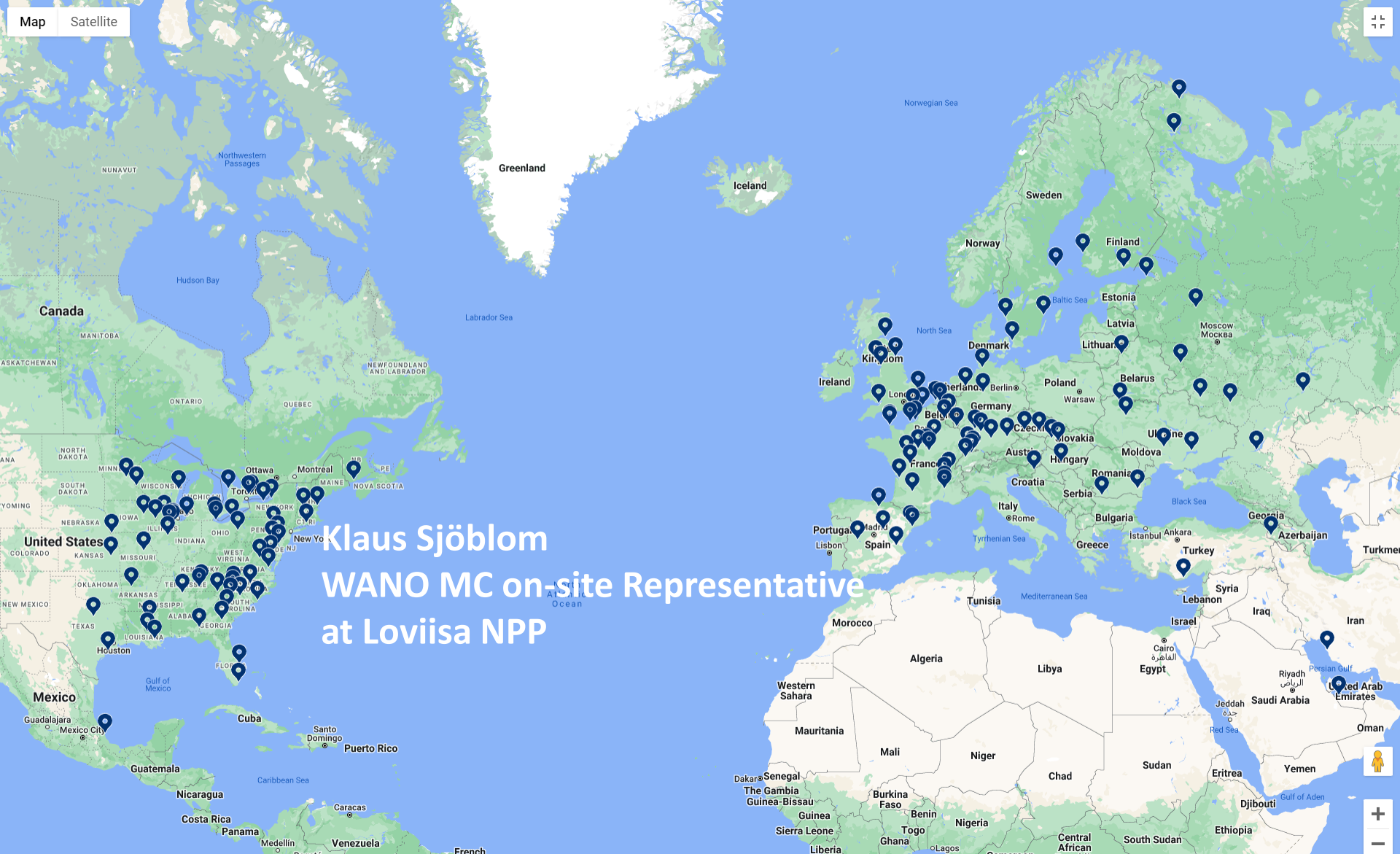


WANO – window to nuclear world



Topics of presentation

- ❑ History of WANO
- ❑ WANO principles
- ❑ WANO programs
- ❑ Peer Reviews
- ❑ Member Support
- ❑ Performance Analysis
- ❑ Operating Experience reports
- ❑ Performance Indicators
- ❑ Industrial learning and development
- ❑ Action for Excellence



