



# IMPLEMENTING AN FSRU LNG IMPORT PROJECT

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EUROPEAN GAS CONFERENCE  
LNG FOCUS DAY 19 JANUARY 2016

NAVIGANT

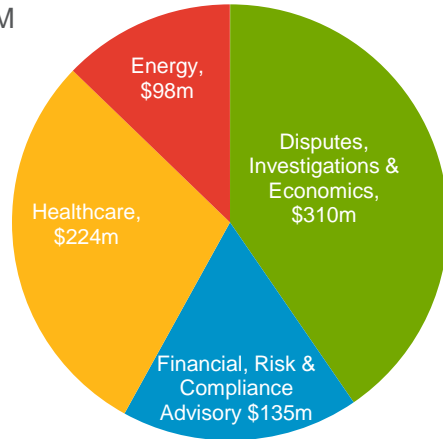


- Navigant, Who We Are
- Project Background / Challenge
- Project Elements
- Project Lessons & Success Factors

# Navigant Overview

## Business Overview

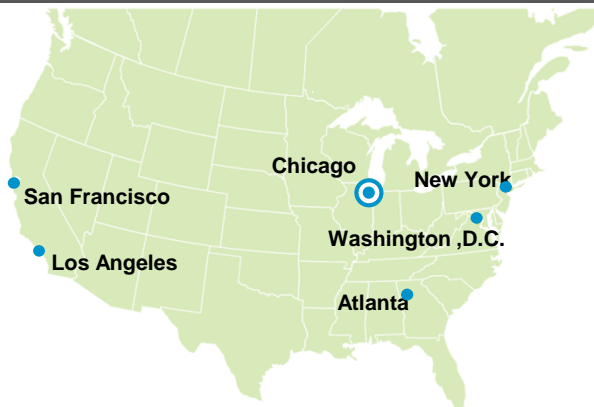
2014 RBR = \$767M



## Talent Profile

- 3382 employees as of Dec. 31, 2014
  - 2774 billable FTEs
  - 207 Managing Directors
- Credentials include CPAs, physicians, PhDs, attorneys, economists and engineers
- Niche areas of expertise combined in unique ways
- Broad networks of experts and affiliates
- Collaborative and nimble resource management

## Geographic Profile



- Headquartered in Chicago
- Offices in nearly 50 cities
  - North America
  - Europe
  - Middle East
  - Asia
- Serving clients in more than 70 countries

