

Data Repository for Power System Open Models with Evolving Resources (DR POWER)

Mark Rice, Pacific Northwest National Laboratory (PNNL)

Partner: National Rural Electric Cooperative Association (NRECA)

CRITICAL NEED

Several emerging issues—including the resiliency of electric power delivery during extreme weather events, expanding use of distributed generation, the rapid growth of renewable generation, and the economic benefits of improved grid efficiency and flexibility—are challenging the way electricity is delivered from suppliers to consumers.

Existing open-access datasets are too small and do not represent the complexity of present and future power grids. These limitations hinder researchers and developers as they attempt to fully test new methods and tools.

The power modeling community is in need of robust, transformational models and scenarios to address grid complexity today and into the future with a large-scale, dynamic, open-access system that will support the on-line power operations community.

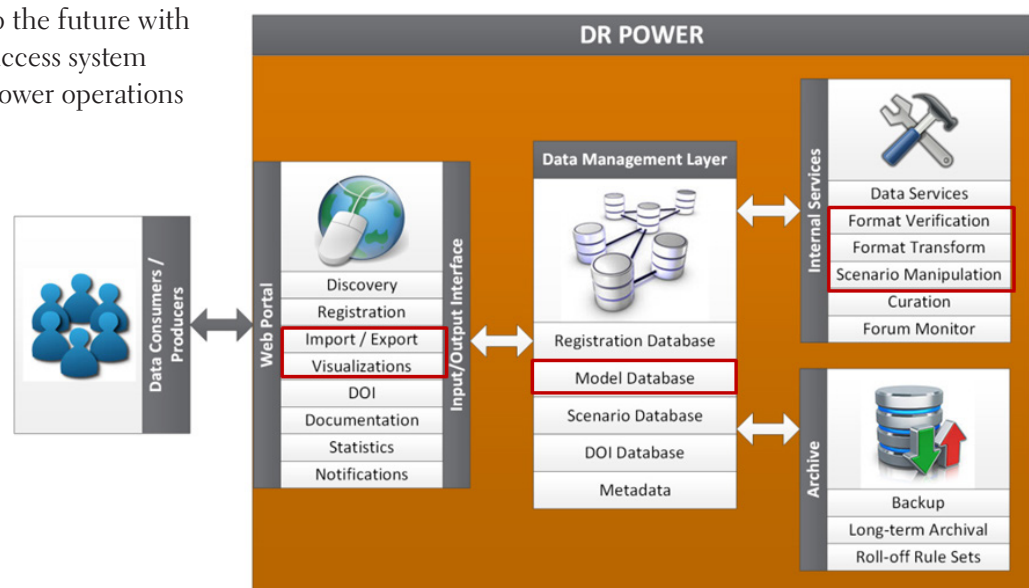
DR POWER will serve as a repository for modern grid models and datasets to support the power operations community.

The objective is to create a repository that is open-access internationally, flexible so that it can accommodate various power system models, scalable to expand to meet market demand, sustainable in the long run as a self-funded model, and able to provide curation capacity to develop a set of standards over time.

This online, community-centered scenario manipulation portal will support large-scale, realistic datasets and data tooling models. DR POWER will enable the review, annotation, and verification of submitted datasets through the integration of existing, open-source products

OUR SOLUTION

PNNL and NRECA are teaming up to resolve this problem by developing an integrated, user-defined approach known as Data Repository for Power System Open Models with Evolving Resources, or DR POWER.



DR POWER information flow diagram

including Open Modeling Framework (OMF) and GridOPTICS™ (GOSS).

PNNL will host the repository and portal in its Electricity Infrastructure Operations Center over the duration of the project and beyond.

APPROACH

The DR POWER project will develop:

- » A data dictionary and supporting ontology
- » A sustainable, community driven system
- » A curation process and supporting tools
- » New visualizations and model editors to provide integrated transmissions and distribution models, including hybrid systems
- » A collaborative research community that shares information and develops models

For additional information contact:

Mark Rice, Mark.Rice@pnnl.gov

