

Prinos Area Development Planning

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Agenda

1. Introduction: Energean Oil and Gas and the Prinos Basin
2. Overview of the Prinos Basin
3. Historical Operations: NAPC, Kavala Oil
4. Energean Oil and Gas Operations: 2007 – 2013
5. Prinos Area Development Planning: 2014 – 2017
6. Prinos Area: Future Potential



Introduction: Energean Oil and Gas and the Prinos Basin

Energean at a glance

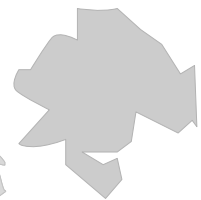
- A private E&P company focused on the Mediterranean and North Africa, drawing upon 35 years of successful experience offshore Greece
- A full E&P lifecycle company with assets in Greece, Egypt and Israel and an ongoing bid in Montenegro
- Material 2P Reserves of 30 mmboe (98% oil) and 1P of 16 mmboe (99% oil), which underpin a planned fivefold increase on current production levels
- Significant 2C Resources of 27.5 mmboe provide a basis for future organic growth
- Attractive fiscal teams and cash flow visibility supported by BP 6 year off-take agreement
- An excellent HSE track record in an environmentally sensitive area coping with significant H₂S concentrations
- Highly qualified and experienced international management team
- Strategic equity investment from Third Point in 2013



Greece



Egypt



Montenegro

Energean in Greece

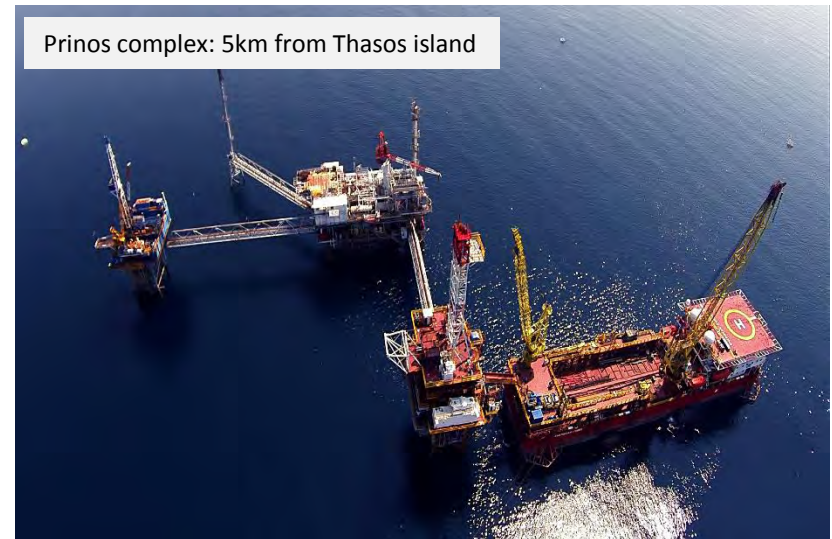
- Sole producer of Oil and Gas in Greece
- 400+ staff: predominantly Greek nationals with expatriate staff in key technical roles
- \$250 mln invested 2007 to 2014: establishing a foundation for subsequent growth
- \$200 mln investment 2014 to 2017: Prinos Redevelopment Plan (phase 1) –
 - Increase Prinos Area production by circa 500%
 - Develop current Reserves
 - Prepare plans to promote Contingent Resources to Reserves
 - Lay foundation for further growth (subsequent phases)
- Expand exploration and development activities in Western Greece -
 - Mature a number of additional core production areas to compliment Prinos
- Develop and employ Strategic Alliances with international E&P companies –
 - BP international: Oil sales
 - Schlumberger: Well and drilling technologies
 - SPD: Well planning
 - Senergy: Subsurface studies
 - ODE: Facilities design



