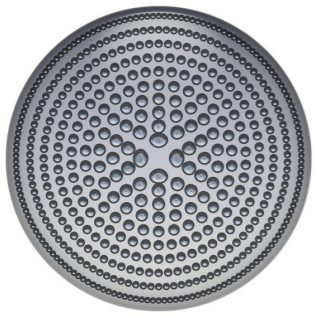


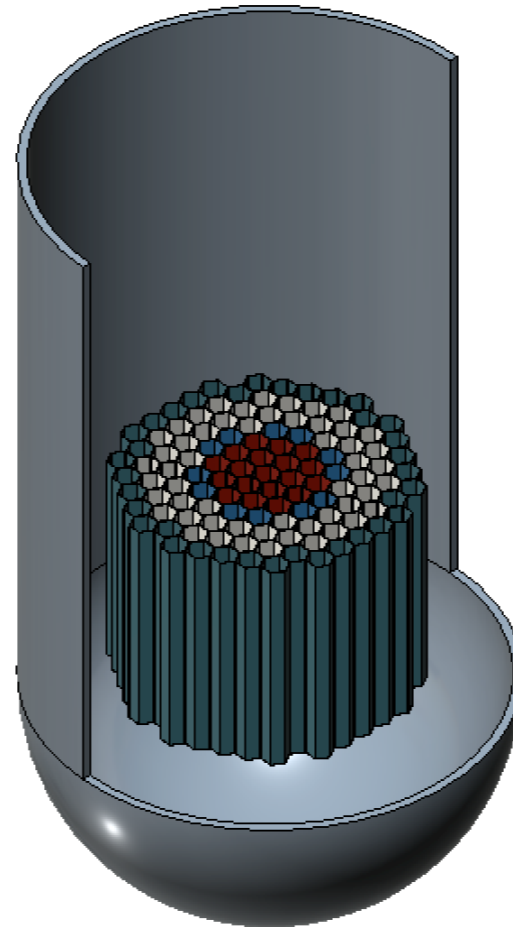


LeadCold Reactors





A lead cooled revolution



Janne Wallenius, Peter Szakalos, Jesper Ejenstam & Harald Klomp

LeadCold Reactors Inc



Arctic communities: energy challenges

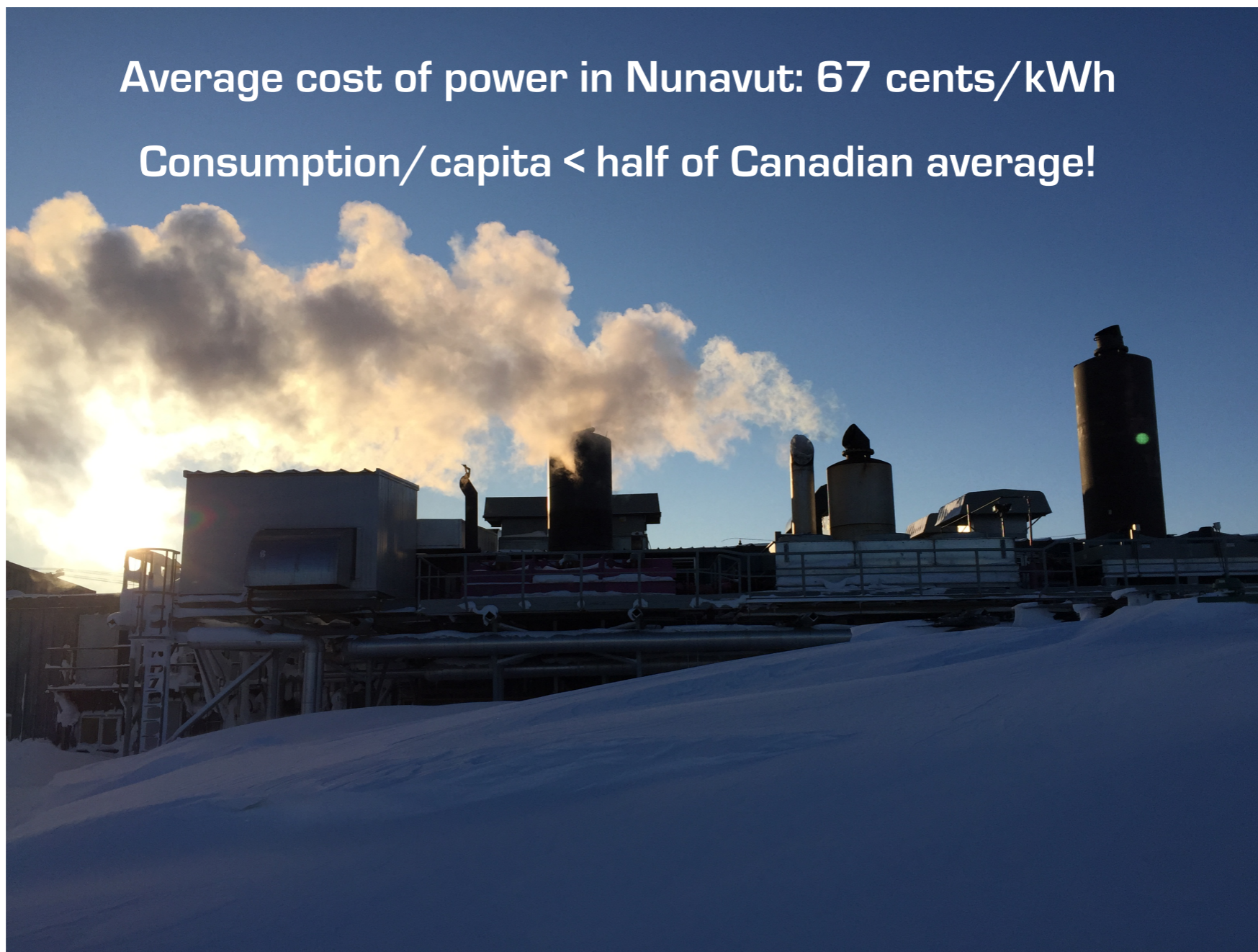




Arctic communities: energy challenges

Average cost of power in Nunavut: 67 cents/kWh

Consumption/capita < half of Canadian average!

