

Harmony

the Role of Nuclear Energy to meet electricity needs in the
2 degree scenario



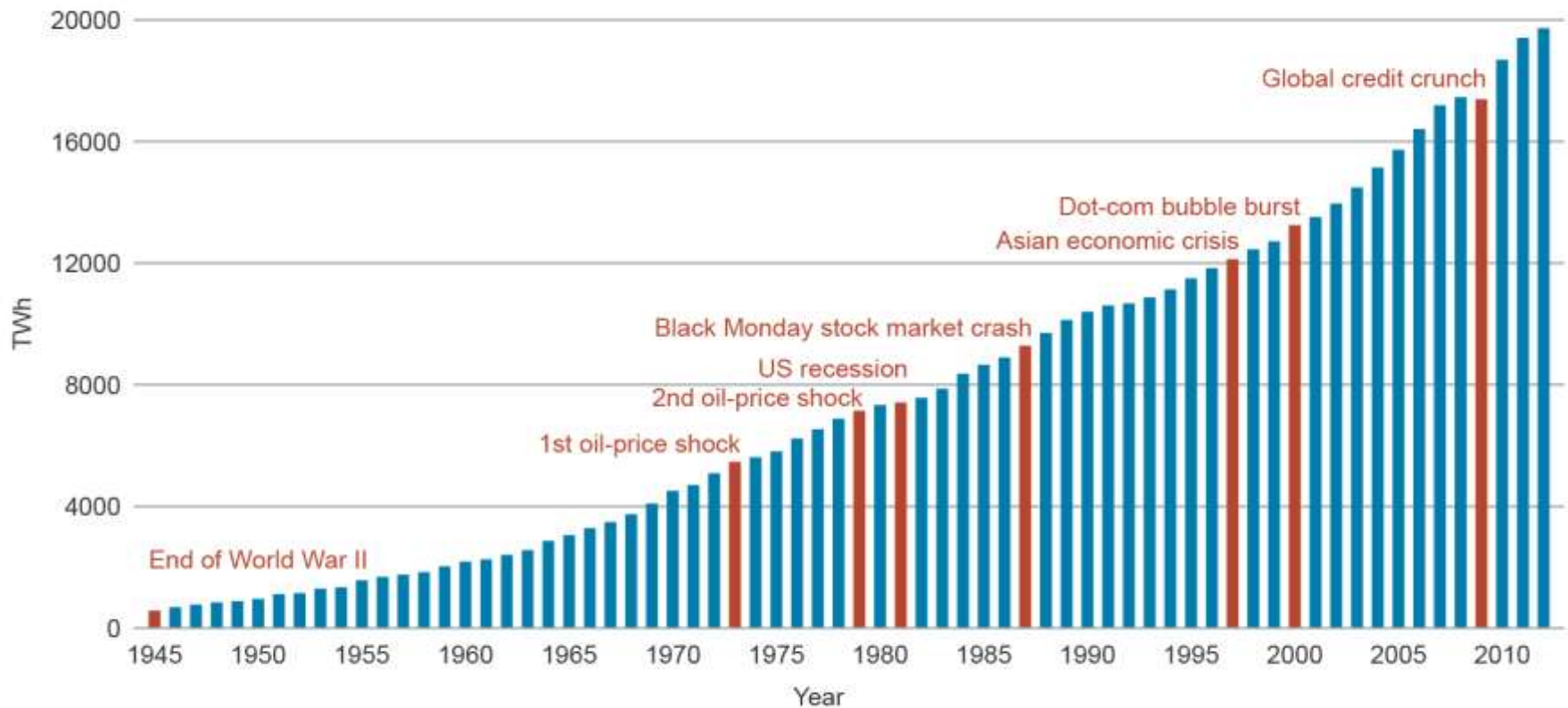
Agneta Rising
Director General

Harmony
London
March 2016

THE CURRENT STATUS OF NUCLEAR ENERGY

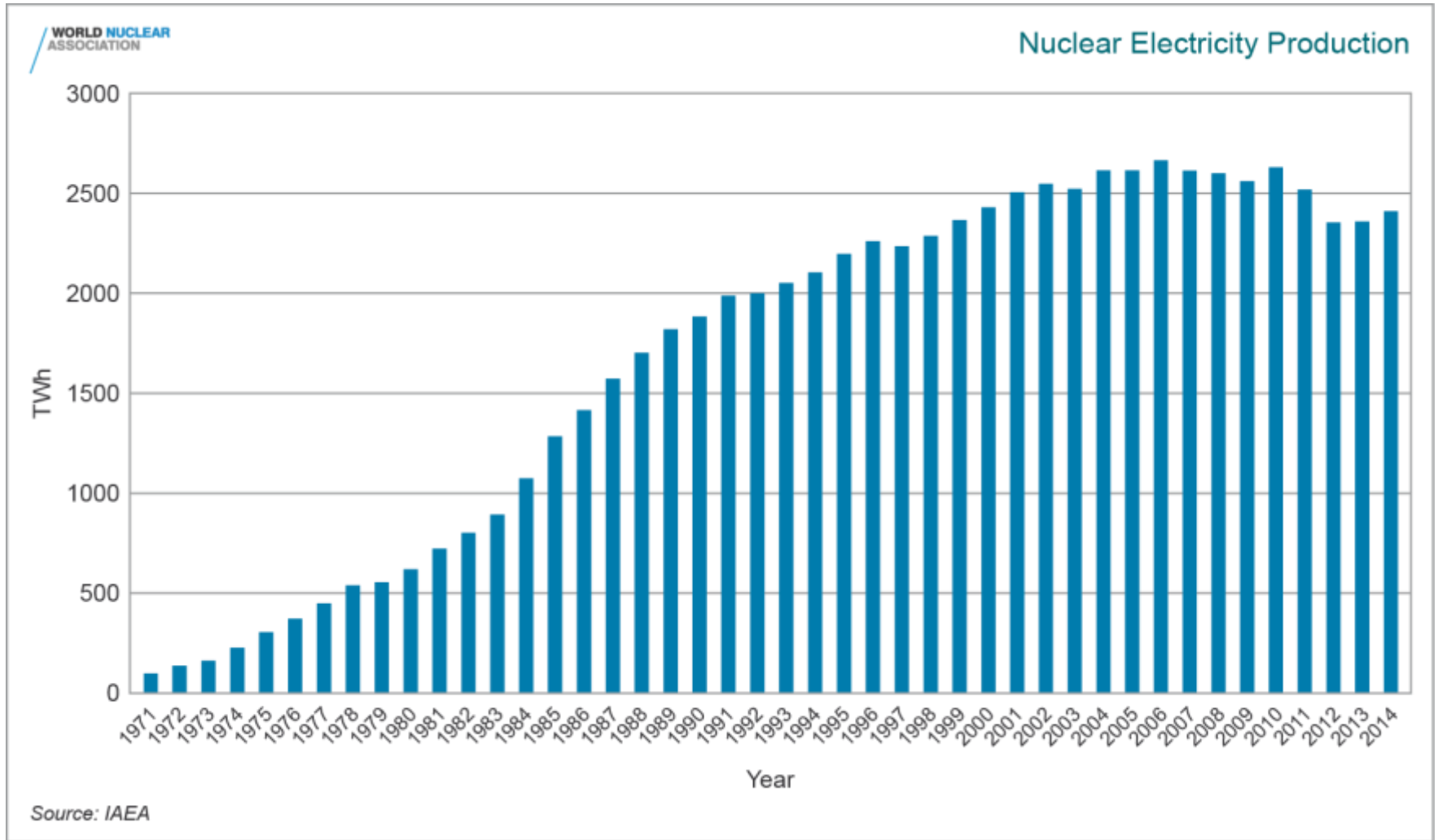
Accelerating rise in world electricity consumption

