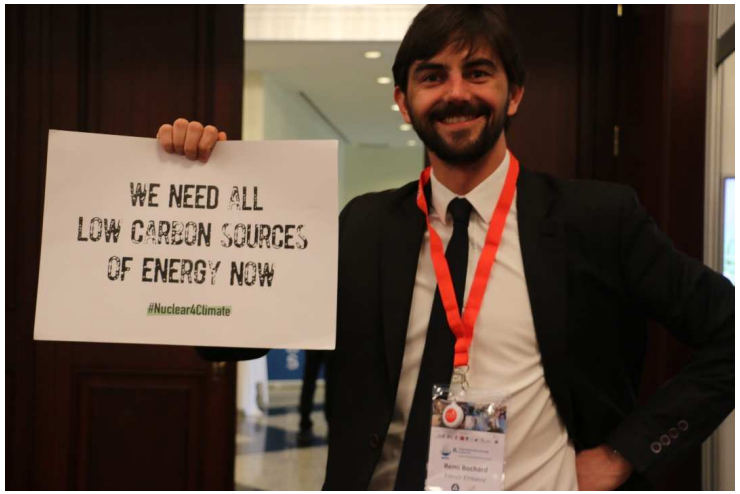
Société Française d'Energie Nucléaire

Nuclear for CLIMATE



The Nuclear4 Climate initiative

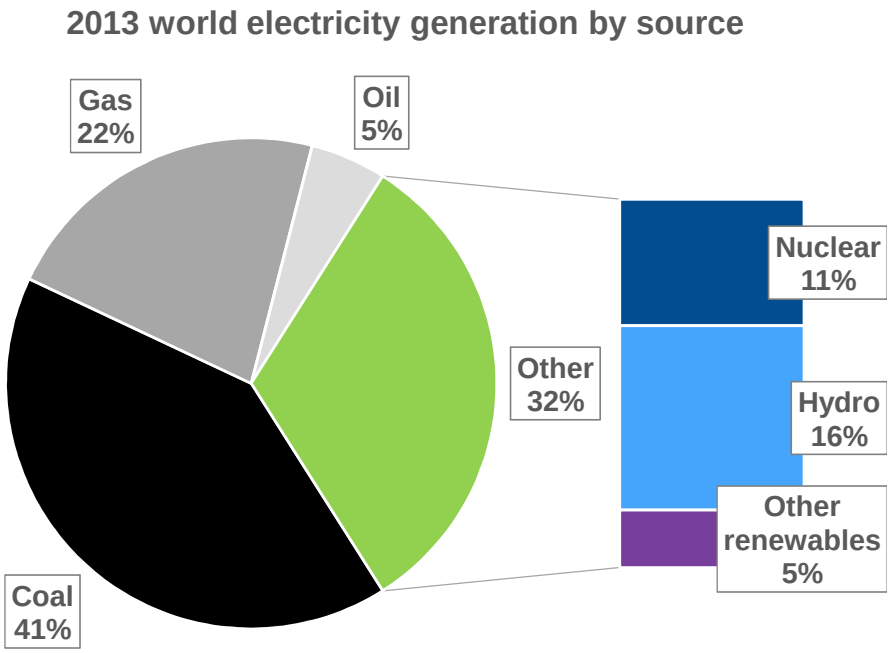
Valerie Faudon
Executive Director
French Nuclear Society

To limit the temperature increase below 2°C in 2050..

..at least 80% of the world's electricity must be low-carbon by 2050.