Overview of the Prinos Basin

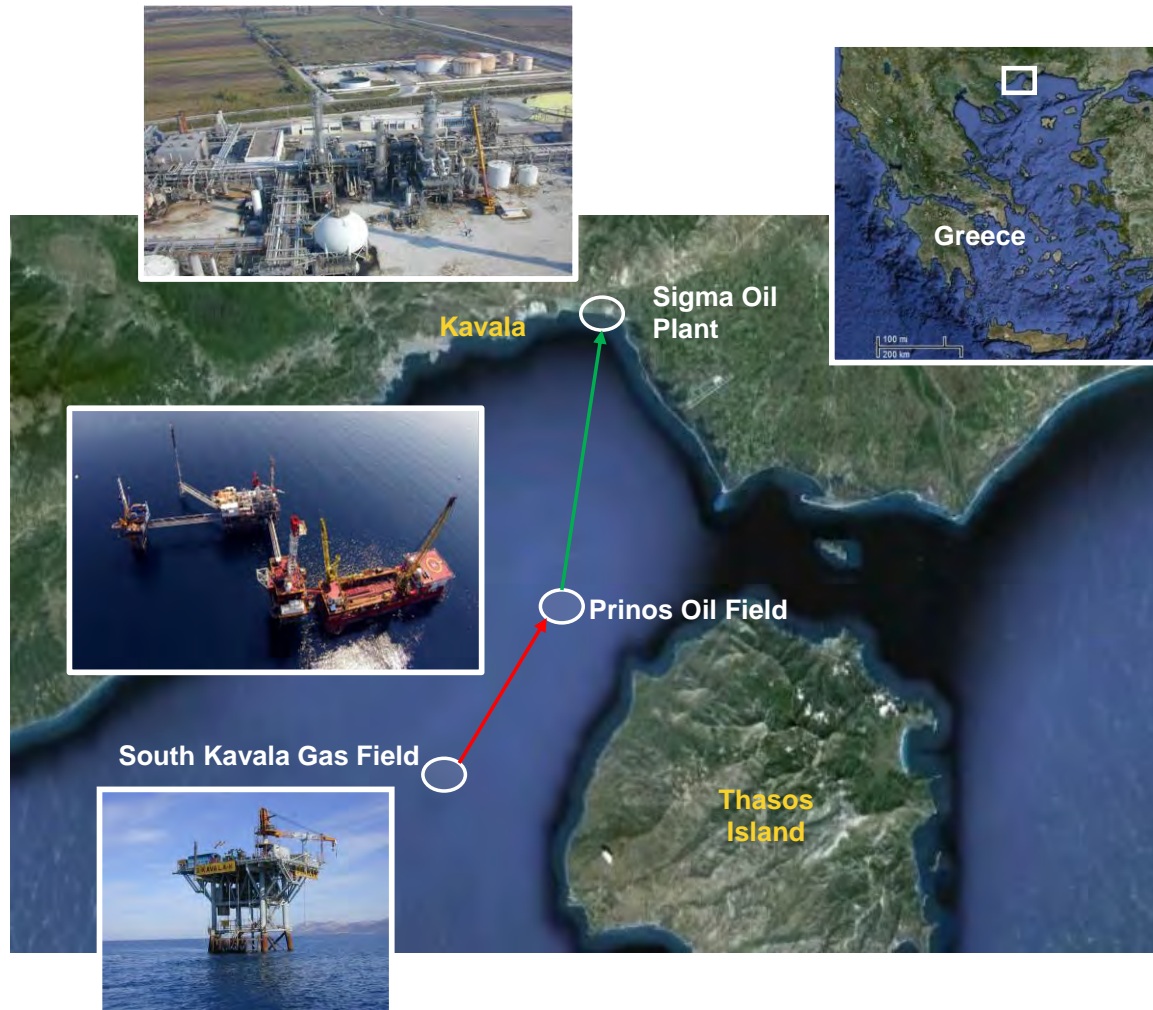
Background

- Energean has, over the last 30+ years, successfully managed the exploration, appraisal, development and production operations for a technically complex group of assets in the north Aegean Sea.
 - Pristine environmental location 5km from tourist resorts
 - High pressure fields located pre-salt
 - Hydrogen Sulphide concentrations up to 60% in gas phase
 - Significant Carbon Dioxide concentrations
 - Offshore: minimum-manned platform operations
 - Onshore: processing complex including sulphur production
 - Operation of own drilling and workover rigs
 - SPM Buoy and tanker loading operations
 - Marine logistics fleet
- Success underpinned by sound engineering and operations practices and rigorous application of HSE-MS and HEMP principles