Global Consumption of Electricity

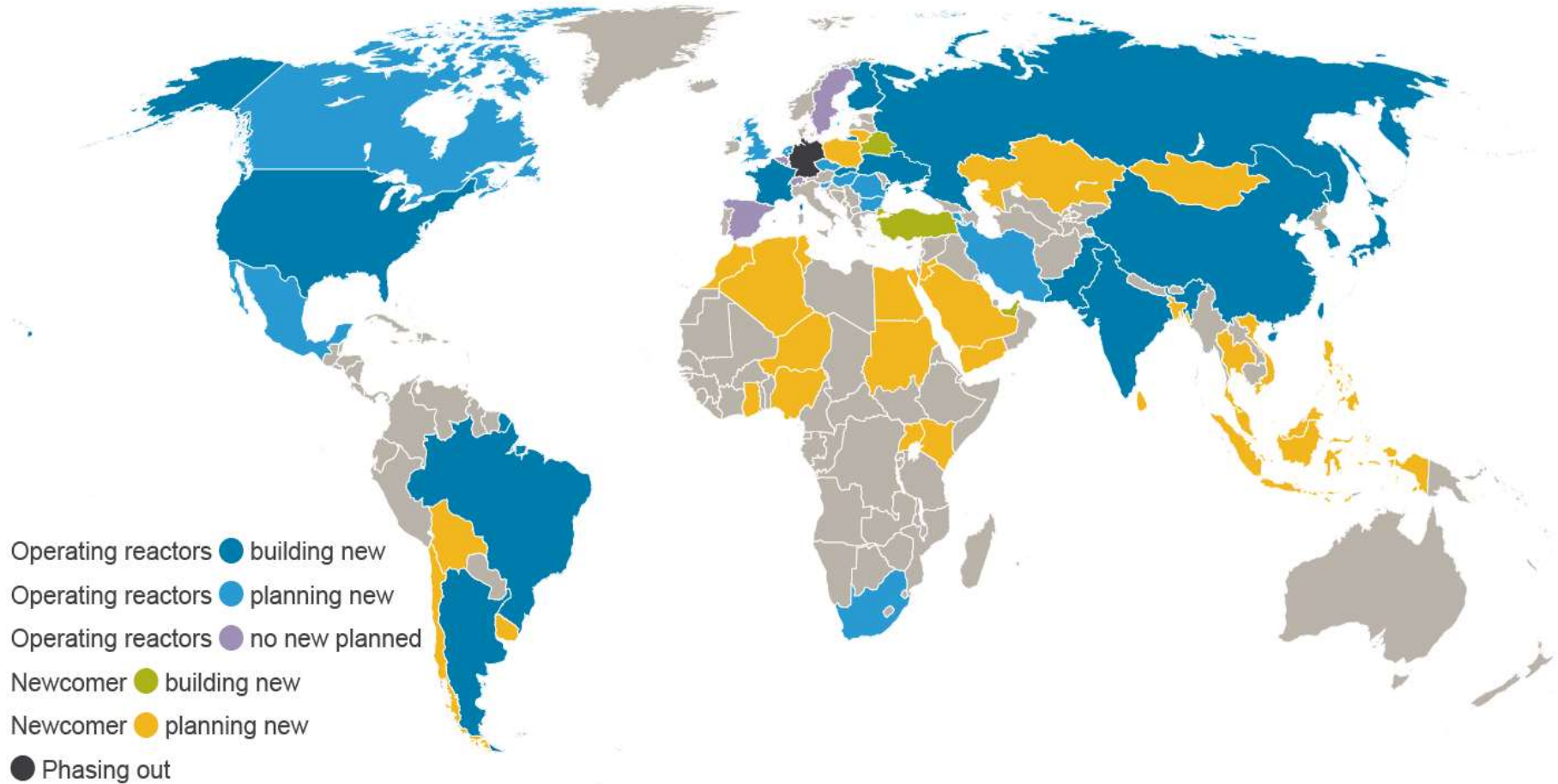


Source: 1945-1979, IEA databases and analysis
1980-2012, EIA

