**Pacific Northwest** NATIONAL LABORATORY

**Permit ai**

# Permit Application Builder

*Creating an AI-powered tool that helps permit applicants prepare quality, compliant permit documents for federal and state energy and infrastructure projects, in less time*

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PNNL is operated by Battelle for the U.S. Department of Energy

# Guiding Permit Applicants through the Regulatory Process for a Faster Decision

**Challenge:** Efforts to speed up permitting have overlooked the need to guide applicants in preparing quality documents and avoiding unnecessary steps.

**Objective:** Create an AI-powered Application Builder that helps users prepare quality, compliant permit documents for federal and state energy projects, in less time.

**Approach:** Apply Geothermal and Hydropower systems expertise to create a field-tested AI system that identifies and defines the details needed for required permits.
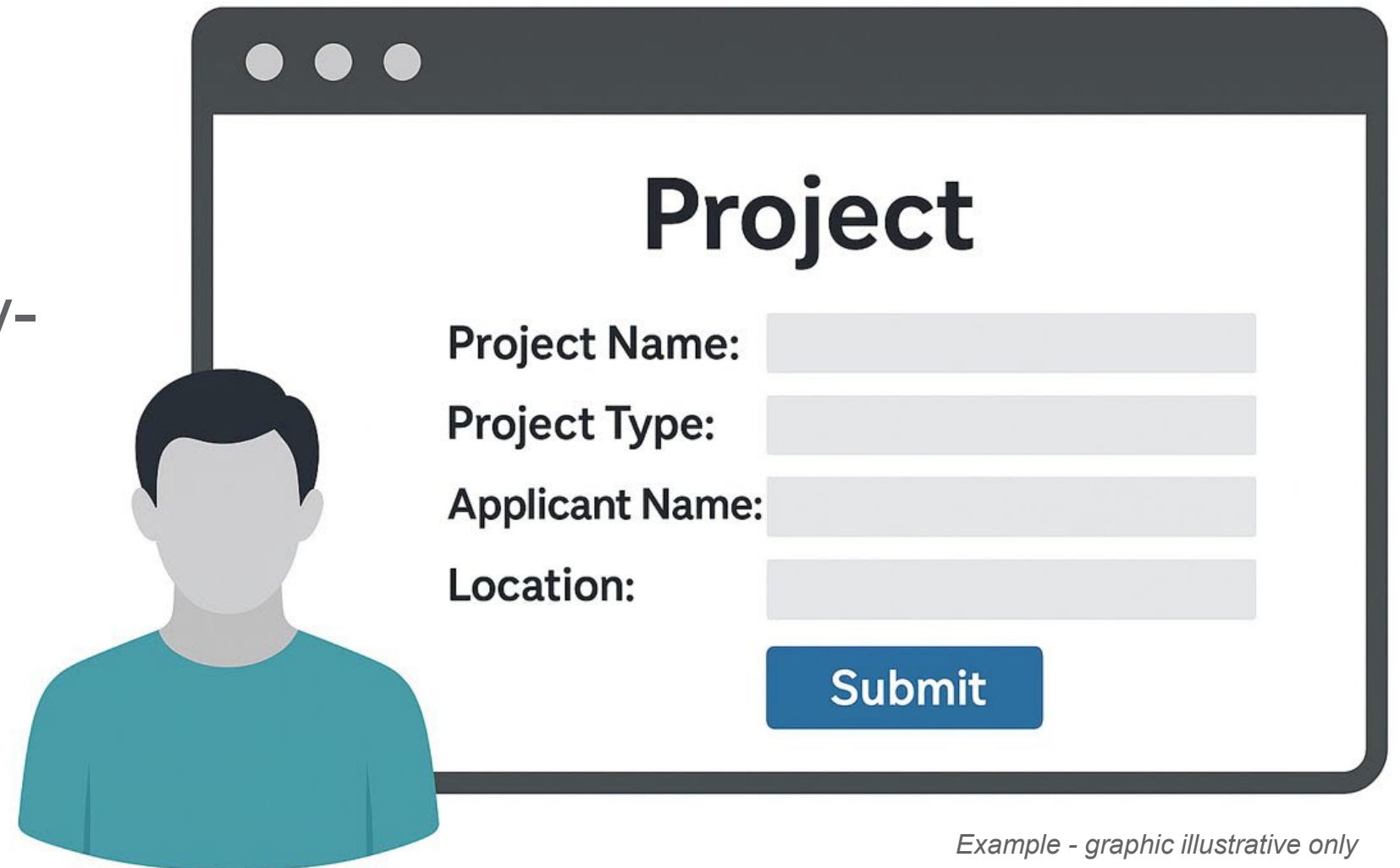
**Helping applicants go from this…**

**To this.**



**Impact:** The AI-Powered Application Builder will significantly cut down on time and cost by streamlining permit prep so it's right the first time.

# How Application Builder Works: Step 1

Applicant inputs project information following step-by-step AI-generated prompts with a built in AI-Assistant.

**Think TurboTax for permitting!**

## Project

Project Name:

Project Type:

Applicant Name:

Location:

Submit

*Example - graphic illustrative only*

# Scenarios and Alternatives

- Interface development for applicant-directed siting to allow for applicant design of different environmental scenarios development.

