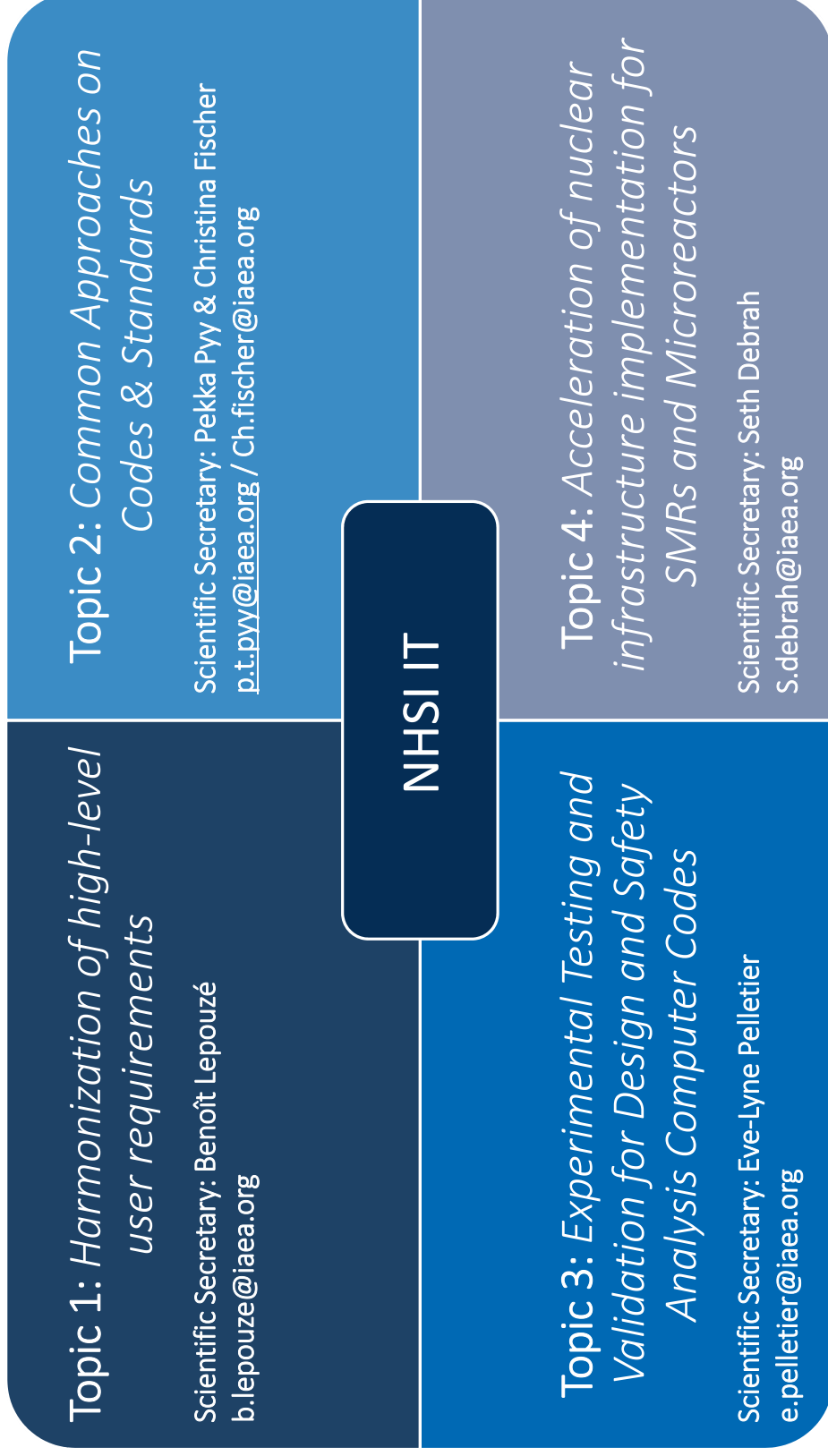

IAEA NHSI Industry Track, TG-2 “Common Approaches on Codes and Standards” Status and Future Plans

The NHSI Industry Track is divided into 4 topical groups to foster initiatives in the industry that aim to facilitate global deployment of SMRs through standardization and harmonization.