Prinos Basin assets

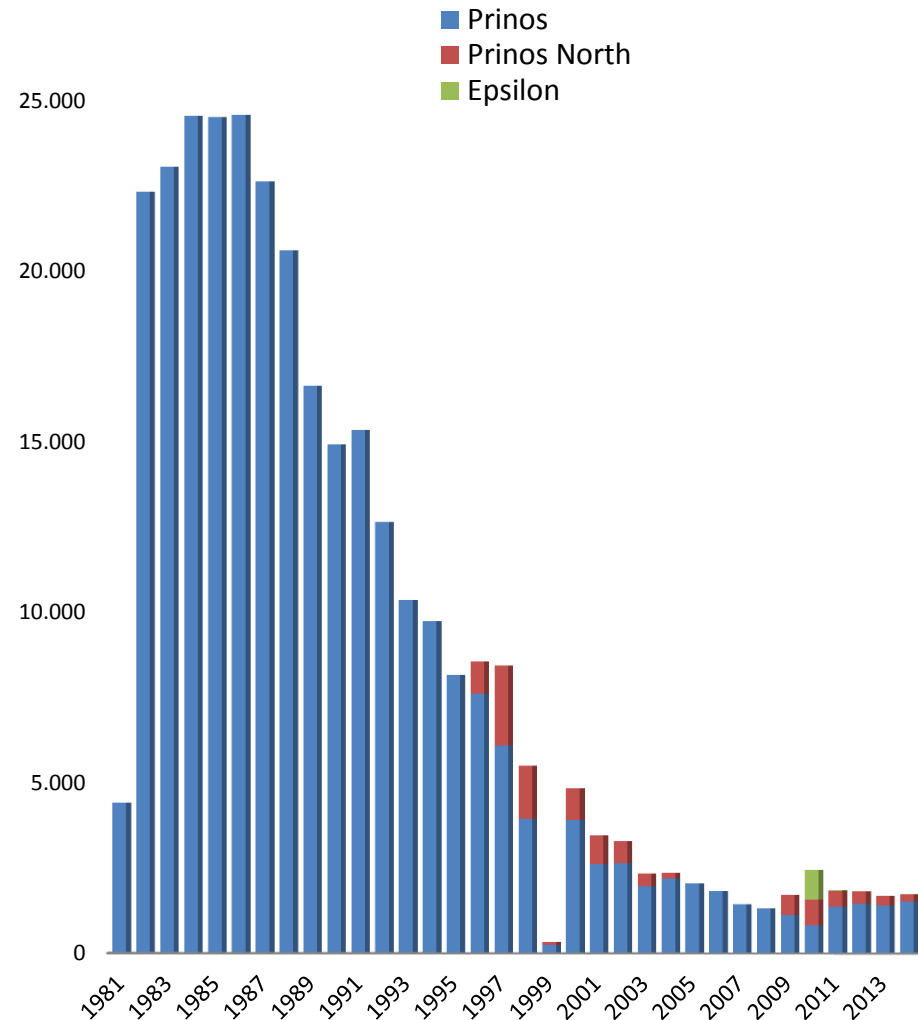
- Prinos complex comprises four platforms:
 - 2 drilling jackets
 - 1 process platform (Delta)
 - 1 flare platform
- South Kavala (sweet) gas field ties back to Prinos
- Prinos Delta:
 - Gas Oil separation and gas dehydration
 - Water Oil separation and water treatment/disposal
 - Sea water treatment for water injection
- Dry gas and dehydrated oil sent to onshore processing plant (Sigma):
 - H2S removal (amine)
 - Sulphur production (claus)
 - Oil de-salting and stabilization
 - Condensate and LPG production
 - Power generation
 - Crude storage and loading via SBM
- Prinos field:
 - 18km from Sigma
 - 12km from South Kavala



Historical Operations: NAPC and Kavala Oil

Prinos Basin historical operations

- **Exploration 1971 – 1977: Wintershall**
 - Discovery of South Kavala (sweet) gas field
 - Discovery of Prinos oil field
 - Discovery of Kazaviti oil field
- **Development 1977 – 1983: NAPC**
 - Prinos field: 4 jacket complex with associated onshore plant. 30,000 bopd capacity. Production commenced 1981
 - South Kavala field: Satellite sweet gas field tied back to Prinos complex
- **Production 1983 – 1999: NAPC**
 - Plateau 25,000 bopd from 1984-86
 - Decline to 5000 bopd by 1998
 - Water injection and gas lift added
 - Prinos North development 1986
 - NAPC departure and production halt due to low oil prices
- **Production 2000 – 2007: Kavala Oil**
 - Steady decline to 1,000 bopd
 - Epsilon discovery 2002
 - Regal Petroleum

