Australian Government

Regulatory Framework for Nuclear and Radiation Facilities in Australia

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Presentation outline

- Australia's regulatory framework for nuclear and radiation safety regulation
- ARPANSA's role as the Commonwealth regulator
- ARPANSA's regulated entities
- ARPANSA's staged licensing process
- ARPANSA's inspection and enforcement activities
- International Best Practice

Australian Regulatory Framework for Nuclear and Radiation Safety

Department of Health

Queensland Health

Environment Protection Authority

Radiological Council

ACT Health

Commonwealth regulator

Department of Health and Human Services

Australian Government
Australian Radiation Protection and Nuclear Safety Agency

Australia has:

9 JURISDICTIONS

- **6** STATES
- **2** TERRITORIES
- THE COMMON-WEALTH (ARPANSA)

All of which are responsible for their own radiation protection regime.

The states and territories regulate the use of radiation in industry and research for non commonwealth entities.

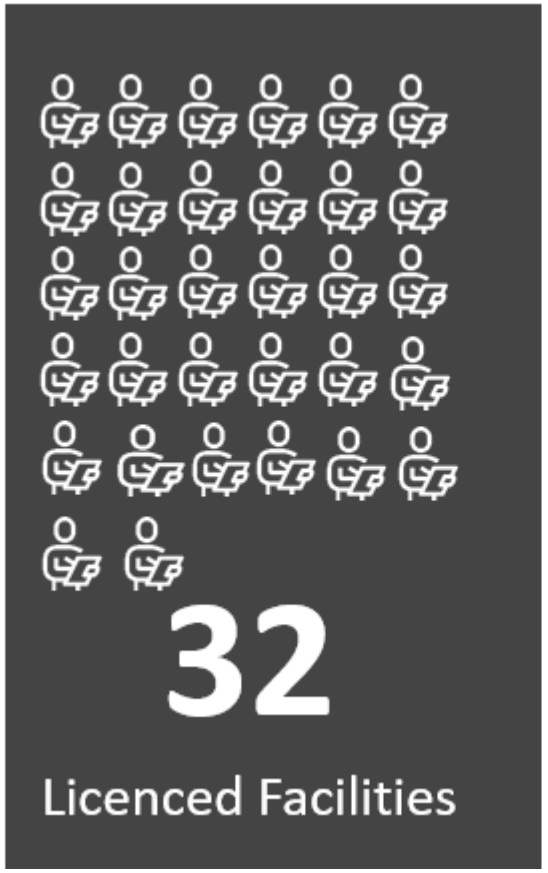
ARPANSA is the

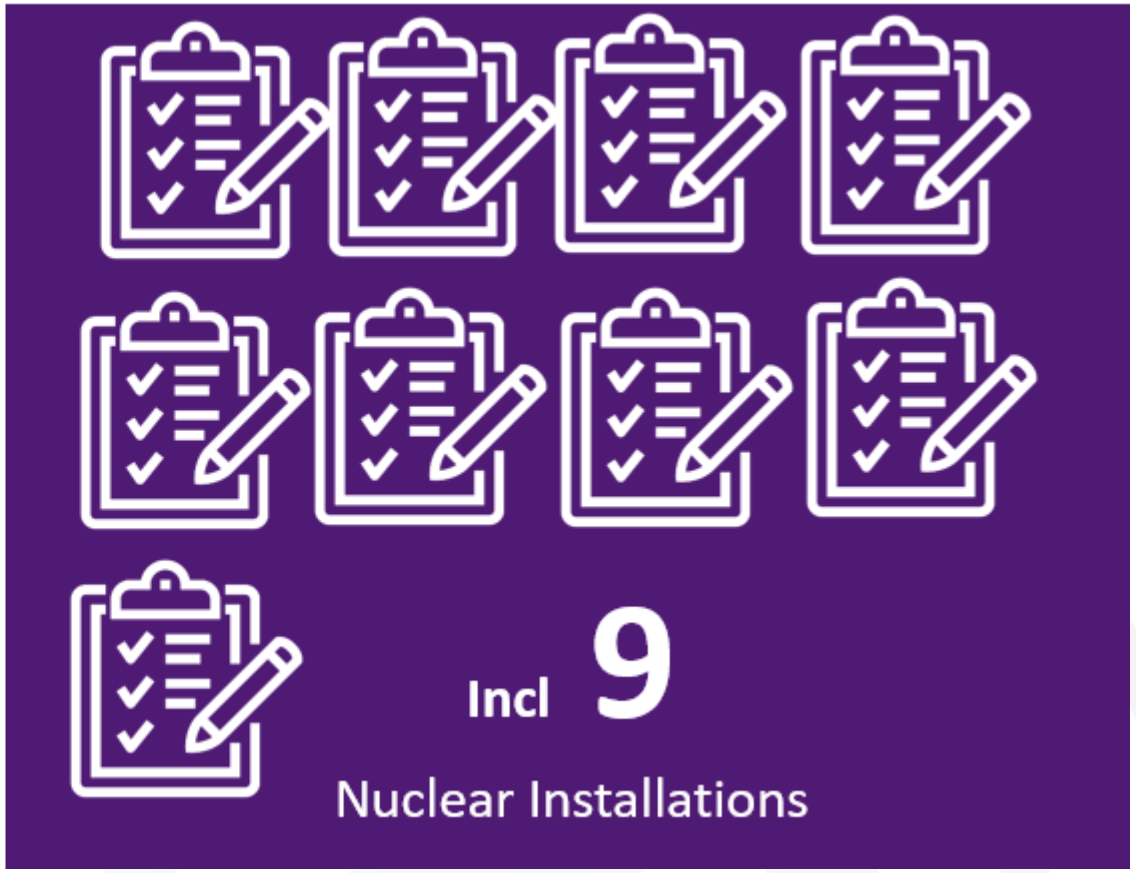
commonwealth regulator

- Established in 1999 following the implementation of the *Australian Radiation Protection and Nuclear Safety Act* 1998
- Regulatory powers under the Act include licensing, inspection and enforcement
- Licence wide range of sources, prescribed radiation facilities and nuclear installations

Examples of ARPANSA Licence Holders

ARPANSA Licences - 2023





Examples of ARPANSA Licence Holders

- Australian Nuclear Science and Technology Organisation (ANSTO)
- Australian Department of Defence
- Commonwealth Scientific and Industrial Research Organisation (CSIRO)
- Australian National University
- Royal Australian Mint
- Department of Climate Change, Energy the Environment and Water
- Department of Home Affairs
- Commonwealth Bureau of Meteorology
- Nat Gallery Australia
- Department of Prime Minister & Cabinet

Nuclear Installations in Australia

9 Nuclear Installations are licensed by ARPANSA

Under **the ARPANS** Act NIs are:

- **Research *Reactors***
- Waste Store and ***disposal facilities*** (depending on activity level)
- Plant for ***storing fresh reactor*** fuel or spent reactor fuel
- Radioisotope ***Production*** Facility (depending on activity levels)

The Research Reactors are what ***we primarily report*** on to the Convention on Nuclear Safety .

ANSTO Nuclear Medicine Facility (ANM)

