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The NSNI Safety Review Services and Safety Standards

ISOE ALARA Symposium
13 October 2009

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Content

- Safety Infrastructure safety guide
- Safety review services
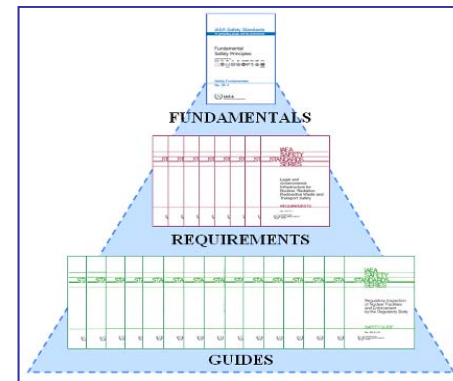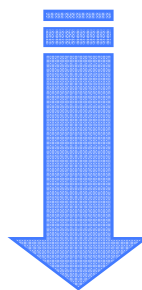- IAEA safety standards, basis for services

Safety Infrastructure Guide DS424

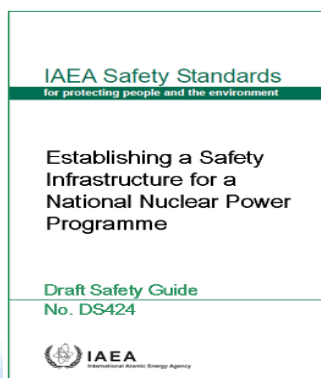International Atomic Energy Agency

Safety Infrastructure Guide DS424

Increasing number of countries considering the introduction of nuclear power.

Need to comply with the IAEA Safety Standards for ensuring safety and enhancing international confidence.
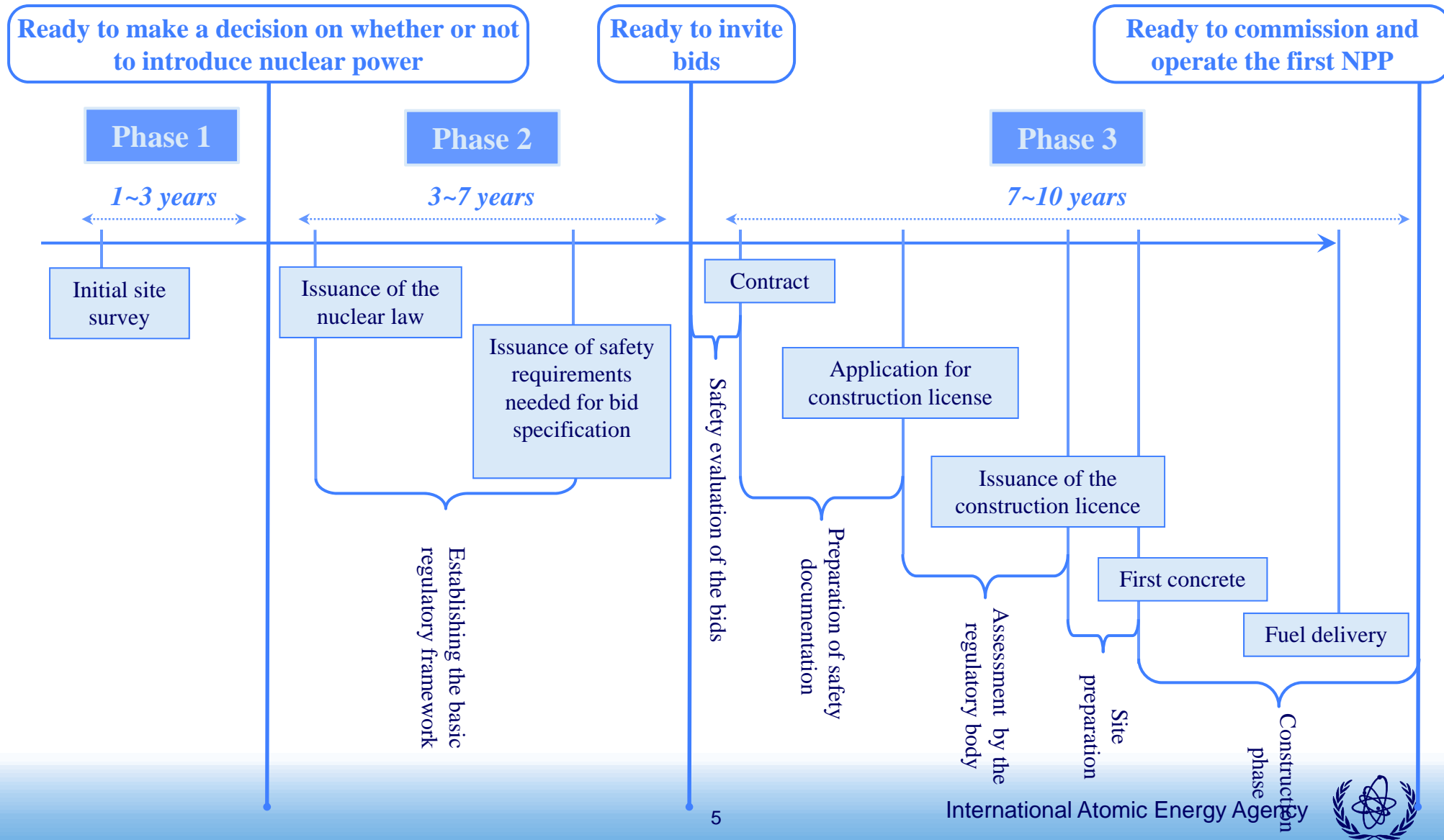

