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60 Years

Atoms for Peace and Development

Role of Nuclear Energy in GHG Emissions Reduction

**Asia Cooperation Dialogue Conference
towards energy security, sustainability and resiliency
Bohol, Philippines, 7 August 2017**

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COP-21 is a good start to global climate action, ..but not the end point

Paris Agreement - “historic, durable and ambitious”



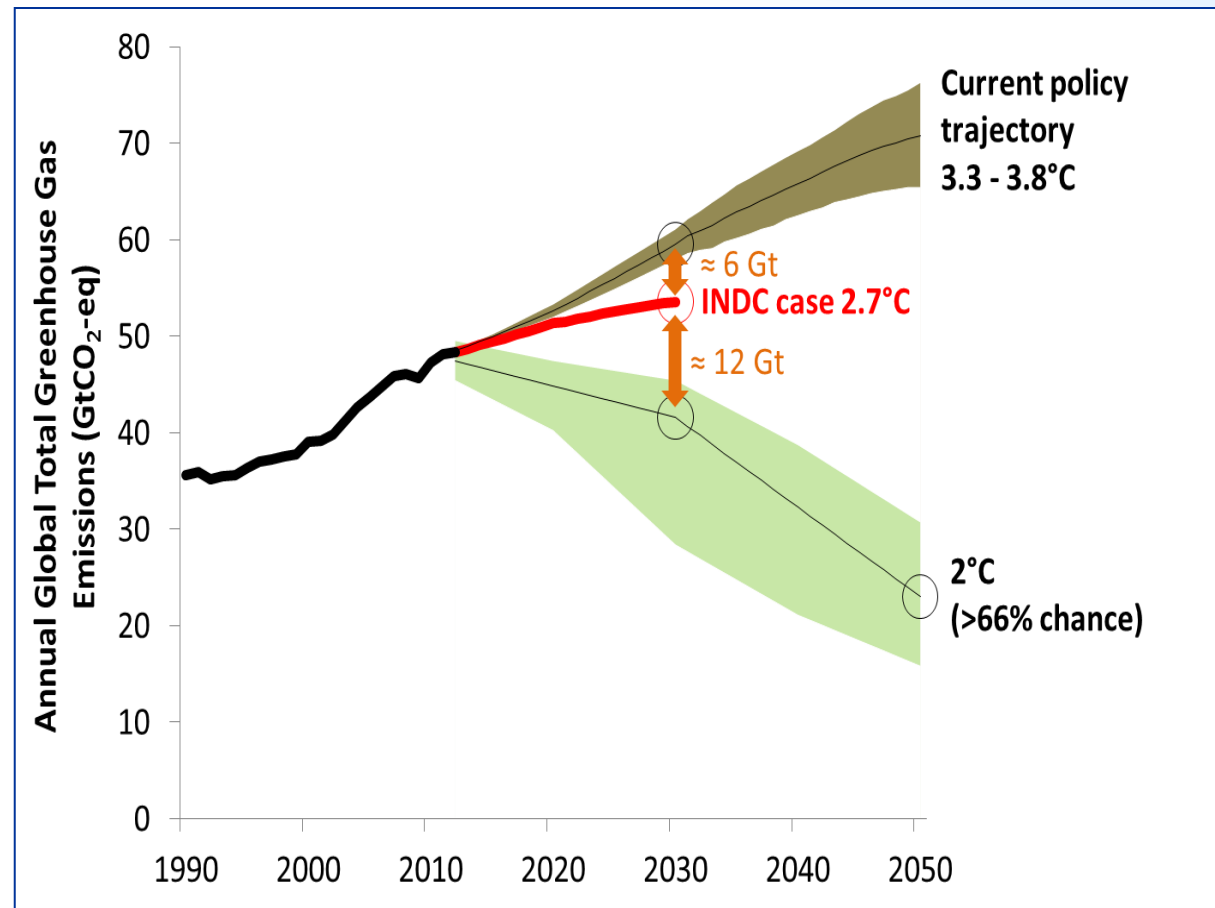
Goal: 2°C, aspire to 1.5°C

Bottom-up: action at the national level

Vital: design of rules, processes and institutions under negotiations

Country plans to curb emissions help, fall well short of 2°C target, much less 1.5°C

