Federal Energy Regulatory Commission



USA Natural Gas Pipelines



Federal Energy Bagahtery Office of Energy Property Withdrappen, PC 20030 FERCISIS - 02257

Study Experime Evolution

Final Environmental Impact Statement

Volume 1





FERC

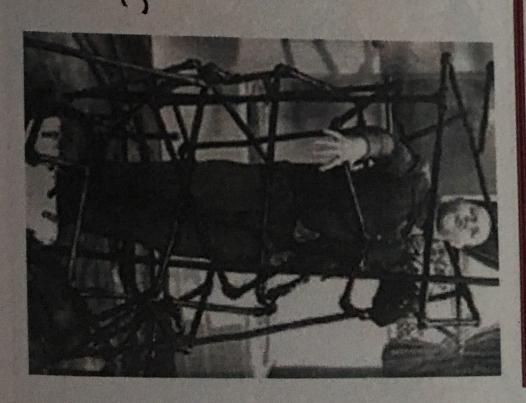
Tariffs

October 31, 2017

USA Gas Industry Sectors



- Drilling and Production
- Gathering
- Processing Plants
- Intrastate Pipelines
- Interstate Pipelines FERC
- Interstate Storage FERC
- LNG Imports & Exports FERC Pipeline Imports & Exports - FERC
- Local Distribution



USA Natural Gas Sectors & Regulation



Local Distribution	Imports/Exports by LNG or Pipe	Interstate Pipelines & Interstate Storage	Production, Gathering & Intrastate Pipelines	Sector
State Government Authority – Public Utility Comm.	DOE – Office of Fossil Energy FERC -Terminals	FERC & Pipeline and Hazardous Materials Safety Administration	State Government Authority	Regulation
National Association of Regulatory Utility Commissioners	DOE/OFE & DOE/ Energy Information Administration	Memorandum of Understanding Among Various Federal Agencies	Interstate Oil & Gas Compact Commission	Shared Information
American Gas Association & American Public Gas Association	Center for Liquefied Natural Gas	Interstate Natural Gas Association of America	Natural Gas Supply Association, American Petroleum Institute & America's Natural Gas Alliance	Industry Organizations

