Federal Process for Siting Natural Gas Infrastructure



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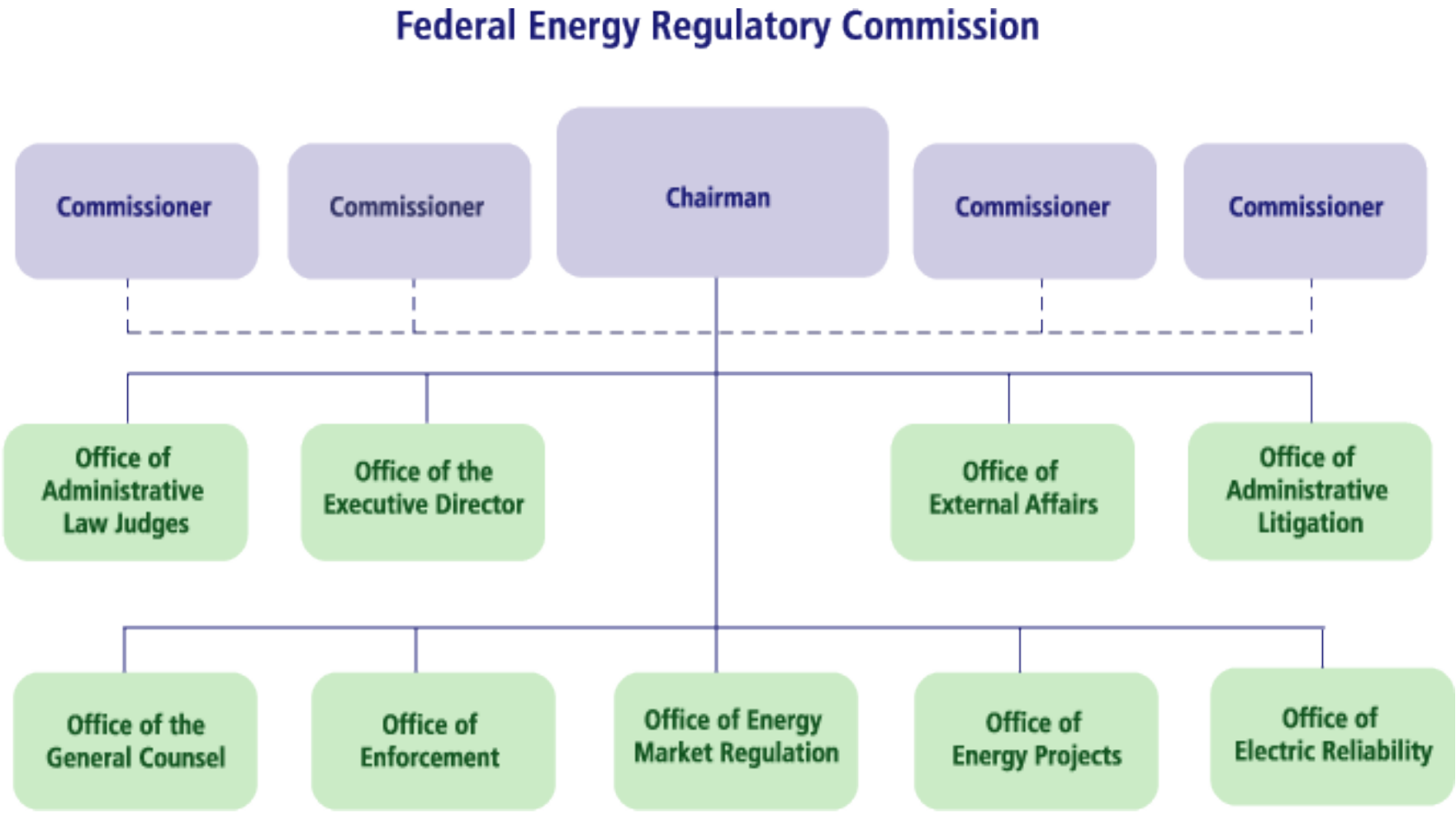
Federal Energy Regulatory Commission

Williamsport, PA **May 11, 2010**

FERC Organizational Structure



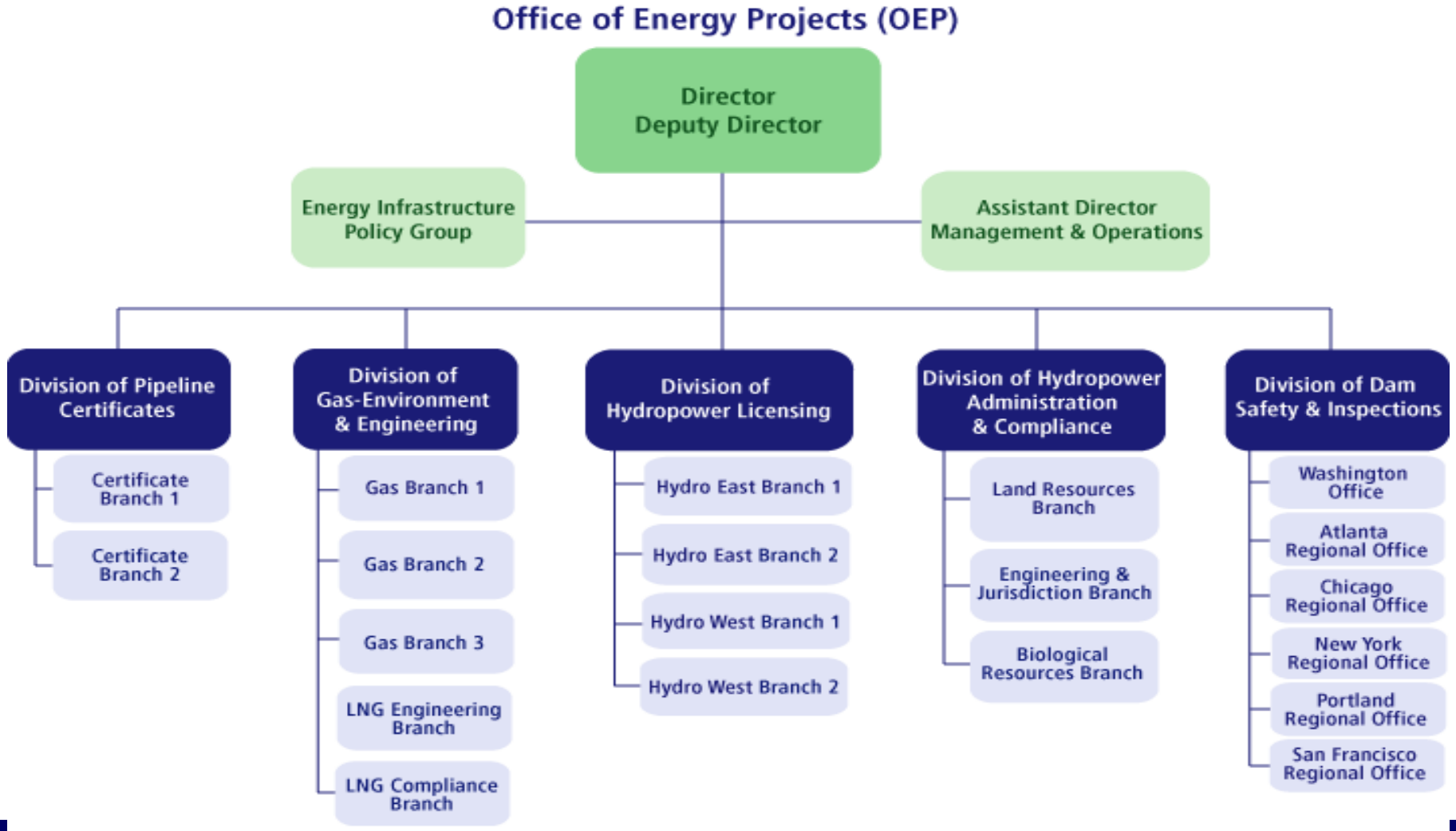
How the Commission is Appointed

The Federal Energy Regulatory Commission (FERC or Commission) is composed of up to five Commissioners who are appointed by the President of the United States with the advice and consent of the Senate. Commissioners serve five-year terms, and have an equal vote on regulatory matters.

To avoid any undue political influence or pressure, no more than three Commissioners may belong to the same political party. There is no review of FERC decisions by the President or Congress, maintaining FERC's independence as a regulatory agency, and providing for fair and unbiased decisions. The Commission is funded through costs recovered by the fees and annual charges from the industries it regulates.

One member of the Commission is designated by the President to serve as Chair and FERC's administrative head.

Office of Energy Projects



Office of Energy Projects - Functions

- OEP has the engineering and environmental expertise to:
  - certificate new gas pipeline projects,
  - Authorize LNG import / export projects
  - authorize and monitor hydroelectric projects, provide “backstop authority” to site electric transmission facilities, and
  - analyze energy infrastructure needs and policies.
- OEP focuses on:
  - project siting and development,
  - balancing environmental and other concerns,
  - ensuring compliance,
  - safeguarding the public, and
  - providing infrastructure capacity information.
- Other FERC Offices
  - OGC has corresponding hydro and pipeline legal responsibilities
  - Other offices also have input to our products

Gas Pipeline Program

- Evaluate applications for facilities to import, export, transport, store or exchange natural gas
- Authorize the construction and operation of facilities for such services
- Approve abandonment of such facilities
- Conduct environmental reviews of proposals involving construction, modification, or abandonment
- Implement the “Pre-Filing Process”
- Conduct inspections of LNG facilities and pipeline construction

Natural Gas Act

- The Natural Gas Act is the law that sets out FERC's areas of responsibilities:
  - Section 1 – Identifies projects exempt from FERC jurisdiction
  - Section 3 – Allows FERC to authorize import / export projects
  - Section 7 – Allows FERC to authorize interstate pipeline projects (including storage) and grant eminent domain

Projects Exempt from FERC Jurisdiction

- Local Distribution Company facilities (e.g., Baltimore Gas and Electric, Washington Gas Light, etc.)
- Intrastate pipelines (where gas is produced, transported and consumed within a single state)
- Hinshaw pipelines (gas is produced in one state, but is transported and consumed within another)
- Gathering facilities

Natural Gas Act

- Case Specific Section 7(c) Certificate
  - Conduct a full review of proposal including engineering, rate, accounting, and market analysis
  - Conduct an environmental review by preparing an Environmental Assessment or an Environmental Impact Statement

