



Australian Government
Nuclear Safety Committee

Our Reference: R15/15998

7 December 2015

Dr Carl-Magnus Larsson
Chief Executive Officer
ARPANSA
PO Box 655
Miranda NSW 1490, Australia

Nuclear Safety Committee

Advice to the CEO of ARPANSA

Dear Dr Larsson

I refer to your request (30 October 2015) that the Committee provide you with their advice and recommendations relating to several areas of regulation of an expanded nuclear industry, should a government be minded to allow or promote nuclear facilities currently not in operation in Australia. The Committee's recommendations focus on the following areas:

- The functional structure of the regulatory body;
- The jurisdictional scope;
- The jurisdiction - state/territory and Commonwealth; and
- Regulatory capacity and capability.

These areas were discussed during and subsequent to the June and October 2015 NSC meetings. The recommendations and advice of the Nuclear Safety Committee are attached.

Yours sincerely

A handwritten signature in black ink, appearing to read 'Tamie Weaver', written in a cursive style.

Dr Tamie Weaver
Chair of the Nuclear Safety Committee

Attachment 1: Recommendations regarding the options available for the regulation of an expanded nuclear industry within Australia.

NSC recommendations to the CEO of ARPANSA

Recommendations regarding the options available for the regulation of an expanded nuclear industry within Australia

Functional structure of the regulatory body

The Committee discussed several alternative regulatory models for an expanded nuclear industry in Australia, drawing on members' experience within Australia and overseas. We consider that ensuring the regulatory body maintains independence from industry and government is of utmost importance, thereby increasing confidence for the operator and public of the regulator's decision making and effectiveness. Consistent with this, mechanisms should be in place to provide transparency regarding the independence of regulatory decisions. For example, if a minister is able to instruct the regulator, the instructed actions should be tabled in parliament.

The Committee considers that a CEO with an advisory board would be an effective framework on which to build regulation. This model combines a single accountable person for regulatory decisions (e.g. the CEO) with the diversity of knowledge and experience of an advisory board. The decision-maker must have relevant knowledge and experience so that they can target questions and judge advice received. Several members noted that the UK Office of Nuclear Regulation (ONR), which is a public corporation, detached from Government and headed by a CEO and Board of Directors, has been considered to be an effective regulator.

The Committee discussed the merits of an executive board in comparison to an advisory board, and considered that an executive board may have certain advantages in regard to joint decision making, especially in a young organisation. With this and other models, however, there may be difficulties regarding the accountability of decision making. A feasible approach would be that an executive board could transition to an advisory board as the regulatory organisation matures.

The Committee also considered the merits of a single regulatory organisation compared with a regulatory body supported by a technical services organisation. A regulatory body supported by a technical services organisation may be more appropriate for a country with major involvement in nuclear activities, like France. For Australia, at least in the initial stages of an expanded nuclear industry, two bodies may be an unnecessary complexity and expense. Members pointed out that the requirements of the regulatory body and/or technical services organisation are clearly stated in the *IAEA General Safety Requirements Government, Legal and Regulatory Framework for Safety, GSR part 1*.

In summary, the structure preferred by the Committee is a CEO supported by an Advisory Board, ensuring that the expertise of the regulatory body is consistent with IAEA General Safety Requirements. The regulator's independence from both government and industry is fundamental, and the regulatory framework and regulatory body should be established well in advance of any expansion of the nuclear industry.

Jurisdictional Scope

The Committee considers that the structure of the regulatory body may be dependent on the combination of nuclear industry expansion options that may be pursued in Australia.

Overall, however, the Committee's consensus was that a single nuclear regulator provides substantial advantages in delivering a uniform and efficient regulatory service, particularly when considering the specialist resourcing required. The Committee discussed specific areas including radiation protection (in terms of both people and the environment), nuclear safety, safeguards, nuclear waste disposal and management, and transport that should fall under the nuclear safety regulator.

There was also discussion on whether or not some other activities such as mining of uranium should come under the remit of a nuclear regulator. Although there is an argument that such activities have only a limited local impact, experience has demonstrated the far reaching impacts to facilities and public trust as well as company and industry reputations from incidents at mine sites involved in the nuclear fuel cycle. Notable examples (amongst others) include fires in the solvent extraction plant at Olympic Dam and the more recent uranium leachate tank failure at the Ranger Uranium Mine. Several members of the Committee felt it would be difficult to justify the exclusion of one part of the nuclear fuel cycle (such as mining and related processing) and such an exclusion may not meet public and political expectations.