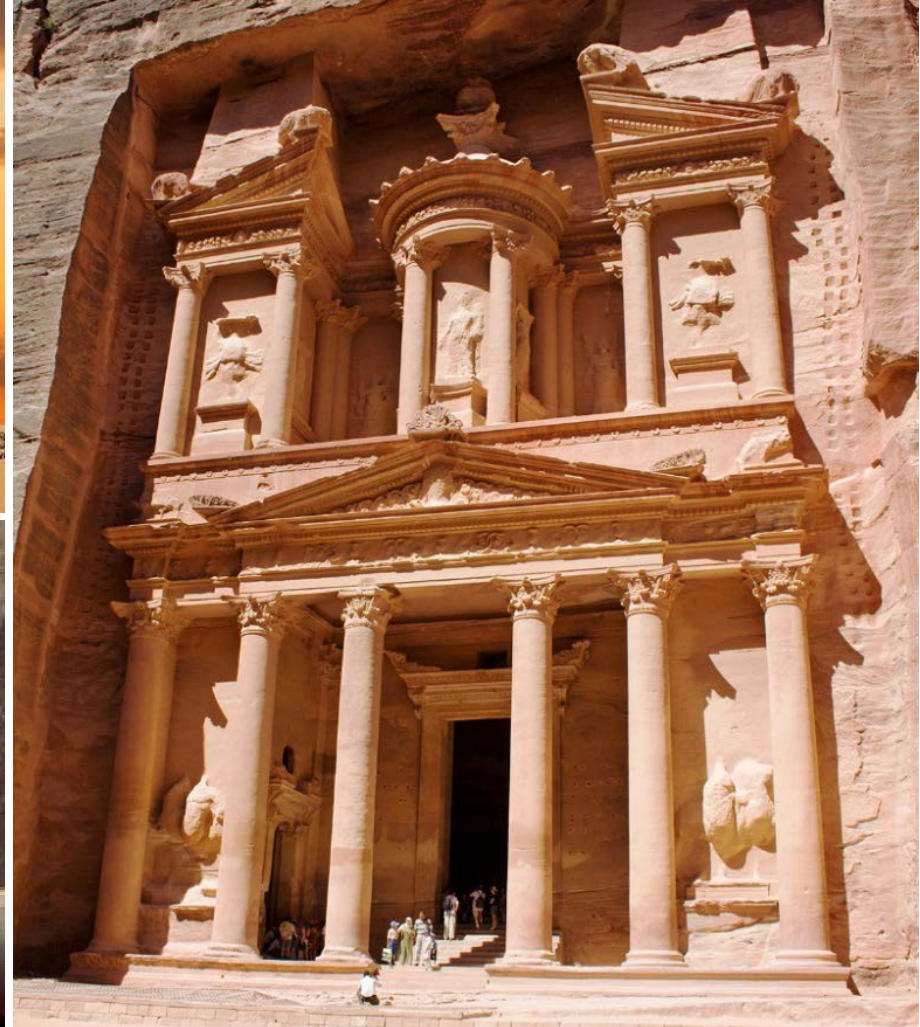
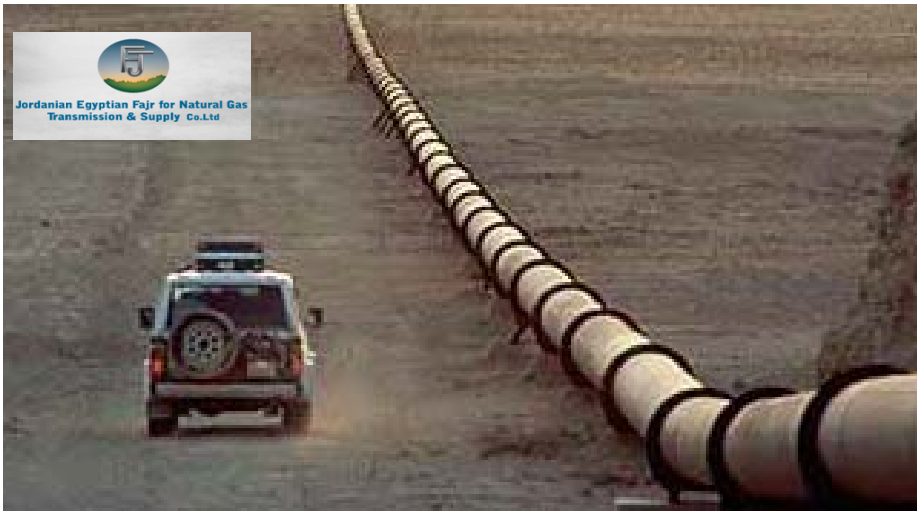
# With Navigant's assistance the Government of Jordan has implemented an LNG import terminal at Aqaba



## Jordan – Quick Facts (2015)

- GDP USD 40 billion (#105)
- GDP per capital USD 6,100 (#151)
- GDP growth rate 3.3%
- Consumer price inflation rate 5.9%
- Population 7.9 million
- Standard & Poor's rating BB
- Power Generation Capacity 3,600 MW
- Planned Additional Capacity 813 MW

# In 2003 Egypt began supplying gas to Jordan via the Arab Gas Pipeline

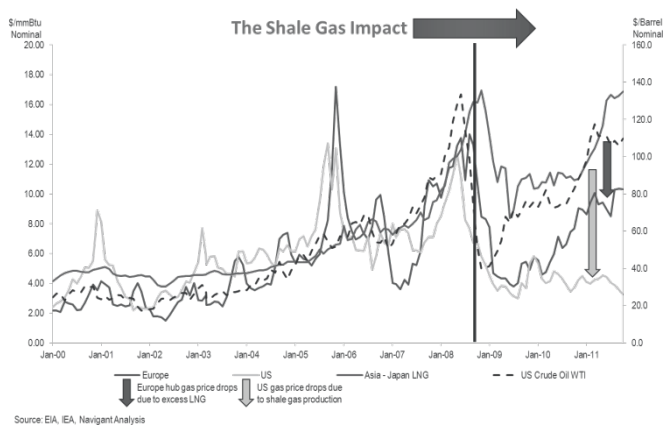


However in 2011 gas flows were interpreted and eventually ceased – an alternative source of gas was needed