Project Evaluation

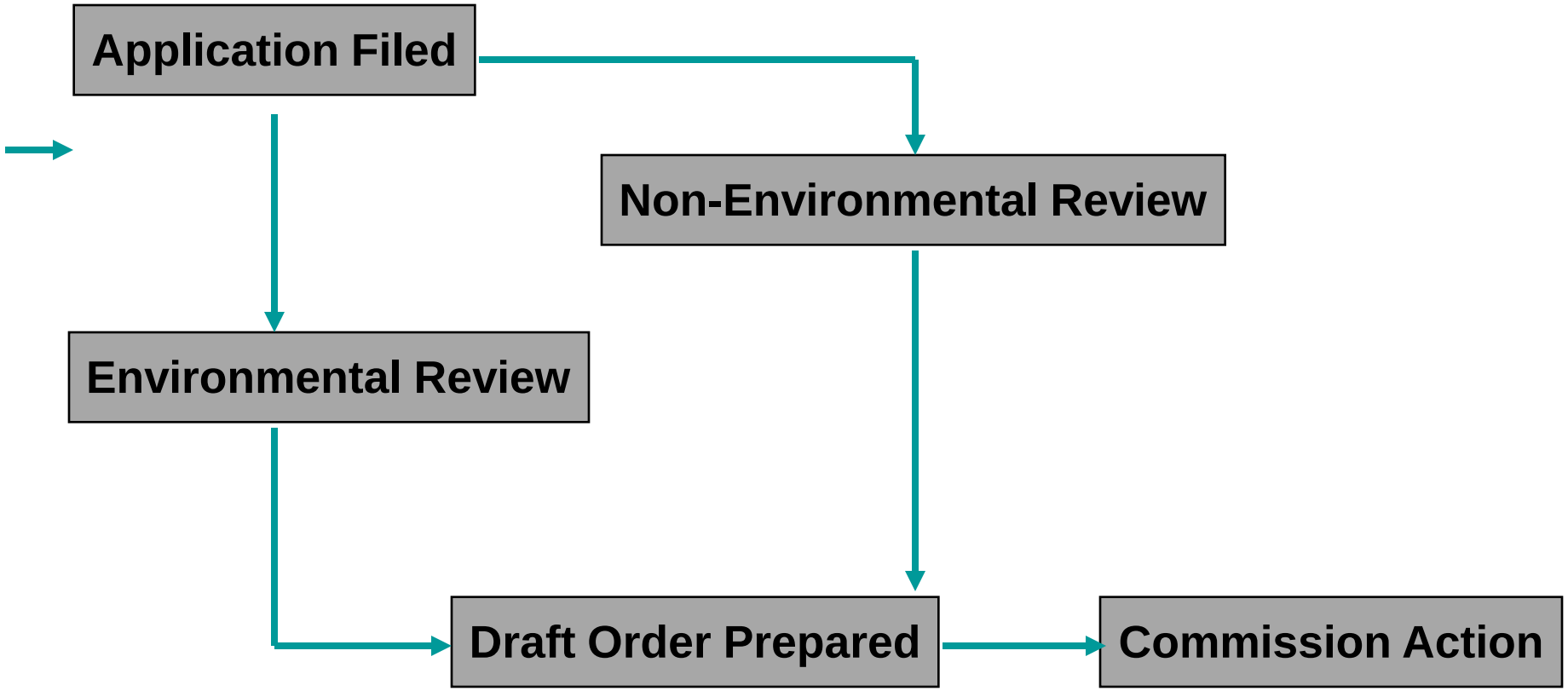
How Does FERC Evaluate All Of These Major Projects?

What Are The Criteria Used in This Evaluation?

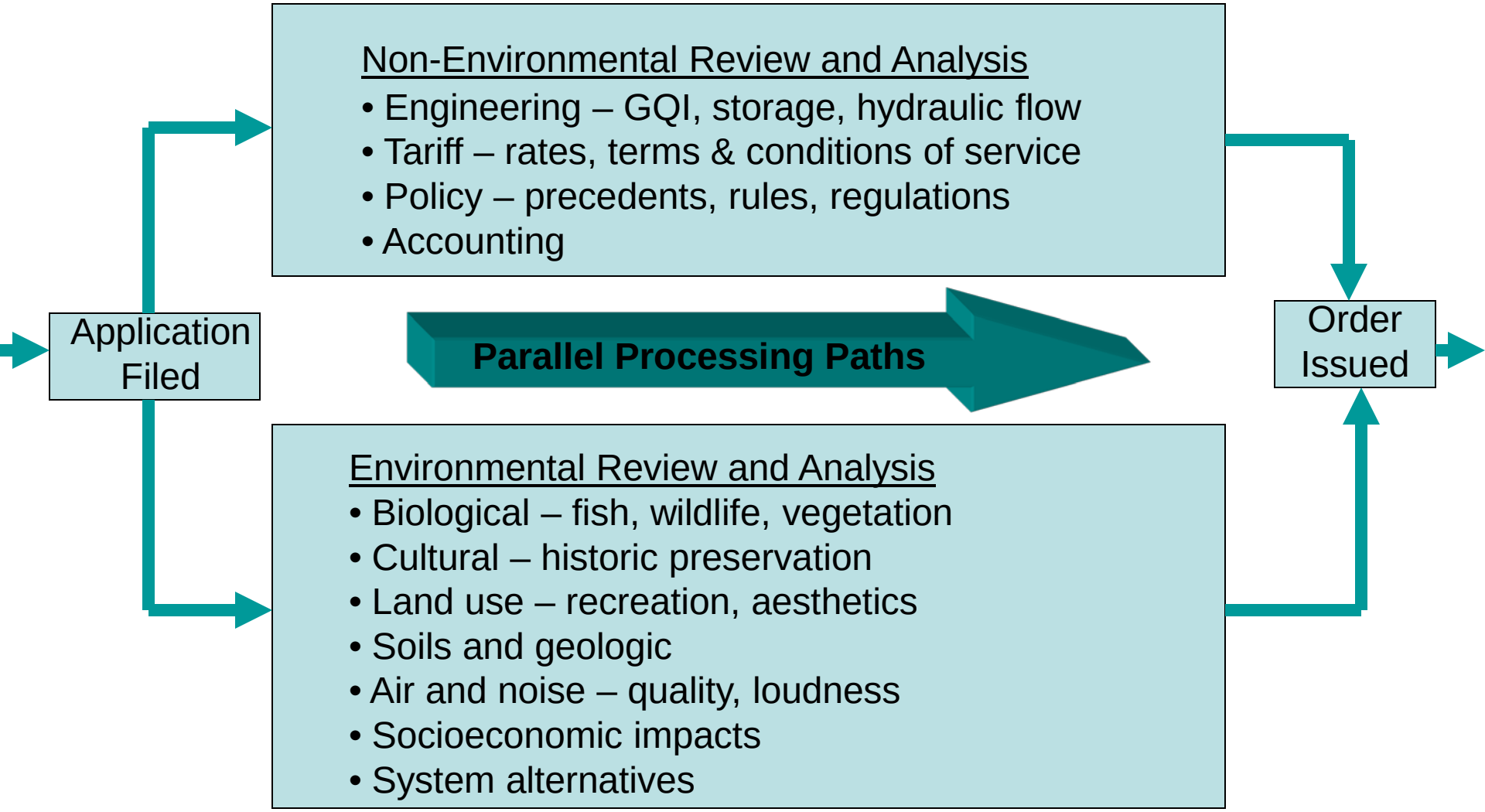
Balancing Interests

People Like...	But They Also Want...
Due Process	Expedited Process
Smaller Government	Effective Government
Less Regulation	Assurance of Fair Markets
Market-dictated Outcomes	Protection from Market Dysfunctions, Unexpected Risk, and Unjust Rates
Protection for the Environment and Property Interests	Ample Supplies of Low-cost Energy

Dual Paths of Review



Certificate Process Overview



Public Interest Review (aka “Need”)

- New Certificate Policy Statement issued on September 15, 1999.
- Clarification of Certificate Policy Statement issued on February 9, 2000.
- Further clarification issued on July 26, 2000.

Certificate Policy Statement

- Goals
  - Foster Competition
  - Consider Captive Customers
  - Avoid Unnecessary Physical Impacts
  - Achieve Optimal Amount of Facilities
  - Encourage Complete Record
  - Expedite Review Time

Certificate Policy Statement

- Develop Record
  - Adverse Impacts on
    - Existing Customers and Pipelines
    - Landowners
    - Communities
  - Specific Benefits (meet new demand, eliminate bottlenecks, access new supplies, lower cost to consumers, new interconnects to improve grid, provide competitive alternatives, increase electric reliability, clean air objectives, etc)
  - Need and Market (precedent agreements, demand projections, etc)
  - Condemnation Impact