Topic 2 Objectives



Topic 2 - Common Approaches on Codes and Standards

Mission & Vision with approaches on C&S:

- **Identify** similarities and differences
- **Understand** why they exist
- **Share information** on the findings
- **Develop common** approaches
- **Harmonize** where possible



#MakeNuclearSimpler

Now 44 participating organizations
from 18 Member States with
WNA as a key partner



“The more, the merrier”

Topic 2: Common Approaches on Codes and Standards – Status: What have we done

IAEA TECDOC – “Suitability Evaluation of Commercial Grade Products for Use in Nuclear Power Plant Safety Systems”

Working Paper – “Why Serially Manufactured Industrial Products Are Crucial for Reliable Deployment of Small Modular Reactors”

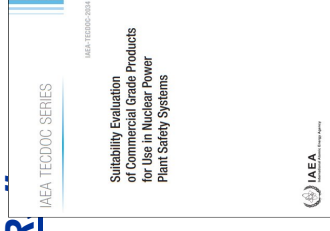
Working Paper – “Why Non-nuclear Codes and Standards Are Important for Harmonizing SMRs”

Working Paper – “Potential for Harmonization and Standardization in the Approval Processes for High Integrity Long-Lead Items”

Working Paper – “*Why a consistent approach to nuclear codes and standards is crucial for the serial deployment of standardized SMR*”

*Working paper on ISI C&S
planned to be Issued in Oct
2025*

#makenuclearsimpler



QR of the newest paper:



NHSI Industry Track Topic 2

TG2 platform for information sharing

NHSI Topic Group 2

I. Codes & Standards

- A. QUALITY AND MANAGEMENT SYSTEM STANDARDS USED WIDELY IN THE MEMBER STATES (APPLICABLE TO SMRS)
- B. ENGINEERING STANDARDS FOR THE DESIGN AND CONSTRUCTION OF SMRS (WNA TO LEAD)
- C. EQUIPMENT QUALIFICATION STANDARDS FOR NUCLEAR (SMRS) FACILITIES
- D. C&S USED IN VARIOUS SMRS (AND THEIR PROJECTS)
- E. C&S FOR ADVANCE MANUFACTURING (AM) TO BE USED FOR SMRS (AND THEIR PROJECTS)

II. Oversight & Acceptance

- A. A USE OF STANDARD, PROVEN SERIALLY MANUFACTURED INDUSTRIAL/COMMERCIAL-GRADE ITEMS)
- B. NON-NUCLEAR CODES, STANDARDS, LAW AND REGULATIONS RELEVANT TO SMR DEPLOYMENT
- C. OVERSIGHT ACTIVITIES REQUIRED BY CODES, STANDARDS, LAW AND REGULATIONS
- D. LONG LEAD ITEMS

Nine topics covered during NHSI Phase II 2025-2026

Topic 2: Common Approaches on Codes and Standards - Plans for Phase II

I. CODES AND STANDARDS FOR USE IN SMRs



I. A Quality and management system standards used widely in the member states (applicable to SMRs)

- Database updates (changes in standards, new versions, etc.) regularly
- We have added the ENGIE quality passport and **are open to adding more organizational approaches** (some of them already e.g. in SC management toolkit 6.1)
- Consider writing a position paper about the role of I.A standards

I.B Engineering standards for the design and construction of SMRs (WNA partner)

- Update the databases on mechanical and ISI codes
- **We do not have all the codes from all the members – how to fix?**
- **ISI Working paper (ADVANCED DRAFT)**
- **New area the civil C&S database** - Working paper about civil codes

Topic 2: Common Approaches on Codes and Standards - Plans for Phase II

I. CODES AND STANDARDS FOR USE IN SMRS

- [illegible]

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Topic 2: Common Approaches on Codes and Standards - Plans for Phase II