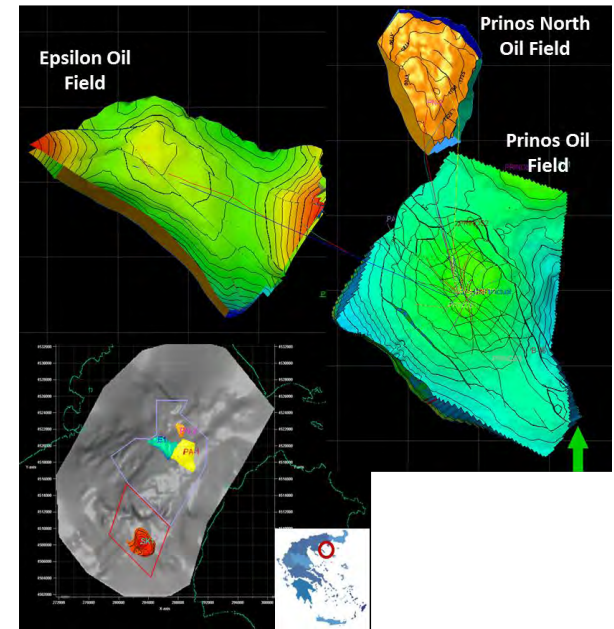




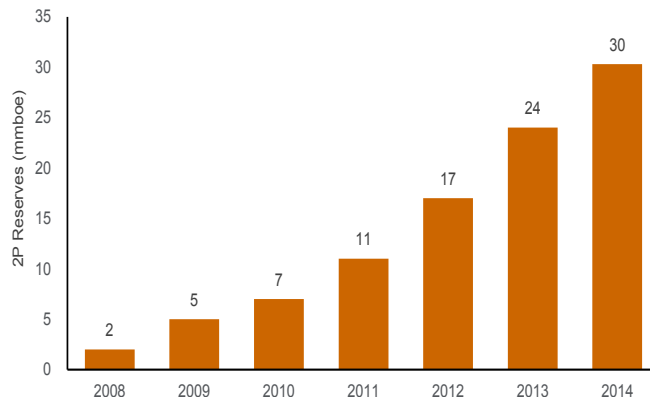
Energean Oil and Gas Operations: 2007 to 2013

Stabilisation and establishing a foundation for growth

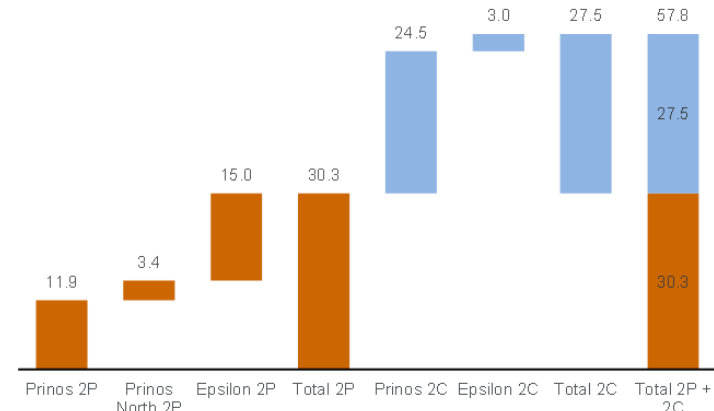
- Contracts and licenses renegotiated and extended
- Production from Prinos North re-established with 2009 ERD well
- Successful appraisal of Epsilon 2002 discovery via 2010 ERD well
- Stabilisation of Prinos field decline via execution of targeted work-overs, improved well management and re-establishment of water injection
- Demonstration of remaining primary potential in secondary Prinos reservoirs via selected infill drilling
 - Dry oil produced from B and C reservoirs. A potential demonstrated
- Re-processing and interpretation of available seismic and development of improved reservoir models
- Initial IOR and EOR studies
 - CO2 flooding study



