

# 2016 Rice Global E&C Annual Forum

## Engineering & Construction Industry **Survival Guide** for the Disruptive Shale Revolution

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# The Shale Revolution



- Abundant domestic crude long-term low crude prices
- Abundant domestic natural gas and NGL's- long-term low prices.

# The Shale Revolution



- 10+ Mega Olefins projects in construction
- 6 Mega LNG projects in construction
- Labor availability challenges
- Higher wages, per diems, retainage bonuses, 50 hrs<sup>+</sup>/week

# The Chemical Customer



Integrated/semi-integrated chemical company

- NGL Feedstocks
- Olefin production from NGL's
- Derivative production from Olefins (PE, PP, EG, etc.)

# The Chemical Customer



## Non-integrated Chemical Company

- Derivative production from purchased olefins
- Providing less value added to the molecule
- Project economics are highly CAPEX dependent
- Projects are more discretionary- hence a higher susceptibility to cancellation

# Market Observations



- Integrated chemical companies are diverting mid-cap CAPEX to their mega projects.
- Less CAPEX for operating plant projects.
- CAPEX may become more scarce when mega projects near completion ( 2017-2018)

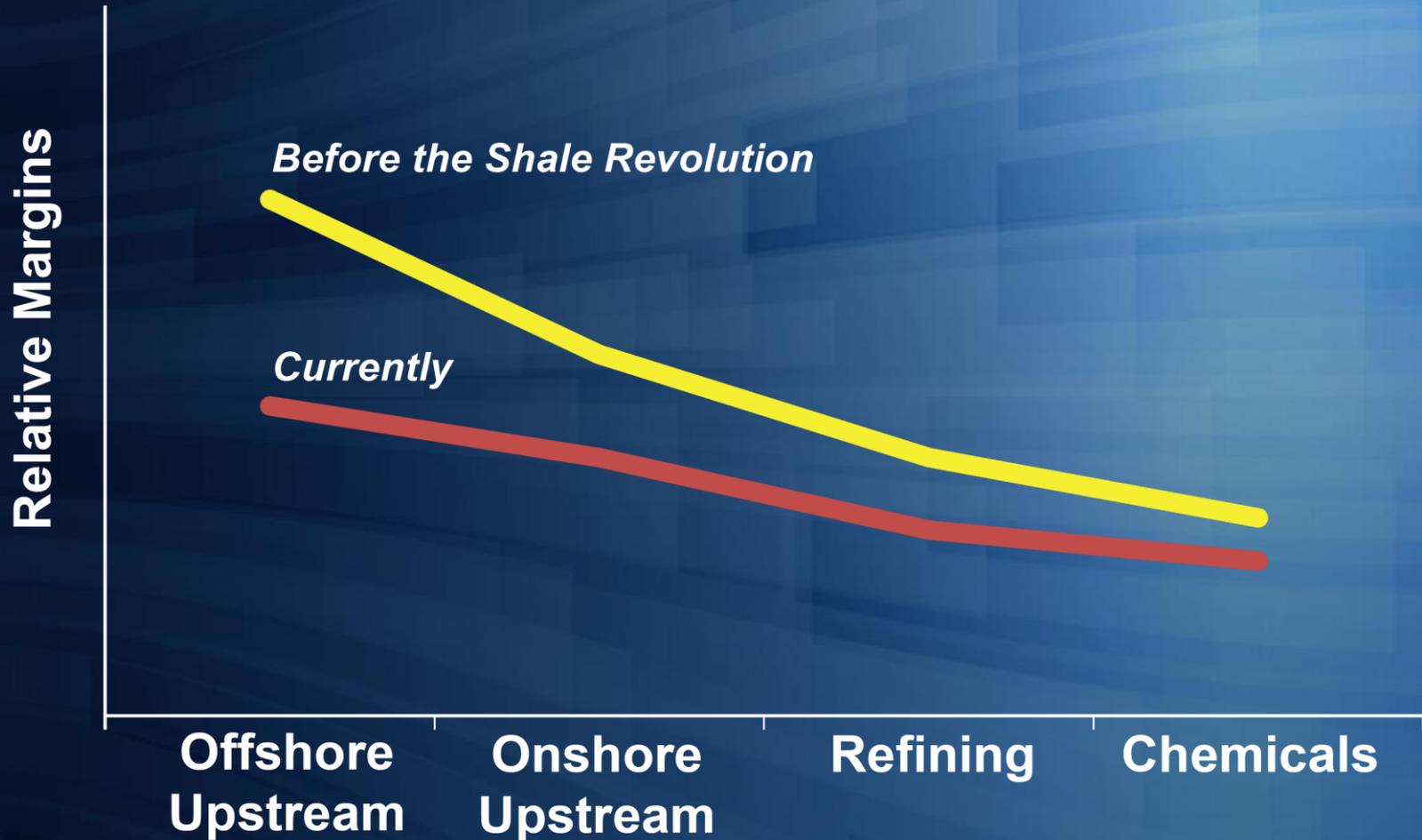
# Market Observations



In general:

- Owner's Commercial Leaders are becoming the primary project decision makers over Owner Project Leaders.
- More onerous T's & C's
- Less forgiveness/understanding for schedule and cost challenges
- More Lump Sum EPC Tenders
- Thinner margins of error

# Relative E&C Margins



# Survival Guide for the E&C Industry



- Listen to the Economic Buyer-Commercial/Business Leader
- Manage Owner's Project Team
- Acknowledge EPC costs have to be contained
  - Offshore Engineering
  - Improve EP/C Interface
  - Embrace EPC
  - Reduce Field Labor

# Survival Guide for the E&C Industry *continued*



- Re-tool the EPC Delivery Process  
( Project Intrepid)
  - Standardization of Design
  - Re-use of Design
  - Leverage Technology
  - Early Design Freeze ( and really mean it!)
  - Engage Key Suppliers and Constructors
- Heavy Engagement of Executive Steering Teams

# Consequences of Tougher EPC Execution (Cost Driven)

- Less flexibility and participation in the Design Process
- Less “User Friendly” latitude given to Contractor’s Teams
- No Budget for optimal or perfect solutions
- More likelihood for contention and conflict at project team level
- Project teams with a business mindset versus a technical mindset will survive

# Conclusion



- Stormier before the climate gets better
- Excellent project execution skills and project controls adherence are critical for survival
- Engagement at all levels of both the Owner and Contractor's organizations will be essential for project success.

- Questions and Comments?

# Thank You