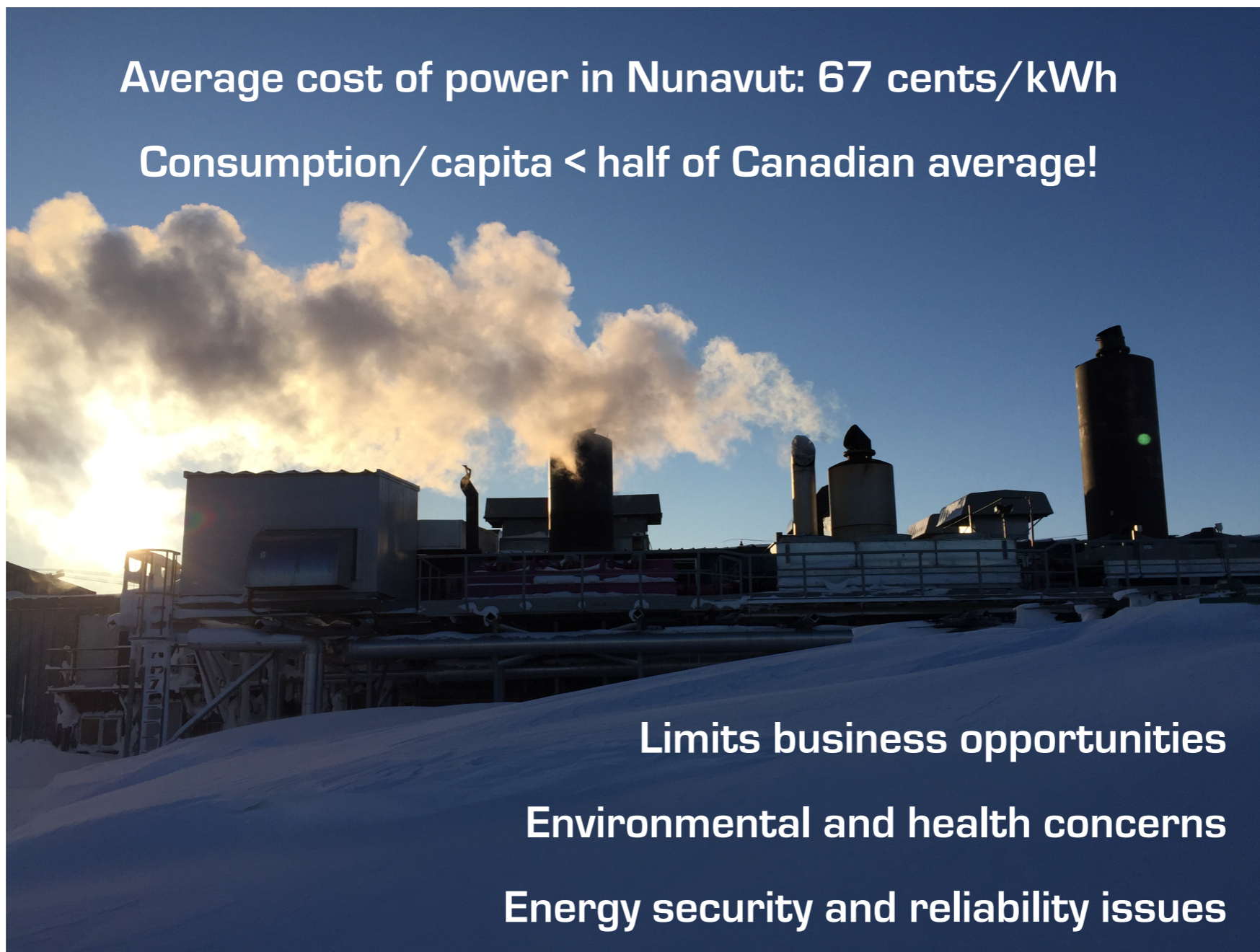




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Limits business opportunities

