

Deepwater Development Solution for Marginal Fields at \$50 Oil

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AGENDA

- About Us
- The Challenge
- Audubon Deepwater Solutions
- Summary
- Questions & Answers



WHO WE ARE

Audubon Companies is a global provider of EPC services for the oil and gas, petrochemical, refining, and pipeline markets.

Equipped with experience and talent, our four affiliates - Audubon Engineering Solutions, Audubon Field Solutions, Opero Energy, and Affinity - deliver innovative and flexible solutions for repeatable project success- safely, on-schedule, and within budget.



CASE STUDY: DELTA HOUSE FPS



LOCATION: Gulf of Mexico (GOM), MC-254

CLIENT: LLOG Exploration Co., LLC

PROJECT OVERVIEW:

- Greenfield development
- Water depth: approximately 5,000 ft.
- All production via subsea wells
- Design capacities: 80,000 BOPD, 200 MMSCFD, and 40,000 BWPD
- One departing oil and one departing gas sales pipeline
- Designed to USCG and BSEE regulations
- DNV was a classifying agency on hull & CVA on topsides

CASE STUDY: DELTA HOUSE FPS

WHY WAS IT SUCCESSFUL?

**SANCTION TO FIRST OIL
3 YEARS**



**SCHEDULED FIRST OIL
22 APRIL 2015**

**ACTUAL FIRST OIL
18 APRIL 2015**



ORIGINAL TIC: \$650MM

FINAL COST

Just Under \$650MM

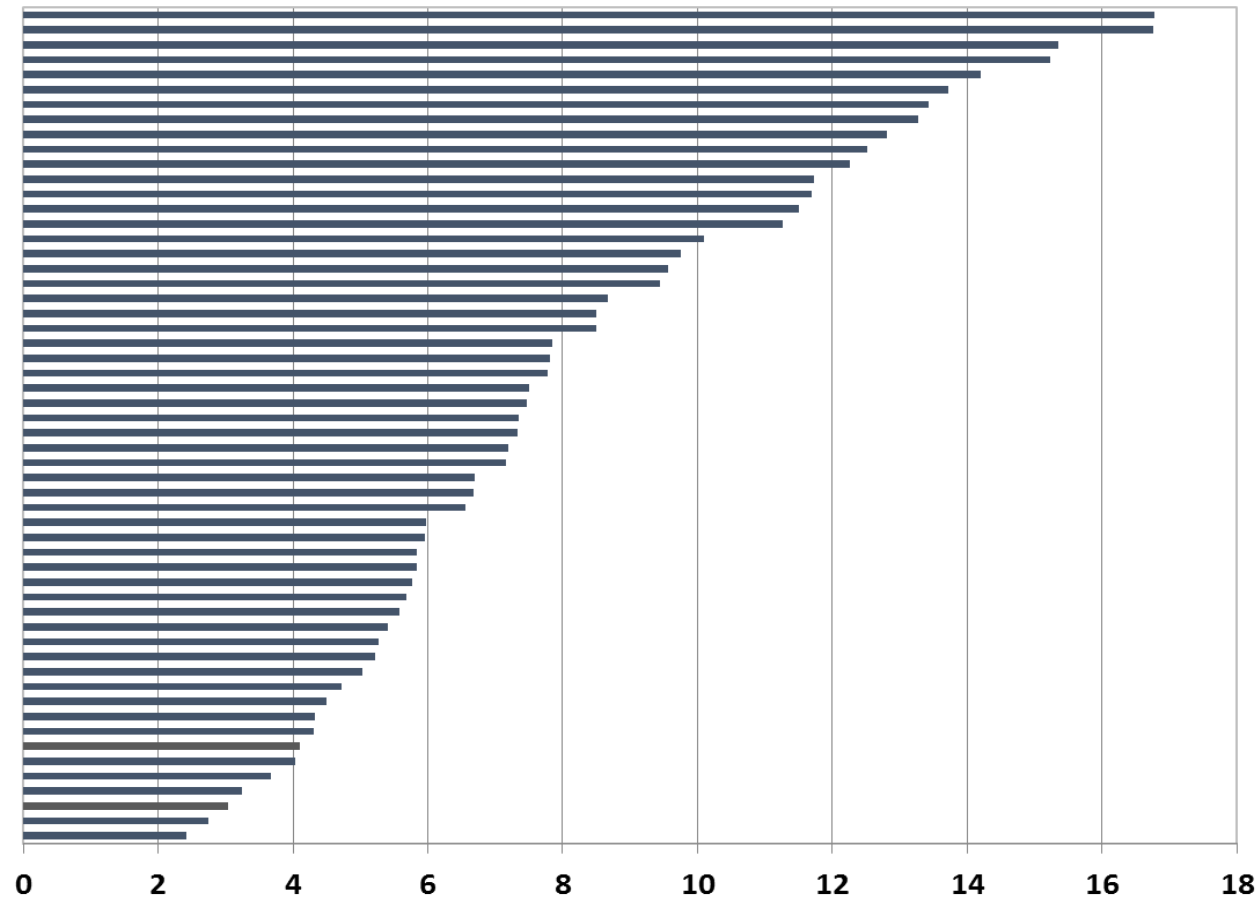


THE CHALLENGE

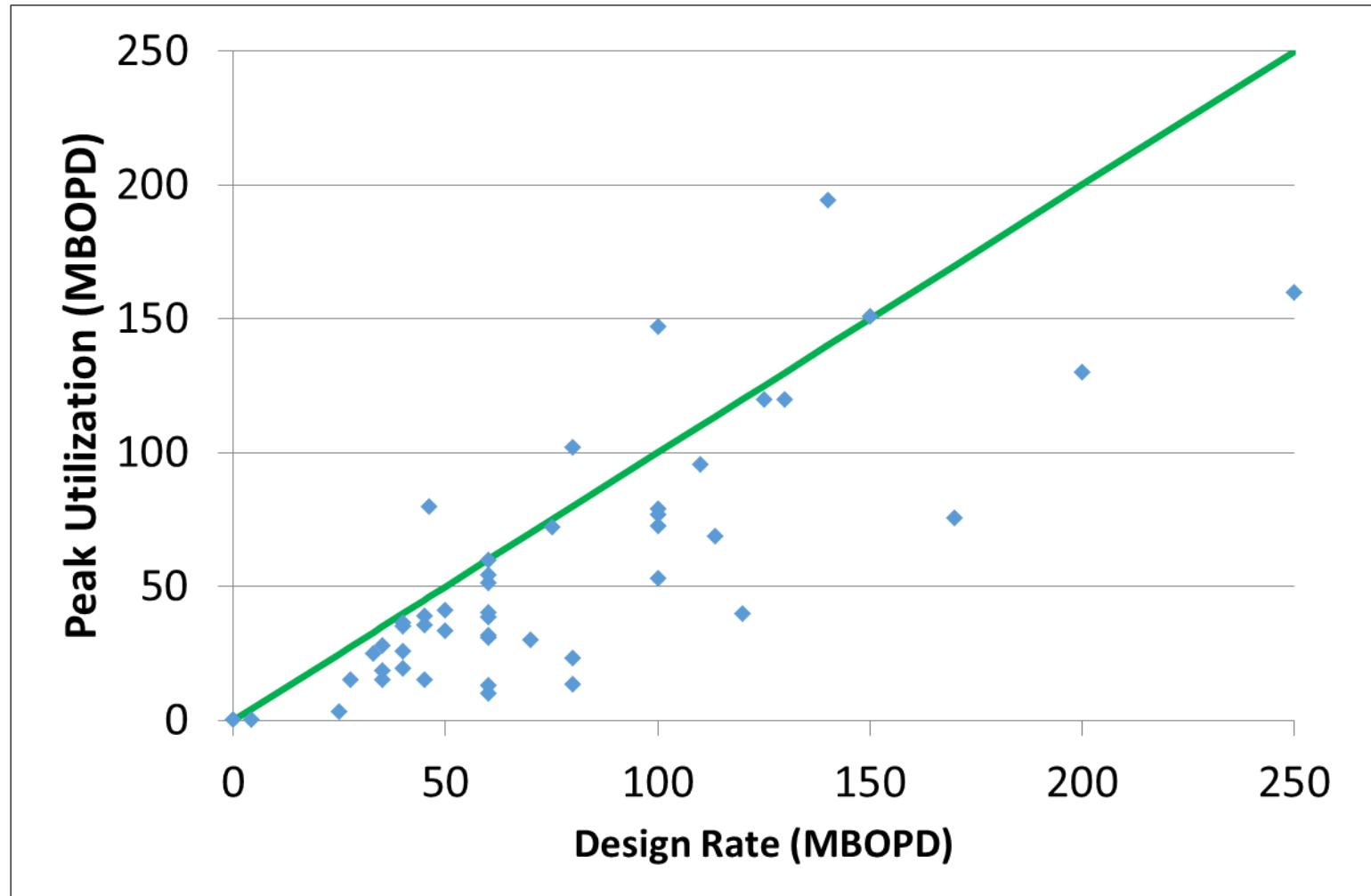


- The **new reality** - \$50 - \$60 / Barrel Oil
- Existing project development strategies are **expensive and slow** (9+ years)
- Only large (>200MM BOE) fields are **commercial**
- Production facilities are **over-sized** for long term
- Smaller reservoirs (<100MM BOE) are **non-commercial** (based on existing project development strategy)