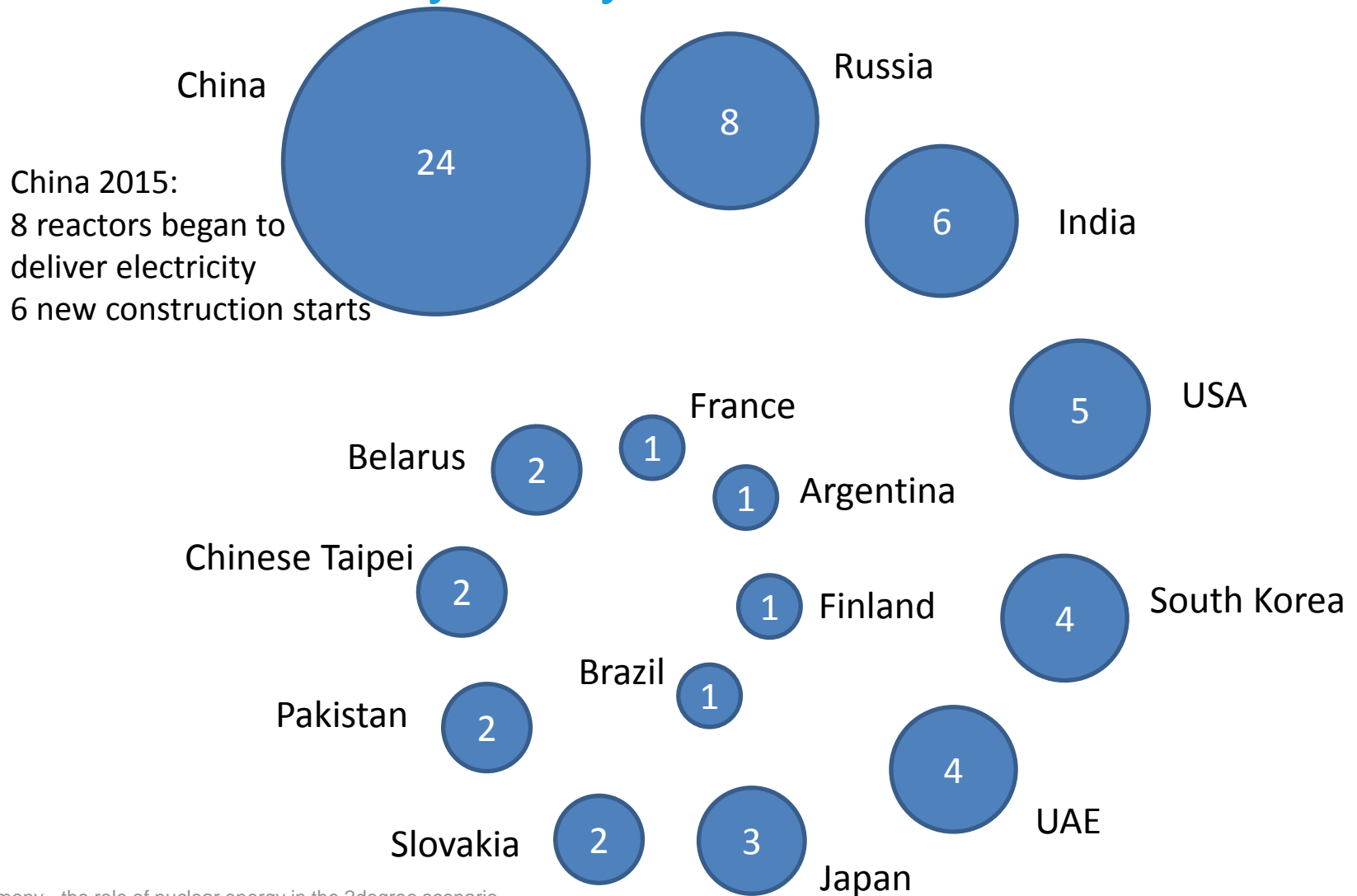
Global Nuclear Generation



Global Nuclear Status

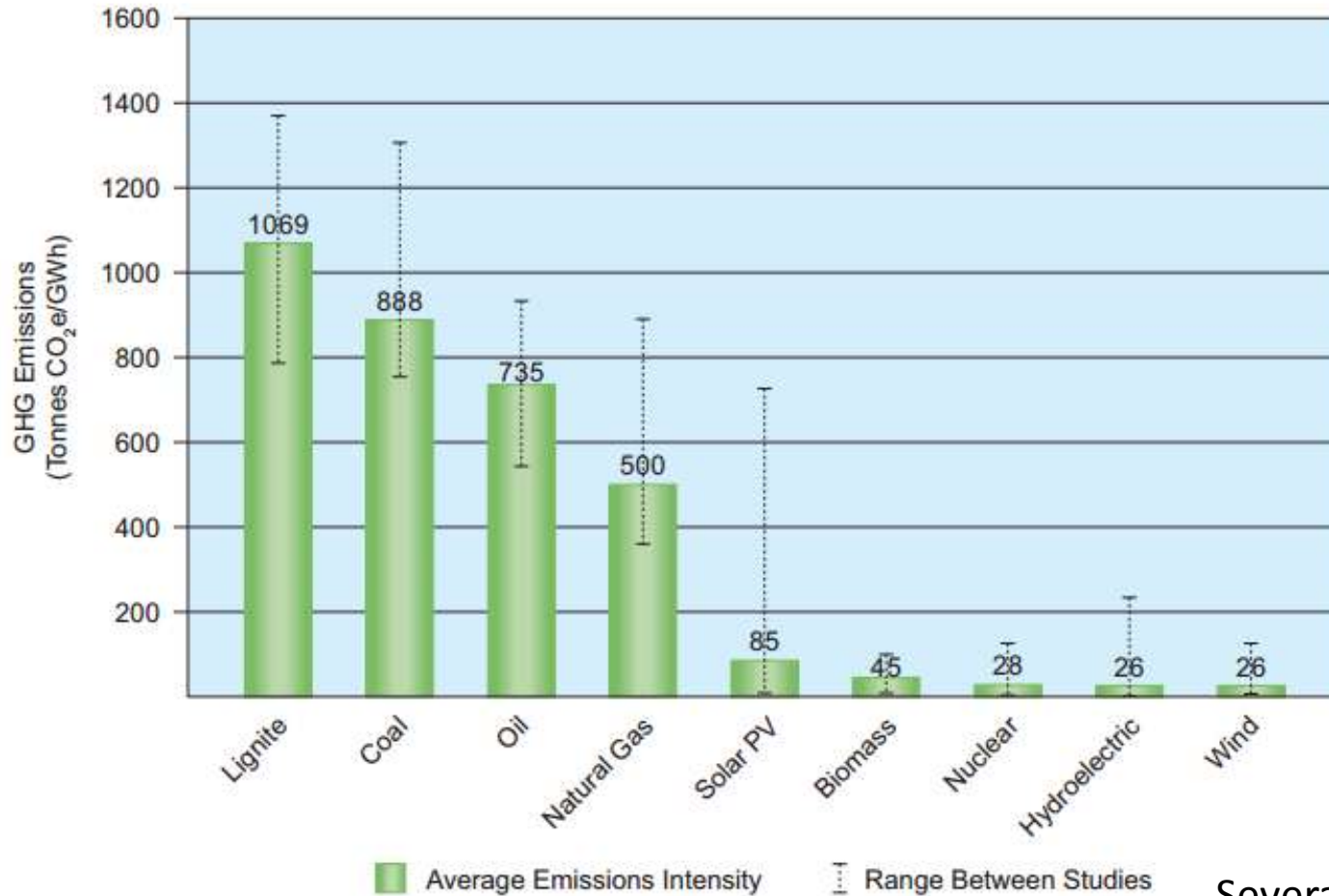


