Irfan Ali
Senior Vice-President
Strategic Development

OUR CLEAN ENERGY FUTURE

SMRs are poised to play a major role

- Electricity and heat generation account for the largest proportion of greenhouse gas emissions globally
- To slow global warming the world needs a steady source of clean energy that can complement wind and solar to replace fossil fuels
- Small Modular Reactors (SMRs) offer unmatched energy density requiring much less land and providing a constant source of reliable, carbon free power
- The global market for SMRs is estimated to exceed US$150–300 billion per year by 2040

Source: Canada SMR Action Plan from Natural Resources Canada

ABOUT ARC

- ARC is a clean energy technology company developing the ARC-100, a Small Modular Reactor (SMR)
- The ARC-100 offers 100 megawatts of electricity in less than a city block
- Launch customer NB Power in Canada is targeting to deploy the ARC-100 by 2030
- Deploy an ARC-100 FOAK in the United States by 2035

VALIDATED INTERNATIONALLY

Awarded USD27.5 million in funding from the US Department of Energy in December 2020 to develop several key enhancements for the ARC-100

Granted USD20 million in funding from the Province of New Brunswick in 2018 & 2021 to support deployment of the ARC-100 at the Point Lepreau site

Awarded two rounds of funding from Japan's Nuclear Energy X Innovative Promotion (NEXIP) program with partner IHI Corporation

Awarded a grant by UK Department for Business, Energy and Industrial Strategy (BEIS) for an advanced modular reactor (AMR) feasibility study

STRATEGIC PARTNERS

GE HITACHI	60 years experience in nuclear energy with a focus on the engineering and design of sodium reactors plus a worldwide marketing presence
UNITED	Leading architectural engineer with experience building 51 nuclear units and special expertise in plant design and in the modularization of equipment (formerly AECOM)
Worley energy | chemicals | resources	Leading energy engineering company with a strong presence in Canada, our first target market
IHI	Design assistance for complex reactor components and joint participation in Japan's government funded NEXIP program

CANADA

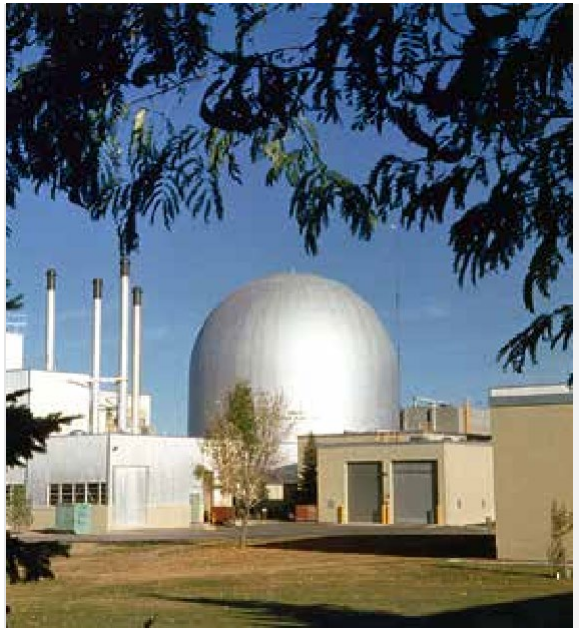
OUR LAUNCH MARKET

- ARC has chosen Canada as our launch market because of its global leadership role in creating a clean energy economy
- Canada levies a tax on carbon pollution and places a high financial value on clean energy
- Canadian energy policy creates an opportunity for SMRs
- Regulators in Canada provide a flexible and streamlined licensing process
- Licensing in Canada provides a foundation to expand globally

TECHNOLOGY

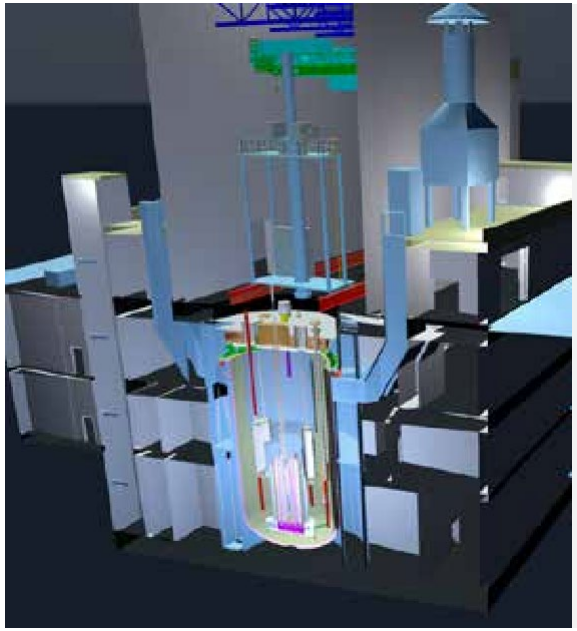
DEVELOPMENT & INNOVATION

The ARC-100 leverages proven technology that has 30 years of successful operating experience, incorporating new innovations and patents while preserving the original safety foundations



EBR-II (PROTOTYPE)

- 20 MWe
- 1963 to 1994
- USD7 Billion Invested



ARC-100

- 100 MWe
- Late 2020's Launch
- 60 Year Life

TECHNOLOGY

ARC-100 DESIGN FEATURES

- **Sodium as a Coolant:** use of sodium instead of water allows the reactor to operate at lower pressures, improving the efficiency and safety of the system
- **Inherent Safety:** walk-away safety and passive heat removal eliminates complicated engineered safety systems
- **Metal Fuel:** much simpler and cheaper to fabricate than oxide fuel with exceptional heat transfer characteristics
- **Modular Design:** factory manufacture of modular components with field assembly vs. construction in the field
- **High Burnup of Fuel:** enables consumption of long-lived materials and substantial reduction of nuclear waste
- **Recycling of Used Fuel:** reduces expense of spent fuel storage and eliminates expensive enrichment of new fissile material for next fuel core

Key Questions to be Addressed

1. Do SMR have inherent, long-term advantages over other, non-nuclear options? If yes, how would these advantages be characterized quantitatively and qualitatively?
2. What Are the Key Challenges that Could Inhibit the Expansion of a Global SMR Footprint?
3. What would be the marginal quantitative impact of the more extensive use of Investment Tax Credits (ITC), Production Tax Credits (PTC), for SMR, and the inclusion of SMR in regional Renewable Portfolio Standards (RPS)?
4. What is the current state of the global nuclear supply chain in the context of SMR deployment?
5. Are some markets, and geographies, better suited for SMR deployment? If yes, could a better understanding of these advantages lead to work-around strategies applicable to other parts of the world?
6. Would a focused, well-funded effort by the international community assist in the deployment of a global SMR footprint? If yes, what would be the elements of such an effort?


ARC
CLEAN ENERGY
Thank you.