II. OVERSIGHT AND ACCEPTANCE ISSUES RELATED TO C&S

- II. A Use of standard, proven serially manufactured industrial/commercial grade items**
 - Database for II.A practices in the MSs updated - developments taking place in many MSs
 - TECDOC 2034 and a two-pager issued
 - Consider starting a publication on “graded approach including examples/strategies to manage supply chain risks” (name TBC, including use of industrial grade items)
- II. B Non-nuclear codes, standards, law and regulations relevant to SMR deployment**
 - Mapping another area leading to design modifications **after the ongoing fire exit data collection finalized**
 - **The fire exit data collection is not finalized – are there any more interested organizations to contribute?? New areas like material routes & lifting requirements ...**
 - New topical papers considered based on the member experiences

Topic 2: Common Approaches on Codes and Standards - Plans for Phase II

II. OVERSIGHT AND ACCEPTANCE ISSUES RELATED TO C&S

II. C Oversight activities required by codes, standards, law and regulations

- **Updating the database** on oversight practices for safety related components in the MSs (link to II.A)
- We have II.D going on so members to advise on if updating this could be parallel or not

II. D Oversight of long lead items for NPP projects (or more restricted to high-integrity ones)

- Mapping of high-integrity LLI (e.g. RPV) oversight practices in the Member States
- Practical approaches for sustainable serial production to be proposed as a working report based on the mapping (“deep dive”)
- Consultant knowledgeable on the topic is going to be used to finalize a summary and a working report
- In addition: Cooperation with NHTS Regulatory Track and SMR Regulators Forum (MCCO WG) foreseen for a TECDOC on a more general level on LLIs (begin 2026)

Near future

Next activities

1. Webinar 9 October – see next page
2. NHSl Technical Meeting on Current Topics in Nuclear Supply Chain and Procurement Management | IAEA, 29-31 October (**we still have space in case you are interested!**)
3. Planning the next TG2 meeting and possible separate activity calls in 2026
4. Training course on nuclear supply chain management, 27-31 July 2026
5. Technical meeting on the current SC topics, 14-18 December 2026
6. Cooperation meeting with strategic partners



High-Integrity Long-Lead Items – Challenges and Solutions for SMRs

9 Oct 2025
at 1400 Vienna time

Moderators: Mr Pekka Pyy &
Ms Christina Fischer, IAEA

Opening: Ms Aline des Cloizeaux, IAEA

Panellists: Mr Erik Dagorn, BV
Mr Seiji Asada, MHI
Mr Simon Emeny, LRQA



Two Webinars Organised in
2025 with wide participation

IAEA
NUCLEAR
HARMONIZATION &
STANDARDIZATION
INITIATIVE

WEBINAR ON "EXPERIENCE AND
DEVELOPMENTS IN USING COMMERCIAL
GRADE ITEMS – WHAT IS NEW?"

11 JUNE
14:00 CEST

Registration is
open to all

QR code

Panelists:
Mr. Pekka Pyy (Moderator)
Mr. Seiji Asada (Panelist)
Mr. Simon Emeny (Panelist)
Mr. Erik Dagorn (Panelist)
Mr. Aline des Cloizeaux (Panelist)
Mr. Christina Fischer (Panelist)

IAEA
NUCLEAR
HARMONIZATION &
STANDARDIZATION
INITIATIVE

WEBINAR ON ACHIEVEMENTS AND WORK
OF NHI INDUSTRIAL TRACK TC2,
COMMON APPROACHES ON CODES AND STANDARDS

28 MARCH
13:00 CEST

Registration is
open to all

QR code

Panelists:
Mr. Pekka Pyy (Moderator)
Mr. Seiji Asada (Panelist)
Mr. Simon Emeny (Panelist)
Mr. Erik Dagorn (Panelist)
Mr. Aline des Cloizeaux (Panelist)
Mr. Christina Fischer (Panelist)

**IAEA Nuclear Supply Chain
Management**



**NHSI SHARE in IAEA NUCLEUS
CONNECT MSN/MSQC**



**JOIN MSQC BY USE OF THIS
LINK!**

WRITE TO US: MSQC.Contact-Point@iaea.org

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The effective global
deployment of safe and secure

ADVANCED NUCLEAR REACTORS

#Atoms4Climate



THANK YOU FOR YOUR ATTENTION

-

WRITE TO US: MSCQ.Contact-Point@iaea.org

MSCQ & NHSI TG2 TEAM: “JUST
CONTACT MSCQ TO MAKE NUCLEAR
SIMPLER”!



