

**Request for Proposals**  
**Indiana-Focused Small Modular Reactor Study**

**Summary:**

The Indiana Office of Energy Development (IOED) is announcing a request for proposals for a qualified partner to research small modular nuclear reactor (SMR) technology and analyze its potential impacts if deployed or developed in Indiana. Proposals need to address the information requested below and submit the proposal by December 8, 2023. It is anticipated the contract for the selected proposal will begin in early Q1 2024. The budget is not to exceed \$300,000.

**Background:**

The State of Indiana currently has and wants to maintain a diverse portfolio of generating resources that provides electricity to customers. Through significant stakeholder engagement and work under the legislatively created 21<sup>st</sup> Century Energy Policy Development Task Force (Energy Task Force), Indiana created the foundation of its energy policy through the development of five pillars: (1) reliability, (2) affordability, (3) resiliency, (4) stability, and (5) environmental sustainability. It is recognized that one pillar cannot be affected without affecting any of the other four. Further, recognizing the principle of a managed energy transition, the Task Force concluded that Indiana's electricity needs are best served through a diverse resource mix that leverages the strengths of, and mitigates the weaknesses inherent in, each type of generation resource. This “all of the above” approach provides the best path forward to ensure that all five pillars are appropriately balanced.<sup>1</sup>

The Indiana Office of Energy Development serves as a lead agency for comprehensive energy planning and policy development for the State of Indiana. IOED’s mission is to develop affordable, stable, and reliable energy solutions through a diverse and balanced portfolio of energy resources for the benefit of all Hoosiers.

Interest in SMRs as a resource for electricity generation is increasing throughout the nation and within Indiana. In recent years, Purdue University has been investigating utilizing SMRs to provide power and possibly steam, to its campus, an investor-owned electric utility has noted possible future utilization of the technology within their integrated resource plans, and the Indiana General Assembly has passed legislation each of the past two years<sup>2</sup> related to SMR technology deployment. While there are currently no SMRs commercially active in the United States, the IOED sees a proactive opportunity to conduct an Indiana-specific study in order to

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<sup>1</sup> For more information, see: [21<sup>st</sup> Century Energy Policy Development Task Force Final Report](#)

<sup>2</sup> [IC 8-1-8.5-12.1](#)

better understand SMR technology, the benefits and drawbacks of its deployment, and its applicability to the state.

## **Objective:**

The objective is to develop one study that outlines SMR technology applicability and potential impacts within Indiana as outlined below by October 31, 2024.

IOED is interested in a comprehensive approach in analyzing SMR technology applications and impacts. This includes both costs and benefits of SMR technology. The study shall provide specific and detailed information on the following broad topic areas:

- **Current Status of SMR Technology**
- **State & Local Economic Impact**
- **Workforce Development and Employment**
- **Safety**
- **Community Engagement Needs and Best Practices**
- **Key Findings**

The list of key elements under each topic area are not to be considered exhaustive. The contractor may propose additional related items for IOED consideration.

## **Scope of Work & Deliverables:**

### **Task 1: Coordination with IOED**

#### *Subtask 1.1 Planning and Coordination Meeting with IOED*

1. The contractor shall meet with IOED staff within thirty (30) days of contract approval to discuss the project and walk through the topic areas and necessary elements for the successful completion of the study.
2. The contractor shall provide a list of names and contact information for all staff working on the project, including any executives, project or management staff, and fiscal staff.
3. Within thirty (30) days, the contractor shall meet with IOED staff on a mutually agreed upon schedule that should be conducted on a basis of at least one meeting every month until the completed study is submitted to IOED. In those meetings, the contractor shall provide updates on the status of the study and share drafts as appropriate.

#### *Task 1.2 Stakeholder Engagement*

1. Stakeholder engagement will be an important part of the development of this study. The contractor shall coordinate closely with IOED to engage with a variety of stakeholders representing interested parties ranging from utilities and generation owners, SMR-technology manufacturers, local officials, customer advocacy organizations, and other relevant entities as applicable and appropriate.

2. The contractor shall coordinate with IOED staff and attend any meetings, either virtual or in-person, that is a result of stakeholder engagement and/or outreach efforts as determined necessary or appropriate by IOED.
3. The contractor may be invited by IOED to present findings to interested state and local officials and stakeholders.

