



The Nuclear Readiness Initiative 2.0 (NRI 2.0) User Guide

The National Nuclear Security Administration (NNSA), Partnership for Global Security, and Datalere developed the Nuclear Readiness Initiative (NRI) 2.0, a web-based tool for analyzing and visualizing country-level Energy, Security, Governance, and Climate data.

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Notes:

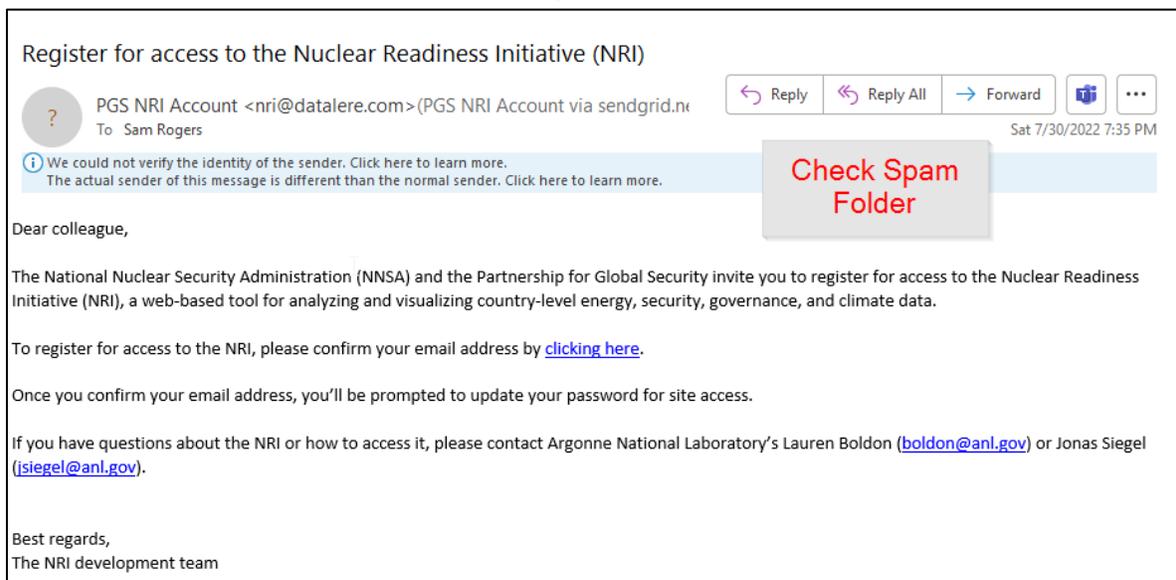
- i. *The Beta version of the NRI was developed to be used on computers/laptops, however it can be accessed by tablet or smartphone but may experience user limitations. Using remote-access software (Citrix, etc.) may also limit user experience.*
- ii. *If you have questions about the NRI or how to access it, please contact Argonne National Laboratory's Lauren Boldon (boldon@anl.gov) or Jonas Siegel (jsiegel@anl.gov).*



I. NRI User Registration and Account Set Up

In order to use the Nuclear Readiness Initiative PGS Web Application, a user must be invited by an administrator. Please contact Argonne National Laboratory's Lauren Boldon (boldon@anl.gov) or Jonas Siegel (jsiegel@anl.gov) if you want to request access to the application.

- 1) Users will receive a registration email (similar to below) after an admin has added their account information to the portal. Please note, the email may get sent to Spam/Junk, so please move it your inbox before proceeding. Please note that this link will expire in one week, so register for access promptly. **If you don't register within a week, you'll need to obtain a new email confirmation message (directions below).**



- 2) Users will follow the link provided to verify their email address and create a password. Passwords should follow company password policy and the National Institute of Standards and Technology (NIST) specific guidelines for strong passwords.

PARTNERSHIP for
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Set password

Password

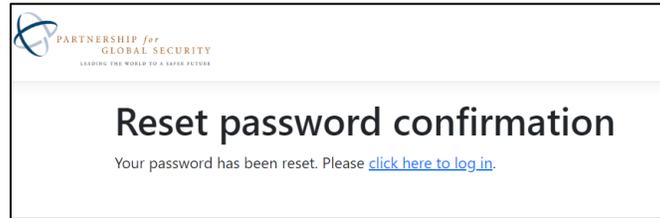
Confirm password

Set

If the user is receiving an error during this process, please proceed to the troubleshooting tips below.



- 3) Once the password is set, users will see the “Reset Password Confirmation” page. Follow this link to log into the Beta Version of the Nuclear Readiness Initiative Web App.

