



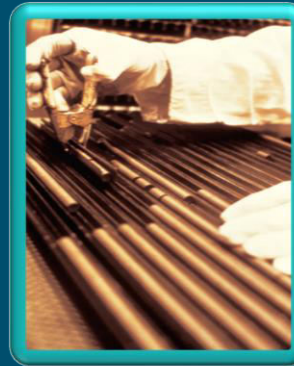
# State of the Industry and the National Nuclear Energy Strategy

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Hilary Lane  
Nuclear Energy Institute



- ***NEI's broad mission*** -- address policy, global market, regulatory and technical issues; advocate and foster beneficial uses of nuclear technology in its many forms
- ***Diverse membership*** -- commercial utilities, uranium recovery, fuel cycle facilities, universities, DOE national labs, suppliers and others; over 350 members globally



- Low priced natural gas
- Low U.S. growth in total electricity demand
- Subsidized intermittent renewables
- Policies that do not value what nuclear brings to the grid



- Premature reactor closures
- Lack of U.S. participation in global markets



## ***Commercial Nuclear Reactors***

- 98 operating; 2 under construction

## ***Research and Test Reactors (NRC Regulated)***

- 31 operating

## ***Fuel Cycle Facilities***

- 6 Operating; 1 is Idle; 1 in Construction; 1 in Decommissioning; 2 licensed but not built

## ***Uranium Recovery Facilities***

- 3 (NRC regulated)
- 8 (Wyoming Agreement State)

## ***Byproduct Materials Licensees***

- ~21,000 nationwide; 90% regulated by Agreement States (e.g., medical, industrial)

## ***Source/Isotope Manufacturers (e.g., Molybdenum-99)***

# Premature Nuclear Power Plant Closures and Announced Shutdowns



Plant	MWe	Closure Year	Reason	Final Year Generation (billion kWh per year)	Final Year CO2 Avoided (M tons/year)
<b>Crystal River 3</b>	860	2013	Mechanical	7.0	4.8
<b>San Onofre 2 &amp; 3</b>	2,150	2013	Mechanical	18.1	8.0
<b>Kewaunee</b>	566	2013	Market	4.5	4.4
<b>Vermont Yankee</b>	620	2014	Market	4.8	2.4
<b>Fort Calhoun</b>	478	2016	Market	3.5	3.4
<b>Oyster Creek</b>	625	2018	Policy	5.4	4.0
<b>TOTAL</b>	<b>5,299</b>			<b>43.4</b>	<b>26.9</b>
<b>Three Mile Island 1</b>	803	2019	Market	6.9	5.0
<b>Pilgrim</b>	678	2019	Market	5.1	2.3
<b>Davis-Besse</b>	908	2020	Market	7.9	5.7
<b>Duane Arnold</b>	619	2020	Market	5.2	5.0
<b>Indian Point 2 &amp; 3</b>	2,061	2020-2021	Market & Policy	15.3	7.1
<b>Beaver Valley 1 &amp; 2</b>	1,872	2021	Market	15.3	11.1
<b>Perry</b>	1,268	2021	Market	9.8	7.1
<b>Palisades</b>	789	2022	Market	6.1	5.3
<b>Diablo Canyon 1 &amp; 2</b>	2,240	2024-2025	Policy	17.9	6.9
<b>TOTAL</b>	<b>11,238</b>			<b>89.5</b>	<b>55.5</b>

Source: Emissions avoided are calculated using regional and national fossil fuel emissions rates from the **U.S. Environmental Protection Agency** and latest plant generation data from the **U.S. Energy Information Administration**. Updated: October 2018.