The Ranger Uranium Mine in the NT is currently regulated by both the Commonwealth and the NT. In the case of the NT this involves the Department of Mines and Energy, NT WorkSafe and the NT Environment Protection Authority. At the Commonwealth level, the Supervising Science Branch of the Department of the Environment and the Department of Industry are the main regulatory bodies. By bringing together nuclear safety and radiological environmental protection aspects associated with mining there could be a significant opportunity to simplify such arrangements.

The Committee also discussed other areas that may be incorporated into a single nuclear regulator. There is an advantage in the materials accounting (safeguards) and the physical protection and security of nuclear material sections of ASNO being transferred to the single nuclear regulator. ASNO, as a division of DFAT, would continue to ensure that obligations under Australia's international treaties are met and would manage Australia's bilateral safeguards agreements.

In summary, the Committee considers that, due to the specialist nature of nuclear fuel cycle industries, a single nuclear regulator that encompasses the full nuclear fuel cycle from mining and processing of radioactive minerals, radiation protection (of both people and the environment), nuclear safety, safeguards, nuclear waste management and disposal, and transport would provide substantial advantages. The Committee also noted the importance of effective liaison and, where appropriate, joint working with other health, safety and environment regulators in respect of non-nuclear issues.

The jurisdiction - state/territory and Commonwealth

The Committee considers that the safety and security regulation of an expanded nuclear industry should fall under a single regulator rather than under a mix of separate Commonwealth and state and territory regulators. A single regulator would provide consistency across the existing jurisdictions and therefore would be more efficient and less burdensome on the industry, particularly for those industries operating in multiple states and territories.

Australia has made progress towards a single regulator in several areas including in Work Health and Safety. However, a single regulator need not be a solely *Commonwealth* regulator. Given the likely controversy associated with an expanded nuclear cycle and that nuclear facilities would in practice be located in the states and territories or possibly on Commonwealth land within a state/territory, the Committee felt it was likely that the states and territories would need to have some say in the governance of a regulator. However, a single national regulator could be formed under Commonwealth legislation but with governance from all jurisdictions. There is precedent for this approach including for example, the National Offshore Petroleum Safety and Environment Management Authority (NOPSEMA) which addresses territorial waters.

Regulatory capacity and capability

Based on members' experience, the Committee considers that the question of regulatory resources needs to be determined long before a nuclear-industry expansion program is initiated. Having the regulatory framework in place would allow targeted planning by the industry for such regulation.

Consequently, financial investment to establish the regulatory body would be required prior to development of the industry, and employment with the regulator would need to be sufficiently attractive to entice workers from industry. Based on the limited capability within Australia at this time, Australia may need to look overseas for sufficient qualified resources to staff an expanded nuclear regulatory authority. It is important that the regulatory authority has sufficient expertise so that they know the questions to ask and can judge information provided by manufacturers and industry.

A respected regulator will need more than the essential technical competencies identified above. The regulator will also need an ability to effectively demonstrate and communicate how it performs its regulatory functions. Given the sensitivity of the nuclear fuel cycle an effective regulator would also need the ability to effectively communicate technical decisions and complex risk issues; this requires particular expertise including an understanding of risk perception and risk communication. Such skills are essential if a regulator is to achieve and retain the confidence and trust of stakeholders. An effective regulator will also need to have regulatory skills and technical expertise in Human and Organisational Factors.

The Committee agreed that the regulatory body would need to be established in time to build its capability in relevant areas before any expansion of the industry became advanced. Hiring the expertise necessary to do this from overseas is a normal practice across many industries, particularly given the importance of hiring experienced people; the risk that the expertise subsequently leaves the organisation is a downside of this approach.

In the longer term, Committee members considered that education is an important aspect of building regulatory (and industry) capacity and capability. However, there are currently limited nuclear science and engineering courses at Australian universities. In the case of an expanded nuclear industry and the regulatory body required to service it, Australia would likely need to recruit, at least initially, from overseas.

During our discussions, the Committee noted that ARPANSA currently undertakes some research and provides specific services to the industry. In the case of an expanded nuclear industry, the regulator would need to be mindful of the risk that such activities could become, or be perceived, as a conflict of interest.

----- 000000 -----