 2030.
- Ramp EWR savings to at least 2% of prior year sales.
- Perform a model run that optimizes the resource build that considers only legislatively mandated carbon goals and does not consider non-legislatively mandated carbon goals.
- Out-of-State transmission congestion cost increases due to changing resource mix across the region. Assume transmission cost increases of XX%.
- *Carbon Price Sensitivity?*

Questions/Discussion

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Break

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Demand Response Potential Study Results

Roger Doherty

MPSC

Michigan Public Service Commission

Michigan PA 341 of 2016

- Sec. 6t. (1) The commission shall, within 120 days of the effective date of the amendatory act that added this section and every 5 years thereafter, commence a proceeding and, in consultation with the Michigan agency for energy, the department of environmental quality, and other interested parties, do all of the following as part of the proceeding:
- (a) Conduct an assessment of the potential for energy waste reduction in this state, based on what is economically and technologically feasible, as well as what is reasonably achievable.
- (b) Conduct an assessment for the use of demand response programs in this state, based on what is economically and technologically feasible, as well as what is reasonably achievable. The assessment shall expressly account for advanced metering infrastructure that has already been installed in this state and seek to fully maximize potential benefits to ratepayers in lowering utility bills.

2021 Potential Study

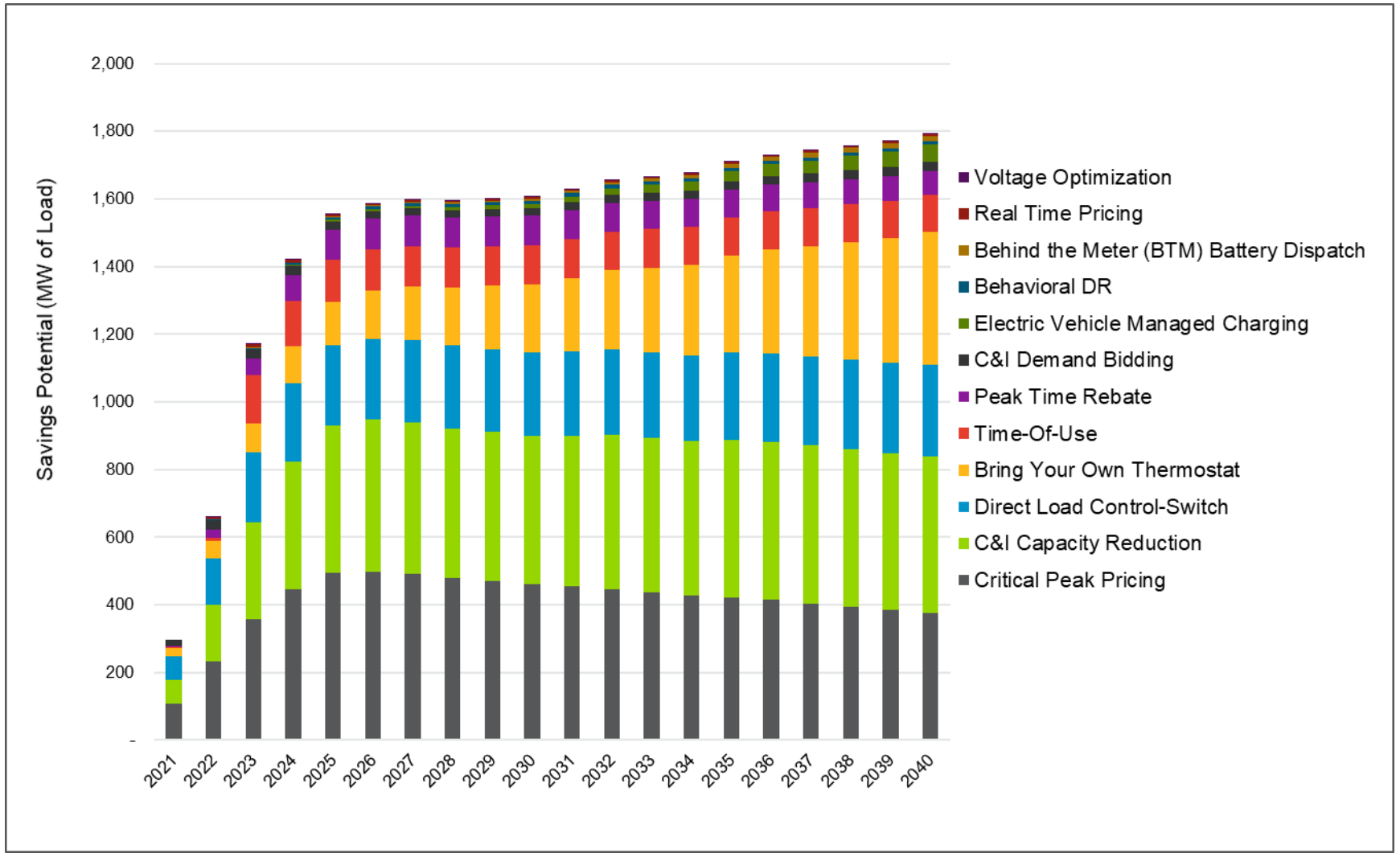
- 2021 Potential Study is the second statewide EWR/DR potential study under PA 341. 2017 Potential Study was the first.
- RFP in May 2020
- Contract executed w/ Guidehouse in August 2020.
- Study included significant Stakeholder involvement.
- Completed in September 2021.