Development of the
Safety Infrastructure Guide DS424

Roadmap to apply the
entire set of IAEA Safety Standards in countries
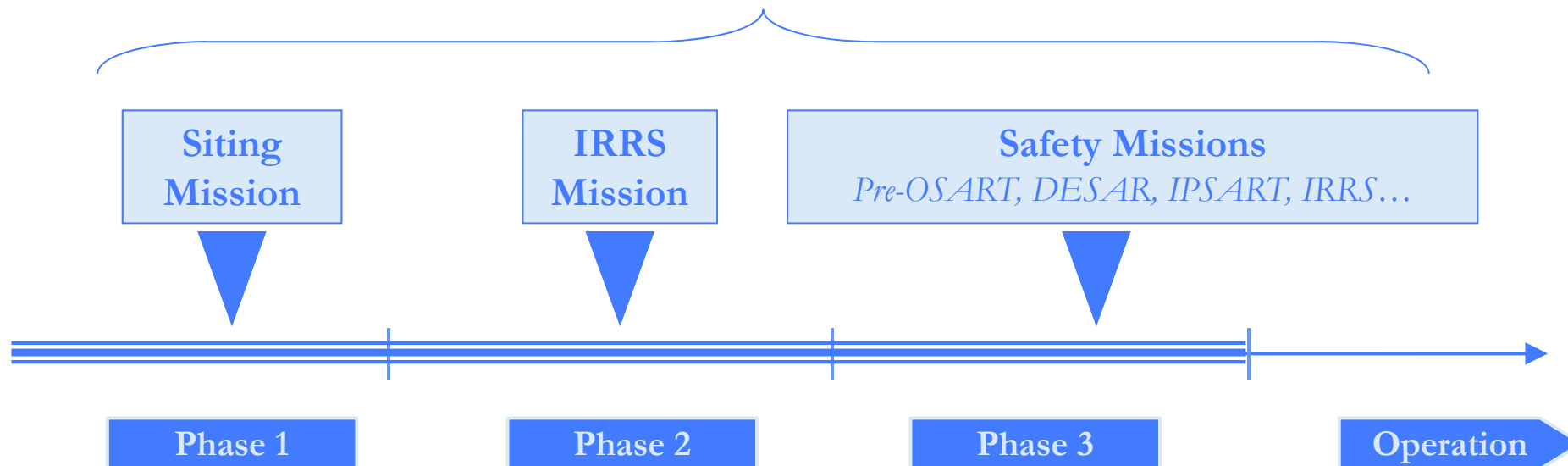embarking on nuclear power

