

Claudio Filippone, Ph.D., HolosGen LLC

Transportable Modular Reactor by Balance of Plant Elimination

Team members

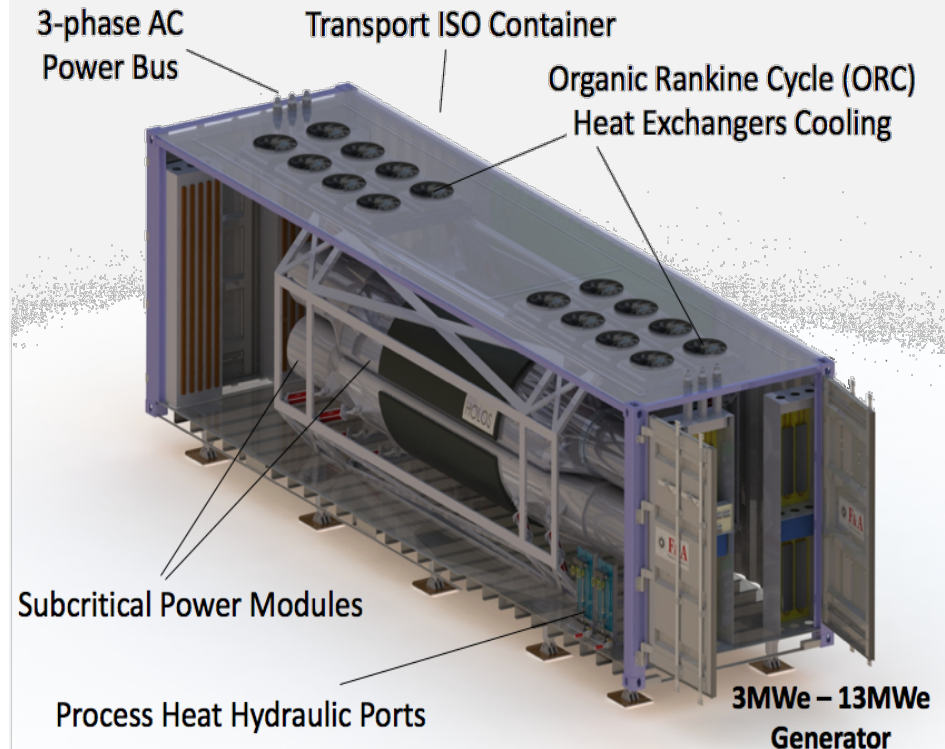
- *ThermaDynamics Rail LLC*
- *Argonne National Laboratory*

Goal

- *Demonstrate the viability of the HOLOS transportable gas-cooled reactor concept*

What is the technology?

- *HOLOS is a mobile scalable integral nuclear generator with a simplified design optimized to produce economical, distributable, pollutant-free electricity*
- *Enabled by reliable and commercial technologies employed by the aviation industry (e.g., turbomachinery and actuators), solar and wind industries (e.g., power inverters and controllers)*
- *Balance of Plant elimination reduces the number of SSCs*
- *By enabling full-scale testing and factory certification Holos can accelerate licensing processes and commercial deployment*