DR Potential Study Objectives

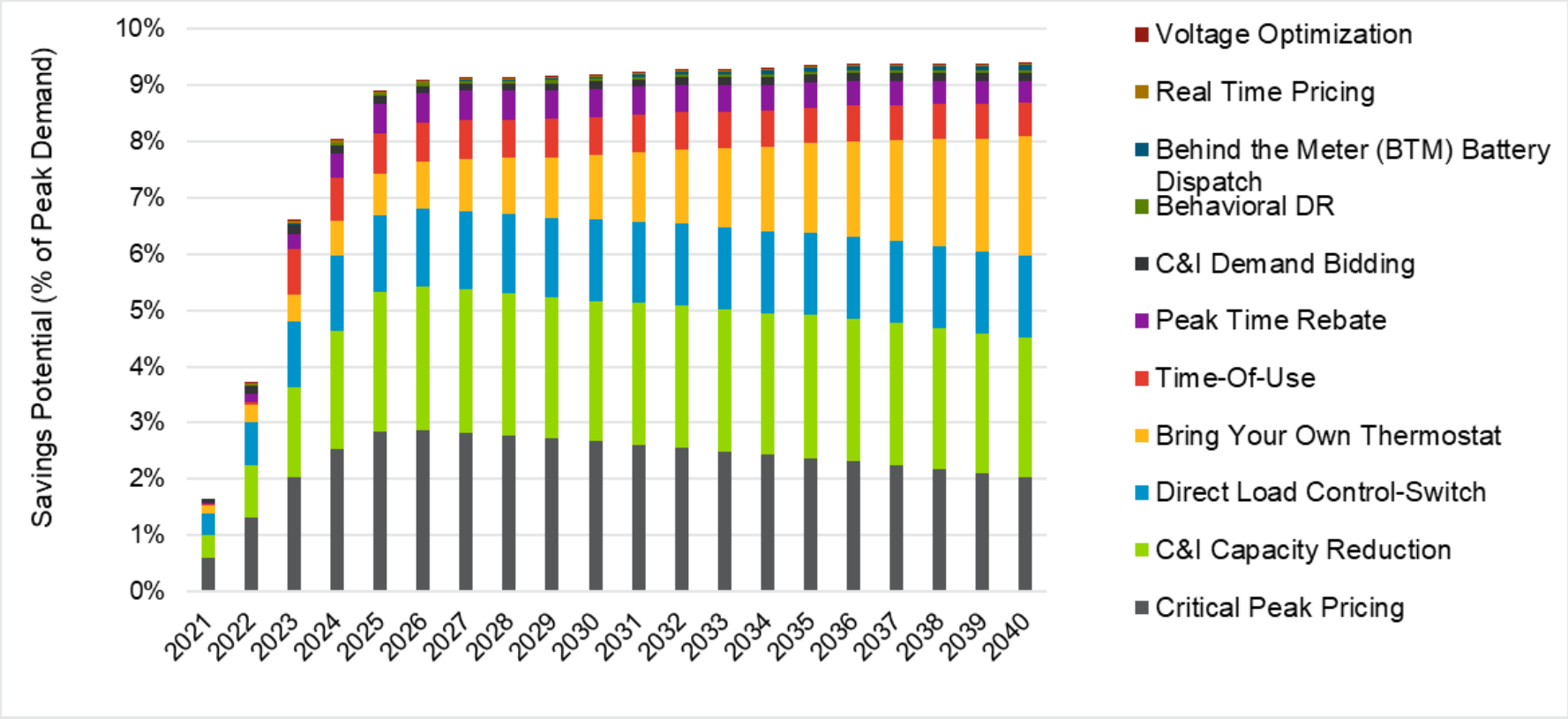
- Calculate technical, economic, and achievable potential for demand response.
- Discuss barriers to achieving potential.
- Quantify potential MW savings for each DR program.
- Identify cost per MW of potential demand savings.
- Maximize potential of already existing AMI.
- Assess natural gas DR potential.

