



2023

Michigan Nuclear Feasibility Study  
*Report Outline*





<b>Title:</b>	Michigan Nuclear Feasibility Study Report Outline	<b>PROJECT REPORT NO.</b> MPSC01-REPT-001	
		<b>REV.</b> 0	
<b>Client:</b>	Michigan Public Service Commission	<b>Project Identifier:</b>	ESEPC-MPSC-00001
<b>Item</b>	<b>Cover Sheet Items</b>	<b>Yes</b>	<b>No</b>
1	Does this Project Report contain any open assumptions, including preliminary information, that require confirmation? (If <b>YES</b> , identify the assumptions.)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2	Does this Project Report supersede an existing Project Report? (If <b>YES</b> , identify the approved Project Report.) <b>Superseded Project Report No.</b> <input type="text"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<b>Scope of Revision:</b> Initial Issue.			
<b>Revision Impact on Results:</b> <input type="text"/>			
<input type="checkbox"/> Safety-Related <input type="checkbox"/> Augmented Quality <input type="checkbox"/> Non-safety Related <input type="checkbox"/> Safety Class <input type="checkbox"/> Safety Significant <input checked="" type="checkbox"/> General Services <input type="checkbox"/> Production Support			
<i>(Print Name and Sign)</i>			
<b>Preparer: See Signature Sheet</b>		<b>Date:</b> <input type="text"/>	
<b>Design Verifier (Design Reviewer<sup>1</sup>): See Signature Sheet</b>		<b>Date:</b> <input type="text"/>	
<b>Approver: See Signature Sheet</b>		<b>Date:</b> <input type="text"/>	





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<b>PREPARATION</b>	<b>NAME</b>	<b>SIGNATURE</b>		<b>DATE</b>
<b>DESIGN REVIEW</b>	<b>NAME</b>	<b>SIGNATURE</b>		<b>DATE</b>
<b>APPROVAL</b>	<b>NAME</b>	<b>SIGNATURE</b>		<b>DATE</b>





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<b><u>PROJECT REPORT REVISION STATUS</u></b>					
<b><u>REVISION</u></b>			<b><u>DATE</u></b>	<b><u>DESCRIPTION</u></b>	
<b>0</b>			<b>TBD</b>	<b>Initial Issue</b>	
<b><u>APPENDIX/ATTACHMENT REVISION STATUS</u></b>					
<b><u>APPENDIX NO.</u></b>	<b><u>NO. OF PAGES</u></b>	<b><u>REVISION NO.</u></b>	<b><u>ATTACHMENT NO.</u></b>	<b><u>NO. OF PAGES</u></b>	<b><u>REVISION NO.</u></b>
N/A	N/A	N/A	N/A	N/A	N/A



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## TABLE OF CONTENTS

**EXECUTIVE SUMMARY** .....6

**1. INTRODUCTION** .....6

**2. MICHIGAN RESOURCES AND EXPERTISE** .....6

    Use of Michigan Workers.....6

    Workforce Education, Training and Development .....6

    Use of Michigan Products .....6

    Supply Chain Development.....7

**3. COST ASSESSMENT** .....7

    Economic Impact to Michigan Residents.....7

    Economic Impact to Michigan Businesses .....7

    Economic Impact to Michigan State Government.....7

**4. NUCLEAR TECHNOLOGIES EVALUATION** .....8

    Evaluation of Current Nuclear Technology and Designs .....8

    Evaluation of New Nuclear Technology and Designs .....8

**5. BENEFIT ASSESSMENT** .....8

    Energy Requirements and Goals .....8

    Environmental Requirements and Goals.....8

    Safety Requirements and Goals .....8

**6. SCHEDULE ASSESSMENT** .....9

**7. COORDINATION WITH OTHER TECHNOLOGIES** .....9

**8. POLICY ASSESSMENT** .....9

**9. SUPPORTING STUDIES SUMMARY**.....9





<b>Title:</b>	<b>Michigan Nuclear Feasibility Study Report Outline</b>	<b>PROJECT REPORT NO.</b>	<b>MPSC01-REPT-001</b>
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## EXECUTIVE SUMMARY

- Nuclear Generation potential in Michigan
- Production Costs associated with Nuclear Power Generation
- Environmental Impact
- Opportunities and barriers for Nuclear Generation in Michigan

## 1. INTRODUCTION

- Overview of Nuclear Power Generation in Michigan
- Study Objective and Overview
- Stakeholder Engagement

## 2. MICHIGAN RESOURCES AND EXPERTISE

### Use of Michigan Workers

[RFP III-C.2: Provide ways to maximize the use of **workers** who reside in Michigan and products made in Michigan in the construction of nuclear energy generation facilities.]

[RFP III-A.1: Resources and expertise available in Michigan to maintain and/or construct a nuclear energy generation fleet, including evaluation of current and future nuclear technology and design, and siting requirements/considerations.]

### Workforce Education, Training and Development

[RFP III-C.5: Perform a social and economic assessment and impact analysis, including, but not limited to, the following: **workforce education, training, and development**; local and state tax base; supply chains for building materials and fuel; permanent and temporary job creation; climate change impacts on current and future operation.]

### Use of Michigan Products

[RFP III-C.2: Provide ways to maximize the use of workers who reside in Michigan and **products** made in Michigan in the construction of nuclear energy generation facilities.]





