

What is the National Geothermal Data System (NGDS)?

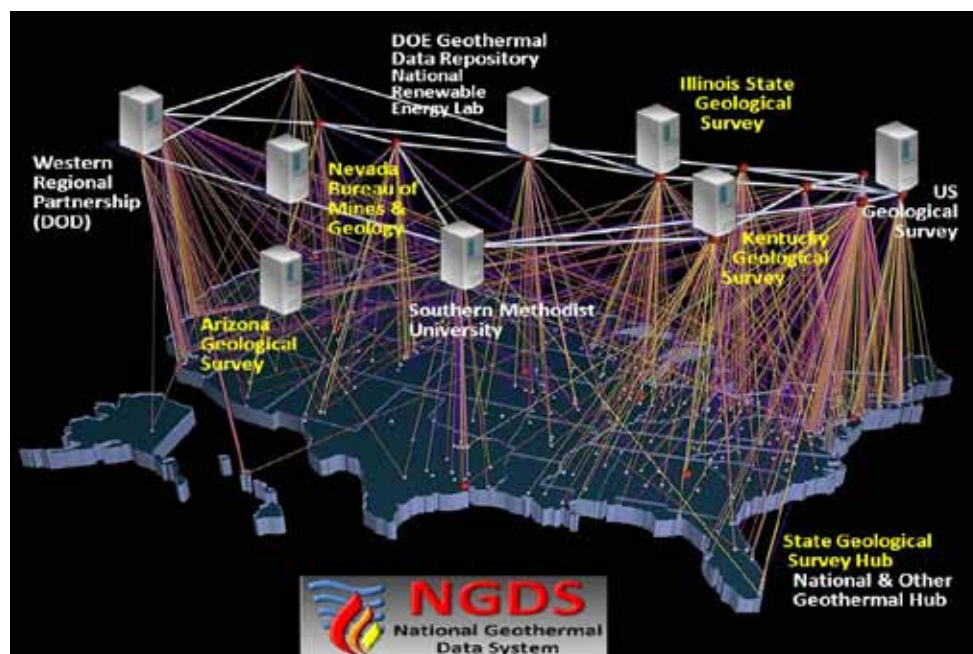
The NGDS is a distributed, interoperable network of data repositories and state geological surveys from across all fifty states and the nation's leading academic geothermal centers.

The system will serve as a platform for sharing consistent, reliable geothermal-relevant technical data with users of all types, supplying tools relevant for their work. As aggregated data supports new scientific findings, this content-rich linked data ultimately broadens the pool of knowledge available to fuel discovery and development of commercial-scale geothermal energy production. Most of the up-front risks associated with geothermal development stem from exploration and characterization of subsurface resources. Wider access to distributed data will, therefore, result in lower costs for geothermal development.

The NGDS is on track to become fully operational by 2014 and will provide a platform for custom applications for accessing all geothermal data in the U.S. and abroad.

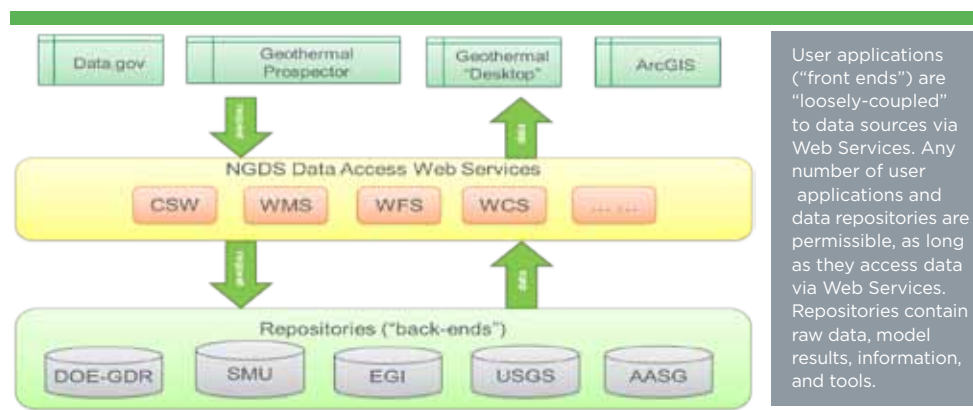
The Geothermal Technologies Program (GTP) funds this enterprise to facilitate a seamless delivery of geothermal data for a variety of applications. Critical geothermal attributes will be accessible, such as temperature at depths, flow rates, and resource characterization.

Visit the Geothermal Technologies Program website at geothermal.energy.gov for more information on the NGDS, or contact geothermal@ee.doe.gov. To learn more about the NGDS, log on at <http://geothermaldata.org>.



From Open Data to Linked Open Data¹

The NGDS is being built using the U.S. Geoscience Information Network (USGIN) data integration framework to promote interoperability across the Earth sciences community. The basic structure of the NGDS will employ state-of-the-art informatics to advance geothermal knowledge, as depicted below. DOE project investigators organize, digitize, catalog, and upload data to reduce the amount of geothermal stakeholder time devoted to retrieving and verifying vital geothermal knowledge from hundreds of projects nationwide. New data providers who want to become a node on the NGDS will be able to deploy the open source NGDS Node-In-A-Box software, based upon CKAN 2.0, and quickly get started. Alternatively, the NGDS project has published several standards for metadata and service endpoints, which can help a provider leverage their existing catalogs for interoperability with the NGDS. In addition, nodes such as the DOE-GDR (see reverse) are now online. A U.S. Government "Transparency Directive" creates free access to information when use and re-use of data is critical. To simplify the process of accessing intricate geothermal data, pointers are embedded among the data at multiple levels of granularity.