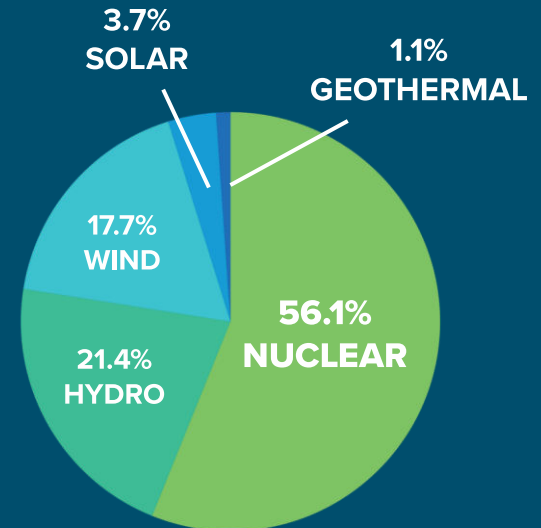
# Nuclear Contributions



SUPPORTS  
**475,000**  
JOBS



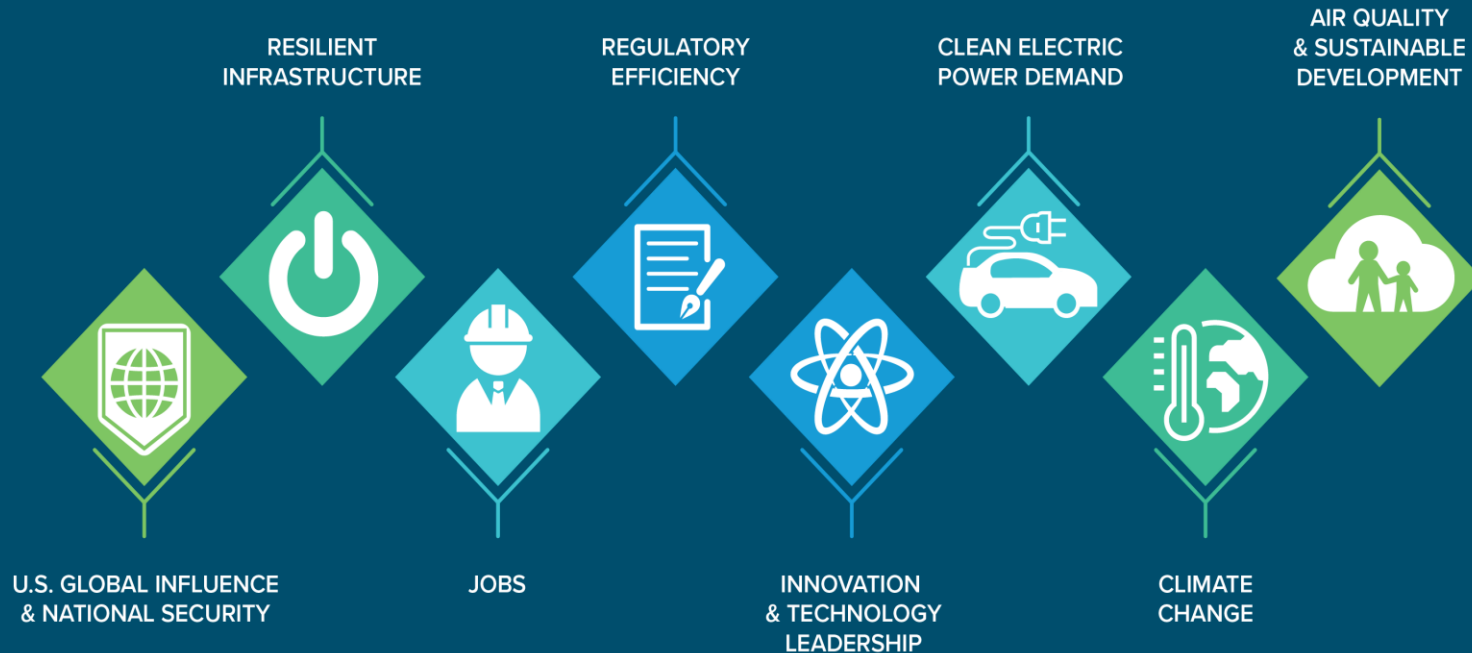
AVOIDS  
**547.5**  
MILLION  
METRIC TONS OF  
**CARBON**  
EMISSIONS  
EACH YEAR



