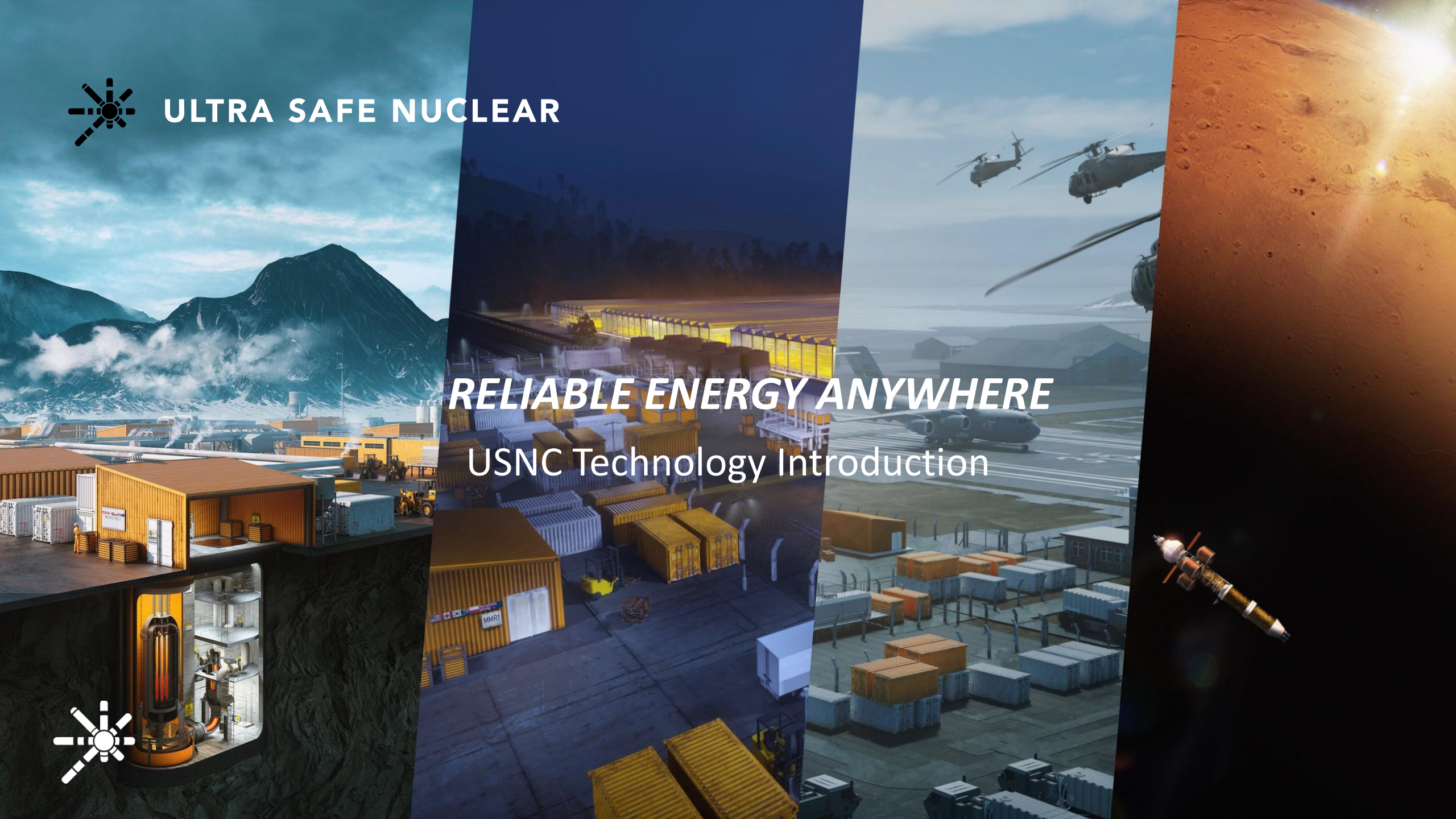
ULTRA SAFE NUCLEAR

RELIABLE ENERGY ANYWHERE

USNC Technology Introduction

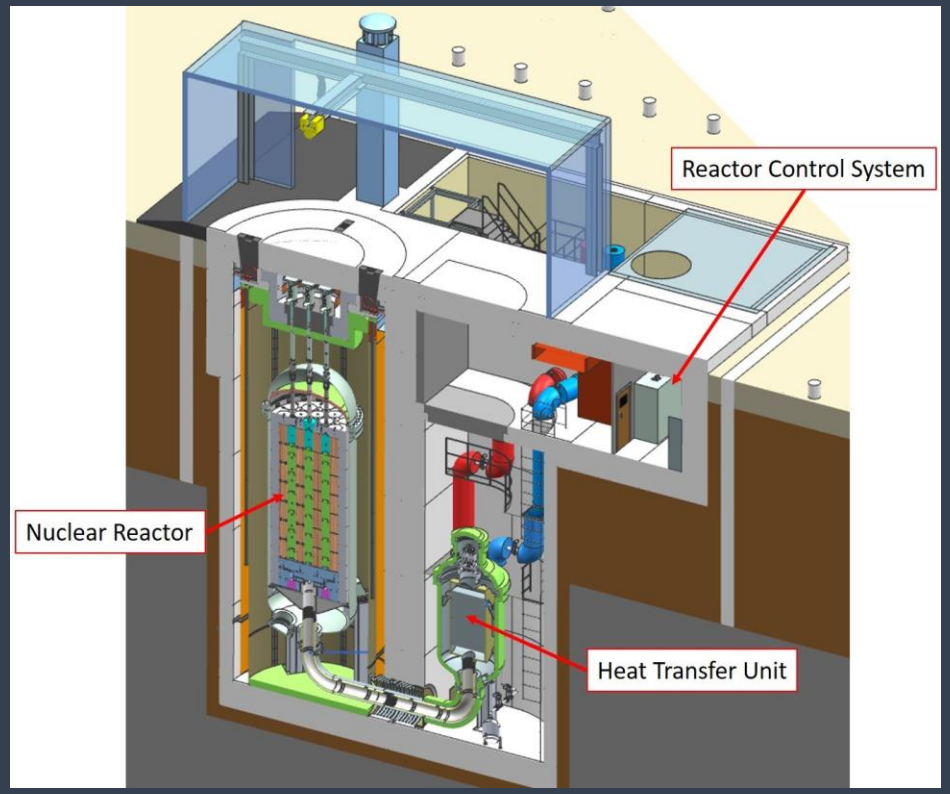


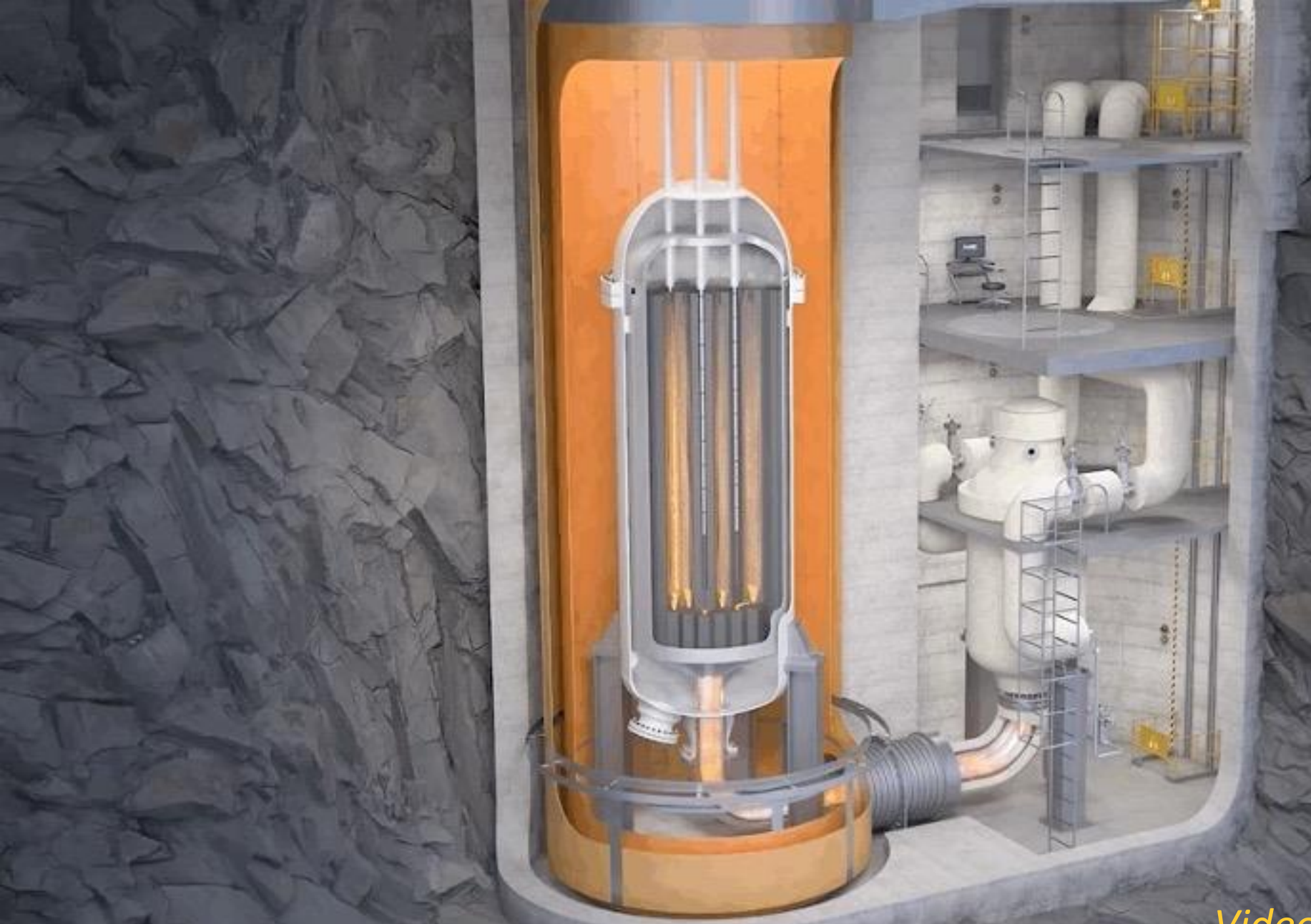
Ultra Safe Nuclear Corporation (USNC)

- USNC is a Seattle-based advanced energy company of over 160 employees, focused on delivery of safe, commercially competitive clean and reliable energy
- USNC designs, licenses, manufactures and develops clean energy technologies and products
- Multiple patents for ceramic micro-encapsulated nuclear fuel
- USNC has leveraged proven reactor technologies with innovative safety systems and fuel design to create a 4th generation Micro Modular Reactor (MMR) designed for northern/remote applications
- The MMR is on track to be the first commercially deployed advanced reactor in North America
- The MMR has begun the licensing process with the Nuclear Regulatory Commission (NRC) to install a Research Test Reactor at the University of Illinois Urbana Champaign campus.

The Ultra Safe Nuclear Gas-cooled Micro Modular Reactor (MMR)

- 10MW to 100MW plant size (electrical)
- No refueling required for at least 10 years
- Cannot melt down
- Modular design allows for rapid construction and off-site fabrication
- Fraction of the capital cost of traditional nuclear plants
- Flexible design outputs electricity, process heat and can produce hydrogen
- Minimal waste integrates with national plans for disposal
- Stable, long-term energy costs lower than highly-unpredictable fossil fuels
- One 10 MW MMR can replace 65 million gallons diesel (675,000 tons CO_2)





First commercial micro-reactor product

MMR™ "Energy Unit"

Fully Fueled

Equivalent to:
1B kWh (electric) charged battery
or 3B kWh (thermal) heat storage