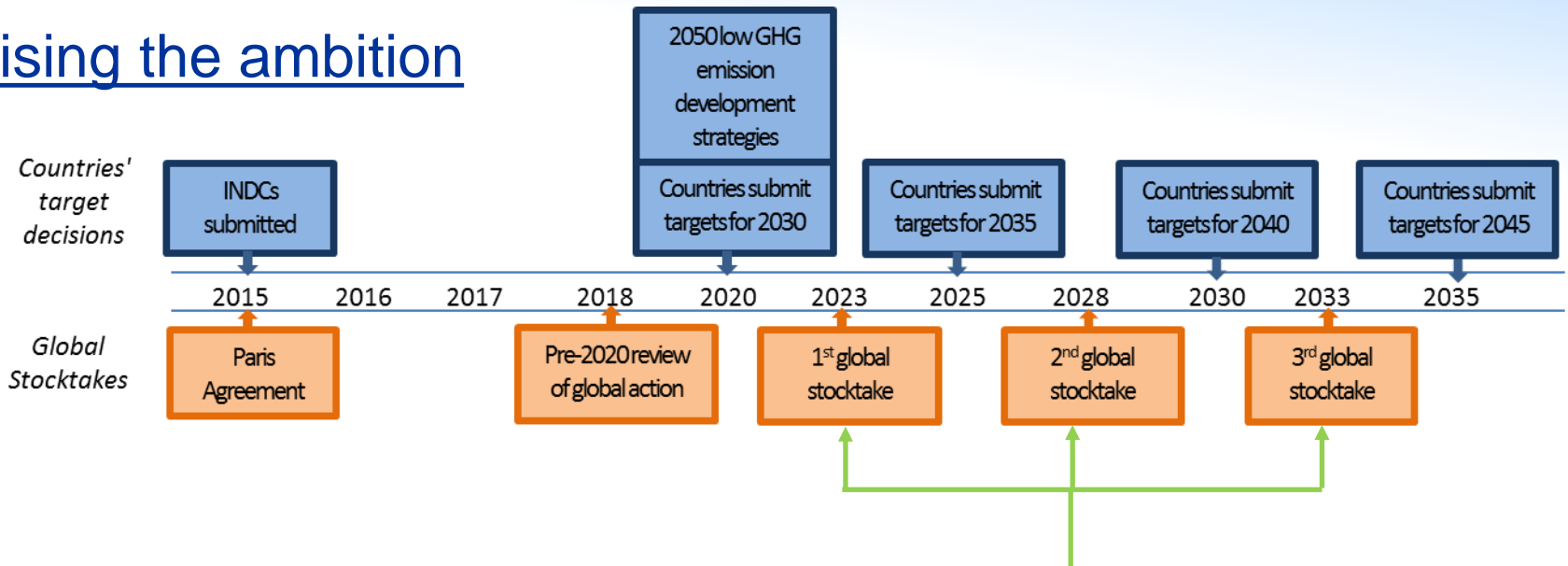
- Much greater ambition needed from States to adequately address the problem
- Low-carbon govt. policies, actions, and investments must quickly follow



