



CELEBRATING
50 YEARS
1968-2018

PROJECT HISTORY



Founded in 1968, MODEC has provided competitive floating solutions for the offshore oil and gas industry and is recognized as a leading specialist for FPSOs, FSOs, TLPs, Production Semi-submersibles, and MOPUs. MODEC has recently expanded its capabilities to include FLNGs, FSR-Power®, FSR-Water®, and FSRWP®s. MODEC can provide these floating systems either on an Engineering, Procurement, Construction and Installation (EPCI) basis or Lease and Operation & Maintenance (O&M) basis worldwide.

As offshore oil and gas development projects increase in scale and move into ultra-deep waters, offshore floating systems have also increased in size and complexity to meet these needs. MODEC has an excellent track record of EPCI projects, delivering over 47 floating production systems and currently owns and operates 18 FPSOs and 3 FSOs. MODEC is highly valued by our customers in the offshore Oil and Gas Industry.

With over 200 years of accumulated operating experience on floating production systems, MODEC is in a position to apply the valuable knowledge gained to improve our Products as well as the O&M Services.

Products and Services

FPSO/FSO



Floating Production, Storage and Offloading System / Floating Storage and Offloading System

MODEC has delivered over 37 ship-shaped FPSOs and FSOs worldwide. Advantages of FPSOs/FSOs are:

- Reduced upfront investment for clients
- Short delivery time
- Residual value because of their potential to be relocated to other field(s)
- Decommissioning costs are lower than for fixed platforms
- Water depth from 30m - +2500m
- Production capacity up to 200k bopd
- Variety of mooring system possibilities

FLNG



Floating LNG Production Units

- MODEC has multiple FLNG designs available to handle either dry or wet gas
- In case of a wet gas FLNG, the LNG, LPG and Condensate are stored separately in different storage tanks
- In case of dry gas, only LNG is stored
- Depending on the quality of the gas delivered to the FLNG there might be a requirement for extensive gas pretreatment facilities
- MODEC's FLNG solutions are based on both, converted hulls or new built hulls
- An appropriate type of mooring system is dependant on the environmental conditions and water depth

TLP



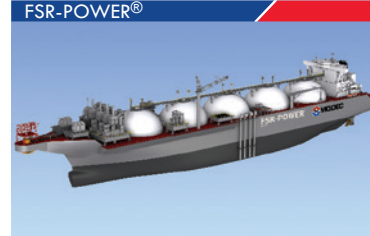
Tension Leg Platform

MODEC has delivered 3 out of 5 TLPs operated in the Gulf of Mexico and the others are in Equatorial Guinea.

Advantages of TLPs are:

- TLPs can be installed in medium to deepwater, and are very apt for harsh environmental conditions
- TLPs are mostly used as oil and gas production platforms and are capable to have workover or drilling rigs installed
- Due to their minimal hull motion TLPs are very suitable as dry tree well head platform
- Some TLPs are used in combination with dry and wet trees

FSR-POWER®

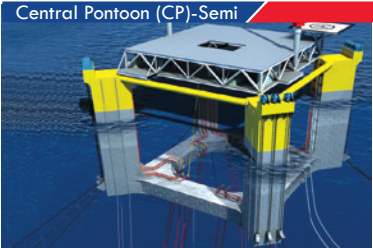


Floating Storage, Regasification and Power-Generation

Modular Combined Cycle Gas Turbine (CCGT) Power-Generation concept based on:

- A/C Power export in increments of 40/120/150 MW at 50 or 60 Hz and up to 145 kV (in case of a weather vaning system)
- Gas Turbine "Black Start" either by diesel generator or power from shore
- Vessel with integrated LNG storage tanks and LNG loading arms
- Enhanced power-generation efficiency by chilling inlet air by LNG
- Electrical transmission to shore through slip ring(s) and cable(s)
- Option to export gas to shore via pipeline
- Mooring system type is dependant on the environmental conditions and water depth

Central Pontoon (CP)-Semi



Central Pontoon (CP)-Semi | Semi-Submersible

- Semi-submersibles are excellent for use as hub facilities for oil and gas production
- These semi-submerged floating structures typically ride the environment similar to a ship-shape hull
- MODEC has developed a proprietary Semi-Submersible design called the MODEC CP-Semi for use as a production platform
- The MODEC CP-Semi design has also been developed for use as a surface well tree solution in more benign environments
- Flexible payload design during design phase