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Some steps important to safety described in the Safety Infrastructure Guide

Ready to make a decision on whether or not to introduce nuclear power

Ready to invite bids

Ready to commission and operate the first NPP

Phase 1

1~3 years

Phase 2

3~7 years

Phase 3

7~10 years

Initial site survey

Issuance of the nuclear law

Issuance of safety requirements needed for bid specification

Contract

Application for construction license

Issuance of the construction licence

First concrete

Fuel delivery

Establishing the basic regulatory framework

Safety evaluation of the bids

Preparation of safety documentation

Assessment by the regulatory body

Site preparation

Construction phase
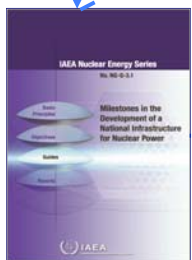
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Coordinating Safety reviews missions

Safety peer reviews against the Safety Standards ←——→

Siting Mission	IRRS Mission	Safety Missions *Pre-OSART, DESAR, IPSART, IRRS…*

| Phase 1 | Phase 2 | Phase 3 | Operation |

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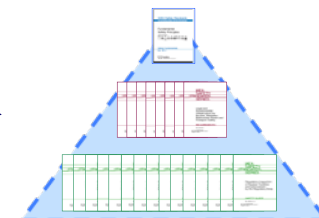
The central role of the Safety Infrastructure Guide DS424

IAEA Nuclear Power Support Group's BROCHURE

Considerations to Launch a Nuclear Power Programme
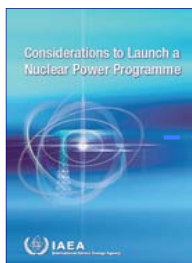
"Milestones" document IAEA NG-G-3.1
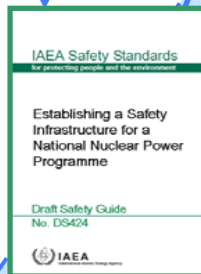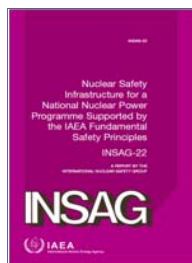
Milestones in the Development of a National Infrastructure for Nuclear Power

International Nuclear Safety Group's REPORT-22

Nuclear Safety Infrastructure for a National Nuclear Power Programme Supported by the IAEA Fundamental Safety Principles — INSAG-22

INSAG

IAEA Safety Standards — Establishing a Safety Infrastructure for a National Nuclear Power Programme — Draft Safety Guide No. DS424

IAEA Safety Standards — Fundamental Safety Principles — Safety Fundamentals No. SF-1

FUNDAMENTALS

IAEA SAFETY STANDARDS SERIES — Legal and Governmental Infrastructure for Nuclear, Radiation, Radioactive Waste and Transport Safety — REQUIREMENTS — No. GS-R-1

REQUIREMENTS

IAEA SAFETY STANDARDS SERIES — Regulatory Inspection of Nuclear Facilities and Enforcement by the Regulatory Body — SAFETY GUIDE — No. GS-G-1.5

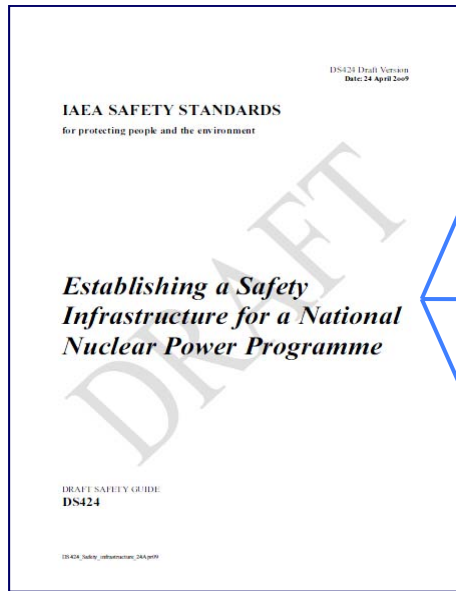**GUIDES**

IAEA SAFETY STANDARDS

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The main 3 roles of the Safety Infrastructure Guide DS424

