Are LNG Liquefaction Projects Taking Longer to Construct?

Tom Zeal
Consultant
Merlin Advisors
(a wholly-owned affiliate of Poten & Partners)
Background

• Merlin Advisors ("Merlin") formed through the merger of Merlin Associates into Poten & Partners
• Merlin’s focus is on technical due diligence assignments for lenders and investors
• Merlin’s considerable project experience makes us highly knowledgeable of evolving trends in the industry
Introduction

- LNG liquefaction projects are large and complex
- Multiple work scopes typically involved
- Main contract is the LNG plant EPC contract
- Most contracts executed under JVs between major contractors
- EPC contractor takes responsibility for the cost and schedule
Average schedule durations have increased

- Increase from ~46 months in 2004 to ~55 months now
- Peak above 60 months due to Australian LNG project construction
Key factors affecting contractual schedules

- No. Trains
- Train Capacity
- Gas Quality
- Equipment Count
- Expansion/Greenfield

- Scope
- Contract Terms
- Contract Price

- Infrastructure Requirements
- Contract Strategy
- Labour Availability
- Labour Productivity

- EPC market
- Licensor/major vendor market
- Long lead items

Design Factors
Location Factors
EPC Factors
Market Factors
More complex scopes mean longer schedules

- Critical path can be impacted by increased scope
- Potential resource constraints
- Multi-train projects have become more prevalent
Labour availability and productivity linked to location

- Some projects have benefitted from wide labour availability
- Others faced more difficult labour conditions
- Modularization used to mitigate labour challenges, however it tends to lead to longer contract durations
Limited number of EPC contractors with a track record

- LNG EPC industry a competitive space
- Only a certain number of projects under construction at one time
- Contractors chosen due to experience
Industry has a fair record of completing trains to schedule

- 41% of LNG trains completed on time or early
- 25% completed 0-3 months late
- 16% completed 3-6 months late
- 10% completed 6-12 months late
- 8% completed 12 months or more late
Historically, schedule delays between 4 and 8 months
Conclusions

• There is a trend for longer project execution times
• Contractual schedule is the outcome of a negotiation
• Scope, location, market and contractual all factors
• Location a particularly influential factor
• LNG industry has a fair record of schedule performance
• No real trend for worsening schedule performance over time