Critical Infrastructure Interdependencies

Transportation and Energy Systems

PNWER Resilience Symposium
July 25, 2017

James Maltby – Lynden Shipping
Pat Griggs – Bonneville Power Administration
Jim Donihee – Canadian Energy Pipeline Association
Art Spillman – Port of Portland
Yumei Wang – Oregon Department of Geology and Mineral Industries
Patrick Massey – DHS Office of Infrastructure Protection (facilitator)
The CSZ Fault

M9.0 Shaking Estimate
BPA High Voltage Grid

• 300,000 Sq. Mile Service Territory
  • Oregon Washington, Idaho, Montana (sections of WY, NV, UT & CA)

• 15,000 circuit miles of High Voltage Transmission (75% of the NW grid)

• Over 285 substations

• 490 Transmission customers
Federal Columbia River Power System

• 31 Hydroelectric dams (21 USACE and 10 USBR) – 22,458 MW nameplate capacity

• 1 Nuclear Plant (Energy Northwest) - 1,120 MW nameplate capacity

• 142 Power customers (54 Co-ops, 42 Muni’s, 28 PUDs, 7 fed agencies, 6 IOUs, 2 DSIs, 1 Port district, 2 tribal utilities)

• ~5,100 MW wind integrated into the Northwest Grid for delivery to market
Canadian Energy Pipeline Association

Pipelines - critical infrastructure
The **Canadian Energy Pipeline Association** (CEPA) represents Canada’s transmission pipeline companies who operate about 85,000 miles of large diameter transmission pipeline in Canada and the United States.

**VISION**
A safe, socially and environmentally sustainable energy pipeline industry for Canadians.

**MISSION**
We engage and collaborate to continually improve our industry’s safety, sustainability and transparency, and the business environment within which it operates.

**STRATEGIC PRIORITIES**
- PERFORMANCE
- BUSINESS ENVIRONMENT

**TARGET**
- GOAL ZERO INCIDENTS
CEPA members & reach

- Access Pipeline Inc.
- Alliance Pipeline Ltd.
- ATCO Pipelines
- Enbridge Pipelines Inc.
- Inter Pipeline Ltd.
- Kinder Morgan Canada
- Pembina Pipeline Corporation
- Plains Midstream Canada
- TransCanada PipeLines Limited
- TransGas Limited
- Trans-Northern Pipelines Inc.

Canadian Crude Oil Facts
- Production: 3.8 million barrels/day
- Exports: 3.1 million barrels/day
- Value of Exports: $49.8 billion
  2016 data

Canadian Natural Gas Facts
- Production: 15.3 billion cubic feet/day
- Exports: 8.1 billion cubic feet/day
- Value of Exports: $8.8 billion
  2016 data
The Mission of the Port of Portland

“To enhance the region’s economy and quality of life by providing efficient cargo and air passenger access to national and global markets, and by promoting industrial development.”
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