History of WANO



- ❑ Chernobyl in 1986 challenged the nuclear industry.
- ❑ an event at one plant will impact every plant worldwide
- ❑ the leaders of every NPP in the world set aside their competitive and regional differences and came together in 1989 to create the World Association of Nuclear Operators, or WANO.
- ❑ Mission to maximize the safety and reliability of nuclear power plants worldwide
- ❑ by working together to assess, benchmark and improve performance through mutual support, exchange of information and emulation of best practices.
- ❑ Today WANO represents more than 120 members who operate more than 430 civil nuclear power reactors around the world.

Our vision: Setting
the global standard in nuclear safety.



We demand EXCELLENCE of ourselves
and expect it of others

EXCELLENCE

WANO principles



- ❑ Overriding priority: nuclear safety and excellence in operational performance.
- ❑ Membership is voluntary and carries with it special commitments and obligations.
- ❑ the commitment by each member to strive for the highest standards of safety and reliability.
- ❑ members commit to take timely action to correct significant performance issues and provide the necessary resources to support the WANO mission.
- ❑ Organized regionally around Atlanta, Paris, Moscow and Tokyo centers
- ❑ The standards for WANO programs and activities, including fair principles for resources and fees, are established at the global level.
- ❑ WANO is accountable only to the members. WANO is independent of governmental or regulatory influence
- ❑ Working language of WANO is English.
- ❑ Plant-specific information under the WANO confidentiality policy.

WANO programs



Regional crisis centre
Questions and answers
Youth movement

Member Support

Peer Review

- Good practices
- AFIs

Performance Analysis

Operations experience

- SOERs

Enhanced Performance Monitoring



Communication

Industrial Learning & Development

Peer Reviews

The heart of WANO's programs



- ❑ Peer reviews help members compare themselves against standards of excellence **Performance Objective & Criteria** through an in-depth, objective review of their operations by an independent team from outside their organisation. The result is a frank report that highlights strengths and **Areas For Improvement** in nuclear safety and plant reliability.
- ❑ Members learn and share worldwide insights on safe and reliable plant operation and improve their own performance.
- ❑ Corporate Peer Review.
- ❑ 4 y frequency for peer reviews, with a follow-up at 2 y

Peer review results: AFIs, strengths, findings are confidential as the extensive plant information



WANO

GLOBAL LEADERSHIP IN NUCLEAR SAFETY



WANO PR 2015, Loviisa NPP

Member Support

- ❑ WANO's support does not end once a PR team leaves a site
- ❑ The Member Support program works with members to improve safety and reliability.
- ❑ Member Support Missions (MSMs)
Expert mission / Training missions / Assist visits / Benchmarking visits
- ❑ Carried out at the request of a member plant or utility.
- ❑ A team of peers is selected for a member support mission from WANO's membership based on their expertise in the applicable area.
- ❑ Recent missions have covered areas as diverse as work management, human performance, equipment reliability, radiation protection, operations, outage management and organizational effectiveness.

Industrial Learning and Development ...



- ❑ Workshops, seminars, training courses and leadership courses.
- ❑ Comparison of operations and emulating best practices.
- ❑ Focus on improving plant performance operations, maintenance and engineering etc. Specific topics are chosen based on the members' requests or specific needs identified by WANO.
- ❑ Goal is to identify workable solutions whenever possible.
- ❑ Recent topics: task observation and managers in the field, human performance, organizational effectiveness, operating experience, equipment reliability and work management.

... Industrial Learning and Development



- ❑ Relationships with colleagues around the world.
- ❑ Provide personnel with the knowledge, skills and standards needed to support nuclear safety and operational performance.
- ❑ Workshops are interactive to exchange information and experience.