Highest level of construction in twenty five years: 66 reactors worldwide



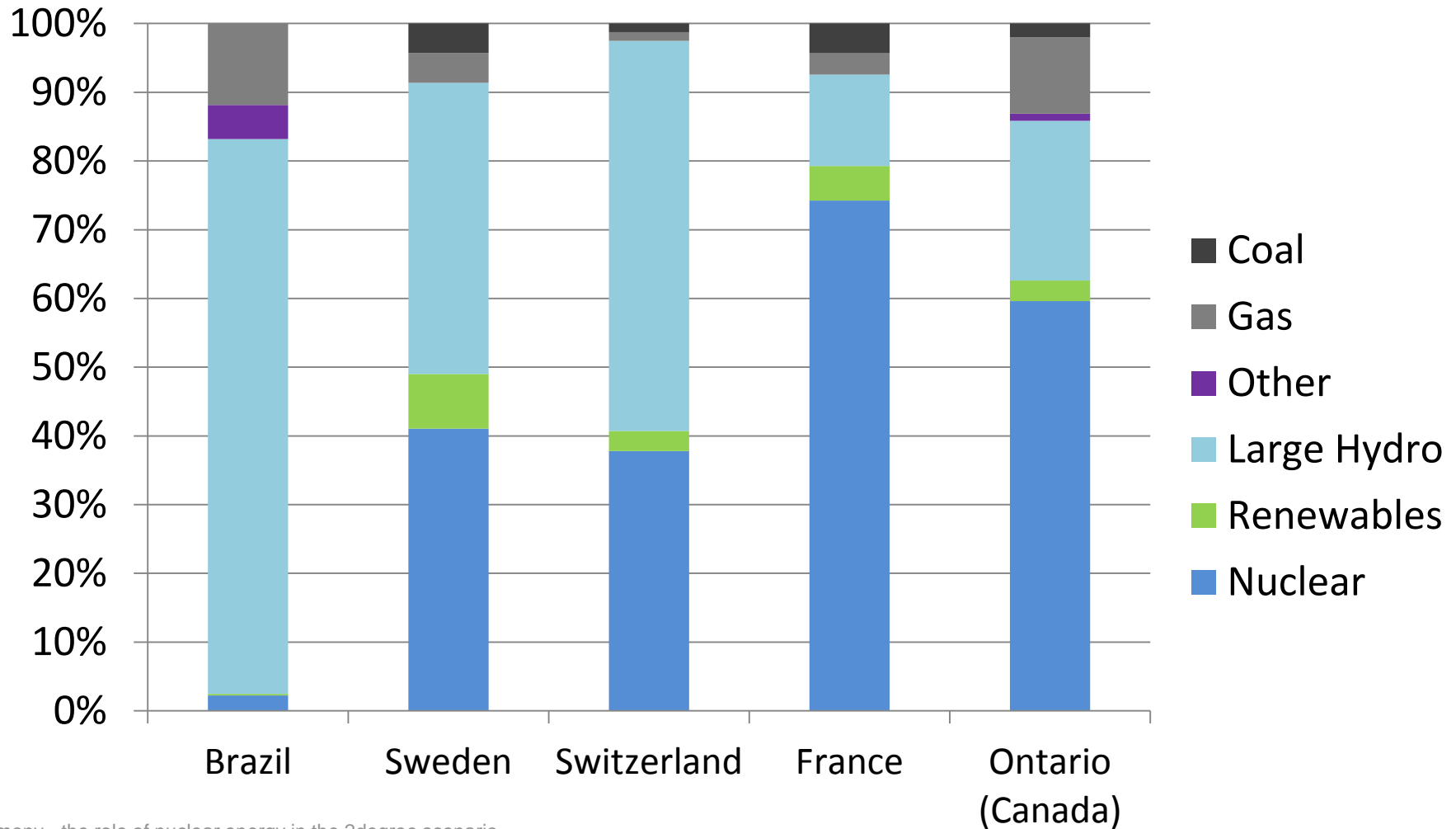
THE POTENTIAL OF NUCLEAR ENERGY TO DECARBONISE