Examples of *Nuclear Installation* in Australia

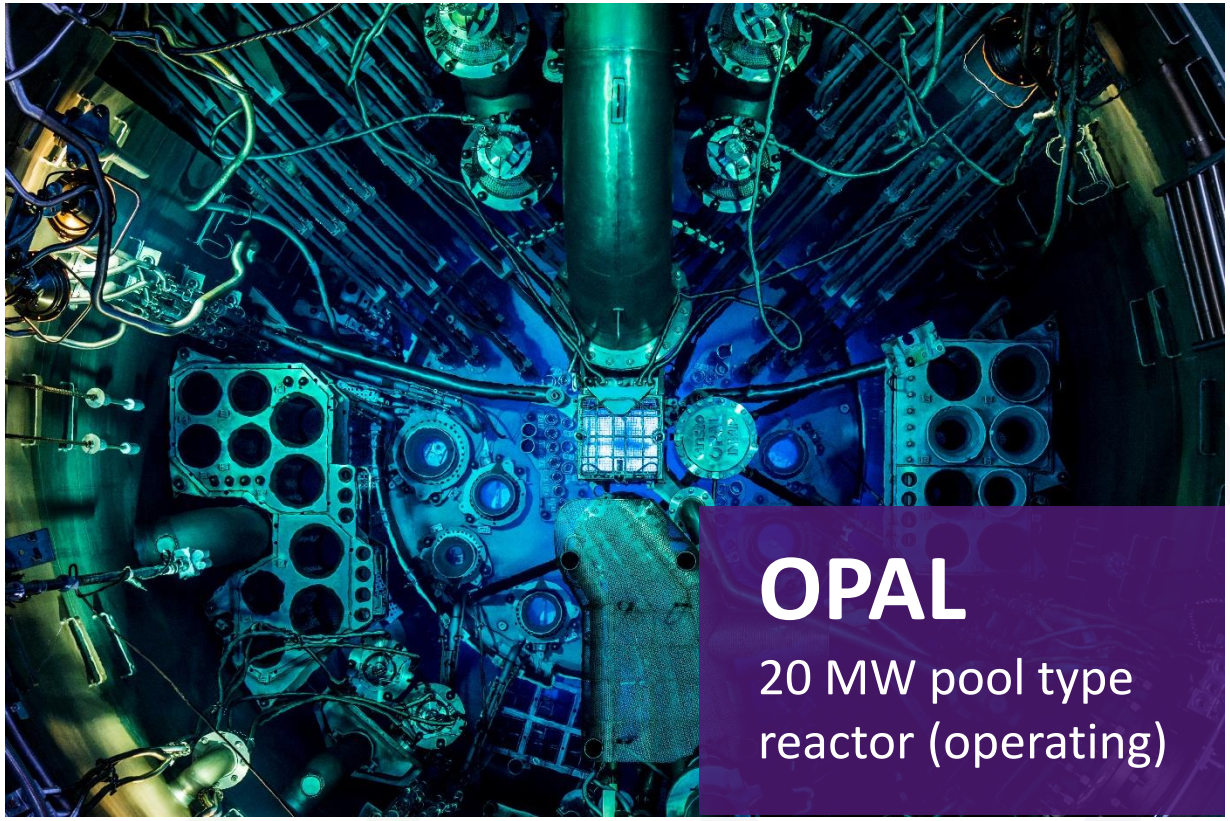
ARPANSA licences the **Australian Nuclear Science and Technology Organisation** (ANSTO) Nuclear Research Reactors

HIFAR

10 MW DIDO type research reactor defueled and in care and maintenance stage

MOATA (no longer licensed)

100 kW Argonaut type reactor – **fully decommissioned**



OPAL

20 MW pool type reactor (operating)

Other Nuclear Installations examples

ANSTO Nuclear Medicine Facility

This facility processes targets irradiated in the OPAL reactor for the production of Mo-99 which decays to Tc-99m, to supply Australian and international nuclear medicine departments.

