

TERRESTRIAL  
ENERGY

**TERRESTRIAL**  
ENERGY USA

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## **Stakes, Opportunities and Challenges in the Global Market**

June 2017

# OPPORTUNITY

## Market needs

- Secure, economic, clean
- Heat and power
- 80-50 problem
- 50% primary energy demand increase by 2050

## Market growth OECD v non-OECD

- Non-OECD Power: export market opportunity
- OECD and non-OECD heat and power
- The OECD do as they choose; Non-OECD do as they must

## Market dynamic

- Time of change... or a time of calm...?

## Market size

- Global primary energy demand is \$5Tn per year and a CC-policy driven re-ordering is estimated at \$30 Trillion
- Context: 13,000 MTOE, 150,000 TWh, 19,000x AP1000s.
- Price drives deployment. \$3 per Watt IOC.
- Policy may assist strongly to achieve 80-50.

***What is bigger today? The opportunity in AI, machine learning, quantum computing or nuclear innovation?***

# CHALLENGE

## **Efficient and timely capital formation**

- To support nuclear innovation
- To support first deployments of innovative reactor systems
- Export Banks for credit support in export markets
- Loan programs for project level credit support

## **Regulation framework – appropriately responsive and appropriately resourced**

## **Leadership, policy and risk sharing**

- Private sector to commit financial capital
- Public sector to commit political capital
- Co-operative and purposeful relationship

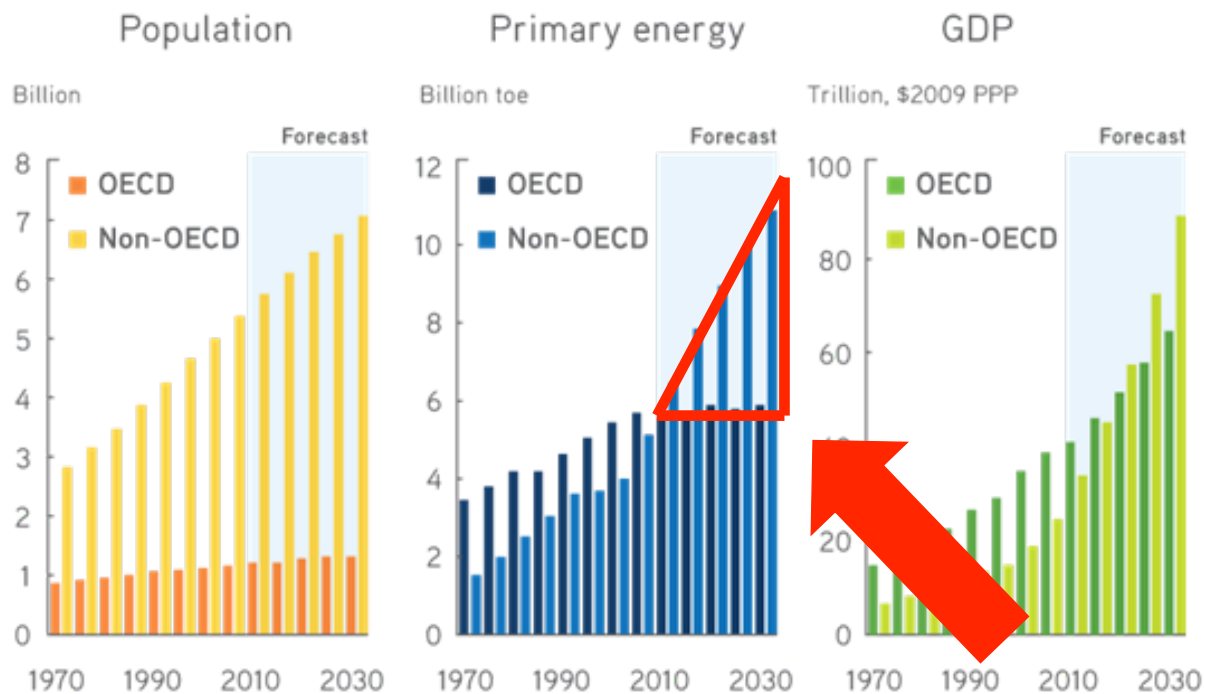
## **What is at stake?**

- The US leadership position in an energy technology that will be the backbone of a sophisticated clean global competitive economy by 2050