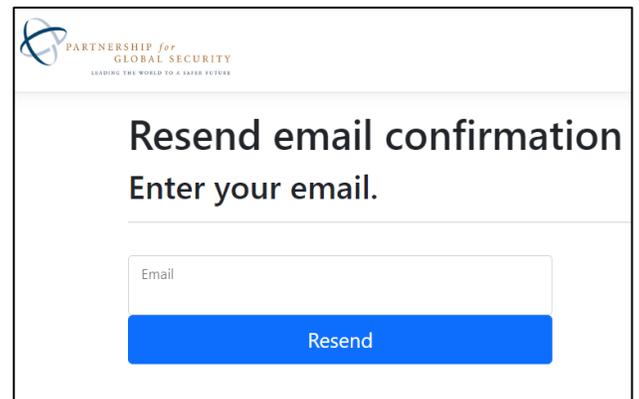
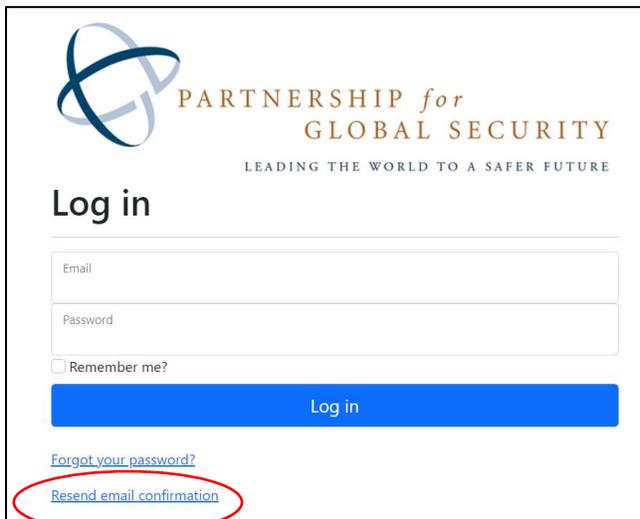


- 4) The user will now be able to access the Partnership for Global Security - Nuclear Readiness Initiative Web App. The next sections provide details on logging in and using the NRI Web App.

Account Troubleshooting Tips/ Expired Welcome Link:

If a user is experiencing problems setting their password, it could be from a delayed response to the confirmation email. In this case a user will need to request “Resend email confirmation.”

- 1) Navigate to the Login Page of the PGS Nuclear Readiness Initiative Web App
<https://www.nuclearreadinessinitiative.org/Identity/Account/Login>
- 2) Select “Resend Email Confirmation” and enter user email address and select “Resend.” Only a registered user will receive the email.



- 3) The user will receive an email from nri@datalere.com titled “Please Confirm Your Email” (check spam/junk). Click the link provided in the email.
- 4) The user will open a webpage that confirms that their email address has been validated.



- 5) Once the user's email has been confirmed, the user must return to the Login Page of the PGS Nuclear Readiness Initiative Web App and select "Forgot your Password?"

The screenshot shows the login page for the Partnership for Global Security. It features the organization's logo and tagline, "LEADING THE WORLD TO A SAFER FUTURE". Below the logo is the heading "Log in". There are two input fields: "Email" and "Password". A checkbox labeled "Remember me?" is present. A blue "Log in" button is at the bottom. A link for "Forgot your password?" is circled in red, and a link for "Resend email confirmation" is located below it.

The screenshot shows the "Forgot your password?" page. It features the organization's logo and tagline. The main heading is "Forgot your password?" followed by "Enter your email.". There is an "Email" input field and a blue "Reset Password" button.

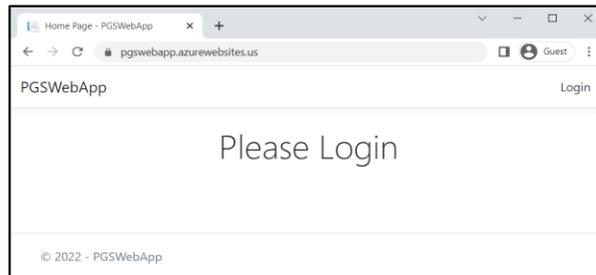
- 6) Enter the registered email address and select Reset Password.
- 7) An email will be sent to the corresponding email address (so long as it is registered(as long as it is registered)). Check Spam or Junk if you didn't receive an email.
- 8) Follow the link in the email and set the new password. It is recommended that a user follows the NIST specific guidelines or their employer's guidelines for strong passwords.
- 9) The user will now be able to access the Partnership for Global Security - Nuclear Readiness Initiative Web App. Directions in the next sections provide details on logging in and using the NRI Web App.

The screenshot shows an email titled "Reset Password". The sender is identified as "PGS NRI Account <nri@datalere.com> (PGS NRI Account via sendgrid.nri)". A warning icon and text state: "We could not verify the identity of the sender. Click here to learn more. The actual sender of this message is different than the normal sender. Click here to learn more." Below this, it says "Please reset your password by [clicking here](#)."