Source: Derived from Climate Action Tracker, UNEP and IEA

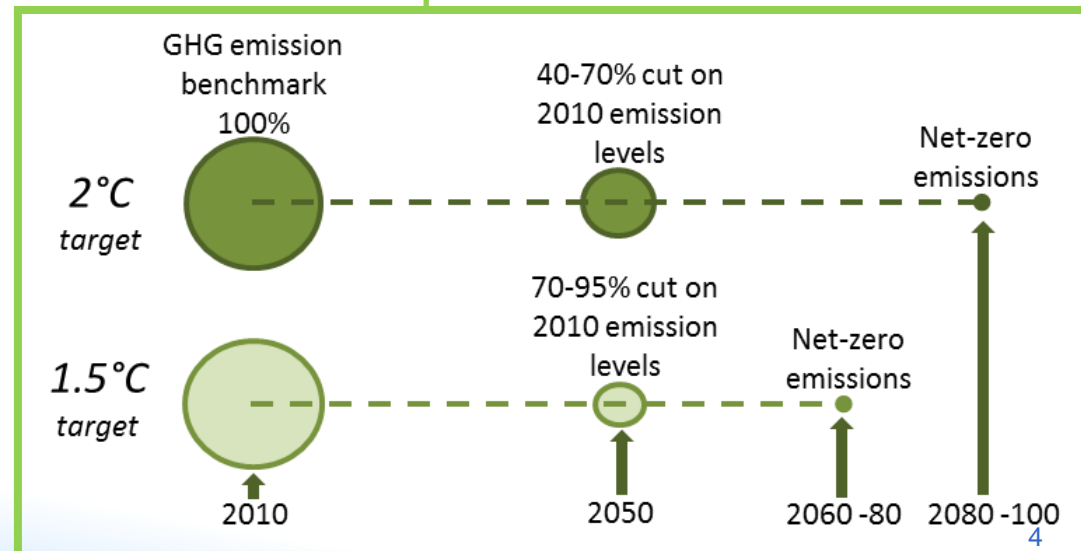
Paris Agreement links policies to Science

Raising the ambition



Based on latest science

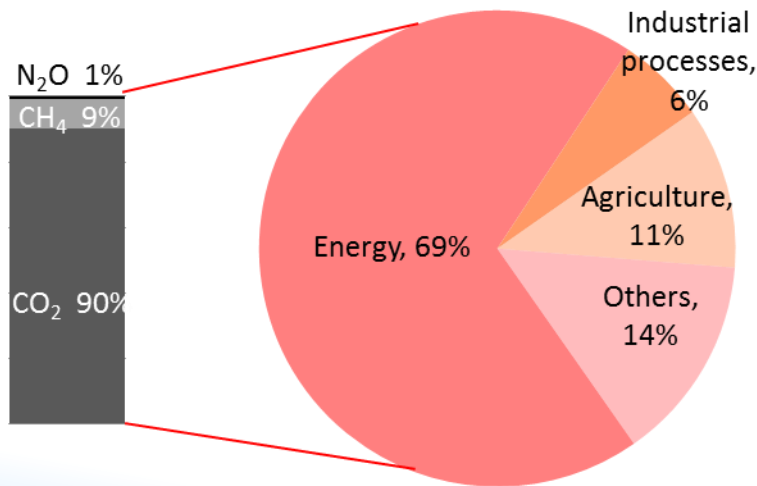
- Special IPCC report in 2018 on the impacts of 1.5°C and related global GHG emission pathways



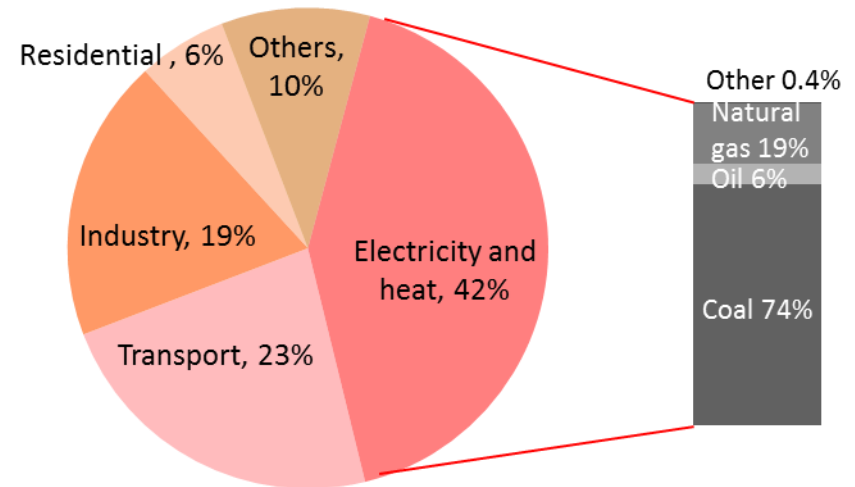
Energy/Electricity & GHG emissions

- Energy emissions: largest source of global GHG emissions
- Electricity & Heat Production: key drivers of energy-related CO₂ emissions for past decades