Significant Reserves Growth



2014 CPR Reserves and Contingent Resources

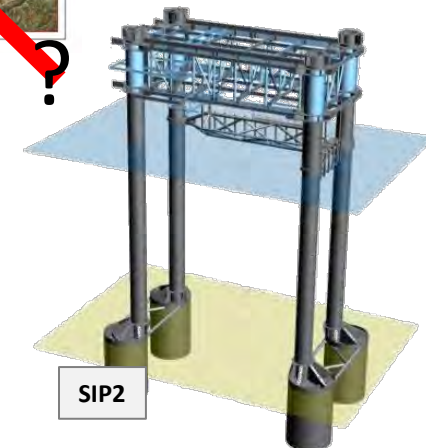
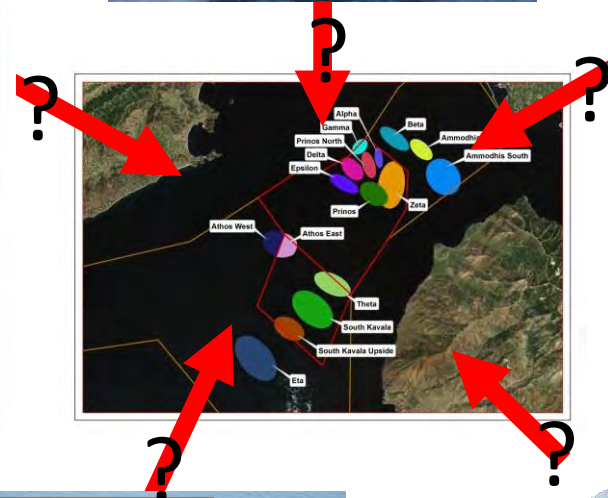




Prinos Area Development Planning: 2014 to 2017

Key Components for Prinos Area Growth

- Determine a means of reducing the cost of drilling development wells hence increase the number of wells that can be drilled
- Identify a robust development plan for the Epsilon field that could be repeated for other satellite discoveries
- Gather data from the planned infill drilling campaign on Prinos to allow IOR and EOR studies to be refined and hence subsequent Development phases to be defined in parallel with phase 1 execution
- Acquire new 3D data over the basin to enable unappraised discoveries to be further evaluated and the exploration lead inventory to be refreshed



