

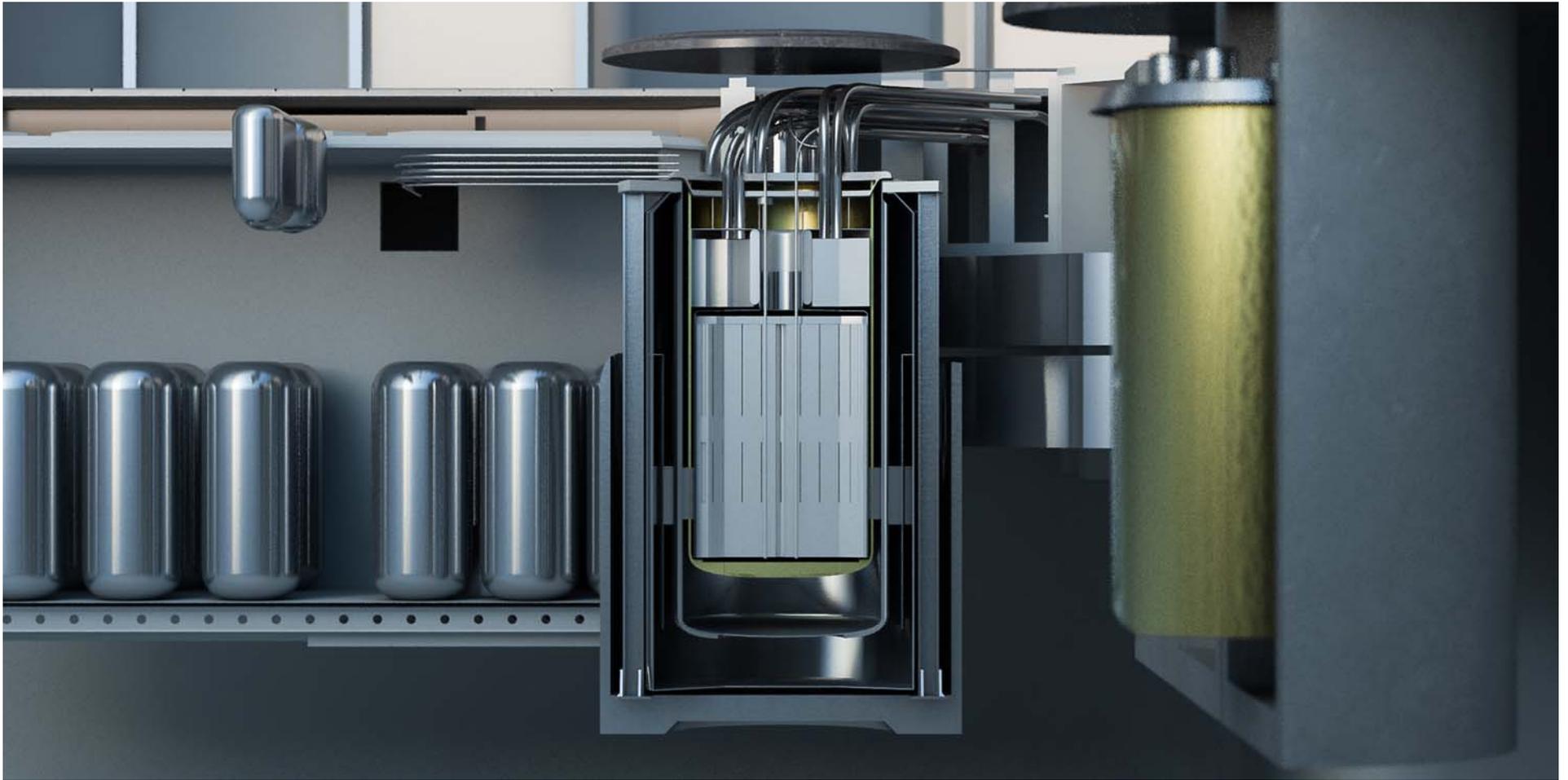
TERRESTRIAL
ENERGY

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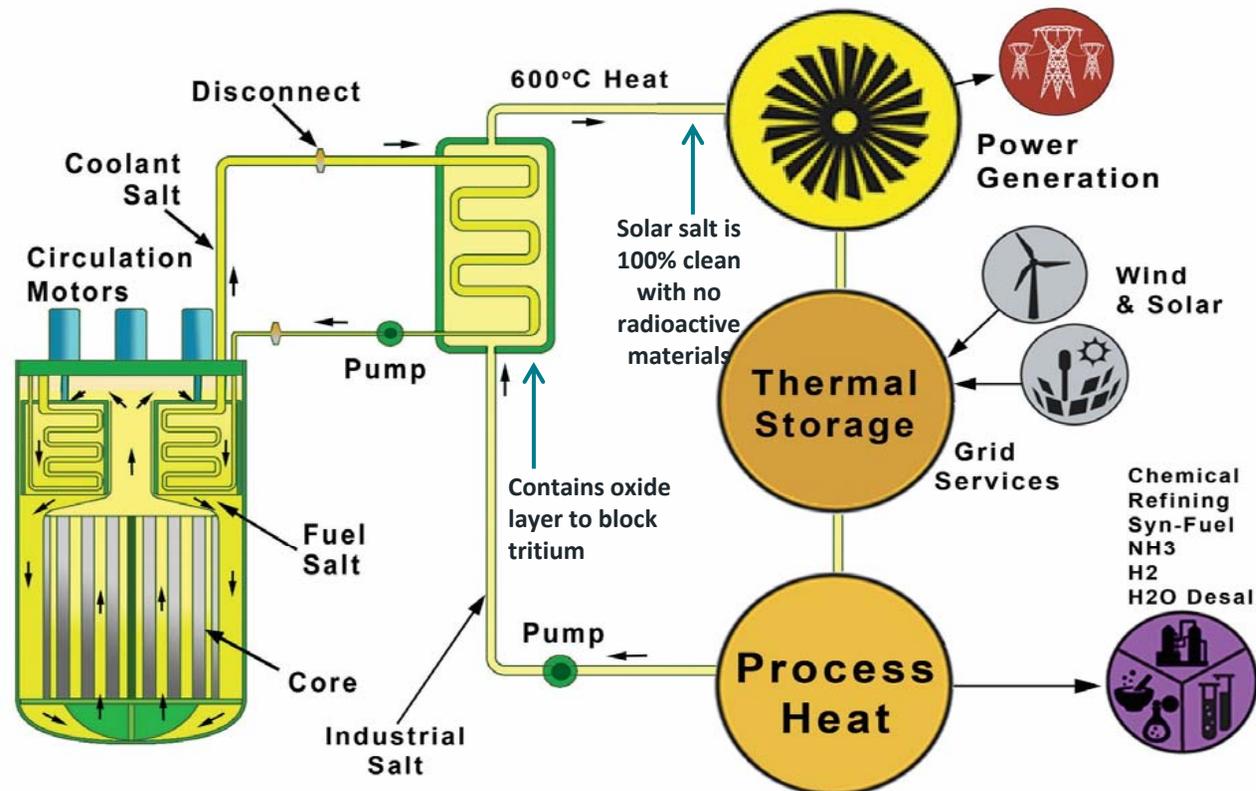
NSUF /GAIN

Nuclear Thermal-Hydraulics

July 13 2017



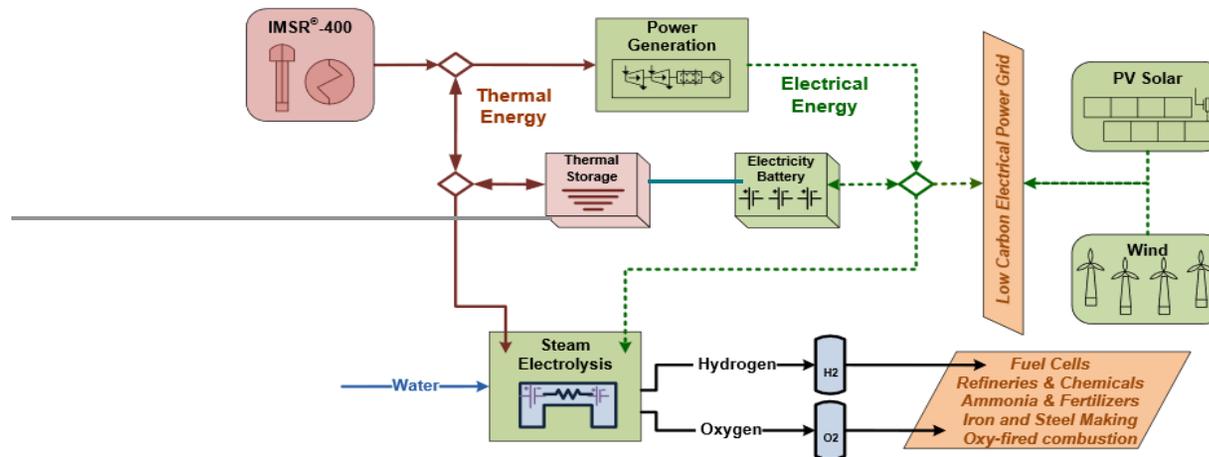
CLEAN AND SAFE HEAT APPLICATIONS



- Nuclear island can be located up to 5km away from application
- Solar salt heat supply is 100% clean and free of any radioactivity
 - IMSR® produces minimal amounts of tritium
 - Oxide layer in solar side of secondary heat exchanger blocks remaining tritium from entering solar salt loop