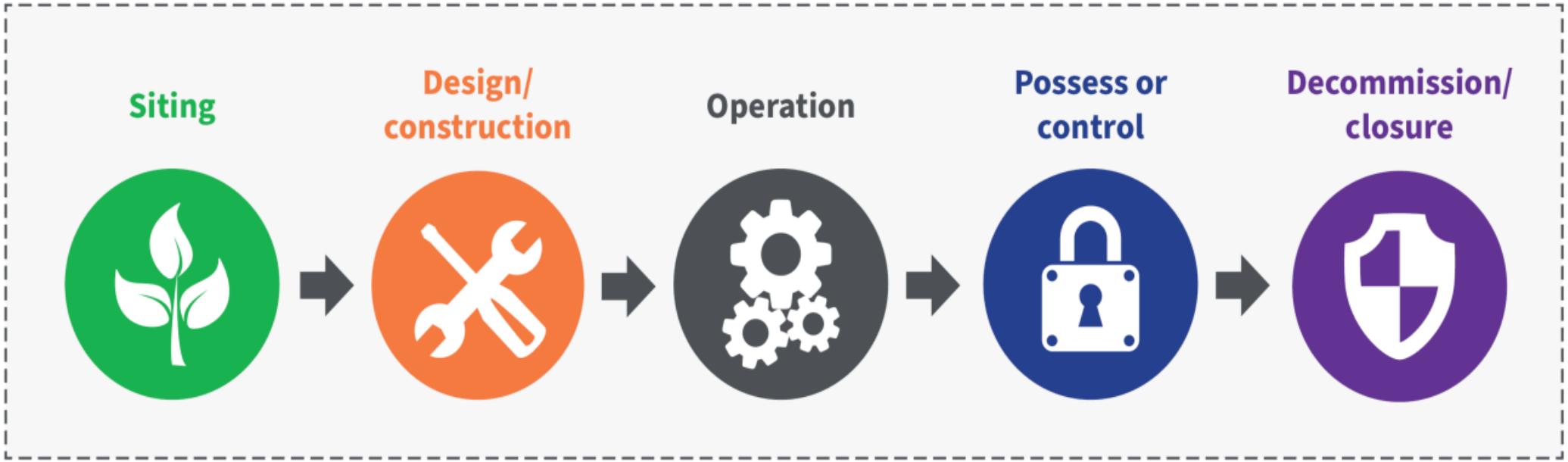
Health products

This facility prepares and dispatches radioactive isotopes for diagnostic and therapeutic purposes. They are typically prepared in shielded 'hot cells' before being shipped out to hospitals around Australia.

ANSTO waste storage

ANSTO currently holds and manages quantities of low-level and some intermediate-level waste in three separate secure facilities which are regularly monitored.

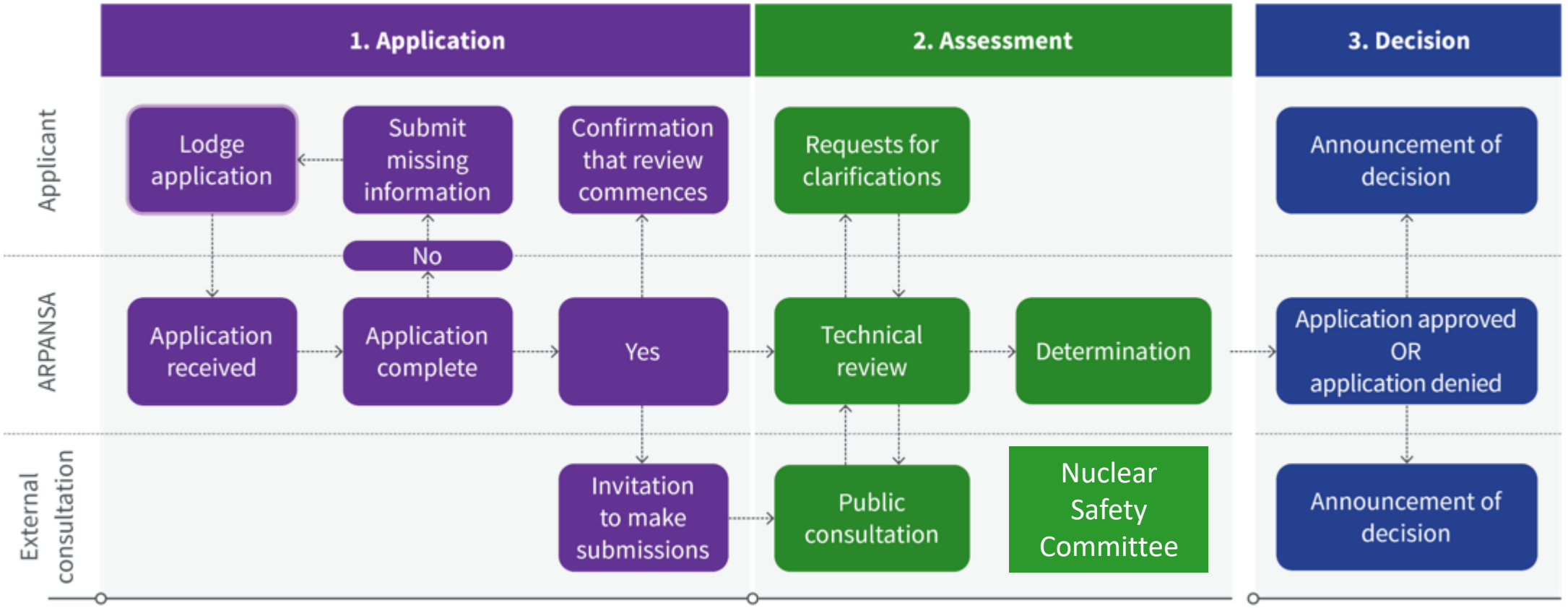
Staged licensing process



Allows for continuous improvement in design, operation and safety throughout the whole lifetime of the facility