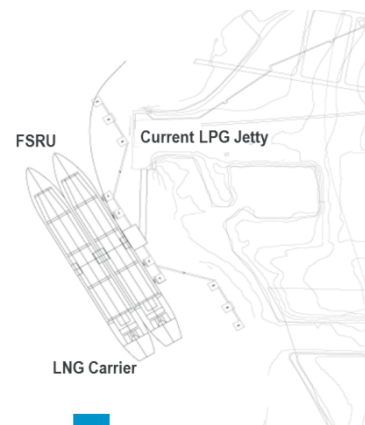


# The LNG project's economics were greatly assisted by the existence of the pipeline infrastructure and CCGTs

## Gas / LNG Pricing



## LNG Terminal Cost Assessment



## Competing Fuel Pricing

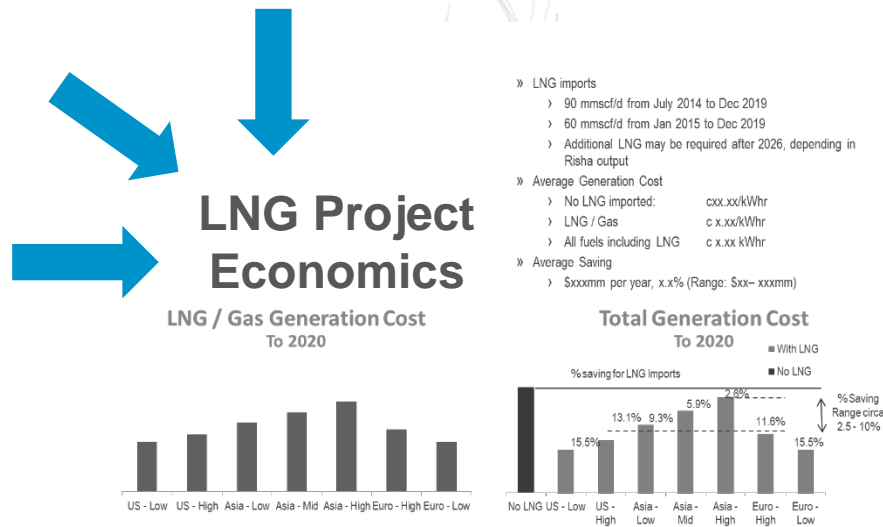
### Fuel Oil & Diesel Netback to Aqaba



- » Add port handling costs and transport by truck to IPP (e.g. East Amman)