IAEA SAFETY STANDARDS
for protecting people and the environment

Establishing a Safety Infrastructure for a National Nuclear Power Programme

DRAFT SAFETY GUIDE
DS424

1. **Road-map** to gradually apply the IAEA Safety Standards.

2. **Terms of reference to tailor the Safety Review Services.**

3. **Training framework** for embarking countries.

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The Safety Infrastructure Guide DS424

Useful tool to provide consistent coordination for all safety infrastructure areas among regulators of suppliers, recipients and international organizations. Consideration is also given to other governmental organizations and the industry.

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Safety review services
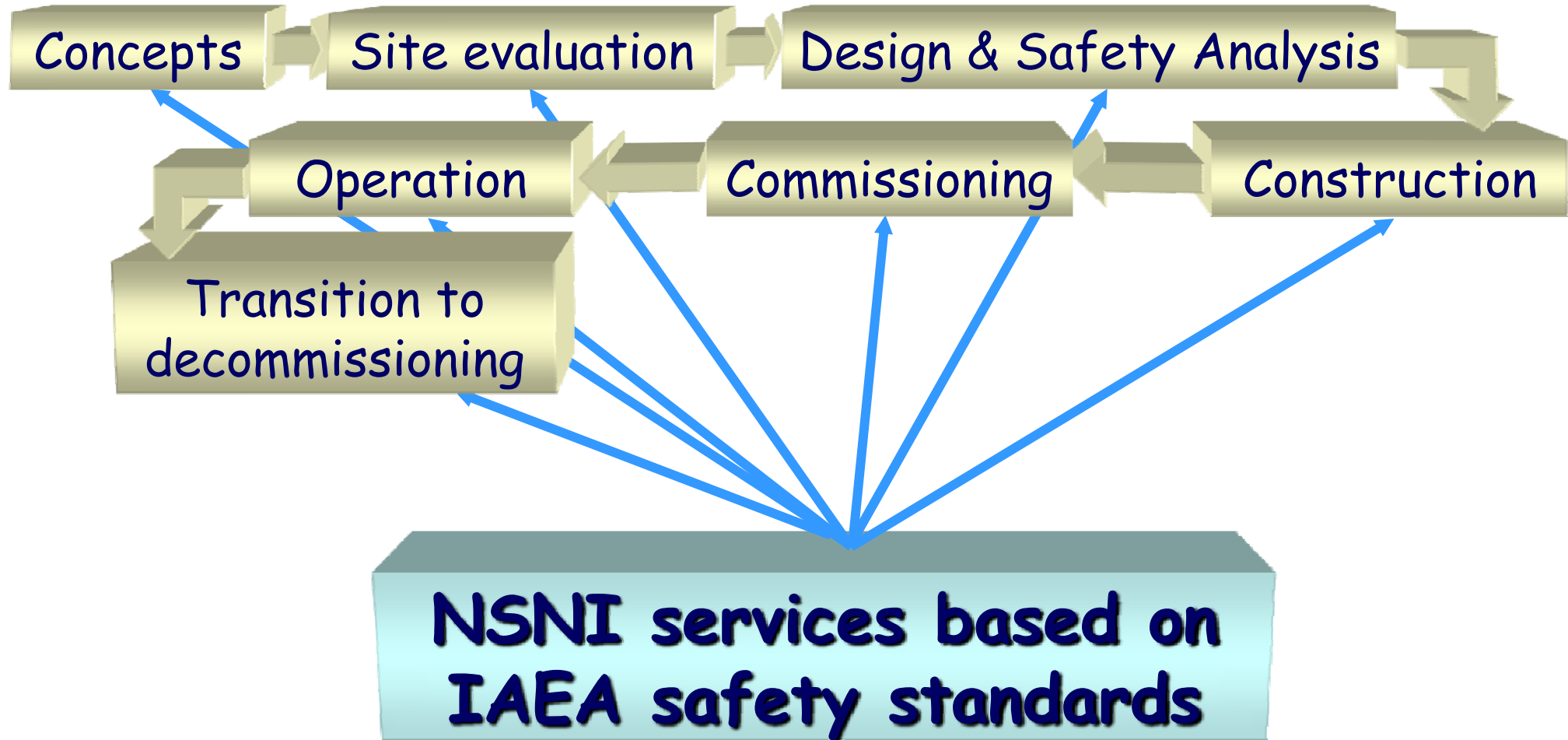
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Core Processes for Safety Review Services