Source: IPCC WG1 2014

Today, it is about 30%



Source: AIE-WEO 2014

This is a massive global challenge that requires the use of **all available low-carbon energy technologies.**

Major progress in energy efficiency will not be sufficient: the electricity demand is expected to double by 2050

By 2050:

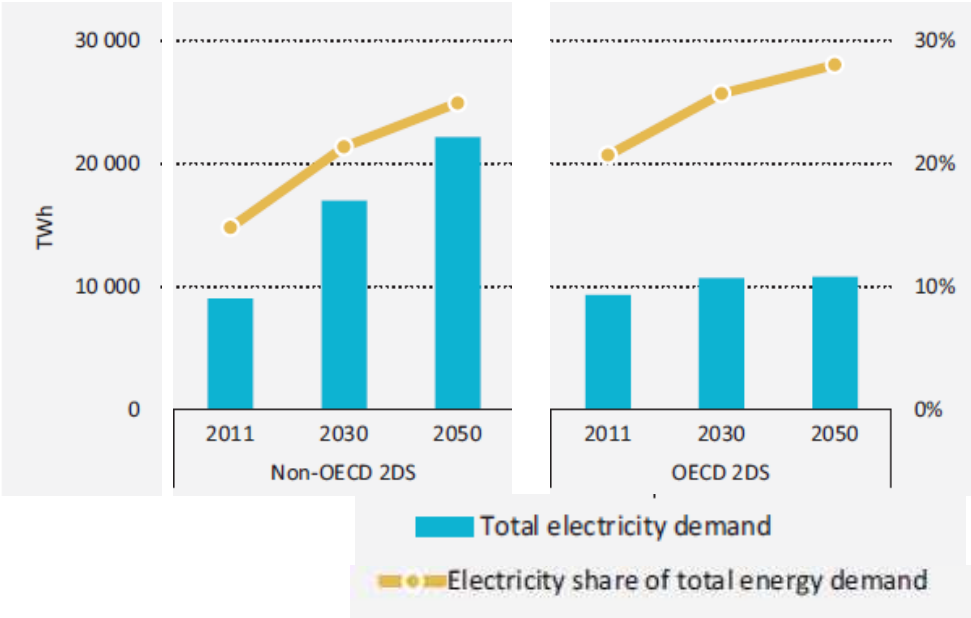
the world's population will be around **9.6** billion

Today:

- ✓ **1.2** billion people do not have access to electricity
- ✓ **2.8** billion use wood or other biomass products for cooking and heating

Source: UN, World Bank

Electricity demand and share of electricity (IEA)

