

Eastern and Central European Decommissioning



Areas for Development of Nuclear Decommissioning in Hungary

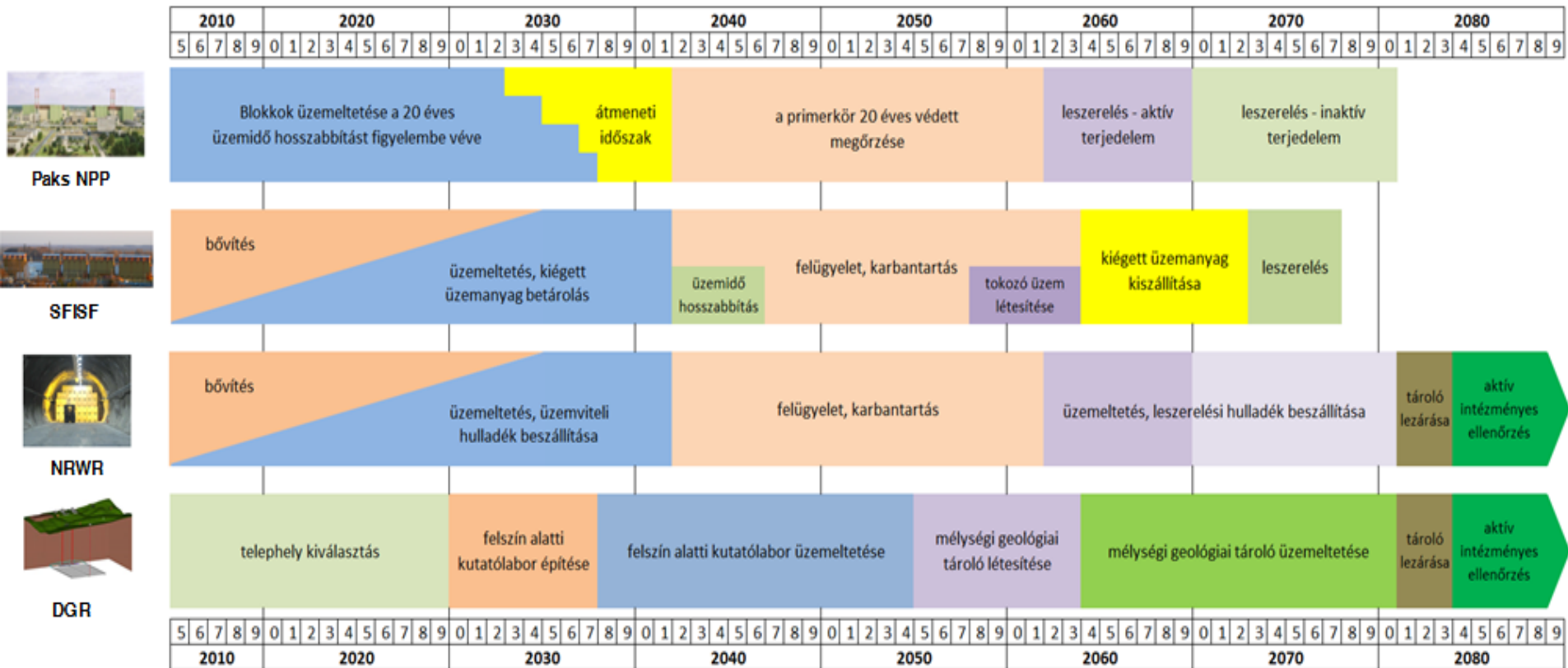
Bálint Géher

Trnava, 25-26, June, 2019