Statewide DR Potential Study Final Report

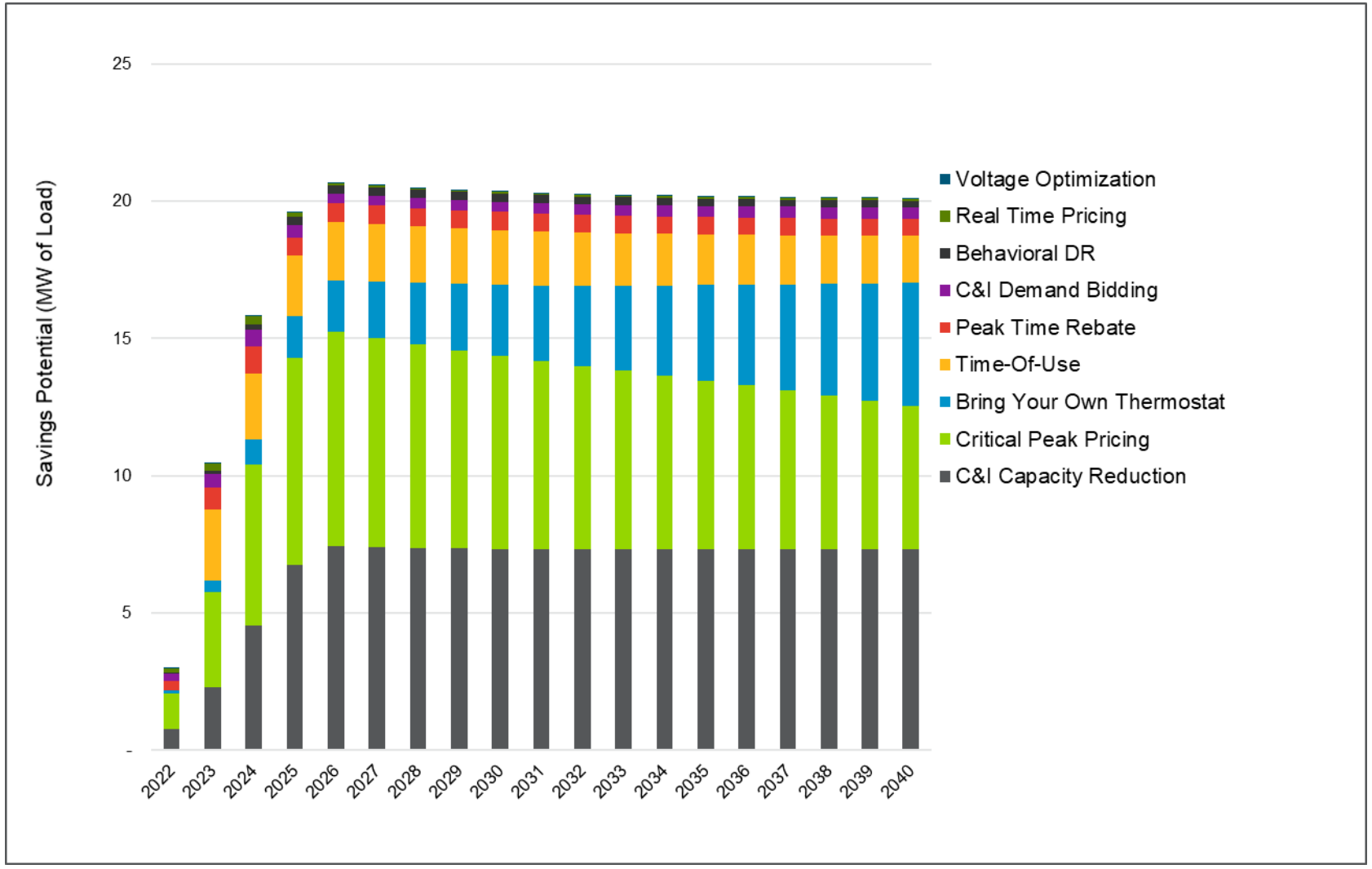
Achievable DR Potential – Lower Peninsula - Reference