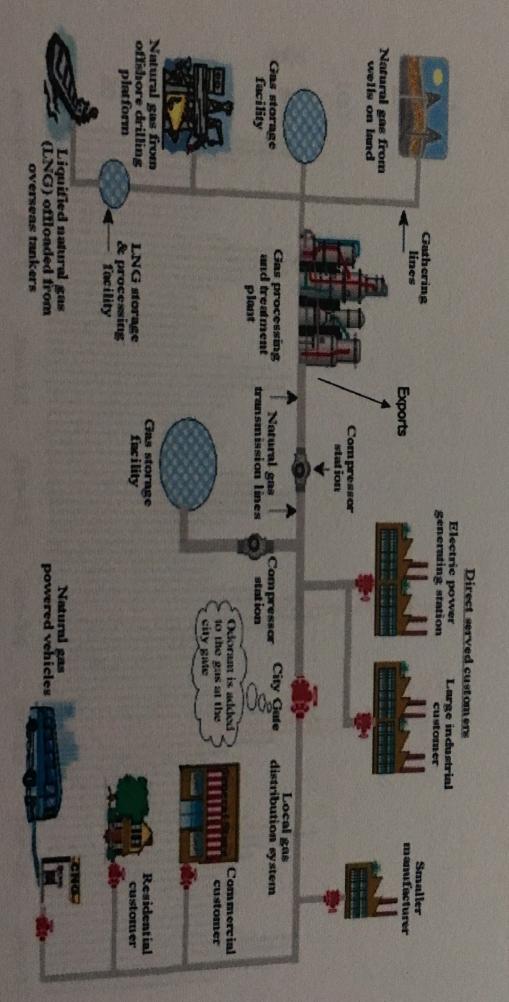
195,200 Miles of Interstate Pipelines



Source: Based on data from Ventyx Global Energy Decisions, Inc.,

USA Natural Gas Industry

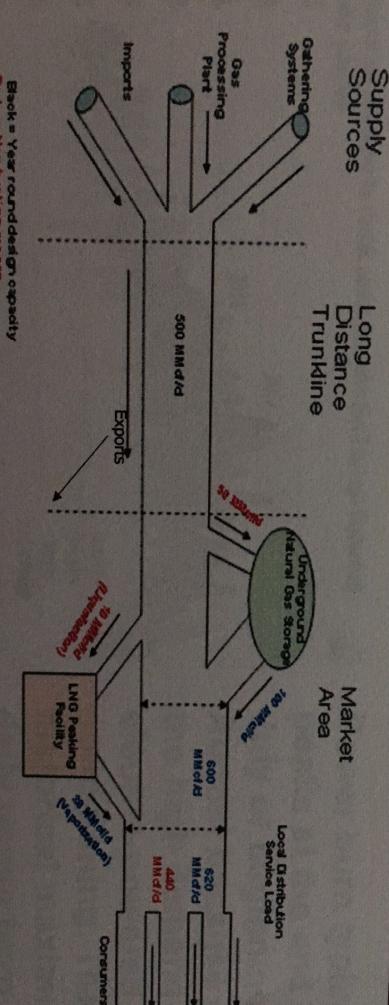




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Storage & Seasonality





Red = Non-heating season (spring-summerneed) Blue = Heating Season

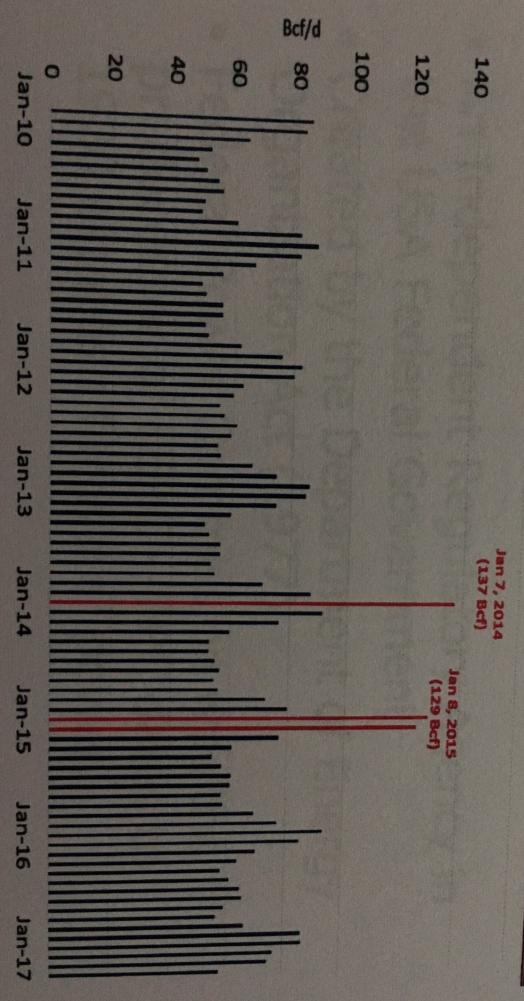
ource: Energy Information Administration, Office of Oil and Gas

Monthly Deliveries in USA

Average cold winter months - Polar Vortex in 2014 & 2015

160

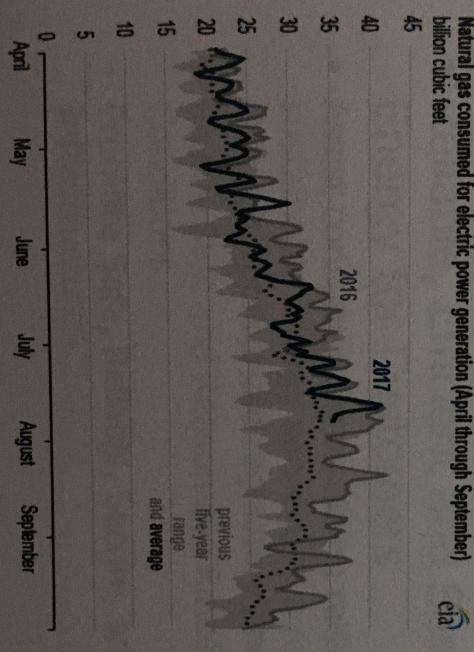




Source: EIA's Consumption by End-Use Spreadsheets, June 2017.

Electric Power "Burn





Power burn typically peaks at the end of July or beginning of August because of the high demand for electric-powered air conditioning. The historical maximum daily power burn was above 40 Bcf in 2016 & 2017.

