



SMR-300 I&C Architecture Topical Report Overview Open Portion

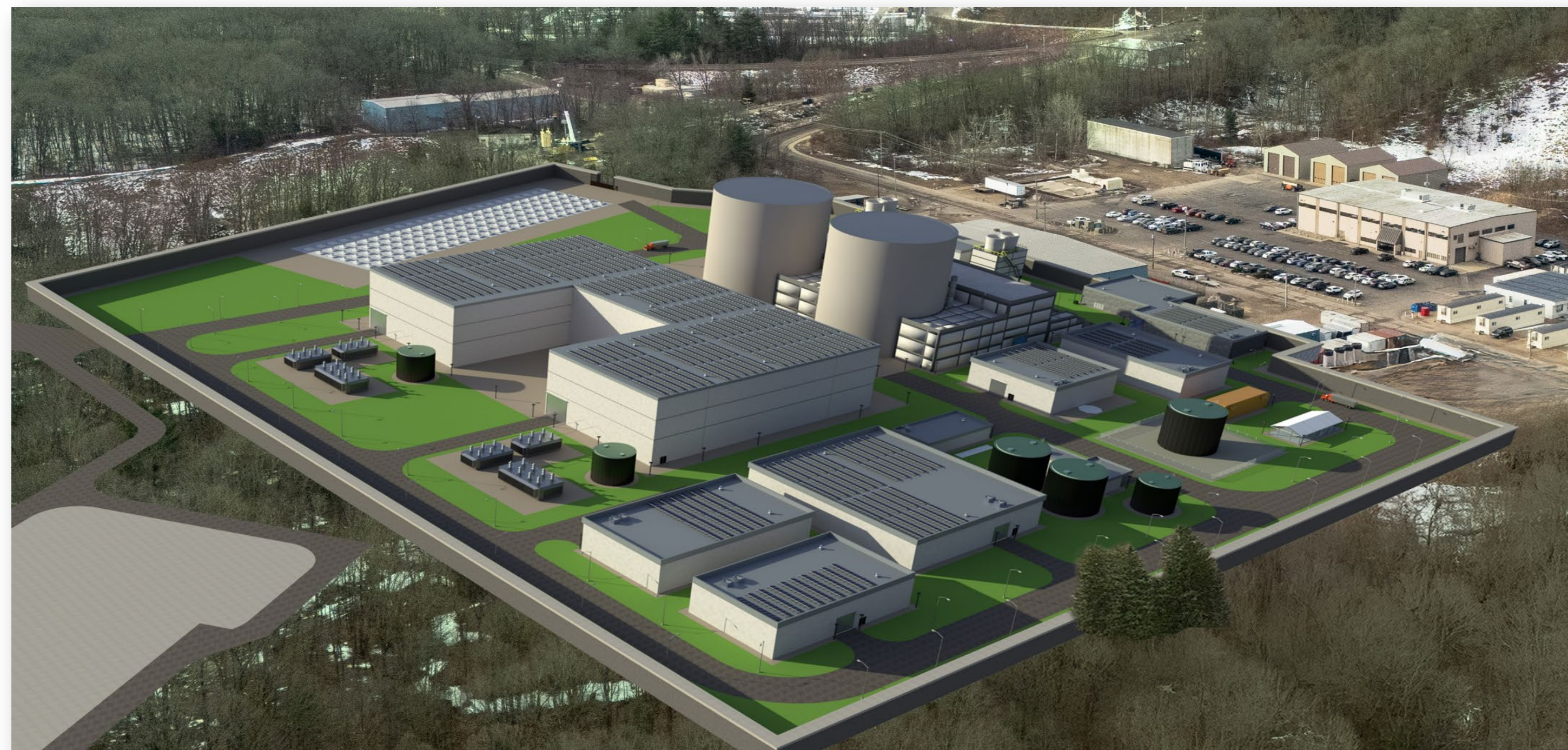
December 9, 2025

Holtec's SMR-300 Technology

Safe, Secure, Reliable, Flexible, Economical

Clean Energy to Support the World's Energy Needs

[Not Export Controlled]



Agenda



- Purpose of Meeting
- SMR-300 I&C Architecture Background
- Topical Report Scope and Objective
- Proposed Schedule
- Q&A
- Closed Proprietary Portion

Acronyms



■ D3	Diversity and Defense-in-Depth
■ DAS	Diverse Actuation System
■ DBE	Design Basis Event
■ DSRS	Design-Specific Review Standard
■ I&C	Instrumentation and Control
■ MELCO	Mitsubishi Electric Corporation
■ MELTAC	Mitsubishi Electric Total Advanced Control
■ PCS	Plant Control System
■ PSS	Plant Safety System
■ SE	Safety Evaluation
■ LTR	Topical Report

Purpose of Meeting



- To provide a walkthrough of LTR scope and objectives, including:
 - ✓ Specific scope of the LTR
 - ✓ How the LTR is used in conjunction with the MELTAC Platform LTR
 - ✓ How the LTR will be used in future licensing submittals
- Alignment on LTR submittal and review timeline

■ Previous pre-application regulatory engagements include:

- ✓ I&C Hazard Analysis Methodology, *Feb 2023*
 - ML23019A004
- ✓ I&C D3 Evaluations, *July 2023*
 - ML23156A182
- ✓ I&C ISG-04 Conformance Analysis, *Aug 2023*
 - ML23289A099
- ✓ I&C Two Division Design Conformance to IEEE Std 603, *Sept 2023*
 - ML23296A001
- ✓ SMR-300 Cyber Security Strategy, *Aug 2024*
 - ML24262A002
- ✓ SMR-300 I&C Architecture Licensing Topical Report Kickoff
 - ML25233A293

- The SMR-300 I&C systems are based on digital platforms developed by MELCO.
 - ✓ MELCO received a SE for Revision 2 of the MELTAC Platform LTR in 2018 (ML18260A211).
 - ✓ MELCO is expected to receive a SE for Revision 3 of the MELTAC Platform LTR in the next couple months (ML23167C168).
 - ✓ MELTAC Platform LTR covers the platform design and not the application use case for the SMR-300.