II. NRI PGS Web App Log in and Access Instructions

1. This version of the Nuclear Readiness Initiative Web App can be accessed at <https://www.nuclearreadinessinitiative.org/>

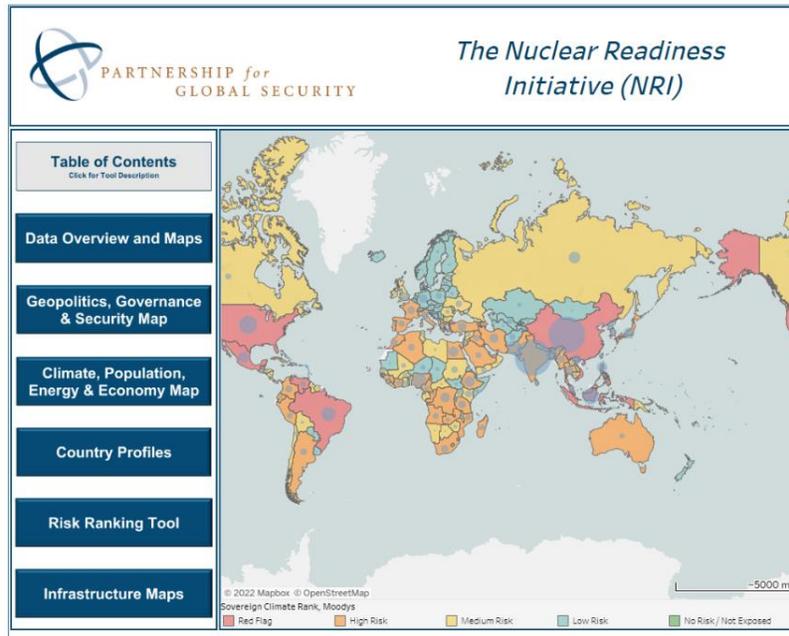


2. Click “Please Login”
Enter Login Credentials and click LOGIN
Username: <user email>
Password: <user set password>

A user must be registered and granted access from an NNSA or PGS Administrator. However, if your login attempt fails, please first try refreshing the browser. If you continue to have technical difficulties, please contact Argonne National Laboratory’s Lauren Boldon (boldon@anl.gov) or Jonas Siegel (jsiegel@anl.gov).



3. Once you have successfully logged into the PGS Web APP, you can start exploring the Nuclear Readiness Initiative 2.0.
4. Explore all the items in the table of contents by clicking on the blue buttons.
5. Users will be automatically LOGGED OUT AFTER 5 HOURS.



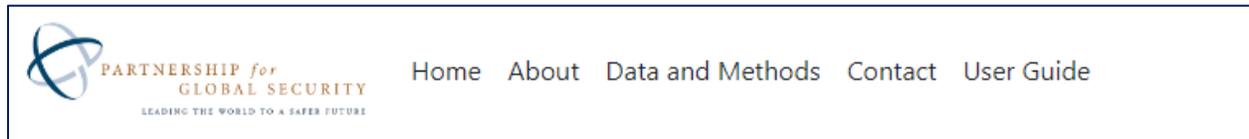
NRI Navigation

On the NRI home page, users can select from six different tools organized around specific themes. To learn about each of the tools, click the “Table of Contents” button. The tool descriptions are available below as well. On the home page, users can also learn more about the various types of data that are integrated into NRI and the methods used to update this data:

Expand Tool Definitions by clicking on Table of Contents

PARTNERSHIP for GLOBAL SECURITY		The Nuclear Readiness Initiative (NRI)	
Table of Contents Click for Tool Description		The Nuclear Readiness Initiative is a Tableau-powered website that provides multi-disciplinary data and visualizations, and detailed country profiles. It aggregates vetted and authoritative open-source data that allows nuclear nonproliferation and energy analysts to assess and visualize country-level energy, security, governance, and climate variables.	
Data Overview and Maps		Data Overview and Maps - This tool features 19 "data-intersection" visualizations. These identify climate stress and carbon emissions, energy demand and grid capacity, population projections, and civil nuclear market and security information.	
Geopolitics, Governance & Security Map		Geopolitics, Governance & Security Map - This tool allows the user to examine World Bank Governance Indicators, total installed electricity generating capacity, nuclear nonproliferation treaty status, nuclear security ranking, and national credit rating and income group information. Datasets can be compared by region, energy capacity, and income. Toggling the map provides information relevant to national collaboration with Russia and China.	
Climate, Population, Energy & Economy Map		Climate, Population, Energy & Economy Map - This tool allows the user to assess climate and economic risk with Moody's Sovereign Climate Risk Rankings tool, information on national GDP, income groupings, installed electrical capacity, and electricity generation fuel mix. Datasets can be compared by region. Toggling the map provides projected population growth data as well.	
Country Profiles		Country Profiles - This tool provides detailed analysis of 25 countries that are developing or considering nuclear power capabilities. Each profile includes data and analysis on economic and demographic trends, energy and electricity, climate impacts and mitigation activities, civil nuclear infrastructure and international nuclear engagements, nuclear security and nonproliferation commitments, risk from internal and external security threats, governance indicators, and cooperation with Russian and Chinese in the nuclear, military, and economic sectors. An interactive map of each country's existing nuclear infrastructure accompanies each profile.	
Risk Ranking Tool		Risk Ranking Tool - This tool allows users to sort and filter the tabulated rankings of countries for all variables included in the Nuclear Readiness Initiative: Governance, Climate Stress, Socioeconomic, Energy, Financial Status, Risk, and Engagement with China, and Nuclear Security. Tabulations can also be sorted by region, 123 agreement, and Belt-and-Road-Initiative status. Definitions of data rankings are available by clicking "Measure Definitions".	
Infrastructure Maps		Infrastructure Maps - This interactive map provides GIS-enabled data on locations of power plants and type, electricity transmission lines, gas & oil pipelines, water pipelines, and telecommunication lines for most of the globe.	