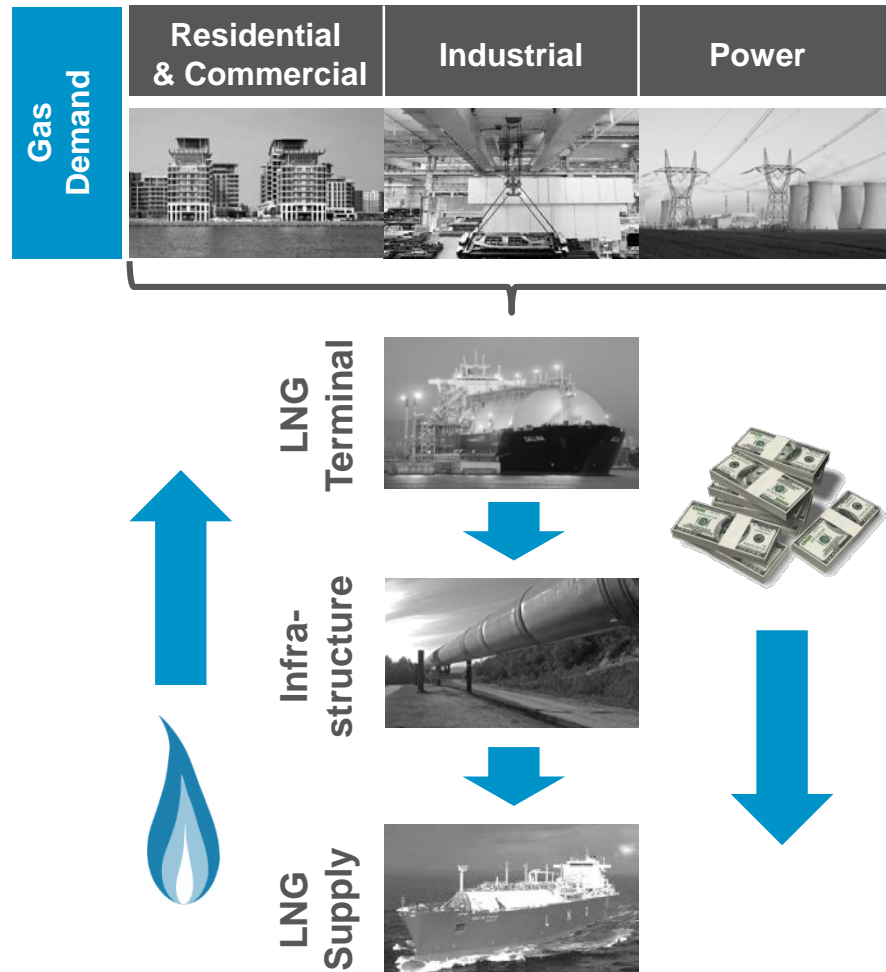
### Price Forecast Methodology

- » Diesel Products
  - » Diesel EN590 FOB Med
  - » Gasoil FOB Med
  - » Gasoil 0.05%S FOB Singapore
  - » Gasoil 50 ppm S FOB Singapore
- » Fuel Oil Products
  - » LSFO FOB Med
  - » HSFO FOB Med
  - » LSWR 0.3%(SR) FOB Singapore
  - » HSFO 380 cst FOB Singapore
- » Historical prices correlated to WTI
- » Prices Forecast based on
  - » WTI expectation used for gas price analysis
  - » Historic correlations



