

FINANCING OPTIONS FOR RADIOACTIVE WASTE MANAGEMENT, SPENT NUCLEAR FUEL AND DECOMMISSIONING

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INTRODUCTION

- Ghana Nuclear Power Programme Organisation – Government of Ghana and Stakeholders (Technical Support – Ghana Atomic Energy Commission)
- Owner Operator – Nuclear Power Ghana
- Regulator: Nuclear Regulatory Authority

INTRODUCTION

- Ghana set up its GNPPPO on 27th September 2012.
- Ghana has hosted Phase 1 Integrated Nuclear Infrastructure Review (INIR) Mission in January 2017 and received report on 24th May 2017
- The Project Comprehensive Report (PCR) is under development.
- Owner Operator company has been set up
 - Nuclear Power Ghana (NPG)

FINANCING RADIOACTIVE WASTE MANAGEMENT

- Funding based on Waste – based on studying and profiling a selection of key countries that provide the most relevant information in relation to the financing options for radioactive waste management, spent nuclear fuel and decommissioning.
- Assessment of Waste Management Schemes
 - ✓ Sufficiency – ensuring that sufficient money will always be available when it is needed and not transferring the undue burden on future generations
 - ✓ Fairness – ensuring that waste producers pay in proportion to the contribution which their wastes make to costs
 - ✓ Efficiency – In general economic theory, efficiency is largely a cost concept, and so in relation to financing scheme, this could be applied in the context of ensuring that unit costs of mobilizing finance through the scheme is minimised.

FINANCING RADIOACTIVE WASTE MANAGEMENT

Auditing the Radioactive Waste financing system

- ✓ organization responsible for auditing government finances
- ✓ independent auditors
- ✓ professional auditors under contract with the nuclear power plant operators audit the reserve, in accordance with the rules for private enterprises.

FINANCING THE OPTIONS FOR SPENT NUCLEAR FUEL

- The financing method that is chosen takes into account the payment schedule for the storage facility or service and also the way in which the utility obtains the money from the electricity consumer.
- ✓ Levying the Charges on the Consumer- as part of electricity price
- ✓ Methods of Financing the Storage Facility – government control, paying before service etc.

FINANCING OPTIONS FOR DECOMMISSIONING

- The financing of the decommissioning of nuclear power plant is regulated in the Nuclear Regulatory Authority Act 895.
- Financing methods vary from country to country
 - ✓ Prepayment,
 - ✓ External Sinking Fund (Nuclear Power Levy),
 - ✓ Surety Fund,
 - ✓ Letter of Credit, and
 - ✓ Insurance

BACKEND LIABILITIES FINANCING EXPERIENCES

- Case studies from more advanced countries was the basis for this study
- With respect to radioactive waste, experiences from Belgium, Netherlands and Finland was taken into account.
- In Belgium, Canada, the Czech Republic, Finland, France, Korea, the Netherlands, the Slovak Republic, Spain, Sweden, Switzerland, and the United States, operators of nuclear facilities are fully responsible for paying all the costs of decommissioning.
- Germany, France, UK, USA, Spain were considered during spent fuel disposal

Conclusions

- A segregated fund under direct state control is actually one of the systems worth considering ultimately in the event of a private entity failing.
- Due to the political risk in Ghana, it is recommended that a strategy sometimes adopted for levying towards a decommissioning fund could be done based on a 'short-tail'.
- The management of funds should be transparent to the respective national authorities (e.g. EPA) and other relevant stakeholders (e.g. NRA and GNPPPO) as regards the accumulation of money, the expenses and the financial management.

Conclusion

- It is imperative that funding options for the back-end liabilities are as substantial to ensure that money be available when needed for radioactive waste management, spent nuclear fuel and decommissioning of the plant.

Recommendation

- The recommendation for Ghana in terms of funding radioactive waste is to have a financial mechanism based electricity levy that involves the build-up of an interest-bearing fund intended to cover future costs associated with storage and disposal
- It is also recommended that the fund be managed separately from other waste management activities by independent fund managers.
- In relation to financing Ghana's spent nuclear fuel it is recommended that the cost of storage be recovered as part of the electricity price, but the cost of funding should not be recovered as part of the electricity price during the period of storage, but as part of the price charged when the fuel concerned was producing electricity.

Recommendation

- A strategy that Ghana can adopted in levying towards a decommissioning fund recommended could be done based on a ‘short-tail’ strategy in relation to the target year for ensuring that funds are available and ready to be used for the decommissioning.
- The money accrued could be put in an interest bearing in order that by the time decommissioning is due, the right amount would be available.

THANK YOU FOR YOUR ATTENTION