Outline

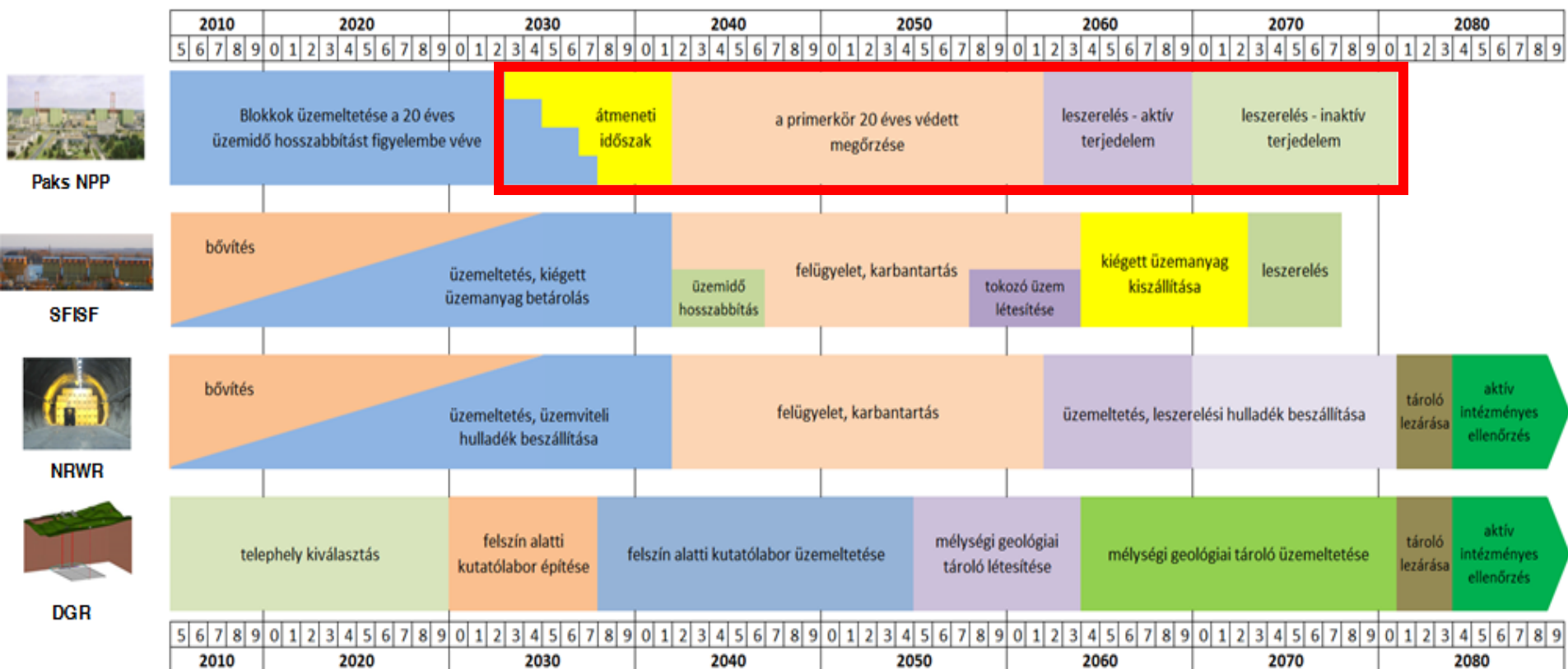
1. Paks NPP decommissioning reference scenario
2. Decommissioning timeline (both deferred and immediate)
3. Current planning issues