# ENERGY'S FUTURE

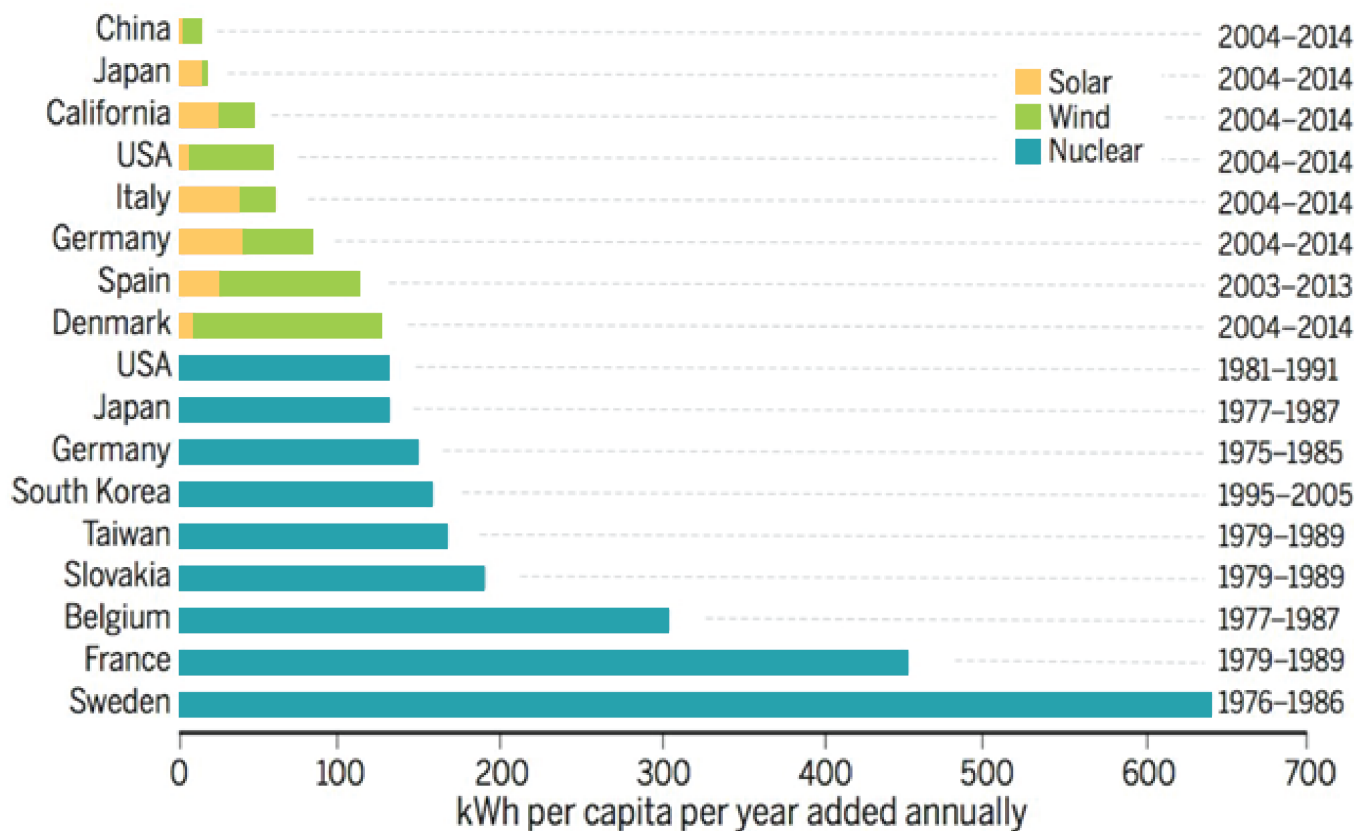
## ...NON-OECD POPULATION, GDP AND ENERGY GROWTH

The world we live in...



Primary energy: oil, coal, natural gas, hydro, nuclear and alternatives.

