

IAEA INPRO Dialogue Forum 11

Roadmaps for a Transition to Globally Sustainable Nuclear Energy Systems

Summary on Near-Term Actions to Enhance NES Sustainability Through Collaboration

20-23 October 2015

IAEA Headquarters, Vienna, Austria



IAEA

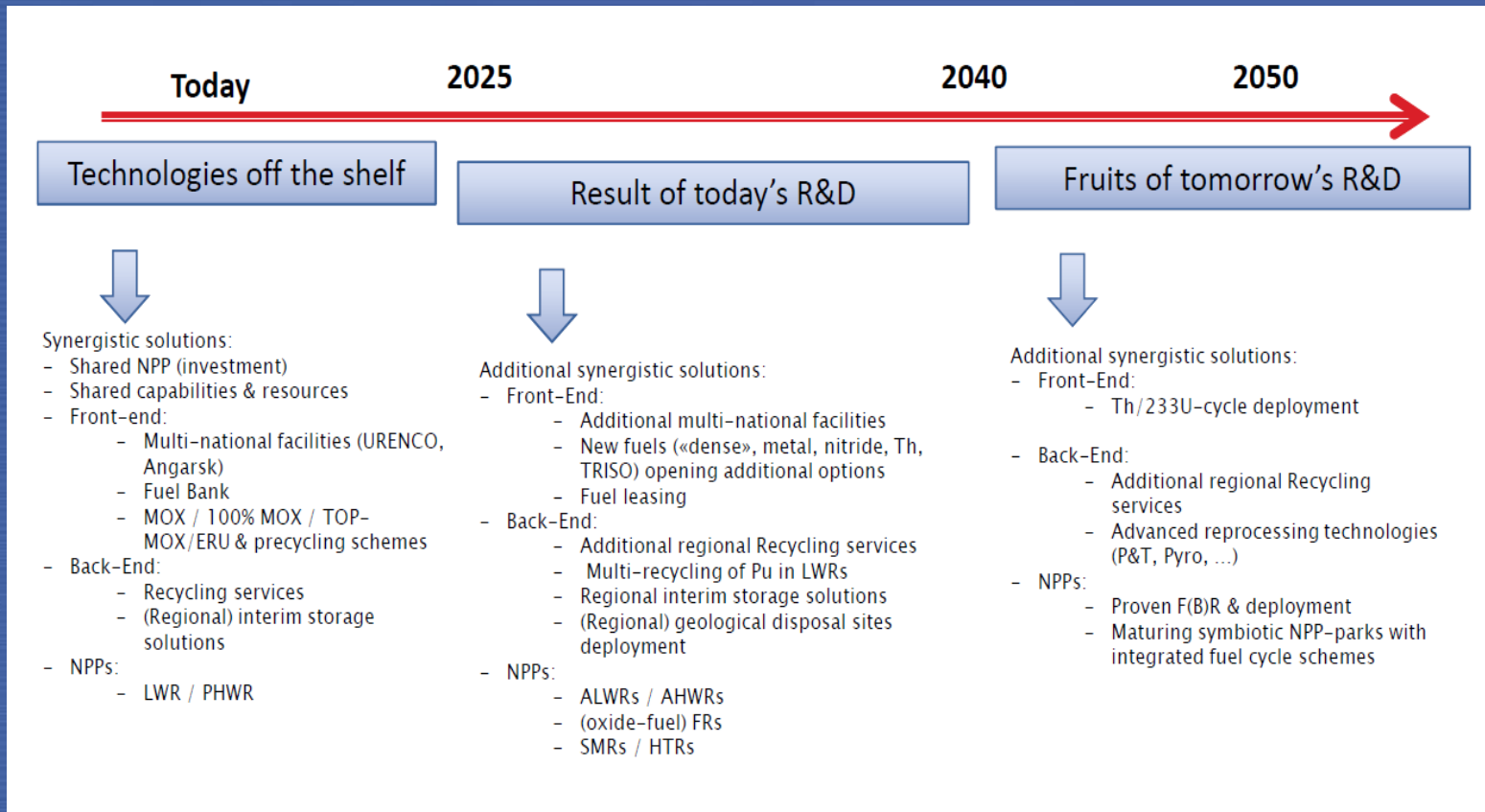
International Atomic Energy Agency

Vision for ROADMAPS



- ROADMAPS will serve as an umbrella to facilitate Member States' effective use of the output of INPRO Projects
 - Integrate the outputs of GAINS, SYNERGIES and several other INPRO collaborative projects
- **ROADMAPS may serve as an umbrella to coordinate future INPRO Projects supporting collaboration**
 - **The basic concept of INPRO Task 1 “Global Scenarios” with respect to sustainability is to have the whole achieve more than the parts.**
 - Collaboration is a primary strategy for improving global sustainability of nuclear energy
 - International cooperation could help expand the benefits of new and existing technologies and infrastructure
 - INPRO can facilitate discussions on institutional mechanisms