Environmental and health concerns

Energy security and reliability issues

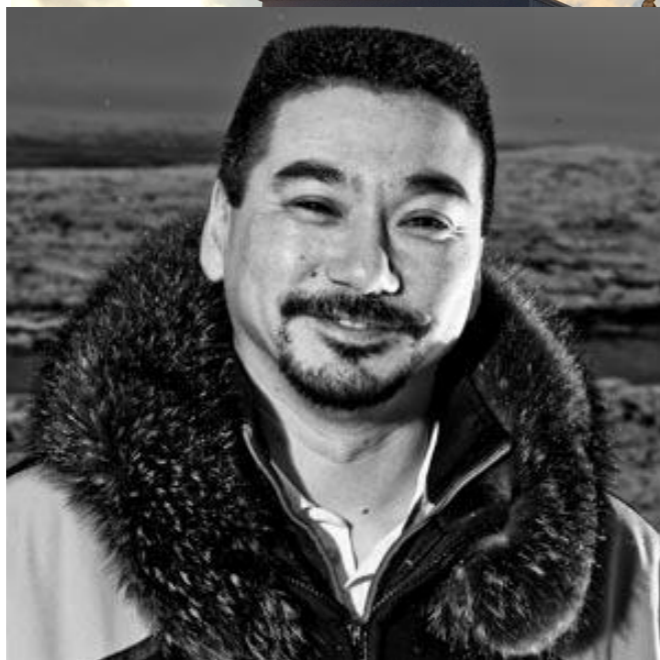


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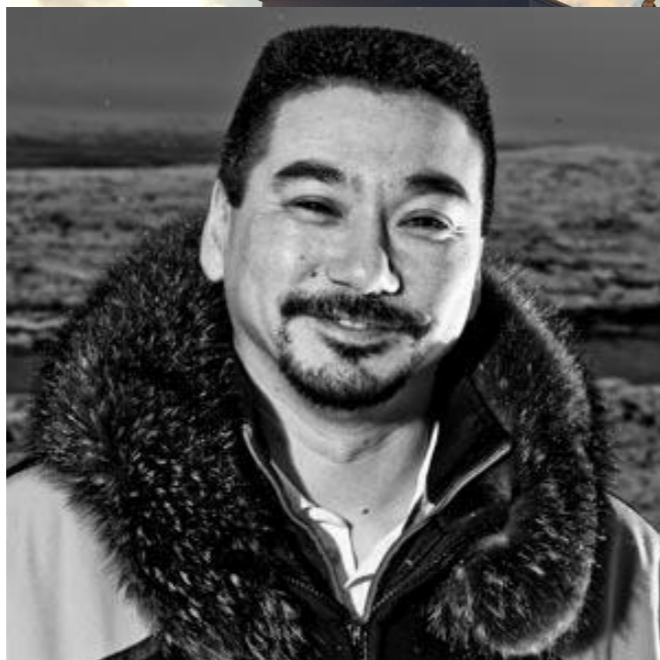