GULF OF MEXICO FPS's: Time From Discovery to First Production



HISTORICAL FPS UTILIZATION DATA



A DEEPWATER SOLUTION

- Utilize innovative new technologies to lower cost.
- Provide seamless contracting interfaces between:
 - Engineering and design
 - Procurement
 - Fabrication
- Utilize a new tactical project development strategy for smaller reservoirs



TACTICAL PROJECT STRATEGY



- Pre-engineer FPS and SURF components (standardize)
- Review & approve standards (gated process) prior to discovery
- Reduce front-end spend:
 - Fewer appraisal wells
 - Smaller project teams
 - Smaller facilities
- Accelerate First Oil Date
 - Pre-engineered components
 - Pre-negotiated contracts – reduced bid cycle
 - Standardized equipment

DEVELOPMENT COMPARISON

	Conventional	<i>Tactical Strategy</i>
Wells (after discovery)	5-7 producers	4 producers
Well costs	\$930 million (6 wells at \$155MM)	\$620 million (4 wells @ \$155MM)
SURF cost	\$250 million (wet trees thru SCRs)	\$160 million (wet trees thru SCRs)
Discovery to first oil	7-8 years minimum	2-3 years
Revenue generated, years 4,5,6 & 7	\$0	\$1.3 billion
FPS cost	> \$1 billion	\$350 million
Lease status	Unsecured (must drill or walk away)	Secured
Project development strategy	All-in	Phased

NPV & IRR ASSUMPTIONS

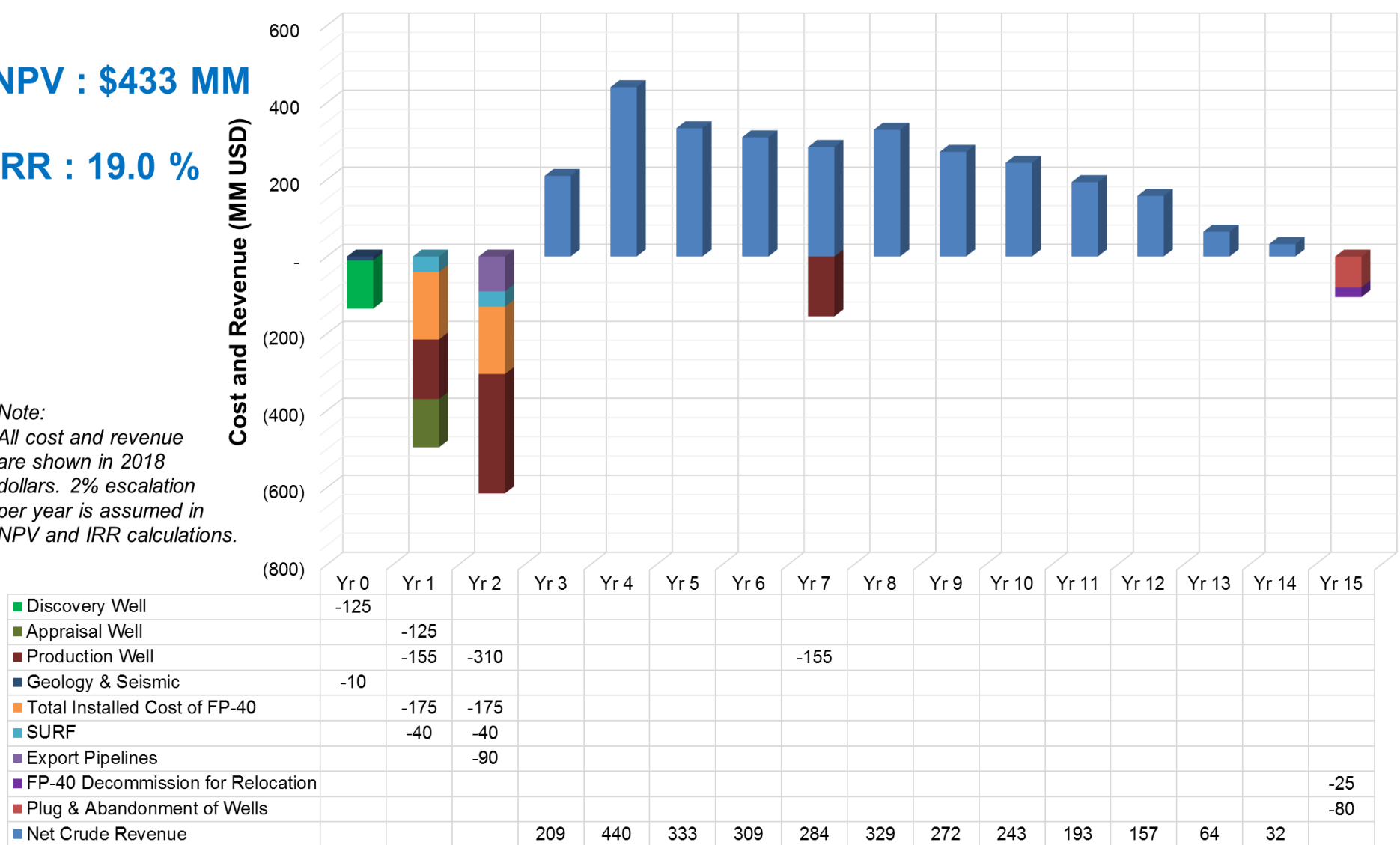
- Pre-engineer FPS and SURF components (standardize)
- Crude Price \$50.00
- Tariffs \$3.50
- Facility OPEX \$4.50
- Royalties (12.5%) \$6.25
- Base Net Crude Price \$35.75
- Discount Rate 10%
- Discovery and Appraisals \$125 MM per well (2)
- Production Wells \$155 MM per well (4)
- Facility CAPEX \$350MM
- Facilities Decommissioning and Well Abandonment Included

