



Governmental Roles in Mega-Project On-Time Delivery Risk

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National regulatory approaches differ substantially

- As an SME in Process, HSE & Operational Technology, view regulations through a prism of “HSE” and design standards
- i.e. Health, Safety & Environmental impact on site workers in construction and operation, also upon the local community
- Governmental regulations focus initially on permitting, then onto good design, startup, operating permits, then decommissioning
- Some countries have a systematic framework for the design and commissioning. One approach is known as a “[Safety Case](#)”
- Other countries rely on a suite of industry sector regulations and standards, with the impact challenge of changes to any of these

How regulatory frameworks can impact project siting

- For mega-projects an **ESIA** is often the first regulatory step
- *Environmental & Sociological Impact Assessment* is public
- Check out World Bank [Environmental & Social Framework](#)
- Some countries are timely with ESIA, others can take years
- Responding to public comments needs staff technical skills
- ESIA process has public records, some groups may litigate
- Community liaison staff are vital, living in the targeted area
- Objections, even if not factual, could force a site relocation
- Companies might choose another country, if irreconcilable

How regulatory standards can impact project design

- **HSE standards** are prominent in process study and in FEED: know if standards are “performance-based” or “prescriptive”
- **Technical standards** dominate the EPC phase of a project
- Official “**permit to construct**” may dictate specific regulations: consider making a case for freeze on all standards changes
- Note some EPC companies embed regulations within their own standards but may lack change management review & updates
- Many standards have become global, but some countries adopt them with local variation, and have their own naming scheme

How project approaches can impact commissioning

- Many mega-project owner teams impose their own means of ensuring safe, timely commissioning of plant units and startup
- **Pre-commissioning** reviews and **end-to-end system checks** help ensure that design and HSE requirements were all satisfied
- Typically, government regulations do not control this phase, unless “permit to operate” requires this to be documented
- **Knowledge and data transfer** from EPC to owner is difficult to ensure is complete – not all details, but necessary information
- **Operations and Maintenance procedures** are built upon EPC documents, but should be more visual with action-step layout

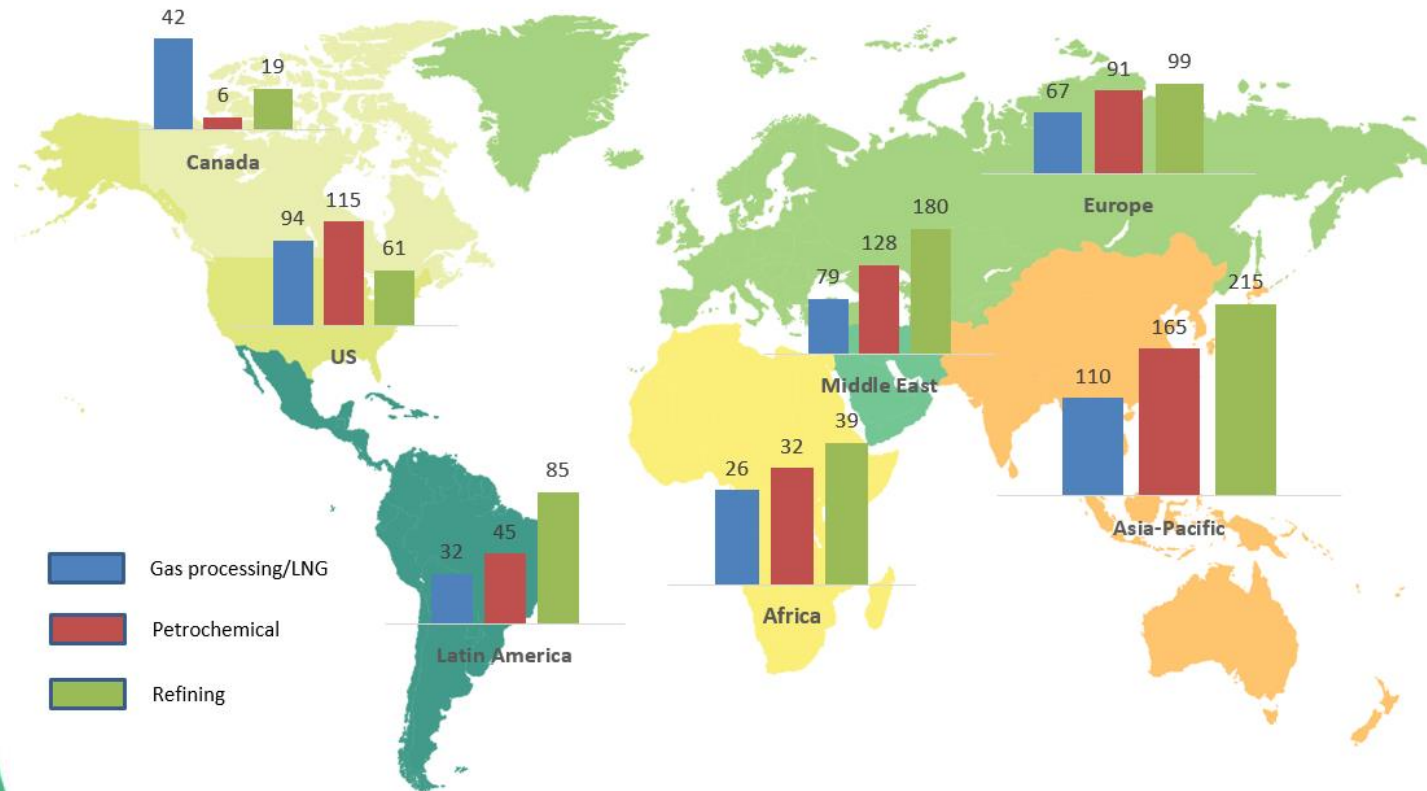
How regulations can impact hand-over and start-up

- Many LNG project contracts have EPC firm responsible for the initial cool-down through to stable operation for defined period
- But some governments require the operator to take on the site responsibility at “mechanical completion”; i.e. prior to gas entry
- On a mega-project, the handover is typically unit by unit, with close attention to **SIMOPS** (simultaneous operations), and to **PTW** (Permit To Work): a phase of higher construction risk
- Some countries mandate competence-assessed training for all operations & maintenance staff, plus orientation for all the plant staff about safe evacuation, responsibilities to community

How regulations impact operations, permit renewals

- Inspection requirements may be set every “N” years, which depends on which system: electrical, relief, shutdown, etc.
- There is a voluntary move to “asset integrity” management systems that focus on maintenance history & performance
- In those countries which require operating permit renewal, the requirements can differ widely e.g. O&M procedure review, MOC (Management of Change) for any design changes
- Some countries have “[life extension](#)” requirement, for an aging asset to be allowed to operate beyond its design life. In the UK, requires each SME to state what upgrades would be needed

Types of HPI projects currently active across the globe



- Data 4Q 2017
- Published in "[HPI Market Data Book](#)"
- Data source is "[Construction BoxScore](#)"
- *Not all of the announced projects will get to "FID"*