

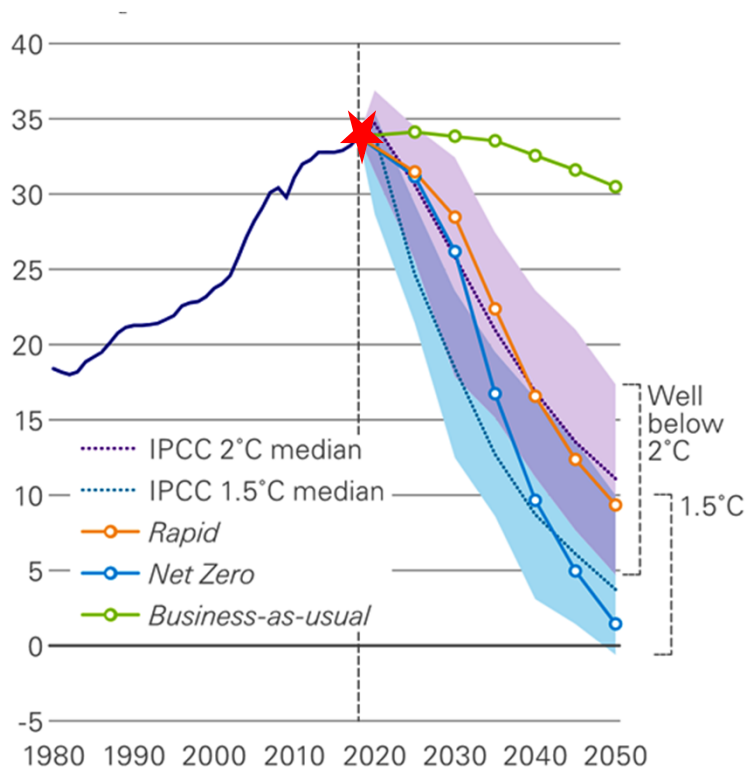
Net zero needs nuclear Nuclear regulation needs harmonization



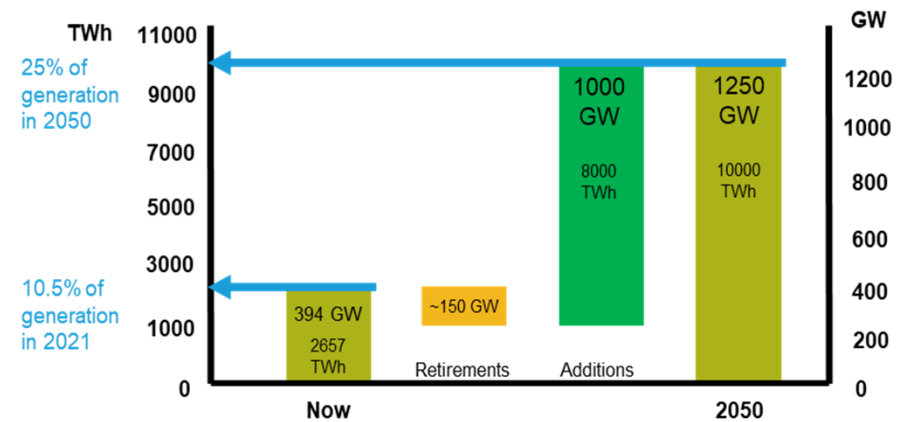
Dr. Sama Bilbao y León
Director General

Thursday, March 10th, 2022
34th Annual
Regulatory Information Conference

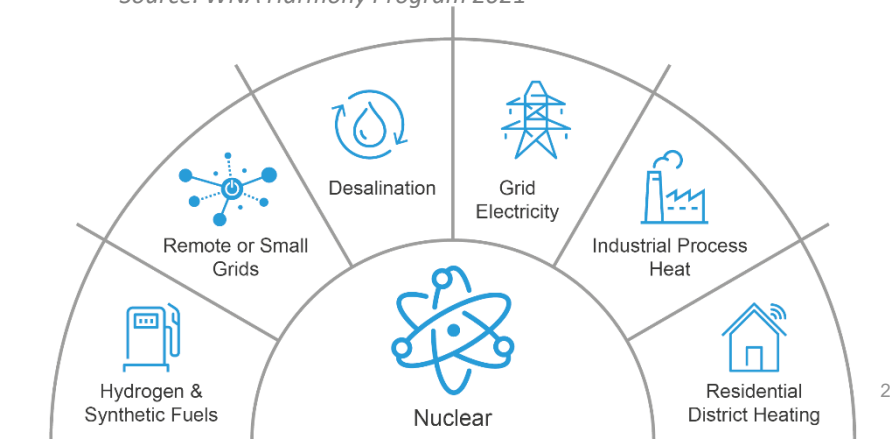
Nuclear energy is essential to address the urgency and enormity of the climate change challenge



