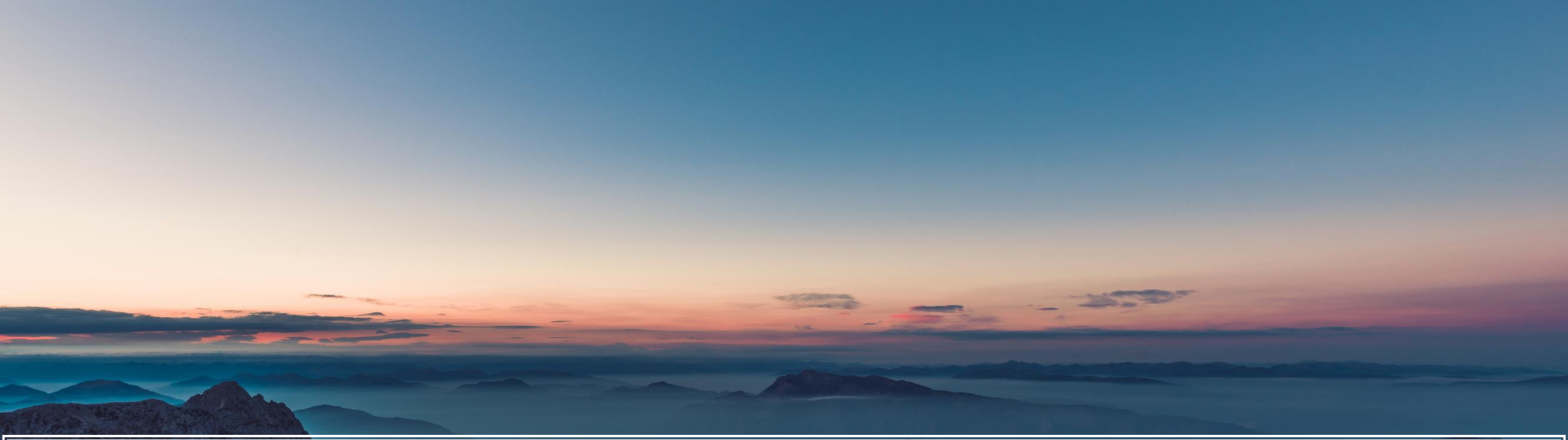

NUCLEAR GEOPOLITICS IN AN EVOLVING ENVIRONMENT: GLOBAL RESPONSIBILITY, INFLUENCE, AND INNOVATION THE 21ST CENTURY

INITIATIVE ON NUCLEAR SECURITY, GOVERNANCE AND GEOPOLITICS (INSG)

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What is the INSG?

The INSG is an initiative that brings together multidisciplinary stakeholders to effectively address the **critical** and **evolving nuclear challenges** of the 21st Century. It's key goals are to:

- Strengthen the overall nuclear governance system.
- Assess the international security and geopolitical implications of global nuclear technology trends and related developments.
- Sustain and further build the vital relationship between governments, the nuclear industry and the expert community that is necessary to achieve progress.

New Global Security Paradigm

- The international security landscape has shifted focus from fighting terrorism to addressing **great power rivalry** and **competition** between the U.S., China and Russia.

- These global powers are strategically competing to increase their global **political**, **economic**, **military**, and **diplomatic influence.**

- **New *National Security Strategy* and *National Defense Strategy:***
  - Upgrade political, economic and diplomatic instruments.
  - Promote research, technology, and innovation.
  - Embrace energy dominance.