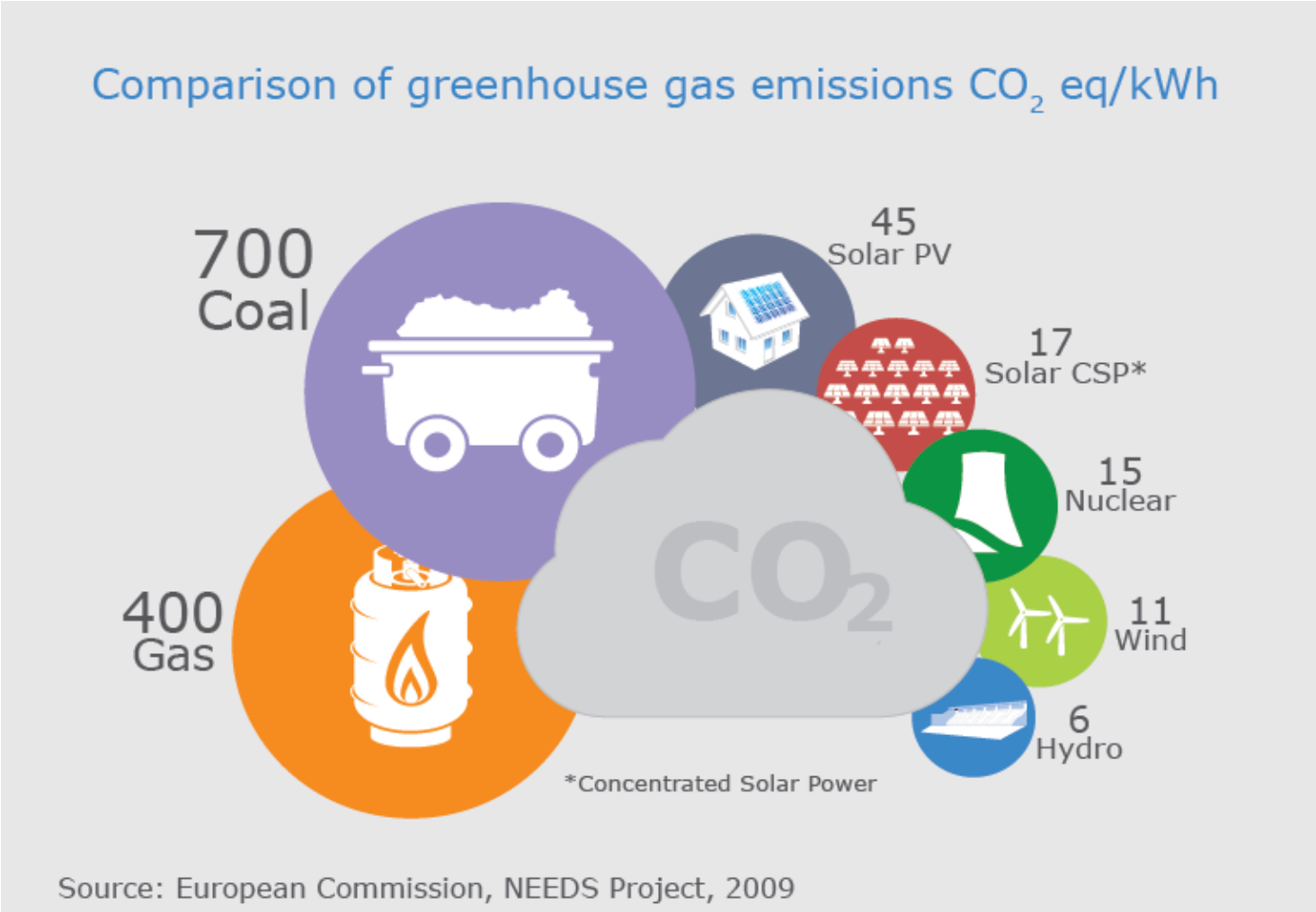


- ✓ Strong demand from non-OECD countries
- ✓ Increased share of electricity in the overall energy mix

Source: AIE-AEN Technology roadmap 2015

The fight against climate change should not jeopardize development

The IPCC identifies three types of carbon-free electricity: renewables, nuclear and CCS (Carbon Capture & Storage).



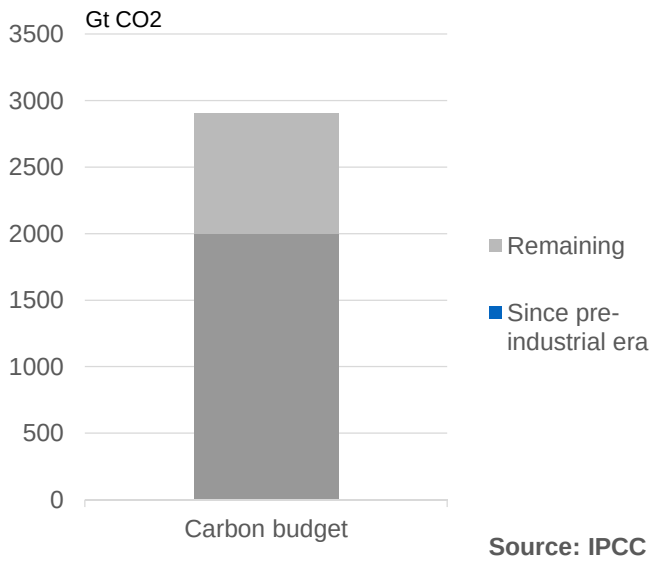
The amount of CO2 emitted by nuclear energy is comparable to that of renewables

It is urgent to use now all available low-carbon energy sources

70% of the carbon budget has been consumed

Once released, CO2 remains in the atmosphere for a long time.