Source: BP Energy Outlook 2020/IPCC



Source: WNA Harmony Program 2021



NUCLEAR POWER

Nuclear power is an important source of low-carbon electricity and heat that contributes to attaining carbon neutrality



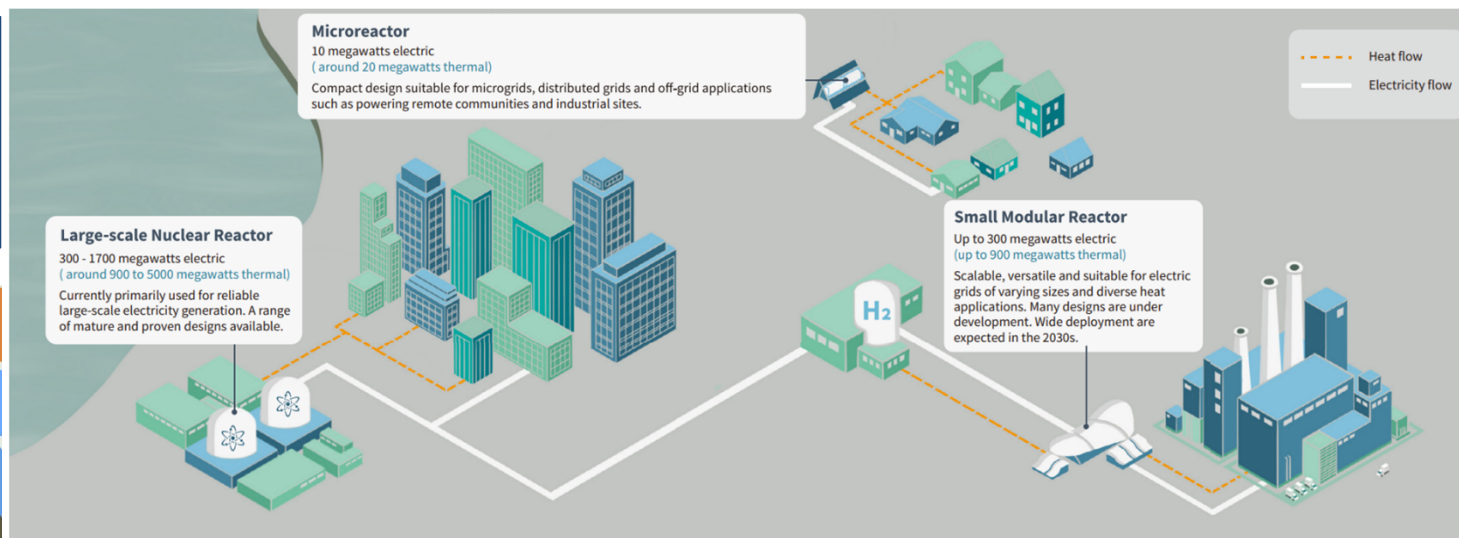
FINANCE



PERCEPTION



SAFETY
REGULATION



ELECTRICITY GENERATION



Nuclear power plants can produce reliable 24/7 electricity or operate flexibly as required. Dispatchable electricity sources are essential for keeping the costs of the overall system low.

HYDROGEN



Nuclear power can be used to produce low-carbon hydrogen via several process:

- Low-temperature electrolysis - using nuclear electricity
- Steam electrolysis - using nuclear heat and electricity
- Thermochemical process - using nuclear heat at above 600 °C

PROCESS HEAT FOR INDUSTRY



High-temperature heat from nuclear plants can be transformative in decarbonising hard-to-abate sectors.

DISTRICT HEATING



Nuclear plants are a proven source of heat for urban district heating that have operated successfully in a number of countries.