## **Task 2: Study Contents**

### *Subtask 2.1 Literature Review: Current Status of Technology*

1. The contractor shall provide background information on the current landscape for SMR technologies across the nation and in Indiana. This section will consist of a literature review that includes an overview information on relevant state and federal laws related to SMRs, and a narrative on the technology, such as typical megawatt capacity and design options.
2. The contractor shall provide information on the types of electricity grid-supporting attributes SMRs can provide, such as capacity and other key ancillary services. This should also include a robust discussion of how SMRs may fit within Indiana's current and expected generation portfolio mix and its relationship with other generation resources, as applicable.
3. The contractor shall provide information on the current licensing and regulatory approvals needed in order to implement an SMR project at the federal, state, and local levels, as applicable.
4. The contractor shall provide potential SMR use case or scenario-type information, including utility-based generating facilities and on-site generation for large facilities such as manufacturing or data centers. The contractor shall evaluate how the use cases/scenarios affect resource adequacy, reliability, affordability, and decarbonization.
5. The contractor shall provide a comparison of traditional nuclear technology to SMR technology. This shall include plant size, acreage needed around the site, megawatt capacity, independent spent fuel storage installations, and any differences in regulation, among other key areas of discussion.
6. The contractor shall provide an estimated timeline of the completion of an SMR facility, from conceptualization to commercial operation.

### *Subtask 2.2 State & Local Economic Impact*

1. The contractor shall research and model economic impact (both costs and benefits) at the state and local levels that an SMR facility could be sited and operating within. For the local-level analysis, the contractor shall consider this at the regional, county, and municipal levels. Modelling outcomes may include but would not be limited to the following:
  - a. Costs and benefits of utilizing existing infrastructure or building new infrastructure based on identified ideal siting characteristics, locations, or needs

- that are Indiana-specific or share substantially similar characteristics to Indiana's geography and/or locales.
- b. Tax revenue changes for the local and state governments, especially in areas where a retired generation asset may no longer be in operation.
  - c. Expected economic impact from wages of construction, temporary, and permanent workers.
  - d. Expected economic impact from an SMR manufacturing supply-chain established in the state.
2. The contractor shall provide information on the current cost estimates to build an SMR project, and a detailed description of adverse and mitigating factors that can affect the total cost of construction and operation of an SMR. The types of information that should be included but not necessarily limited to are:
    - a. Total construction and project costs to achieve commercial operation. This would include construction, licensing, production, and ongoing operation and maintenance costs.
    - b. A comparison of SMR technology costs vs. traditional nuclear power plant costs.
    - c. Estimated decommissioning costs of SMRs vs. traditional nuclear power plant decommissioning costs.
  3. The contractor shall identify ideal general locations and beneficial locational characteristics conducive to the successful siting and operation of an SMR project in Indiana. Types of information to evaluate could include but is not limited to:
    - a. The applicability of retired or unused electric generation and transmission infrastructure, and the ability to retrofit or repurpose existing infrastructure.
    - b. The types of geography (e.g., flat land) and locational (e.g., rural) characteristics that are ideal for preliminary siting.
    - c. The necessity of building new infrastructure, and a discussion and analysis of the associated land use requirements generally associated with building new electric generation infrastructure (e.g., easements, eminent domain, local zoning, etc.).
    - d. Nuclear Regulatory Commission (NRC) requirements.
    - e. A summary of the financial mechanisms and resources, including state and federal tax credits, loans, grants, and vouchers that are available for SMR development, and the opportunities or options to create a capital stack of multiple financial mechanisms.
  4. The contractor shall consider the feasibility of SMR technology being utilized for on-site power generation for large generation users or economic development zones, such as industrial parks.
  5. The contractor shall consider the potential opportunities for an SMR manufacturing supply chain to be developed within the state.

### *Subtask 2.3 Workforce Development and Employment*

1. The contractor shall model potential workforce impacts (both direct and indirect) that a hypothetical SMR facility could make in one or more potential scenarios. Examples of direct workforce impacts would include construction and permanent job creation, and

examples of indirect workforce impacts would be supply-chain-based and localized economic impacts.

2. The contractor shall evaluate opportunities for re-skilling and re-training of jobs that are impacted by the energy generation transition and whether there are adequate crossover opportunities to employ affected workers in an SMR.
3. The contractor shall examine the talent development pipeline and explore recommendations to prepare the workforce for SMR technologies and explore the development of SMR-related workforce and talent development programs.
  - a. This shall include both plant workers and manufacturing.
  - b. The contractor shall provide information on the types of jobs that would be in demand from SMR deployment, and the estimated length of time required to build up the talent development pipeline.
  - c. The contractor shall provide information on the length of time required to acquire the necessary trade certifications or training for various positions or groups of positions likely found within an SMR facility.
4. The contractor shall provide a detailed analysis on any challenges that are currently facing the workforce as it relates to SMR development and operation.