# NUCLEAR IS ALREADY THE BACKBONE OF A CLEAN RELIABLE GRID

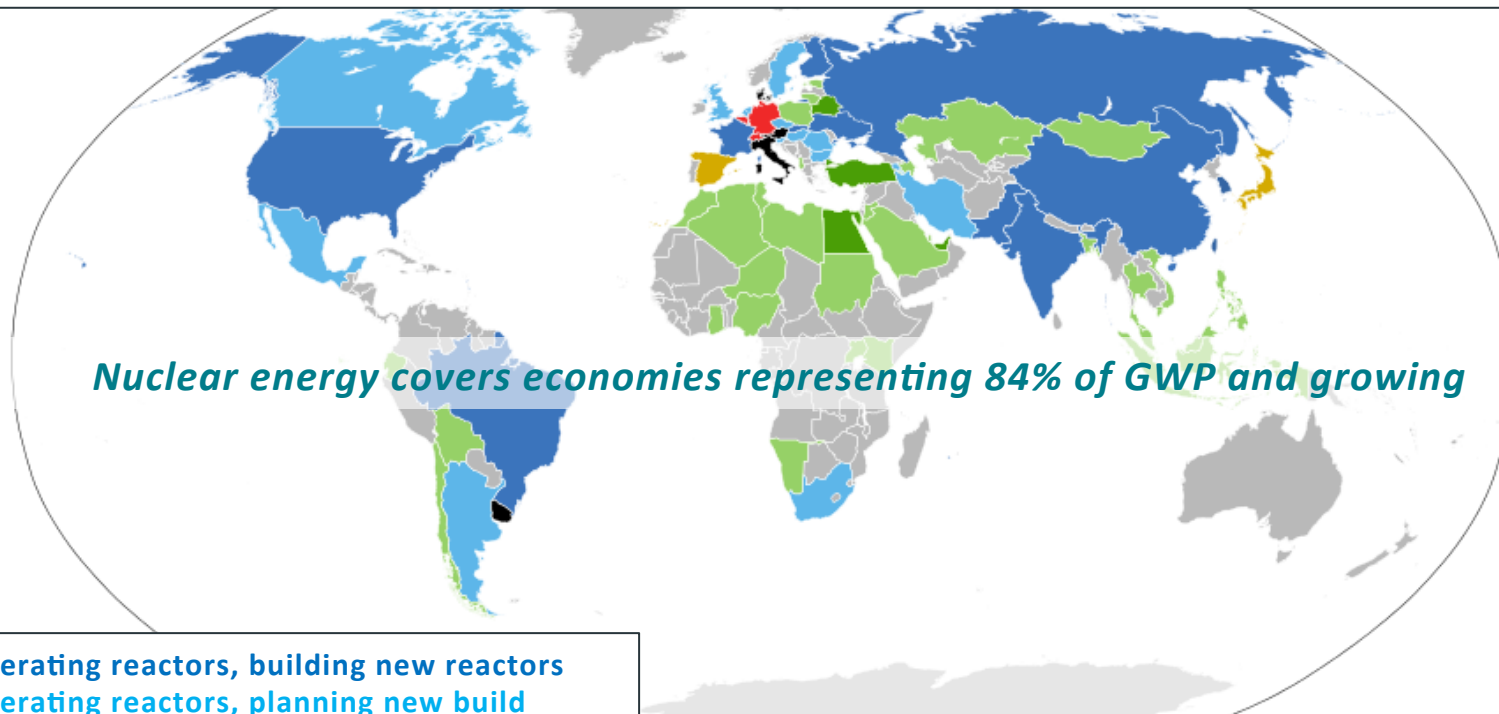


Source: Science August 2016

*Nuclear can be deployed fast*

## IMSR® IS DEPLOYABLE IN MANY GEOGRAPHIES INCLUDING BRICS

- Today there are some 440 nuclear power reactors operating in 31 countries, with a capacity of over 385 GWe.
- In 2014, these plants provided 2411 billion kWh, over 11% of the world's electricity.



**Operating reactors, building new reactors**  
**Operating reactors, planning new build**  
**No reactors, building new reactors**  
**No reactors, planning new build**  
**Operating reactors, stable**  
**Operating reactors, considering phase-out**  
**Civil nuclear power is illegal, no reactors**

GWP (\$ Bn)	74,150
Nuclear Nations	57,038
Nations Seeking Nuclear	12,499
Non-nuclear Nations	4,613

Source: Wikipedia used under Creative License

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