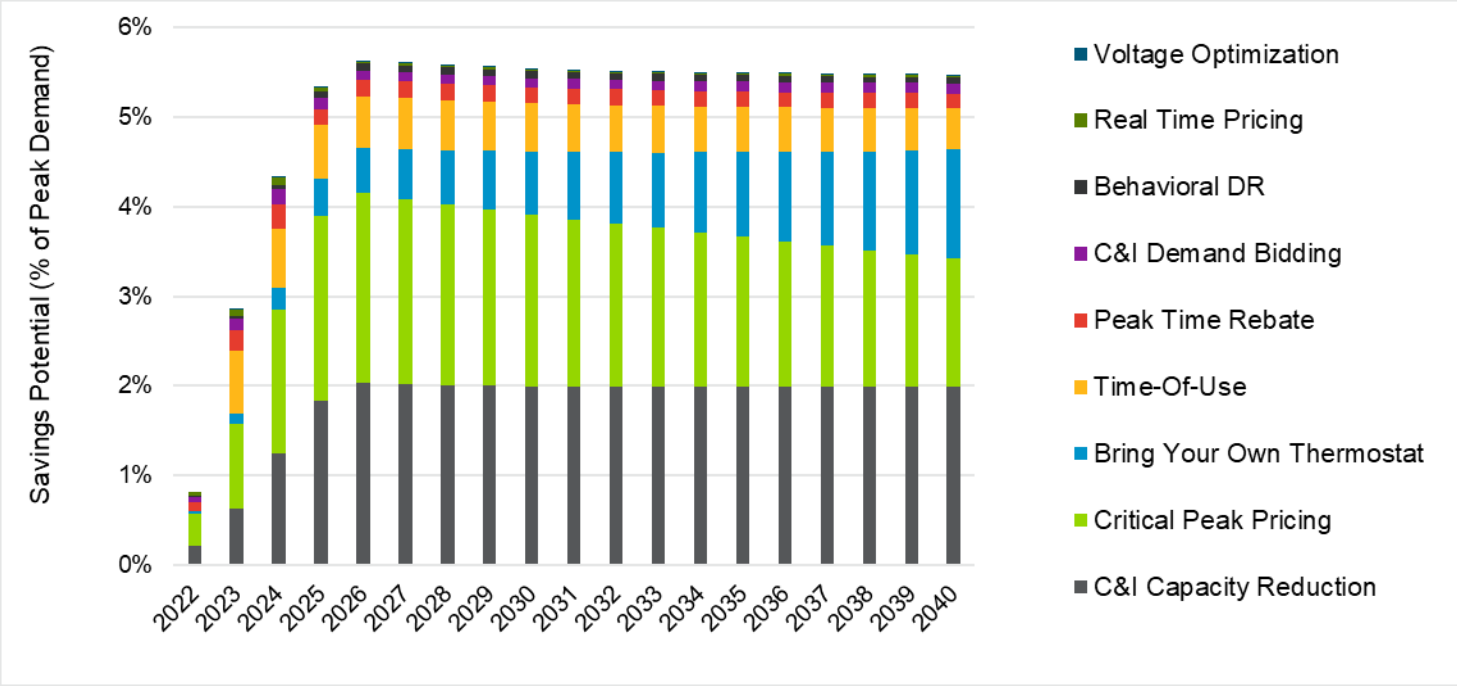
Achievable DR Savings % of Peak - LP - Reference