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“Nuclear is the only
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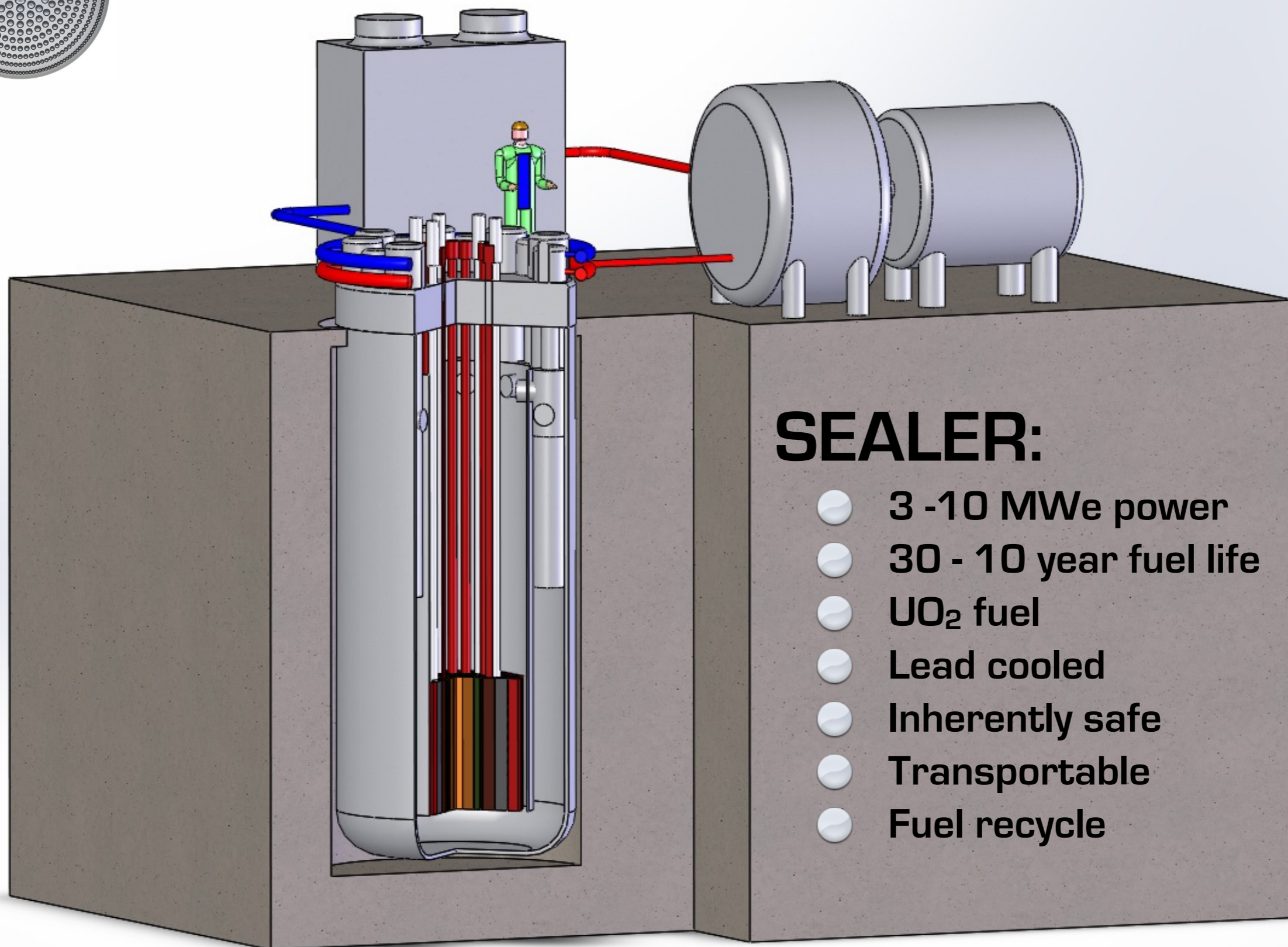
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Arctic mining energy challenges