- Peer reviews performed upon request of Member States

- Guidelines based on IAEA Safety Standards

- Phased approach
  - **Self assessment**
  - **Preparatory mission**
  - **Main mission**
  - **Follow-up mission**

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Installation life-time

Concepts → Site evaluation → Design & Safety Analysis

Operation ← Commissioning ← Construction

Transition to decommissioning

NSNI services based on IAEA safety standards

Customers of the services

Regulatory authorities

Nuclear Installations

Utilities

Design Organizations

Vendors

Areas for Services

- Regulatory Framework-IRRS
- Operational Safety-OSART,PROSPER, SEDO,
- Technical Safety-Site, Design, Safety Assessment
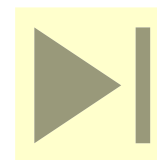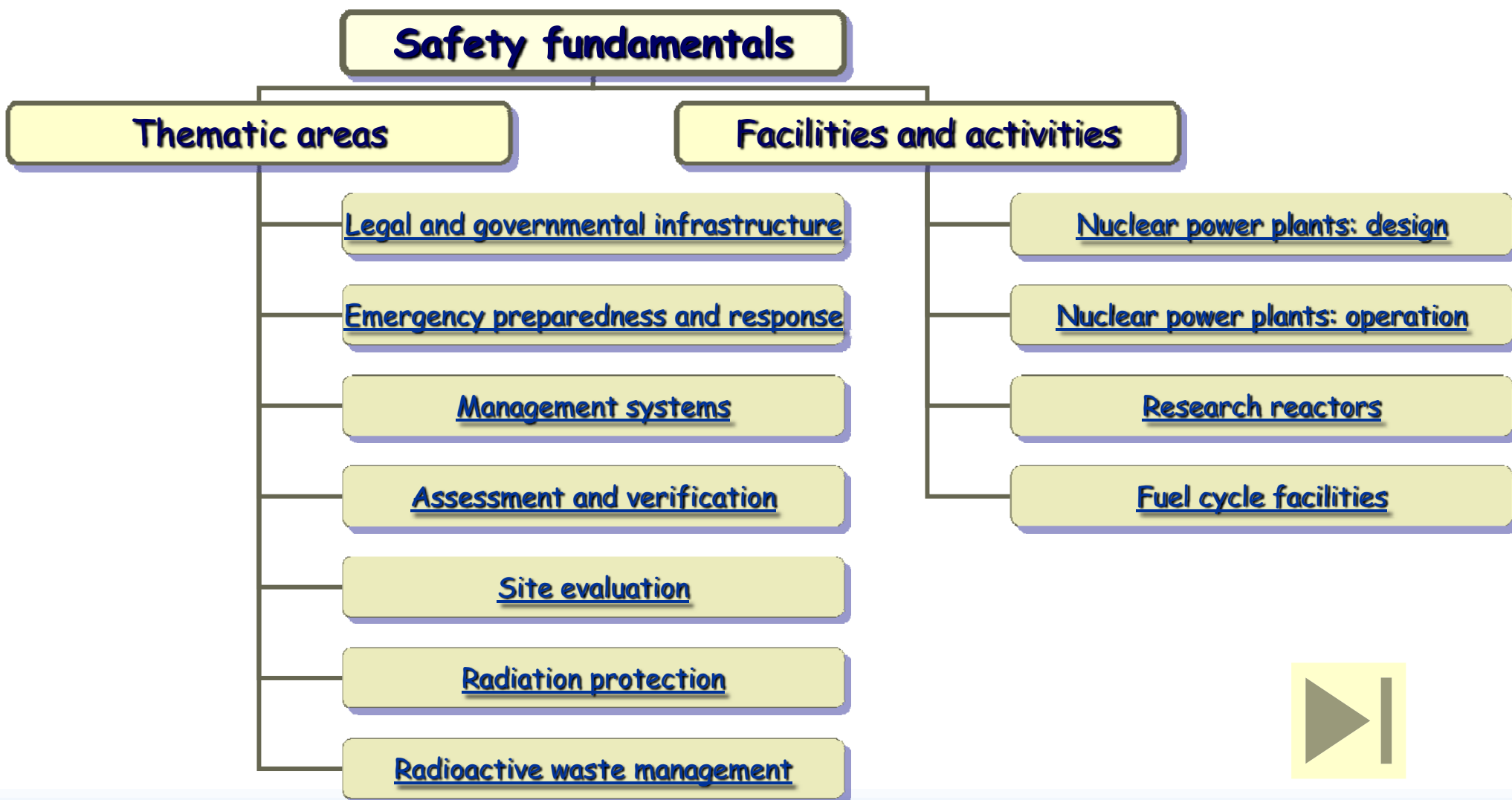- Management of Safety /Safety Culture - SCART
- Research reactors - INSARR