—AVERAGE—  
**CAP FACTOR**  
**>90%**  
**SINCE 1999**

# NATIONAL NUCLEAR ENERGY STRATEGY

## CREATE THE NUCLEAR IMPERATIVE





# NATIONAL NUCLEAR ENERGY STRATEGY

CREATE THE NUCLEAR IMPERATIVE



**PRESERVE**

Appropriately value  
nuclear generation

**SUSTAIN**

Create sustainability  
via improved  
regulatory framework  
and reduced burden

**INNOVATE**

Innovate,  
commercialize,  
and deploy  
new nuclear

**THRIVE**

Compete globally

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# States Recognize Nuclear's Value



**\$1.6 Billion**  
In Economic Benefits  
in New York



**\$1.5 Billion**  
Economic Activity  
in Connecticut



**\$1.2 Billion**  
Economic Activity  
in Illinois



**\$800 Million**  
Economic Activity  
in New Jersey



***"I was unwilling to gamble with these communities, thousands of good paying jobs and our energy diversity. [This legislation] allows us to protect jobs, ratepayers and taxpayers."***  
***– Illinois Gov. Bruce Rauner***  
***Dec. 7, 2016***



# Hurricane Florence

————— and the —————

## **Nuclear Industry's Response**

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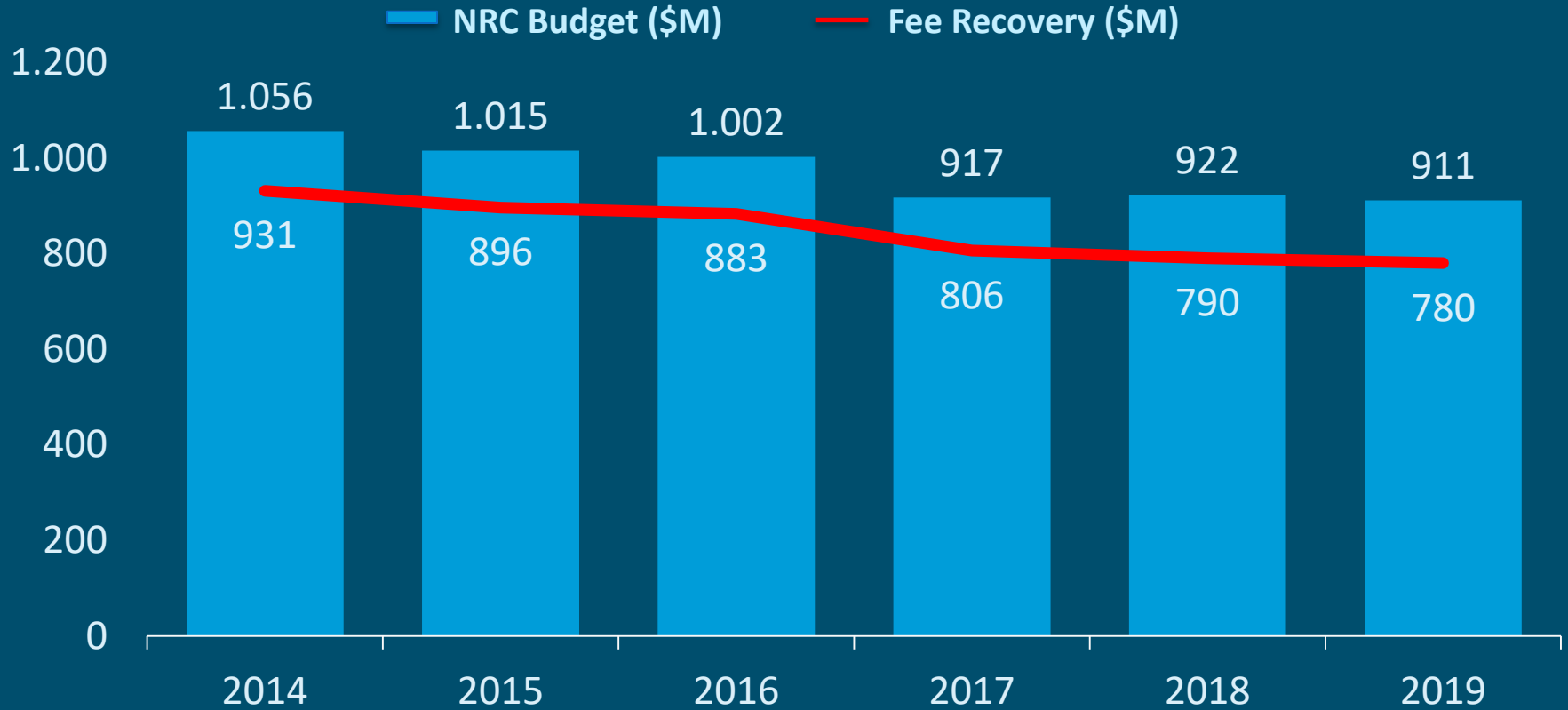
*“I’m not sure that the old models will carry us through”*