Mr. Pekka Pyy



Ms. Christina Fischer



Ms. Xiaoyu Zhang



Mrs. Tsolmon Buyantsogt

LONG LEAD ITEMS (PRESSURE BOUNDARY)

LONG LEAD ITEMS (PRESSURE BOUNDARY)

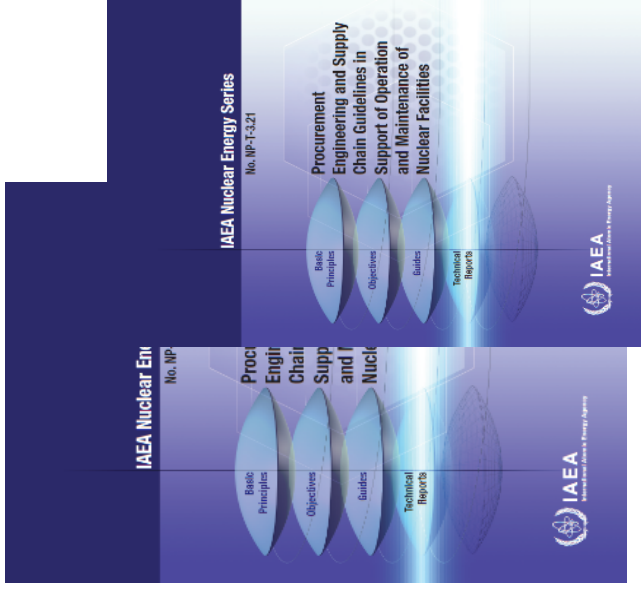
II. OVERSIGHT AND ACCEPTANCE ISSUES RELATED TO C&S

- WORKING PAPER HAS BEEN ISSUED ALREADY in 2024: “Potential for Harmonization and Standardization in the Approval Processes for High Integrity Long-Lead Items”
- MAPPING OF PRACTICES IN THE MSS (QUESTIONNAIRE OUT SUMMER 2025 – MANY FIRST ROUND REPLIES OBTAINED, QA ONGOING)
- DATA COLLECTION AND EXCHANGE OF PRACTICES BY THE END OF 2025 (FINAL REPORT WINTER 2025/26)
- WORK WITH NHSI REGULATORY TRACK AND SMR RF ON THE LLIS (INDUSTRY CONTRIBUTION SOUGHT)

Publication Update – **All freely downloadable**

- Procurement Engineering and Supply Chain Guidelines in
- Support of Operation and Maintenance of Nuclear Facilities, NP-T-3.21 - 2016
- Managing Counterfeit and Fraudulent Items in the Nuclear Industry, NP-T-3.26 - 2019
- Quality Assurance and Quality Control Activities in Nuclear Power Plants: Lesson Learned and Good Practices, TECDOC1910 – 2020 (**Hint: open Annex 1, page 99 to see what may happen when you add production capacity fast without capability**)
- Management of Nuclear Projects, NG-T-1.6 – 2020
- Challenges and Approaches for Selecting, Assessing, and Qualifying Commercial Industrial Digital Instrumentation and Control Equipment for Use in Nuclear Power Plant Applications, NR-T-3.31 – 2020
- Suitability Assessment for Using Commercial Grade Products in Nuclear Power Plant Safety Systems – TECDOC 2034 - 2023 (see next slides)

IAEA has since 1979 issued publications and tools for quality of the supply chain and procurement



MSCQ (earlier: MSN)

IAEA NUCLEUS CONNECT
Network

[Link to join MSCQ](#)