- Office of Energy Projects⁸

EIA Natural Gas Weekly Update, for week ending July 19, 2017

What Is FERC?



- An Independent Regulatory Agency in the USA Federal Government
- Organization Act (1977) Created by the Department of Energy
- 1920 establish for water power. Federal Power Commission was the predecessor of FERC - FPC dates to

FERC's Guiding Principles



- Reliable, Efficient and Sustainable **Energy for Customers**
- Assist consumers in obtaining reliable, efficient and through appropriate regulatory and market means. sustainable energy services at a reasonable cost
- Ensure Just and Reasonable Rates, Terms, and Conditions
- Promote Safe, Reliable, Secure, and Efficient Infrastructure

Helping Markets Work FERC



Infrastructure Adequate **Pipelines**

Competitive Market

Rate & Tariffs

Market Rules

Effective

Innovation FERC

Oversight

Market

Enforcement

Natural Gas Act



The Natural Gas Act * sets out FERC's responsibilities:

- Section 1 Identifies projects exempt from FERC jurisdiction
- Section 3 Allows FERC to authorize import/export facilities
- Sections 4 & 5 Just and reasonable rates, no undue discrimination in service term and conditions
- Section 7 Allows FERC to authorize interstate pipeline projects (including storage) and grant eminent domain
- * Enacted in 1938, as amended

Gas Pipeline Program



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

Major Pipeline Construction Projects









FERC Pipeline Certificate Process



File

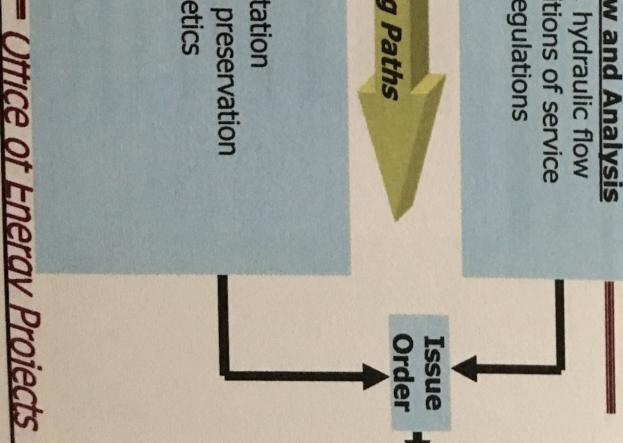
Non-Environmental Review and Analysis

- Engineering GQI, storage, hydraulic flow
- Tariff rates, terms & conditions of service
- Policy precedents, rules, regulations
- Accounting

Parallel Processing Paths

Preparation of EA or EIS

- Water Resources
- Ecology fish, wildlife, vegetation
- Cultural Resources historic preservation
- Land use recreation, aesthetics
- Soils and geology
- Air and noise
- Socioeconomic Impacts
- Alternatives



The Environmental Report (13 Resource Reports)



General Project
 Description

- Land Use, Recreation,
 & Aesthetics
- Water Use & Quality
 Fish, Wildlife &
- 10. Alternatives

Air & Noise Quality

4. Cultural Resources

Vegetation

11. Reliability & Safety

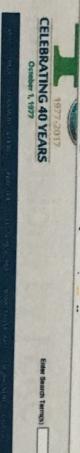
5. Socioeconomics

- 12. PCB Contamination (for pipelines only)
- 6. Geological Resources
- 13. LNG Engineering & Design Details

7. Soils

https://www.ferc.gov/industries/gas/enviro.asp FERC Website for Environmental Review





Search



Environmental Documents

FERC makes electronic copies of the draft and final EISs available to the public. A limited number of paper copies are also available from the Public Reference Room (call tost-free f

- Interagency Agreement on Early Coordination of Environmental Review of Natural Gas Ripelines

Costs, Rates, and Conditions of Service Natural Gas Act



- Initial Rates Set by Certificate
- Rates for Services for Customer
- Terms of Service for Customer
- Detailed Tariff Terms & Conditions
- Cost Recovery for Pipeline
- Operation of Secondary Market
- Market Oversight Three-year rate review certificate condition

