



ULTRA SAFE NUCLEAR

Ultra Safe Nuclear

MMR Development

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RELIABLE ZERO-CARBON ENERGY ANYWHERE



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Ultra Safe Nuclear: What is a Micro Modular Reactor?

- MMR is a graphite moderated, helium cooled 45 MWth or 15 MWe reactor.
- MMR utilizes a molten salt intermediate heat exchanger.
- MMR is walk away safe with zero buffer distance.
- The design of MMR follows an intensive investigation of all previous nuclear accidents and integrates designs to avoid all previous mistakes.
- The molten salt serves as a thermal battery.
- The MMR is fully load following and dispatchable. It can run from hot standby to full power in a matter of minutes, comparable to gas turbines.
- Construction time, following licensing and permitting, is 18 months or less.



What Does Ultra Safe Mean?

- No Active Systems or Operator Action is Needed for Safe Shutdown.
- The Canadian Nuclear Safety Commission and the US Nuclear Regulatory Commission Believe There is No Credible Event that Can Cause the Release of Radioactive Material.
- There is Zero Setback Distance Requirement.
- The Fuel Cannot be Breached Unless Over 4000 C; The MMR Cannot Exceed 1000 C – Negative Thermal Feedback to Fission Cross Section – Over 1000 C, the Reactor Shuts Itself Down.
- The MMR Cannot Melt Down.
- The MMR Cannot Explode.



