

## REGULATORY CHALLENGES FACED FIRST INDONESIA NPPs BY INDEPENDENT TSOs

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**Abstract.** Technical and scientific support organizations (TSOs) dedicated to supporting national regulatory authorities. At present BAPETEN has internal TSOs. Pertaining to the regulatory control of nuclear safety, security, and safeguards for nuclear power plants (NPPs), independent TSOs providing support to the safety regulatory bodies are facing a number of technical challenges to ensuring the safety of NPPs. It is essential that BAPETEN need independent TSOs in order to warrant a sufficient level of safety, security and non proliferation in building and operating of first NPP. It is essential that BAPETEN need independent TSOs in order to warrant a sufficient level of safety, security and non proliferation in building and operating of first NPPs.

Key words: TSOs, internal TSOs, independent TSOs, regulatory

### 1. Introduction

Several countries have recently expressed their interest in building and operating their first NPPs (nuclear power plants). This constitutes a big challenge for each of these countries. Based on the National Nuclear Energy Program (PENN), the first NPPs will be operable in 2016 or 2017. In the nuclear field, two organizations, National Nuclear Energy Agency (BATAN) and Nuclear Energy Regulatory Agency (BAPETEN) located under the President. BATAN is in charge of promoting nuclear power and BAPETEN is in charge of nuclear safety regulation. Further development of infrastructure for the safety of nuclear power plants, such as introducing regulations for emergency preparedness and human resource development is being carried out.

With reference to Article 14 Act No 10 Year 1997, BAPETEN (Nuclear Energy Regulatory Agency) is empowered to control on the utilization of nuclear energy including the utilization of ionizing radiation through regulations, licensing utilization, and inspections. The basic principles of nuclear energy regulate on practice in Indonesia set out in the law provide that control of any nuclear energy utilization is aimed to: [1]

- Assure the welfare, the security and the peace of people;
- Assure the safety and the health of workers and public, and the environmental protection;
- Maintain the legal order in implementing the use of nuclear energy;
- Increase the legal awareness of nuclear energy user to develop a safety culture in nuclear field;
- Prevent the diversion of the purpose of the nuclear material utilization; and

- Assure for maintaining and increasing the worker discipline on the implementation of nuclear energy utilization.

The Act stipulated that any activity related to the utilization of nuclear energy is required to be conducted in a manner which observers safety, security, peace, health of workers and the public, the protection of the environment. This requirement is further implemented by Government Regulation No. 43 Year 2006 on Licensing of Nuclear Reactor (including licencing system of NPPs establishment from site selection to decommissioning stages). The aim of the regulation is to ensure the safety, security, peace and health of the workers and people and to protect the environment [2]. The national plan of NPPs (see figure 1 . the NPPs construction and operation plan).

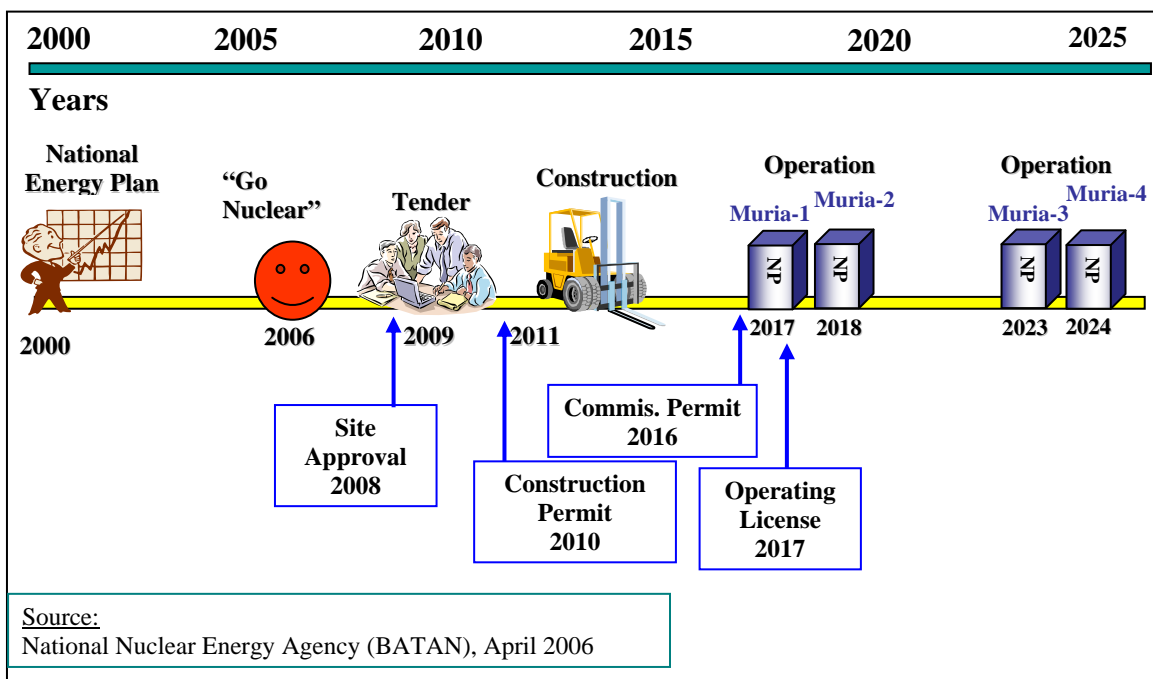


Fig.1. NPPs construction and operation plan.