Decarbonizing electricity generation vital by year 2100



Several sources
incl. IPCC: 2014

Nuclear is an important part of the low carbon solution



Basis for achievement: Harmony in nuclear energy deployment

Strong
framework in
policy and
regulation

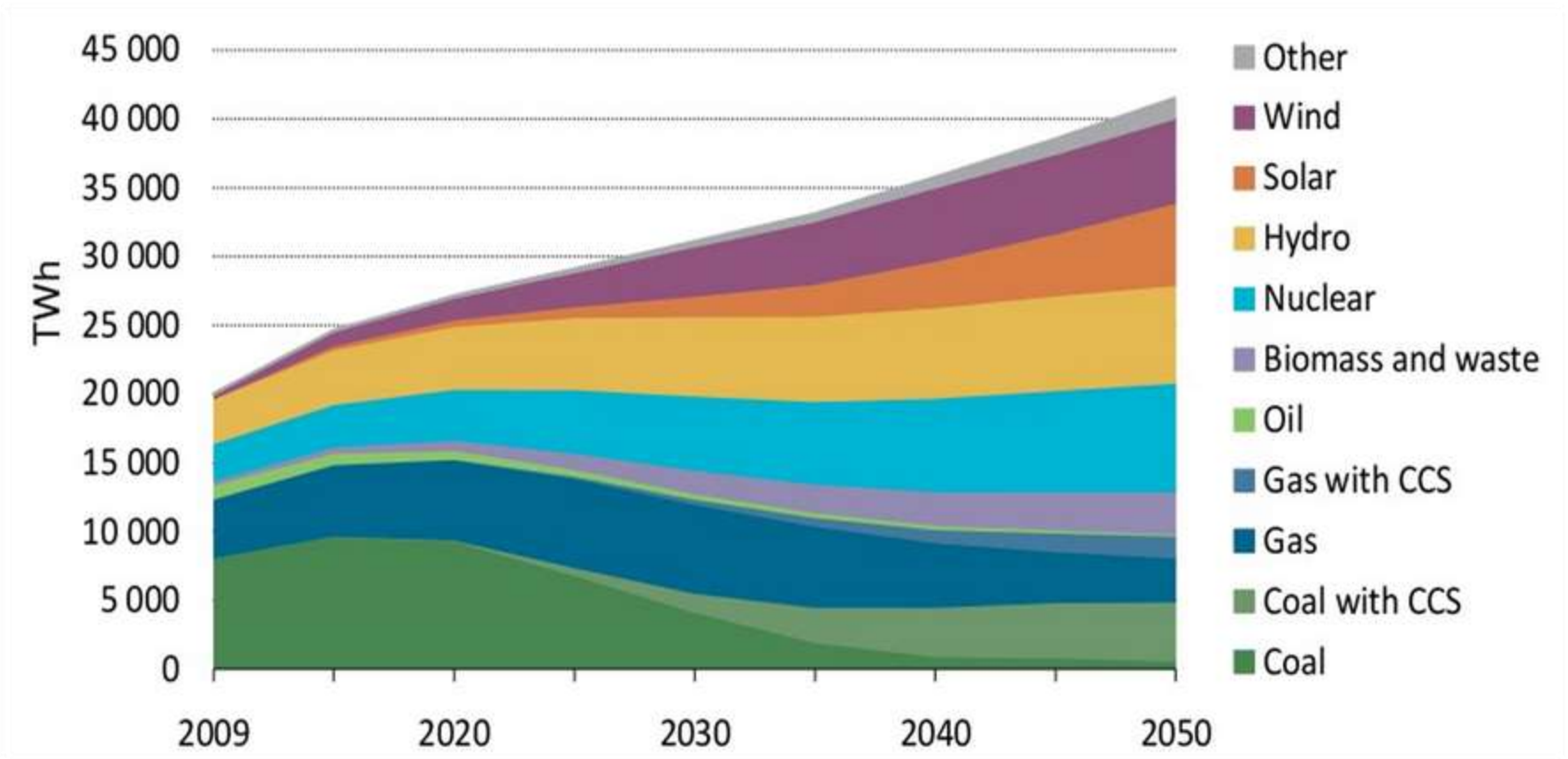
Confidence
among
stakeholders



Affordable and
reliable
electricity,
national energy
independence

THE IEA 2°C SCENARIO

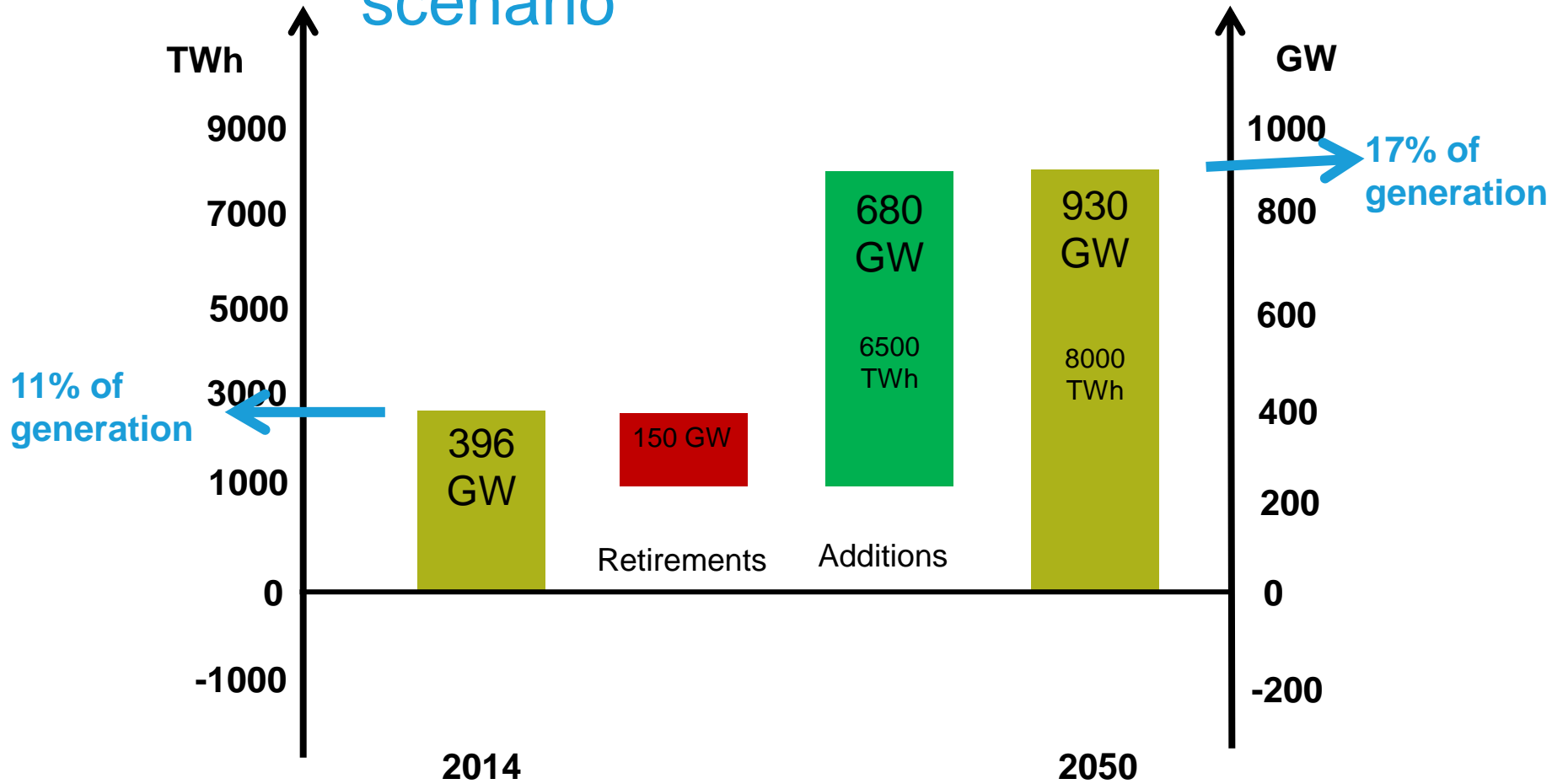
IEA 2°C Scenario: Nuclear is Required to Provide the Largest Contribution to Global Electricity in 2050



Harmony - the role of nuclear energy in the 2degree scenario
 Agneta Rising, Director General