Performance Analysis

- ❑ Preventing events by learning from others
- ❑ Collects, screens and analyses operating experience and performance data, providing members with lessons learnt and industry performance insight reports.
- ❑ WANO members are willing to openly share their operating experience and performance data for the benefit of other nuclear operators.
- ❑ Members analyze their events and complete a WANO Event Report (WER) and send WERs to WANO.



Operating Experience Reports

- ❑ Significant Operating Experience Reports (SOERs) identify the principal contributors or trends of events and provide recommendations that members are expected to implement.
- ❑ Significant Event Reports (SERs) containing in-depth analyses to identify the lessons learned for the benefit of other stations. Member stations are expected to review the lessons learned and act, as applicable, to reduce the likelihood of similar incidents.
- ❑ Just-in-Time Reports: specially formatted briefing sheets for use in pre-job briefings to prepare personnel for specific tasks.
- ❑ Hot Topics: summaries and highlights of adverse performance trends or specific events.

Performance Indicators collect, compare, trend and disseminate nuclear plant performance data.



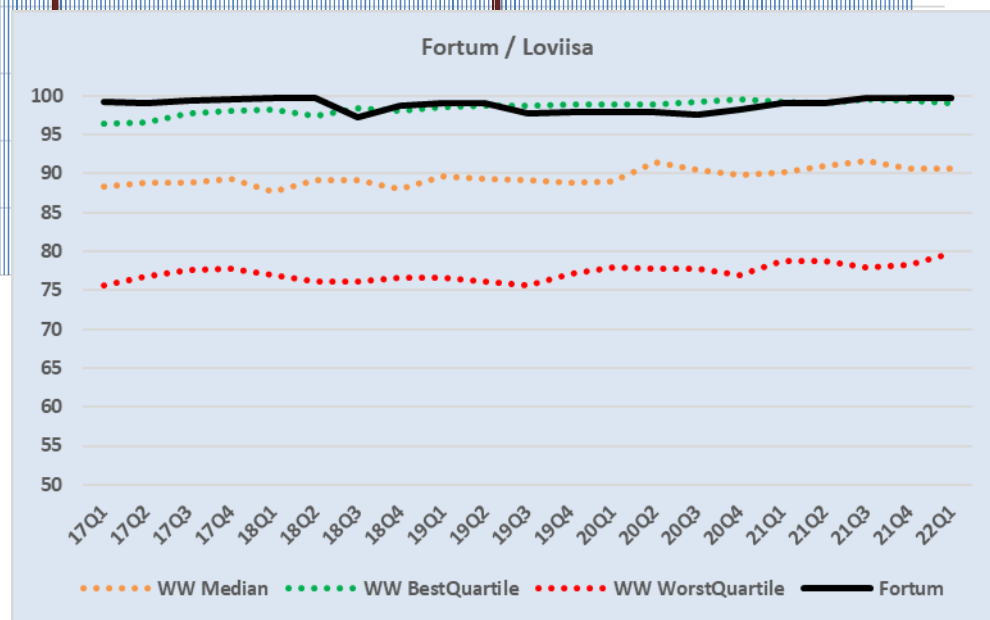
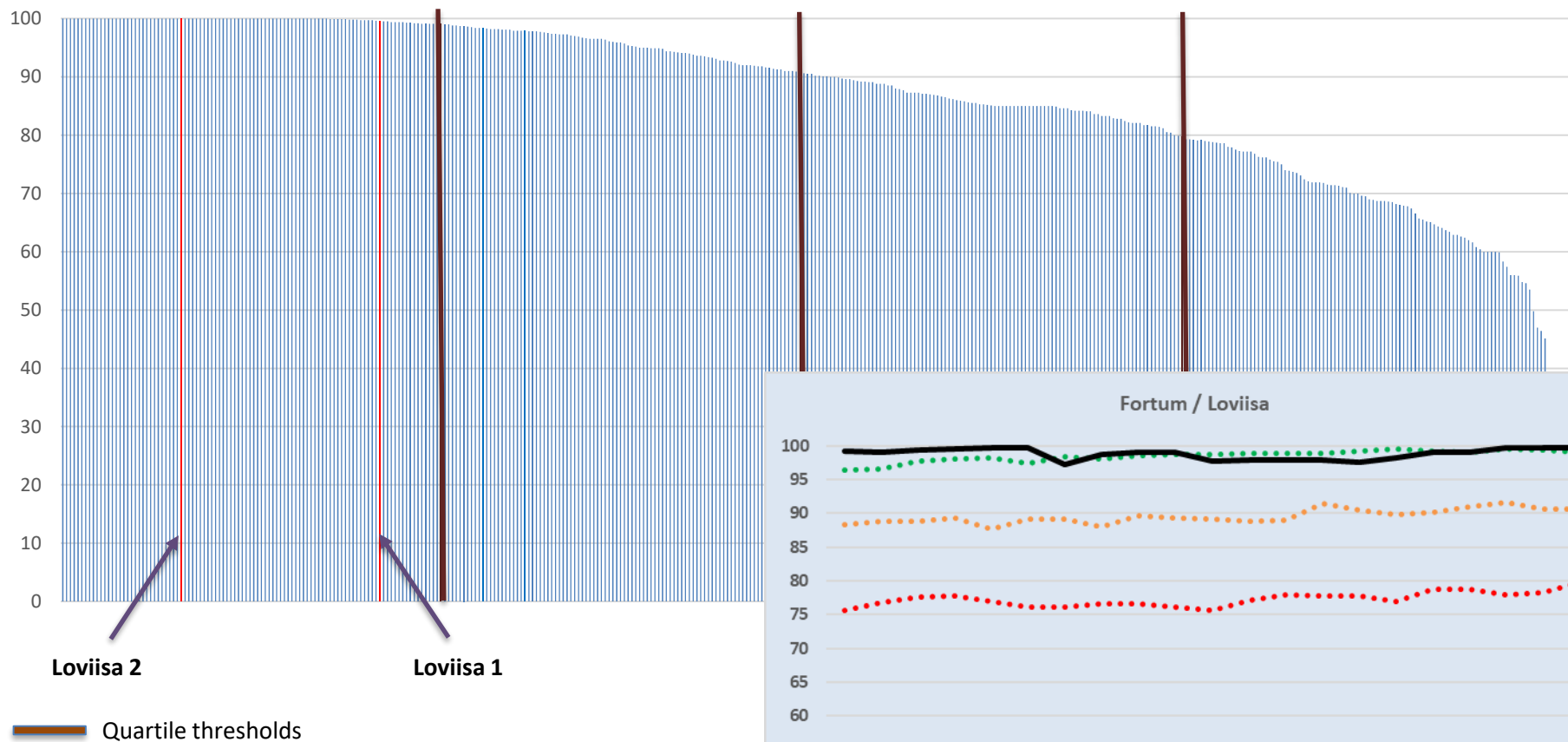
1. Unit Capability Factor, **UCF**
2. Unplanned Capability Loss Factor, **UCLF**
3. Forced Loss Rate, **FLR**
4. Grid-Related Loss Factor, **GRLF**
5. Unplanned Automatic Scrams Per 7,000 Hours Critical, **UA7**
6. Unplanned Total Scrams Per 7,000 Hours Critical, **US7**
7. Safety System Performance Indicator (high pressure safety in feedwater system (including both auxiliary and emergency feed power system (**SP5**)), **SSPI**
8. Collective Radiation Exposure, **CRE**
9. Fuel Reliability Indicator, **FRI**
10. Chemistry Performance Indicator, **CPI**
11. Industrial Safety Accident Rate, **ISA**
12. Contractor Industrial Safety Accident Rate, **CISA**
13. Total Industrial Safety Accident Rate, **TISA**

world association of nuclear operators
performance
indicators



WANO INDEX 2022 Q1

Loviisa NPP in the WANO Fleet



AfE goals:

- ❑ WANO Index >80
- ❑ WANO assessment rating – 1 or 2, occasional 3
- ❑ no Significant events
- ❑ Excellent Performance Indicators – no decline

Action for Excellence: Shaping the Nuclear Future

The industry-led initiative that is
advancing global nuclear safety.