**– NRC Chairman Svinicki  
March 2018**

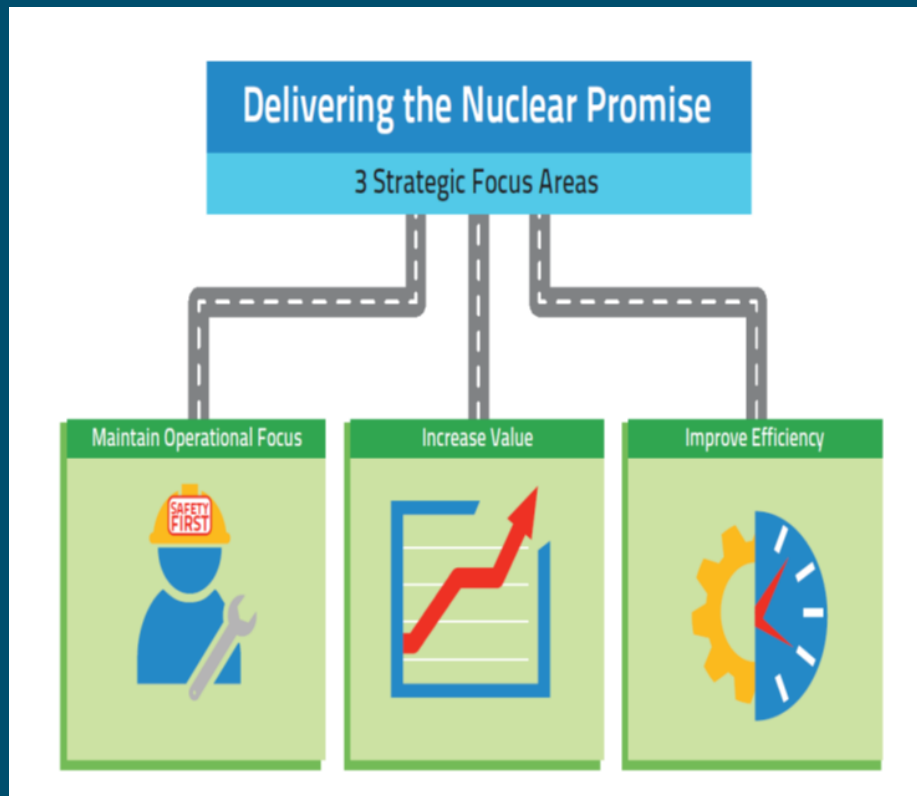
*“Additional regulatory change is needed”*  
**– Former NRC EDO Vic McCree  
March 2018**



# Right Size NRC Budget



\* All Numbers Include Office of the Inspector General Funding



67 Efficiency Bulletins\*  
\$1.6B enabled savings

\* As of October 2018



**Reduction  
of 19%**



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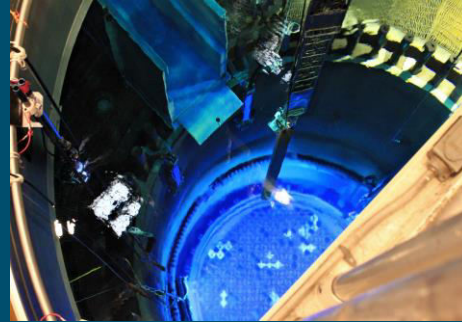
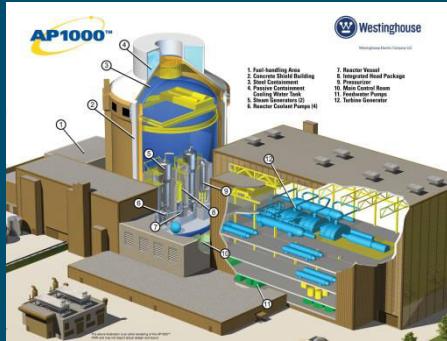
INNOVATE