MSN.Contact-Point@iaea.org

Regular Newsletter to
MSCQ members

Next planned 2/2025



Management, Supply Chain and Quality Network of Excellence (MSCQ) Newsletter

August 2024

Relevant IAEA Resources & Important Links (may require registration to MSCQ)

IAEA Connect
IAEA Management of the nuclear
supply chain
Nuclear Supply Chain Webinar
Series Videos
IAEA MSCQ Members Area
(requires MSCQ registration)
The Nuclear Supply Chain
Management Toolkit (requires
MSCQ registration)
The Nuclear Regulations and
Standards Toolkit (requires
MSCQ registration)

MSCQ Registration & Quick Contacts

Join MSCQ Today!
*Registration link for joining the IAEA
MSCQ Network: Please reach out to us
(emails below) if you have any questions
(the old address still should work).*
MSCQ.Contact-Point@iaea.org

Please enjoy the newest MSCQ (Management, Supply Chain
and Quality Network of Excellence) Newsletter 2/2024!

Nomination Reminder for the Technical Meeting (TM) on Developing a Sustainable Nuclear Supply Chain for Near Deployment Reactors!

This TM is the 18th Edition of the NUCLEAREUROPE – IAEA Joint Event on
Management which will be held in the IAEA Headquarters, Vienna, Austria,
during 10-12 December 2024.



Technical Meeting on Developing a Sustainable Nuclear Supply Chain for Near Deployment Reactors

—
18th Edition of the NUCLEAREUROPE-IAEA
Joint Event on Management

The objectives of the event are to
bring together project owners,
plant operators, technology
vendors, suppliers, contractors,
regulators and governmental
officers to discuss the needs and
solutions for a sustainable supply
chain for near-term nuclear
projects.

All persons wishing to participate
in the event have to be designated
by an IAEA Member State or
should be members of
organizations that have been
invited to attend. In order to be designated by an IAEA Member State or invited
organization, participants are requested to submit their application via the
[InTouch+ platform](#) to the competent national authority (Ministry of Foreign
Affairs, Permanent Mission to the IAEA or National Atomic Energy Authority)
or organization for onward transmission to the IAEA **by 13 September 2024**.

IAEA Headquarters, Vienna, Austria
and virtual participation via Microsoft Teams
10-12 December 2024
Ref. No.: EYD303563

Nuclear Harmonization and Standardization Initiative (NHSD) Industry Track
TG2 (TG2 meeting begins on 9 December) and ASME EUIWG - IAEA (13
December) meetings will be organized on the same occasion.



TRAINING EVENTS & MISSIONS

In-person training courses for **mainly for Operating MSS in Vienna 16-19 June 2025 – next in 2026**

Limited possibility also for tailored Missions

Virtual training SC course available on the IAEA learning management system



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Online Course on Nuclear Supply Chain and Procurement Management



Self-direct

Content offered

English

Duration: 12 ho

Enroll

How to enroll

CLP4NET course enrolment requires a valid NUCLEUS account. The NUCLEUS Web Single Sign-on system allows registered and authorized users to securely access a variety of information resources with a single username and password.

To register a new NUCLEUS account, [click here](#).

The purpose of the event is to provide training for specialists at, and newcomers to, nuclear facilities on nuclear supply chain oversight, including the related standards and management, procurement and engineering issues. The event will also aim to provide Member States with information on good practices for the management of procurement and supply chain activities related to the construction, operation and maintenance of nuclear facilities. This Project is funded by the Peaceful Uses Initiative (PUI) of the United States of America.

Please visit our [help pages](#) for information on how to register, sign-in or for other useful information.