Is in line with international best practice for radiation safety

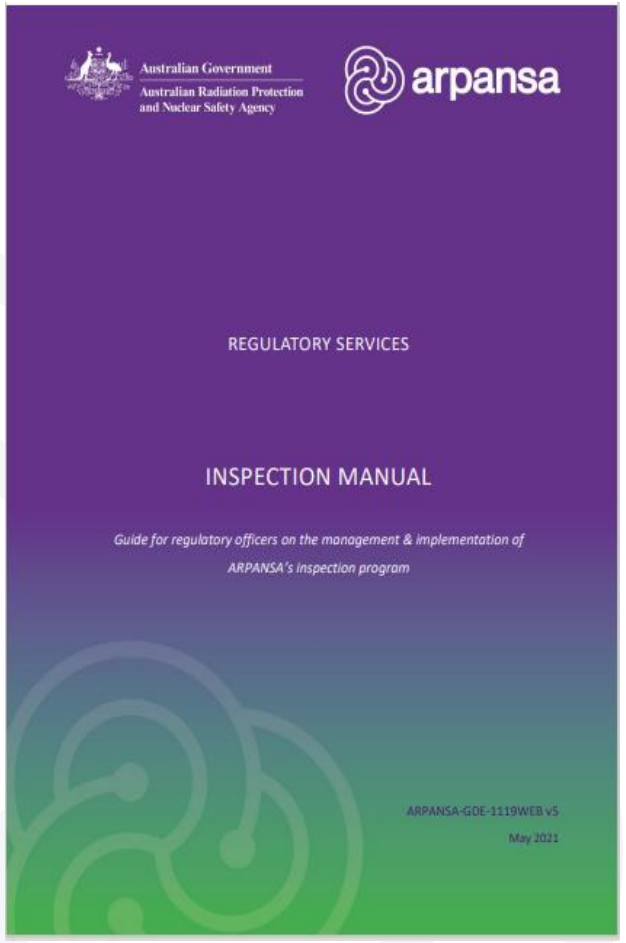
ARPANSA Regulatory Assessment Process for a licence application



Note other approvals are required from DCEEW under the Environmental Protection and Biodiversity Conservation Act and from ASNO under the ASNO (Nuclear Non-proliferation (Safeguards)) Act and Regulations

ARPANSA Inspections

- Based on IAEA General Safety Requirements-(GSR) Governmental, Legal and Reg Frameworks ***and IAEA GSR Rad Protection*** and Safety of Rad Sources and GSG Functions and Processes of the Reg Body
- Are conducted by ***inspectors*** appointed under the ARPANS Act by the CEO
- identify activities prohibited under the ARPANS Act that are being undertaken ***without*** appropriate authorisation or exemption
- assess and ***verify licence holder compliance*** with the Act, the Regs and licence conditions
- Also assess against relevant ***ARPANSA Performance Objectives and Criteria***– these are not legally required but contribute to ***continuous*** improvement
- POC provide a ***comprehensive list of features***, controls and behaviours (based on IBP) that contribute to safety and are used to supplement the assessment of licence holder compliance
- Are conducted using a Graded approach in terms of frequency, content etc based on ***systematic analysis*** of the performance and safety of a facility.