FSR-WATER®



Floating Storage, Regasification and Water-Desalination

- Modular Desalination concept with capacities between 100,000m³ to 600,000m³/d
- Vessel with integrated LNG storage tanks and LNG offloading arms
- On-board regasification unit
- Water is exported via pipeline to shore
- Option to store treated water onboard the vessel
- Option to export gas to shore via pipeline
- Mooring system type is dependant on the environmental conditions and water depth

MOORING SYSTEMS



(SOFEC Inc., a MODEC subsidiary)

- A wide range of proven, permanent/disconnectable mooring systems are available to moor FPSO, FSO, FLNG, FSR-Power®, FSR-Water®, and FSRWP®, FSRU in a wide variety of water depths and environmental conditions
- CALM & SALM type Loading and Offloading Terminals for various liquids (crude oil, refined products, LPG, Coal Slurry or similar)

FSRWP®



Floating Storage, Regasification and Water-Desalination & Power-Generation

The FSRWP® is a combination of a FSR-Water® (Water-Desalination) and FSR-Power® (Power-Generation):

- Modular concept
- Desalination of up to 200,000m³/d
- Power export of up to 240 MW
- Vessel with integrated LNG storage tanks and LNG loading arms
- On-board regasification unit
- Water is exported via pipeline to shore
- Electrical transmission to shore through slip ring(s) and cable(s)
- Option to export gas to shore via pipeline and/or store treated water onboard

Shenzi TLP

Contract Type: EPC & Pre-Commissioning
Client: BHP Billiton Petroleum
Field: Shenzi, USA
Oil Production: 100,000 bopd
Gas Production: 100 mmscfd
Water Depth: 1,333 m
First Oil: March 2009



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Marco Polo TLP

Contract Type: EPC
Client: Anadarko Petroleum Corp.
Field: Marco Polo, USA
Oil Production: 120,000 bopd
Gas Production: 400 mmscfd
Water Depth: 1,311 m
First Oil: July 2004



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FSO AILSA

Contract Type: EPC
Client: Maersk Oil North Sea UK Limited (TOTAL)
Field: Culzean, UK (North Sea)
Storage Capacity: 430k bbls
Oil Production: 25,000 bopd
Water Depth: 90 m
Delivery to Client: June 2018
First Oil: Planned 2019



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FSO Rong Doi MV12

Contract Type: EPCI+Time Charter
Client: Korea National Oil Corporation (KNOC)
Field: Rong Doi / Rong Doi Tay Fields, Vietnam
Storage Capacity: 300,000 bbls
Oil Production: 18,000 bopd
Water Depth: 85 m
First Oil: November 2006



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FSO Rang Dong MV17

Contract Type: EPCI+Time Charter
Client: Japan Vietnam Petroleum Co., Ltd.
Field: Rang Dong, Vietnam
Storage Capacity: 350,000 bbls
Oil Production: 60,000 bopd
Water Depth: 60 m
First Oil: November 2008



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FPZO Fluminense

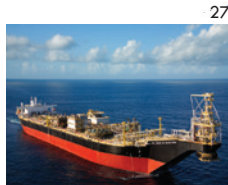
Contract Type: EPCI+O&M
Client: Shell Brasil Petróleo Ltda.
Field: Bijuipirã-Salema, Brazil
Storage Capacity: 1,300,000 bbls
Oil Production: 81,000 bopd
Gas Production: 75 mmscfd
Water Depth: 740 m
First Oil: August 2003



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FSO Cidade de Macaé MV15

Contract Type: EPCI+Time Charter
Client: Petróleo Brasileiro S.A. (Petrobras)
Field: Marlim Sul, Roncador and Marlim Leste, Brazil
Storage Capacity: 2,150,000 bbls
Oil Production: 818,000 bopd
Water Depth: 95 m
First Oil: November 2007



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FPZO Cidade de Itaguaí MV26

Contract Type: EPCI+Time Charter
Client: Petróleo Brasileiro S.A. (Petrobras) & Its Partners
Field: Iracema Norte (formerly Cernambi Norte), Brazil
Storage Capacity: 1,600,000 bbls
Oil Production: 150,000 bopd
Gas Production: 280 mmscfd
Water Depth: 2,240 m
First Oil: July 2015



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FPZO Cidade de Angra dos Reis MV22

Contract Type: EPCI+Time Charter
Client: Petróleo Brasileiro S.A. (Petrobras)
Field: Lula, Brazil
Storage Capacity: 1,600,000 bbls
Oil Production: 100,000 bopd
Gas Production: 150 mmscfd
Water Depth: 2,149 m
First Oil: October 2010

