Business Case Necessities for Nuclear Projects

Nuclear Power in Society, Oct 26, 2009

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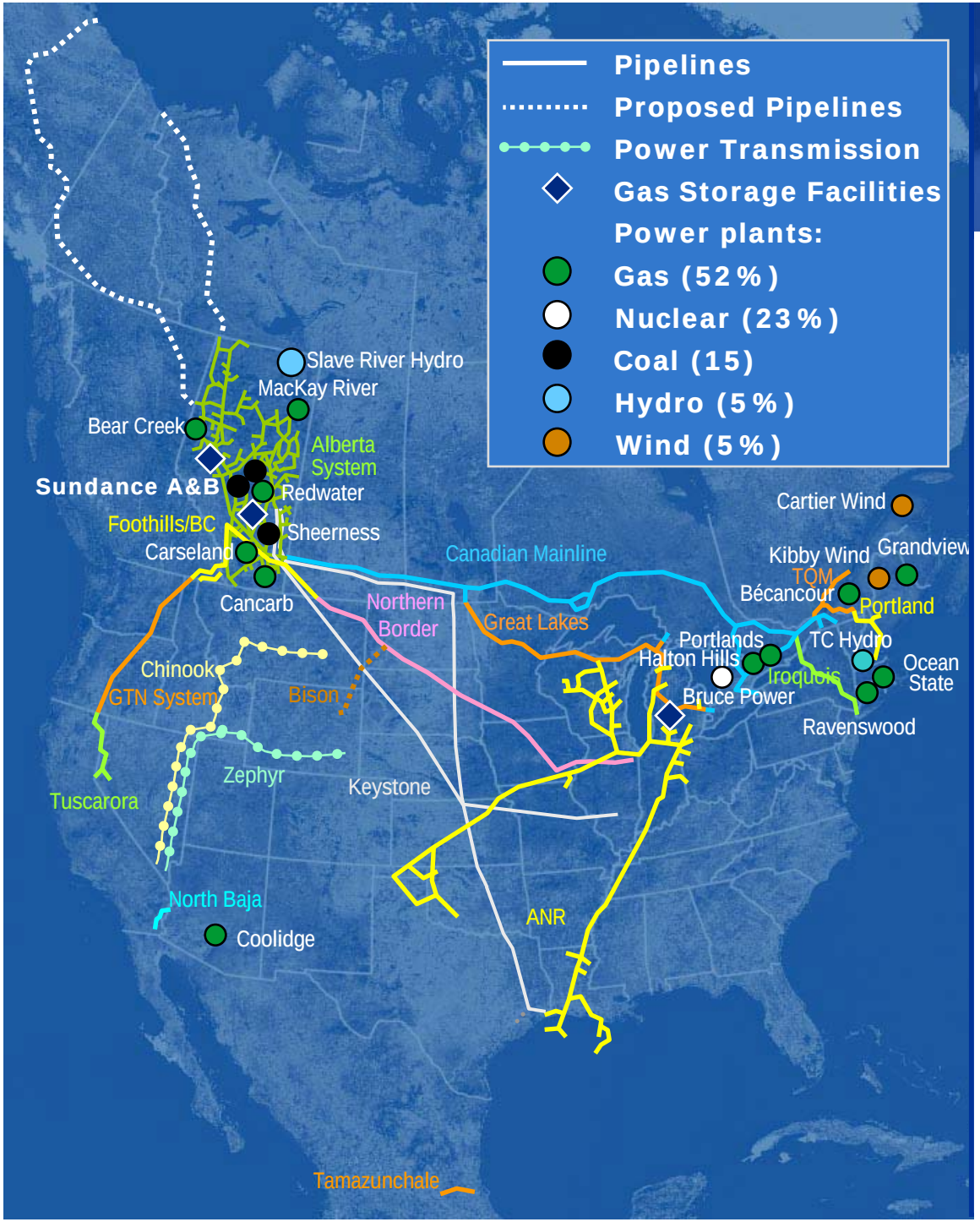


TransCanada Energy and Pipeline Assets

Gas Pipelines

- 59,000 km wholly-owned
- 4,000 km under construction
- 7,800 km partially-owned
- 235 Bcf of regulated natural gas storage capacity
- Average volume of 15 Bcf/d