Three areas you'll find progress:



Improved Safety



Increased Reliability

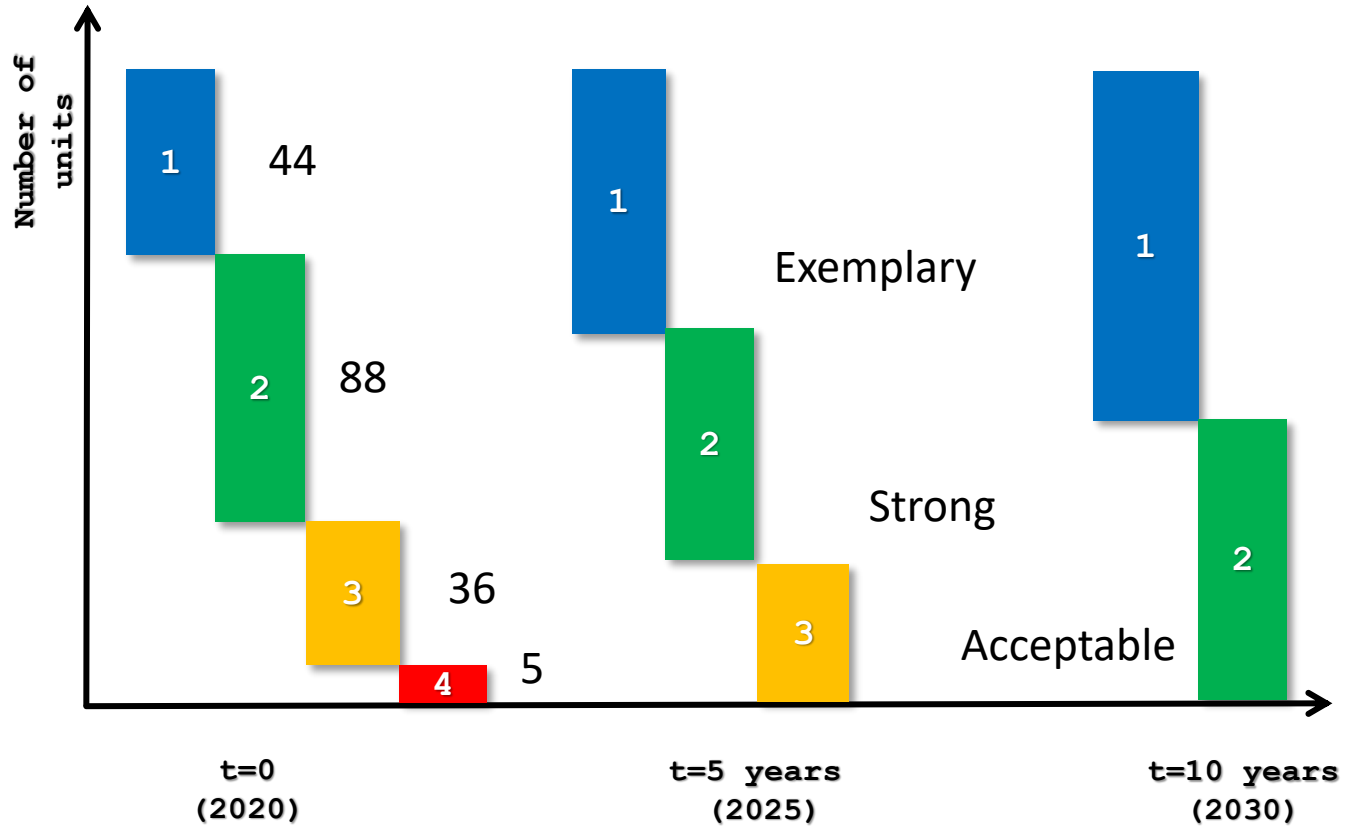


Better Performance



2. TIME FRAME:

HOW LONG WILL IT TAKE US TO FULLY IMPLEMENT THIS CHANGE MANAGEMENT INITIATIVE?



Thank you for attention!



Comments?