- Identify project attributes for activities using expert knowledge, AI methods, and industry standards.
  - Siting
  - Exploratory Activities
  - Construction Activities
  - Operations Activities
  - Mitigation/Monitoring Activities



- - - Site boundary
  
  NWI wetlands
  
  Floodplain

# How Application Builder Works: Step 2

Applicant reviews AI-populated required environmental and permit information, with a list of permits that will use the project's details.

- Applicant can choose to connect with permit-granting agencies for further discussions, to share project details, or explore consulting opportunities.

- Applicant can explore different project scenarios to compare permitting options.
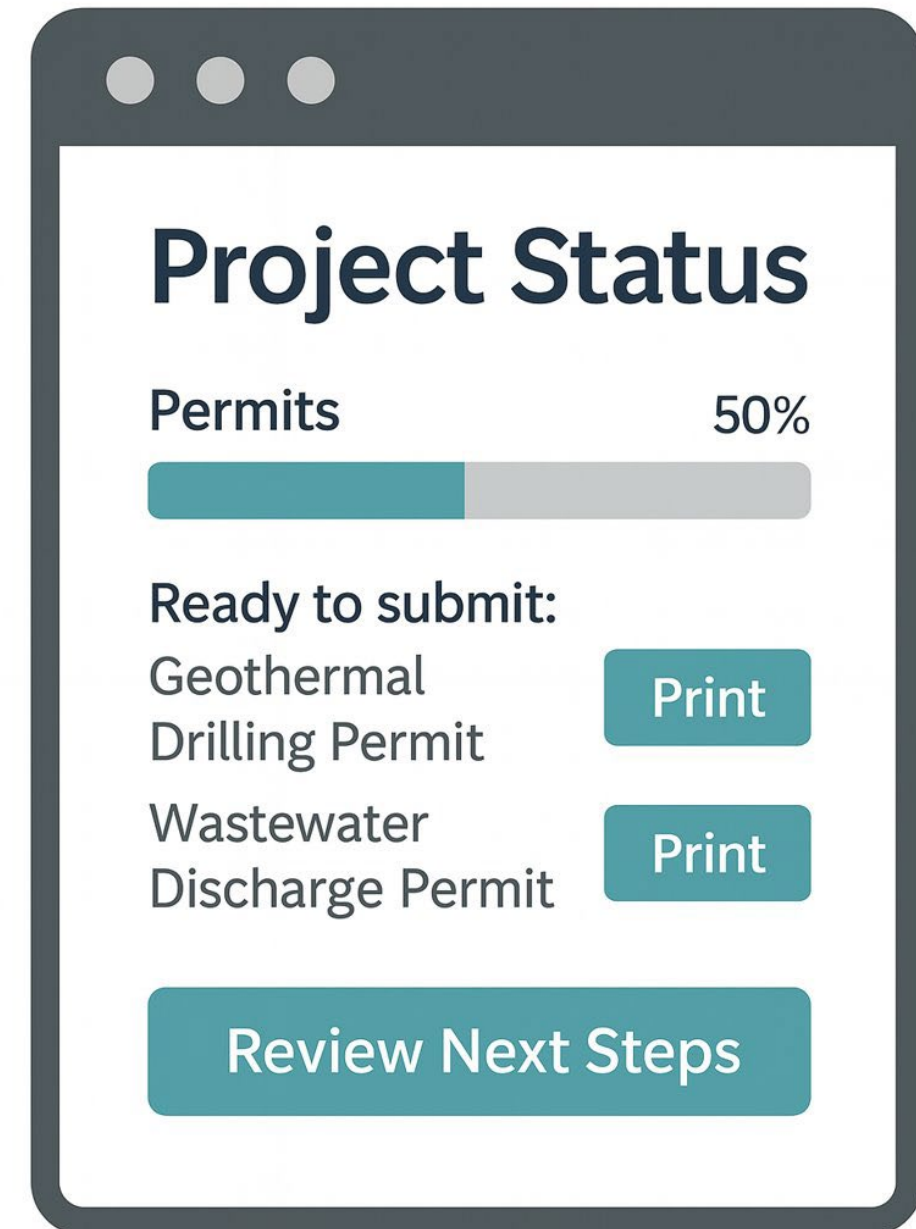
## Required Permits

**1. Geothermal Drilling Permit**
**Issuing Agency:** BLM (federal) or Alaska Oil and Gas Conservation Commission (AOGCC)
**Purpose:** Authorizes the drilling of geothermal wells.
**Contacts:** Jane Doe, BLM; John Doe, AOGCC

*Example - graphic illustrative only*

# How Application Builder Works: Step 3

Applicant collects AI-suggested project and environmental study details, inputs them where an AI-Reviewer checks for completeness and quality.

- Applicant receives feedback on missing, incomplete, or insufficient information.

- Applicant is notified when permit applications or authorizations are ready to submit and where to submit them.

- Applicant receives AI-generated permit applications, provided in a digital format for easy submission.

