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Downstream LNG commercial issues

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Downstream LNG commercial issues: scope

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- "Beyond the high seas"
- Receiving port access
- Regasification terminal use
  - Integrated, merchant, utility and *tolling* models
  - General issues
  - Multiple-user complications
- Domestic gas transport
  - Headers, interconnections and trunk lines
- Domestic gas sales
  - Global LNG sale vs US gas procurement
- *not* permitting or development

Receiving port access

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- Applicable law and agencies
- United States
  - Onshore terminals: Natural Gas Act, § 3
  - Deepwater terminals: Deepwater Port Act of 1974, amended by Marine Transportation Security Act of 2002 (MTSA)
  - FERC, DOT/Maritime Administration (MARAD), DHS/Coast Guard (USCG)
  - Other federal agencies, state/local laws and agencies, National Fire Protection Association (NFPA)
- European Union
  - Commission rules and member state rules
  - Gas Transmission Europe (GTE) LNG Ship Approval Procedure, 2004
  - Member states have own rules or invoke rules of trade associations (e.g., Society of International Gas Tanker and Terminal Operators (SIGTTO))

Receiving port access: US process

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- DHS/United States Coast Guard (USCG)
  - Waterway Suitability Assessment (WSA), based on 2004 Sandia study
  - Letter of Intent (LOI) to Captain of the Port (COTP) and federal maritime security coordinator (FMSC)
  - Letter of Recommendation (LOR) on suitability of port for specified types of LNG vessels under specified conditions
  - Navigation Vessel Inspection Circular (NVIC) 05-05 (onshore terminals and soon, with expansions, for offshore terminals) – project proponents study suitability of port and safety and security impacts and mitigations
  - Influential on Fall River and Providence project decisions
- States and local governments can still have roles
  - Coastal Zone Management Act (CZMA)

Receiving port access: operations

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- Vessel size, configuration, condition
  - Standards: IMO International Safety Management (ISM) Code of 1998
  - Certifications: IMO, USCG Qualship 21, DNV, ABS, Lloyds
- Security
  - International Ship & Port Facility Security Code of 2004
  - MTSA, 33 CFR 104: certified safety plan for each vessel
- Creditworthiness (the old meaning of "security")
  - Financial responsibility (using Oil Pollution Act of 1990 (OPA 90) standards), P&I insurance

Receiving port access: operations

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- Master, crew and vessel systems competence
  - Standards for Training, Certification and Watchkeeping (STCW 95)
  - Adequacy of communications and pumping systems
- Customized terminal security plan
  - Designated routes, security/exclusion zones, tugs, escorts and pilots
  - 96 hours' notice to COTP on approaching port; crewlist vetting, armed escorts and boarding options; terminal owner provides security while vessel is berthed

Regasification terminal use: constraints

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- Regulated third-party access (RTPA)
  - US: no RTPA mandates for regas terminals
    - Deepwater: MTSA § 106(d)
    - Onshore: *Hackberry* (FERC 2002) codified in Energy Policy Act of 2005, § 311
  - EU: partial RTPA mandated to member states
    - Second European Gas Directive (2003/55/EC), subject to broad exemptions and administered by member states
    - Some exemptions and access rights are short-term, making long-term planning difficult
    - Zeebrugge (Belgium) and Spanish RTPAs

Regasification terminal use: models

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- A quick word about foreign investments in US
- ***Integrated***
  - End-user commitment drives upstream chain of dedicated contracts or within major energy company
- ***Utility or Merchant***
  - Non-dedicated purchases and sales: capital costs, risk and reward
- ***Tolling, or Terminal Use***
  - Processing, throughput, capacity terminology
  - Creditworthy "push" (supplier) or "pull" (purchaser)
  - Terminal proprietor does not take title (except for retainage or marketing by affiliates)
  - Proprietors not necessarily the operator

Terminal use agreements (TUAs): general issues

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- Scope of services
  - Vessel berthing and unloading
  - LNG storage
  - LNG regasification
  - Delivery and transportation of gas ("sendout")
  - Gas peaking supply (over daily entitlement), gas storage
- Compensation to operator
  - Fixed reservation/capacity charge plus variable demand fee
  - Capital charges (mandatory and discretionary projects)
  - Who owns or receives net value from recovered liquids?
  - Who owns rights to unused capacity?

TUA general issues

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- Force majeure
  - Physical or governmental prevention
  - Economic issues of upstream or downstream facilities, or of nonparty suppliers/customers?
  - Mitigation obligations and makeup rights?
- Assignability and diversion rights
  - Increasingly common for customer flexibility
  - Is upstream party entitled to deliver to new party or alternative port?

