



GridCRED: PNNL's Regional Planning Capability

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BUSINESS SENSITIVE



Agenda

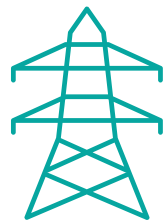
- GridCRED Overview
- GridCRED Timeline and Organization
- Data Management
- Data Governance
- Wrap-Up and Questions

What Problems are GridCRED Trying to Solve?

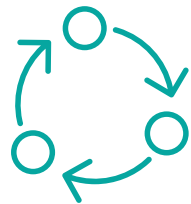
Established Challenges and Opportunities



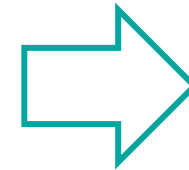
Current industry practices are insufficient to meet emerging energy needs and the increasing impacts of extreme weather events



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

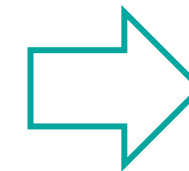


Integrated solutions must include transmission, distribution, and weather data, as well as the interests of new and emerging stakeholders

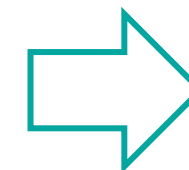


Documented Industry Need

Analysis efficiency and timeliness to expedite decision-making



Application of existing and new toolset integrations



Cross-domain platform to facilitate Integrated Systems Planning

How Might GridCRED Solve Them?

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

GridCRED 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)

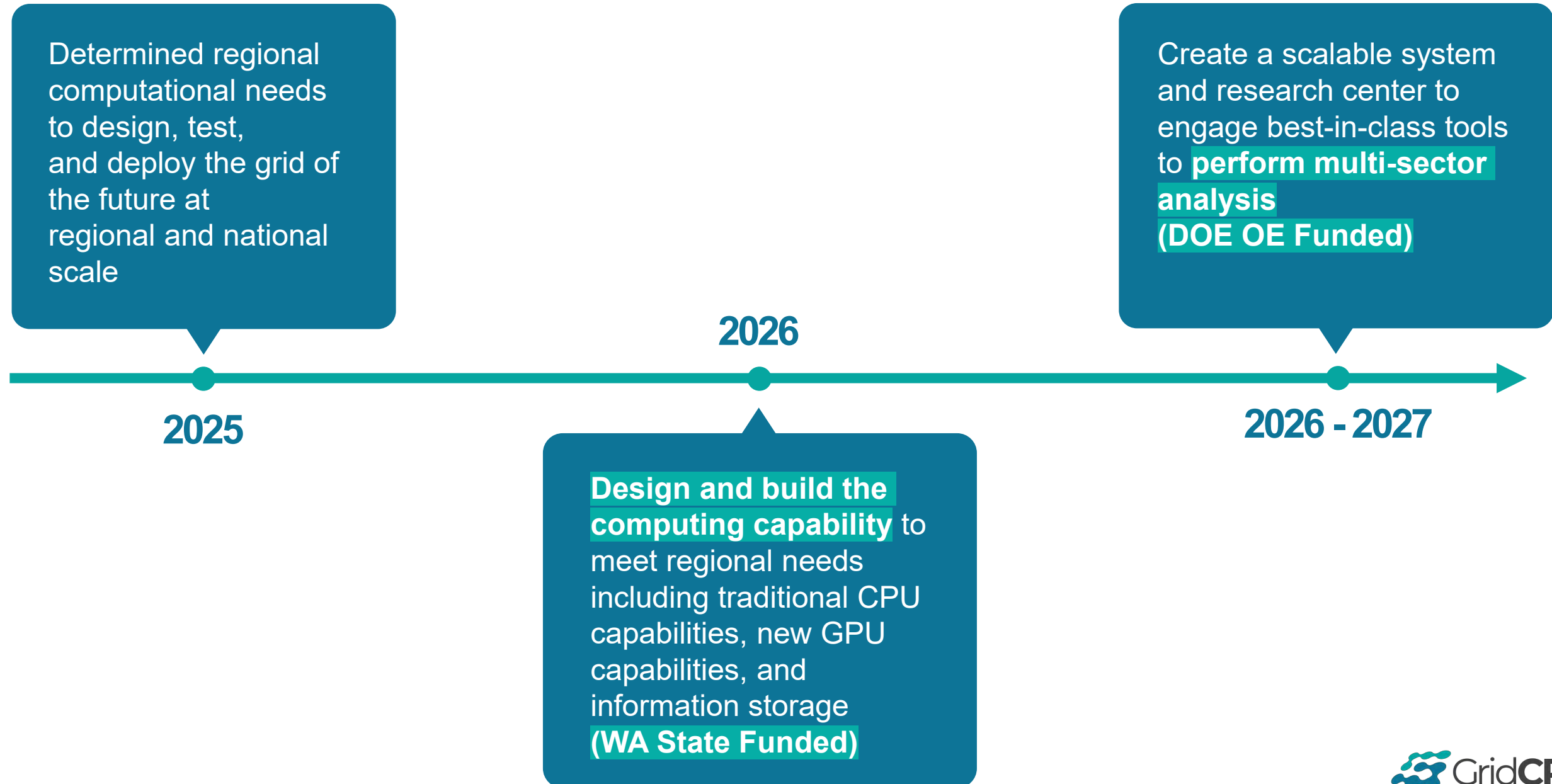
New computational capability that provides regional stakeholders insight on operational planning and reliability