Carbon budget: cumulative CO2 emissions that must not be exceeded if we are to contain average global warming to 2°C.



Source: IPCC

We cannot wait for future technologies :

they will contribute in proportion to their availability.

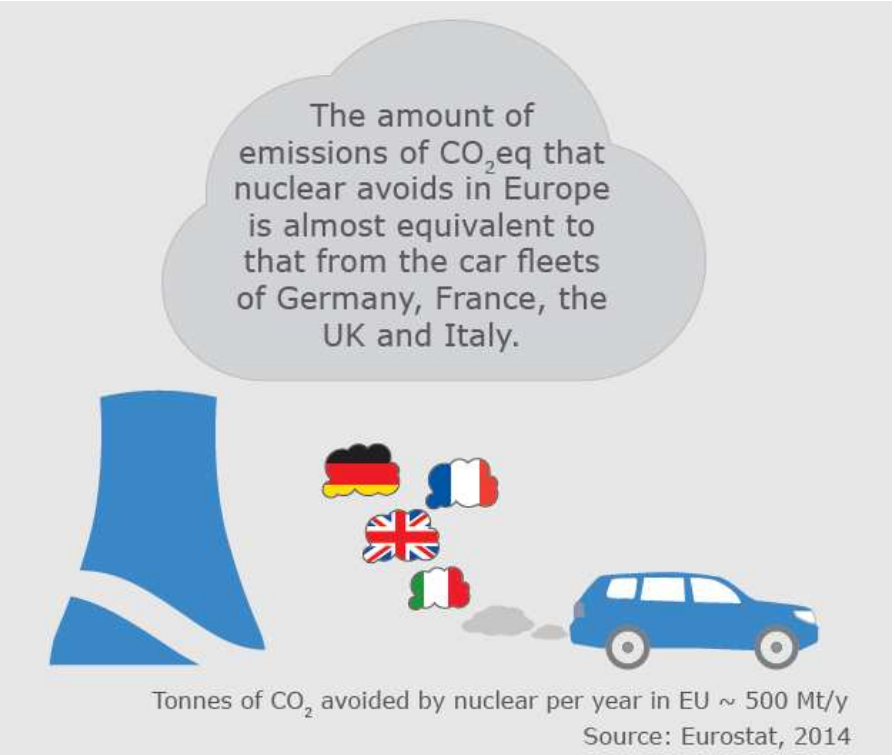
Nuclear energy is an available, low-carbon and efficient industrial solution, that has been proven efficient

438 nuclear reactors in operation, nuclear energy is available in 30 countries.

Today, only 6 countries above 80% goal of low-carbon electricity, 4 of them have nuclear.

Sweden	40% nuclear
Switzerland	40% nuclear
France	75% nuclear
Brazil	2 nuclear reactors

Source: IAEA, IEA



Since 1971 nuclear power has avoided the release of the equivalent of **2** years of CO**2** emissions.
By 2040, nuclear power should save the equivalent of **4** years of CO**2** emissions.

Source: WEO 2014

Very few scenarios enable to limit global warming below 2° without nuclear

IPCC WG3: only 8 scenarios out of 1 200 show limitation below 2° and nuclear phase-out.