Can produce:
power as needed, up to 10 MWe
or heat as needed, up to 30 MWt

Video: USNC Standard of Safety

MMR™ Energy System REM

2-Unit Layout for Remote Energy Management

60 MWt (30 x 2)

Electrical Power

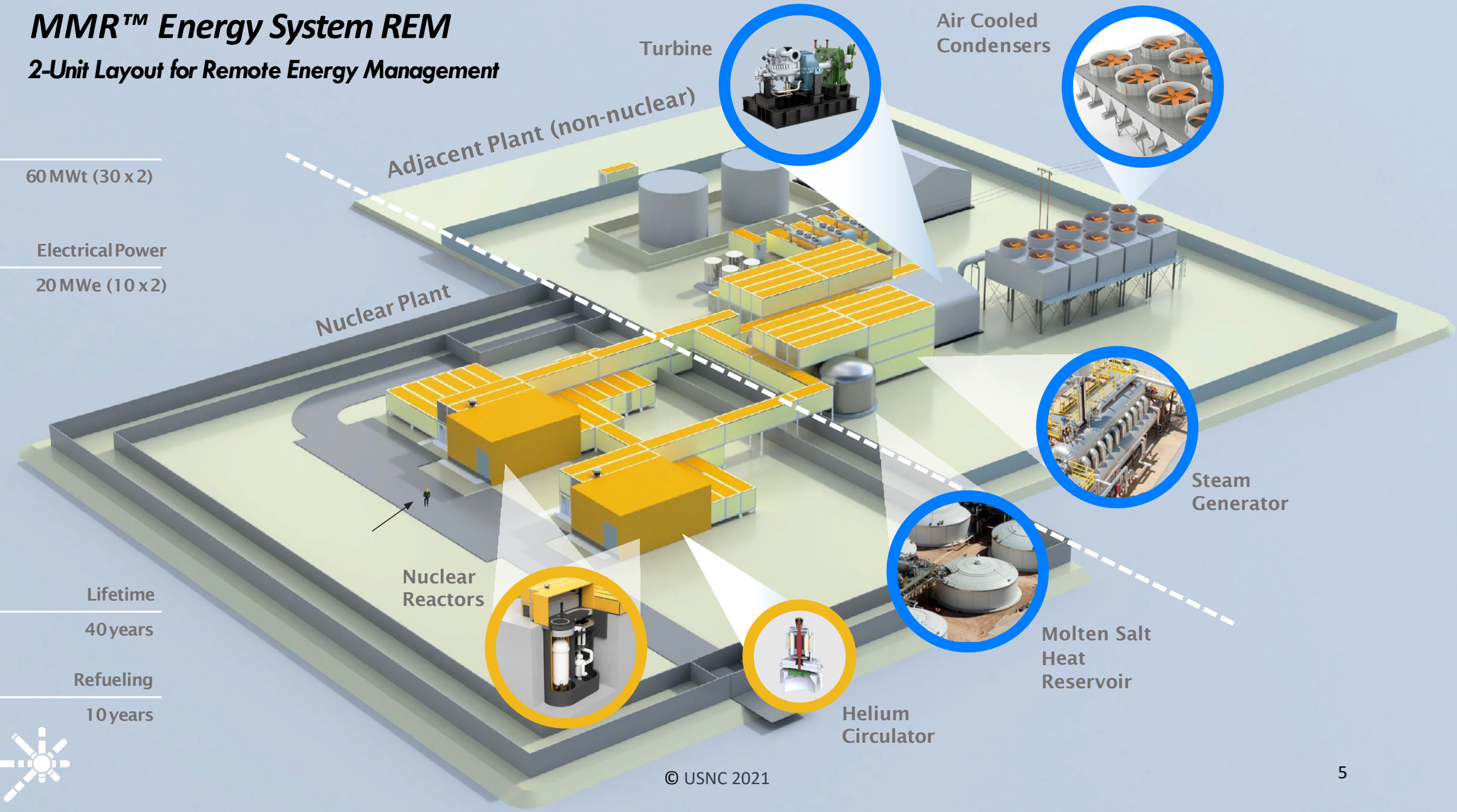
20 MWe (10 x 2)