Pipeline Safety & Integrity



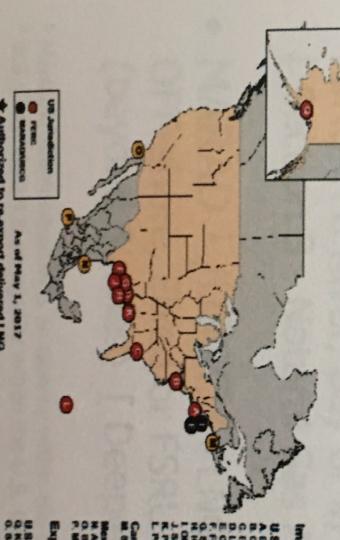
- Good siting decisions by FERC
- Follow safety, inspection & integrity rules of Pipeline and Hazardous Materials Safety Administration
- Safety Board Accident investigations by National Transportation
- Department of Homeland Security, National Infrastructure Protection Plan, Energy Sector

FERC's Role in the Siting Regulation of **LNG import or Export Terminals**



North American LNG Import/Export Terminals





mport Terminals

M.S.

A. Everett, MA: 1.035-Bold (GOF SLIEZ - DOMAC)

B. Cove Point, MO: 1.8 Bold (GDeminion - Cove Point LNG)

C. Elba Island, GA: 1.6 Bold (El Paso - Southern LNG)

D. Lake Charles, LA: 2.1 Bold (Elouthern Livian - Trunkline (NG)

E. Offshore Baston: 0.8 Bold (Southern Livian - Trunkline (NG)

E. Offshore Baston: 0.8 Bold (Cheminion Prespect LNG Dec.)

F. Fresport, TX: 1.5 Bold (Cheminion Prespect LNG Dec.)

H. Huchberry, LA: 4.0 Bold (Cheminion County Presp. LNG)

H. Huchberry, LA: 4.0 Bold (Cheminion County Presp. LNG)

L. Sabine Brass, TX: 2.0 Bold (Elements Cheminion LNG)

K. Pascagouda, MS: 1.5 Bold (Elements County Presp. LNG)

K. Pascagouda, MS: 1.5 Bold (Elements Cheminion County Presp. LNG)

and July, MB: 1.0 State (Repeat For

ARamira, Tamudipuse: 0.7 Bold (Shell/TotalAftnut - Atamira LNG)
Saja Galifornia, 600: 1.0 Bold (Semura - Energia Costa Anat)

Export Terminals

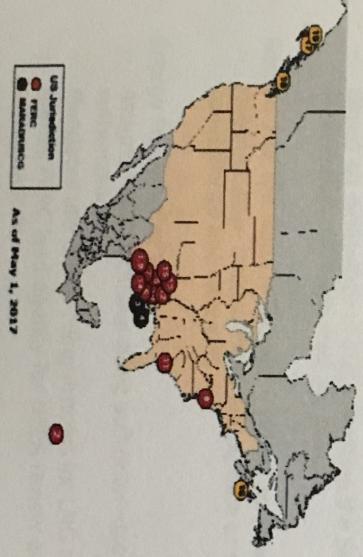
Q. Kensal, AK: 0.2 (hdm (Composof halipes)

G. Saltima, LA: 21 Bold (Chemistro/Subino Pass LNG - Trains 1, 2 & 3)

More LNG Terminals Under Review



North American LNG Import/Export Terminals Approved





ER CONSTRUCTION - FERC (Maume Offshore GasPort, LLC) (CP13-193)

(021-4-120) town my

FERC or Deepwater Port



- FERC LNG Terminal is ON-shore, Fixed or Section 3 - Natural Gas Act] FSRU in a River, Bay or in State Waters (3-mile)
- MARAD 1 /USGC 2 LNG Terminal is (beyond 3 miles) [Deepwater Port Act] OFF-shore, Fixed or FSRU in Federal Waters

Maritime Administration is an agency within the U.S. Department of Transportation

