

# COPING WITH IMPORTED LNG: natural gas interchangeability

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The Next Generation

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Cove Point, Maryland  
Photo courtesy of Cameron Davidson © 2003

J. Michel Marcoux, Esquire  
Robert C. Platt, Esquire  
Bruder, Gentile & Marcoux, L.L.P.  
1701 Pennsylvania Avenue, N.W.  
Suite 900  
Washington, D.C. 20006-5807  
Telephone: 202/296-1500  
Facsimile: 202/296-0627  
E-Mail: [jmmarcoux@brudergentile.com](mailto:jmmarcoux@brudergentile.com)  
E-Mail: [rcplatt@brudergentile.com](mailto:rcplatt@brudergentile.com)

## ➤ New natural gas-fired generation

- ✓ Feb 2005 EIA projection of electricity generation from natural gas in 2025 is 8% higher than previous year's projection (1,406 vs. 1,304 billion kwh), *Annual Energy Outlook 2005*
- ✓ Compares with 630 billion kwh in 2003; natural gas share of electricity generation (including generation in end-use combined heat & power sectors) projected to increase from 16% (2003) to 24% (2025), *EIA AE02005*



- Natural gas supply growth depends on imported LNG
  - ✓ Except Everett MA, expansion expected at 3 of 4 existing U.S. LNG terminals (Cove Point MD, Elba Island GA, Lake Charles LA) by 2007
  - ✓ EIA, *AEO2005*: "[A]dditional facilities...expected... in New England and elsewhere in the lower 48 states, serving the Gulf, Mid-Atlantic, and South Atlantic states, including a new facility in the Bahamas serving Florida via a pipeline. Another facility ...projected...in Baja California, Mexico, serving ...California..."