Summary of Roadmapping Discussions



- ROADMAPS should begin with country-level plans for NES development
 - Current and planned reactors
 - Current/planned fuel cycle strategies and facilities
 - Planned/desired technology advancements
 - Existing/planned/desired Institutional mechanisms and arrangements
 - For Newcomers, includes government actions needed to establish NES
- Living documents updated periodically to reflect changes in plans and status of infrastructure

Integration of Country-Level Roadmaps

- A Global Roadmap should be constructed “bottom-up” by combining country-level roadmaps
 - Combine and group like items – reactors, fuel cycle functions over time (up to 2100)
 - For fuel cycle functions, show total supply and demand

Front-end activities				
Capacity				
Conversion, th.t	7.25	8.14	8.44	9.32
Enrichment mil. SWU	6.17	6.93	7.18	7.93
Fuel Fabrication th.t HM	1.08	1.21	1.26	1.39
Domestic Need				
Conversion, th.t	4.29	4.74	4.44	4.59
Enrichment mil. SWU	3.65	4.03	3.78	3.90
Fuel Fabrication th.t HM	0.64	0.71	0.66	0.68
International Available / (Needed)				
Conversion, th.t	2.96	3.40	4.00	4.74
Enrichment mil. SWU	2.52	2.90	3.40	4.03
Fuel Fabrication th.t HM	0.44	0.51	0.60	0.71
Back-end activities				