Raising Awareness

Recognise that nuclear power is a source of low-carbon energy and heat that can help decarbonise energy systems



Promoting Acceptance

Develop policies that instil confidence and facilitate the wider application of nuclear power to decarbonise electricity and energy intensive industries



Incentivising Finance

Develop financing frameworks that instil confidence and incentivise affordable public and private investment in support of new nuclear power projects

Source: UNECE, 2021 https://unece.org/sites/default/files/2021-08/Nuclear%20power%20brief_EN_0.pdf

Nuclear Regulation Needs Harmonization



Olkiluoto 3



Flamanville 3



Taishan 1&2



Hinkley Point C
(artist rendering)

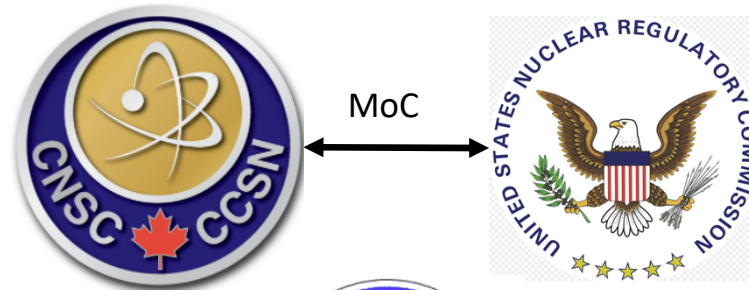
Added Uncertainty and Risk to the deployment of new nuclear reactors

Timely and cost-effective new nuclear deployment needs licensing and regulatory streamlining

- SMR deployment is predicated on the same reactor design leaving the factory
 - Emergence of a global market
 - Consolidation of global supply chains
- Harmonized licensing processes between countries would facilitate this deployment
- The world has changed, we must change with it...



There have been many efforts to achieve
harmonization in nuclear regulation...