NPV & IRR RESULTS

NPV : \$433 MM

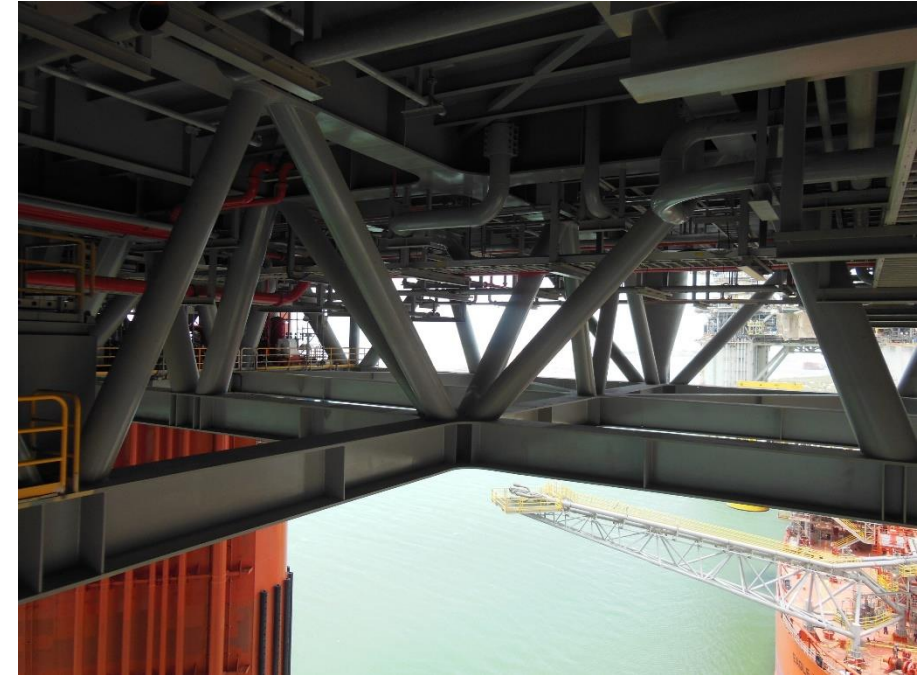
IRR : 19.0 %

*Note:
All cost and revenue
are shown in 2018
dollars. 2% escalation
per year is assumed in
NPV and IRR calculations.*



SUMMARY

- Resist temptation to over size facilities and over design - 'Bigger is not always better'
- By starting small you gain improved net present value and internal rates of return
- Recovery of discovery and appraisal wells
- Reduced risk on CAPEX cost



THANK YOU!



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