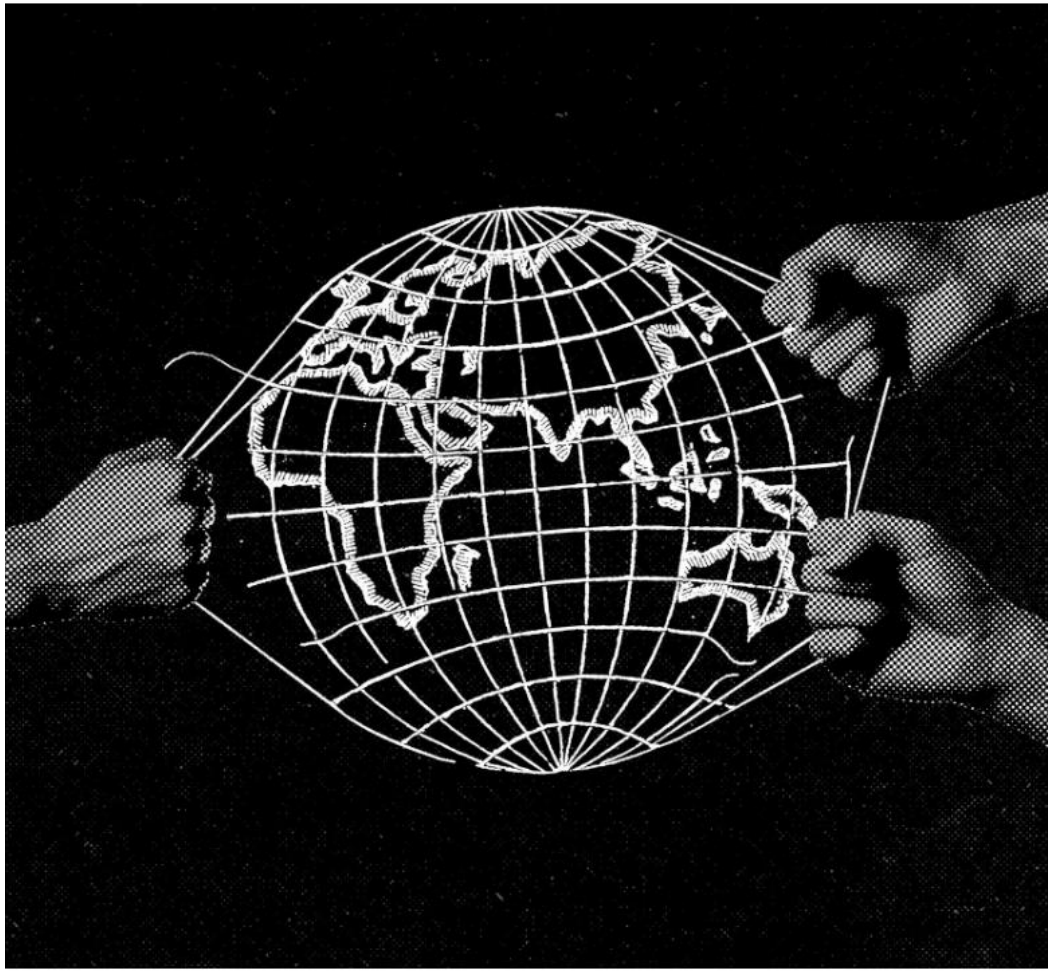


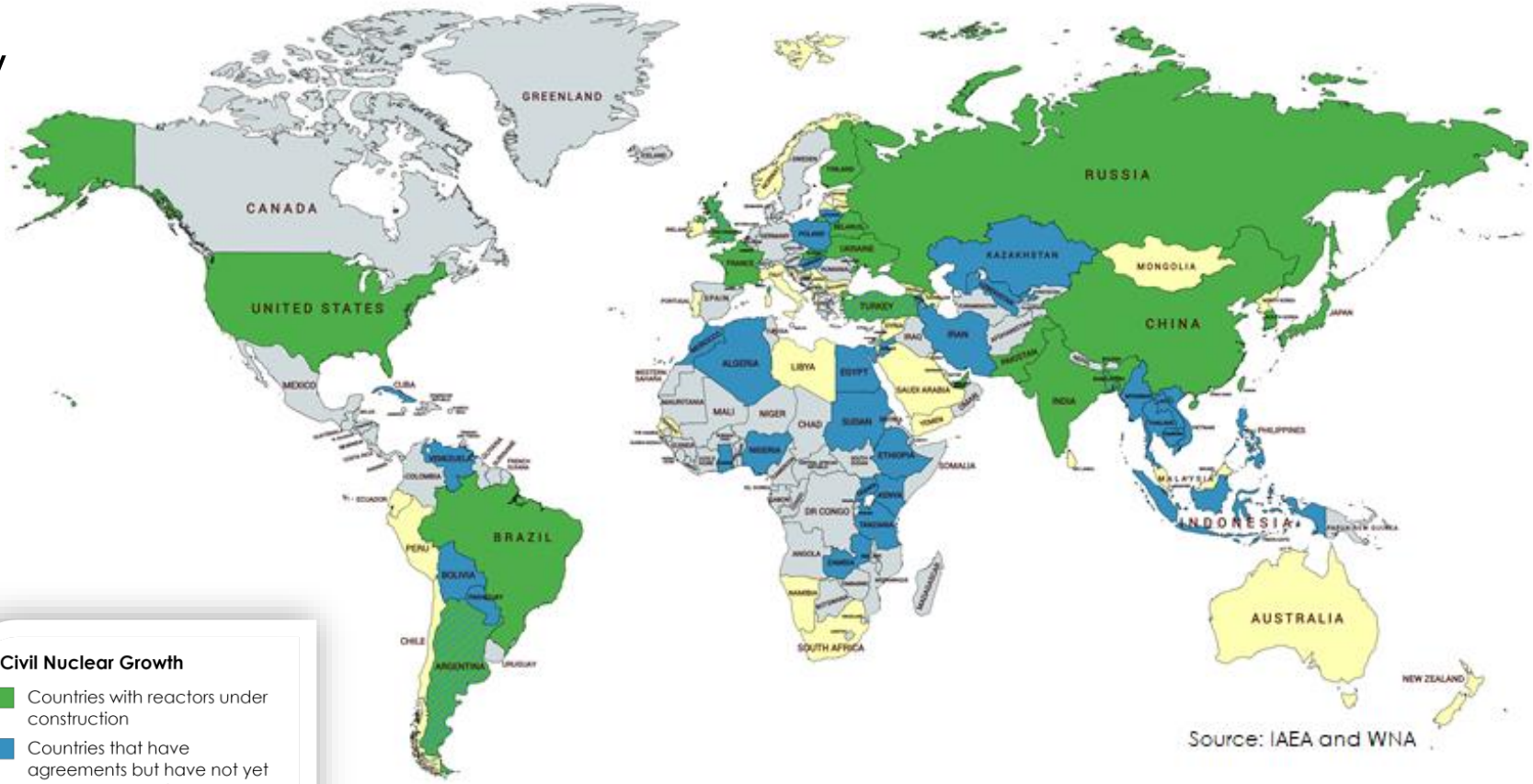
Photo Credit: Edmon de Haro

Waking Up to the New Strategic Competition

- In 2013 the McKinsey Global Institute identified 12 potentially economically disruptive technologies
  - ¼ of the list was energy technologies – all non nuclear
- Also identified 5 other technologies that "nearly made the final list"
  - 2 were nuclear technologies – next generation nuclear fission and fusion power
- Current political and bureaucratic structures are not well suited to deal with the fusion of advanced technologies, economics, global security, and geopolitics. But this is the new reality.

Nuclear Expansion in the 21st Century

- **Civil nuclear expansion** is focused in tense and stability challenged regions - NE Asia, Middle East and Africa. There are:
  - 18 countries with NPPs under construction.
  - 34 countries that have agreements.
  - 30 countries that have expressed interest.