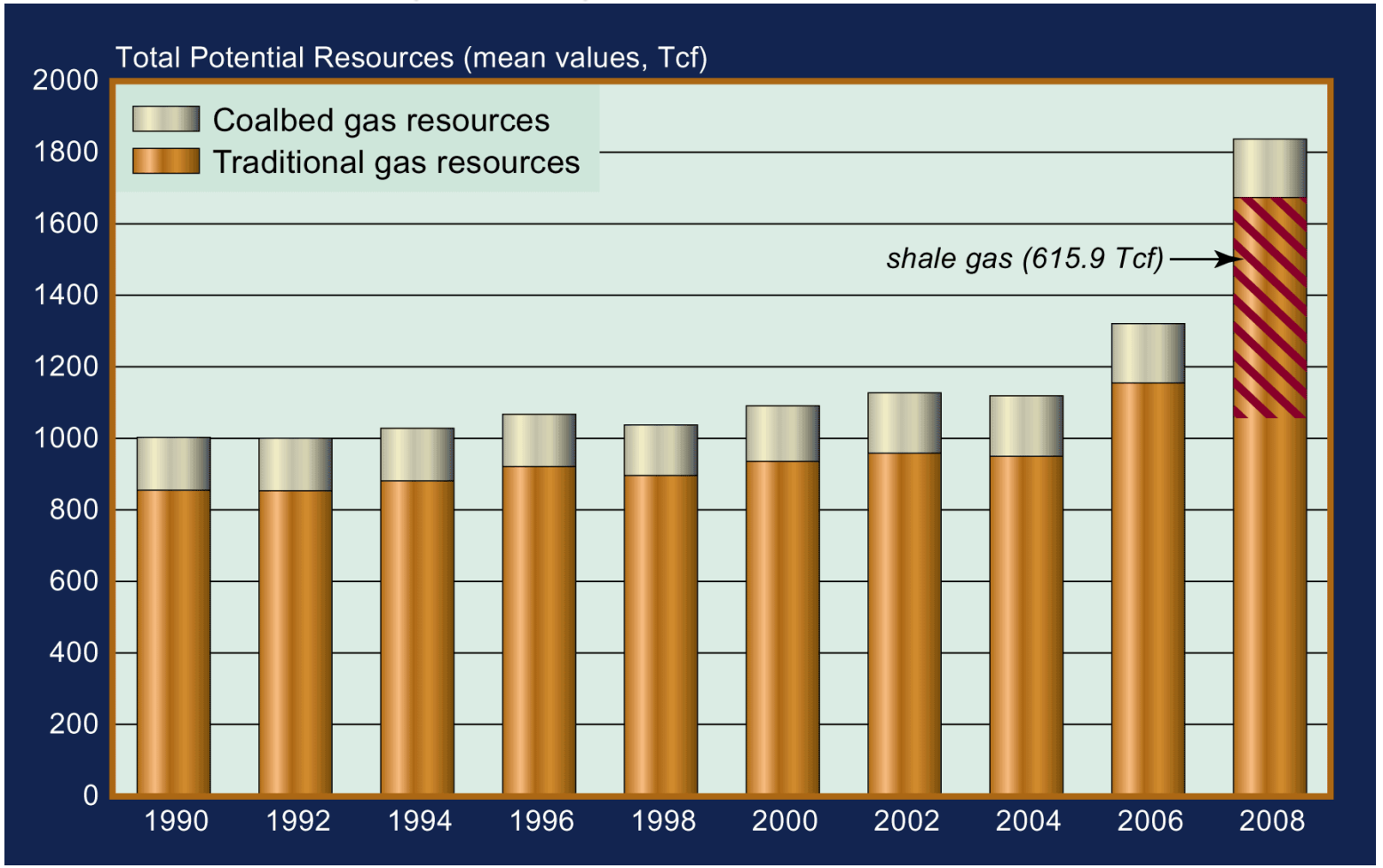
FERC Process

- FERC's process is a model of efficiency
  - Pre-filing
  - Application Analysis
  - Post-authorization
- This process works for all stakeholders
  - Project sponsors
  - Federal, state, and local agencies
  - NGOs
  - Landowners
  - Other concerned entities

The growing importance of shale gas is substantiated by the fact that, of the 1,836 Tcf of total potential resources, shale gas accounts for 616 Tcf (33%).

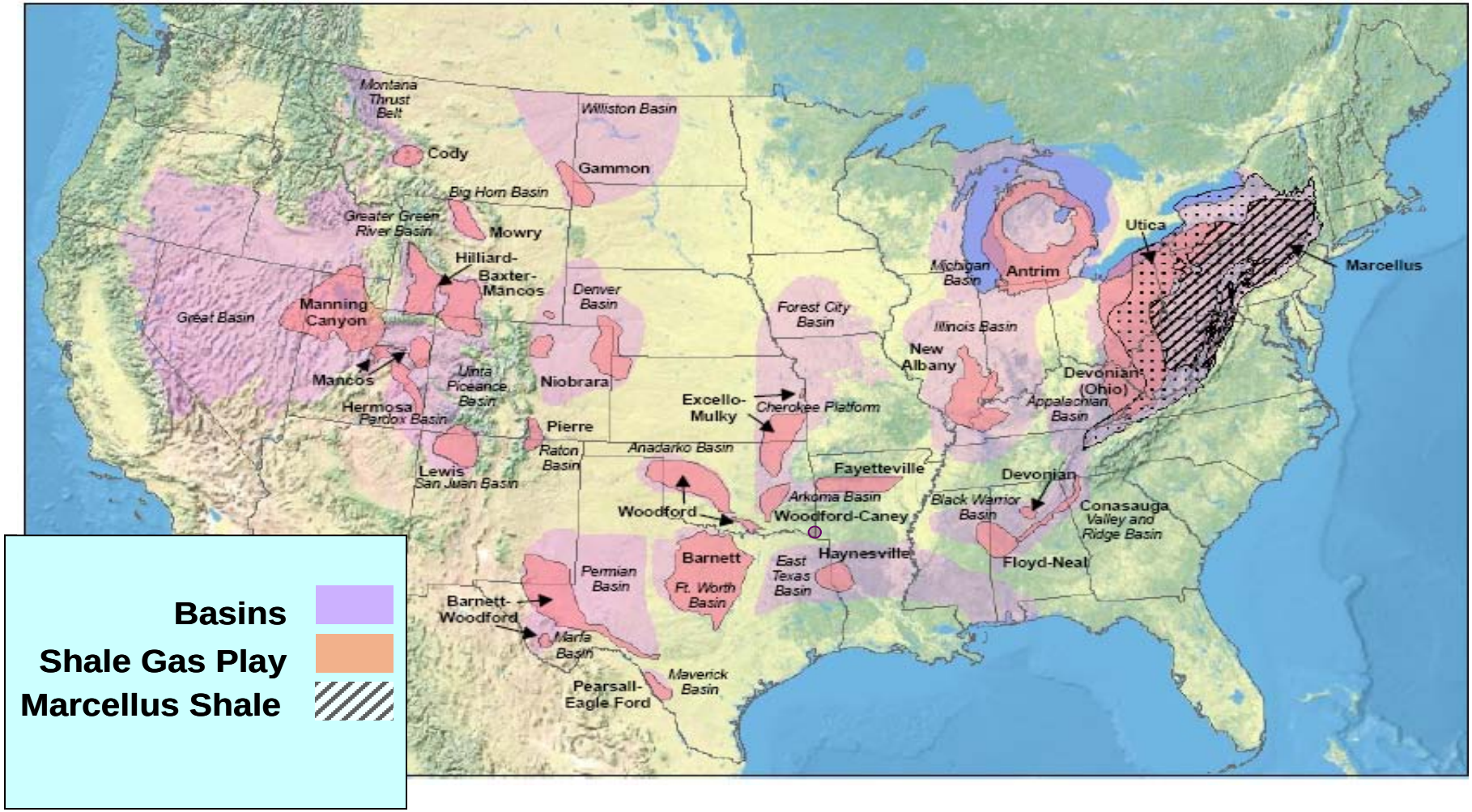
PGC Resource Assessments, 1990-2008

Total Potential Gas Resources (mean values)



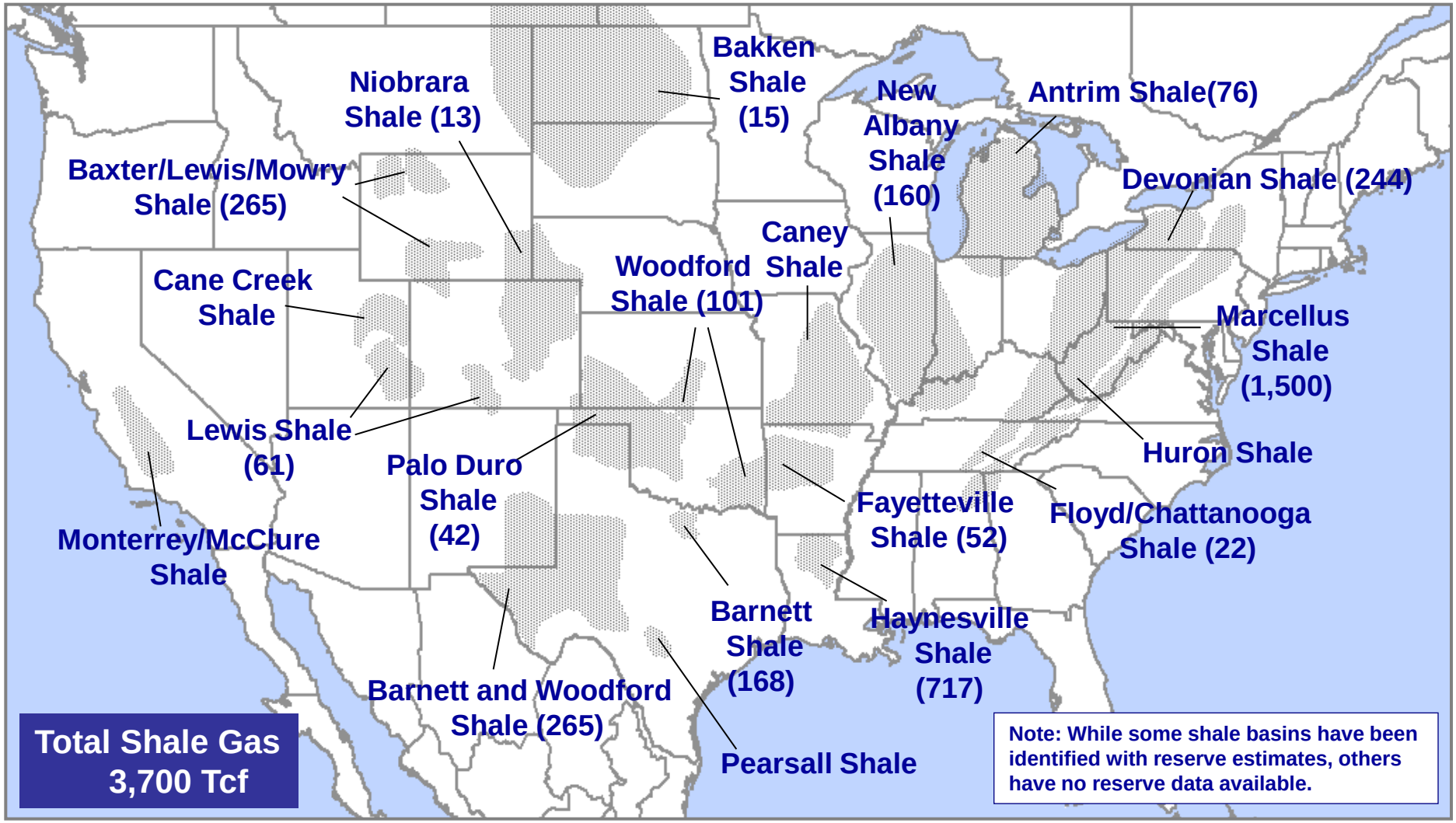
Source: Report of the Potential Gas Committee (December 31, 2008) "Potential Supply of Natural Gas in the United States" June 18, 2009

Gas Shales Plays in the United States



Source: EIA's Exploring Pipeline Dynamics to Connect New Markets – Slide Entitled: Gas Shales in the United States

United States Shale Basins
Maximum Reported Gas-in-Place (in Tcf)



