US & Mexico offshore Gulf of Mexico

The past and the possible future

Julie Wilson, August 23rd 2018
Wood Mackenzie Overview

Wood Mackenzie is an information services company which provides commercial intelligence on energy, metals and mining.

Our research and consulting services can be used to:

- Understand markets
- Reduce risk
- Strengthen strategy
- Identify and screen opportunities
- Pitch for new business
- Value assets
- Assess competitors

We use proprietary data and models to analyse, value and advise on assets, companies and markets.

Our clients depend on our global team of experts to deliver forward-thinking and independent insight that helps to identify new opportunities, define strategy and improve performance.
Upstream Supply Chain Solutions

Get a complete picture of today’s market and plan for future offshore opportunities

Drilling / Rigs
- Offshore Drilling and Rigs Service
  - Market overview
  - Supporting data
- Offshore Rig Tracking Tool
  - Dynamic Rig Tool in Spotfire

Subsea
- Subsea Market Service
  - Market overview
  - Backup data
- Subsea Market Tool
  - Dynamic Rig Tool in Spotfire

SURF
- SURF Service
  - Market overview
  - Backup data

Marine Construction
- Marine Construction Service
  - Market overview
  - Backup data
  - Vessel Function Database
  - Vessel Schedule
  - Vessel Cost Model

Facilities
- Offshore Production Systems Service
  - Market overview
  - Backup data

Shipyards / Fabrication
- Offshore Shipyard Service
  - Market overview
  - Shipyard backlog data

Global Project Tracker
View which Pre-FID projects become viable at different commodity prices - and estimated Capex for each piece of the project!
Agenda

1 Production history and near-term future

2 Discovered resources by play

3 Exploration history and estimate of future drilling

4 Resources – discovered and yet-to-find (Wood Mackenzie methodology)

5 Competitive positions & portfolios

6 Above-ground risks and issues
US GoM deepwater production to reach all-time high, while declining Mexico Shelf production not replaced by deepwater

US production driven by pre-downturn capex decisions. Mexico’s production decline was a driving factor in the Energy Reform

Oil and gas production offshore Gulf of Mexico – from current discoveries

Source: Wood Mackenzie Upstream Data Tool
Round One will deliver a third of Mexico’s offshore production by 2024*

IOC-operated fields slow down decline

Mexico’s offshore oil and gas production

* Does not include additional Energy Reform production upside from Yet-To-Find resources and farm-outs, future Pemex contract migrations or potential future mature field redevelopments.
Source: Wood Mackenzie Insight
US’s deepwater production peak required huge amounts of capital

US$80 billion of capex was required over six years to raise production by 600,000 boe/d to reach current peak

Capital expenditure offshore Gulf of Mexico – for current discoveries

Source: Upstream Data Tool
The region enjoys a healthy diversity of project types contributing to a healthy FPS outlook and a strong foundation for greenfield and brownfield subsea tree demand.

**US GoM deepwater equipment demand**

**US GoM floating production system hull awards**

**US GoM subsea tree awards**

Source: Wood Mackenzie Offshore Production System Service and Subsea Market Service
US deepwater GoM: new plays continue to grow the resource base

New ideas and technologies bring new plays; what will be next?

Cumulative resources discovered in US deepwater GoM

Source: Wood Mackenzie Exploration Service
Offshore Mexico: dominated by one play type

Giant resources in shallow-water Mesozoic carbonates – why explore other plays?

Cumulative resources discovered offshore Mexico

Source: Wood Mackenzie Exploration Service
Mexico sector is massively under-explored

In the US, more than 50,000 total wells drilled, >3,500 in deepwater. In Mexico, 55 deepwater wells drilled

Exploration wells drilled offshore Gulf of Mexico

Source: Wood Mackenzie PetroView
US current production took a LOT of exploration to get where it is

Exploration wells in US and Mexico deepwater GoM 1984-2017

Source: Wood Mackenzie Exploration Service
Is Mexico’s offshore exploration activity high enough?

63 commitment wells to be drilled over next 5 years

**Mexico GoM commitment wells to ~2023**

- At ~100,000 km², currently licensed acreage is around 2.5 times that of US GoM
- Large blocks provide lots of potential for different play types to be pursued
- Limited time on exploration terms means that licensees will be unable to fully assess their blocks’ potential
- Proposed freeze on licensing means relinquished acreage is unlikely to be recycled
- Is 63 wells a lot of exploration? It’s equivalent to the number of exploration wells drilled in US deepwater in last 3 years!

*Source: Wood Mackenzie Exploration Well Tracker*
Mexico offshore drilling could catch up with US GoM ~2023

This scenario assumes deepwater activity is *more than* commitment wells in the near term, and that licensing continues beyond the current blocks.

Exploration drilling forecast offshore Mexico and US deepwater GoM

Source: Wood Mackenzie Exploration Service Basin reports
Prospective resources to 2035 predicated on drilling levels and success

Volumes estimated to be found offshore Mexico are similar to those in DW US GoM

Offshore resources in the Gulf of Mexico

Prospective Resources* | Discovered Remaining | Produced
---|---|---
US Shelf | 40 | 10 | 20
US DW | 30 | 15 | 7
Mexico Shelf | 25 | 20 | 5
Mexico DW | 5 | 0 | 0

Note: Shelf = water depths below 400 meters; Deepwater = water depths of 400 meters and above (including UDW above 1500 meters).

*Prospective resources are resources expected to be discovered by 2035, and are derived from Wood Mackenzie assumptions of exploration drilling levels, success rates and the distribution of prospect sizes. CNH estimates 19 BBOE prospective resources in Mexico's deepwater.

Source: Wood Mackenzie Exploration Service Basin Reports
Top acreage holders in both sectors are a mix of large and small companies

Shell holds dominant position across combined Gulf of Mexico

Source: Wood Mackenzie Upstream Data Tool

* Pemex acreage excludes legacy and Round Zero
Gulf of Mexico operated blocks: Majors and top acreage holders

Source: Wood Mackenzie PetroView
Infrastructure will play a key role in Mexico’s development

Pipeline infrastructure in the Gulf of Mexico

Source: Wood Mackenzie
Mexico’s 2018 election: a closer look at the proposed energy policies of president-elect Andres Manuel Lopez Obrador (AMLO)

Capital constraints and market reality will test these

**Upstream**
- Boost oil production to 2 million b/d by 2024
- Review awarded O&G contracts
- Pause in licensing, but resumption expected 2020
- Aim for more dominant and leaner PEMEX (Suspend PEMEX’s farm-out programme until modified & increase NOC budget)
- Local content targets projected to increase – “to 80%”

**Mid-stream**
- ‘Democratize energy policy, respect community decisions’ place pipeline projects at risk
- Need for fine-tuning in consultation process

**Downstream**
- Construct two greenfield refineries
- Continue refinery upgrades for 3 facilities
- Mixed signals on oil product pricing – fuel price to reflect environment cost v. fixing fuel prices

**Gas, Power & Renewables**
- End gas flaring
- Increase hydro generation
- Avoid retirement of oldest thermal plants
- Increase renewables generation

Source: Verisk Maplecroft, Wood Mackenzie
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