Source: International Energy Agency

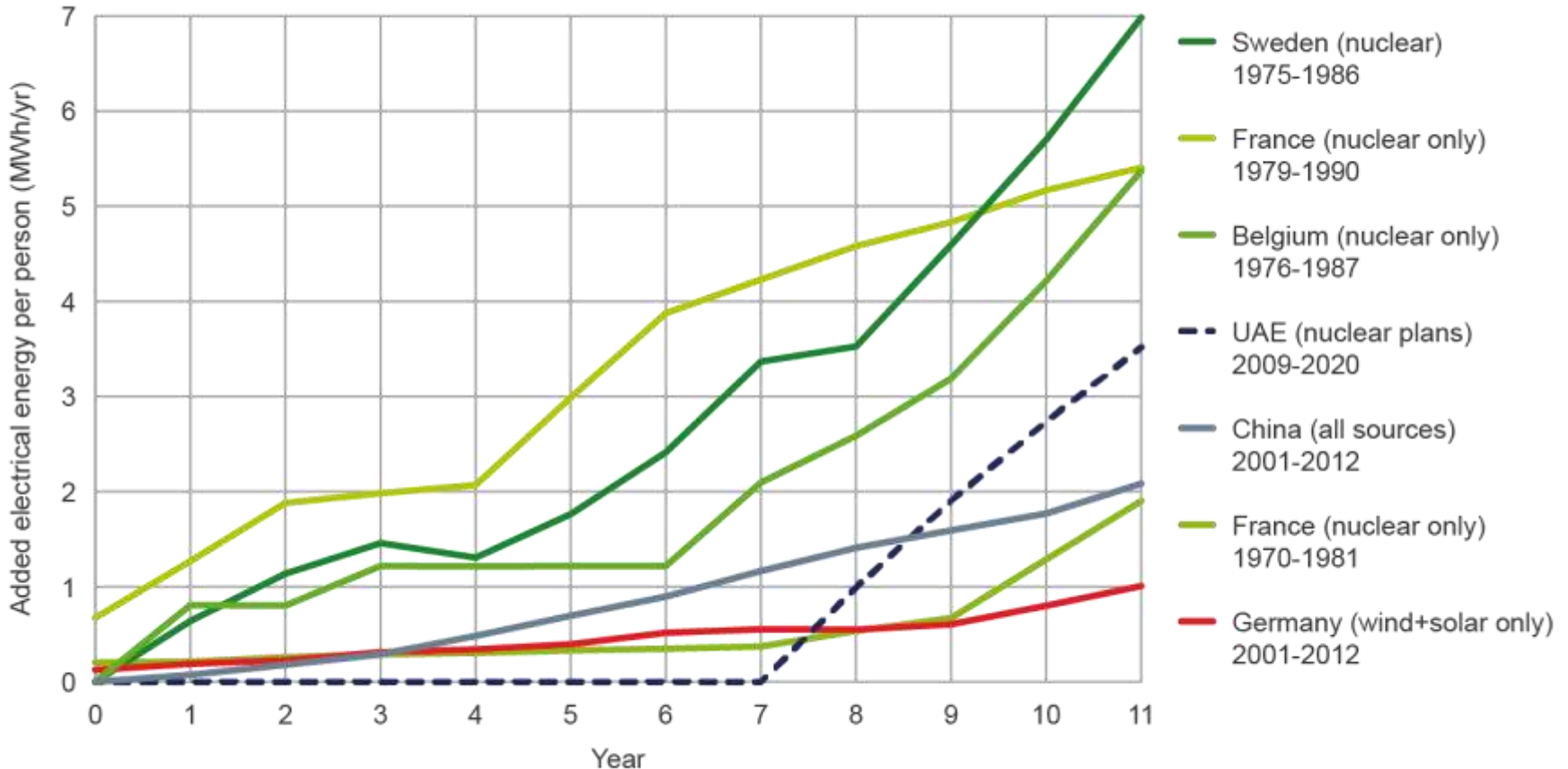
The role of nuclear: Substantial growth required to meet demand in IEA 2°C scenario



Source: IEA-NEA, 2015, Technology Roadmap: Nuclear Energy, Paris: OECD-IEA: p. 22;
IEA, 2015, Energy Technology Perspectives 2015, Paris: OECD-IEA

Nuclear makes quick, lasting decarbonisation possible

How much extra electrical energy can you add in 11 years?

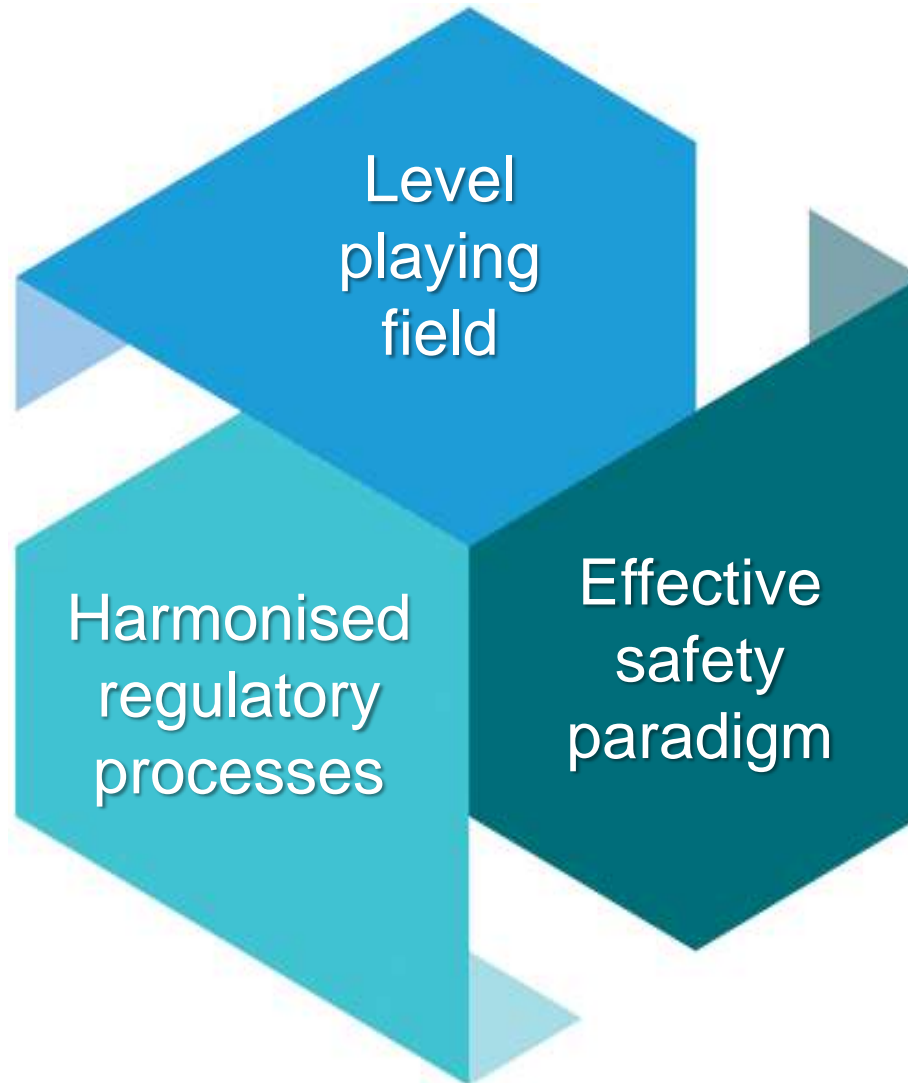


Source: IEA

Source: Geoff Russell – [nuclear has scaled far more rapidly than renewables](#)