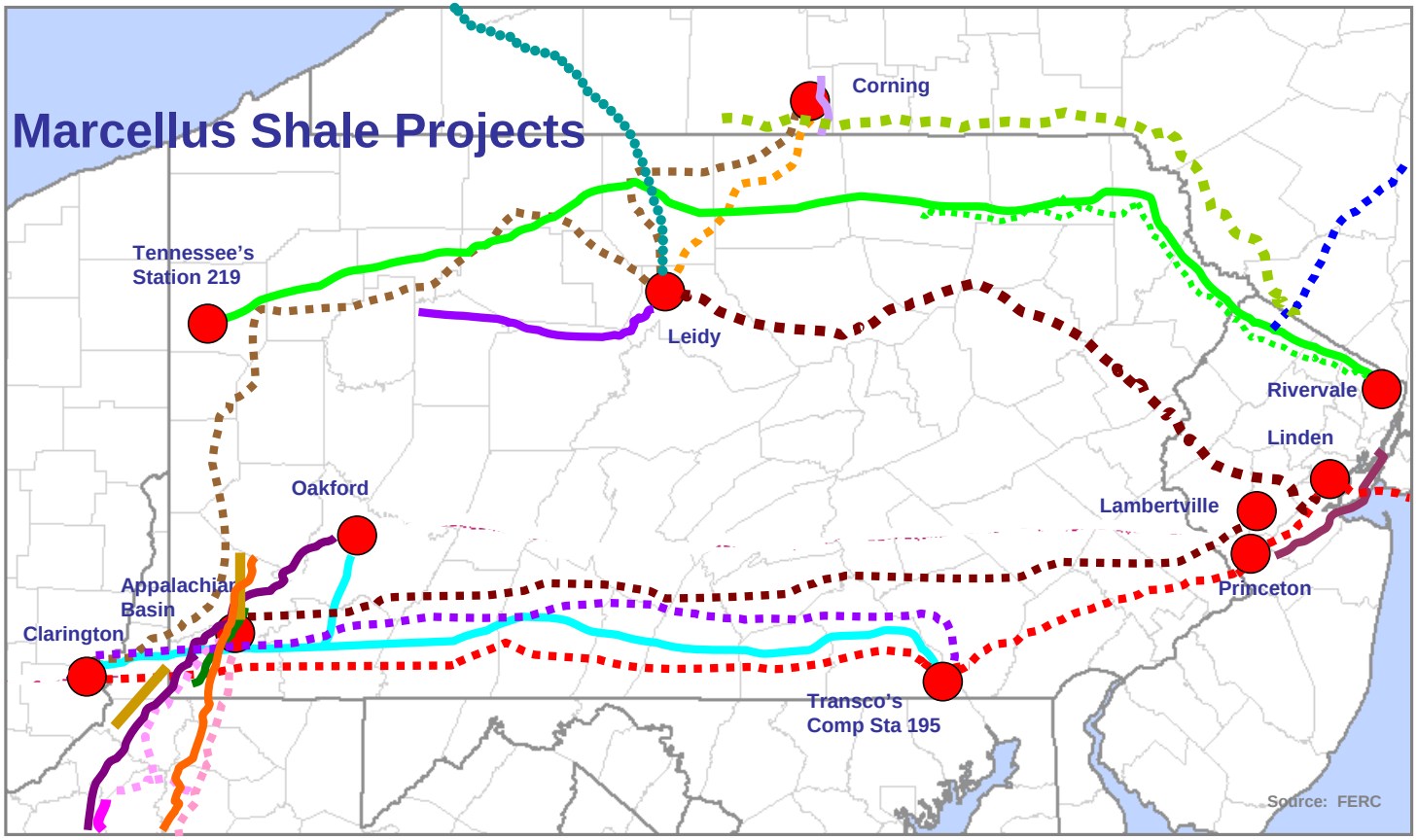
Source: Energy Velocity and Navigant Consulting's North American Natural Gas Supply Assessment – July 4, 2008

Marcellus Shale in the Appalachian Basin

- The Marcellus Shale spans six states in the northeastern U.S.
- Covers an area of 95,000 square miles at an average thickness of 50 ft to 200 ft
- Estimated depth of production is between 4,000 ft and 8,500 ft
- As of September 2008, there were a total of 518 wells permitted in Pennsylvania and 277 of the approved wells have been drilled
- The average well spacing is 40 to 160 acres per well
- The technically recoverable resources is estimated to be 262 Tcf
- The amount of gas in place is estimated to be up to 1,500 Tcf

Source: Exhibit 19 and text - Marcellus Shale in the Appalachian Basin, DOE's Modern Shale Gas Development in the United States; A Primer, dated April 2009

Marcellus Shale Projects



Source: FERC

Approved or Pending Projects

- Appalachain Expansion (NiSource)
- Line 300 Exp (Tennessee)
- NiSource/MarkWest & NiSource
- Northern Bridge, TIME 3, TEMAX (TETCO)
- Appalachian Gateway (Dominion)
- Line N, R & I Project (NFG)
- Tioga County Extension (Empire)
- Low Pressure East-West (Equitrans)
- East-West – Overbeck to Leidy (NFG)
- NJ-NY Project (TETCO & Algonquin)

Potential Projects

- Northeast Supply (Williams)*
- Keystone (Dominion/Williams)
- West to East Connector (NFG)
- NYMarc (Iroquois)
- New Penn (NiSource)
- Marcellus to Manhattan (Millennium)
- Northern Access (NFG)
- Appalachia to Market Expansion (TEAM 2012-13) (TETCO)
- Projects 2010 -12 (Equitrans)
- Northeast Upgrade (Tennessee)
- Northeast Supply Link (Transco)

* Combined Transco's Rockaway Lateral and Northeast Connector Projects

Summary of Natural Gas Facilities Impacting the Marcellus Shale Basin

Natural Gas Basin	Status	Company/Project	Capacity (MMcf/d)	Miles of Pipe	Compression (HP)
Marcellus	Approved	Texas Eastern Transmission, LP (TEMAX and TIME III projects)	455	62	84,433
Marcellus	Approved	Texas Eastern Transmission, LP (Northern Bridge Project)	150	0	10,666
Marcellus	Approved	Columbia Gas Transmission, LLC (Appalachian Expansion Project)	100	0	9,470
Marcellus	Pending	Tennessee Gas Pipeline Company (Line 300 Expansion)	350	129	59,158
Marcellus	Prior-Notice	Columbia Gas Transmission, LLC (Majorsville Compressor/MarkWest Upgrade)	250	4	0
Marcellus	Prior-Notice	Columbia Gas Transmission, LLC	150	6	0
Marcellus	Prior-Notice	Equitrans, LP (Low Pressure East and West Upgrade Project)	92	0	0
Marcellus	Pre-Filing	Dominion Transmission, Inc. (Appalachian Gateway Project)	484	110	17,965
Marcellus	Pre-Filing	National Fuel Gas Supply Corporation (Line N R & I Project)	150	18	5,000
Marcellus	Pre-Filing	National Fuel Gas Supply Corporation (East to West/Overbeck to Leidy)	425	82	25,000
Marcellus	Pre-Filing	Texas Eastern Transmission & Algonquin Gas Transmission (NJ-NY Project	800	16	0
Marcellus	Pre-Filing	Empire Pipeline, Inc (Tioga County Extension)	300	16	0
Total	Total		3,706	442	211,692

Natural Gas Basin	Status	Company/Project	Capacity (MMcf/d)	Miles of Pipe	Compression (HP)
Marcellus	Potential	Nisource (New Penn)	500	82	
Marcellus	Potential	TETCO (Appalachia to Market Expansion- TEAM)	300		
Marcellus	Potential	Dominion/Williams (Keystone Connector)	1,000	240	
Marcellus	Potential	Williams (Northeast Supply)	688	250	
Marcellus	Potential	NFG (West to East Connector)	625	324	
Marcellus	Potential	Equitrans, LP (Equitrans Marcellus Expansion - Project 2010-2012)	900		52,000
Marcellus	Potential	Iroquois Gas Transmission System LP (NYMarc System Project)	500	66	0
Marcellus	Potential	Millennium Pipeline (Marcellus to Manhattan)	675	0	0
Marcellus	Potential	National Fuel Gas Supply Company (Northern Access Expansion)	450	0	0
Marcellus	Potential	Transcontinental Gas Pipe Line Corporation (Northeast Supply Link)	420	24	0
Total	Total		6,058	986	52,000

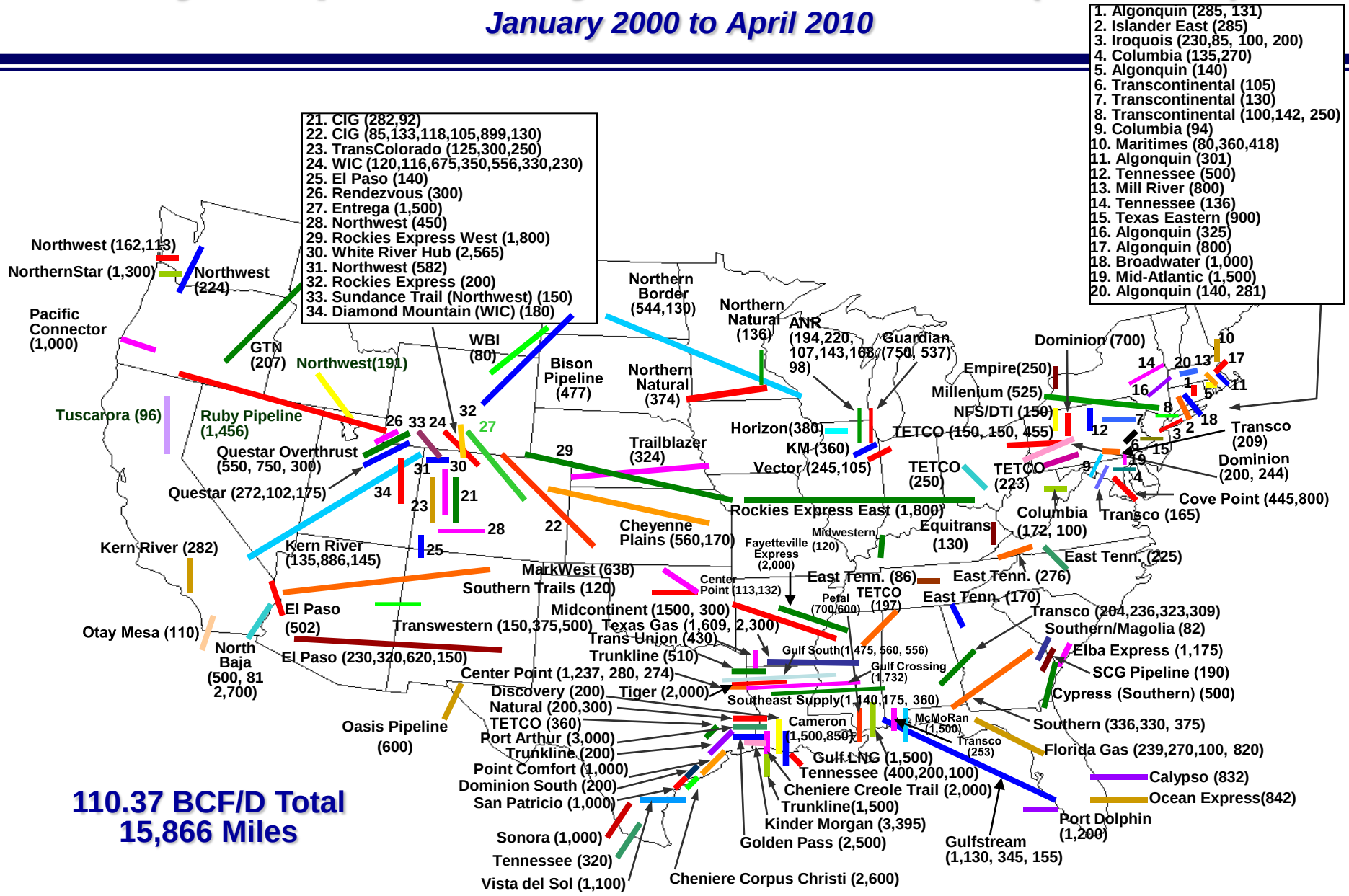
Source: FERC

In the United States, there are approximately 217,300 miles of interstate natural gas transmission pipeline.

