

STRATEGY OF A SLOVAK BACK-END PART OF NUCLEAR ENERGY AND FINANCING OF DECOMMISSIONING OF NPP A1

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Abstract

The base for all consideration about financing of decommissioning of NPPs after accident should be the national Strategy of a Back-end of Nuclear Energy. In case of the Slovak Republic, there exist roles stated in actual Strategy which was issued by Slovak Government at 21.5.2008 and prepared by National nuclear fund of SR. This Strategy was currently up-graded and given to the discussions before acceptance at national level by Government. Financing of decommissioning costs of NPP A1 was recalculated and adapted according to the actual state of art in available technology as well as human potential in Slovakia.

1 Introduction

The content of the strategy was stated according to provision of the Slovak Act No. 238/2006:

- objective and timeschedule of all activities (in scope of conceptual decommissioning plan, at minimum),
- technical and technological procedures,
- proposal for the financial assurance of the Strategy,
- expected impact to electricity price, price of other goods, economic and social development,
- expected impact to competitiveness of electricity producers,
- influence to the balance, assurance and operational reliability of electrical power system of Slovakia and EU,
- financial assurance of the fund administration,
- standpoints of the involved state bodies: ministries of health, environment, Nuclear Regulatory Authority.

2 The role and position of National Nuclear Fund of SR

Principles of the Strategy of final stage of peaceful use of nuclear energy consist on responsibility of the state, in this case on Slovak Republic. The most important are:

- generation and implementation of legislative framework for peaceful use of nuclear energy,
- establishing of state regulatory authority (NRA SR, MH SR),
- clear definition of competencies for operators of nuclear facilities and facilities for treatment with RAW and SNF,

- ⦿ provision of adequate personal and technical resources and financial means.

The National Nuclear Fund of Slovak Republic position in Slovak nuclear infrastructure is shown in Fig.1.

The Strategy for decommissioning of NPP is one of important part of the complex document. Decommissioning of all NPP in SR is based on continual option of decommissioning. Decommissioning of NPP A1 is divided into five phases. The most important activity in decommissioning NPP A1 is the long-termstorage. Decommissioning NPP of type VVER 440 is divided into two phases. The first phase was already started.

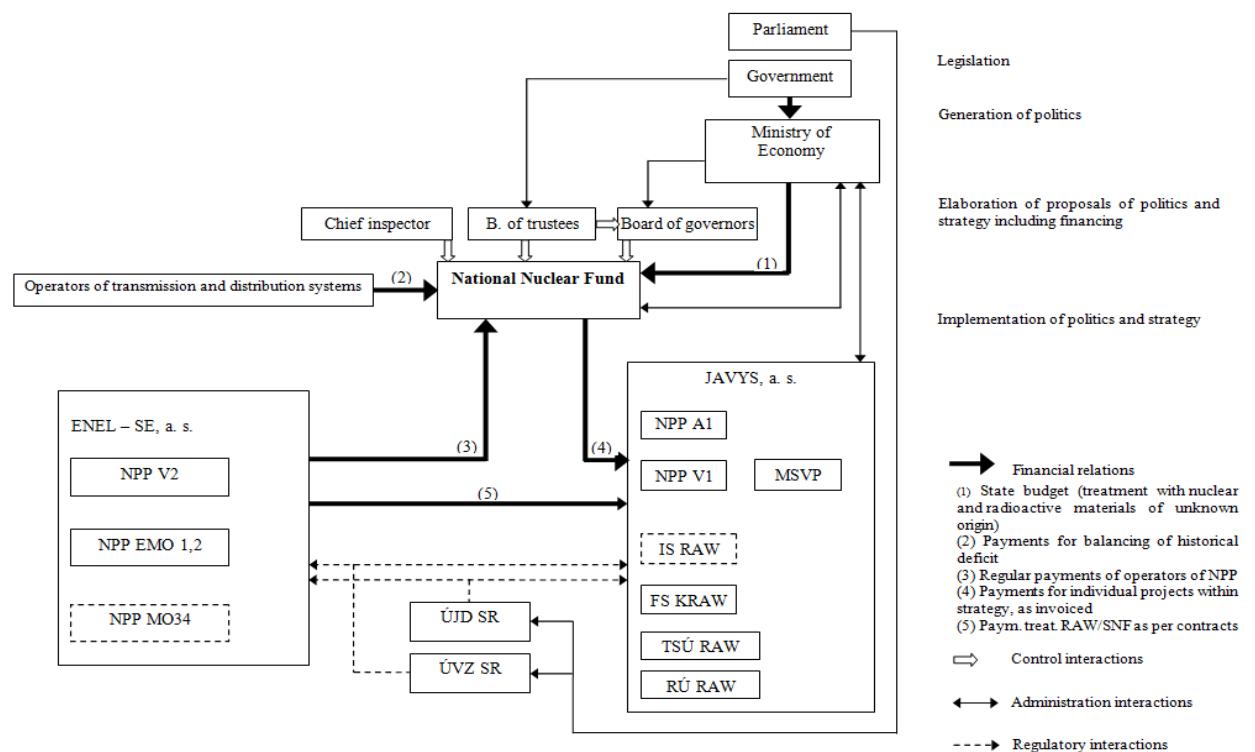


Fig. 1 Position of National Nuclear Fund of Slovak Republic in the infrastructure.

Decommissioning of NPP A1 was planned according to phases shown in Fig. 2.