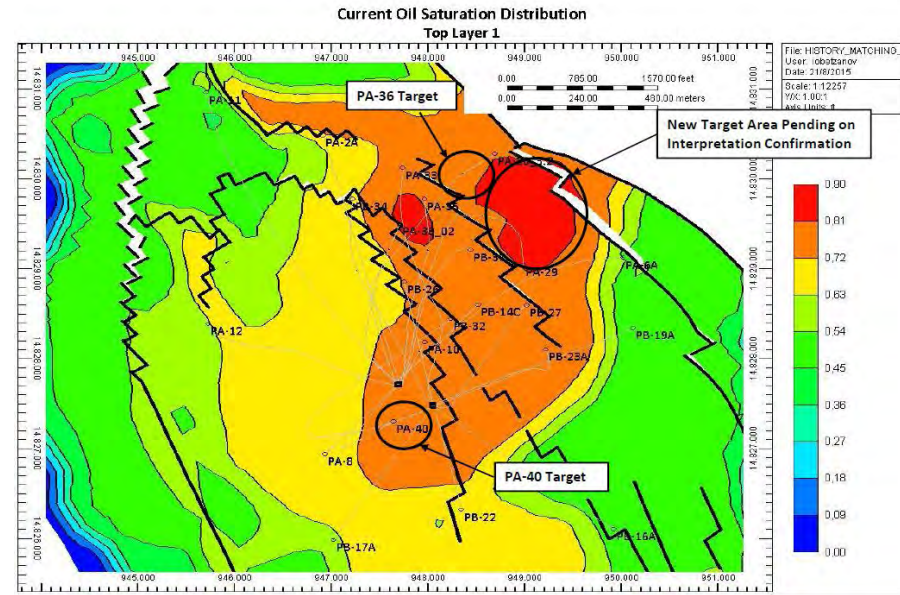
Energean Force

- Tender Assisted Drilling selected as the basis for forward drilling in the Prinos basin
 - Benign climate
 - Enable use of “large” platform structures relative to jack-ups
 - Enable use of “small” platform structures relative to fixed rigs
 - Relatively mobile
 - Good safety characteristics
 - Could be acquired cheaply compared with 2nd hand jack-ups
- Glen Esk available from KCA Deutag – Energean Force
 - Built 1994, refurbished 2012
 - Modest re-build scope
 - Planned effective day rate 33% more than equivalent land rig
- Energean Force
 - Purchased August 2014, wet towed from Ghana to Greece
 - Arrived Athens October 2014: transfer DES to wharf
 - 6 months inspection, overhaul and recertification
 - Platform upgrades and mooring system development
 - Barge re-classification March 2015
 - Rig Management contract awarded to Archer April 2015
 - Mobilised to Kavala May 2015
 - Crew mobilization and rig up of Prinos Alpha June 2015
 - Commissioning July - August 2015
 - Full certification and safety certificate issued by DNV August 2015
 - Commenced first well September 2015



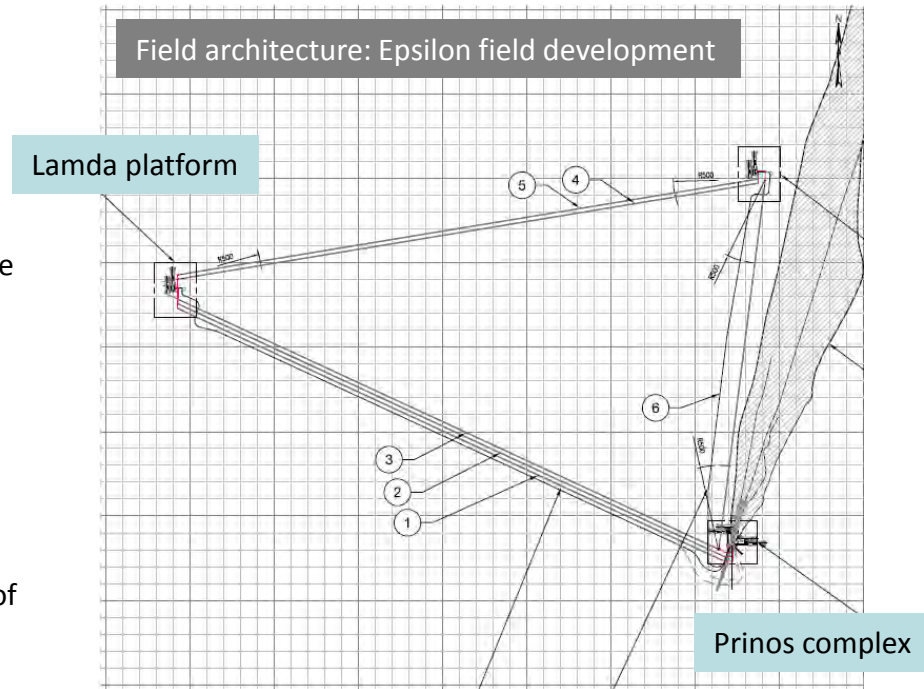
Prinos infill drilling campaign

- 8 well campaign focused on developing unswept areas of the deeper B and C reservoirs
 - Potential demonstrated through wells drilled 2012/2013
- Wells used to evaluate remaining potential in the shallower A reservoirs
 - Wells to be equipped with dual completions as required to improve reservoir management and maximize short term production
- Collection of modern data set to aid further analysis of IOR and EOR upside potential
 - First cores and PVT data since early 1980's
 - First full pressure surveys and modern logs since mid 1990's
- Opportunity to appraise undeveloped Delta reservoir and adjacent Kazaviti discovery
 - Potential for further resource booking and subsequent development
- Appraisal of lateral field extensions identified from earlier seismic reprocessing and interpretation
 - North East area
 - South East area