Source: Based on data from Ventyx Global Energy Decisions, Inc., Velocity Suite, January 2010, and EIA's Natural Gas Pipelines.

Major Pipeline Projects Certificated (MMcf/d)

January 2000 to April 2010



Pipeline Approvals
January 2000 – April 2010

	Capacity (Bcf/day)	Miles of Pipe	Compression (HP)	Cost (Billions)
2000	2.3	1,102.8	151,096	0.8
2001	8.6	2,688.4	870,767	4.4
2002	5.5	1,555.6	543,765	3.1
2003	1.7	352.4	221,545	1.0
2004	5.5	619.3	83,538	1.2
2005	14.2	784.5	123,036	1.8
2006	14.0	1,340.5	327,257	3.9
2007	23.0	2,727.0	849,110	8.0
2008	16.1	2,142.4	648,838	7.7
2009	14.1	1,276.1	748,749	7.6
2010	5.4	1,276.8	351,616	5.2
TOTAL	110.4	15,865.8	4,919,317	44.7

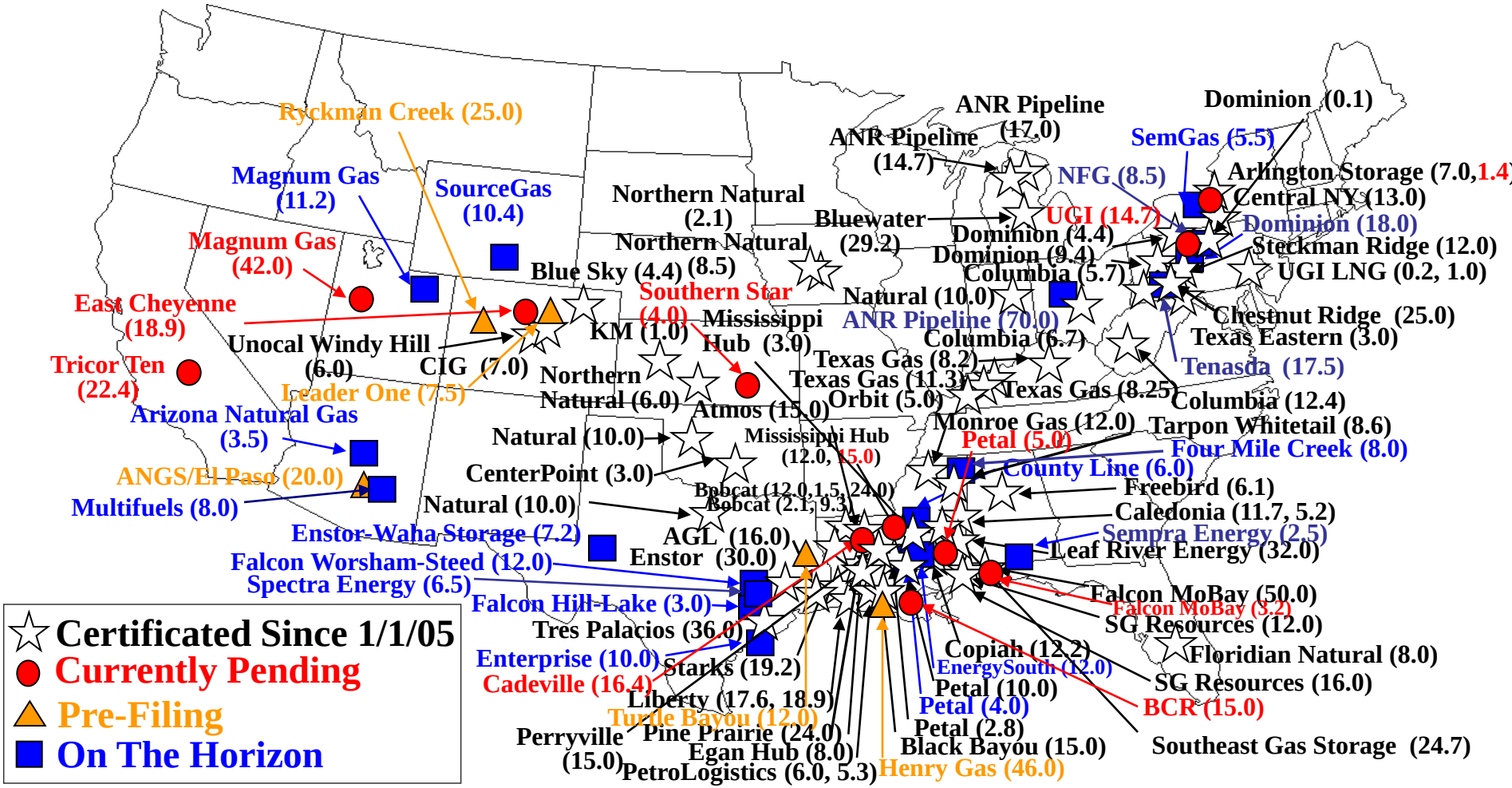
Source:
FERC

Pipeline Facilities In-Service January 2000 – April 2010

	Capacity (MMcf/day)	Miles of Pipeline	Compression (HP)
2000	2,639	1,224	400,170
2001	3,051	654	229,447
2002	6,951	2,713	622,340
2003	5,202	1,775	559,010
2004	3,029	656	351,763
2005	3,312	247	74,695
2006	3,716	388	61,841
2007	8,748	1,224	310,950
2008	18,556	2,461	833,772
2009	14,984	2,382	811,286
2010	4,600	209	123,005
TOTAL	74,787	13,933	4,378,279

Source: FERC

All Storage Projects (Capacity in Bcf)



Storage Approvals
January 2000 through April 2010

	Deliverability (MMcf/day)	Capacity (Bcf)	Compression (HP)
2000	700	3.6	20,000
2001	500	17.6	44,130
2002	2,647	36.6	60,820
2003	1,631	33.3	68,483
2004	2,675	31.1	53,250
2005	2,914	97.6	119,917
2006	4,749	157.6	168,898
2007	5,590	133.9	163,646
2008	7,821	216.0	231,599
2009	6,460	128.1	206,155
2010	600	29.6	9,500
TOTAL	36,287	885.0	1,146,398

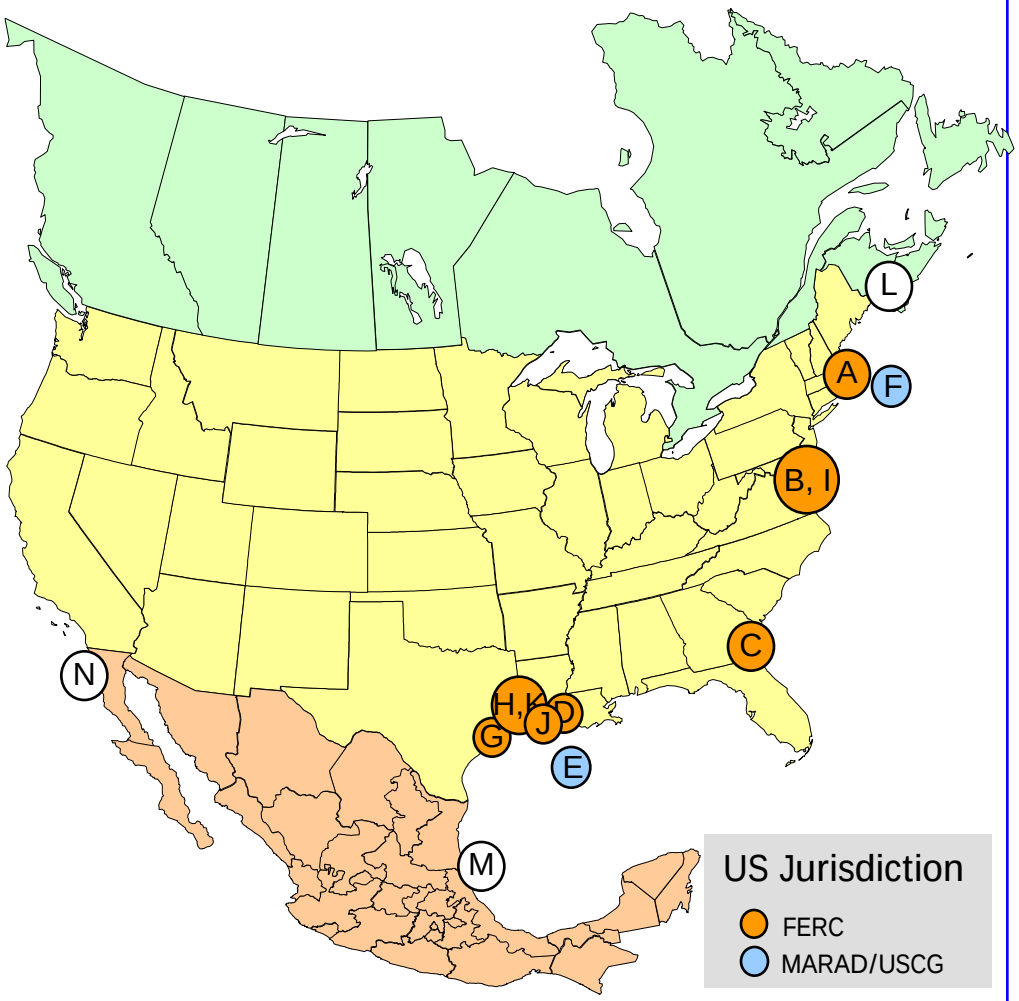
Source: FERC

Storage Facilities In-Service 2002 – April 2010

	Deliverability (MMcf/day)	Capacity (Bcf)	Compression (HP)
2002	1,200	24.4	64,130
2003	1,247	21.3	16,621
2004	331	11.6	52,862
2005	82	8.2	13,622
2006	1,336	70.9	43,880
2007	1,846	84.2	71,323
2008	4,412	81.9	123,521
2009	3,806	59.7	39,028
2010	800	20.0	0
TOTAL	15,059	382.2	424,987

Source: FERC

North American LNG Import Terminals
Existing



As of April 12, 2010

* *Expansion of an existing facility*

U.S.