- **30-50% of cost for mining is energy**
- **Typical power request: 10–20 MWe**
- **Cost for diesel fuel > 30 cents/kWh**
- **Window for ice road access is shrinking**
- **Cost uncertainty**
- **Average ore life: 10 years**



SEALER:

- 3 -10 MWe power
- 30 - 10 year fuel life
- UO_2 fuel
- Lead cooled
- Inherently safe
- Transportable
- Fuel recycle



Why is lead better than water?

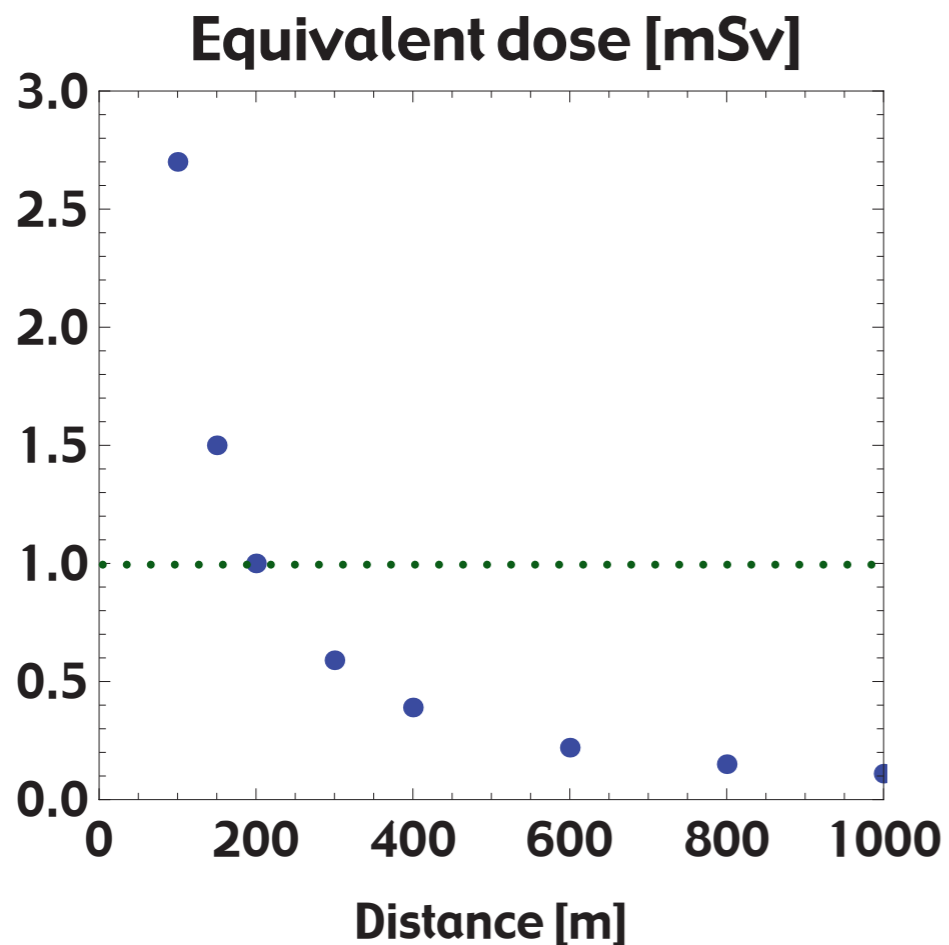


- No coolant boiling
- No coolant fires
- No need for emergency cooling
- No release of radioactive elements





Inherently safe by design!



- Lead captures the most dangerous elements (Iodine & Caesium)
- Release factor less than $1/10\ 000$
 \approx background radiation in one year
- No evacuation necessary, even in case of an severe accident.



Breakthrough innovation: Corrosion resistant steel



- Show stopper for commercial implementation of lead reactors: **steel!**
- Russian solution: silicon bearing steel
- Alternative: Aluminium bearing steel
- Composition must be optimised!