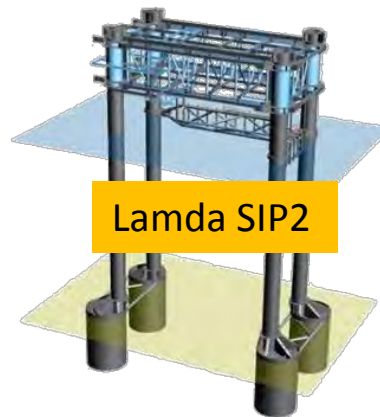


Epsilon Development

- Epsilon field
 - Discovered 2002
 - Appraised 2010 via ERD well drilled from Prinos
 - Similar reservoir setting to Prinos, although poorer properties due to increased depth
- Development Concept
 - Satellite tie back to Prinos complex: utilize available spare capacity – multiphase production to Delta platform
 - Minimum manned facility: controlled remotely from Prinos Delta
 - Gas lift, water injection Power and chemicals supplied from Delta
 - In-house concept design and development of BOD
- Project Execution
 - Use of “Self Installed” sub-structure: avoid mobilization of large offshore spread
 - Topside fabricated in Greece: mated with substructure onshore to avoid offshore campaign
 - Onshore pipeline construction and towed installation
 - Small company PMT located initially in Athens
 - Leverage Greek marine and structural engineering capability
 - Fast track schedule: detailed design to start-up 14 months
 - CAPEX 75% of traditional jacket based approach

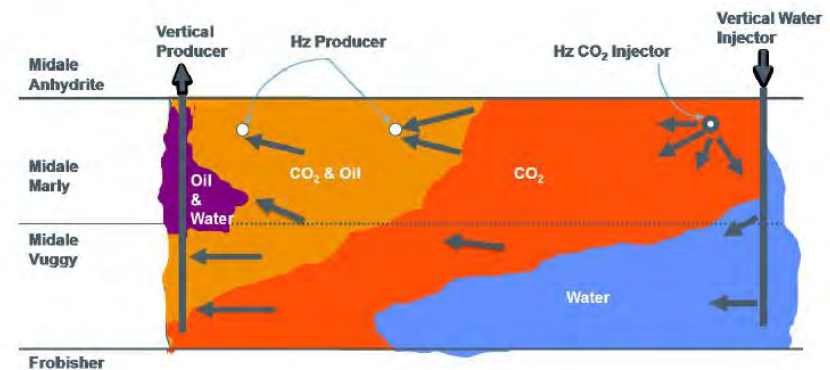
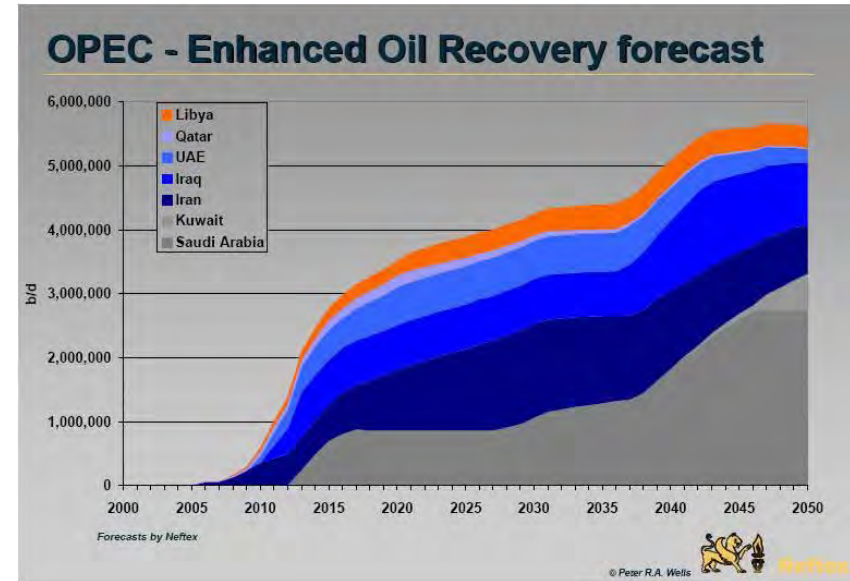


Lamda platform concept (Epsilon development)