Radioactive Waste Management Program in Hungary



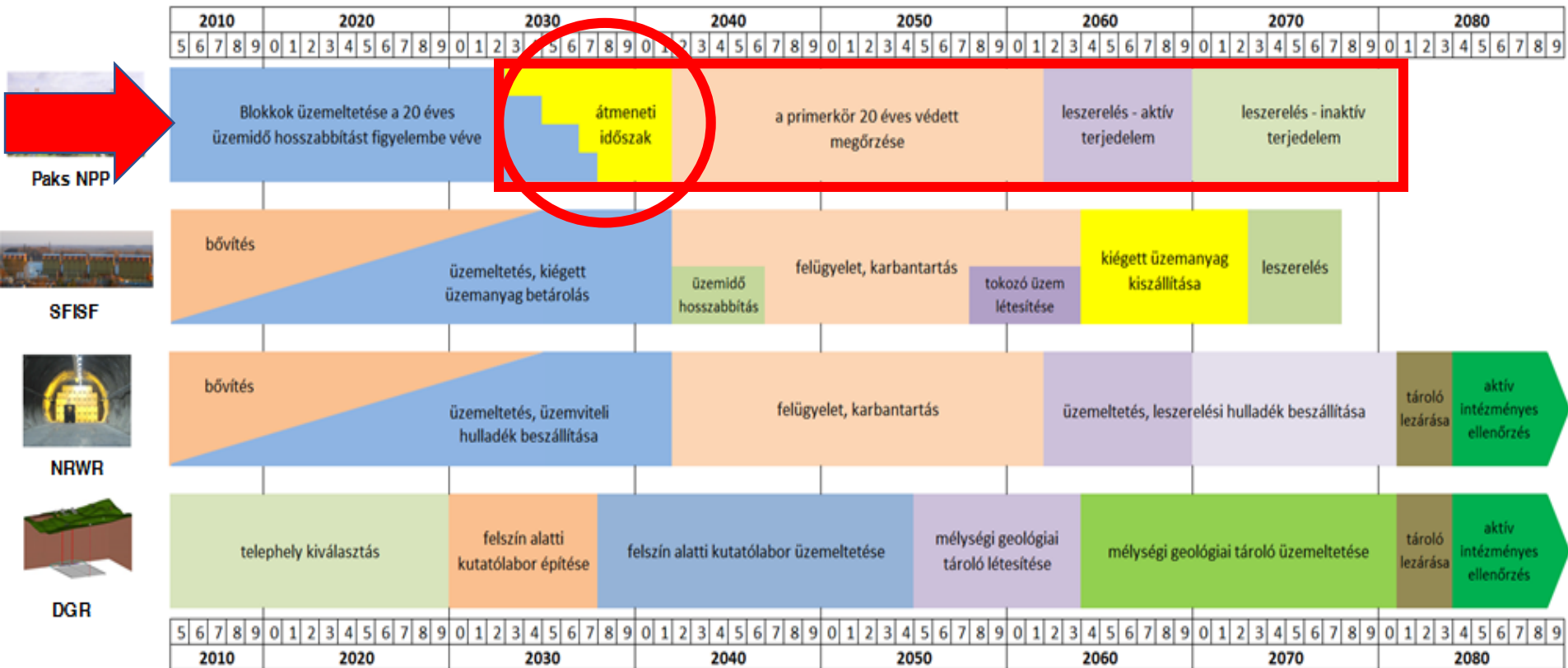
Source: Hungary's National Program of spent fuel and radioactive waste disposal, 2016

Paks Unit 1-4. Decommissioning



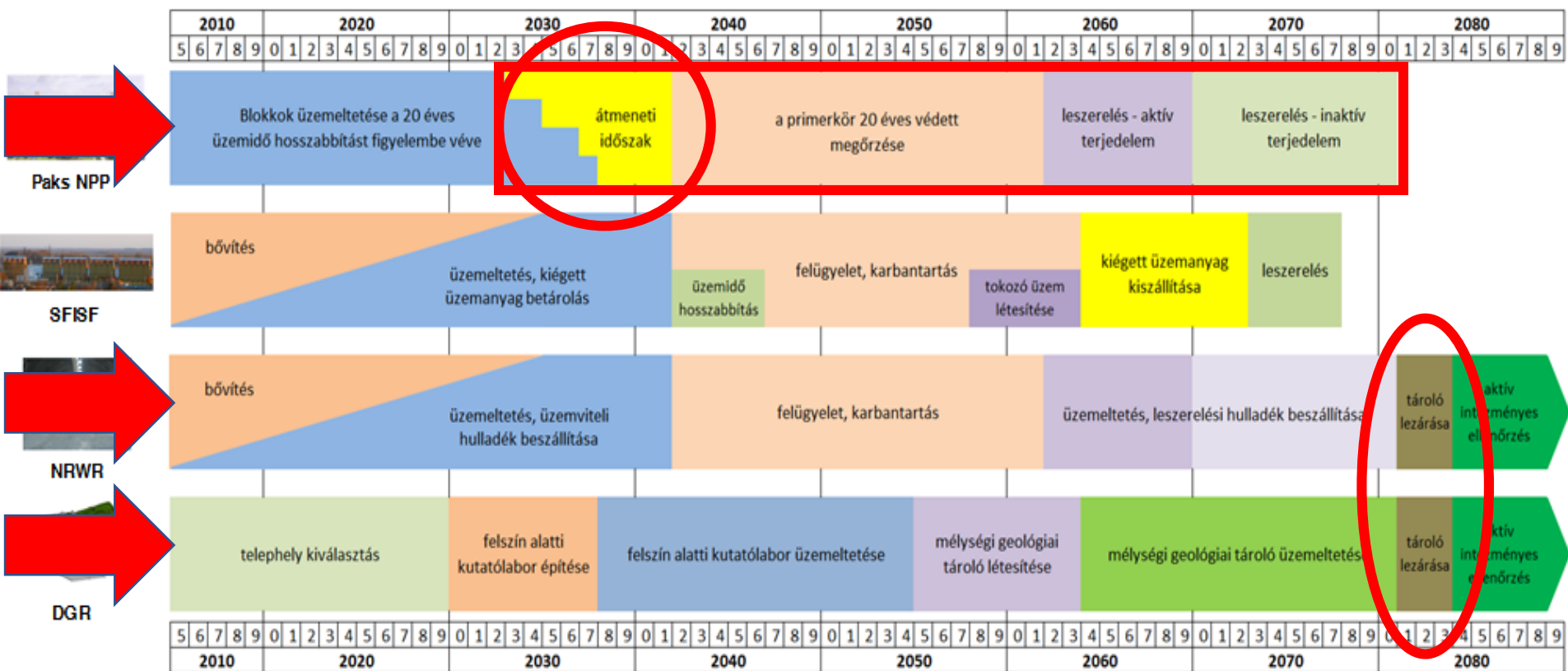
Source: Hungary's National Program of spent fuel and radioactive waste disposal, 2016