Lifetime

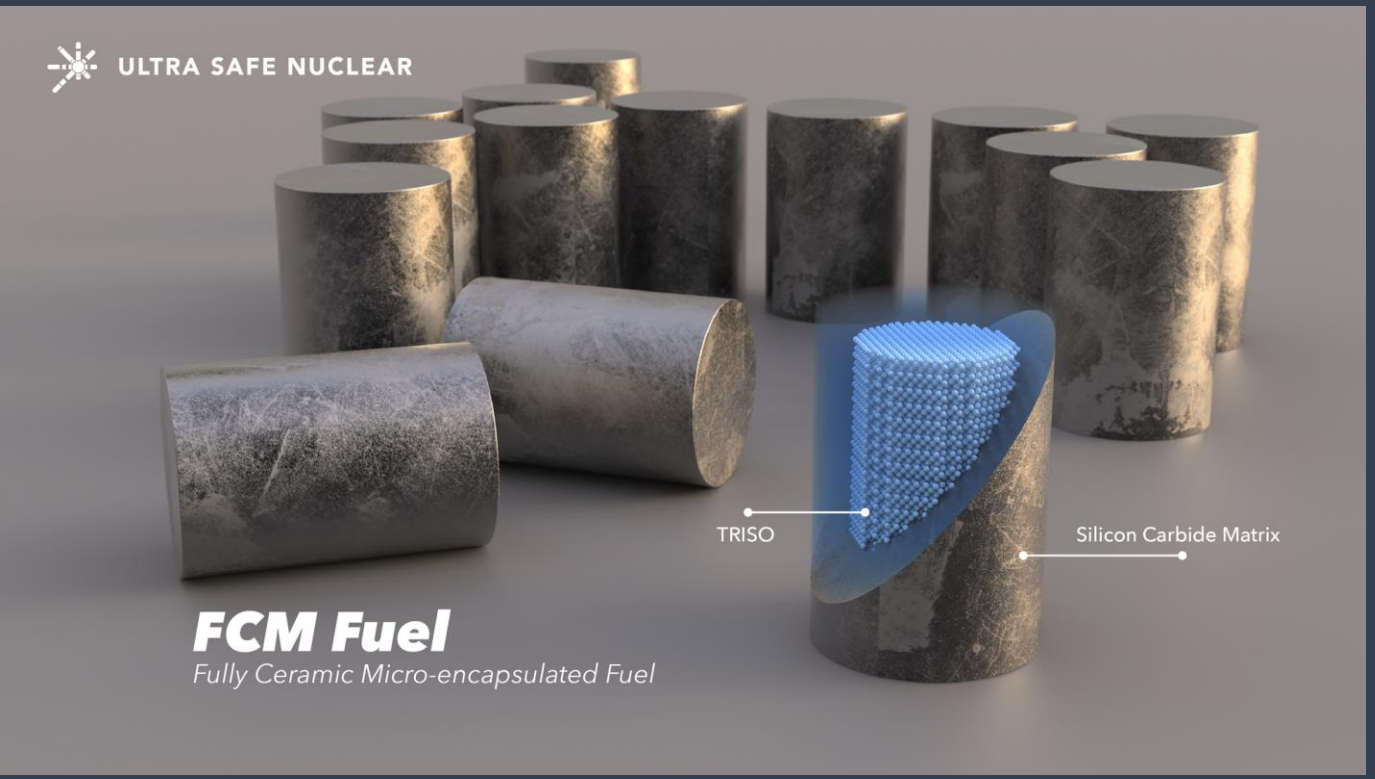
40 years

Refueling

10 years



Fully Ceramic Microencapsulated (FCM) Fuel, a USNC Patent



- Design incorporates safety at fuel level rather than requiring complex and expensive safety systems like traditional nuclear technologies
- TRI-structural ISOtropic (TRISO) coated fuel particles compacted in specially sintered silicon carbide pellets which will not degrade over time
- Full containment of radioactive materials during operation and any possible system failure
- Manufactured using 3D printing technology
- Non-interacting materials and coolants
- Highly conductive to enhance heat dissipation
- Extraordinary stability at high temperatures

Safety of the USNC Microreactor

- Small
  - The radioactive inventory is low
  - The reactor can dissipate energy externally if necessary to remain safe

- Slow burning
  - At any time, the power produced is small compared to safety limits

- High temperature materials and FCM fuel
  - Graphite and Silicon Carbide are material capable of withstanding much higher temperature than the ones at which they are exposed in the MMR

Safety is Embedded not Added

MMR is intrinsically safe

- The capacity to create a hazardous situation is limited
  - Low power density
  - Low pressure
  - Low radioactive inventory

MMR is inherently safe

- The laws of physics are used to avoid off normal conditions which might translate into accidents
  - Negative reactivity coefficient
  - Large thermal inertia
  - Operates at temperatures much lower than material limits

MMR is passively safe

- Natural phenomena are used to keep the reactor safe
- MMR uses natural conduction to guarantee safety
- MMR uses natural convection to guarantee safety