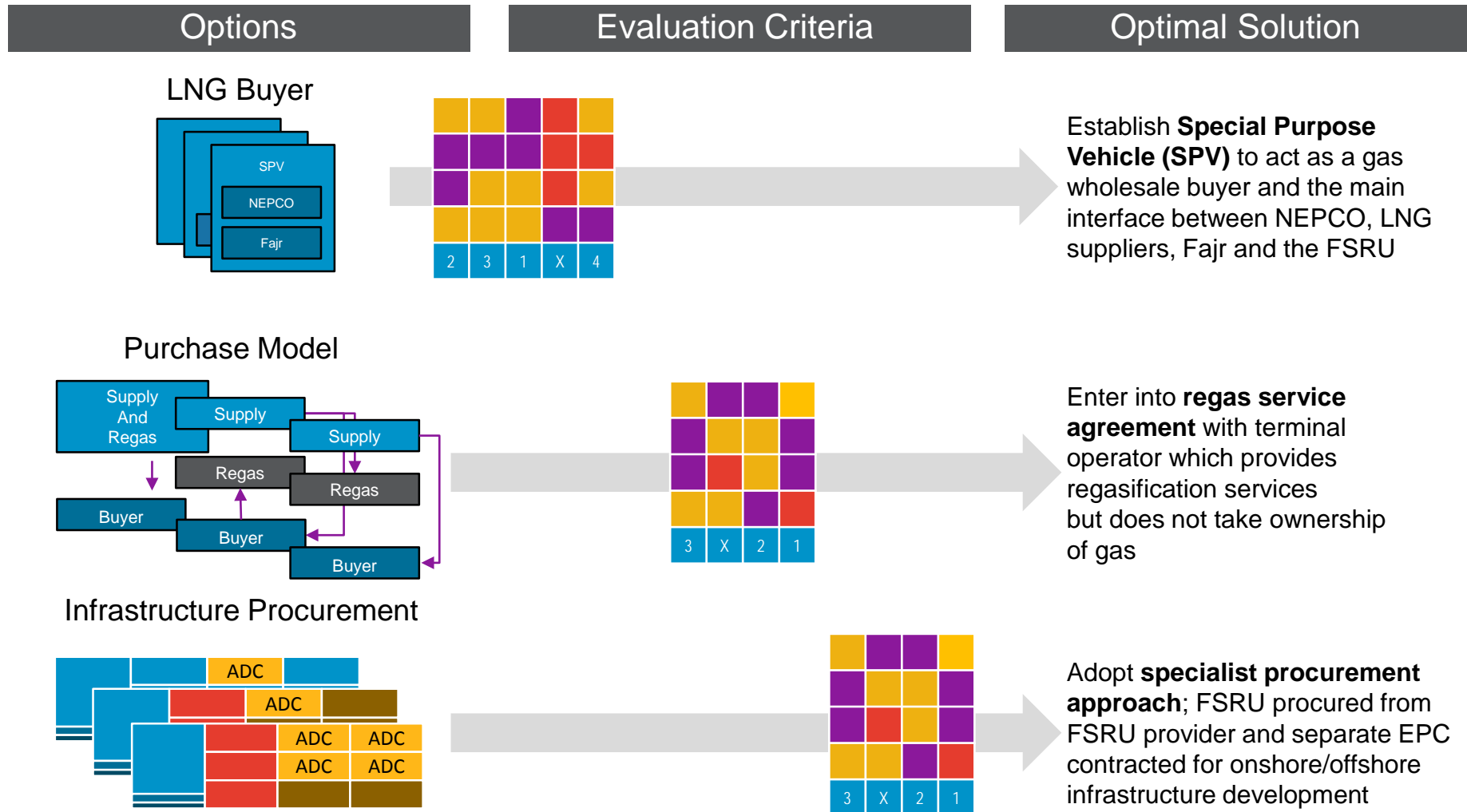
# Agreeing a commercial structure with a credit worthy off-taker is key to generating 'genuine' interest in the project

- The importance of identifying financially credible gas off-takers cannot be underestimated
- To ensure competitive project offers, buyers need to demonstrate sustainable credit worthiness
  - Government guarantees or other equivalent credit support
  - Sizable institutions with a solid financial status
  - A large and liquid gas market with multiple gas off-takers or traders
- Project developers will price in credit risk, making offers more expensive
  - In the worst case potential suppliers may decide not to participate