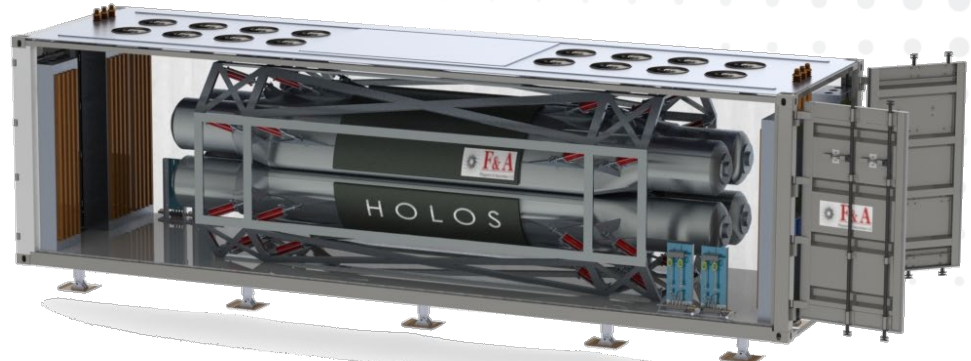
www.holosgen.com

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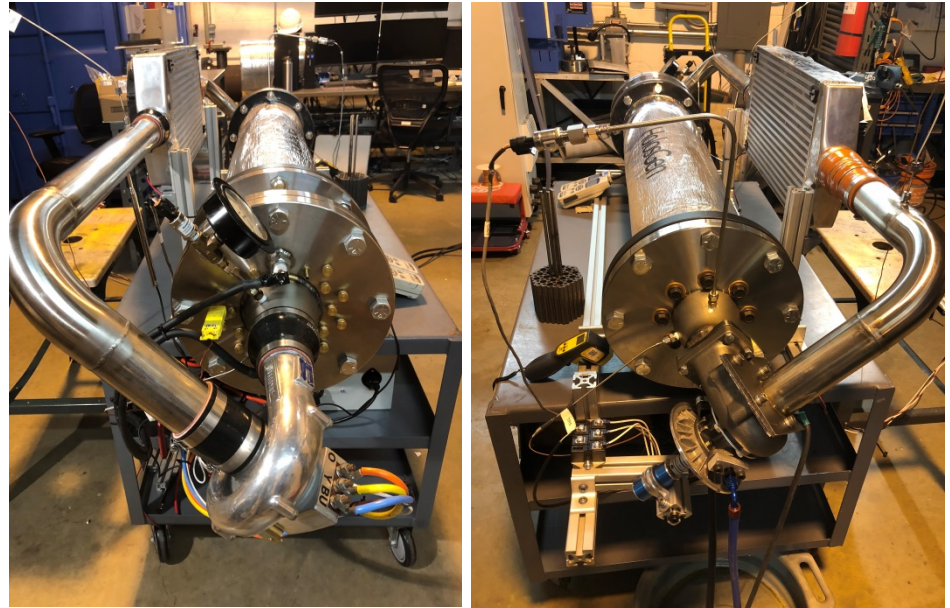
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How is your system transformational?

- *Mobile!*
- *Minimal on-site setup time*
- *Tested at full-scale under all scenarios*
- *DBA, BDBA performance validation*
- *Autonomous*
- *Fast commissioning*
- *Decommissioning ready*
- *Very low capital cost*
- *Reduced foot-print, independence of site-specific stressors, real-time load following*
- *Cost drive reductions as units are formed by multiple mass-produced components*
- *Reliant on gas Brayton cycle with waste thermal energy and decay heat converted to electricity by an Organic Rankine Cycle*
- *Electric island or grid-ready upon deployment*
- *De-risked: Closed-loop Brayton cycle proof-of-concept demonstrator successfully tested*



1x Holos Generator Unit = 4x identical internal components



Holos Test Assembly 1 (HTA-1) successfully tested September 27, 2018

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What challenges do you anticipate?

- **Costing of Holos simulator components**
 - Increased reliance on in-house manufacturing
 - Adaptation of off-the-shelf components
- **Proving real-time load following capabilities**
 - Increase reliance on RT high-resolution modeling capability and expertise to develop scaling correlations based on subscale Simulator test data
- **Scaling results from subscale Simulator**
 - Target subscale Simulator tests to validate computational models to more accurately forecast unsteady-state operations
- **Shielding during transport after operations**
 - Increase reliance on RT high-resolution modeling
 - Advanced materials utilization
- **Shortage of highly-skilled personnel**
 - Increase training time & extended tasks execution
 - Increase reliance on outsourced consulting
- **Securing adequate private funding**
 - Increase advertising efforts to investors networks
 - Tailor and optimize design to specific markets

