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Nuclear Regulation Best Practice

Nuclear Safety and Security Best Practices
Hiroshima June 27 2013

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Learning from Fukushima – Improving Nuclear Safety and Security after Accidents



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Presentation Structure

- Role of Regulation
- Regulatory Body
- Regulatory Activities
- Regulatory Options
- Best Practice – Personal view

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Role of Regulation

Nuclear safety is delivered by
Licensees – Prime Responsibility

Society expects industries with the **potential to cause harm** to be regulated

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Role of Regulation

Three “**Nuclear Locks**” protect Society

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Role of Regulation

Three “**Nuclear Locks**” protect Society

First Lock - Licensee must be competent and the “Controlling Mind”

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Role of Regulation

Three “**Nuclear Locks**” protect Society

First Lock - Licensee must be competent and the “Controlling Mind”

Second Lock - Licensee must have robust internal Nuclear Safety & Security Assurance Department

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Role of Regulation

Three “**Nuclear Locks**” protect Society

First Lock - Licensee must be competent and the “Controlling Mind”

Second Lock - Licensee must have robust internal Nuclear Safety & Security Assurance Department

Third Lock - Strong, Competent and Independent Regulation

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Role of the Regulatory Body

- Grant Permission to carry out nuclear related activities
 - Licence nuclear installations
 - Authorize construction
 - Authorize operation
 - Authorize decommissioning
- Carry out assessment of licensee safety cases
- Carry out regulatory inspection
- Take enforcement action
- Communicate regulatory decisions



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Regulatory Activities

- Nuclear **Safety** – plant malfunction / human error
- Nuclear **Security** – malicious acts / theft / sabotage
- Non-proliferation **safeguards** – materials / technologies
- **Environmental** Protection – routine discharges/ disposal
- **Radiation** protection – effects of radiation on people
- **Industrial** safety – personal injuries

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Regulatory Options

- **Prescriptive Regulation**
 - Detailed regulations set by Regulator
 - Resource intensive
 - Regulator shares responsibility
- **Non-prescriptive Regulation**
 - High Level Goals set by Regulator
 - Flexible
 - Licensee clearly responsible



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Regulatory Best Practice ?

Regulatory Options

- Prescriptive / Goal Setting
- Depends upon National legal framework
- Depends upon National culture
- Arguments “for” and “against”

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My preference is for a Goal Setting Regulatory Regime

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Regulatory Best Practice ?

Regulatory Scope

- Nuclear regulation
 - Nuclear safety and nuclear security
 - Safeguards interface with IAEA inspectors
 - Radiation protection at nuclear licensed sites
 - Industrial safety at nuclear licensed sites
- Environmental Protection – usually regulated separately

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My preference – fully integrated approach including environmental protection

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Regulatory Best Practice ?

Regulatory Independence

- Nuclear Regulatory Body must be independent from:
 - Government Department responsible for the promotion of the nuclear industry
 - Nuclear licensees

Many good examples of independent nuclear Regulators

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Regulatory Best Practice ?

Resources / Competence

- Regulatory Body must have sufficient:
 - competent staff
 - resources (people and financial) to undertake its duties
 - legal powers

RB must be credible in the eyes of the public and industry

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Regulatory Best Practice ?

Regulatory Effectiveness

•Regulatory Body must:

➤ be **strong**

➤ have **stability**

➤ avoid **unnecessary regulation**

➤ undertake **benchmarking peer reviews** (IRRS)

➤ have strong **leadership**

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Regulatory Best Practice ?

Regulatory Capture

- Regulatory Body must avoid staff being captured at all levels
 - Political – senior officials / career development
 - Inspectors – at sites / familiarity
 - Assessors – licensee / vendors
- Capture avoidance strategies

Good regulators rotate staff and monitor behaviour

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Regulatory Best Practice Summary

- Independence
- Integrated regulatory scope
- Strong leadership
- Professional – suitably qualified and experienced staff
- Well funded and resourced
- Strong regulatory culture
- Robust and effective management systems
- Clear enforcement powers
- Open and transparent decision making

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Thank You

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