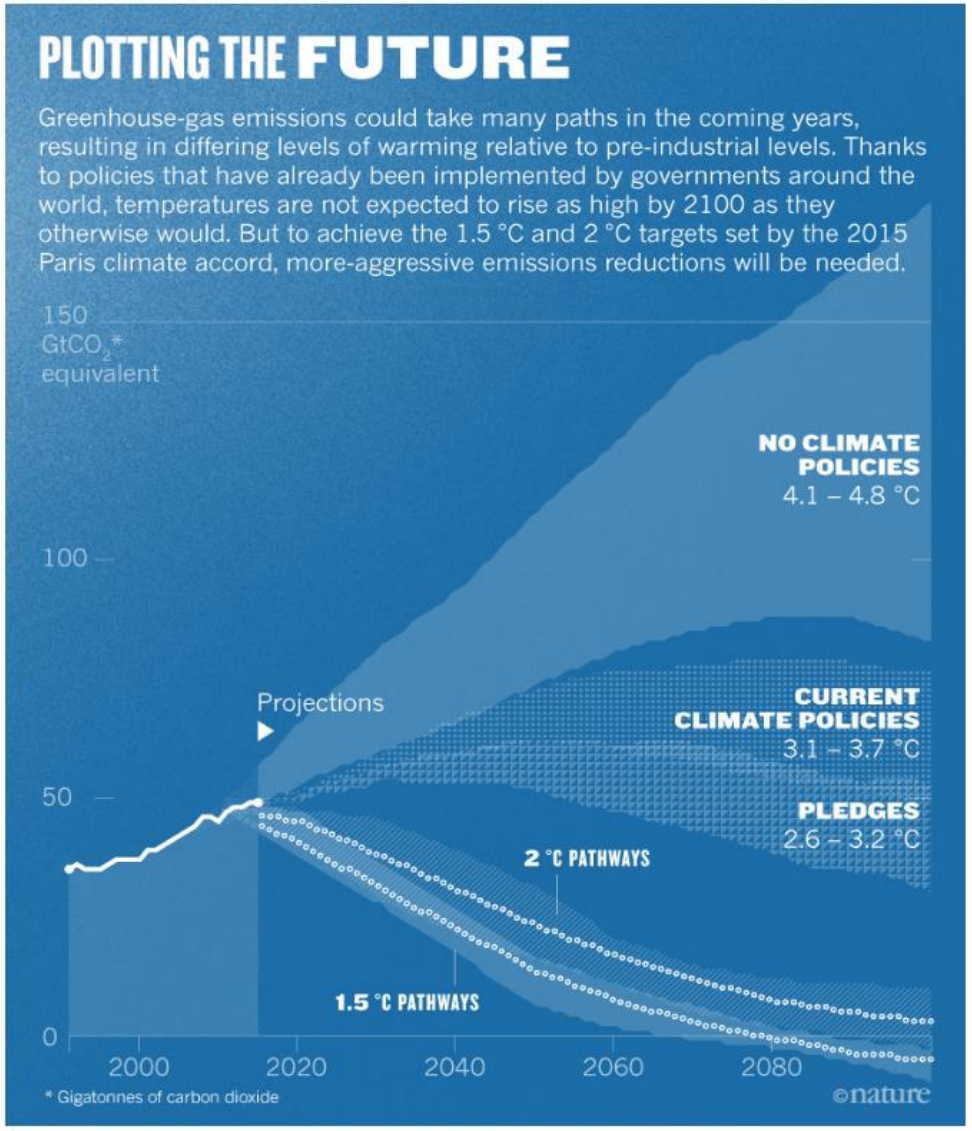
Geopolitical Driver: Clean Energy

In 2017:

- After 3 years of maintaining carbon level, emissions increased by **~1.5%.**
- Around **70%** of global energy demand growth was met by oil, natural gas and coal.
- Nuclear power plants shutdowns and early retirements increased.
- Limiting global temperature rise to **1.5°C** and **2°C** will require an increase of zero carbon energy by more than **300%** from 2010 levels by 2100.

By 2040:

- Global energy demand will grow by **30%** and population to 9 M.
- Global carbon emissions will increase to at least **5% -** clean energies will only meet **40%** of the energy growth.
- Energy demand will come from Asia, the Middle East, Africa and Latin America.