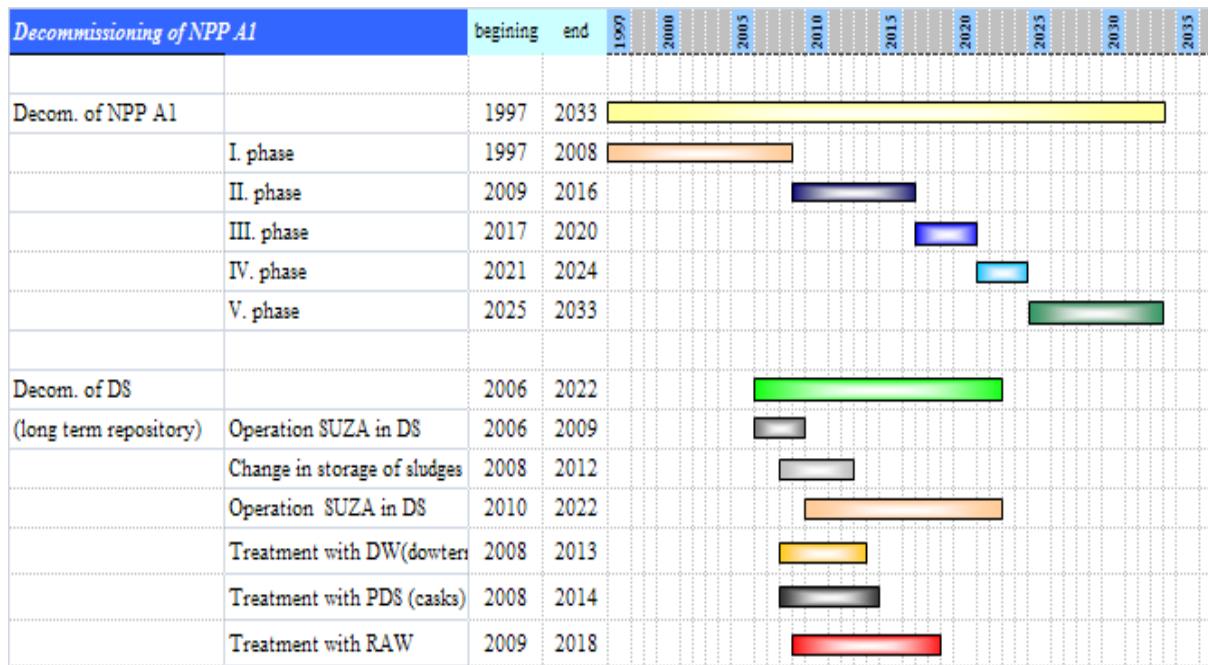


Fig. 2 Time table of NPP A1 decommissioning.

In consideration about the possible NPP accidents impact, the Slovak Republic has already existing frame for financing, as well as experiences with difficulties, based on the process of NPP A1 decommissioning, which was started after INES 4 accident which happened in 1977.

Balance of financial sources and costs for NPP A1 in mil. Euro is shown in Fig. 3.

Item	In prices of 2011	In nominal prices	In discount prices
Costs for decommissioning	664,806	820,267	691,550
Costs for RAW deposition	164,838	225,921	175,047
Total costs	829,644	1 046,188	866,597
Balance of 1.1.2012		66,344	
Financial means of NNF	763,300	979,844	800,253
Total sources	829,644	1 046,188	866,597

Fig. 3 Balance of financial sources and costs for NPP A1 in milion Euro.

The most time as well as money consuming activity seems to be the treatment with RAW from decommissioning. The logical schema of RAW treatment in Slovak conditions is presented in Fig. 4.

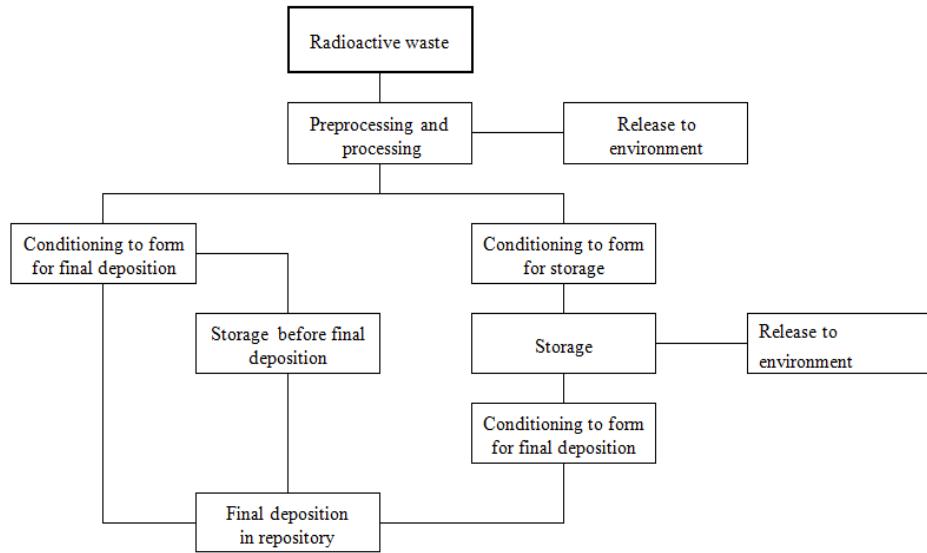


Fig. 4 Treatment with RAW from decommissioning in Slovak conditions.

3 Conclusion

Actually the Slovak Strategy of a Back-end part of Nuclear Energy was upgraded and is in open discussion process. Thema in challenges of theStrategy:

- Operation of NPP in so called openfuelcycle and the spent nuclear fuel (SNF) management. For long term storage of SNF, the MSVP (intermediate storage) will be used, and new dry/storage capacities should be built.
- Final phase of treatment with SNF is direct deposition of SNF in deep geological repository at the territory of SR. The selection of proper locality in SR or the possibility of international solution of deep repository building should be thoroughly considered.

4 Acknowledgements

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5 References

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