¹Bauer, Florian, and Martin Kaltenbock. Linked Open Data: The Essentials. Semantic Web Company. ISBN: 978-3-902796-05-9.

How to Submit Data via the Geothermal Data Repository (DOE-GDR)

Below are instructions for all DOE Geothermal Technologies Program funds recipients.

Step 1. Register

Funds recipients register for an account before submitting data by visiting the DOE-GDR at <https://gdr.openei.org>. For technical assistance with registration or help accessing the data submission interface, contact GDRHelp@ee.doe.gov.

Step 2. Submit

Once registered, users can log into the data submission site to submit data. For each data resource (Excel, Word, PDF, or data containment software), funds recipients will:

- ☐ Provide appropriate metadata and contact information
- ☐ Agree to the data handling terms of the DOE-GDR
- ☐ Specify the release date for any protected data consistent with the Intellectual Property Provisions
- ☐ Attach the data

Once data has been submitted, recipients will not be able to edit the data for the duration of the review and curation process. It is recommended that you retain a copy of the submitted data. For information and assistance concerning the preparation of data files, metadata, unique data requirements, or the data curation process, email GDRHelp@ee.doe.gov.

Step 3. Protect

Data submitted to the DOE-GDR and identified as "Protected Data" are subject to the terms and conditions set forth in the Intellectual Property Provision incorporated into the award. Prior to the public release date, Protected Data are held in a secure data store with restricted access. All other submitted data will be made publicly available.

Step 4. Cancel or Resubmit

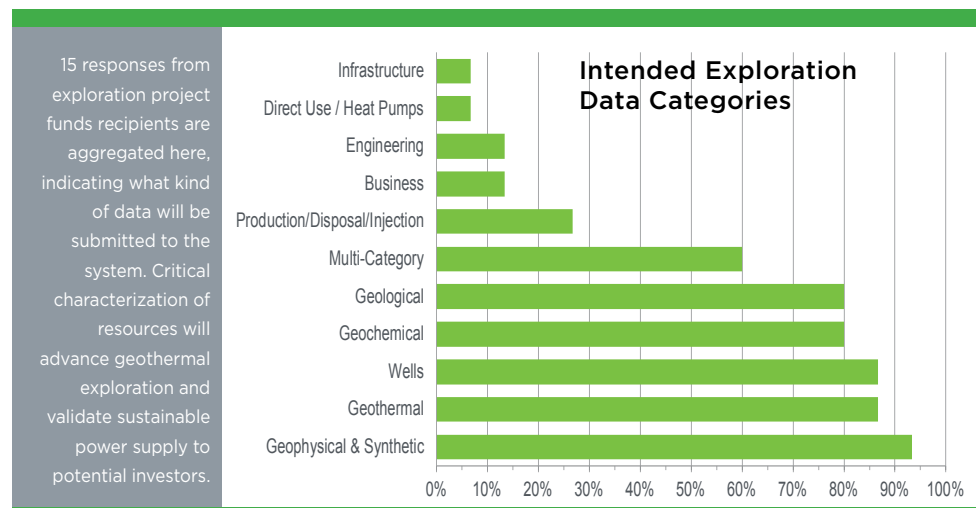
You may cancel a submission at any time prior to public release. Cancellation will terminate the curation process and remove any copies of the originally submitted data from the system. If you wish to edit data or metadata after submission, you will need to cancel and resubmit.

DOE Geothermal Technologies NGDS Node

The Geothermal Data Repository (DOE-GDR) represents a vital node on the NGDS. GDR is hosted on the Open Energy Information (OpenEI) Platform which currently features over 55,000 content pages, more than 600 downloadable data sets, regional gateways on a variety of energy-related topics, and numerous online tools such as "Geothermal Prospector." All grant recipients are required to submit their data as it is generated or no later than 90 days after the quarter in which the data is generated. Within 90 days of receiving their award, recipients must develop a data plan, listing the specific type of data that will be generated as part of each task and project deliverable.

Data Provision Summary	Website	Contact
Registration	https://gdr.openei.org	OpenEI Team at NREL GDRHelp@ee.doe.gov
Data Submission	https://gdr.openei.org	OpenEI Team at NREL GDRHelp@ee.doe.gov
General information about the DOE-GDR and the NGDS	www.geothermal.energy.gov	Arlene Anderson at U.S. DOE Geothermal Technologies Program arlene.anderson@ee.doe.gov

While the lack of reliable and accurate resource data and information has been a critical deterrent to potential geothermal investors, the NGDS supplies a robust set of data that reduces uncertainty and attracts capital. The graph below indicates an example of exploration data expected through the NGDS.



geothermal.energy.gov / email geothermal@ee.doe.gov
For more on the NGDS, <http://geothermaldata.org>

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