Transitional period



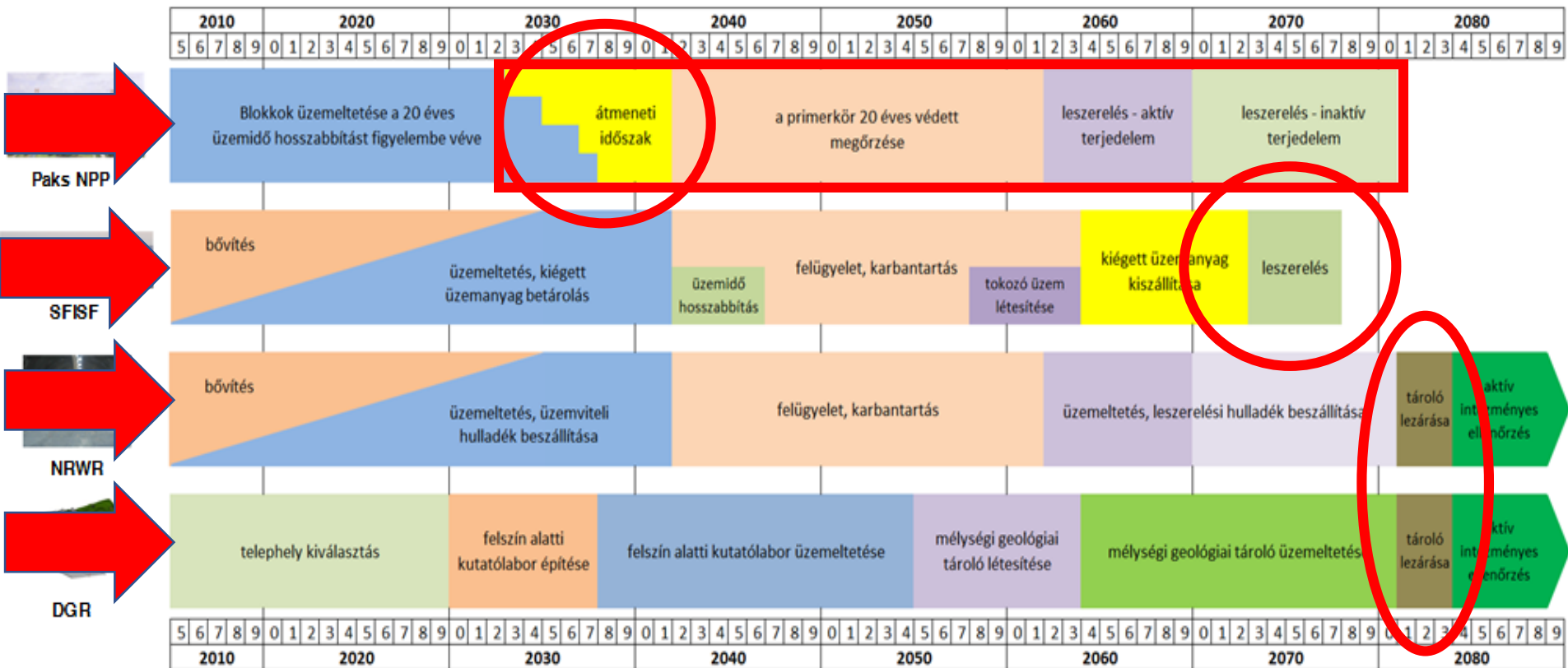
Source: Hungary's National Program of spent fuel and radioactive waste disposal, 2016