Applications of IMSR® heat on industrial sites are 100% non-nuclear

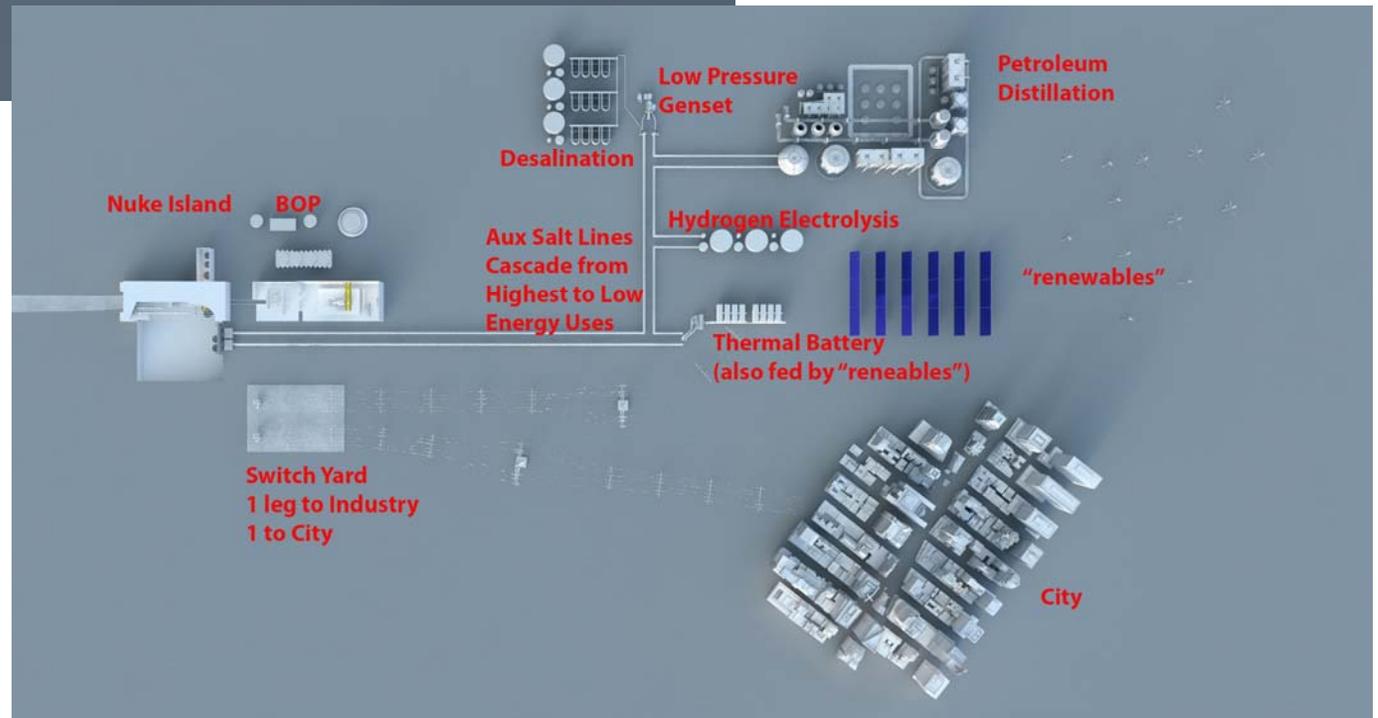
EXAMPLE 1 : DETAILED TECHNICAL AND ECONOMIC ANALYSIS OF IMSR400 AND IMSR600 WITH HTSE TO PRODUCE HYDROGEN



Basic HTSE plant schematic with IMSR® coupling

Technical and Economic Calculation Methods

- Hydrogen and oxygen production rate calculated by INL using Aspen HYSYS software package
 - An internationally recognized 1D Computational Fluid Dynamics program.
- DOE H2A model used to calculate hydrogen production cost based on capital and operating cost inputs.
- The economic analysis of the H₂ price assumes the sale of oxygen, but does not assume the sale of any power to the electric grid



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