OPEN LMS English (en) >

Home > My courses > Online Course on Nuclear Supply Chain and Procurement Management

Online Course on Nuclear Supply Chain and Procurement Management

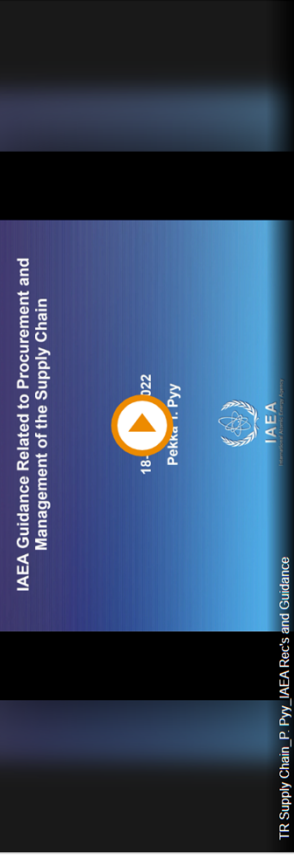
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► Open all ▼ Close all

Instructions: Clicking on the section name will show / hide the section.

▼ Nuclear Supply Chain - General Topics



1. Comply with all the legislative, regulatory and owner's requirements in the jurisdiction you are targeting ("complete fit-for-purpose tailoring" – "**project approach**")
2. Enveloping approach - develop a set of project requirements conforming with the set of most demanding requirements ("**platinum grade approach**")
3. Justification approach - develop a set of project requirements conforming with a set of requirements seen to comply with the levels required with reasonable assurance ("**standardized design with exemptions**" sought by justifying C&S with "code case" equivalences)
4. Regional approach - develop a set of project requirements conforming with a set of requirements seen to comply with the regional C&S ecosystem ("standardized design" additional few national jurisdiction tailored solutions) – may be a specific case of 3 "**product approach**"
5. **Standard design approach** – no changes agreed in C&S ("one fits all" as conformance with safety and other objectives is sufficiently assured on the plant design level)

....and extensive use of proven serially manufactured commercial grade items, SI units, etc.

Harmonization and Standardization

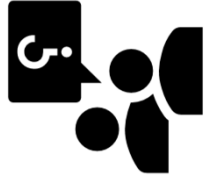
Similar but different

Harmonization refers to the process of aligning or coordinating different rules, regulations, procedures, or standards to make them compatible across different systems, organizations, or countries.

It doesn't necessarily mean making them identical but ensures that they work together without conflict.

Standardization is the process of developing, implementing, and adhering to a set of specific norms, guidelines, or specifications intended to ensure uniformity, quality, and consistency across processes, designs, or organizations.

Code is related to complying with legal requirements and often gives **what** needs to be done (whereas standard presents **how exactly**)



Mutual recognition is an agreement between two or more parties (typically countries or regulatory bodies) to accept each other's codes & standards, regulations, or conformity assessments as equivalent, even if they differ in detail. This means that a product, service, or professional qualification legally accepted in one country is accepted in another without the need for further testing or certification.

What can different organizations do?

- **Policy makers:** Clear signals of a stable nuclear energy investing environment (with financing, where applicable); Foster developments in local and regional supply chains within the nuclear power sector & Coordinate between different regulators for a harmonized set of requirements
 - **Nuclear Regulators:** Collaborate to 1. develop common / consistent nuclear regulations across jurisdictions (including mutual recognition, where applicable) and 2. Work to harmonize interpretations in use of codes between different regulations (nuclear, health, safety, building, fire, security, etc.) & Develop early engagement approaches in licensing processes including developing supplier readiness.
 - **Owner/operators:** Sustaining and strengthening supply chain by lowering commercial, project and quality management risks by partnering etc. and providing suppliers with incentives to enter or stay in the nuclear market & Lead efforts to standardize codes & standards on quality/management, design, materials, testing, qualification etc., by engaging designers, suppliers and vendors and other industries.
 - **Technology Developers / Vendors:** Demonstrate that technology is proven with necessary safety case and engage early with the supply chain for near-term deployment with an existing supply chain in intended jurisdiction.
 - **Suppliers of Products and Services:** Demonstrate readiness and develop capabilities, e.g., via participating/establishing industrial associations and similar early engagement mechanisms together with owners and technology vendors for once-through design.
 - **SDOs & R&D:** think of End Users & Suppliers so that we could speed up the developments
- International organizations:** to continue work together in identifying bottlenecks, inform and share experiences with national players and identify avenues for solutions with organizations in non-nuclear fields.