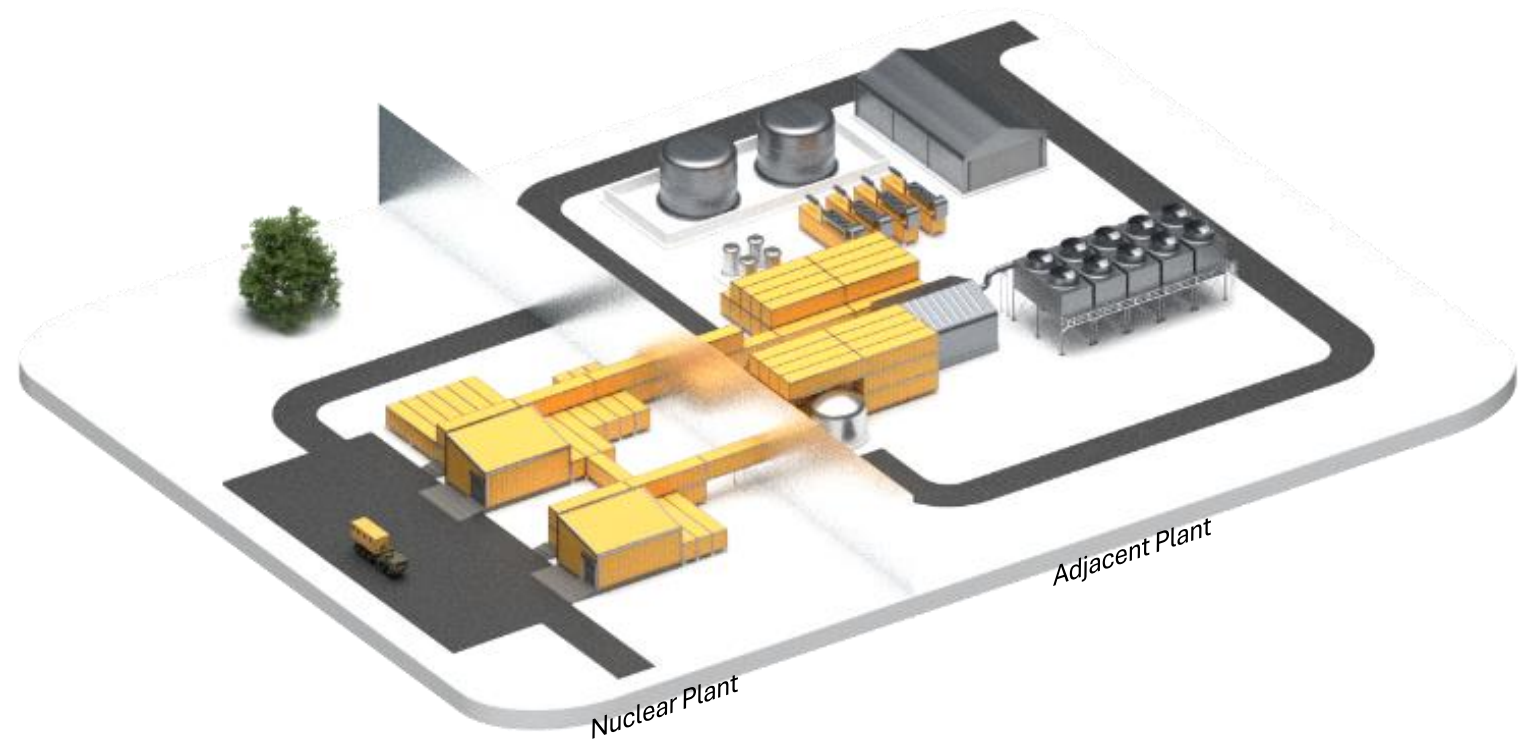


Prior Accident Comparison

- Three Mile Island
 - Operator intervention required
 - Active cooling required
 - Fuel meltdown
- Chernobyl
 - Operator error caused rapid thermal event leading to explosion, fire and fuel destruction
 - Lack of fuel containment
- Fukushima
 - Active cooling failure after shutdown leading to meltdown
 - Active cooling failure in SNF pool

How Does MMR Work?

- U235 Fissions and Releases Heat
- Helium Circulates to Remove Heat
- Molten Salt Removes the Heat from the Helium
- Superheated Steam is Produced from the Molten Salt
- Electricity is Produced from the Steam or Industrial Heat is Produced or Hydrogen is Produced



Indicative Economics

- MMR is Designed to Replace Diesel or to Serve Isolated Grids
- Diesel LCOE is >US\$0.36 per kwhr
- A Single 15 MWe MMR has LCOE of US\$0.18 per kwhr
- A Large Cluster of MMRs has LCOE as Low as US\$0.08 per kwhr
- A 50 MWe Baseload Wind and Solar Installation has LCOE > US\$0.50 per kwhr
- Indicative economics are based on USNC serving as IPP
- Indicative economics include decommissioning and waste disposal fees



How Can MMR Help Australia?

- Remove Diesel Generators
 - 4,500 MW of diesel gensets in Australia at installations 20 MW or greater
 - About 1/3 of diesel imports for these gensets
 - About 5% of national carbon dioxide emissions from these gensets
- Integrate with Wind and Solar Installations Eliminating Batteries
- Supply Baseload, Reliable Power to Critical Facilities – Data Centres, Airports, Government Installations
- Supply Off-Grid or Unreliable Grid Needs
- Produce Hydrogen and Ammonia-Based Fuels and Fertilizers

Progress to Date

- Order for First Unit in Canada, Chalk River, Ontario; Scheduled Operation 2028
- Order for Second Unit in the US, University of Illinois; Scheduled Operation 2028
- FCM Fuel Manufacturing Facility Built and Operational
- Nuclear Reactor Factory in Final Design; Construction Scheduled in 2025 in the US
- Feasibility Studies Progressing for Over 100 Units in ASEAN region, Canada, US, Poland and the UK





Sustainability and Ethics

- USNC Works With All Stakeholders; Some Become Investors
- MMR is Not Reliant on HALEU; Uranium Enrichment from URENCO; Other Sources Exist
- MMR Fully Integrates with Wind and Solar, Eliminating Batteries



Safety, Security and Safeguards

- Safety:
 - MMR is Walk Away Safe
 - MMR Has Zero Set Back Distance
 - MMR Cannot Explode or Melt Down
- Security: No Terrorism Can Cause Release of Radioactive Material
- Safeguards: No Weapons Material Is Available From MMR



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