² U.S Coast Guard is an agency within the U.S. Department of Homeland Security

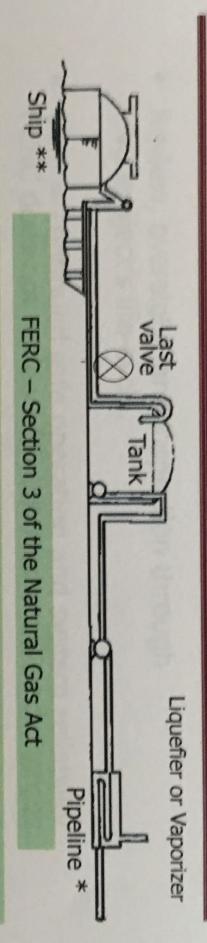
FERC's LNG / Pipeline Siting Authority



- Section 3 of the Natural Gas Act
- Approval unless FERC finds that an importation or exportation facility proposal " will not be consistent with the public interest
- Based on delegation of authority from the Secretary of Energy; Delegation Order No. 00-004.00A, effective May 16, 2006,
- Section 7 of the Natural Gas Act WHEN an interstate pipeline is connected
- convenience and necessity Determination that an interstate pipeline or storage project in in the public
- **Energy Policy Act of 2005**
- Assigns FERC exclusive siting authority—does not preempt other required federal authorizations
- Mandates use of Pre-Filing Process for LNG terminals
- Names FERC lead agency for NEPA review and coordinator of all federal authorizations
- Codifies the 2002 Hackberry policy regarding not regulating the economic aspects of an LNG Terminal

Multi-Agency Jurisdiction





FERC - Lead Agency for Environmental Impact Statement

USCG - 33 CFR Part 127

DOT - 49 CFR Part 193 Safety Standards

USCG - 33 CFR Part 105 Facility Security

- The Pipeline could be non-jurisdictional to FERC
- The Gas/LNG export must be approved by DOE under Section 3

* FERC Pipeline Certificate Process



Non-Environmental Review and Analysis

- Engineering GQI, storage, hydraulic flow
- Tariff rates, terms & conditions of service
- Policy precedents, rules, regulations
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Parallel Processing Paths

Application

Preparation of EA or EIS

- Water Resources
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- Cultural Resources historic preservation
- Land use recreation, aesthetics
- Soils and geology
- Air and noise
- Socioeconomic Impacts
- Alternatives

LNG Program



- Review, oversight, and inspection through LNG project's life-cycle
- Goal = continued safe operation and system reliability. FERC does not review LNG terminal costs and charges.
- **Pre-Authorization Review**
- Includes relevant environmental issues, air, noise, engineering design, wildlife, wetlands,
- Post-Authorization Review
- Primarily facility construction and operation

Phases of an LNG Project Review



- Project Preparation
- The applicant working on its own
- Pre-Filing
- FERC staff working with the applicant and stakeholders before the filing of an application
- Application Review
- FERC staff analyzes and reviews information filed by the applicant and stakeholders after the pre-filing is complete
- Post-Authorization
- FERC staff ensures compliance with conditions to the FERC's approval

LNG Project Review Process



Start of Pre-Filing Process

Scoping Meeting / Site Visit

Data Requests, Analysis & Agency Coordination

Notice of Application

Interventions & Protests

Issue EA or DEIS

Public Meeting / Comments

Issue FEIS, if applicable

Authorization / Denial

Safety & Engineering

Cryogenic Design & Safety Review

Waterway Suitability Assessment Review

USCG Letter of Recommendation

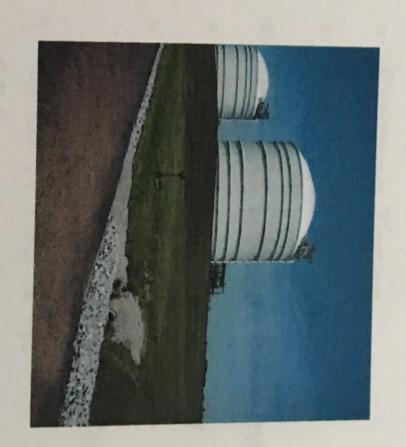


Onshore Facility Review

- LNG Hazards & Safety –
 Resource Report 11
- Cryogenic Design and Technical Review – Resource Report 13
- Coordination with U.S. DOT for Land Based Facilities

Marine Safety Review

Coordination with United States Coast Guard



LNG Facility Hazards



- Thermal Radiation
- Flammable Vapor Dispersion
- Vapor Cloud Explosion
- Emergency Response Plan
- Waterway Security