ARPANSA's Enforcement Powers

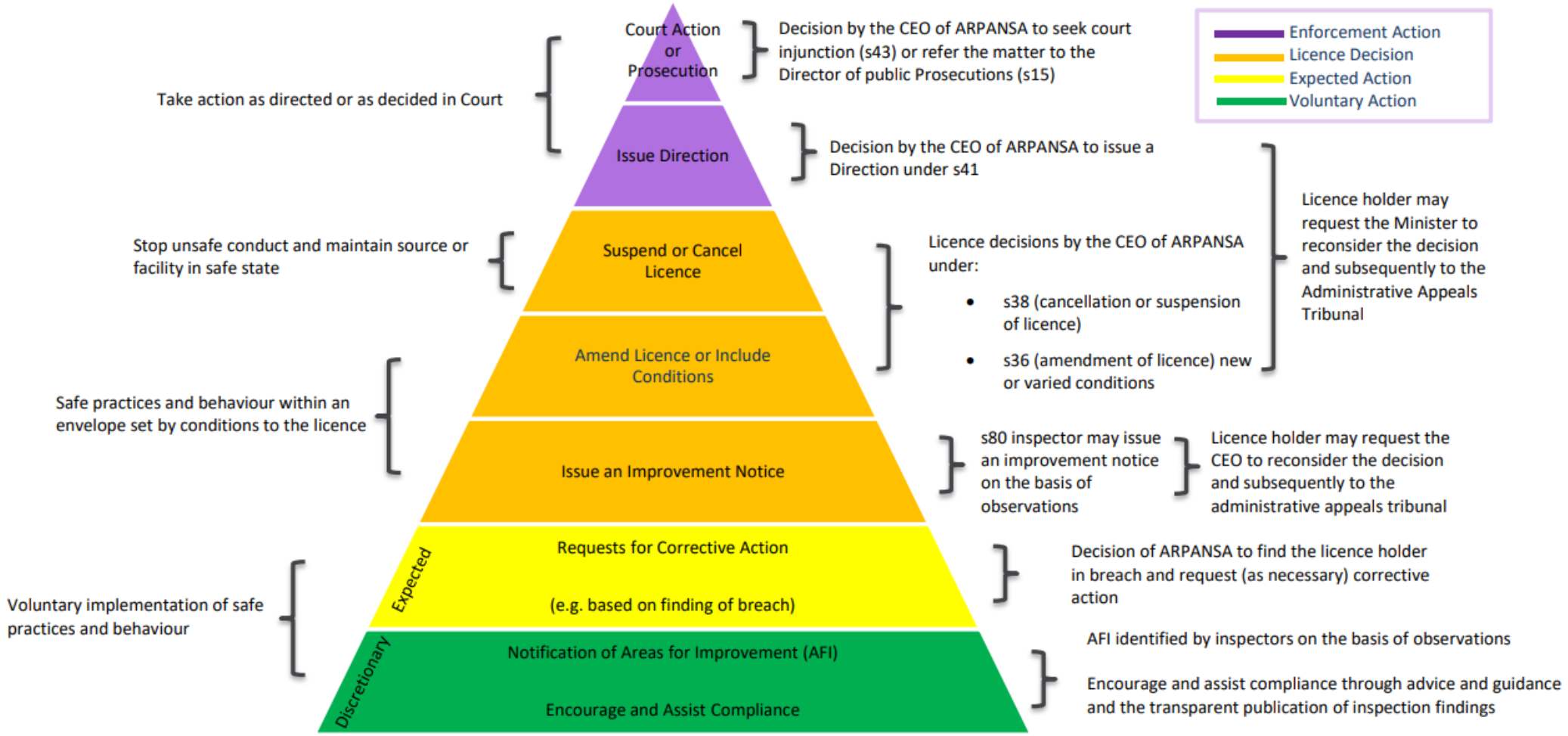


FIGURE 1. ARPANSA's graded approach to promoting and enforcing compliance

ARPANSA Regulatory Framework and International Best Practice

In deciding whether to issue a licence under the Act:

the CEO must take into account the matters (if any) specified in the regulations, and must also take into account international best practice in relation to radiation protection and nuclear safety and security

ARPANSA Regulatory Framework and International Best Practice

IAEA International Atomic Energy Agency	United Nations Scientific Committee on the Effects of Atomic Radiation	ICRP	International Commission on Non-Ionizing Radiation Protection	World Health Organization	CTBTO Preparatory Commission
Active member/Chair of all IAEA Safety Standards Committees ARPANSA represents Australia on all 5 key committees - CSS, RASSC, NUSSC, TRANSSC, EPReSC, WASSC.	ARPANSA represents Australia on committee. Australia was a founder member. CEO is the former chair	ARPANSA is on the the main commission and a number of others	ARPANSA contributes to guide development	ARPANSA is a collaborating center for radiation protection	ARPANSA contributes to carrying out Australia's radionuclide monitoring obligation