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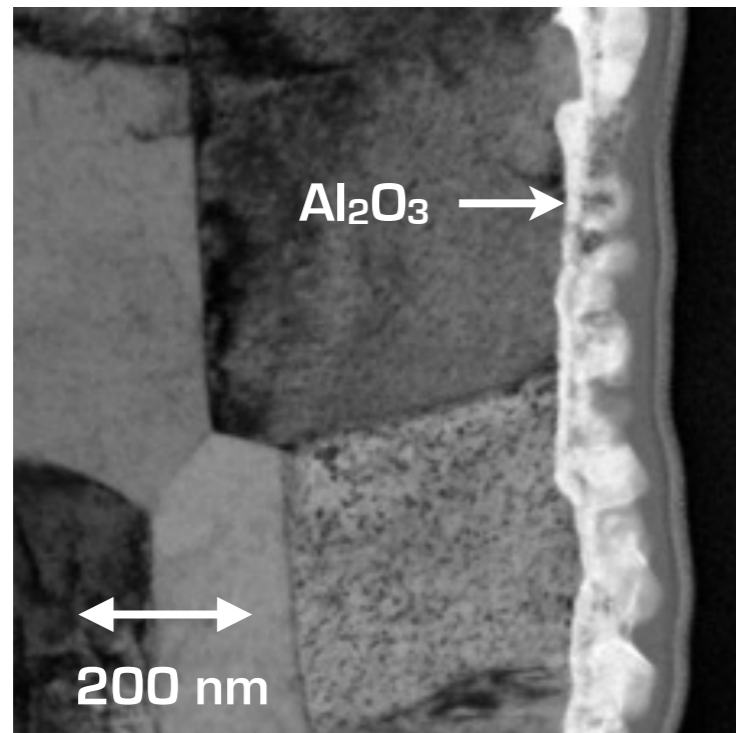
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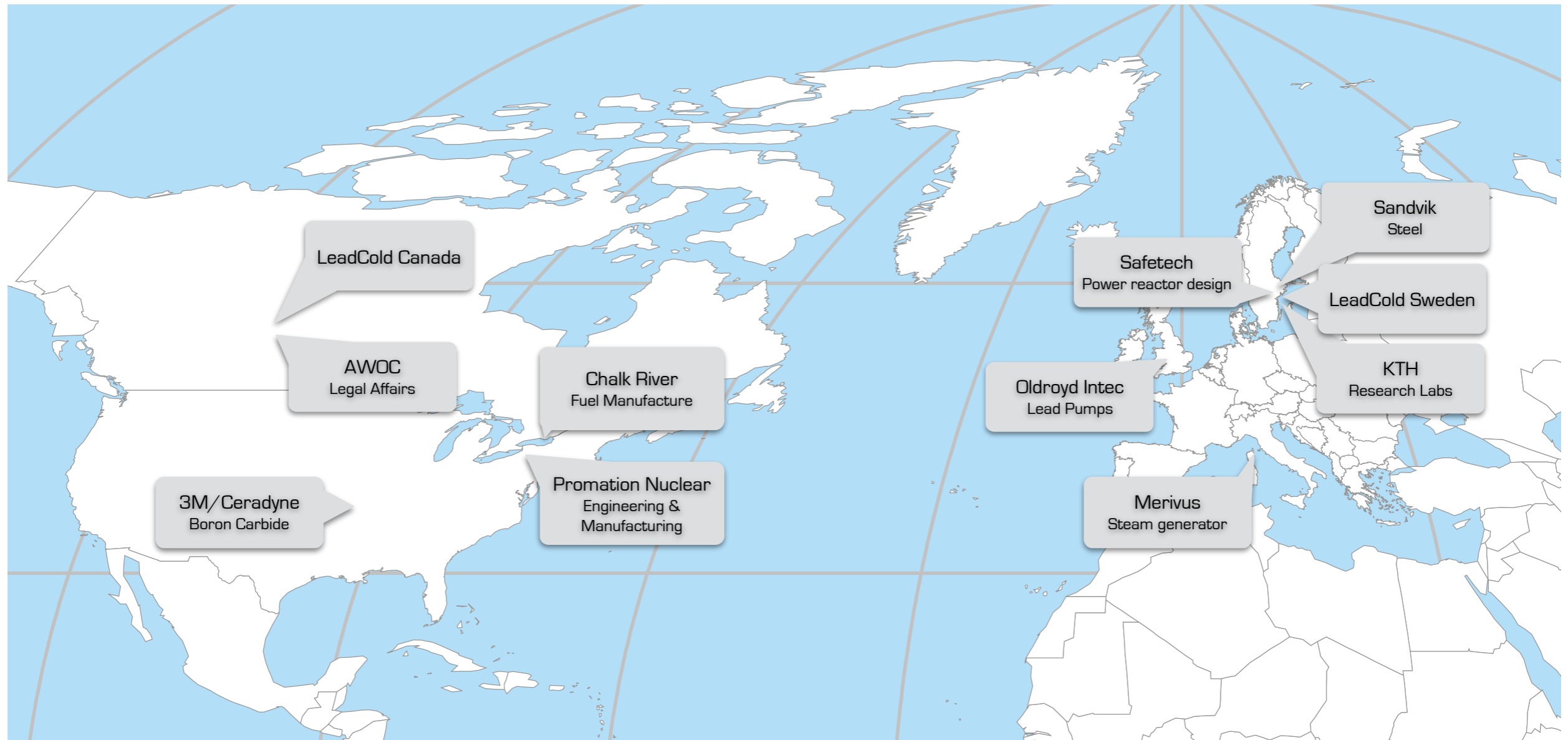


Fe-10Cr-6Al-RE

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Global team





Global team





Time schedule & costs



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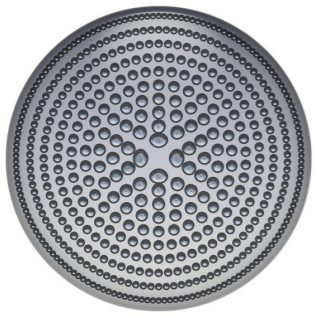
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 - **25 cents/kWh @ 10 MWe**



A brighter future for the Arctic!



www.leadcold.com