## 2. Technical and Scientific Support Organizations

Technical and scientific support organization means an organization established to provide independent technical or scientific advice or assistance to a regulatory body or operating organization concerning matters affecting the safety of facilities, activities or practices involving nuclear energy or ionizing radiation. TSOs are expected to provide objective scientific and technical expertise and professional judgement based on the latest knowledge available to them. If TSOs supporting regulatory bodies must deal with within the scope of missions:

- Regulatory approaches/solutions to current technical issues;

- Feedback of operational experience including feedback of lessons learned from event investigation and cause analysis ;
- Response to emerging technical issues such as the use of risk information, security enhancement from the technical viewpoint (physical protection, DBT, ect);
- Updating of safety code and standards ;
- Development of effective and efficient regulatory approaches and methods for non technical issues;
- Public communication to obtain general public’s trust in nuclear safety and safety regulation;
- Preparation (accumulation of technical knowledge) for coping with future issues.

The milestone of NPP Regulatory as shown in figure. 2.

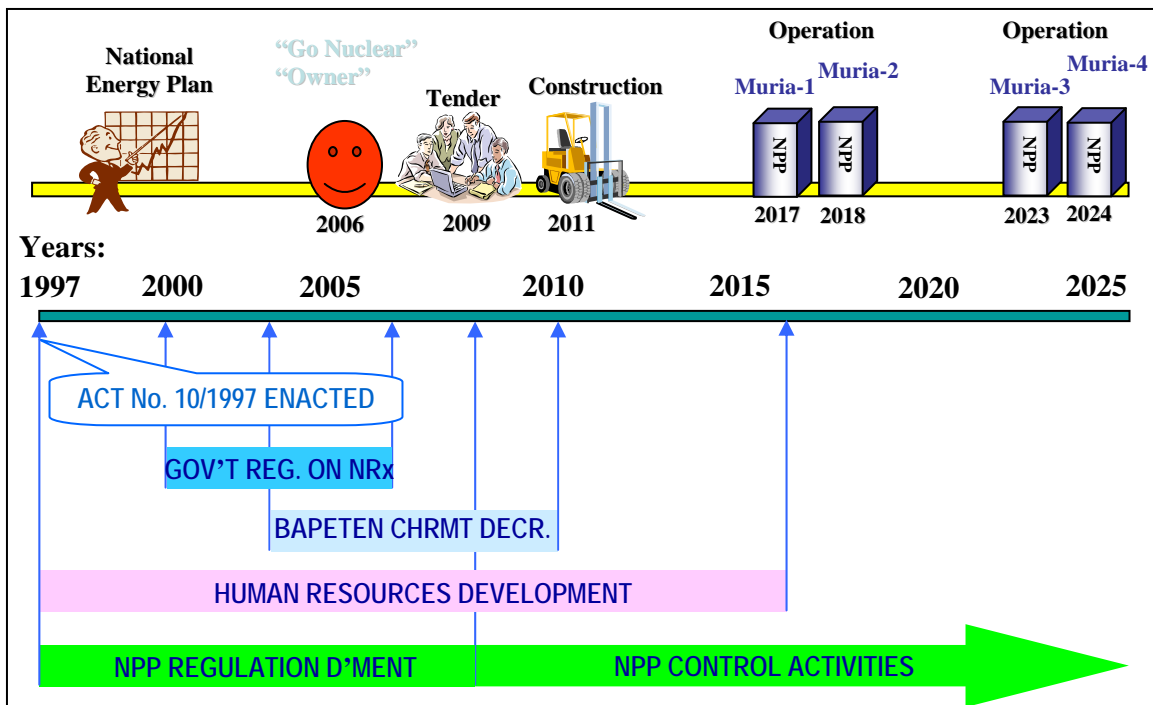


Fig. 2. NPP Regulatory milestone.

At present, BAPETEN has internal TSOs , which executed by two center and one directorate, i.e. Center for Regulatory Assessment of Nuclear Instalations and Nuclear Materials , Center for Regulatory Assessment of Radiation Facilities and Radioactive Sources, and Directorat for Technical Support and Emergency Preparedness. Their scope of activities is intended ti support the main function of BAPETEN comprising development of regulation, technical verification for licensing, assesment of inspection

funding and enforcement, only in the some cases it calls for support from other institutions, such as BATAN or the universities.

Based on Nuclear Energy Act, the development, operation and decommissioning of nuclear power plant shall be performed by state company, cooperatives or any ther private company, BATAN has been prepared to play a role as a TSO, which will give technical support to both the operating organization and regulatory body. It is essential that BAPETEN need independent TSOs in order to warrant a sufficient level of safety, security and non proliferation in building and operating of first NPP. If independent TSOs should be established, the embryo of this TSOs could be the resources from BAPETEN, BATAN, and also universities.

### 3. Conclusion

Nuclear regulation is conducted by BAPETEN. To support its regulation function, BAPETEN has internal TSOs. In order to warrant a sufficient level of safety, security and non proliferation in facing first NPP, BAPETEN need independent TSOs.

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