Achievable DR Potential – Upper Peninsula - Reference



Achievable DR Savings % of Peak - UP - Reference



DR Potential Study Conclusions

- Statewide electric DR achievable potential expected to grow substantially over 2021-2040 timeframe.
- Cost-Effectiveness
- Scenario Comparison
- Customer Segmentation
- EWR/DR Integration Benefits

Links

- 2021 Potential Study Webpage (EWR and DR)
- 2021 DR Potential Study Final Report

  Appendix A – Residential Survey Instrument

  Appendix B – C&I Survey Instrument

  Appendix C – DR Technical Potential (Attached to Final Report)

  Appendix D – DR Results (Excel)

Questions/Discussion

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Energy Waste Reduction Potential Study

Katie Smith

MPSC

Michigan Public Service Commission

EWR Potential Study Objective

- Assessed the potential in the residential, commercial, and industrial sectors.
- Also assessed were small commercial, multifamily, and low-income segments
- Staff asked that Lower and Upper Peninsulas results be shown separately
- The results will be used to inform EWR goal setting and program design for the MPSC

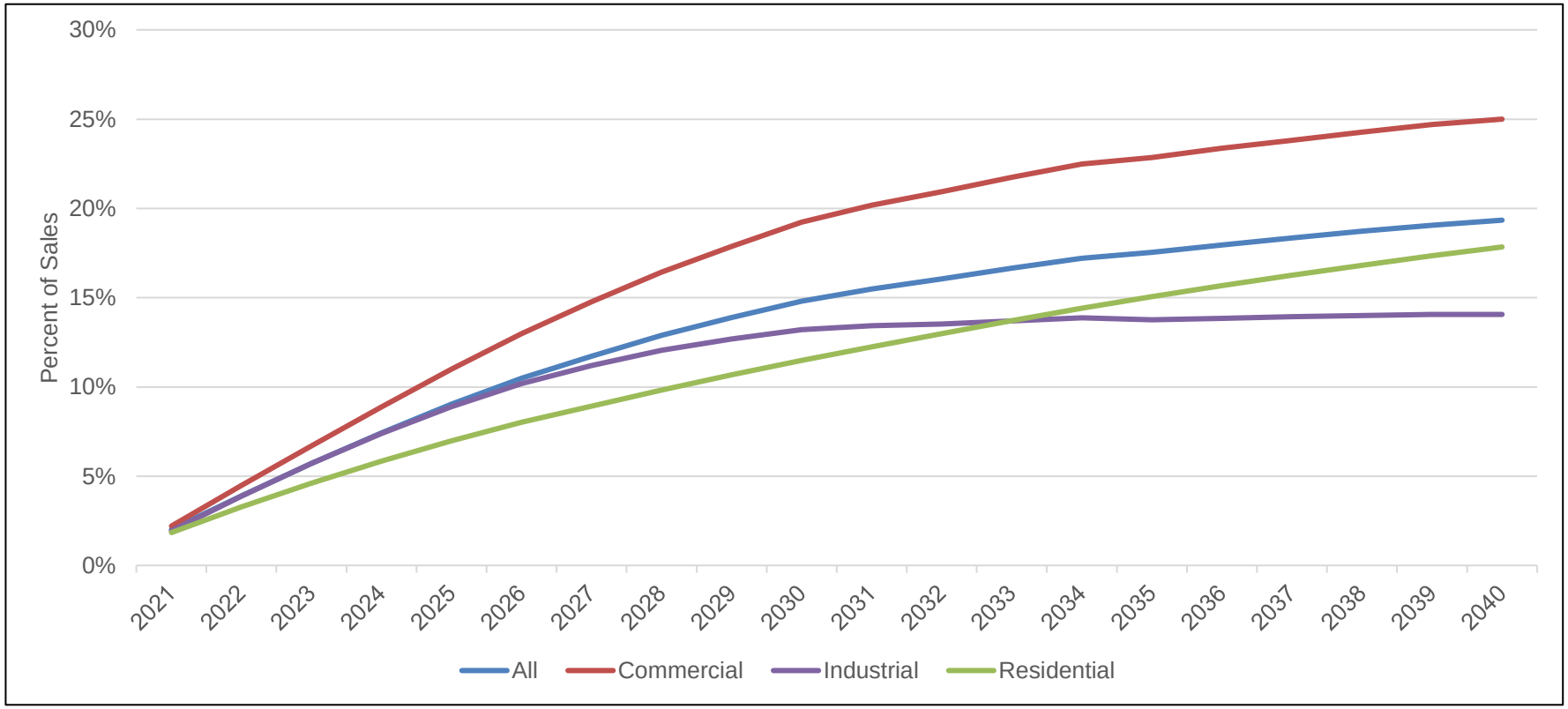
Statewide EWR Potential Study

Modeled Scenarios

- Reference
  - Estimated the achievable potential calibrated to 2021 total program expectations and refined using relative savings percentages at the end use and high impact measure-level with 2019 actual achievements.
- Aggressive
  - Increased measure incentives and marketing factors and decreased program administrative costs.
- Carbon Price
  - Acknowledged the regulatory uncertainty around carbon price legislation, provided a high-level fuel cost adder, ramped up through time as the probability of regulatory action increases.

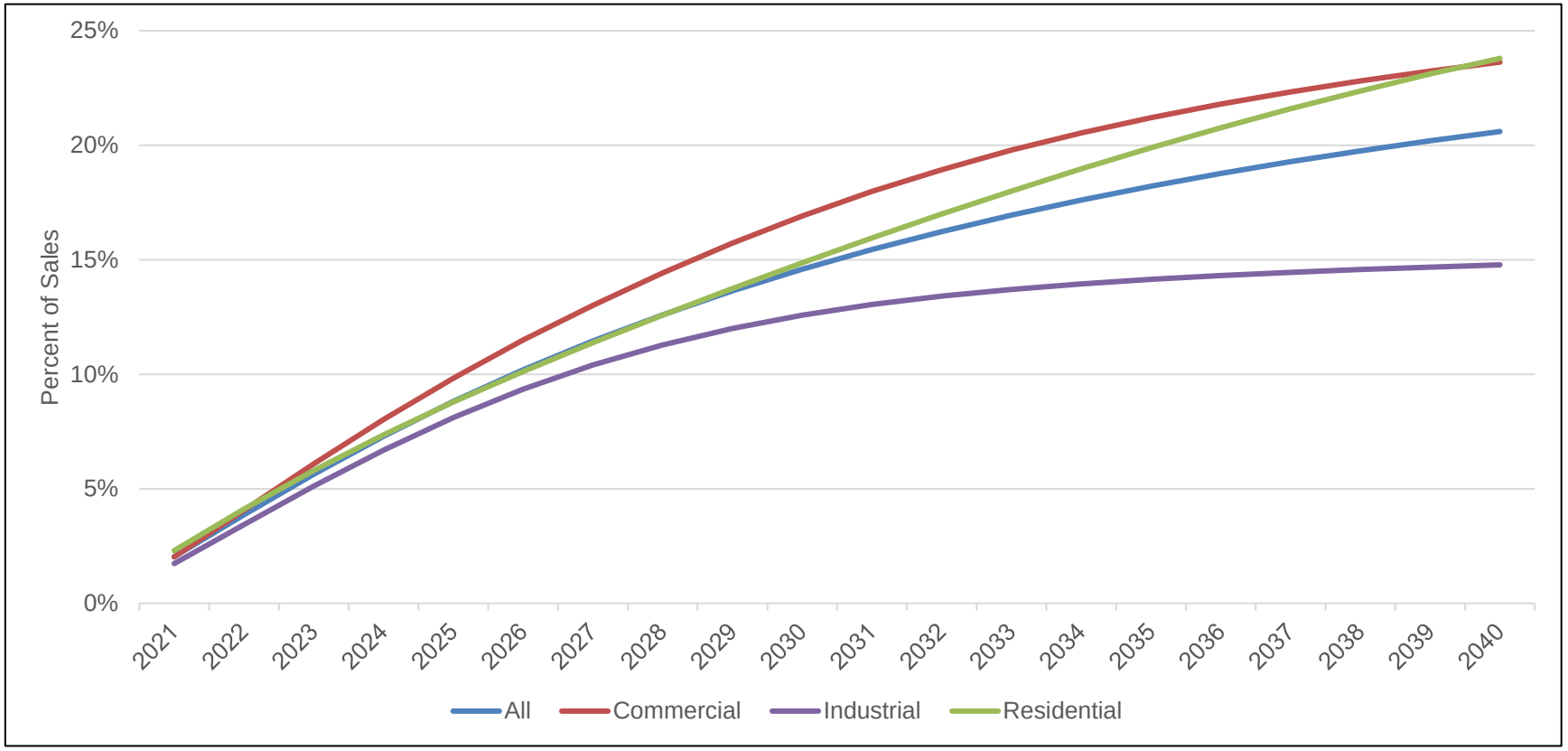
EWR Potential Study Findings – Lower Peninsula