The website’s banner navigation allows users to learn more about the NRI and to contact NRI administrators:



Clicking on the “Home” button returns users to the home page and gives users the ability to switch between tools.

Section	Definition
1. Data Overview and Maps*	This tool features 19 “data-intersection” visualizations. These identify climate stress and carbon emissions, energy demand and grid capacity, population projections, and civil nuclear market and security information.
2. Geopolitics, Governance & Security Map	This tool allows the user to examine World Bank Governance Indicators, total installed electricity generating capacity, nuclear nonproliferation treaty status, nuclear security ranking and national credit rating and income group information. Datasets can be compared by region, energy capacity and income. Toggling the map provides information relevant to national collaboration with Russia and China.
3. Climate, Population, Energy & Economy Map	This tool allows the user to assess climate and economic risk with Moody’s Sovereign Climate Risk Rankings tool, information on national GDP, income groupings, installed electrical capacity, and electricity generation fuel mix. Datasets can be compared by region. Toggling the map provides projected population growth data as well.
4. Country Profiles	This tool provides detailed analysis of 25 countries that are developing or considering developing nuclear power capabilities. Each profile includes data and analysis on economic and demographic trends; energy and electricity; climate impacts and mitigation activities; civil nuclear infrastructure and international nuclear engagements; nuclear security and nonproliferation commitments; risk from internal and external security threats; governance indicators; and cooperation with Russia and China in the nuclear, military, and economic sectors. An interactive map of each country’s existing nuclear infrastructure accompanies each profile.
5. Risk Ranking Tool*	This tool allows users to sort and filter the tabulated rankings of countries for all variables included in the Nuclear Readiness Initiative: Governance, Climate Stress, Socioeconomic, Energy, Financial Status, Risk, and Engagement with China, and Nuclear Security. Tabulations can also be sorted by region, 123 agreement, and Belt-and-Road-Initiative status. Definitions of data rankings are available by clicking “Measure Definitions.”
6. Infrastructure Maps*	This interactive map provides GIS-enabled data on locations of power plants and type, electricity transmission lines, gas & oil pipelines, water pipelines, and telecommunication lines for most of the globe.

**Note: Some NRI tools will open in a new tab to ensure the best performance.*



III. NRI User Guide: Visualization Details and Interaction tips

Throughout the Nuclear Readiness Initiative, users will have the ability to interact with map data by filtering, hovering, and zooming. Below you will find the common buttons utilized throughout the Application:

Button	Definition
	The home button that is available at the top of each page returns the user to the splash / table of contents page
	The question mark button will provide users with more detail on how to interact with specific visualization..
	The toggle buttons will display additional data within specific visualizations

Note: Certain visualizations will open in different tabs in order to improve the user experience and performance. These include the Data Overview and Maps, Risk Ranking Tool, and the Infrastructure Map. Users will be automatically logged out after five (5) hours.

When interacting with any of the maps and visualizations in the NRI, you may wish to use the Tableau map toolbar. Below are instructions about using each of the tools in the tool bar:



Tableau Map Toolbar

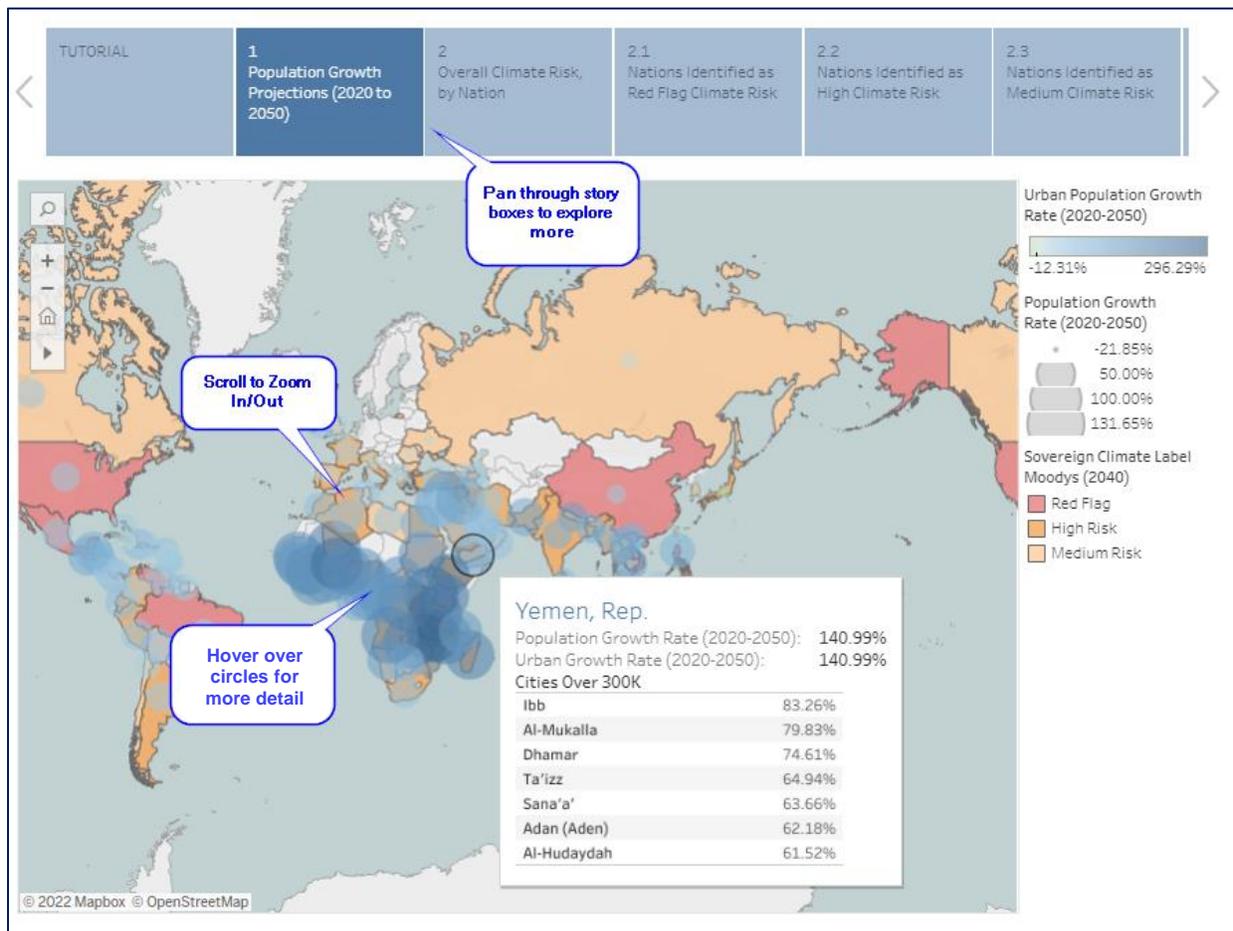
-  **Search Map:** Search for locations in your map view.
-  **Zoom In (Double-Click):** Use the button to zoom in to a specific area of the view or double-click the map.
-  **Zoom Out (Shift+Double-Click):** Use the button to zoom out of the view or hold down Shift, and then double-click the view.
-  **Zoom Home:** After zooming in and out of the map, or panning to a new location, use this button to return to the initial view of the map.
-  **Zoom Area (Z):** To zoom in to a specific area of the view, click the Zoom Area tool button and then drag to create the zoom area.
-  **Pan (F):** Select the Pan tool then click and drag across the view or hold down Shift, and then drag across the view.
-  **Rectangle (A):** The Rectangular tool selects marks within a rectangular shape. To use the Rectangular tool, click the Rectangular tool button, and then click and drag across the view.
-  **Radial (S):** The Radial tool selects marks within a circular area. To use the Radial tool, click the Radial tool button, and then click and drag across the view.
-  **Lasso (D):** With the Lasso tool, you can select multiple marks by drawing a freehand shape around them. This tool is useful when you want to include only certain marks and exclude others around them. To use the Lasso tool, click the Lasso tool button, and then draw a freehand shape around the marks you want to select.

Below are specific tips and tricks on how to interact with each of the six (6) visualizations provided in the Nuclear Readiness Initiative Web App.