Repository Closing



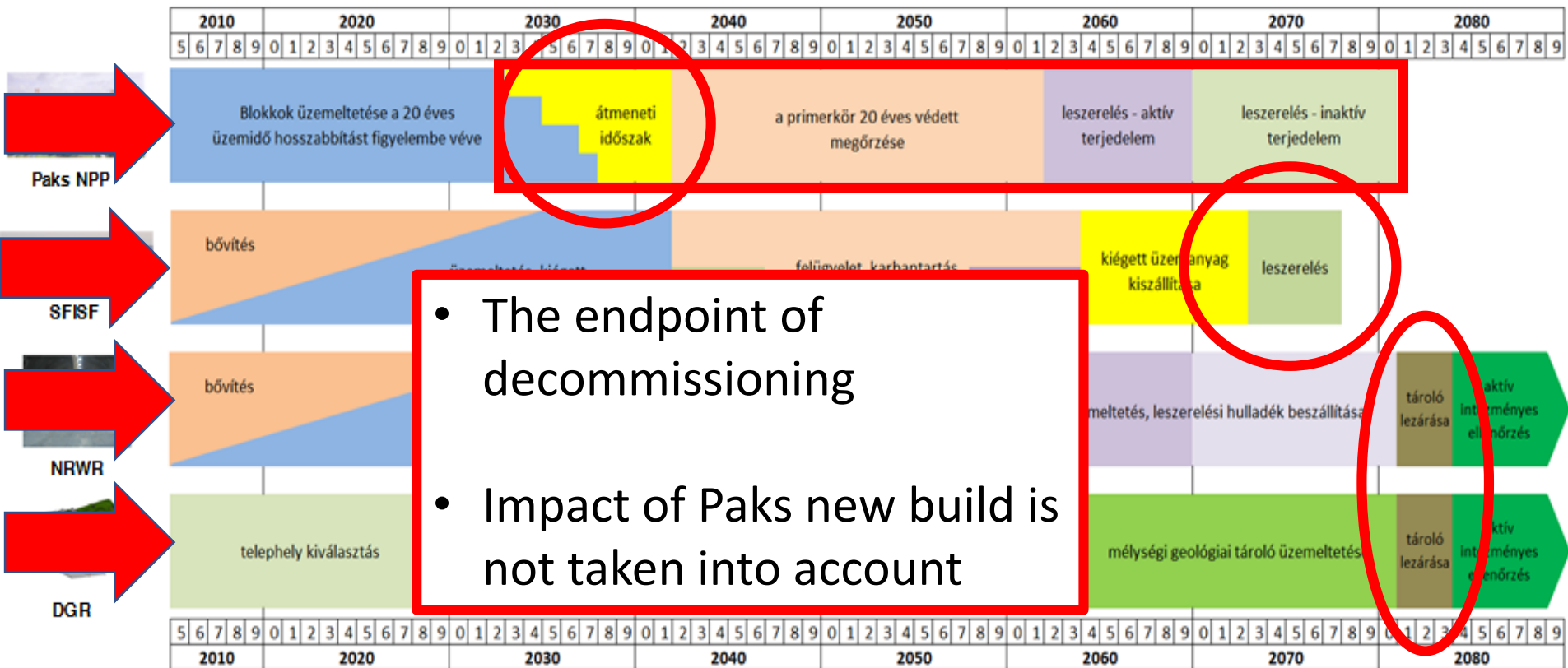
Source: Hungary's National Program of spent fuel and radioactive waste disposal, 2016