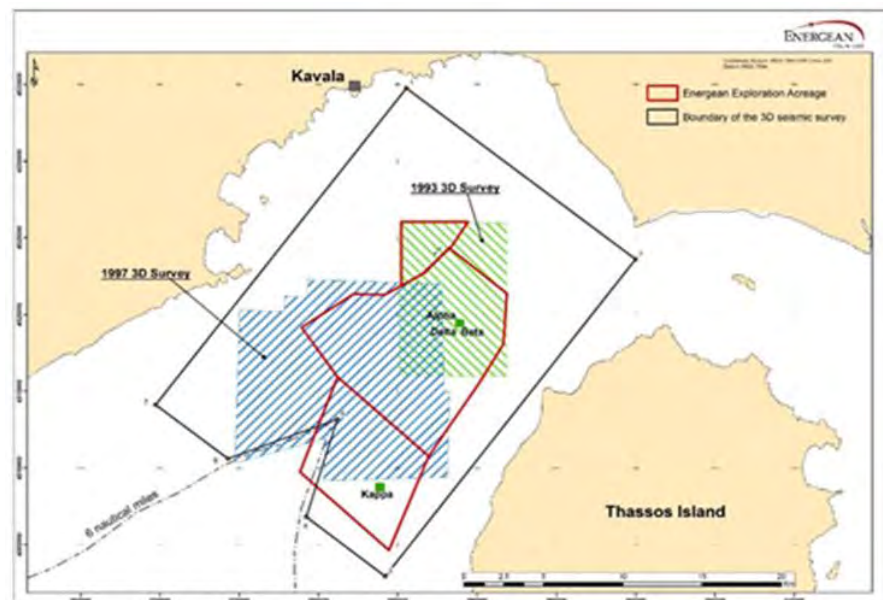
IOR and EOR potential

- Prinos Field
 - P50 STOOIP = 280 mln bbls
 - Production to date = 110 mln bbls, Rf = 39%
 - Water injected to maintain pressures rather than to maximize sweep
- IOR potential
 - Laboratory trials demonstrate URf with sea water drive of 60%
 - Contingent Resources assume Rf can be increased to 50% through commercial water flood development
 - Static and dynamic model upgrades commenced
- EOR potential
 - Prinos screens well to various techniques
 - Miscible flood (CO₂ or H₂S), Low saline water flood, Surfactants
 - CO₂ flood study complete – availability
 - Sampling and analysis programme in parallel with infill drilling
 - Target Rf of 70%
- Advantages
 - Proximity to shore – low CAPEX for new pipelines
 - Availability of CO₂ and H₂S from produced gas – reuse in an EOR scheme significantly reduces Opex
 - Availability of low saline water
 - Miscible WAG – potentially ideal option?



2015 Prinos Area 3D survey

- Historic seismic coverage
 - Two 3D surveys were shot in the 1990's: 1993 and 1997
 - Data quality is relatively poor, particularly the 1997 survey
 - Fault mapping below the salt sequence is imprecise
 - Quality is not sufficient to determine rock properties or fluid fill
- 2015 3D survey
 - First 3D campaign offshore Greece in 18 years
 - State of the art equipment from world leading provider: Dolphin Geophysical
 - Identification of stratigraphic traps
 - Better imaging of fault bounded structures
- Planned use
 - Re-mapping of the Prinos field to aid in developing a more detailed geological model required to fully assess IOR and EOR upside
 - Refine the Epsilon field model, particularly the parts of the field not yet penetrated
 - Re-mapping of unappraised discoveries (Kazaviti, Athos)
 - Map deeper Basin potential – new plays
 - Re-fill prospect and lead inventory
 - Under-pin future exploration campaigns



Prinos Area: Future Potential

Conclusions

- The future looks bright for the future of Operations in Greece's Prinos Basin
- A new development plan that will invest a further \$200mln has been approved
- This will see the development of the Epsilon field, including the first platform to be installed in Greece for 35 years
- Energean has acquired a new rig that has allowed to drive development costs down and therefore enable it to drill more wells
- An 8 to 9 well campaign is planned on Prinos Alpha, adding around 12 new producing strings
- A new plateau production rate for the area of around 10,000 bopd is prognosed
- With the development of plans for harnessing IOR and EOR techniques it is possible that there is as much discovered oil still to produce that has been produced to date
- Recently acquired 3D seismic will help the company identify further plays, leads and prospects
- Although the future for the Prinos basin looks bright the future of the oil industry in Greece is likely in the west of the country
- Energean has a leading position in this area that it is seeking to further expand



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