## Project Status

**Permits**      50%

Ready to submit:

Geothermal Drilling Permit    **Print**

Wastewater Discharge Permit    **Print**

**Review Next Steps**

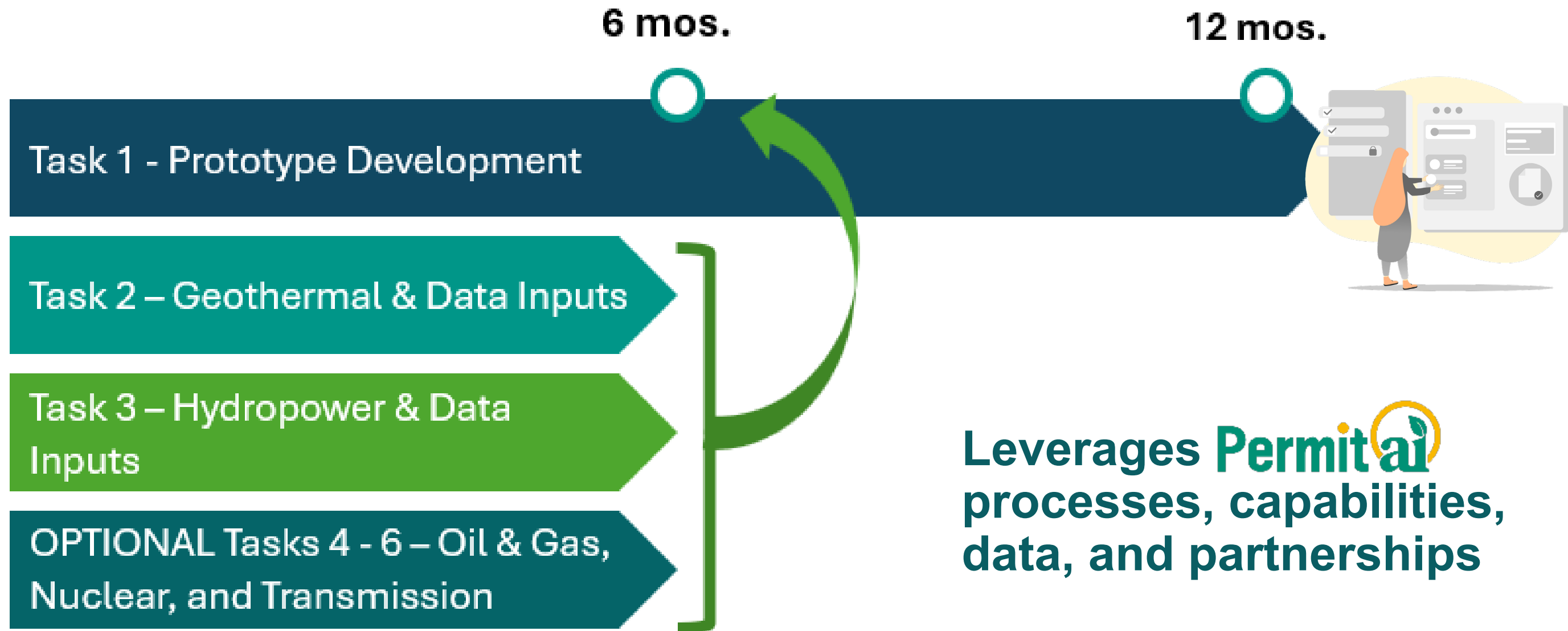*Example - graphic illustrative only*

# Main Task Areas

Tasks will be developed concurrently to develop a Permit Application Builder prototype in 12 months. The first three are funded by EERE, and the remaining three are optional, seeking $ each from appropriate DOE/Fed offices.

- **TASK 1**: **Permit Builder AI Application Development -** *User interface development, user experience design, GIS mapping, permit/regulations library with query capabilities, automation, functionality testing and user feedback*

- **TASK 2 and 3:** **Geothermal and Hydropower -** *Industry standards library for geothermal and hydropower projects, subject matter validation, create detailed framework for entering project information, create detailed framework for entering project information, linking to relevant environmental information and regulatory standards, expert validation and mitigation*

- **OPTIONAL TASK 4-6:** **Oil & Gas, Nuclear, and Transmission**

# Outcome: AI-Powered Permit Application Builder for Geothermal and Hydropower Applicants
## *Delivered in 12 months*

6 mos.
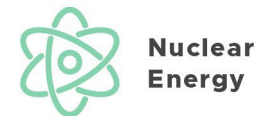
12 mos.

Task 1 - Prototype Development

Task 2 – Geothermal & Data Inputs

Task 3 – Hydropower & Data Inputs

OPTIONAL Tasks 4 - 6 – Oil & Gas, Nuclear, and Transmission

**Leverages Permit** **processes, capabilities, data, and partnerships**

# Vision: Enabling quality permit applications for energy projects across the U.S.

**Helping applicants go from this…**



Confusing forms & unclear expectations

Submission

Request for more info

**TECHNOLOGY TYPES**

Geothermal

Nuclear Energy

Critical Minerals

Oil and Natural Gas

Hydropower

**To this.**



Decision

Agency

# Thank you