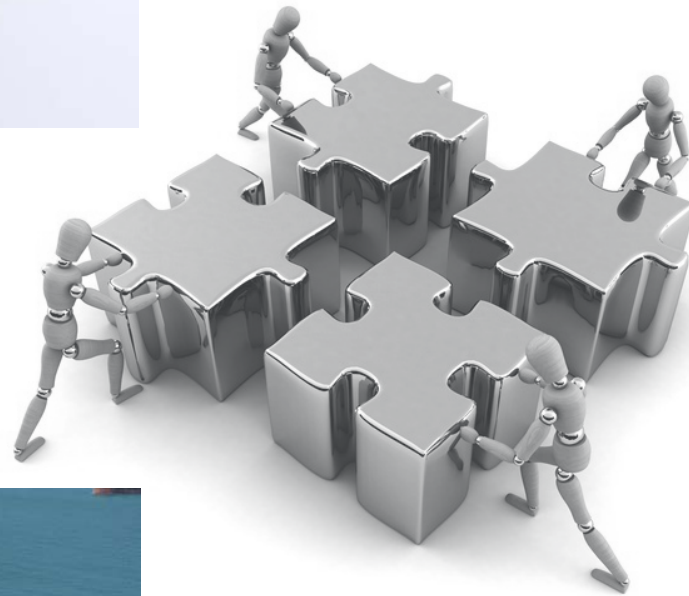


# We evaluated options for the different parts of the procurement strategy against various defined criteria



# The Jordan LNG project was structured as four discrete elements

**Gas Transportation  
(Jordan Gas Transmission Pipeline)**



**LNG Supply**

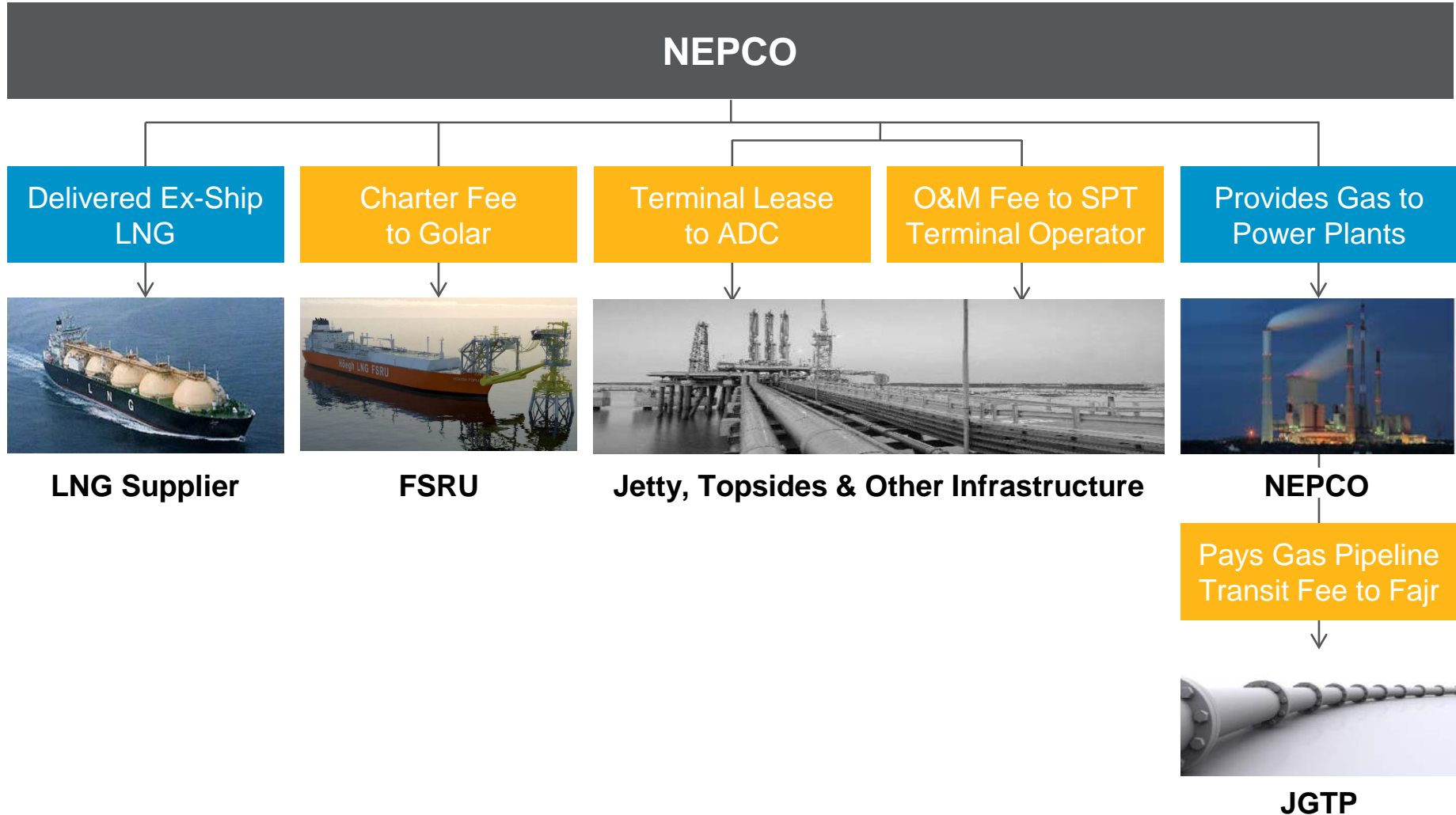


**Aqaba Terminal Infrastructure**

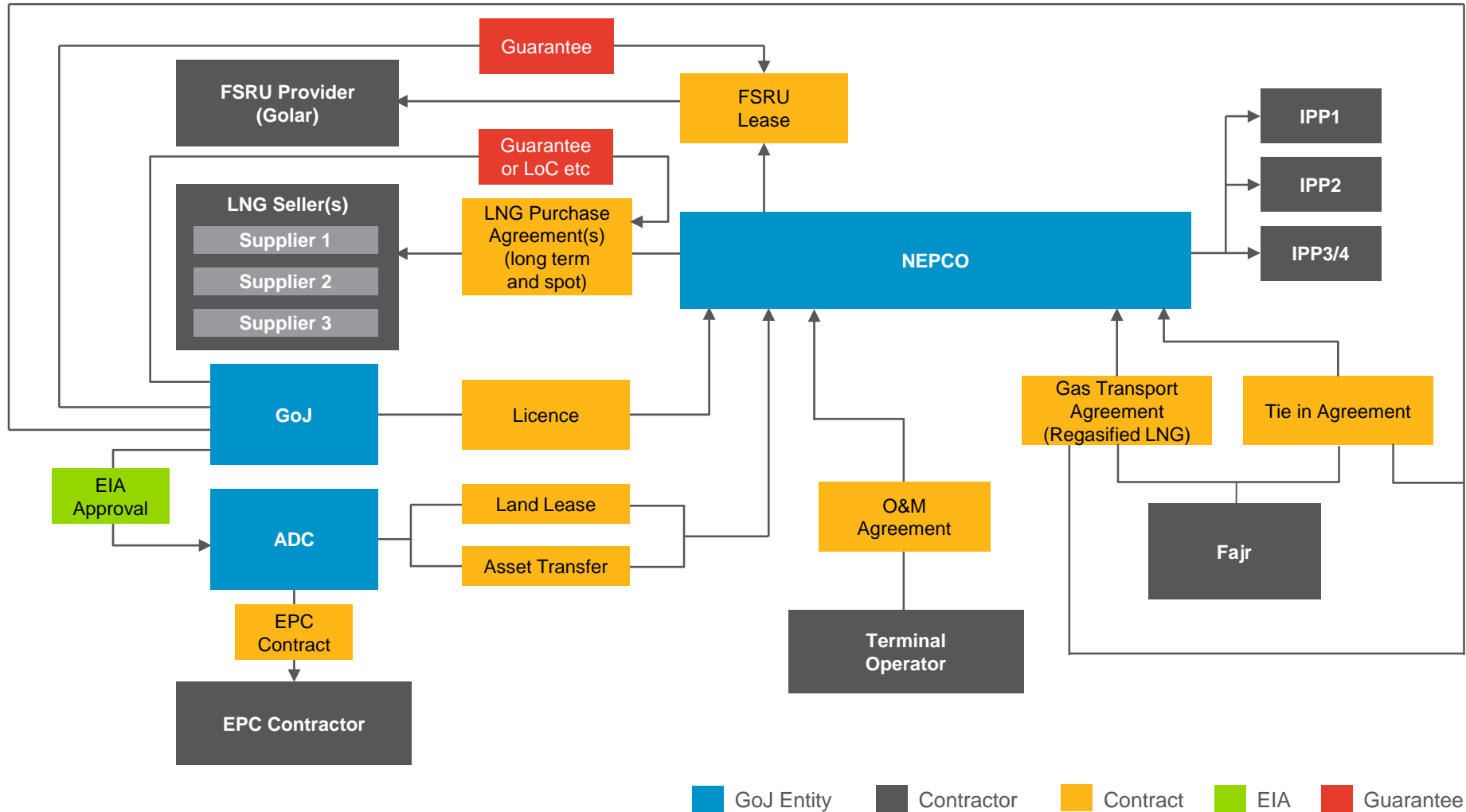


**Floating Storage & Regasification Unit**

# The commercial structure: NEPCO, a Government owned company, will manage and operate the LNG project



# The contract structure and credit support mechanisms



# Critical Lessons: Planning and Communication

## Clear Objectives

- Set clear objectives that are consistent across the various elements of the project being procured
- Define the project's "battery limits" for the suppliers in a clear and concise manner



