

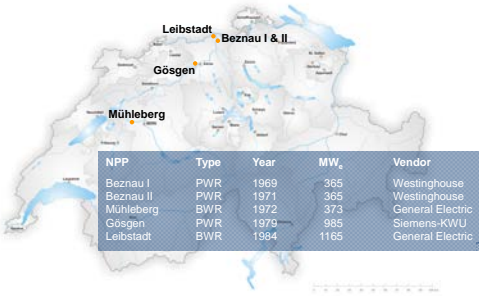
Decommissioning in Switzerland

Regulatory Information Conference 2017
Bethesda MD, 15 March 2017

Dr. Hans Wanner, Director General
ENSI



Nuclear Power Plants in Switzerland

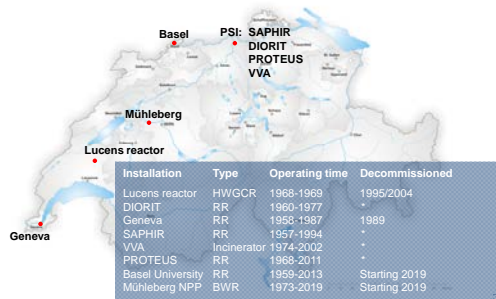


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Decommissioning Projects



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Nuclear Phase-Out



- New build projects suspended (14 March 2011)
- Phase-out decided by Government and approved by Parliament
- New Energy Strategy 2050
- Parliamentary elections in 2015
- In March 2016 Parliament rejected restricting operational lifetime of Swiss NPPs, also rejecting compulsory LTO concept after 40 years operation
- In November 2016 a public initiative to limit operational lifetime to 45 years was rejected by popular vote

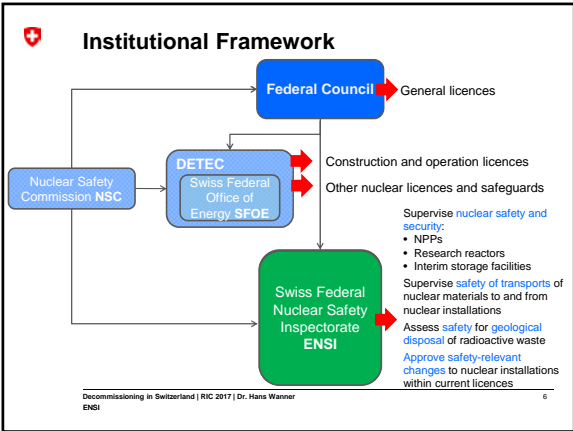
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Key elements of the Energy Strategy 2050

- Exploiting energy efficiency potentials
- Promotion of renewable energy sources
- Nuclear phase-out: no new builds
- Ban on reprocessing spent fuel

→ Popular vote on 21 May 2017

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Decommissioning: Legal Background (1/2)

Decommissioning is addressed in the Swiss legal framework:

- Nuclear Energy Act (NEA, SR 732.1)
- Nuclear Energy Ordinance (NEO, SR 732.11)
- Decommissioning Guideline ENSI-G17
- Ordinance on the Decommissioning Fund and the Waste Disposal Fund for Nuclear Installations (SEFV, SR 732.17)



Decommissioning: Legal Background (2/2)

Art. 13 NEA: Conditions governing the granting of a general licence

A **general licence** may be granted if the following conditions are met:

- a. ...
- c. a **concept has been submitted for decommissioning** or for the monitoring period and the closure of the installation;

Art. 16 NEA: Conditions governing the granting of a construction licence

A **construction licence** is granted if the following conditions are met:

- a. ...
- e. a **plan has been submitted for decommissioning**, or a project for the monitoring period and a plan for the closure of the installation.



All Swiss NPPs have Decommissioning Plans





Financial Aspects (1/2)

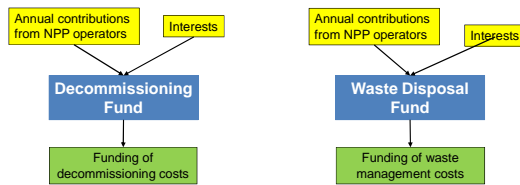
Principle of “user pays” (Swiss Nuclear Energy Act)

- Operators of NPPs are responsible for the management and disposal of radioactive waste and the decommissioning of their plants.
- Costs arising after final shutdown of NPPs are covered by the Decommissioning Fund and the Waste Management Fund.
- Contributions to be paid by Beznau, Mühleberg, Gösigen and Leibstadt NPPs and Zwiilag (interim storage facility).
- Funds are supervised by a special Commission appointed by the Government.



Financial Aspects (2/2)

- The decommissioning and waste management costs are calculated every five years under the supervision of the two funds.
- Currently the cost study 2016 is being reviewed.





Current financial situation

CHF (- USD)	Decommissioning	Waste disposal
Cost study 2011	2,974,000,000	15,970,000,000
To be covered by the funds	2,974,000,000	* 8,448,000,000
Debit amount as per 31.12.15	1,972,100,000	4,100,800,000
Fund holding as per 31.12.15	1,999,813,210	4,222,622,357
Surplus/underfunding	27,713,210	121,822,357
Surplus/underfunding	1.41%	2.97%

* The waste management costs arising during operation are covered by the operators on an on-going basis (5.5 billion USD spent to date).



CNS 06 Challenges

Nuclear Phase-Out and Decommissioning

- ENSI guideline G17 (Decommissioning Guideline)
- Information on staff situation, their competence and motivation for the remaining operating time of Mühleberg NPP
- First permanent shutdown of a Swiss commercial power reactor (Mühleberg NPP) in 2019
- Backfittings for remaining operating time period of Mühleberg NPP



Regulatory Process of Decommissioning

- Decommissioning plan, submitted for Construction License, is updated every ten years.
- Submission of Decommissioning Project by licensee
- Review of decommissioning project by ENSI, comments by NSC
- DETEC enacts Decommissioning Order, including final state of decommissioning
- Supervisory authority for decommissioning is ENSI



First permanent shut-down of a Swiss NPP

Oct 2013: Licensee (BKW) decides to permanently shut down Mühleberg NPP in 2019

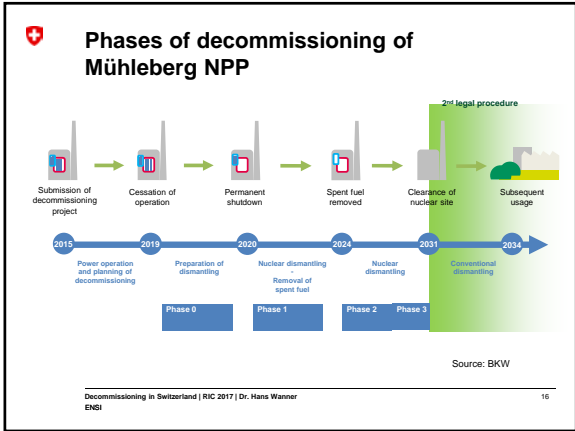
Nov 2013: ENSI issues a **formal order** with conditions for operation until 2019

Jan 2015: ENSI accepts proposed backfitting measures for residual lifetime with certain conditions

Dec 2015: BKW submits decommissioning project for review. ENSI assessment is expected in late 2017

2019: Decommissioning order expected from DETEC





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