Security Features of MMR

USNC integrated security measures into the design of the fuel and the plant

- The reactor will not need refueling at least for 10 years
  - ensures security at the site as reactor is sealed
- MMR is sited below ground
  - provides added protection from natural and man-made hazards
- TRISO fuel
  - There is no technology for reprocessing from extraction of fuel from within the TRISO
- Solid ceramic fuel pellets
  - encasing TRISO fuel in Silicon Carbide makes extraction and reutilization of the fuel extremely difficult if not impossible

The MMR is Economic

- The MMR costs are cost competitive today compared to diesel ($0.20/kWh to $0.44/kWh)
- MMR cost projections are in the lower range of the Small Scale Nuclear Power: an option for Alaska? (uaf.edu) report ($.09/kWh to $.33/kWh)
- MMR micro grids, inclusive of wind, solar and batteries are less expensive than without MMR
- MMR cost has long term stability because it avoids the volatility of fuel cost (long refueling time)
- Low initial capital cost

Why MMR Technology for Alaska?

- Built for long refueling cycles limit logistic challenges in fuel supply
- The capability to adapt the fuel cycle to electricity demand allows integration with seasonal hydroelectric
- The capability to load follow allow the use of MMR in microgrid, even with variable renewable
- Modular construction allow for short on-site construction time
- Allows for modular increase of installed capacity
- Can deliver high quality heat (steam)
- Waterless cooling
- Able to perform in extreme sub-zero temperatures

Disposition of Spent Fuel in Nuclear Core

- The USNC MMR operates for up to 30 years and when removed from reactor will be stored on site for 2 years in a specially designed NRC approved dry cask
- Following this time USNC will retrieve the cask and transport it to a storage or disposal site- in accordance with US policy
- The federal government has the responsibility to site, build, and operate a deep geologic repository for the disposal of high-level waste and spent nuclear fuel (SNF), however there is no present path forward for this
- USNC is participating in national policy discussions promoting the creation of a repository for spent fuel and will continue to promote resolving present impasse

What the MMR Represents for Alaska

- Stable energy cost
- Lower energy cost than diesel
- Reliable and resilient energy source
- CO_2 free energy
- Energy independence

- An economic growth enabler due to:
  - Lower energy costs
  - More reliable energy supply
  - Increased self-sufficiency for energy
  - Create reliable, cost effective microgrids
  - Combined heat and power for industry applications

Alaska Native and Rural Community Engagement

- Stakeholder engagement is a core competency of USNC and integral to project success
- USNC seeks social license to operate to ensure near-term and ongoing social acceptance
- Communication and outreach is conducted at the beginning of project so that changes can be made based upon input received
- Diligent research and understanding of historical events in Alaska that shape present day perceptions
- Emphasis upon creating two-way dialogue that is meaningful and sustained
- Collaborative and interactive problem-solving with intent to empower communities and stakeholders

Video: Chalk River Project

Funded Demonstration at Chalk River Canada

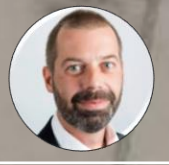
15MW$_{th}$

by 2025

Owner/ Operator	GLOBAL FIRST POWER
Partners	USNC ULTRA SAFE NUCLEAR; ONTARIO POWER GENERATION
Customer	Canadian Nuclear Laboratories; AECL

Robby Sohi
CEO of Global First Power

Dual position as Chief Supply Officer at OPG



Niel Kemp
Technical Director of Global First Power

Dual position as VP for MMR Projects at USNC

GFP Joint Venture w/ Ontario Power Generation

- A 50/50 joint venture called Global First Power (GFP)
- OPG is Canada's largest utility and nuclear operator with $5B annual revenue and 10,000 employees
- Jointly developing Canada's first MMR
- Over $20 million invested to date

Micro-reactor for research test & training

Proposed at University of Illinois

Partners	UNIVERSITY OF ILLINOIS URBANA-CHAMPAIGN
Owner /Customer	USNC ULTRA SAFE NUCLEAR · UNIVERSITY OF ILLINOIS URBANA-CHAMPAIGN

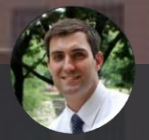
20 MW_{th}

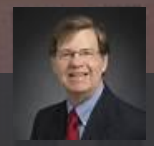
by 2026

USNC has proposed construction of a single MMR operated as a training, research and test reactor, and to partially replace power from the University's power station by providing carbon-free district heating.