Global anthropogenic GHG emissions (2010)

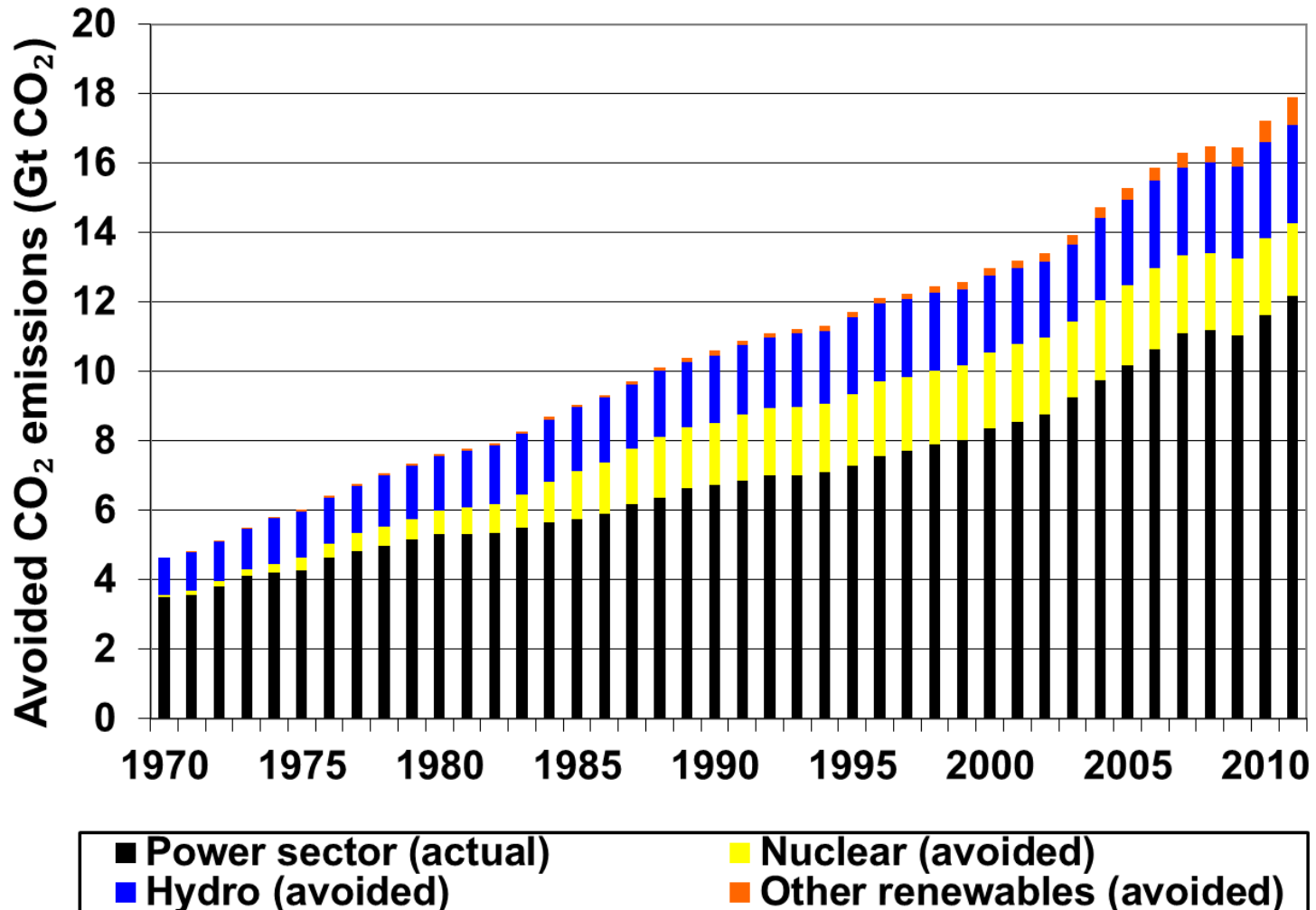


Global Energy CO₂ emissions by sector (2013)



