



World Institute for
Nuclear Security

World Institute for Nuclear Security

Security of Advanced Reactors

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“

If nuclear power is going to be a significant contributor to successfully addressing climate change, how do we manage the expansion of nuclear facilities and materials, including their spread to new, less stable regions in a way that maximizes safety and security and builds international confidence?

”

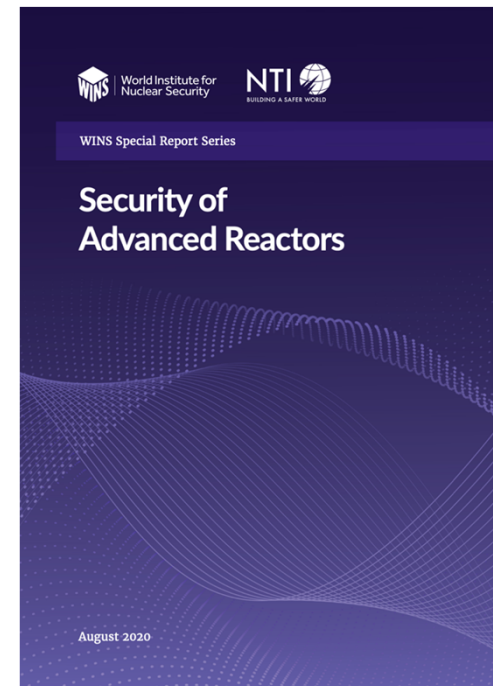
Objective and Overview of WINS Report

OBJECTIVE

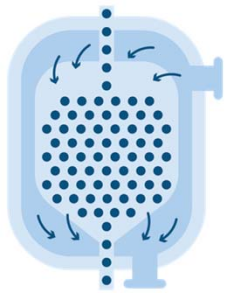
Encourage developers, supported by their regulators, to incorporate security as early as possible into their AR designs.

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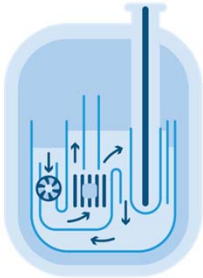
1. International Perspective
2. Regulatory Issues
3. Security Considerations of Advanced Reactor Designs
4. Common Security Challenges
5. Adopting Security by Design



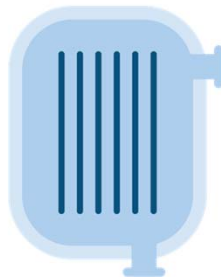
Security Considerations for Advanced Reactor Designs



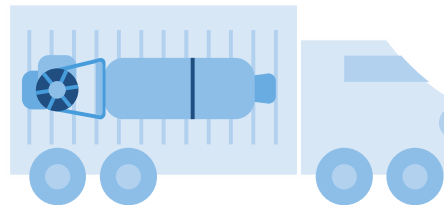
Tristructural-isotropic (TRISO) fuelled reactors



Reactors with molten core



Fast reactors



Microreactors

RECOMMENDATION

NGOs such as WINS and NTI should develop training programmes to educate AR designers about key security principles to ensure that security is taken into account at the earliest stage of design, including in relation to procurement decisions and the entire supply chain.

Common Security Challenges

DEVELOPER CONCERNS

1. Licensing
2. Cost
3. Automation

SECURITY CHALLENGES

1. High-Assay Low Enriched Uranium (HALEU)
2. Remote siting
3. Transport
4. Cybersecurity



3-5%
Low Enriched
Uranium



5-19.75%
High-Assay Low
Enriched Uranium

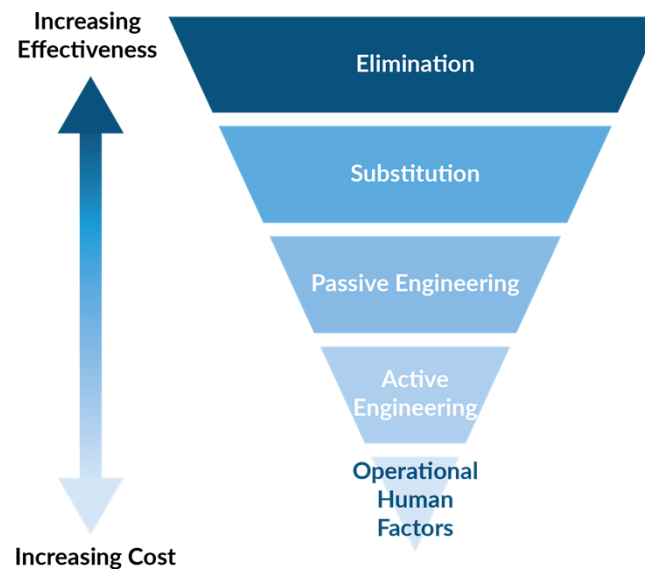
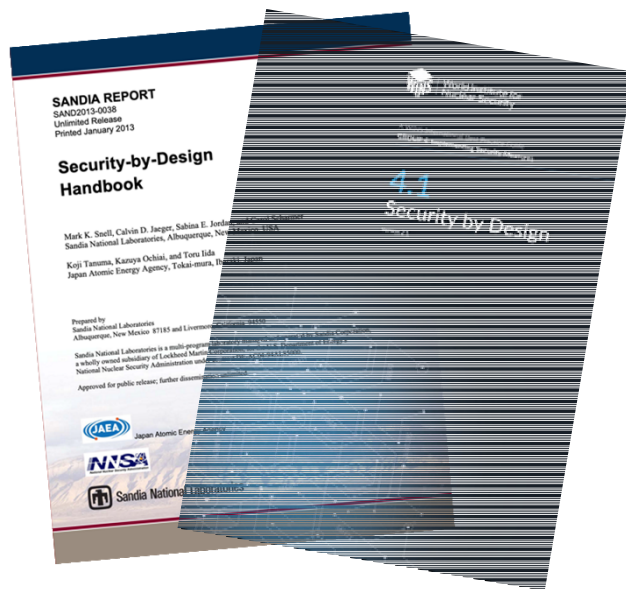


>90%
High Enriched
Uranium

RECOMMENDATION

Commission subject matter experts to begin studying each of these challenges in depth. These studies should identify potential problems, challenges and opportunities and result in the production of best practice guides and enhanced training packages.

Adopting Security by Design



RECOMMENDATION

AR developers should assign staff to periodically meet with other developers to organise peer reviews and share best practices and lessons learned in SeBD. NTI and/or WINS could organise.



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Thank you for your attention

Learn more at www.wins.org

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