#### *Subtask 2.4 Safety Review*

1. The contractor shall provide information related to the best practices for safety surrounding SMR technology, including any built-in safety features that SMR facilities have.
  - a. Other considerations include reactor meltdown practices and cybersecurity.
2. The contractor shall provide information on the potential environmental impact from SMR technology, including a discussion of the nuclear waste produced by SMR facilities and storage solutions.
3. The contractor shall provide information related to safety when it comes to project siting, and considerations for developers and communities regarding an SMR project.
4. The contractor shall provide a comprehensive comparison of SMR technology to traditional nuclear safety measures.

#### *Subtask 2.5 Community Engagement Needs and Best Practices*

1. The contractor shall provide information on the best practices for thoughtful community engagement on SMR technologies and deployment in a given area.
2. The contractor shall provide pertinent information on common questions and answers community members may have related to SMR technology, covering items such as (but not limited to) economic impact, safety, aesthetics, land use, and decommissioning.
3. The contractor shall provide information on public interest in SMR implementation throughout the state, and the level of public understanding and awareness of SMR technology.
4. The contractor shall conduct a high-level survey of Indiana residents and community leaders on overall understanding, awareness, and attitudes towards traditional and advanced nuclear energy generation, including potential interest and concerns.

### *Subtask 2.6 Key Findings*

1. The contractor shall conclude the study and present key findings and recommendations from the information gathered in a thorough and complete analysis, considering both costs and benefits, and the alignment with current state energy policy.
2. The contractor shall develop executive summaries, handouts, and other communicate to provide brief and easily digestible information in addition to the comprehensive report.

### **Milestones:**

IOED will select the awarded proposal by end of the year, and the study can officially begin upon contract execution shortly after. IOED anticipates the study can be completed in 9 months by October 31, 2024. Milestones the contractor shall incorporate into the proposal include:

1. Monthly coordination meetings with IOED
2. A draft outline of the study within 1 month of contract execution
3. Successive drafts during the study development period that demonstrate progress being made towards completion.
4. A final version of the comprehensive report by October 31, 2024
5. The final handout(s) that summarizes the report by October 31, 2024

### **Payments:**

This project will be administered through a contractual agreement in accordance with Indiana state laws and procedures. The contractor must be [registered](#) with the State and in good-standing. Payments will be made up to 35 days in arrears as work is completed satisfactorily and upon receipt of dated invoices that list expenses incurred as specified in the proposal budget. Payments will be disbursed through direct deposit into a banking account specified and authorized by the contractor.

The selected contractor may be determined to be a subrecipient of federal funds and be required to comply with federal stipulations and requirements for pass-through grants as detailed in 2 CFR 200. This includes, but is not limited to, complying with federal audit requirements, and completing an SF-424B Assurances for Non-Construction Programs.

### **Proposal Instructions:**

Proposals must be in pdf format, and include the following elements:

**Cover Page** – provide a cover page that includes title; project summary that briefly states specific objective(s); name, affiliation, and contact information for the project leader and, if appropriate, any project partners; and project budget summary by task and subtask, as applicable.

Additionally, complete contact information (name, title, affiliation, email, phone number) must be provided for the individual(s) authorized to enter into a contractual agreement.

**Approach** – describe the methods that will be used to meet each stated task and subtask item in the scope of work. This section should clearly identify the level of research and data collection that will be used to meet listed task/subtask.

**Timeline** – provide a detailed proposed schedule for coordination, research, data analysis and compilation, and report preparation.

**Budget** – provide an itemized budget by major expense types (*e.g.*, salary & wages, equipment, supplies, travel, etc.). The source and amount of match provided by the applicant, if applicable, must be included.

**Supporting Material** – a brief biography and bibliography demonstrating the capability and relevant experience of the principal investigator(s) and/or researcher(s) is required. Support materials that aid in evaluating the proposal are encouraged.

## **Proposal Evaluation:**

Proposals will be judged based on the basis of feasibility, efficiency, quality, and quantity of work that will be accomplished within the fixed budget, and qualifications of the principal investigator(s). The successful applicant must be able to enter into a contractual agreement with the State and be a registered Vendor and Bidder with the State or become registered prior to awarding the contract. Work may not commence until the contract is fully executed, which may be up to eight weeks from initiation. The contractor will be notified when work may begin.

## **Proposal Deadline:**

Project proposals are due by COB on December 8, 2023. Notification of acceptance will be made in early Q1, 2024.

## **Proposal Submissions:**

Project proposals should be submitted via email to [jcarrico@oed.in.gov](mailto:jcarrico@oed.in.gov).