Additional Boundary Conditions



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Decommissioning phases

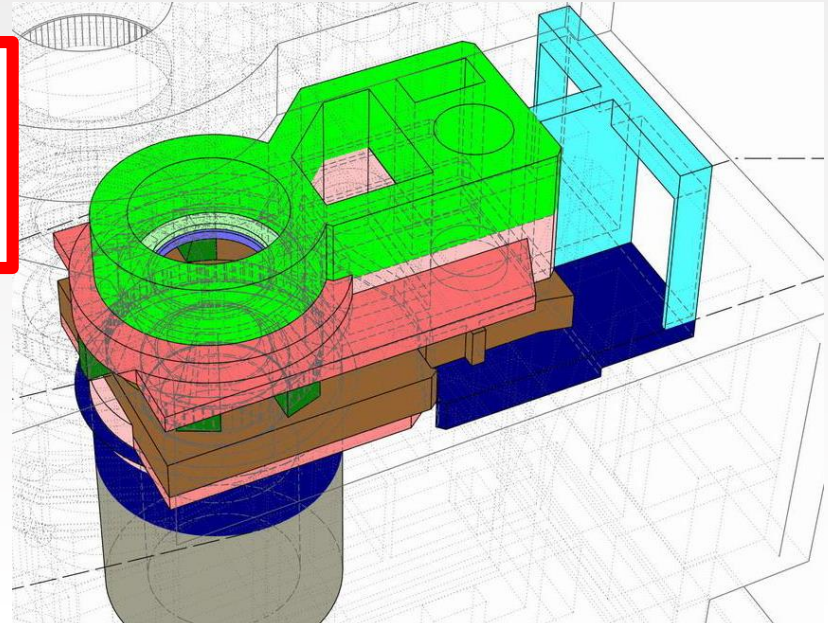
<i>Deferred option</i>		<i>years</i>		<i>Immediate decommissioning</i>	
Transitional period	Reactor shutdown (1-4. blocks)	2032-2037	2032-2037	Reactor shutdown (1-4. blocks)	Transitional period
	Preparation for safe enclosure	2038-2041	2038-2041	Preparation for decommissioning	
I. Phase	I./1. Phase – Safe enclosure	2042-2055	2042-2047	Dismantling of the uncontrolled zone	I. Phase
			2048-2052	II./1. Phase – Systems and components	II. Phase
			2053-2055	II./2. Phase – Structures and buildings	
	I./2. Phase – Turbine island D&D, create radwaste infrastructure	2056-2061	2056-2064	III./1. Phase – Structures and buildings, infrastructure disassembly	III. Phase
II. Phase	II./1. Phase – Systems and components	2062-2066		III./2. Phase – Infrastructure disassembly ctd., Site restoration	
	II./2. Phase – Structures and buildings	2067-2069	2065-2074		
III. Phase	III./1. Phase – Buildings and structures, cutting of reactor (2077-78)	2070-2078	2077-2078	III./3. Phase – Reactor cutting and waste management	
	III./2. Phase – Demolition of interim facilities	2079-2080	2079-2080	III./4. Phase – Demolition of remaining facilities	

Planning issues

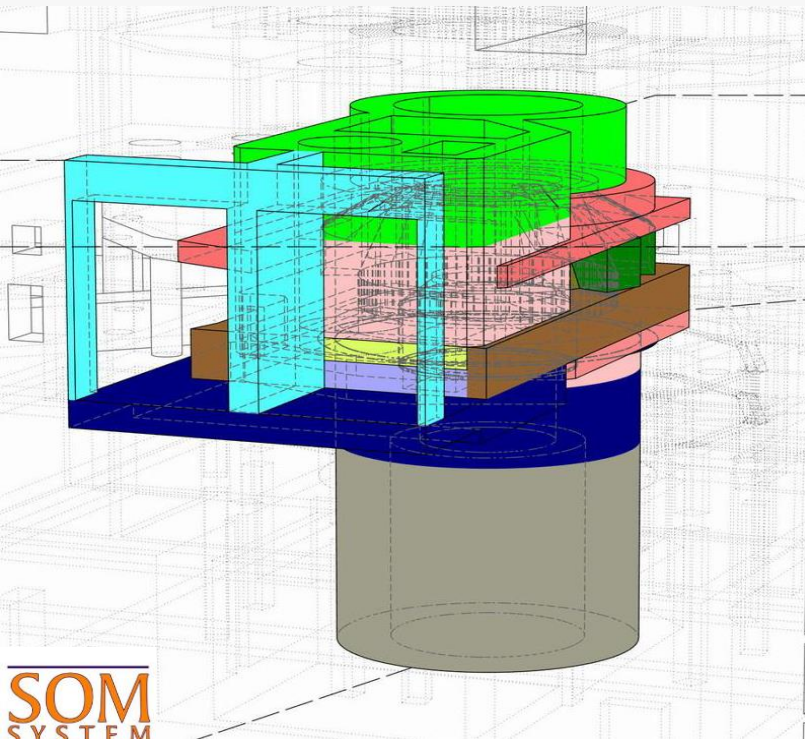
1. Activated concrete support structures around the reactors
2. Transitional period issues
3. Research and development