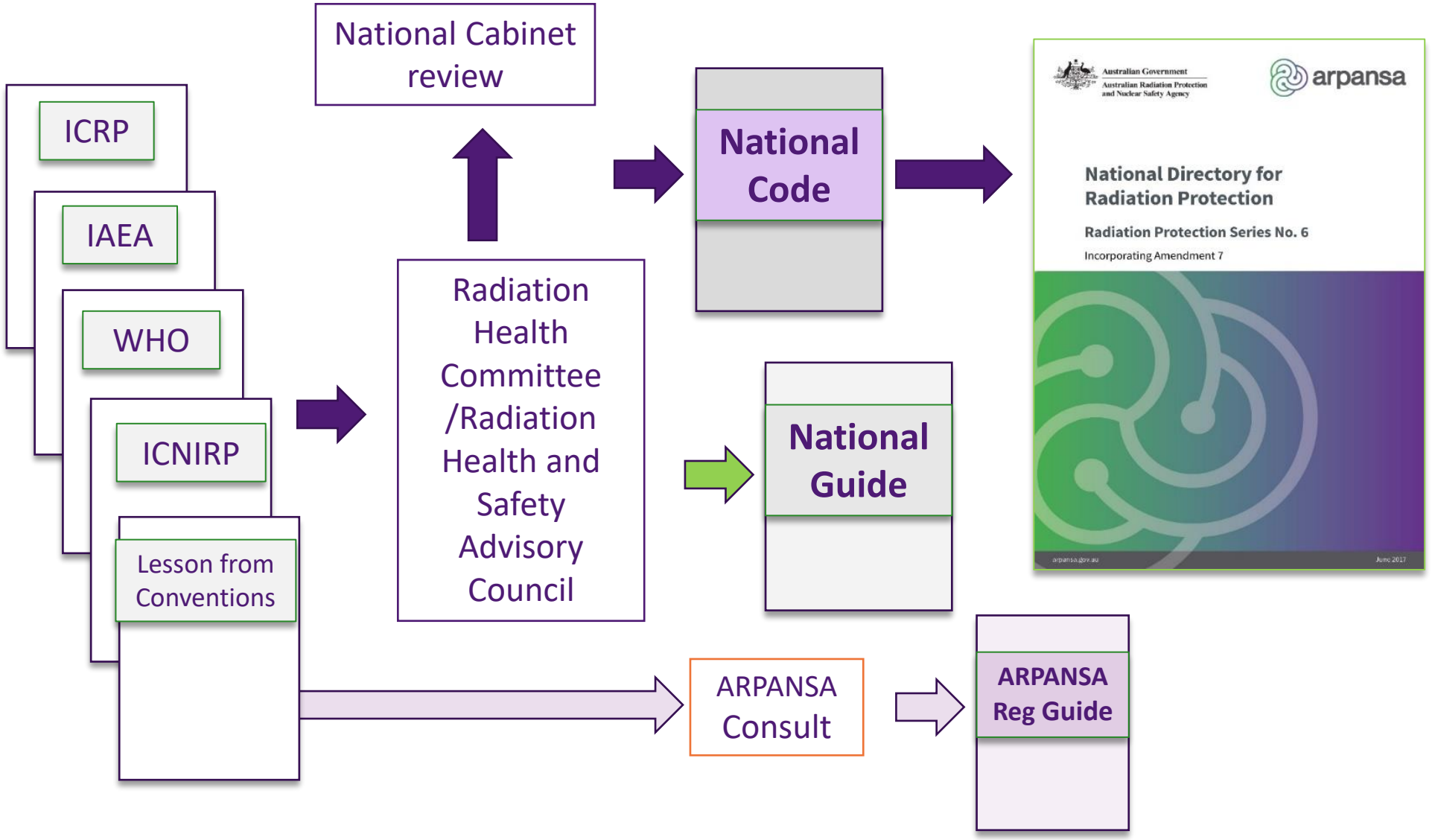
Australia's international obligations

- **Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management.**
- Convention on Nuclear Safety
- Early Notification and Assistance Conventions
- Codes of Conduct on safety and security of radioactive sources

Bilateral /MOU agreements including

- USA, UK, Sweden, Norway, Indonesia, Vietnam, Singapore, New Zealand, Thailand, Netherlands