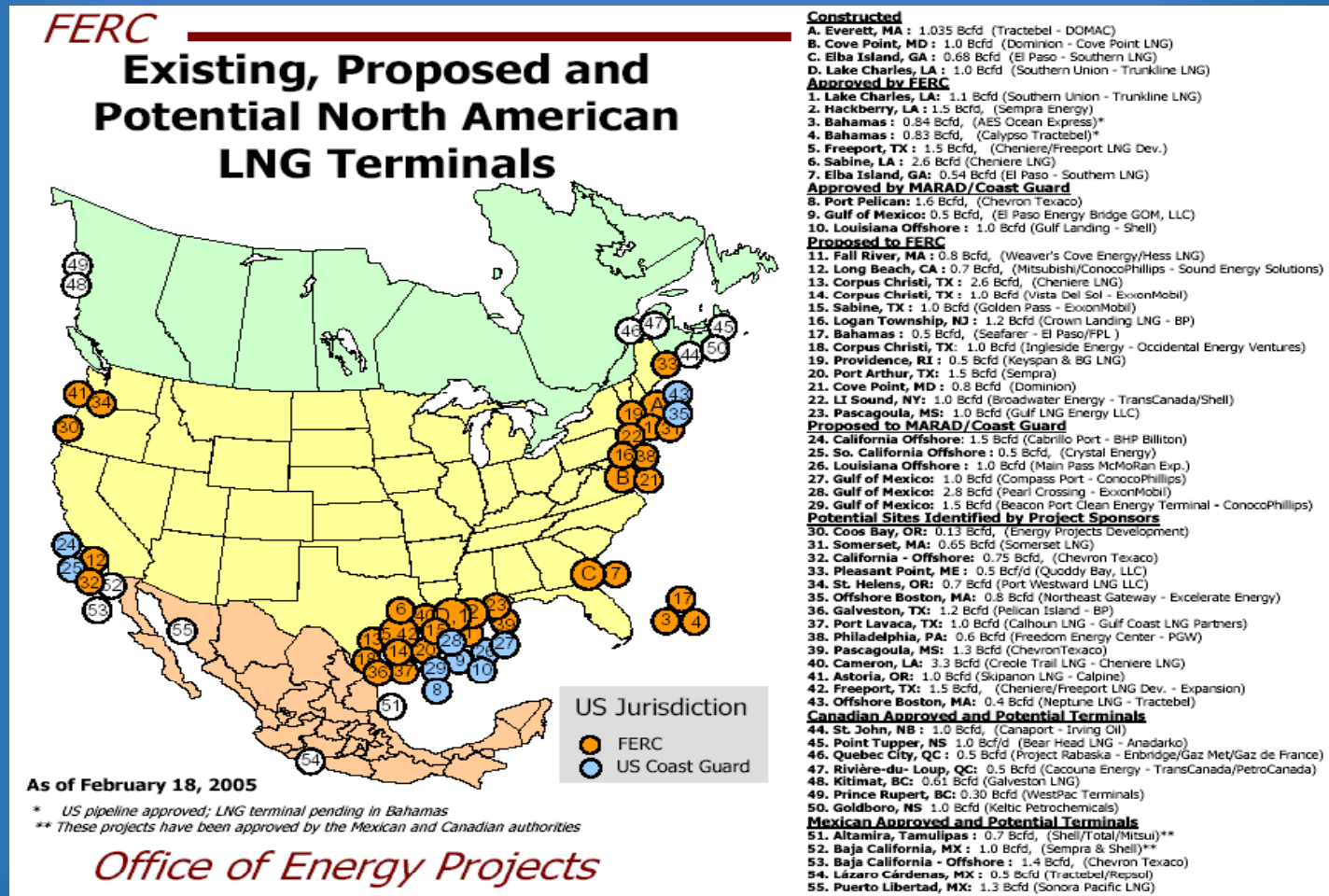


Cove Point, Maryland  
Photo courtesy of Cameron Davidson © 2003



Cove Point Terminal, Maryland  
Photo courtesy of Cameron Davidson © 2002

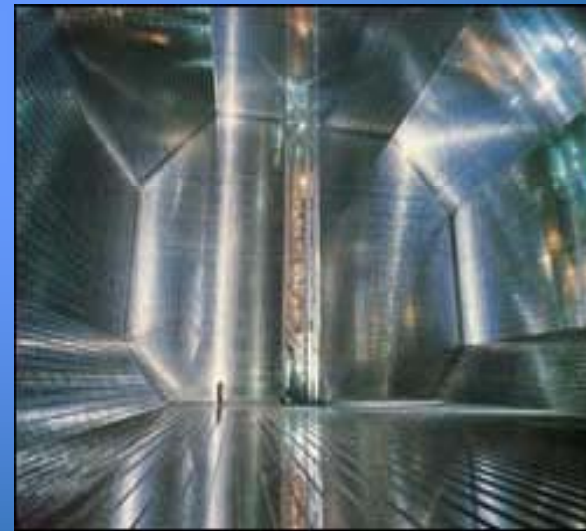
- ✓ EIA (AEO2005) projects total net LNG imports to U.S. & Bahamas up from 0.4 Tcf (2003) to 6.4 Tcf (2025) - - one-third more than previous (AEO2004) 4.8 Tcf projection



- LNG Overview (FERC Office of Energy Projects, Apr 04)
  - ✓ Natural gas as economic/environmental fuel of choice
  - ✓ 96% natural gas proved reserves (6,270 Tcf) outside North America
  - ✓ Imported LNG supply chains: production/dock liquefaction & storage/cryogenic storage tanker transport/dock storage & vaporization into U.S. interstate pipeline system
  - ✓ LNG exporters: Qatar, Iran, other Middle East, Russia, Nigeria, Indonesia, Australia, Algeria, Egypt, Malaysia, Bolivia, Trinidad
  
- U.S. imports: 652 Bcf LNG in 2004; 29% more than 507 Bcf in 2003 (2000, 226 Bcf; 1999, 163 Bcf; 1998, 85 Bcf)  
DOE Office of Fossil Energy (2005)



- ✓ Some export countries have designed facilities/commercial processes to meet differing standards of import countries (Europe, U.S., China, Japan)
- ✓ Can imported, regasified, baseload-not-peaking, LNG be used interchangeably with domestic natural gas in U.S. pipelines?



- If major LNG import terminals receive various supplies from various export country sources, what are resulting complexities, expenses, in U.S. import markets?
  - ✓ Specifically, what are possible impacts of higher Btu, different chemistry, imported LNG interchange with domestic natural gas on operations/emissions of gas-fired electricity generation turbines?



- ✓ Is industry working on imported LNG interchangeability?
- ✓ Is government (FERC)?



➤ Notes for RCP:

- ✓ NGC White Paper, Wobbe Number, etc., possible FERC standards, NAESB, HDP, gas quality vs. gas interchangeability, 2004 FERC PL04-3 technical conference

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