Activated concrete support structures around the reactors

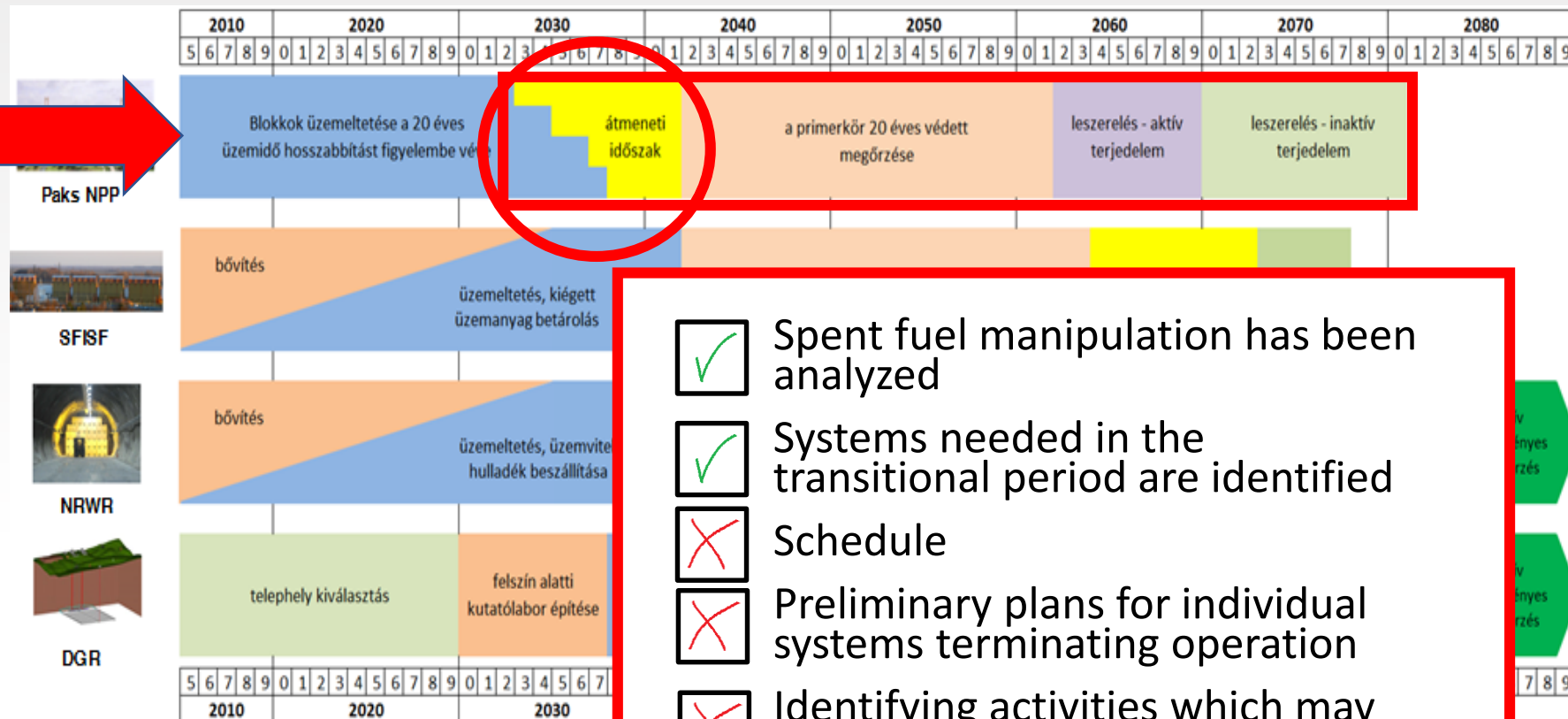
10% of all concrete radwaste
50+% of all ILW



1. Characterisation is well underway
2. Need to develop a viable solution



Transitional period issues



Spent fuel manipulation has been analyzed



Systems needed in the transitional period are identified



Schedule



Preliminary plans for individual systems terminating operation



Identifying activities which may reduce decommissioning costs

- Characterisation and survey prior to and during dismantling
 - This is only in the conceptual phase
- Segmenting reactor vessels and internals
- Waste management
 - VLLW
 - Develop exemption process



Thank you!