- SMR-300 is following 10 CFR Part 50.
- DNRL-ISG-2022-01 Appendix A provides guidance for I&C content related to Part 50 construction permit applications.
 - ✓ The SMR-300 I&C design follows the guidance in DSRS Chapter 7.
 - Unified framework that emphasizes fundamental I&C design principles:
 - Independence
 - Redundancy
 - Predictability and Repeatability
 - Diversity and Defense-in-Depth
 - Generic for I&C, focused on digital I&C systems

Topical Report Scope and Objective



- The SMR-300 I&C “Architecture LTR” builds on the MELTAC “Platform LTR”.
 - ✓ Platform LTR covers topics that can be addressed at a platform level.
 - e.g., design of the communications networks
 - ✓ Architecture LTR describes how the platform is applied to SMR-300.
 - Not duplicating or restating design concepts from the Platform LTR
 - Addresses some application-specific action items
 - Not all Platform LTR plant-specific action items are being addressed or closed in this LTR

Topical Report Scope and Objective



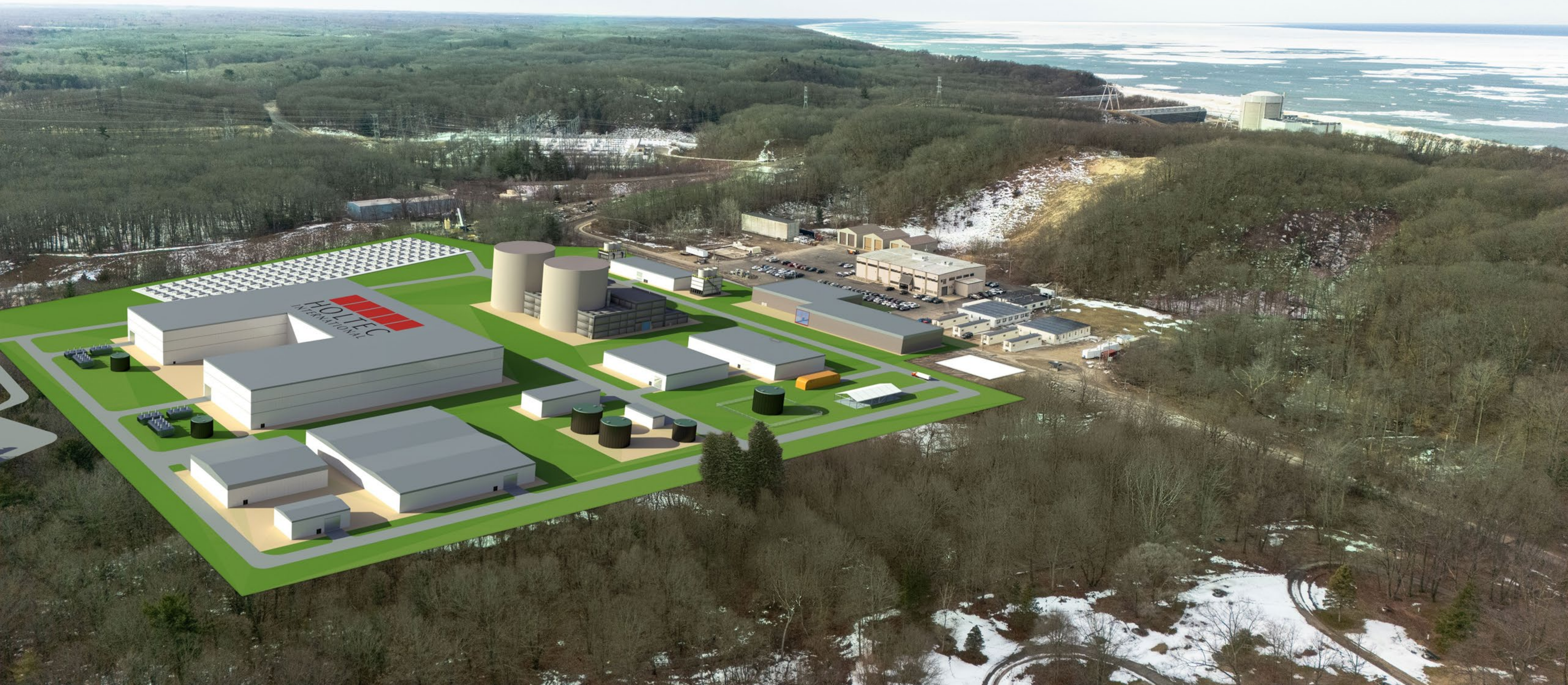
- The SMR-300 I&C Architecture LTR describes the architecture design and configuration of the SMR-300 I&C systems.
 - ✓ The LTR demonstrates that the SMR-300 I&C architecture adheres to the fundamental design principles and supports acceptable communications between safety-related and non-safety-related systems.
 - ✓ The objective of the LTR is to obtain an SE from the NRC concluding that the SMR-300 I&C architecture design is acceptable for reference in future SMR-300 licensing applications.

Proposed Schedule



- Proposed timeline for review
 - ✓ Submittal December 2025
 - ✓ Requesting a 12-month review cycle

Questions?



Thank You



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