Integration of Country-Level Roadmaps

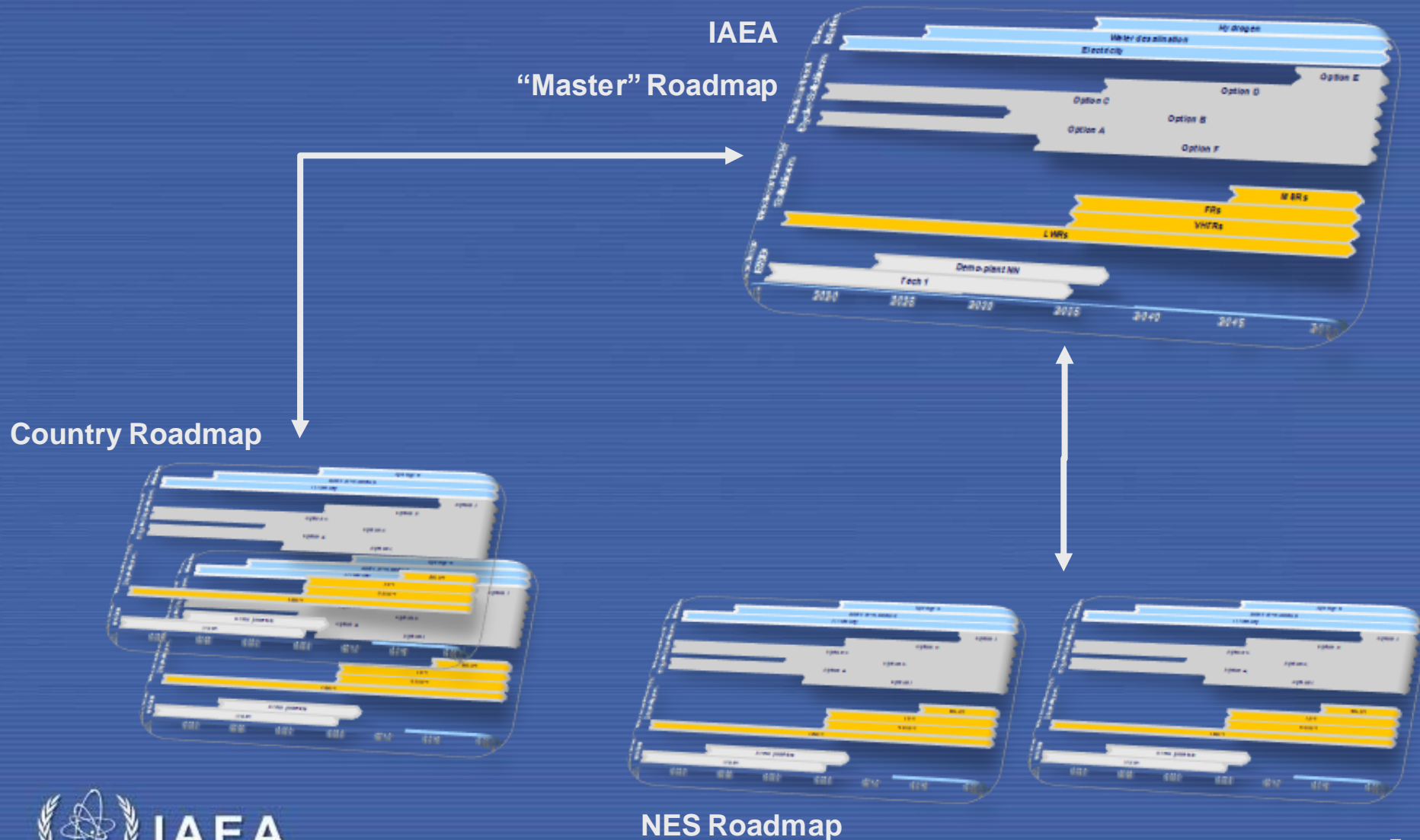


- The Global Roadmap should also include
 - Cross-links to prerequisite Institutional Mechanisms
 - Security of supply status:
 1. Sufficiency of capacity
 2. Number of vendors for each specific function (e.g. fabrication by fuel assembly design)
 - Common themes collected together
 - e.g. development of MSRs, development of regional disposal
 - Show both schedules for realization, schedules for needs
 - Compare to international planning (e.g. GIF, NEA technology roadmaps)
 - Disconnects (timing, etc.) reveal issues for resolution

Global Roadmap maintained by IAEA



INPRO
International Project on
Innovative Nuclear Reactors
and Fuel Cycles

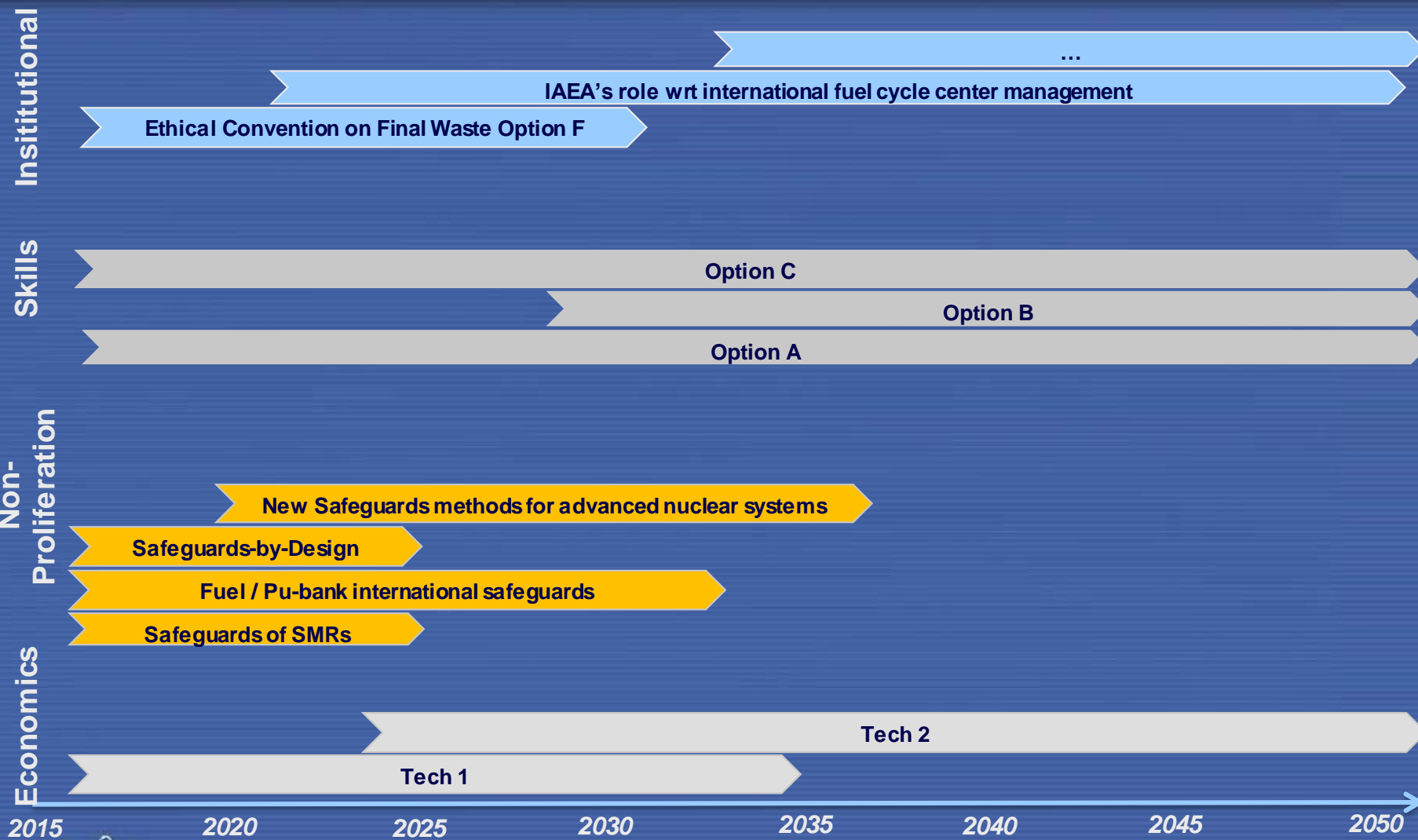


Global Crosscuts

Dimensions (just an example)