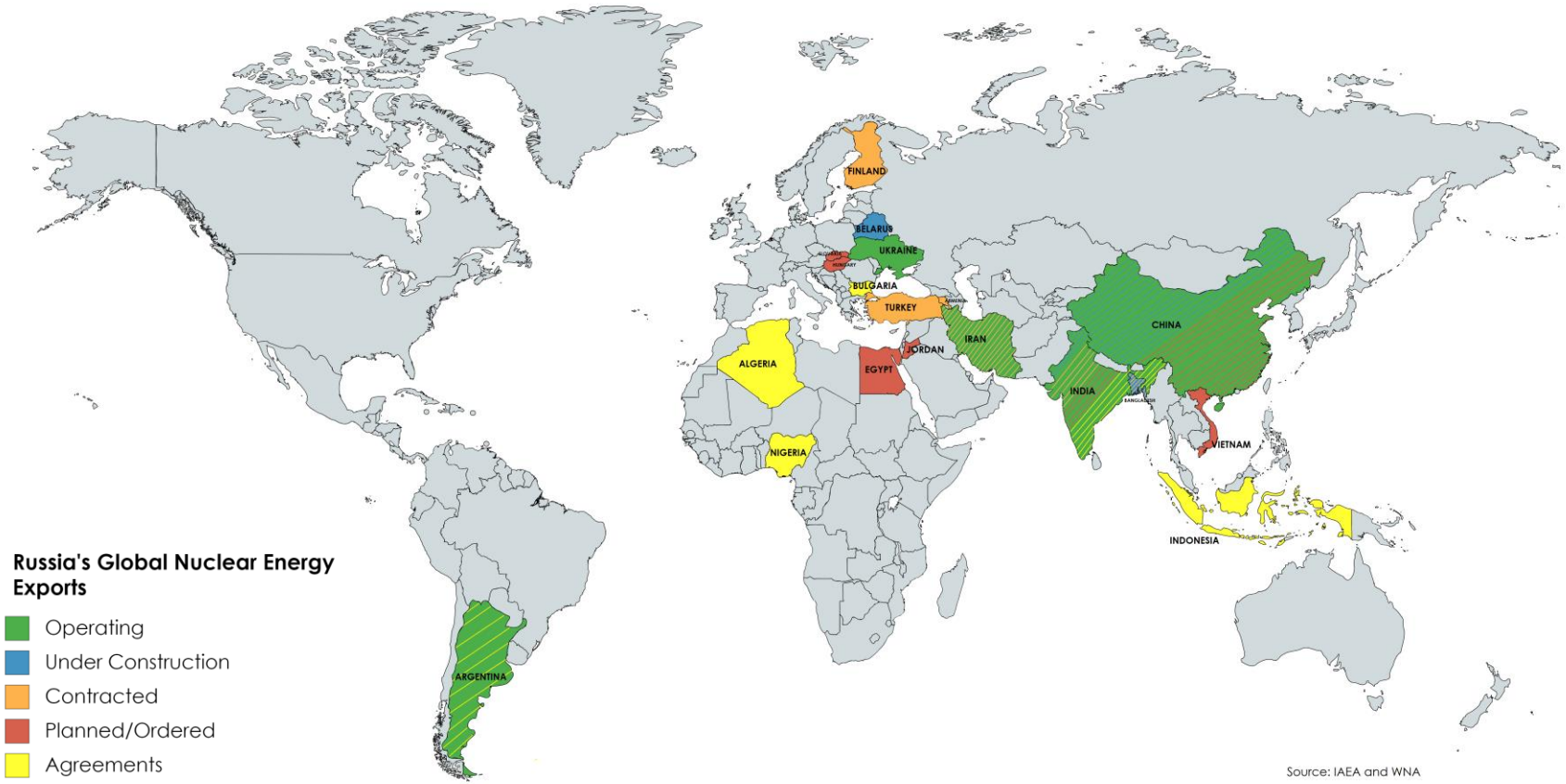
Design: Jasiek Krzysztofiak/*Nature*; Source: Climate Action Tracker

Geopolitical Challenge: Non-Legacy Nuclear Suppliers

- China and Russia are increasing their nuclear energy exports by offering **new arrangements** with the goal of reducing Western influence.
- Their ambitions are **state-backed** and **integrated** into their strategic and geopolitical objectives.