A. Everett, MA : 1.035 Bcfd (SUEZ LNG - DOMAC)

B. Cove Point, MD : 1.0 Bcfd (Dominion - Cove Point LNG)

C. Elba Island, GA : 1.2 Bcfd (El Paso - Southern LNG)

D. Lake Charles, LA : 2.1 Bcfd (Southern Union - Trunkline LNG)

E. Gulf of Mexico: 0.5 Bcfd, (Gulf Gateway Energy Bridge - Excelerate Energy)

F. Offshore Boston: 0.8 Bcfd, (Northeast Gateway- Excelerate Energy)

G. Freeport, TX: 1.5 Bcfd, (Cheniere/Freeport LNG Dev.)

H. Sabine, LA: 2.6 Bcfd (Sabine Pass Cheniere LNG)

I. Cove Point, MD : 0.8 Bcfd (Dominion – Expansion)*

J. Hackberry, LA: 1.8 Bcfd (Cameron LNG - Sempra Energy)

K. Sabine, LA: 1.4 Bcfd (Sabine Pass Cheniere LNG – Expansion)*

Canada

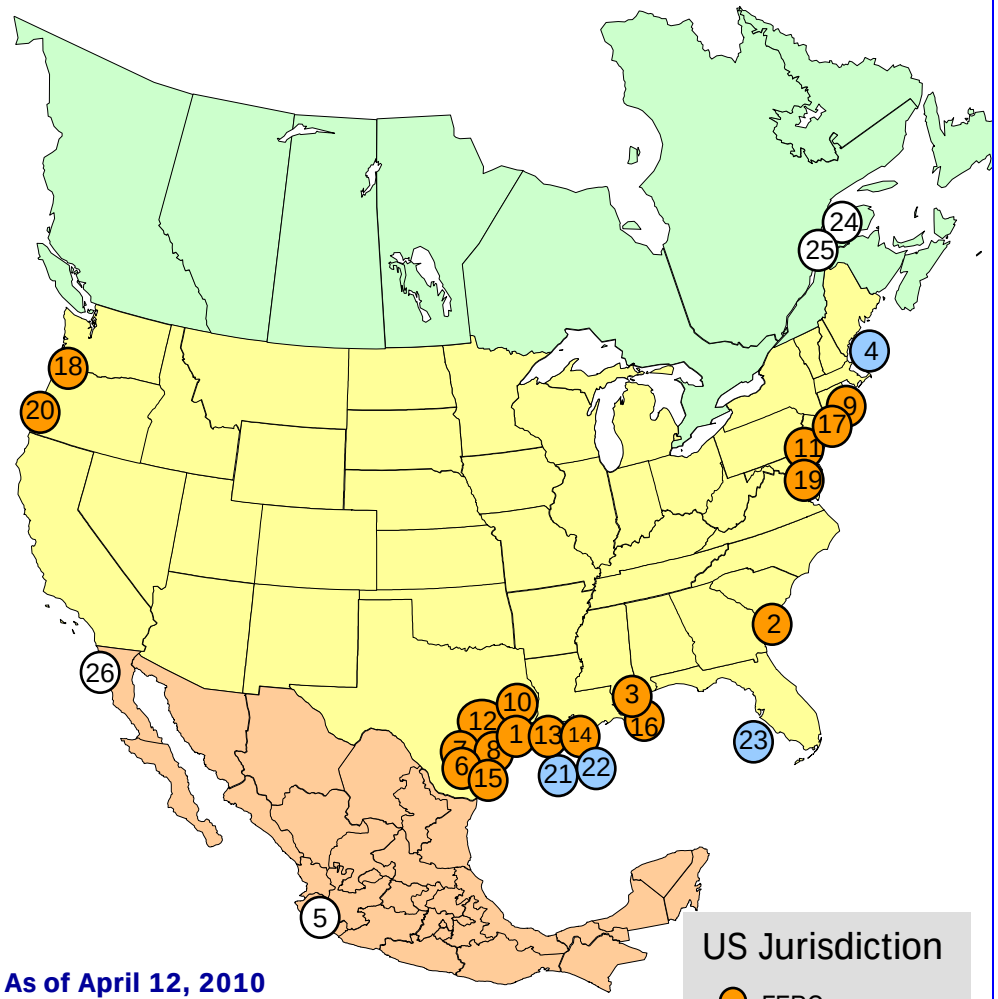
L. St Johns, NB: 1.0 Bcfd, (Canaport- Irvin Oil)

Mexico

M. Altamira, Tamulipas: 0.7 Bcfd, (Shell/Total/Mitsui)

N. Baja California, MX: 1.0 Bcfd, (Sempra)

North American LNG Import Terminals *Approved*



As of April 12, 2010

* *Expansion of an existing facility*

APPROVED - UNDER CONSTRUCTION
U.S.

1. **Sabine, TX:** 2.0 Bcfd (Golden Pass - ExxonMobil)
2. **Elba Island, GA:** 0.9 Bcfd (El Paso - Southern LNG Expansion)*
3. **Pascagoula, MS:** 1.5 Bcfd (Gulf LNG Energy LLC)
4. **Offshore Boston, MA:** 0.4 Bcfd (Neptune LNG - Tractebel)

APPROVED - UNDER CONSTRUCTION
Mexico

5. **Manzanillo, MX:** 0.5 Bcfd (KMS GNL de Manzanillo)

APPROVED - NOT UNDER CONSTRUCTION
U.S. - FERC

6. **Corpus Christi, TX**: 1.0 Bcfd (Ingleside Energy - Occidental Energy Ventures)
7. **Corpus Christi, TX:** 2.6 Bcfd, (Cheniere LNG)
8. **Corpus Christi, TX :** 1.1 Bcfd (Vista Del Sol - 4Gas)
9. **Fall River, MA :** 0.8 Bcfd, (Weaver's Cove Energy/Hess LNG)
10. **Port Arthur, TX:** 3.0 Bcfd (Sempra)
11. **Logan Township, NJ :** 1.2 Bcfd (Crown Landing LNG – BP)
12. **Cameron, LA:** 3.3 Bcfd (Creole Trail LNG - Cheniere LNG)
13. **Freeport, TX:** 2.5 Bcfd (Cheniere/Freeport LNG Dev. - Expansion)
14. **Hackberry, LA:** 0.85 Bcfd (Cameron LNG - Sempra Energy - Expansion)
15. **Pascagoula, MS:** 1.3 Bcfd (Casotte Landing - ChevronTexaco)
16. **Port Lavaca, TX:** 1.0 Bcfd (Calhoun LNG - Gulf Coast LNG Partners)
17. **LI Sound, NY:** 1.0 Bcfd (Broadwater Energy-TransCanada/Shell)
18. **Bradwood, OR:** 1.0 Bcfd (Northern Star LNG - Northern Star Natural Gas LLC)
19. **Baltimore, MD:** 1.5 Bcfd (AES Sparrows Point - AES Corporation)
20. **Coos Bay, OR:** 1.0 Bcfd (Jordan Cove Energy Project)

U.S. - MARAD/Coast Guard

21. **Port Pelican:** 1.6 Bcfd, (Chevron Texaco)
22. **Gulf of Mexico:** 1.0 Bcfd (Main Pass McMoRan Exp.
23. **Offshore Florida:** 1.2 Bcfd (Hoëgh LNG - Port Dolphin Energy)

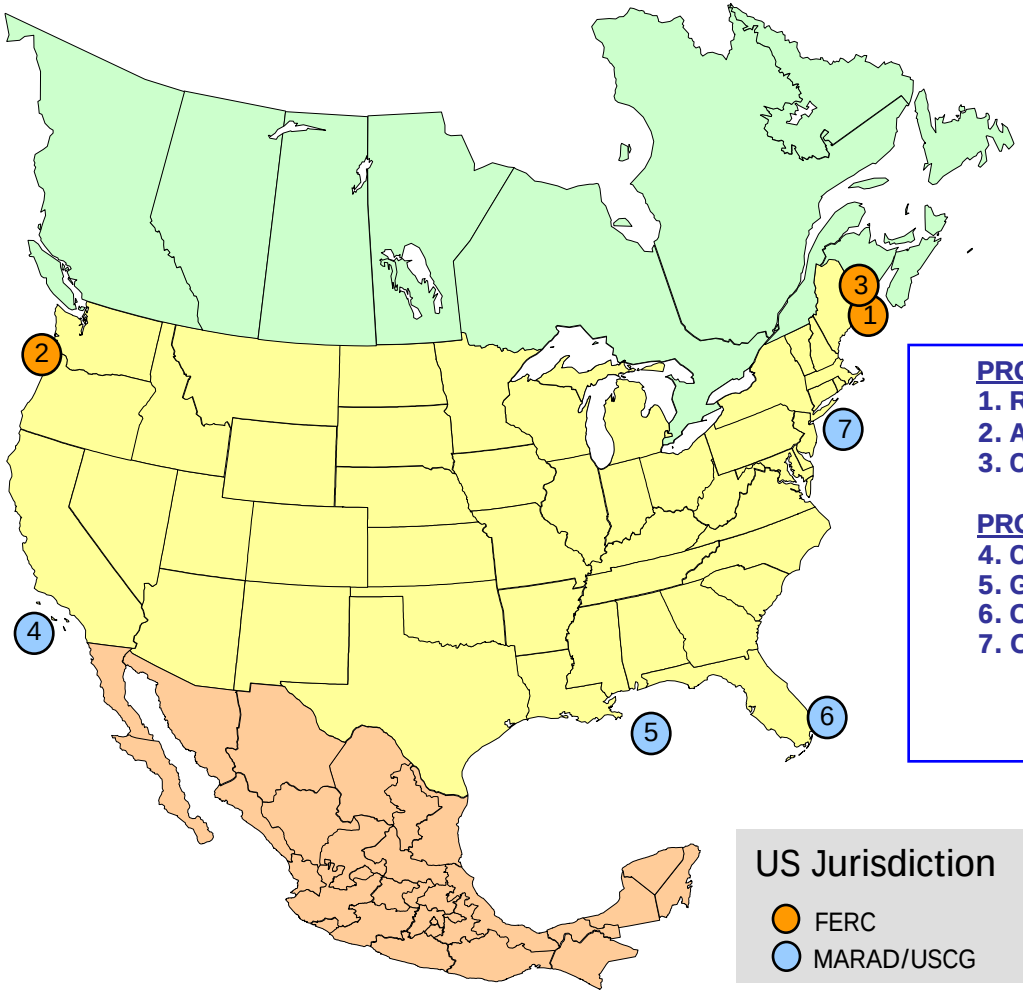
Canada

24. **Rivière-du- Loup, QC:** 0.5 Bcfd (Cacouna Energy - TransCanada/PetroCanada)
25. **Quebec City, QC :** 0.5 Bcfd (Project Rabaska - Enbridge/Gaz Met/Gaz de France)