The 20 MWth unit will test new technologies to de-carbonize energy production, provide practical solutions for microgrid integration, and train a future workforce through hands-on experience with a next-generation advanced reactor.

The Illinois reactor will be the first Gen IV reactor deployed at a university, and the first new U.S. university reactor in nearly 30 years.

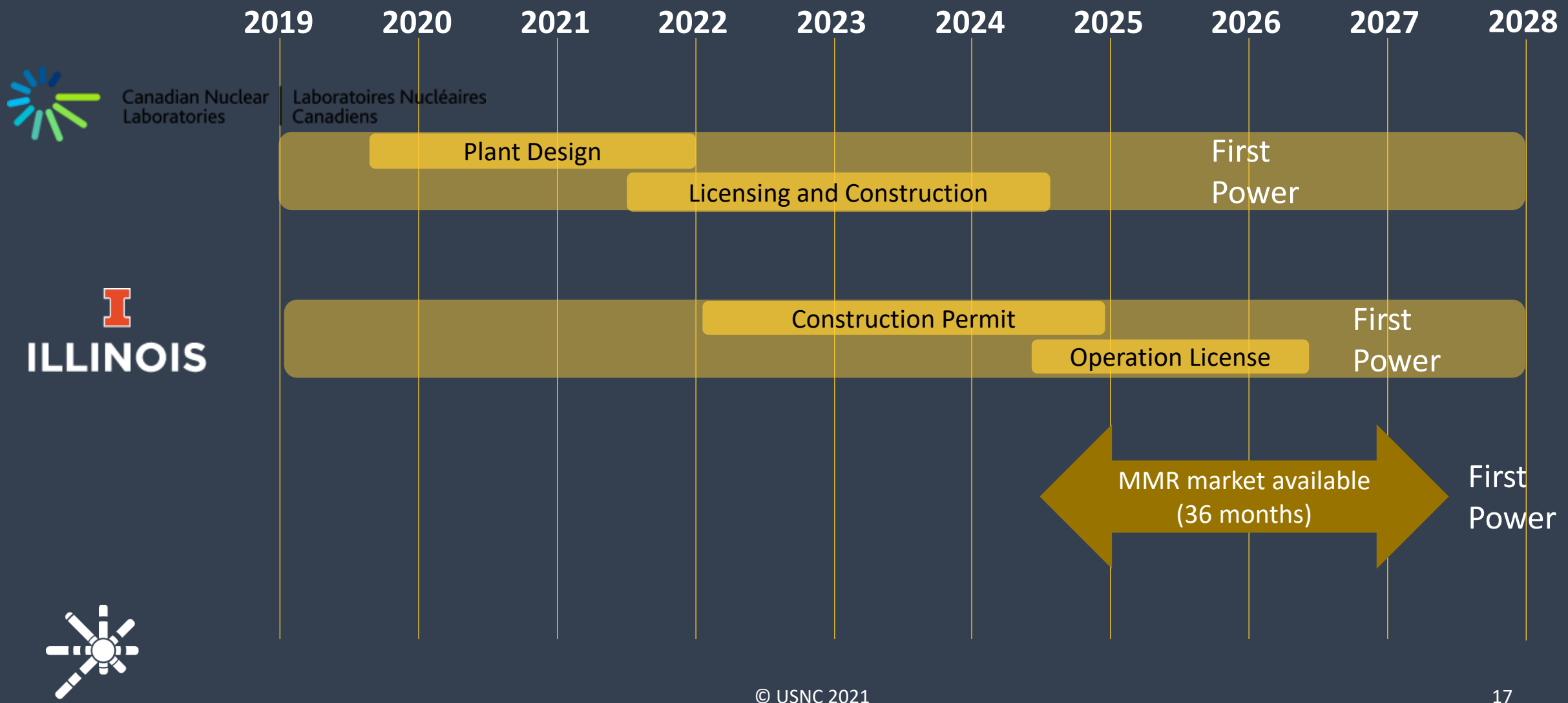




Caleb Brooks, James Stubbins
University of Illinois - NPRE

Leading advocates to build MMR at Illinois

Summary Licensing Timeline



ULTRA SAFE NUCLEAR

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