Russia

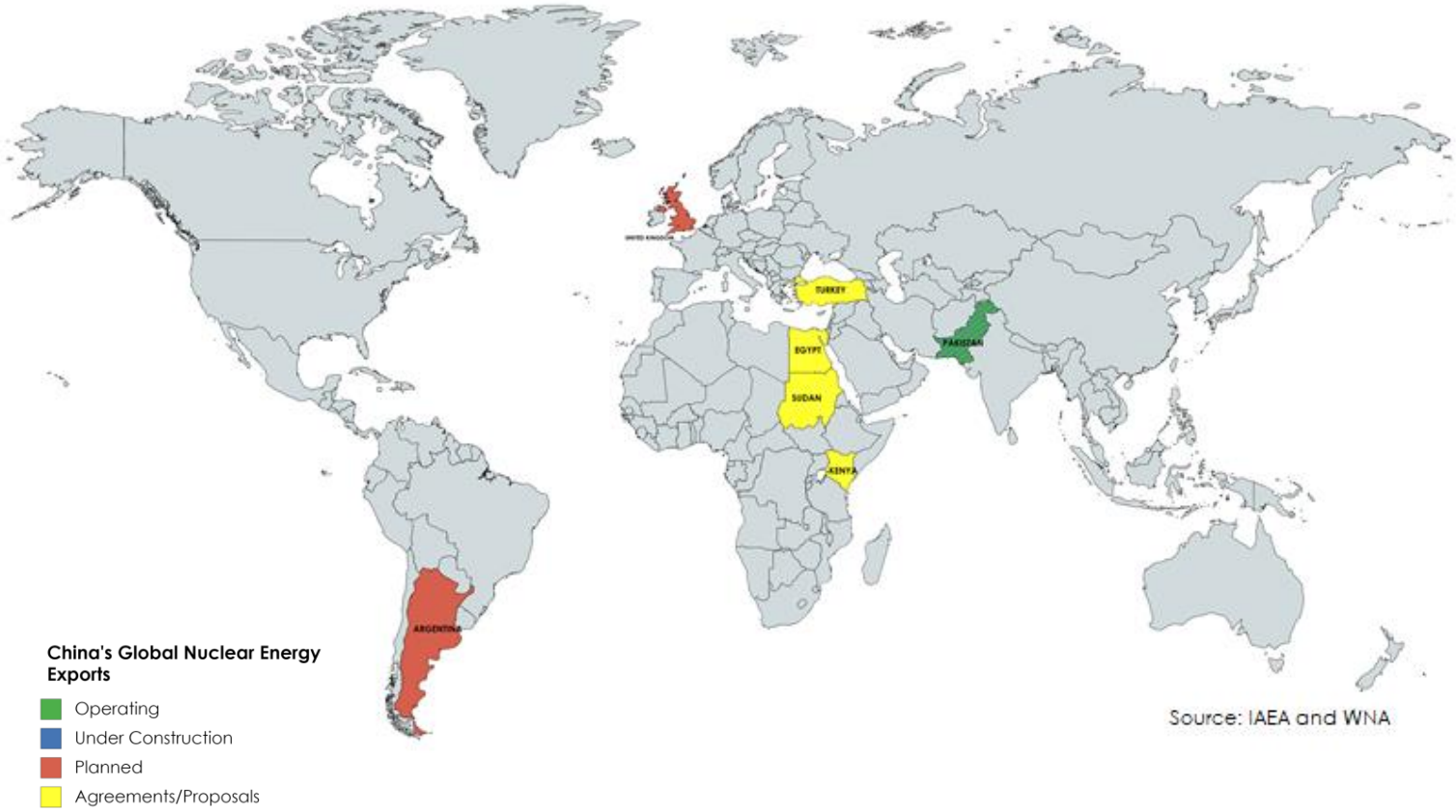
- **Aggressively marketing its nuclear technology**
- Package offers - Build-Own-Operate-Transfer – to its customers.
- Rosatom has established a global presence in 44 countries, building nuclear plants in ½ dozen.



China: “Made in China 2025” And “Belt &Road”

- **“Made in China 2025”** aims to dominate advanced tech – robotics, AI, aviation, new energy - eroding the advantage now held by Western industrialized economies.

- China’s Nuclear Energy Investments –
  - Will be the largest nuclear fleet operator by mid-century.
  - Could become the **Amazon.com** of nuclear commerce.
  - $250 M in Pakistan in 2011 and $6.5 B in 2014.
  - $3.2 B primarily in the U.K. in 2015.
  - South America and Africa planned.
- **“One Belt, One Road”** designed as a geopolitical initiative to dominate Eurasia’s economic and trade areas and compete against the U.S. and allies - more than 65 countries have joined the initiative.



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Workshop Goals

- Understand how a new era of **great power rivalry** impacts the evolution of nuclear power and global security - **politically, technologically**, and **economically**.
- Evaluate how the **evolution of nuclear suppliers**, particularly China and Russia, impacts non-proliferation, nuclear security, and global security objectives.
- Identify a **role for traditional nuclear suppliers** in ensuring the maintenance and expansion of strong security and non-proliferation standards in response to new challenges.
- Identify and develop relationships and coalitions that focus on the serious implications of nuclear geopolitics and **strengthen leadership** and **collaboration** among key stakeholders to effectively respond to them.
- Propose policies that **promote safe, secure** and **safeguarded nuclear energy** to meet climate goals and global security objectives.