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### Supply Chain Development

[RFP III-C.5: Perform a social and economic assessment and impact analysis, including, but not limited to, the following: workforce education, training, and development; local and state tax base; **supply chains for building materials and fuel**; permanent and temporary job creation; climate change impacts on current and future operation.]

### 3. COST ASSESSMENT

[RFP III-C.1: Examine the advantages and disadvantages of nuclear energy generation in Michigan, including, but not limited to, the **economic**, environmental, and climate impacts.]

#### Economic Impact to Michigan Residents

[RFP III-C.5: Perform a social and economic assessment and impact analysis, including, but not limited to, the following: workforce education, training, and development; local and state tax base; supply chains for building materials and fuel; **permanent and temporary job creation**; climate change impacts on current and future operation.]

[RFP III-A.2: The cost (absolute and comparative) and potential profit/benefit to the **people**, businesses, and state of Michigan of both the current and potential future new nuclear energy fleet.]

#### Economic Impact to Michigan Businesses

[RFP III-C.5: Perform a social and economic assessment and impact analysis, including, but not limited to, the following: workforce education, training, and development; local and state tax base; **supply chains for building materials and fuel**; permanent and temporary job creation; climate change impacts on current and future operation.]

[RFP III-A.2: The cost (absolute and comparative) and potential profit/benefit to the **people, businesses**, and state of Michigan of both the current and potential future new nuclear energy fleet.]

#### Economic Impact to Michigan State Government

[RFP III-C.5: Perform a social and economic assessment and impact analysis, including, but not limited to, the following: workforce education, training, and development; **local and state tax base**; supply chains for building materials and fuel; permanent and temporary job creation; climate change impacts on current and future operation.]

[RFP III-A.2: The cost (absolute and comparative) and potential profit/benefit to the **people, businesses, and state of Michigan** of both the current and potential future new nuclear energy fleet.]





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## 4. NUCLEAR TECHNOLOGIES EVALUATION

### Evaluation of Current Nuclear Technology and Designs

[RFP III-C.4: Evaluate and make conclusions and recommendations on all of the following for the current nuclear energy generation in Michigan: design characteristics, including existing and potential modifications; environmental, ecological, health, and climate impacts; engineering and cost related criteria, including, but not limited to extension of current NRC licenses, readily available estimated decommissioning costs, and comparison to estimated replacement capacity costs based on the Midcontinent Independent System Operator (MISO) cost of new entry (CONE).]

### Evaluation of New Nuclear Technology and Designs

[RFP III-C.3: Evaluate and make conclusions and recommendations on the following for potential new nuclear energy generation in Michigan: design characteristics, including but not limited to reactor types, sizes, and fuel; environmental, ecological, health, and climate impacts; land and siting criteria; safety and on-site security criteria; engineering and readily available cost-related criteria; small-scale nuclear reactor capability.]

## 5. BENEFIT ASSESSMENT

### Energy Requirements and Goals

[RFP III-A.3: How the current and potentially new nuclear energy fleet can meet the **energy**, environmental, and safety requirements and goals of the state of Michigan.]

### Environmental Requirements and Goals

[RFP III-A.3: How the current and potentially new nuclear energy fleet can meet the energy, **environmental**, and safety requirements and goals of the state of Michigan.]

[RFP III-C.1.1: Examine the advantages and disadvantages of nuclear energy generation in Michigan, including, but not limited to, the economic, **environmental**, and **climate impacts**.]

[RFP III-C.5: Perform a social and economic assessment and impact analysis, including, but not limited to, the following: workforce education, training, and development; local and state tax base; supply chains for building materials and fuel; permanent and temporary job creation; **climate change impacts on current and future operation**.]

### Safety Requirements and Goals

[RFP III-A.3: How the current and potentially new nuclear energy fleet can meet the energy, environmental, and **safety** requirements and goals of the state of Michigan.]







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## 6. SCHEDULE ASSESSMENT

[RFP III-C.6: Determine the timeline for development, including areas of potential acceleration or efficiencies and leveraging existing nuclear energy generation facilities within this state.]

## 7. COORDINATION WITH OTHER TECHNOLOGIES

[RFP III-C.7: Determine additional efficiencies and other benefits that may be gained by coordinating new generation siting with recently retired nuclear, coal, gas, or other electric generation plants.]

[RFP III-C.8: Investigate additional efficiencies and other benefits that may be gained by coordinating with other advanced, clean energy technologies, including, but not limited to, hydrogen, direct air capture of carbon dioxide, and energy storage.]

## 8. POLICY ASSESSMENT

[RFP III-C.11: Perform an assessment of current and future policies that may be needed to support or accelerate the adoption of nuclear energy generation or may improve its cost-effectiveness and make recommendations as appropriate. This should include an assessment of current state and federal policies or programs that could incentivize the development of such facilities.]

## 9. SUPPORTING STUDIES SUMMARY

[RFP III-C.9: Perform a literature review of studies that have assessed the potential impact of nuclear energy generation in supporting an energy transition.]

[RFP III-C.10: Perform an analysis of national and international studies of cases where development of nuclear energy is supported and adopted. Describe recent U.S. nuclear energy generation studies or construction projects.]