Mexico

26. **Baja California, MX :** 1.5 Bcfd (Energy Costa Azul - Sempra - Expansion)

North American LNG Import Terminals
Proposed



PROPOSED TO FERC

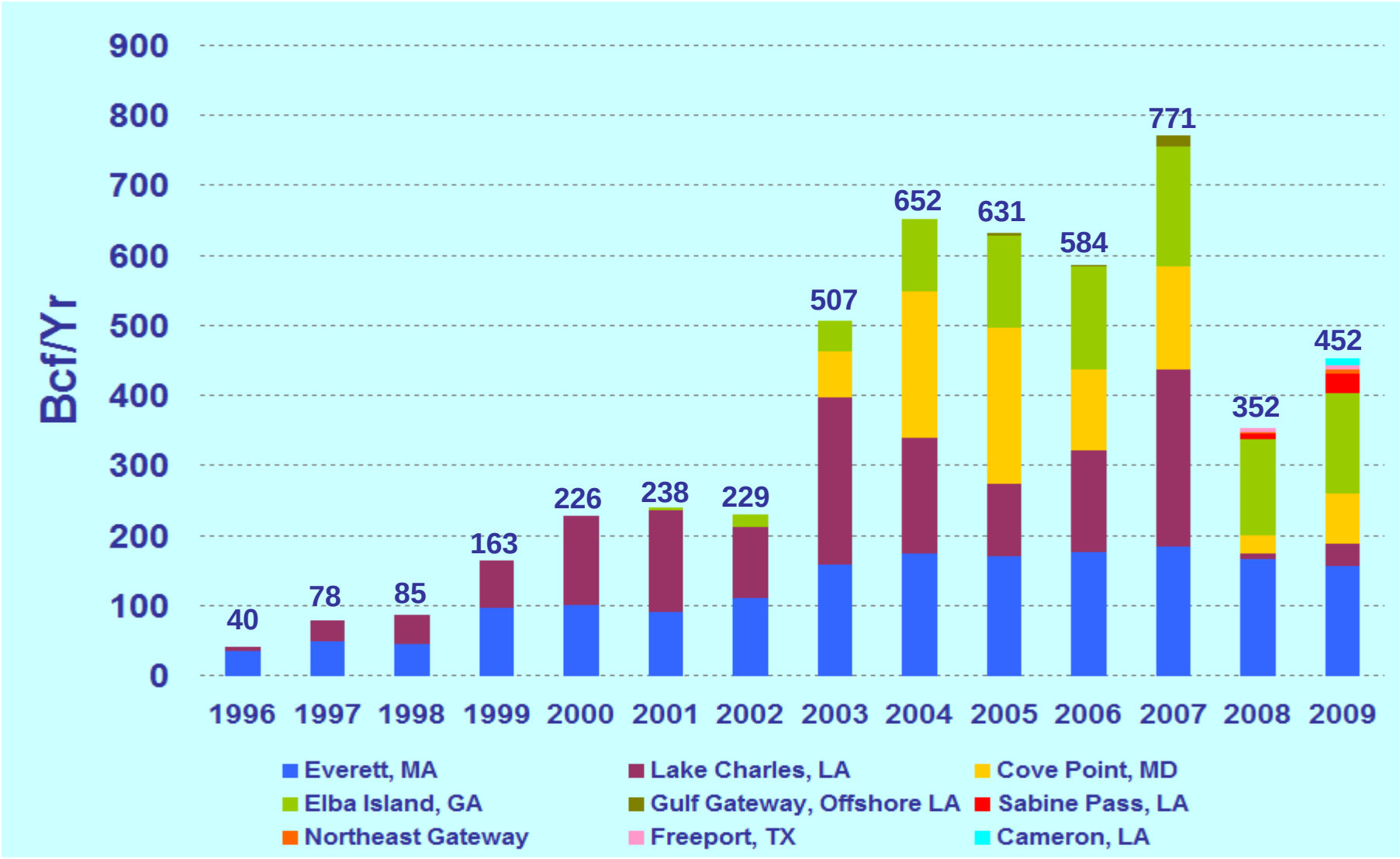
1. **Robbinston, ME:** 0.5 Bcfd (Downeast LNG - Kestrel Energy)
2. **Astoria, OR:** 1.5 Bcfd (Oregon LNG)
3. **Calais, ME:** 1.2 Bcfd (BP Consulting LLC)

PROPOSED TO MARAD / COAST GUARD

4. **California Offshore :** 1.4 Bcfd, (Clearwater Port LLC)
5. **Gulf of Mexico:** 1.4 Bcfd (Bienville LNG **-** TORP Technology)
6. **Offshore Florida:** 1.9 Bcfd (SUEZ Calypso - SUEZ LNG)
7. **Offshore New York:** 2.0 Bcfd (Safe Harbor Energy - ASIC, LLC)