Modular approach to meet needs of Member States

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IAEA safety standards, basis for services

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Links to the IAEA Safety Standards

Safety fundamentals

Thematic areas

Facilities and activities

- Legal and governmental infrastructure
- Emergency preparedness and response
- Management systems
- Assessment and verification
- Site evaluation
- Radiation protection
- Radioactive waste management

- Nuclear power plants: design
- Nuclear power plants: operation
- Research reactors
- Fuel cycle facilities

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- DESARS – Design Safety Assessment Review Service
- SALTO – Safe Long Term Operation
- Generic Reactor Safety review

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NS-R-2 Nuclear power plants: Operation

- OSART – Operational Safety Assessment Review Team

- PROSPER – Peer Review Operational Safety Performance Experience Review

- SALTO – Safe Long Term Operation

- RAMP – Review of Accident Management Programmes

- SCART – Safety culture Review Assessment Team

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- INSARR – Integrated Safety Assessment of Research Reactors

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- SEDO – Safety Evaluation of Fuel Cycle Facilities

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GS-R-1 Legal and governmental infrastructure

- IRRS – Integrated Regulatory Review Service

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GS-R-2 Emergency preparedness and response

- IRRS – Integrated Regulatory Review Service

- OSART – Operational Safety Assessment Review Team

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GS-R-3 Management System for Facilities and Activities

- OSART – Operational Safety Assessment Review Team

- IRRS – Integrated Regulatory Review Service

- SCART – Safety Culture Assessment Review Team

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GS-R- 4 Safety Assessment for Facilities and Activities

- Generic Reactor Safety review
- IPSART – International Probabilistic Safety Assessment Review Team
- RAMP – Review of Accident Management Programmes

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NS-R-3 Site evaluation for nuclear installations

- SERS – Site Evaluation Review Service

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SS No. 115 Radiation protection

- OSART – Operational Safety Assessment Review Team

- IRRS – Integrated Regulatory Review Service

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WS-R-2 Radiation waste management

- OSART – Operational Safety Assessment Review Team

- IRRS – Integrated Regulatory Review Service

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Thanks for your attention