HOW TO ACHIEVE REQUIRED NUCLEAR NEW BUILD

Harmony objectives



Level playing field: the challenge of deregulated markets

Deregulated markets should be reformed to:

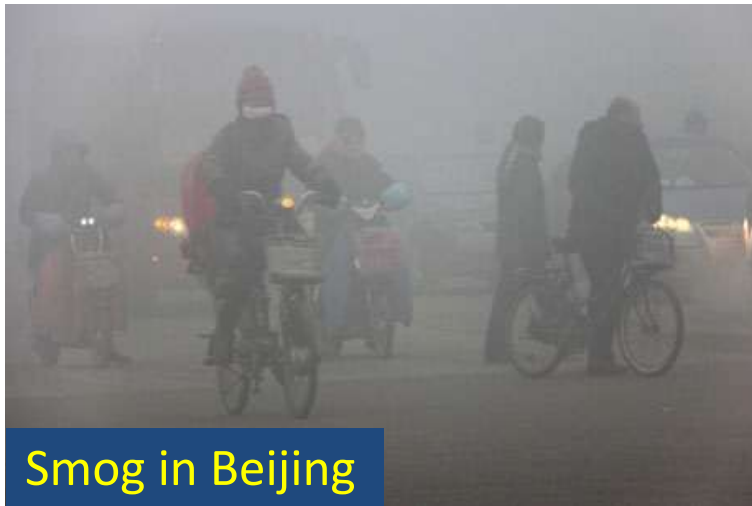
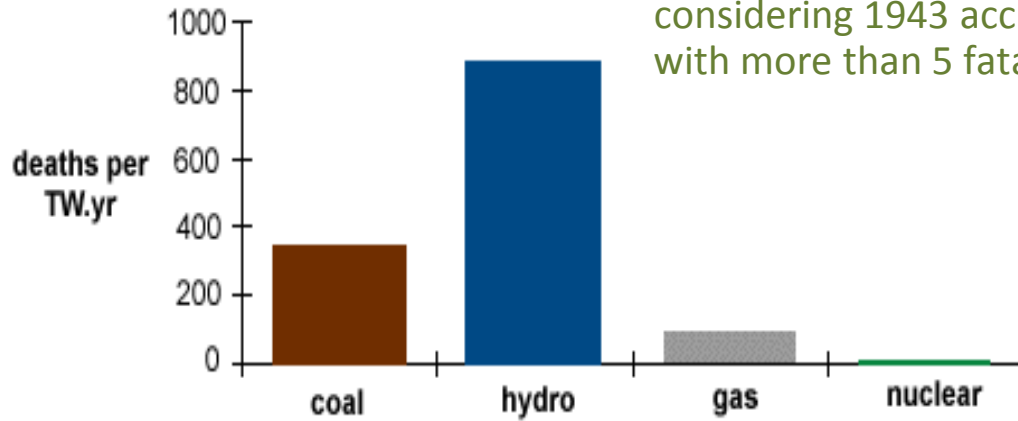
- support capital investments
- include grid system costs
- eliminate nuclear-only taxes
- reform subsidies
- give credit for low carbon emissions



Time for an effective safety paradigm

Paul Scherrer Institut 1998:
considering 1943 accidents
with more than 5 fatalities