1. Data Overview and Maps

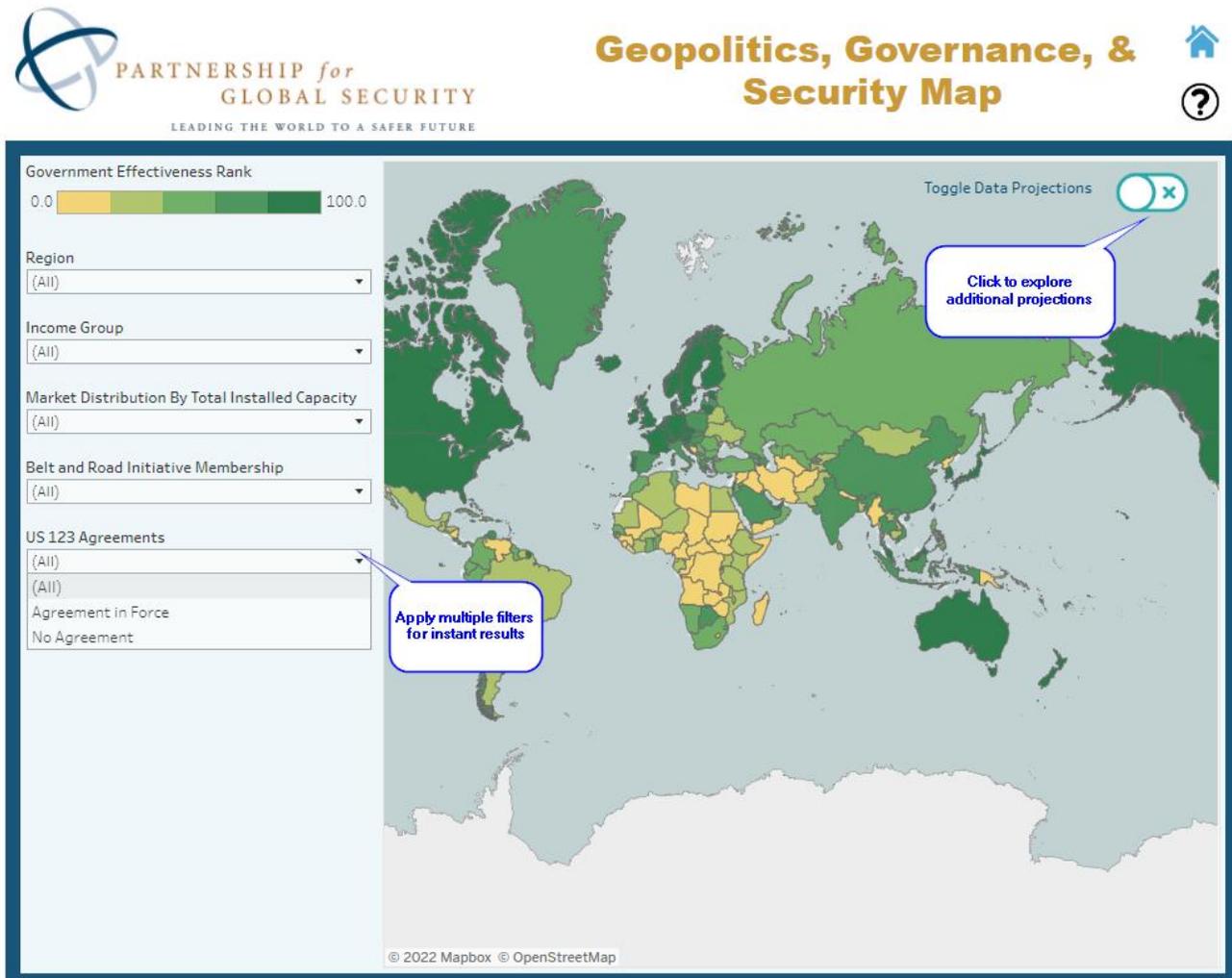
This tool features 19 “data-intersection” visualizations. These identify climate stress and carbon emissions, energy demand, and grid capacity, population projections, and civil nuclear market and security information. This opens in a new tab.





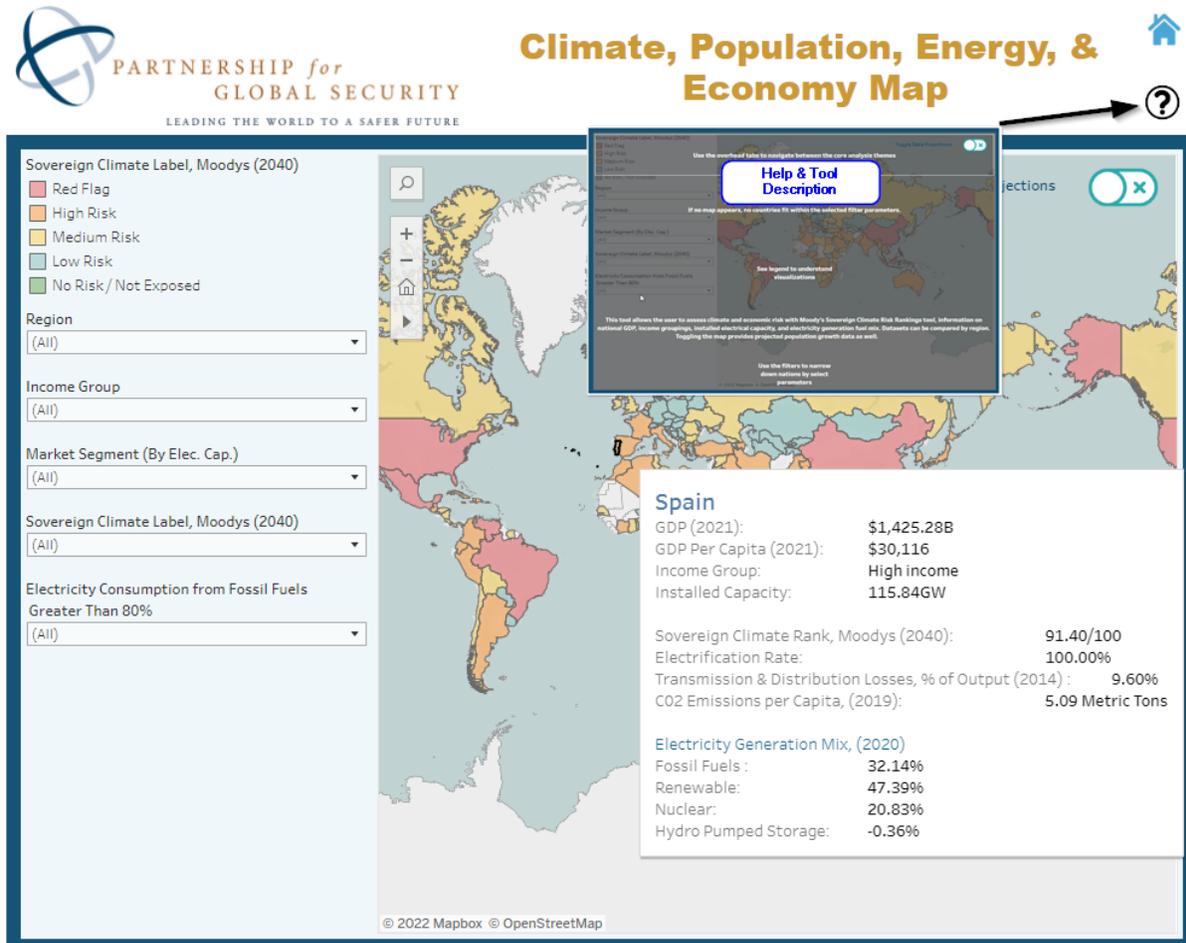
2. Geopolitics, Governance, & Security Map

