High Temperature Reactors and Industrial Heat Application

NEA Workshop

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CANDU Owners Group
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Industrial Decarbonization

Industrial Revolution – Part 2

• Since the 1800s, industrial heat has been produced primarily with fossil fuels
• Today, biomass and some renewables are in use
• Industrial heat makes up 2/3 of industrial energy demand and most of industrial CO2 released to atmosphere
• Demand continues to increase in developed and developing countries

To achieve Net Zero goals:
Replace other means of heat production with nuclear
National Strategies

A Call to Action: A Canadian Roadmap for Small Modular Reactors

Hydrogen strategy

SMR Action Plan

Provincial support to SMR development and deployment

HYDROGEN STRATEGY FOR CANADA
Seizing the Opportunities for Hydrogen
A Call to Action
December, 2020
SMRs’ Potential to Enable Industrial Decarbonization

- Nuclear Heat
- Solar Energy
- Biomass
- Geothermal
- Cooking
- Sterilization
- Hydrocracking
- Gypsum
- Tools
- Heating
- Drying
- Distillation
- Auto parts
- Hydrogen production
- Fertilizers
- Chemicals
- Concentrating
- Thermal decomposition

Temperature Range:
- 200 °C
- 400 °C
- 600 °C
- 800 °C
COG’s Role: Excellence & Innovation Through Collaboration

Members

- Bruce Power, Canada
- CNL, Canada
- NB Power, Canada
- OPG, Canada
- PAEC, Pakistan
- CNNO, China
- KHNPS, Korea
- NA-SA, Argentina
- NPCIL, India
- SNN, Romania

45 operating CANDU units across 7 countries, worldwide

- Canadian technology with international reach
- Between $60-$70 million annually in R&D and member-initiated projects
- Private, not-for-profit corporation
- Enables safe, reliable, cost-effective and environmentally-sound operation through knowledge and resource sharing

CANDU and Beyond Performance Excellence and Industry Sustainability

- GLOBAL goals
- INDUSTRY response
- MEMBER projects & operations
- COG collaboration

Founded in Canada in 1984