**Innovate, commercialize, and deploy new nuclear**

THRIVE

Compete globally

# Continuum of Innovations



## Advanced Non-LWRs

- Hi-temp gas
- Liquid metal
- Molten salt



2016

2020

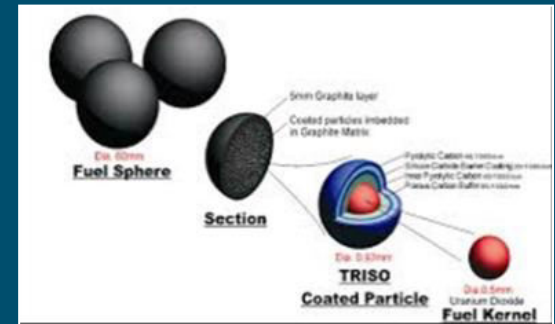
2025

2030



Watts Bar 2

Vogtle 3 & 4



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**CHINA**



**RUSSIA**

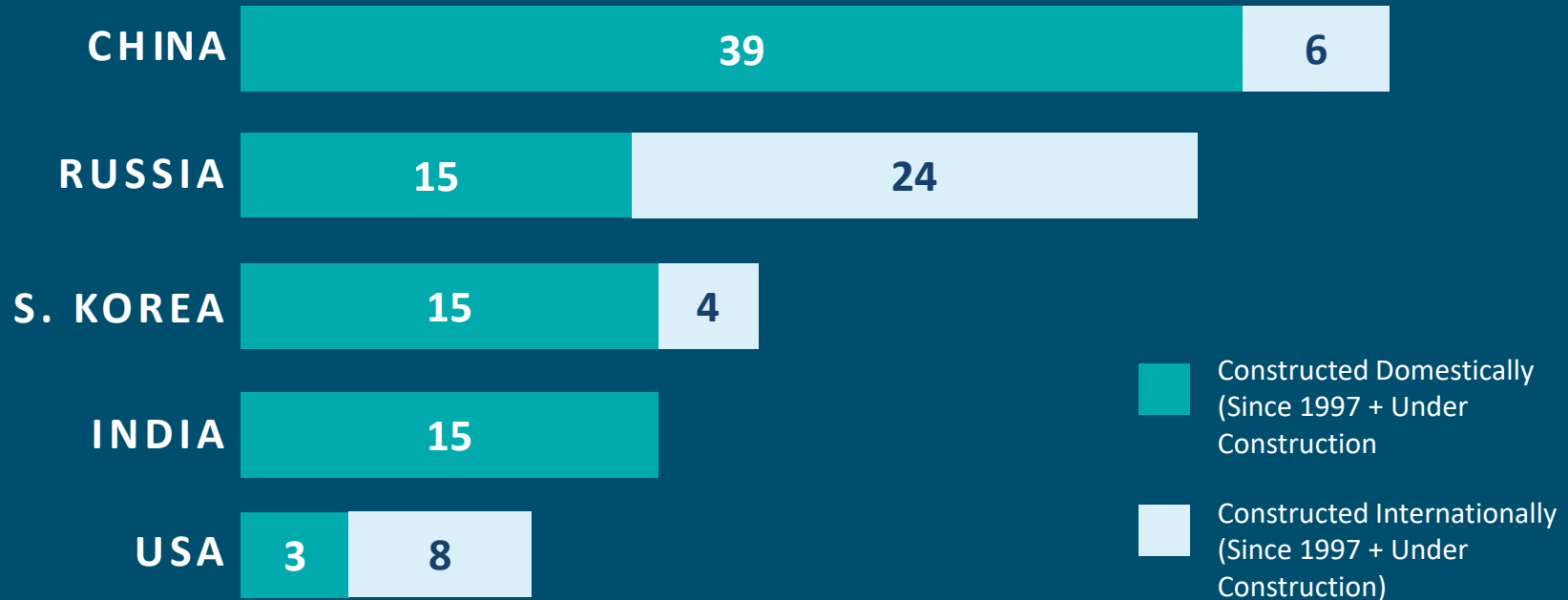
**NEARLY**  
**2/3** OF  
**ALL**

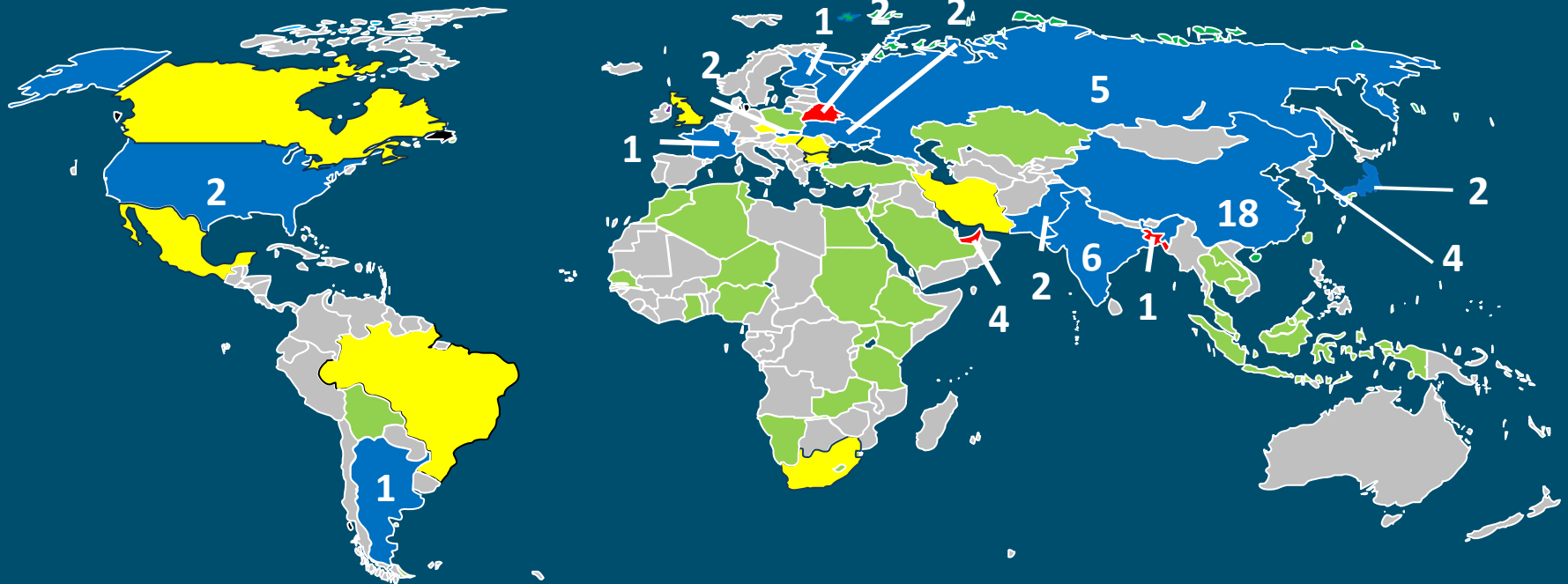
**NUCLEAR POWER PLANTS  
UNDER CONSTRUCTION**

**USE**

**CHINESE OR RUSSIAN  
DESIGNS**

## China and Russia are leading in constructing their domestic designs





- Building additional reactors
- Planning or interested in additional reactors
- "Newcomers" building reactors
- "Newcomers" planning or interested in building

- Market conditions challenge both current and future nuclear technology
- State policymakers have come to understand the risks of losing nuclear plants
- Domestic fleet has continually reduced operational costs
- Technology advances
- Growing international enthusiasm

**Nuclear. Power the Extraordinary.**





# THANK YOU