This tool allows the user to examine World Bank Governance Indicators: total installed electricity generating capacity, nuclear nonproliferation treaty status, nuclear security ranking, national credit rating, and income group information. Datasets can be compared by region, energy capacity, and income. Toggling the map provides information relevant to national collaboration with Russia and China.



3. Climate, Population, Energy, & Economy Map

This tool allows the user to assess climate and economic risk with Moody's Sovereign Climate Risk Rankings tool, information on national GDP, income groupings, installed electrical capacity, and electricity generation fuel mix. Datasets can be compared by region. Toggling the map provides projected population growth data as well.



Climate, Population, Energy, & Economy Map

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Sovereign Climate Label, Moodys (2040)

- Red Flag
- High Risk
- Medium Risk
- Low Risk
- No Risk / Not Exposed

Region
(All)

Income Group
(All)

Market Segment (By Elec. Cap.)
(All)

Sovereign Climate Label, Moodys (2040)
(All)

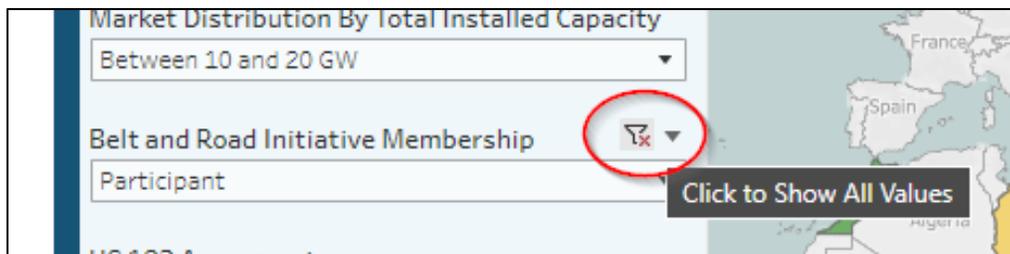
Electricity Consumption from Fossil Fuels Greater Than 80%
(All)

Spain

GDP (2021):	\$1,425.28B
GDP Per Capita (2021):	\$30,116
Income Group:	High income
Installed Capacity:	115.84GW
Sovereign Climate Rank, Moodys (2040):	91.40/100
Electrification Rate:	100.00%
Transmission & Distribution Losses, % of Output (2014):	9.60%
CO2 Emissions per Capita, (2019):	5.09 Metric Tons

Electricity Generation Mix, (2020)

Fossil Fuels :	32.14%
Renewable:	47.39%
Nuclear:	20.83%
Hydro Pumped Storage:	-0.36%