Cryogenic Design Review



- Marine Facilities
- · LNG Pumps
- LNG Vaporizers
- Pre-treatment Equipment
- Liquefaction Equipment
- Compressors & Blowers
- Process Vessels
- Process Piping Systems
- Instrument Pneumatic Sys.
- Instrumentation & Controls

- Fuel Gas System
- Storage Tanks
- Electrical Systems
- Seismic Design Review
- Operational Reliability
- Training, Operation & Emergency Procedures
- 49 CFR 193 & NFPA 59A, as applicable

Marine Traffic and Vessel Safety



- Letter of Intent Process under 33 CFR 127
- **Facilities** Related to Waterfront LNG NVIC 01-11: Guidance
- U.S. Coast Guard Letter of Recommendation
- Interagency Agreement
 Safety and Security Review of Waterfront
 Import/Export Liquefied Natural Gas
 Facilities February 11, 2004



Marine Traffic and Vessel Safety



- Letter of Intent Process under 33 CFR 127
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 Facilities February 11, 2004



Phased Authorizations



Commission Order :

- —Initial Commission authorization
- Contains environmental/engineering conditions considered necessary to ensure acceptable project
- Based on Front End Engineering Design supplied by

Authorization to Construct:

- Required prior to any site construction
- Includes FERC approval of environmental conditions, and engineering conditions related to public safety Emergency Response Plan and Cost Sharing Plan
- Based on continuous staff review during Detailed Engineering Design Phase

Phased Authorizations - con't



Authorization to Operate:

- Final Commission authorization
- . Will not be granted until all conditions of
- the Order are satisfied
- Based on staff review and approval of Final **Engineering Design**
- Oversight continued throughout operational life of facility

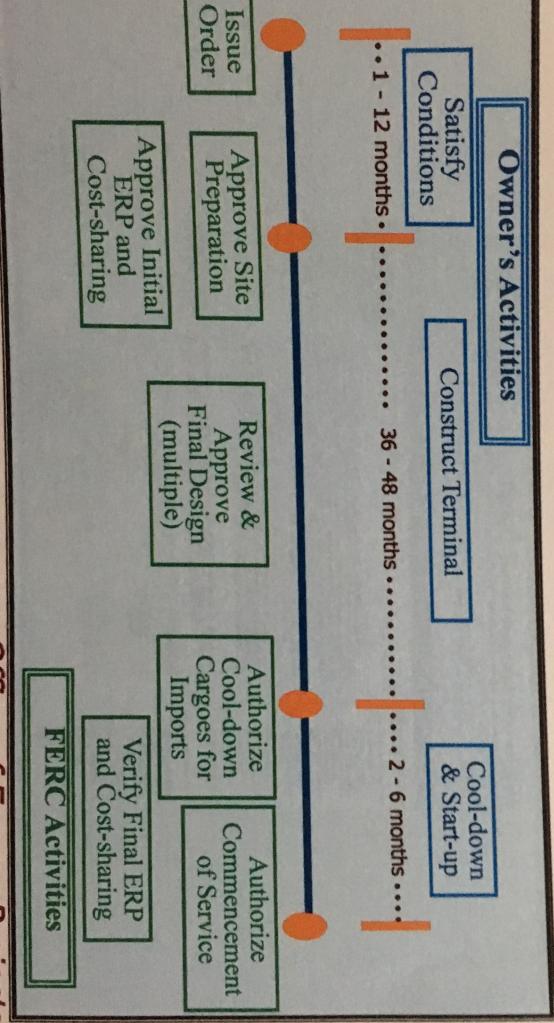
Post-Authorization Review



- Final facility design and engineering review.
- Inspection and oversight of LNG facility construction.
- Annual/biennial inspection of facility operations.

Construction Review Process





Operational Review Process



- Reporting Requirements
- Immediate Notification For Unusual/Significant Events
- Semi-Annual Operational Reports.
- Periodic Staff Technical Reviews & Site Inspections
- Import / Export = Annual Inspection
- Peakshaver = Biennial Inspection
- Enforcement
- Civil Penalties
- the Commission to ensure the protection of life, health, property, and the environment during construction and operation of the Order requires facility to submit to all steps deemed necessary by project (including facility modification or cessation of operations).

FERC Website for LNG Review

https://www.ferc.gov/industries/gas/indus-act/lng.asp





FERC Federal Energy Regulatory Commission

Search

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