A grid analytics informs actionable, scenario-based decisions for planning and operating a reliable, resilient and affordable grid.

Persistent capability to address regional analysis.

GridCRED Timeline





GridCRED

The Grid Center for Reliable Electricity Delivery

- Petabytes of storage
- Data catalog, data Identification & data Immutability
- Governance to enable multi-party analysis



Jacob Reidt,
GridCRED Director &
Principle Investigator (PI)



Trevor Hardy,
GridCRED System
Engineer



Kit Parker
GridCRED
Program Manager



Sabrah Holmes
Financial
Coordinator



Grace Borland
Financial
Coordinator



WA DOC: Create the GridCRED environment

- Design
- Procure
- Implement

OE: Use the GridCRED environment

- Governance
- Partner Projects (Use Cases)



Sarah Barrows,
WA DOC Project
Manager



Eric Stephan,
GridCRED Data
Lead



David Hansen,
GridCRED Data
Provenance &
Lineage Lead



Dustin Crockett,
GridCRED
Development &
Operations Lead



Jess Kincaid,
Data Governance
Lead



Chelsea Sleiman,
Data Integration
Lead



Scott Morris,
Northwest Energy
Study Project
Manager



Jacob Reidt
Unscheduled
Flows Lead

Data Catalog:
how to store
and access
data?

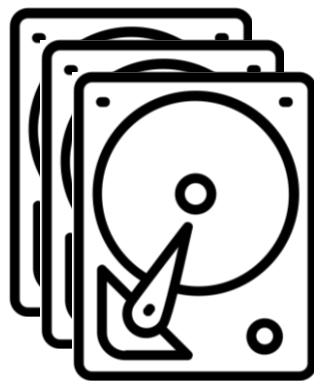
Data Lineage:
what is the
history of this
data?

DevOps:
hardware and
software
implementation

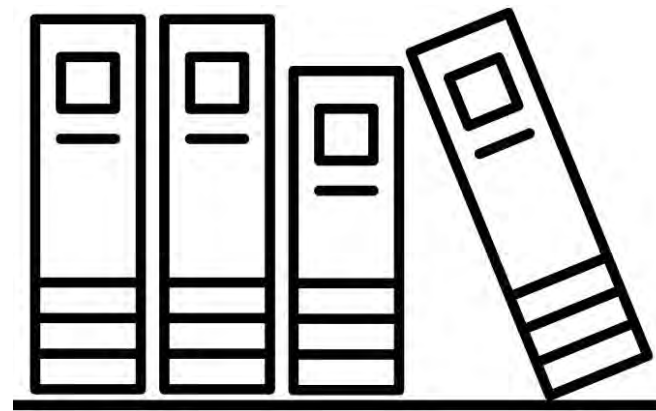
Governance:
what are the
rules for utilizing
GridCRED?

Data Integration:
how will projects
upload their data?

Use Cases: how
will projects utilize
the GridCRED
platform?



PB of Storage



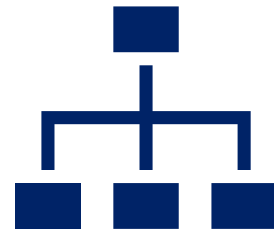
Data Catalog



Data Identification
and Immutability

Data Governance

Challenges that Require Governance



Internal:

1. Sharing data across multiple projects
2. Project lead alignment across multiple projects
3. **Repurposing of data from historical projects for use in new projects**



External:

1. **Sharing data across multiple utilities through a single repository**
2. **Significant rules and laws governing data use and dissemination**
3. Utility hesitance to share data that could be used in opposing intervenor testimony



Thank You