TUA general issues

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- Conditions precedent
  - Entitlement, financing and construction
    - Upstream facilities
    - Downstream facilities
  - Project-on-project risk
- Creditworthiness and security requirements
  - For customers as well as operators
- Remedies and ceilings
  - Port Liability Agreements allocating and capping liability among participants
  - Conventions limiting liability (London)
  - Conventions imposing strict liability (HNS)

TUAs: multiple-user complications

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- Scheduling and offloading
  - Coordinating shipments from multiple liquefaction facilities, each with its own schedule issues
  - Should operator act as master scheduler, or let shippers work it out among themselves and notify operator?
  - Schemes for allocating windows and offloading—every *X*th vessel, or based on storage/capacity rights
  - Delayed or off-spec arrival: lose place in queue or accept economic measures
  - Delayed service: laytime and demurrage (including compensation for boil-off)

TUAs: multiple-user complications

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- Storage
  - Larger vessels contribute to challenge
  - Shared or separate or tenant-in-common customer storage?
  - If storage tight, forced sendout required—constrains ability to serve peaking market
  - Need to cycle LNG through storage to reduce boil-off; heel must stay
- Regasification and sendout
  - Daily nominations (even web-based) vs annual programs
  - Priority schemes
  - Most favored nations? or just assurance of no conflicts?
  - Unused capacity: use-or-lose (creating "secondary market"), or bank-and-borrow?

Domestic gas transport

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- Headers and interconnections
  - An extension of regas terminal development and sendout issues
- Shipment on trunklines
  - Tariffs, open access and open season requirements
  - Firm vs interruptible commitments
  - Line history transfers
- Gas quality
  - Certain gas sources are hotter than domestic tariff standards
  - Shipper can warrant a gross heating value (GHV) of 950-1165 Btu/scf, or a certain Wobbe index range
  - *AES Ocean Express v Florida Gas Transmission* (FERC ALJ 2006): parties upstream of US gas pipeline must solve problem (e.g., by blending, stripping hydrocarbons, or injecting nitrogen)

Domestic gas sales

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- Are you selling LNG or buying natural gas?
  - Reconciling upstream mindsets with downstream markets
- Traditional LNG industry…
  - Decreasing *unit* costs (liquefaction/shipping/regas)
  - Increasing vessel sizes and shipping capacity
  - Slow emergence of spot LNG trades
- … meet the new US gas market
  - High prices, increasing demand for new gas sources
  - Increased planned regas capacity
- But international LNG sales agreements and domestic gas purchase agreements traditionally featured different approaches on major issues

Domestic gas sales

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- The background markets
- International LNG trade
  - Base load supply
  - Dedicated shipping
  - Concentration on both ends
  - Few alternatives for traditional importers
  - Slowly emerging spot market
- US gas markets
  - Highly seasonal demand
  - Open-access pipelines
  - Unconcentrated supply and demand
  - Alternative gas sources
  - Well-developed long-term and spot markets

Domestic gas sales

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- The background contracts
- LNG sale and purchase agreements (SPAs)
  - Pricing based on world upstream or domestic liquids prices (before netbacks)
  - Take-or-pay economics for seller
  - Annual quantity requirements and delivery processes
  - Deliveries in large vessel quantities
  - Flexible force majeure clauses
- US gas purchase agreements
  - Pricing indexed to major gas markets (Henry Hub (HH), NY Mercantile Exchange (NYMEX)) or electricity prices
  - Seller's damages limited to cover
  - Daily or even hourly quantity requirements and processes
  - Ratable deliveries
  - More stringent force majeure requirements

Domestic gas sales

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- Examples of potential LNG/gas differences
- Monthly vs daily pricing
  - LNG: often based on index on day of title passage or vessel delivery
  - Gas: often based on NYMEX or HH averaged over, or immediately prior to, month of delivery
  - Consequences if vessel arrives February 28 or March 1
- Contract quantities
  - LNG: annual quantities, delivery schedules give flexibility to upstream party
  - Gas: daily quantities, nominations, imbalance charge exposure to both parties
  - Relevance of downstream storage and sendout constraints

Domestic gas sales

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- Examples of potential LNG/gas differences
- Performance standard
  - LNG: take-or-pay (subject to makeup), no supplier mitigation condition, broad force majeure
  - Gas: cover remedy with seller mitigation condition, narrower force majeure
- Quality standard
  - LNG: reasonably accept off-spec deliveries with economic adjustments
  - Gas: broader rejection right
- Payment
  - LNG: 10 days after large cargo delivery
  - Gas: Monthly payment, sometimes in advance
- Others—termination, ADR, governing law
- Integrated risk/responsibility matrix for entire LNG value chain

Questions

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