Market Distribution By Total Installed Capacity

Between 10 and 20 GW

Belt and Road Initiative Membership

Participant

Click to Show All Values

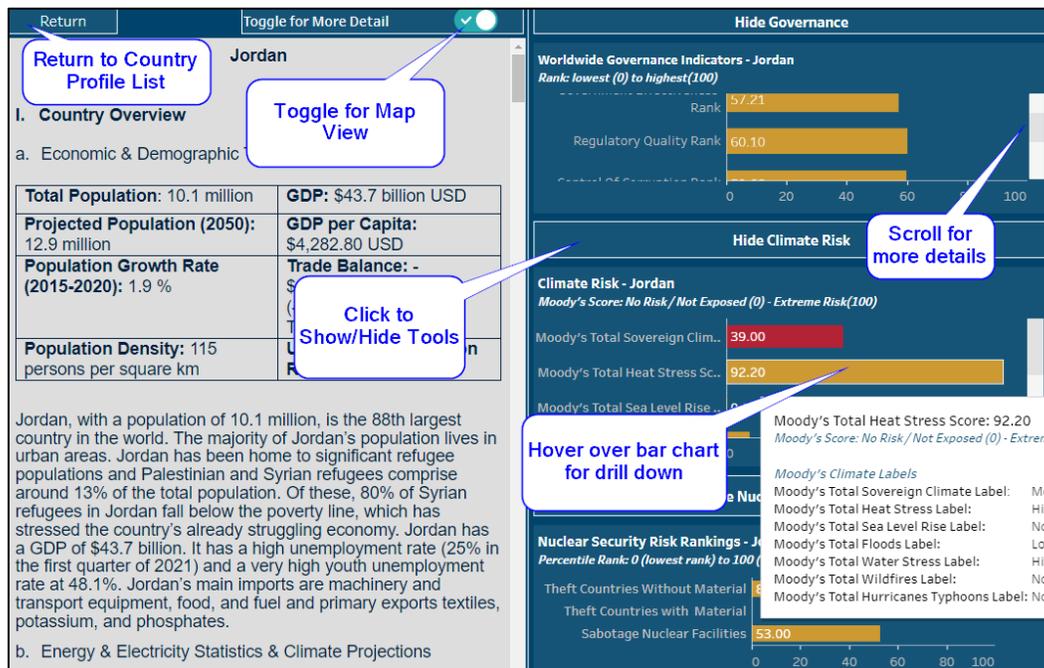
Click Funnel symbol to clear a filter

4. Country Profiles

This tool provides detailed analysis of 25 countries that are developing or considering nuclear power capabilities. Each profile includes data and analysis on economic and demographic trends; energy and electricity; climate impacts and mitigation activities; civil nuclear infrastructure and international nuclear engagements; nuclear security and nonproliferation commitments; risk from internal and external security threats; governance indicators; and cooperation with Russia and China in the nuclear, military, and economic sectors. An interactive map of each country's existing nuclear infrastructure accompanies each profile.



The detailed written analysis is provided by researchers from the Partnership for Global Security and may be slightly behind the automatically update data in the graphs and summary statistics.





5. Risk Ranking Tool

This tool allows users to sort and filter the tabulated rankings of countries for all variables included in the Nuclear Readiness Initiative: Governance, Climate Stress, Socioeconomic, Energy, Financial Status, Risk, and Engagement with China, and Nuclear Security. Tabulations can also be sorted by region, 123 agreement, and Belt-and-Road-Initiative status. Definitions of data rankings are available by clicking “Measure Definitions.” This opens in a new tab.

Risk Ranking Tool

Interactive tool allows users to sort and filter the tabulated rankings of countries for all variables included in the Nuclear Readiness Initiative: Governance, Climate Stress, Socioeconomic, Energy, Financial Status, Risk, and Engagement with China, and Nuclear Security. Tabulations can also be sorted by region, 123 agreement, and Belt-and-Road-Initiative status.

Category Descriptions & Overview

- Governance**: Governance consists of the traditions and institutions required to maintain sustainable authority and support infrastructure investment. This includes the process by which governments are selected, monitored and replaced; the capacity of the government to effectively formulate and implement sound policies; and the respect of citizens and the state for the
- Climate**: Climate and environmental change are driving forces behind the need for infrastructure which has the capacity to be resilient to changing environmental conditions, including extreme weather events, sea level rise, and air quality.
- Socioeconomic**: Socioeconomic Population Growth Rate Data broken down by urban and rural growth
- Energy**: Energy Electrification Mix and Country's Access to Electricity (Total, Rural, Urban)
- Finance**: Finance data highlighting GDP per Capita, and Total Chinese Energy Investment, broken down by Income Level
- Nuclear Security**: The Nuclear Threat Initiative Index is made up of two ranking systems: Theft, and Sabotage of nuclear materials. The theft ranking uses five categories covering measures related to the potential theft of weapons-usable nuclear materials while in use, in storage, or in transport. The sabotage ranking uses the five categories to assess nuclear security conditions at nuclear facilities, where sabotage could result in a significant radiological release causing serious off-site health consequences.

Click Category to see tabulated rankings of countries for all variables

Global Governance & Institutional Preparedness Rankings

Percentile Rank: 0 (lowest rank) to 100 (highest rank). 10/7/2022 7:41:52 AM

Navigation: Governance, Climate, Socioeconomic, Energy, Finance, Nuclear Security

Filters: BRI Membership (All), US 123 Agreements (All), Region (All), Search

Table:

Country	Rule of Law Rank	Regulatory Quality Rank	Political Stability and Broad Government Effectiveness Rank
Finland	100.0	100.0	85.4
Norway	99.5	100.0	90.1
Denmark	99.0	98.1	80.7
Singapore	98.6	100.0	97.6
New Zealand	98.1	97.6	96.7
Switzerland	97.6	97.7	98.5

Callouts:

- Navigate to different category
- Return to Category Overview Page
- Explore Measures and Source Definitions
- Use Drop and Filters to narrow results
- Sort by any Column



6. Infrastructure Map

This interactive map provides GIS-enabled data on locations of power plants by type, electricity transmission lines, gas & oil pipelines, water pipelines, and telecommunication lines for most of the globe. This opens in a new tab.