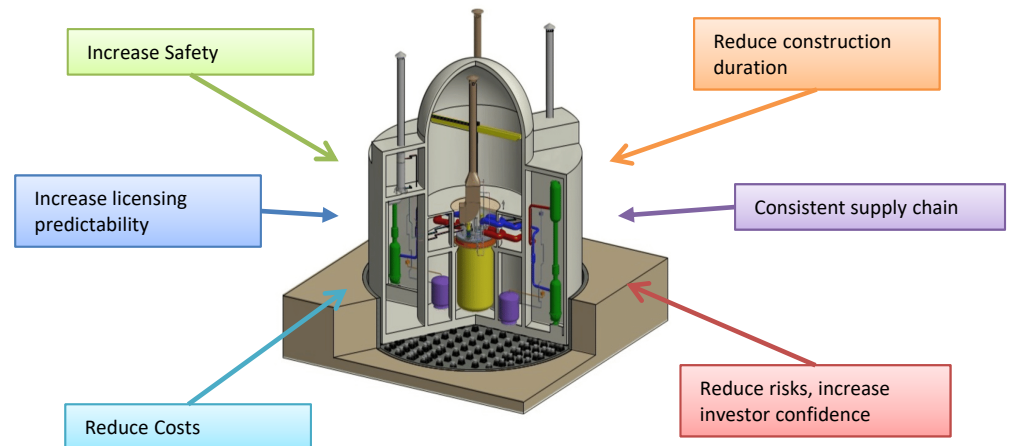
ENISS



... but much work is still needed to be successful

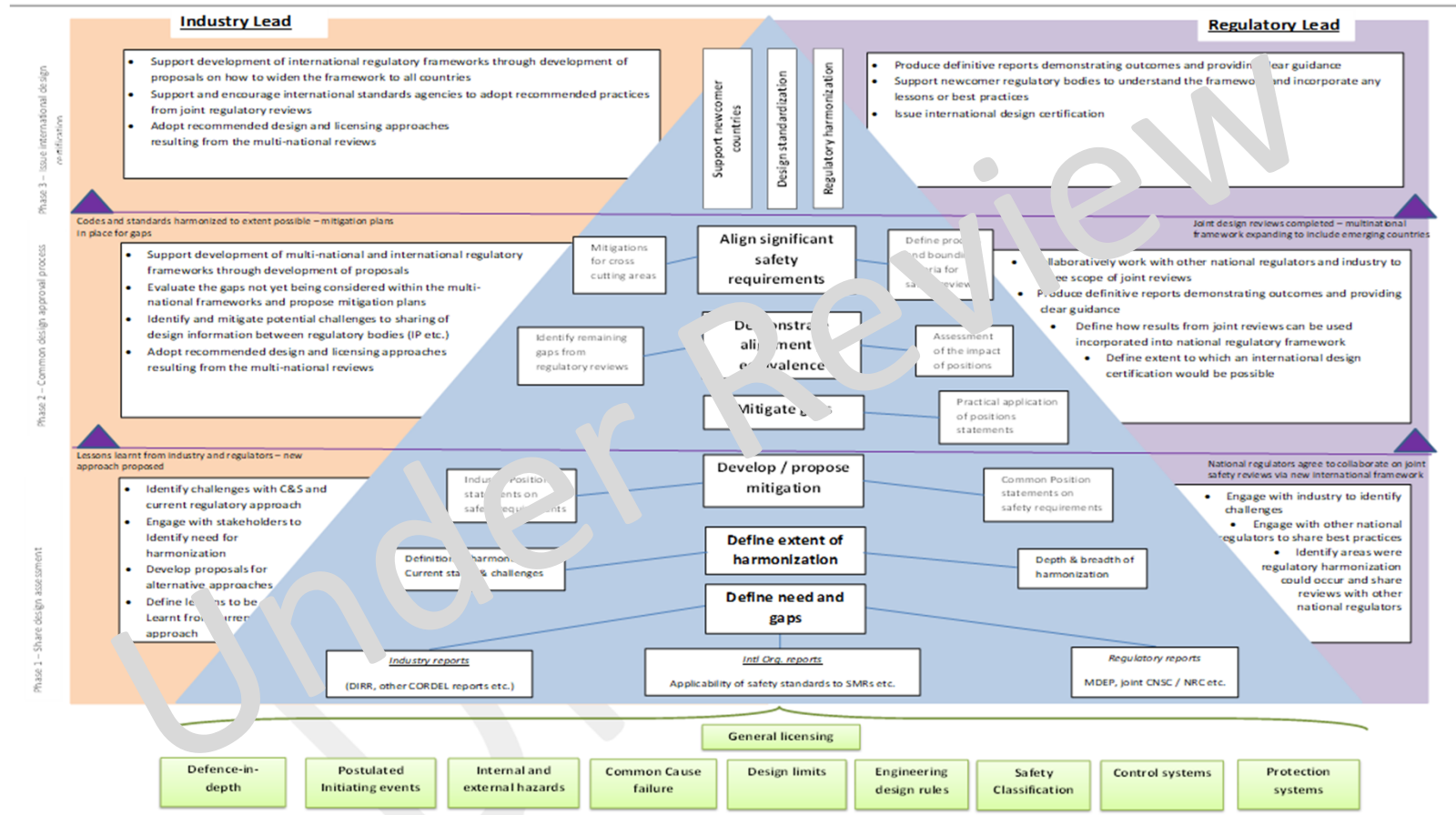
Cooperation in Reactor Design Evaluation and Licensing (CORDEL) is the industry approach to harmonization

- CORDEL has:
 - Defined the need
 - Developed collaborative relationships with governments and international industry and regulatory fora
 - Addressed some of the specific challenges in relevant reports

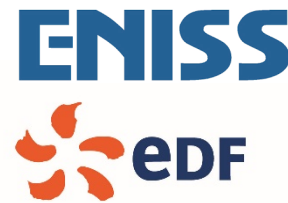


Download them at <https://www.world-nuclear.org/our-association/publications/online-reports.aspx>

A potential international framework to streamline international licensing and regulation



4th CORDEL Regional Workshop



Harmonization to support the operation and new build of NPPs including SMRs

- Lyon, France 18th to 20th May 2022 – [Registration currently open](#)
- Topical subjects:
 - Harmonization of Safety Requirements Implementation/Licensing
 - Standardization in Design, Manufacturing and Construction
- Technical tour of Framatome's Le Creusot and Saint-Marcel facilities

There is an urgent need to move forward together

- Government leadership for the development of suitable legal frameworks, policies and capabilities
- Effective collaboration among international organizations, regulators, and industry to streamline international licensing and regulatory frameworks
 - Develop pragmatic innovative approaches to align licensing and regulation of WCR technologies large and small
 - Make use of lessons learned in harmonization when developing new regulations for advanced technologies
 - Support newcomer countries to optimize their approach to regulation



www.world-nuclear.org