



GridCRED: PNNL's Regional Planning Capability

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**Jacob Reidt, Advisor
Pacific Northwest National Laboratory**

jacob.reidt@pnnl.gov
509.375.2675



BUSINESS SENSITIVE



Project Overview

Need:

Persistent capabilities to address regional-scale analysis. A way to mobilize work quickly

What:

A computing system and analytics platform using curated data that is accessible to a range of stakeholders

How:

Integrate tools and computing that can be extended to other regions



Enduring Capability

DOE-OE

Methodology to integrate research tools and data sets for energy analysis, providing actionable grid operations and planning information



Computing Power

Washington State Department of Commerce (WA-DOC)

New computational capability that provides regional stakeholders insight on operational planning and reliability



A grid analytics informs actionable, scenario-based decisions for planning and operating a reliable, resilient and affordable grid. Persistent capability to address regional analysis.

Project Overview

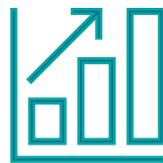
Process:



Provide the means to design, test, and deploy the grid of the future at regional and national scale



Collaboratively and transparently support the grid while assuring full reliability and resilience that is credible with utilities on a common platform



Create a scalable system to engage best-in-class tools to perform multi-sector analysis

Desired Outcome:



Research center housing the people, data, and tools that provide the foundation for timely, replicable analyses of specific grid scenarios



Computing infrastructure that integrates data sets with modular software toolsets to represent complex challenges introduced by a rapidly changing grid



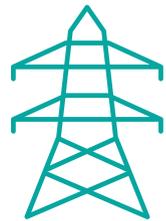
Common platform that allows stakeholders to engage in optimizing grid planning and operations beyond their individual domains

Feedback from GridCRED Engagement to Date

Established Challenges and Opportunities



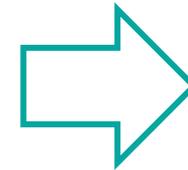
Current industry practices are insufficient to meet emerging energy needs and the increasing impacts of extreme weather events



Future energy systems will require **greater planning and operational flexibility** to improve **reliability and resilience**

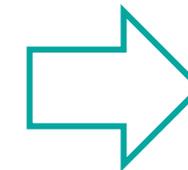


Integrated solutions must include transmission, distribution, and weather data, as well as the interests of new and emerging stakeholders

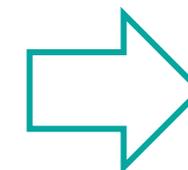


Documented Industry Need

Analysis efficiency and timeliness to expedite decision-making



Application of existing and new toolset integrations



Cross-domain platform to facilitate Integrated Systems Planning

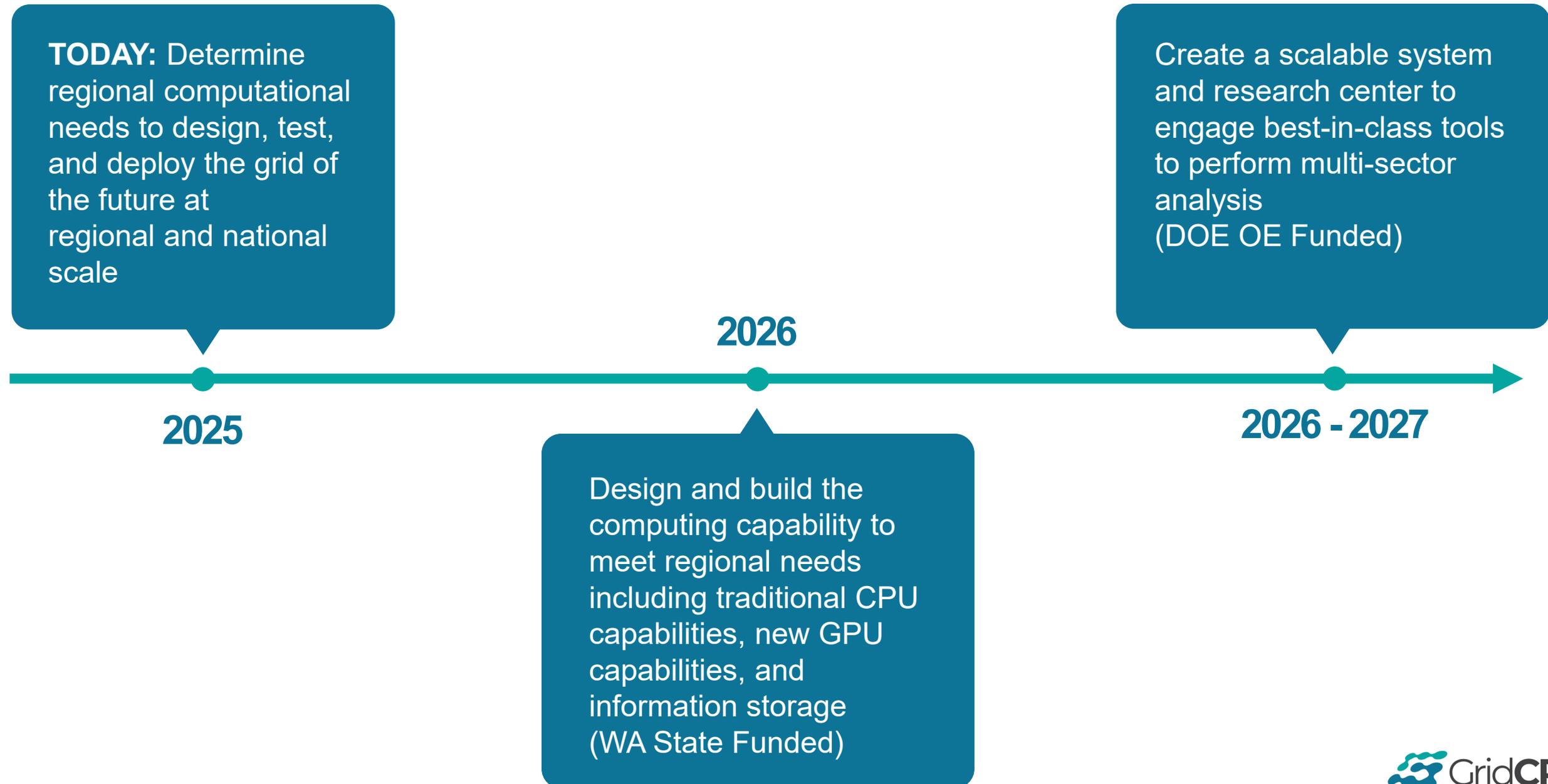
WA-DOC Compute Capability

Reviewing the contract showed key components of the capability:

1. Traditional, CPU-based computation capabilities
2. New, GPU-based computation capabilities
3. Data storage
4. A way for external partners to be involved

“...This capability will enable planning for a resilient, reliable, affordable clean energy economy under multiple future scenarios. State funds will **purchase an advanced computing and data storage platform** to **store best-in-class utility, industry, and public data sets**, and **offer advanced analytic capabilities to collaborators.**”

Development Milestones





Thank You