Lower Peninsula Electricity Cumulative Annual Achievable Potential as a Percent of Sales by Sector (%)



EWR Potential Study Findings – Upper Peninsula

Upper Peninsula Electricity Cumulative Annual Achievable Potential as a Percent of Sales by Sector (%)



EWR Potential Study Conclusions – Near Term

- There is still EWR potential in Michigan.
  - Electricity
    - LED bulbs and industrial custom stocks saturate quickly in the study period due to aggressive early year calibration. Home energy reports do not, by definition, but there is uncertainty around the longevity of this measure.
  - Gas
    - The Upper Peninsula's top five measures consist mostly of residential savings due to the large share of residential load to overall natural gas load in the Upper Peninsula.
    - The Lower Peninsula contains many of the same top measures, but because of the larger share of commercial load in the Lower Peninsula, two other commercial measures round out the remaining top five measures in the Lower Peninsula (commercial demand controlled ventilation, and commercial HVAC).

EWR Potential Study Conclusions – Long-Term

- Electricity
  - Incremental annual electricity potential decreases year-over-year over the 20-year study period, mainly due to LED lighting. The HVAC end uses show strong and steady increases year-over-year, which is a product of relatively low current participation and stock turnover limits
- Gas
  - Natural gas savings are much steadier over the study period than electricity savings. Residential HVAC and commercial HVAC, which are limited by stock turnover and relatively low historical accomplishments, results in these categories ramping up more over time.

EWR Potential Study – Things to Note

- Potential Studies are conservative in nature and all data is subject to change in the future.
- Staff is optimistic of Michigan's EWR potential and understands EWR measures may become more costly in future years and EWR measure potential may be more difficult to achieve.
- There will be a new Statewide EWR Potential Study conducted in 5 years in which all statewide potential will be reviewed at that time.

Questions/Discussion

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Closing - Stakeholder Feedback Request

Naomi Simpson

Written Feedback Request

- We encourage all stakeholders to provide written feedback that recapping their feedback during discussion.

- We would like feedback on the following:
  1. Please provide any feedback supporting or suggesting changes to Staff's proposed MIRPP.
  2. Please provide any feedback supporting or suggesting changes to Staff's proposed Filing Requirements.
  3. Are stakeholders generally supportive of two MIRPP scenarios for all rate regulated utilities?
  4. Do Stakeholders feel that the Electrification and Decarbonization scenario would adequately take the place of the two additional runs directed by the Commission in the February order in U-20633?
  5. Considering ED 2020-10 and other carbon goals, how do we more accurately count GHGs without double counting purchases and sales between utilities within the Michigan?

Feedback Request

We look forward to your written comments in response to Staff's feedback request. Your participation is critical.

Please submit responses to the stakeholder feedback comments received to Kayla Gibbs by

January 5, 2022, 5pm ET.

GibbsK2@Michigan.gov

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Thank You

Upcoming Advanced Planning Stakeholder Meetings
January 31st, 2022
February TBD
March TBD
April TBD

MPSC
Michigan Public Service Commission