INPRO
International Project on
Innovative Nuclear Reactors
and Fuel Cycles

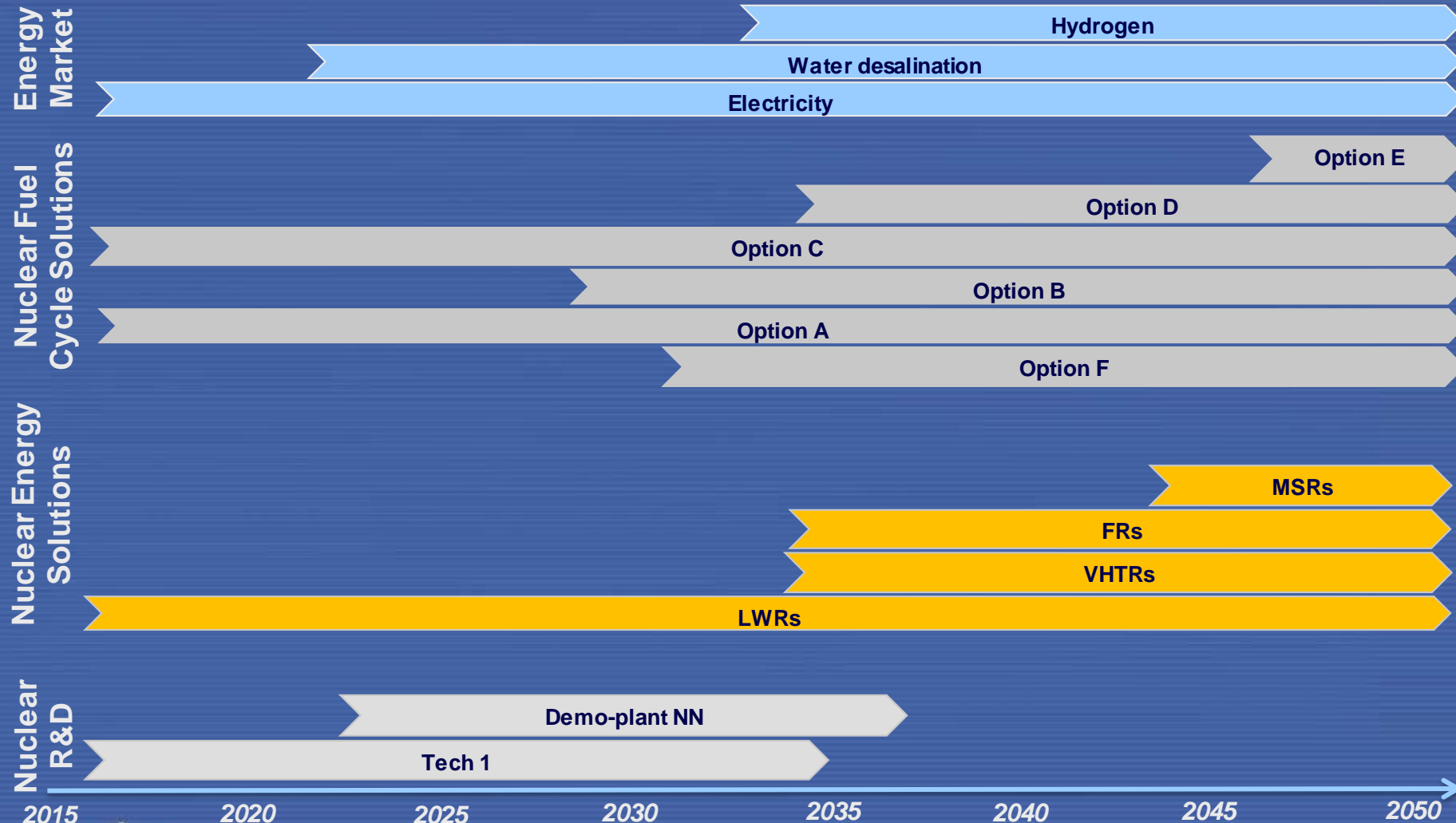


Global Crosscuts

Technology Dimension (just an example)



INPRO
International Project on
Innovative Nuclear Reactors
and Fuel Cycles



Next Step



- ROADMAPS CP meeting 14-17 December 2015
 - Redesign template for country level roadmaps
 - Schedule for development of Member State submittals
 - Schedule for development of Global Roadmap
 - Initial version will likely be incomplete – need MS participation
 - Developing vision for INPRO Task 1 going forward (Umbrella concept)
- We encourage more Member States to participate in the ROADMAPS CP