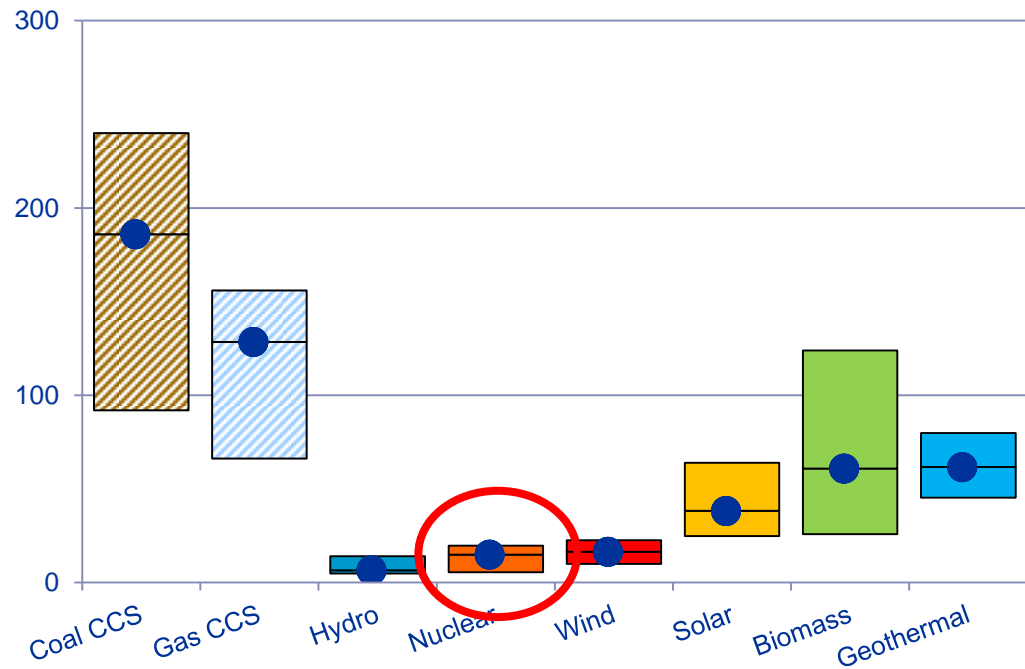
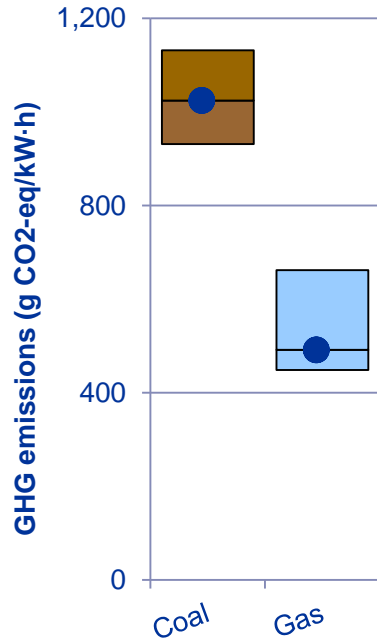
Source: Derived from OECD Statistics