The alternatives to nuclear are far more dangerous – even including accidents



Smog in Beijing



Chiba refinery fire

Harmonised regulatory processes

Enhance standardisation

Harmonise and update global codes and standards

Streamline licensing processes

Ensure efficient and effective safety regulation

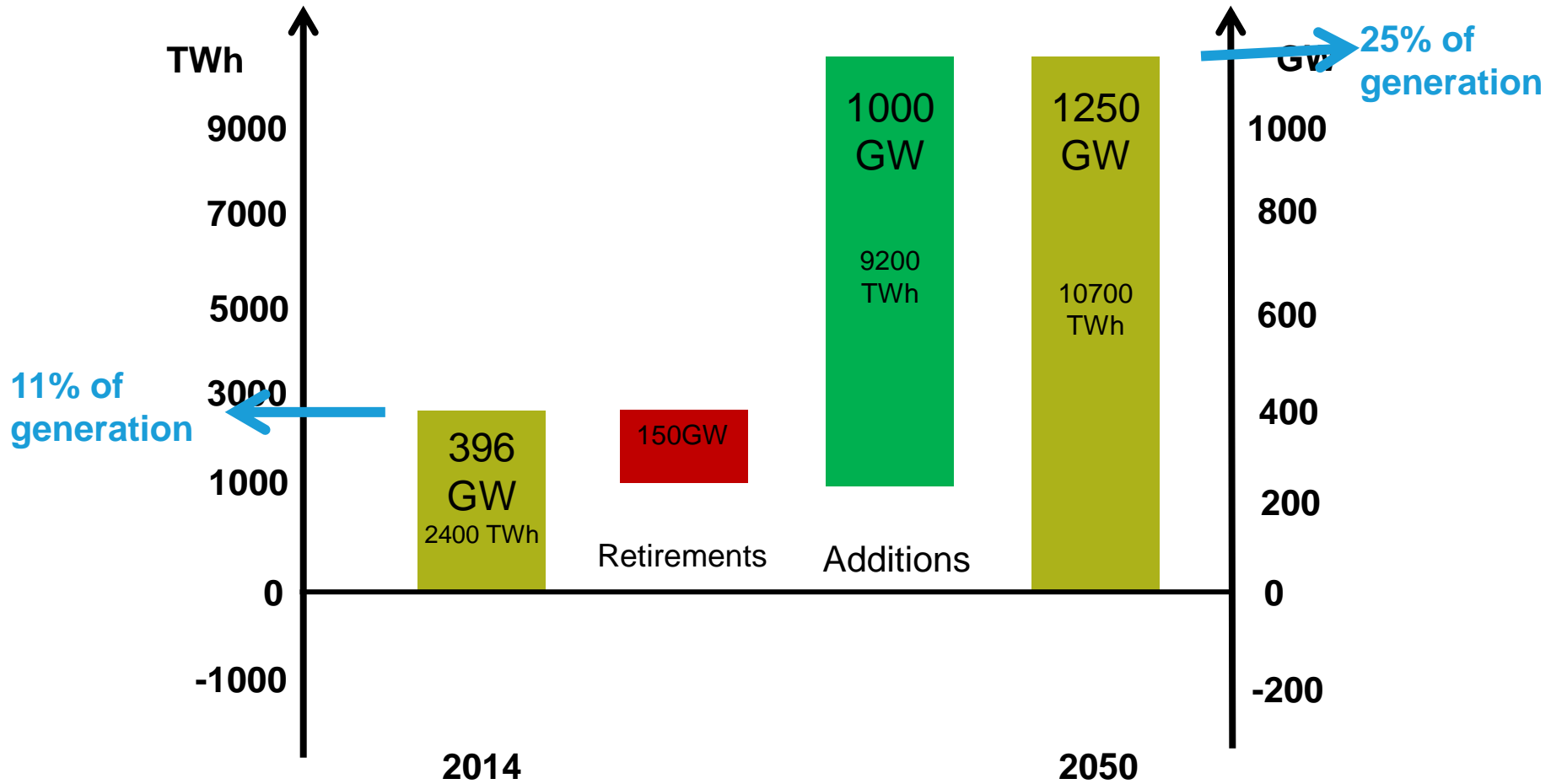
Enabling international trade

Nuclear innovation: enable development and licensing of new technologies



READY TO DELIVER MORE NUCLEAR NEW BUILD TO ENSURE IEA 2°C SCENARIO: HARMONY GOAL IS 1000 GW

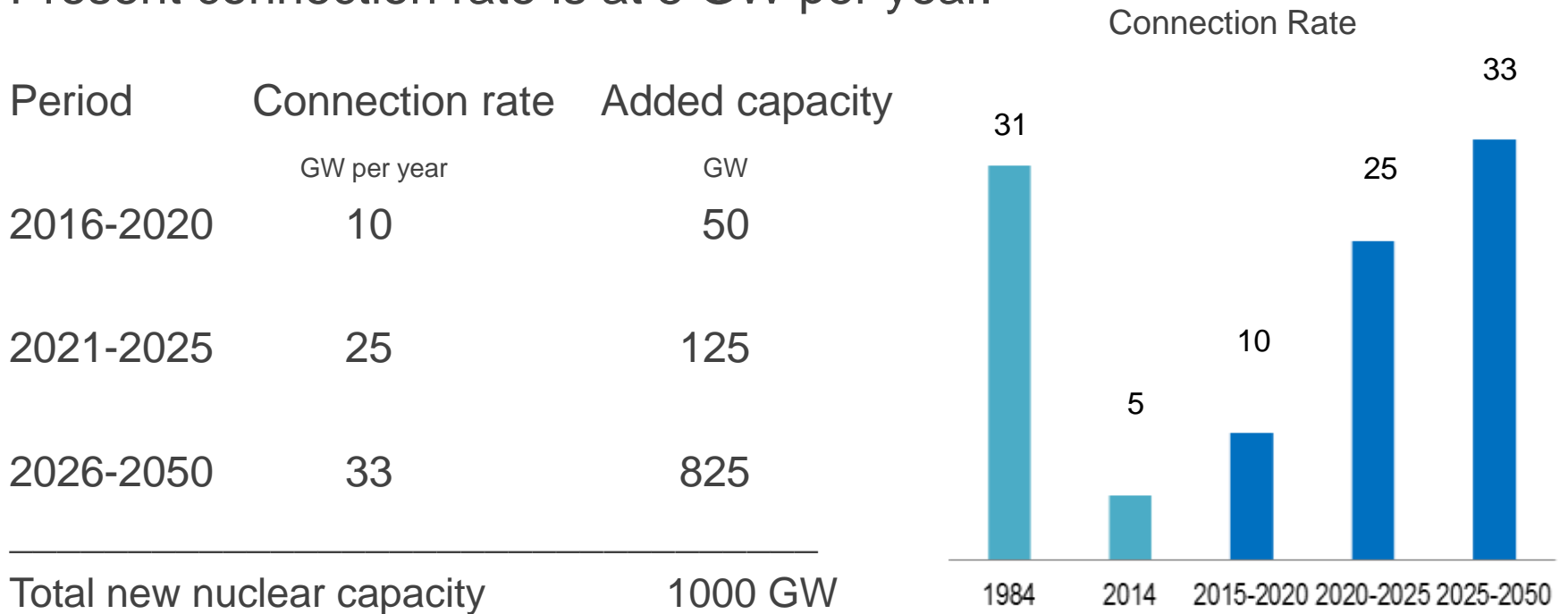
Nuclear energy should go beyond IEA projection



Source: IEA-NEA, 2015, Technology Roadmap: Nuclear Energy, Paris: OECD-IEA: p. 22; IEA, 2015, Energy Technology Perspectives 2015, Paris: OECD-IEA

To deliver 1000 GW new nuclear capacity to 2050

Historic connection rate in the mid of 1980s was 31 GW per year. Present connection rate is at 5 GW per year.



HOW TO ACHIEVE THE HARMONY GOAL

The global nuclear industry: identify barriers, engage in dialog, develop key actions

Level playing field: Establish a level playing field for all low-carbon technologies, valuing not only environmental qualities, but also reliability and grid system costs.

Harmonise regulatory processes: enhance standardisation, harmonise and update global codes and standards.

Effective safety paradigm: Ensure global nuclear safety. Confidence in management of nuclear technology and operations. Stakeholder trust. Risks in perspective.

Harmony goal

1000 gigawatt new
nuclear capacity by 2050

Level
playing
field

25% of
electricity
supply 2050

Harmonised
regulatory
processes

Effective
safety
paradigm

Nuclear energy
to deliver
reliable,
affordable and
clean electricity

Increase accessibility to nuclear energy

Markets must recognise nuclear energy benefits

Governments must take action to ensure that electricity is delivered by the second, now and decades into the future

Policies are needed to steer us to an environmentally-sound energy mix.

Deregulated markets, while promoting competition, are leading to prioritisation of short term returns over more environmentally sustainable and economically sound long-term investments.

Nuclear industry must play its role

Keep nuclear competitive, deliver on time and to budget.

Build confidence among its stakeholders about the reliable, affordable and clean nature of nuclear energy.



www.world-nuclear.org