How ARPANSA implements International Best Practice into Regulatory Framework



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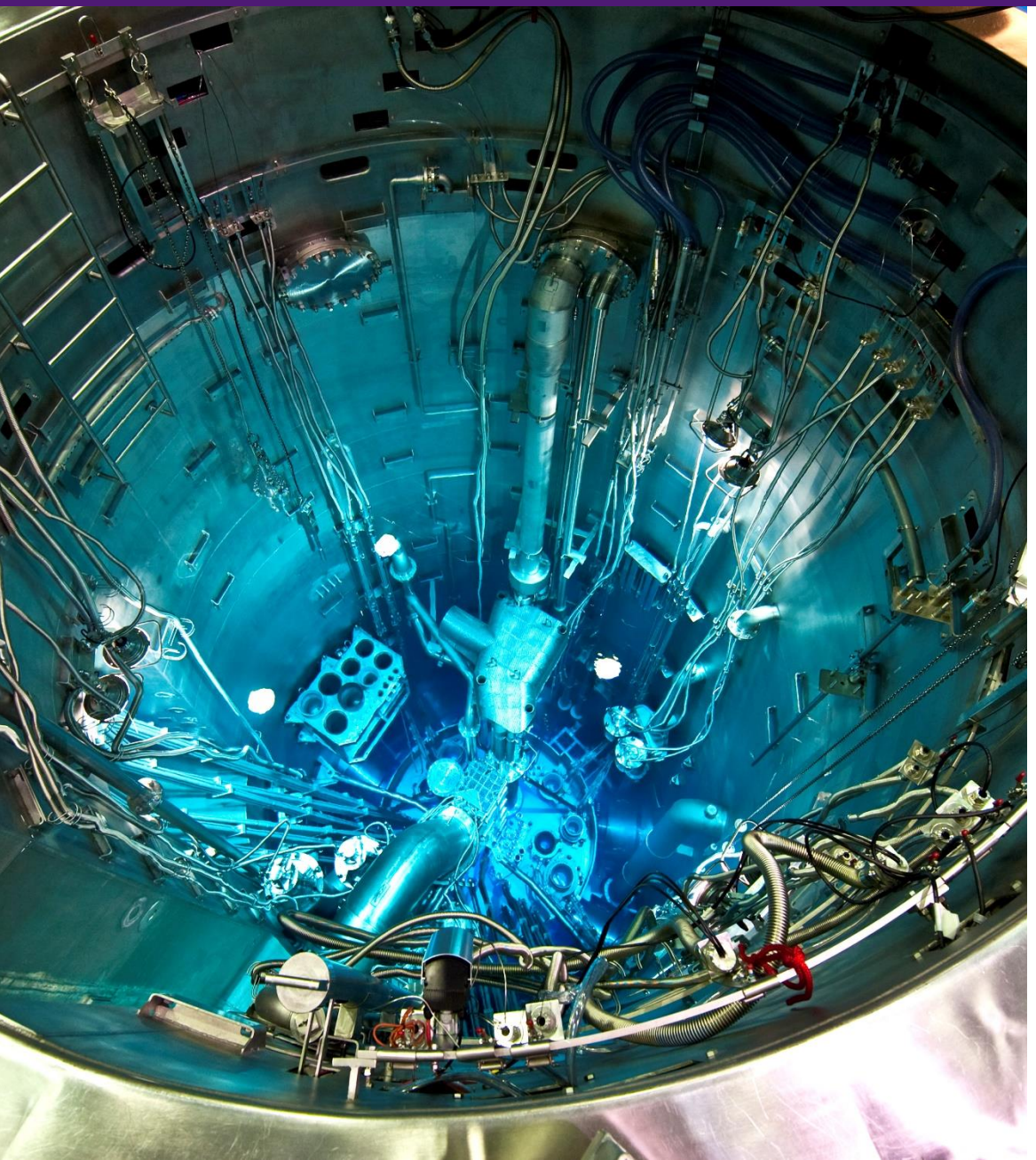

Conclusions

- ARPANSA's regulatory framework is based on International Best Practice as appropriate.
- The **requirement** to consider IBP when making decisions is included in the ARPANS Act and Regulations
- **ARPANSA** promotes National Uniformity as appropriate