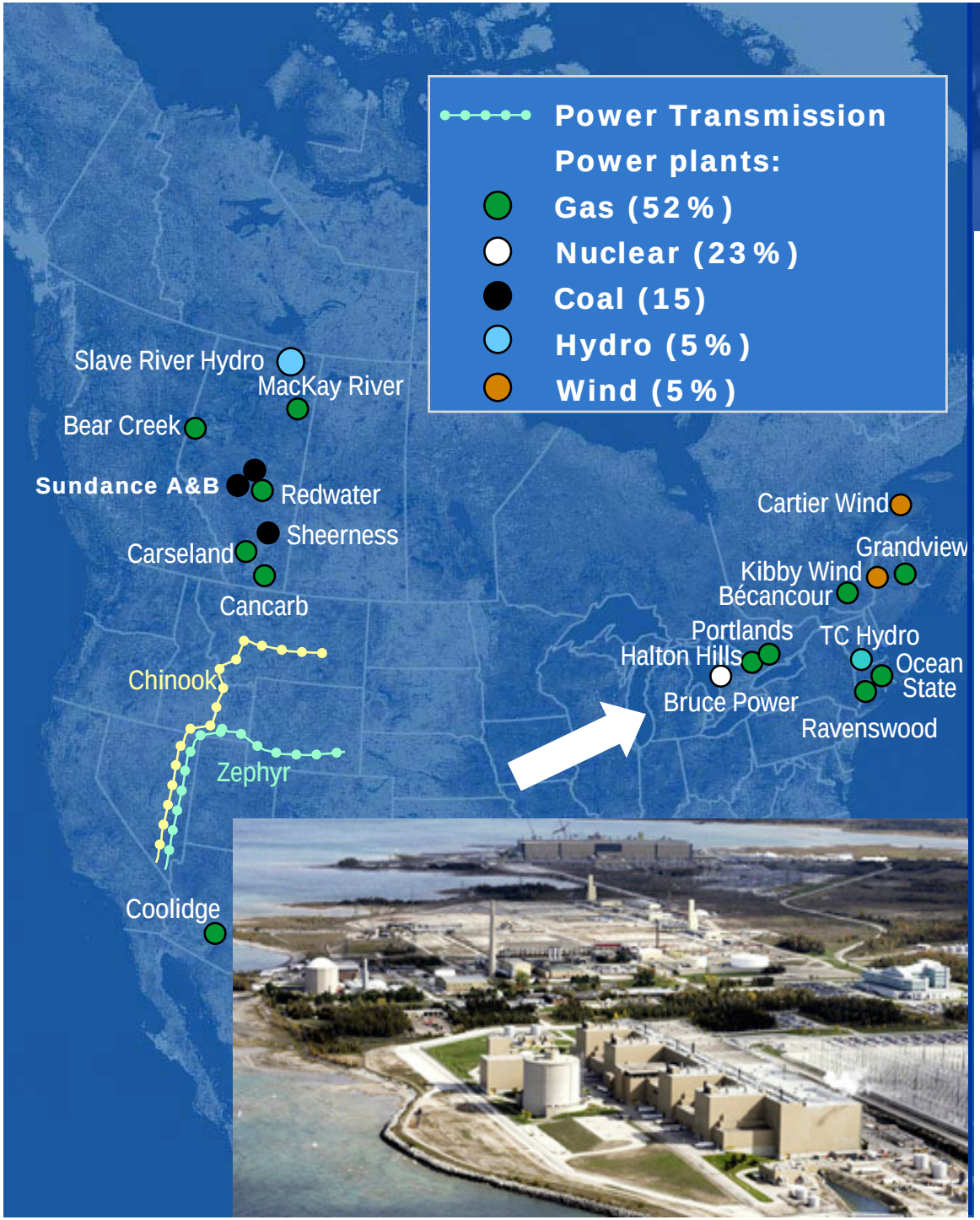
Oil Pipelines

- Keystone 1.1 MMb/d
- Expandable to 1.5 MMb/d

Energy

- 19 power plants, 10,900 MW
- Diversified portfolio, primarily low-cost, baseload generation
- 120 Bcf of non-regulated natural gas storage capacity

Power Generation



- 19 plants, 10,900 MW
- Diversified portfolio:
  - Long-term PPAs with stable, predictable earnings
  - Low-cost, baseload generation
  - Key power infrastructure assets in attractive markets
- Bruce Power Units 1&2 restart, life extension on Units 3&4
- Portlands Energy Centre in service
- Halton Hills 50% complete
- Coolidge proceeding
- Cartier Wind phase 3 in service, Kibby Wind under construction
- Chinook and Zephyr Transmission
- Slave River Hydro

Agenda

- **Review of Experience at Bruce 1 & 2**
- **Case for New Opportunities**
  - Commercial
  - Project Management
  - Industry

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Bruce Unit 1 & 2 Restart – Lessons Learned

- Comprehensive understanding of plant condition
- Facilities, infrastructure and support systems
- Up front engineering
- Engineering change control
- Contracting strategy
- Integrated schedule

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Nuclear Project Requirements - Commercial

- **Long-term Contract**
  - Market can not support a merchant investment
- **Capital Risk Sharing**
  - In development
  - In execution
    - Shedding risk to contractors is problematic

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Nuclear Project Requirements – Project Management

- **Project Management Stage gates**
  - Build discipline in up front and maintain throughout
- **Understand scope**
  - Rigorous plant condition assessment required
- **Engineering**
  - All preliminary and substantial final engineering up front
- **Tooling Performance**
  - Equipment must be robust and thoroughly tested
- **Independent Oversight**
  - Governance and transparency
- **Leadership**
  - Leadership is the glue that binds the discrete pieces

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Nuclear Project Requirements – Industry

- **Industry Performance**
  - Suppliers can not be satisfied with status quo
- **Workforce Productivity**
  - Labour force must be well trained and aligned with project outcome
- **Regulatory Certainty**
  - Outcome must be predictable - how good is good enough
- **Ownership Involvement**
  - Arms length is too far removed

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Business Case Necessities for Nuclear Projects

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