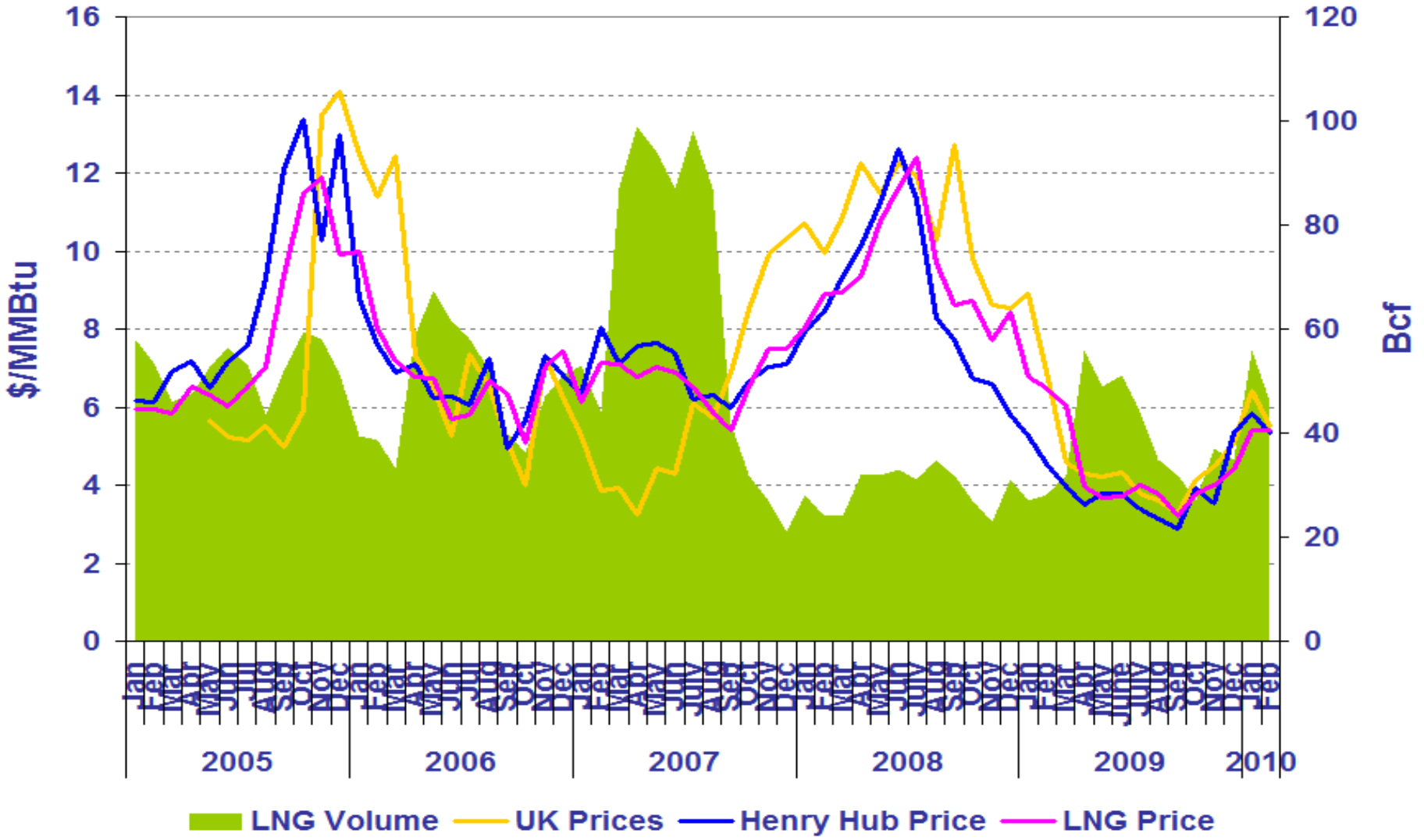
As of April 12, 2010

LNG Imports by Terminal



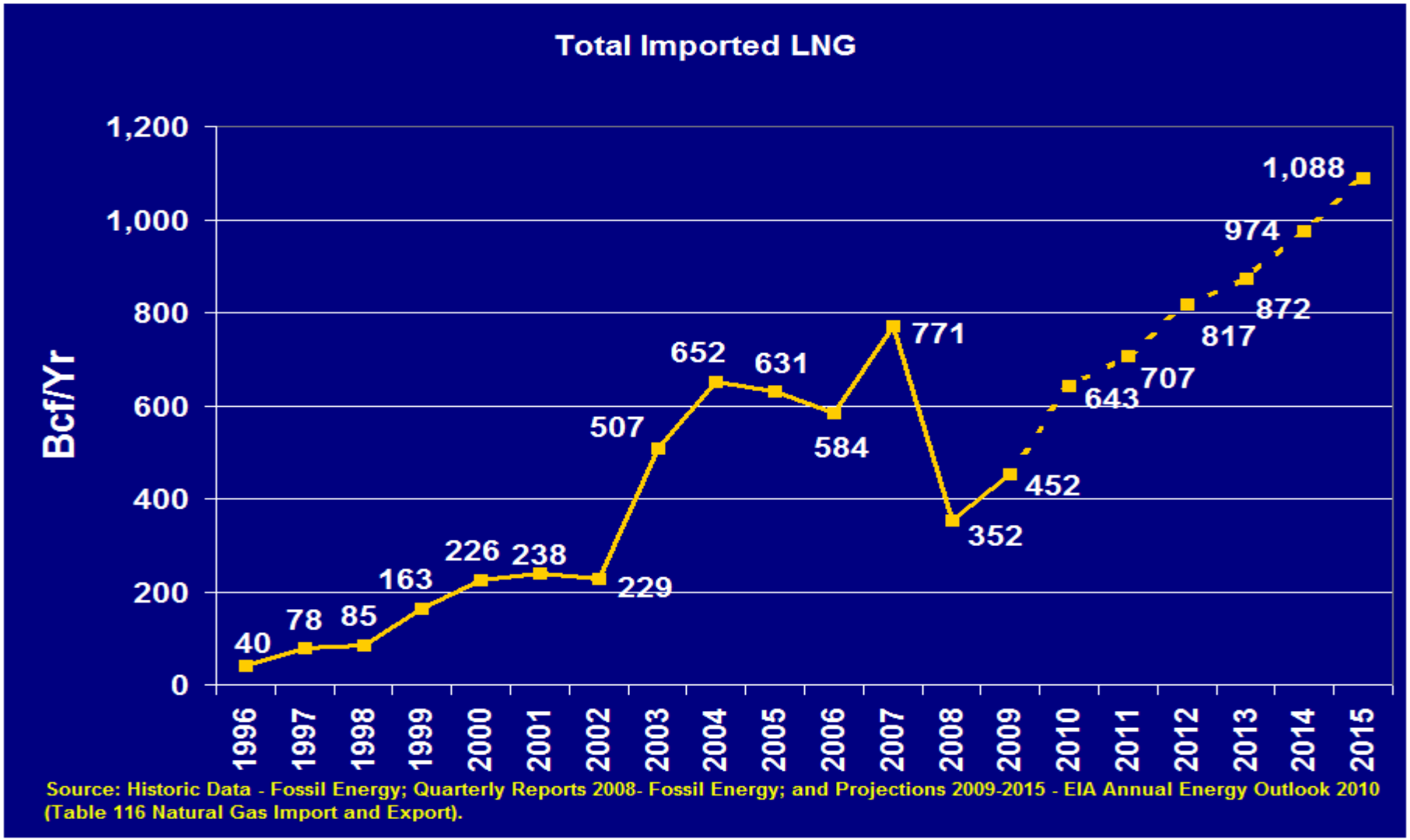
Source: Data from EIA and Fossil Energy

Monthly Prices & Volumes: United Kingdom, LNG, and Henry Hub Prices With U.S. LNG Volumes



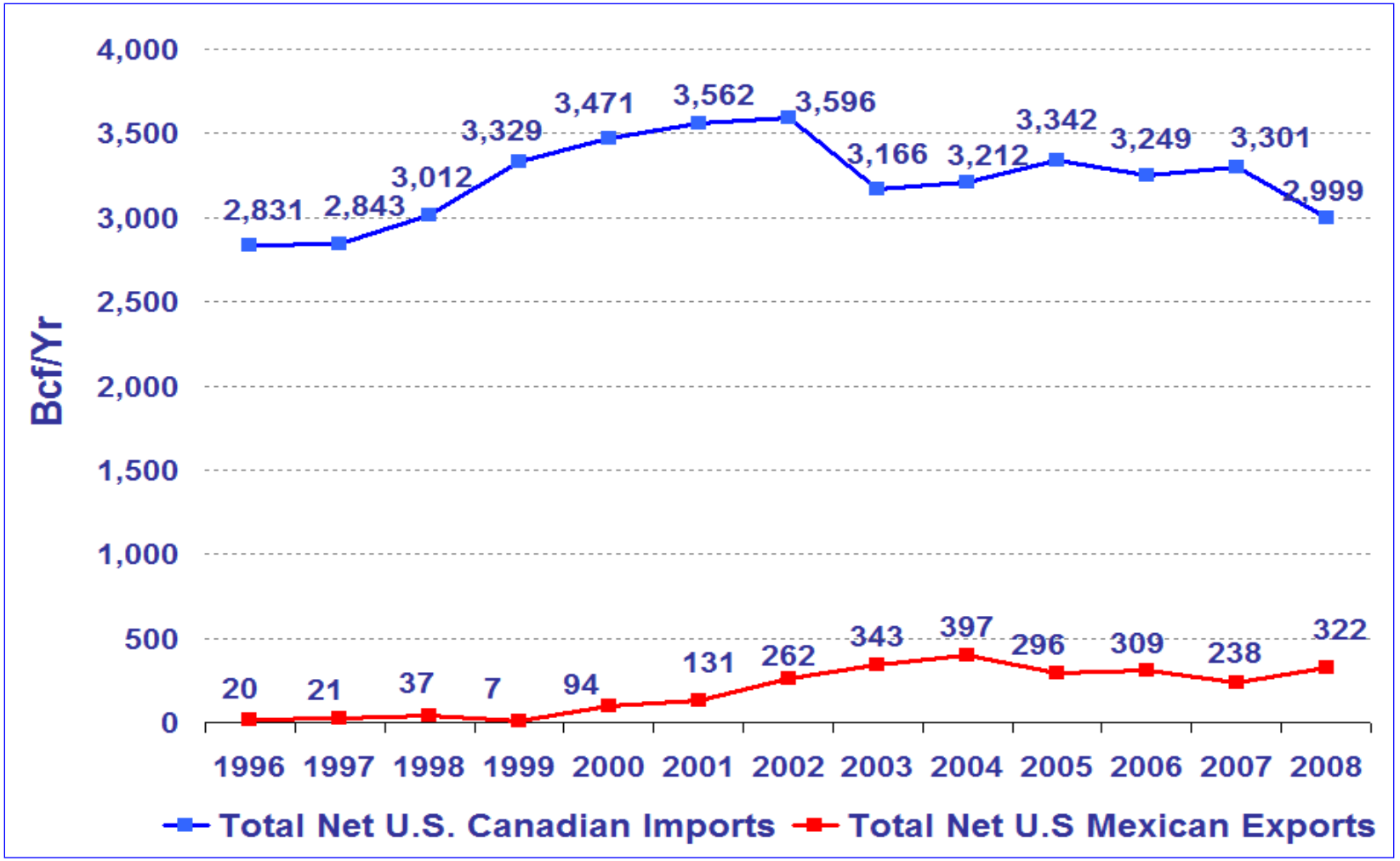
Source: Henry Hub prices from Platts Gas Daily; LNG prices and volumes from Fossil Energy; and United Kingdom price from Bloomburg.

Existing and Projected LNG Imports



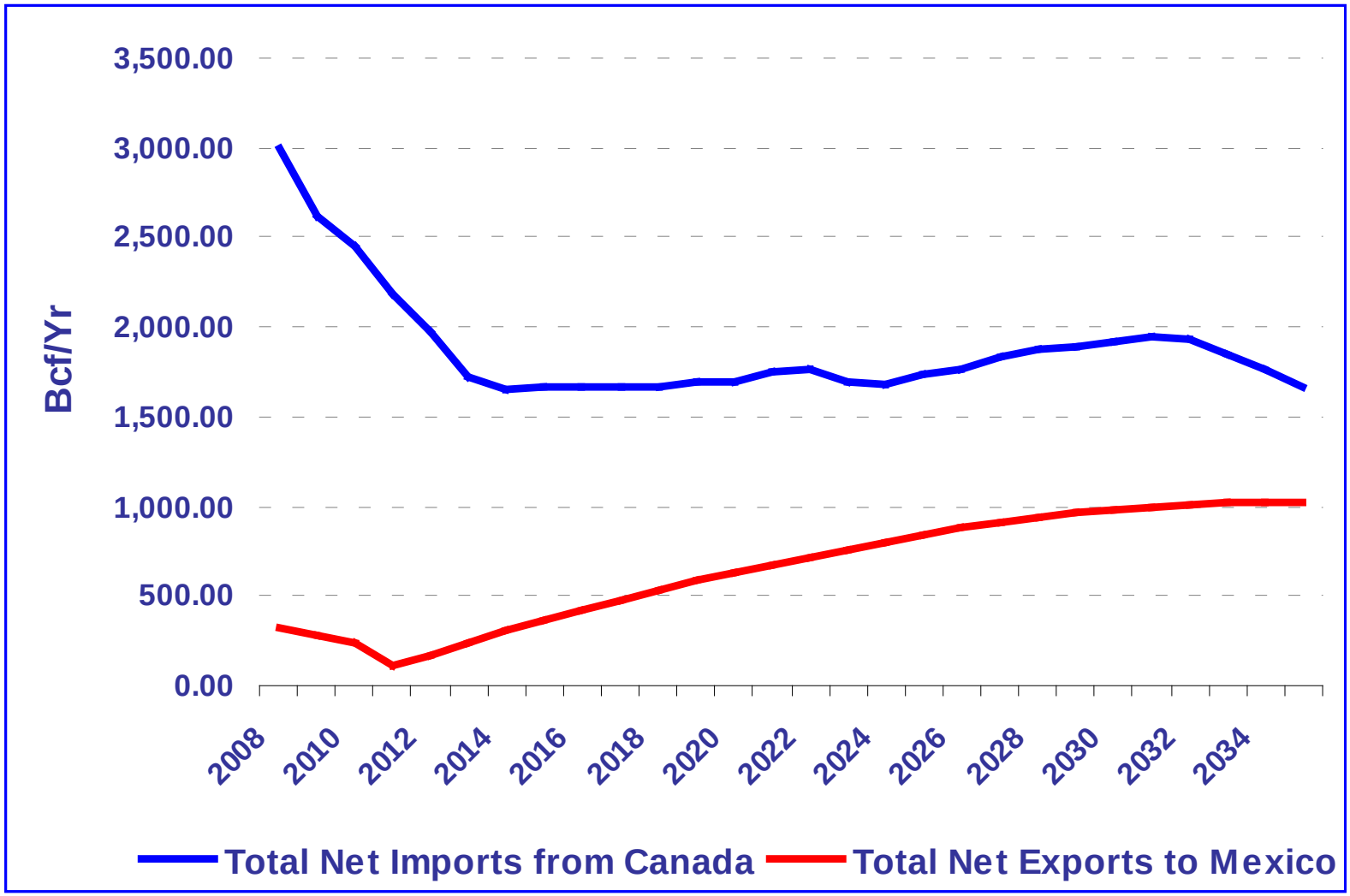
Source: Historic Data - Fossil Energy; Quarterly Reports 2008- Fossil Energy; and Projections 2009-2015 - EIA Annual Energy Outlook 2010 (Table 116 Natural Gas Import and Export).

Net Canadian Imports and Net Mexican Exports



Source: Based on EIA Spreadsheets.

Future Net Canadian Imports and Net Mexican Exports



Source: Based on EIA Spreadsheets.

Market Knows Best

- FERC is not the market
- FERC will present a “menu” of infrastructure solutions that are:
  - In the public interest
  - Will cause the least environmental impact
  - Will be safe
- The market is in the best position to select the infrastructure projects that get built

Conclusions

- The Commission process has benefited all stakeholders in natural gas projects
- More needs to be done
  - Turn opposition into understanding
  - Continue to refine the siting process
- More infrastructure is coming
  - Alaska
  - Pipes from non-traditional sources
  - Hydrokinetics
  - Electric transmission

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