## Single co-ordinating entity

- Authority to make rapid decisions
- Ensure all relevant government stakeholders are kept informed and, insofar as is possible, support the project



## Environmental studies

- Baseline studies will need to be undertaken early
- The full environmental impact assessment that will follow can be time-consuming
- New requirements can emerge that can create delays – e.g. relocation of corals



# Critical Lessons: Timeline

Fast track projects rarely achieve the best prices and often require compromises

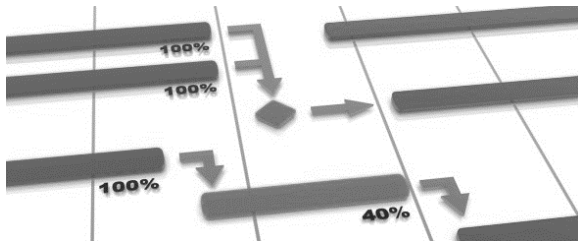
- Our strong advice would be to take the time to procure the project appropriately to what the market can deliver
- Bidders for all project elements will seek to charge a premium if the timeline is unreasonably accelerated

Complete key studies early

- Front End Engineering Design (FEED)
- Environmental Impact Assessment (EIA)

Ordering of long lead items

- LNG / Gas hard arms
- Metering skid
- Safety critical valves
- Dredging



# Critical Lessons: Contracting Strategy

## Flexibility on contracting to address uncertainties

- Consider contracting strategy, early contractor engagement and partnering type approaches may offer greater flexibility
- Delays to infrastructure can be hugely expensive LNG supply cargos supply may already have been negotiated



## Financing of the project

- The terminal is a significant investment and so project financing may be appropriate
- Structuring the project to provide an appropriate revenue stream to allow project financing will be key
- Multilateral agencies are generally supportive of LNG projects which are relatively low carbon



## Project Documentation

- The procurement documentation needs to be of the highest possible quality
- Find a reasonable balance of risk and reward in the contractual documentation from the perspective of all stakeholders



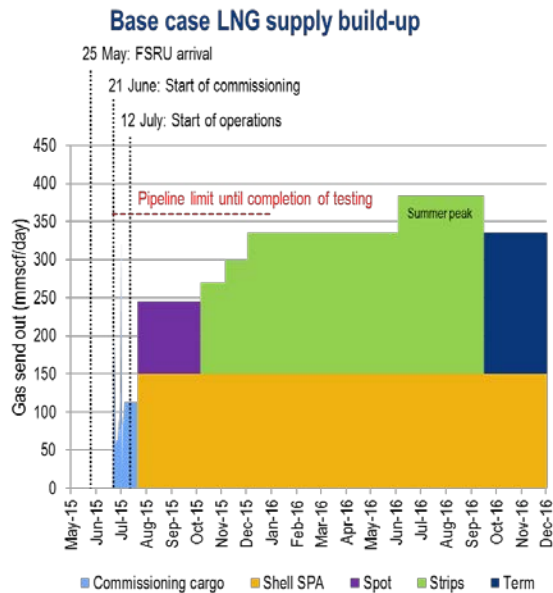
A critical success factor is understanding that each project requires its own bespoke strategy





# Supporting additional project objectives

## More LNG....



## LNG to Egypt...?



## Regional Pipelines...?



# Golar Eskimo at berth in Aqaba





# CONTACTS

## **RICHARD BASS**

Director  
London, United Kingdom  
richard.bass@navigant.com  
+44 207 015 2394  
+44 7968 979870

## **NICK ALLEN**

Director  
London, United Kingdom  
nick.allen@navigant.com  
+44 7980 319641

## **GORDON PICKERING**

Director  
Folsom, California, USA  
gpickering@navigant.com  
+1 916.201.7475