Nuclear: avoided CO₂ emissions



Source: Derived from IEA data

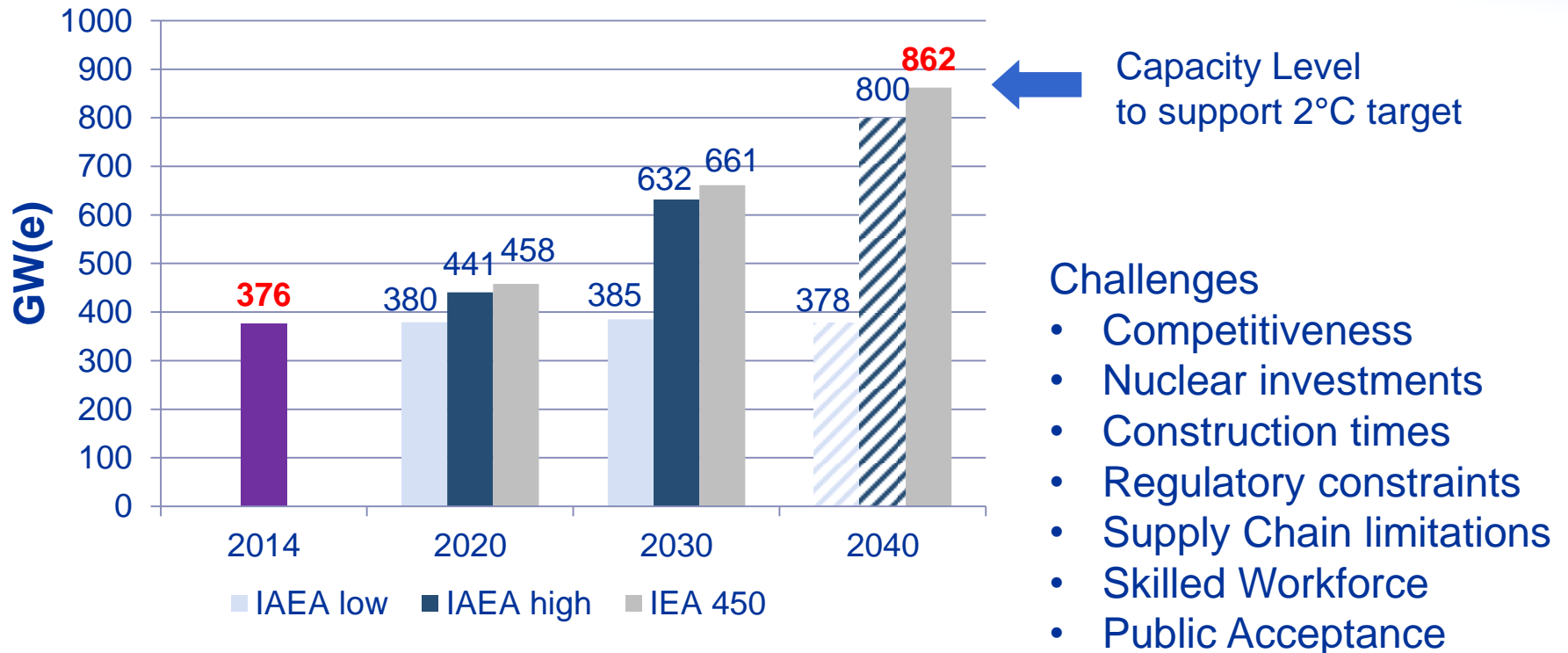
Life cycle GHG emissions of electricity sources



□ Median value
● Interquartile range

Source: Derived from Ecoinvent

Ramping nuclear to support 2°C target will be difficult, but not impossible



Source: Derived from IAEA and IEA

Actions needed for Nuclear Power

Competitiveness and Finance

Need:

Valuation on reliability, macro-economic, and environmental benefits; & investment certainty

Actions:

Full accounting of total system costs; tax on high-C consumption, production, and emissions; innovative financing and increased technology innovation

Clean-Energy Investments

Need:

Investments of at least US\$80B/year for nuclear power, potentially double if fossil CCS fails

Actions:

Realisation of all proposed nuclear projects worldwide by 2030, life-time extensions for existing NPPs

Climate and SDGs

Need:

Anchor nuclear as a core asset for meeting 2°C goal and SDGs

Actions:

Make nuclear core to achieving countries NDCs and sustainable development vision

IAEA activities to support MS

Challenges	Actions
Information dissemination of low-C benefits of Nuclear	Outreach at COP meetings, contribute to IPCC reports, thru publications, intl' conferences, etc.
Views that all that is needed is "100% renewables"	Show how nuclear helps RES through flexible operation
Increasing nuclear legitimacy in support of SDGs 7 & 13	Partner with other UN orgs (e.g. HLCP, UN Energy, IRENA, UNECE, UNIDO)
Incorporation of nuclear in country energy planning/NDCs	Energy planning capacity building, training and research initiatives
Improve understanding of the role that nuclear science and technology plays in adaptation and measuring impacts	Inform on climate-smart agriculture, measuring ocean acidification and other areas.



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Thank you!

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