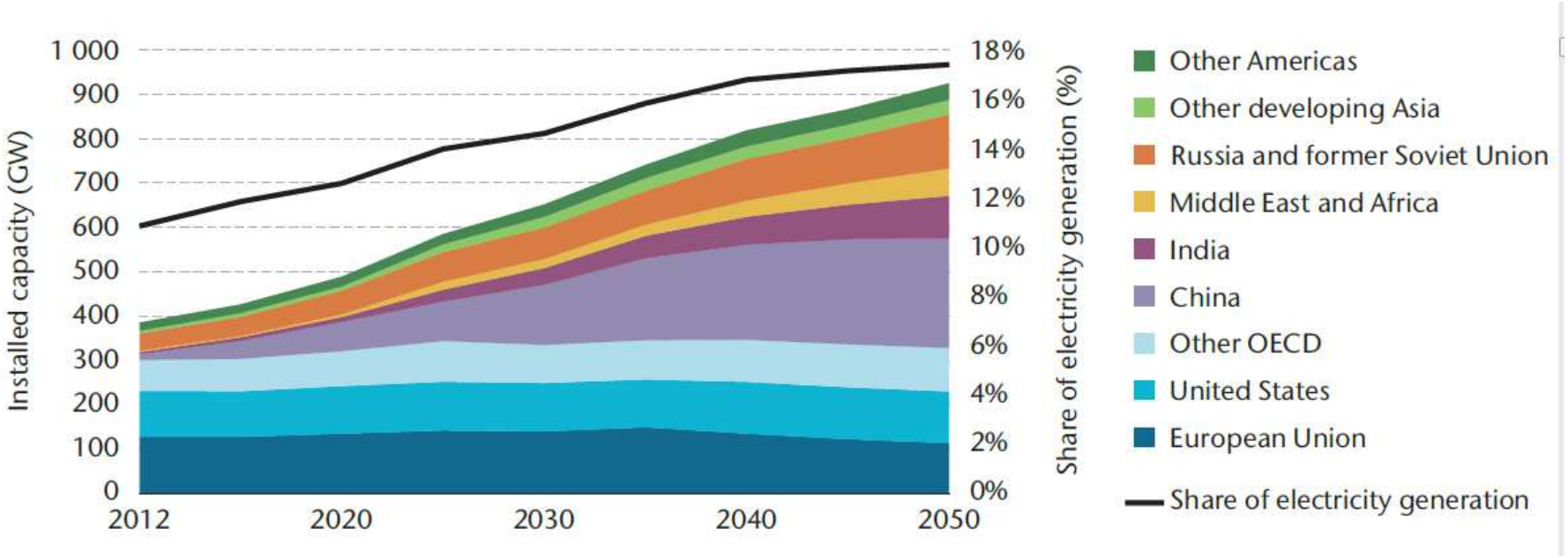
"There is no credible way to climate stabilization that does not include an important role for nuclear energy….we cannot afford to turn our back on any technology".

Open letter from environmentalists, Washington Post, Oct 2013

Every country must have access to the largest portfolio of low-carbon technologies, including nuclear

Most scenarios limiting the temperature increase to 2°C show a very significant contribution of nuclear energy

IEA Scenario 2DS: Installed capacity by country



Source: IEA technology roadmap, Jan 2015

- ✓ **Gross nuclear capacity should double** by 2050, from 400 GWe to 930 GWe.
- ✓ Share of nuclear power in the global energy mix to increase from 11% to **17%.**
- ✓ Stability in OECD (long time operations), and strong growth in BRICs & Middle East: 70+ reactors being constructed WW

Access to climate funding mechanisms

UNFCC Kyoto Protocol

Nuclear energy **discriminated against** within the Marrakesh Accords (2002)

« Parties.. should refrain from using credits (from CDM[1] or JI[2] projects) generated from nuclear facilities to meet their commitments[3] » -

[1] Clean Development Mechanisms
[2] Joint Implementation projects
[3] emission targets agreed under the Kyoto protocols

An estimated investment in nuclear of **USD 4.4 trillion needed** WW by 2050*, Incl. **USD 700 Bn** in the EU

Source: OECD-AEN, 2DS

UNFCCC Protocols must allow countries who wish to use nuclear energy to have access to climate change financing, as is the case for all other low-carbon energy sources.

A joint statement in ICAPP, Nice, May 4, 2015

Nuclear for CLIMATE

“WE PROUDLY BELIEVE THAT NUCLEAR ENERGY IS A KEY PART OF THE SOLUTION IN THE FIGHT AGAINST CLIMATE CHANGE”

39 nuclear societies
50,000 scientists
36 countries

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