Oveng TLP

Contract Type: EPC
Client: HESS Corporation
Field: Oveng, Equatorial Guinea
Oil Production: 25,000 bopd
Gas Production: 30 mmscfd
Water Depth: 280 m
First Oil: December 2006



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FPZO PSVM

Contract Type: EPCI
Client: BP Exploration (Angola) Limited
Field: Plutão, Saturno, Vênus and Marte(PSVM), Angola
Storage Capacity: 2,000,000 bbls
Oil Production: 157,000 bopd
Gas Production: 245 mmscfd
Water Depth: 2,000 m
First Oil: December 2012



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FSO Kome Kribi 1

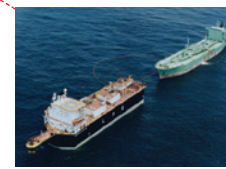
Contract Type: EPCI
Client: Cameroon Oil Transportation Company (COTCO)
Field: Bolobo/Miandoum/Kome Fields, Cameroon
Storage Capacity: 2,300,000 bbls
Oil Production: 225k bopd
Water Depth: 34 m
First Oil: September 2003



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FSO Escravos LPG

Contract Type: EPCI
Client: Chevron Nigeria Ltd.
Field: Escravos, Nigeria
Storage Capacity: 54,000 m³
Tanker Size: 37,100 dwt
32°C Loading
-39°C Storage
Water Depth: 42 m
First Oil: July 1997



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FSO Vietsovpetro 01

Contract Type: EPC
Client: Petrovietnam Trading Company
Field: White Tiger, Vietnam
Storage Capacity: 1,000,000 bbls
Oil Production: 100,000 bopd
Water Depth: 47 m
First Oil: October 2000



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FPZO MODEC Venture 11

Contract Type: EPCI+Time Charter
Client: Santos Ltd.
Field: Mutineer/Exeter, Australia
Storage Capacity: 930,000 bbls
Oil Production: 100,000 bopd
Gas Production: 2-3 mmscfd
Water Depth: 156 m
First Oil: March 2005



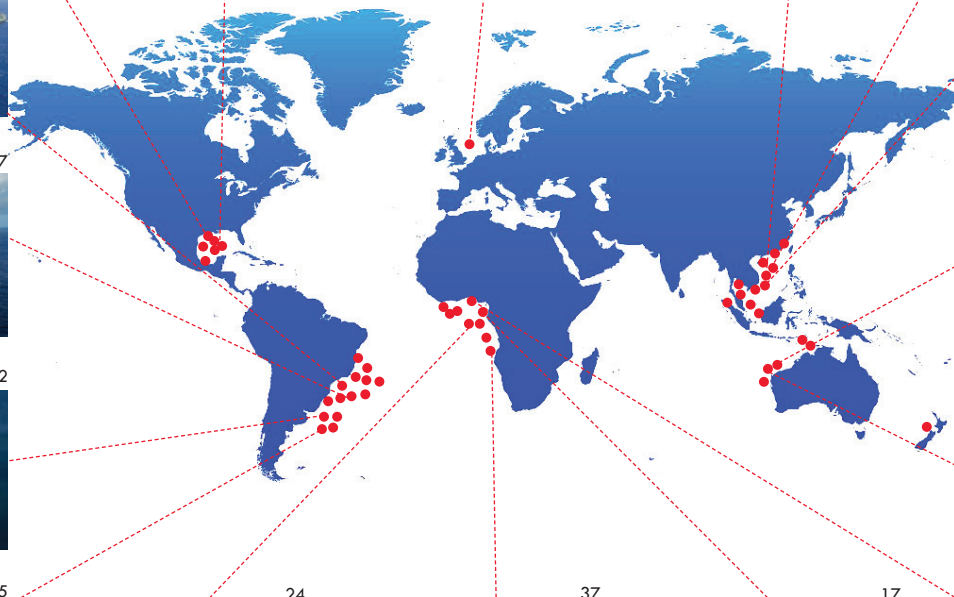
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FPZO Pyrenees Venture

Contract Type: EPC+O&M
Client: BHP Billiton
Field: Pyrenees, Australia
Storage Capacity: 850,000 bbls
Oil Production: 96,000 bopd
Gas Production: 60 mmscfd
Water Depth: 200 m
First Oil: February 2010



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○ EPC(I)/LEASE + O&M
 ○ EPC(I) + LEASE + O&M
 ○ EPC(I) + O&M
 ○ EPC(I)
 ○ O&M
 *DECOMMISSIONED/SOLD

ASIA

- 1 FPSO KAKAP NATUNA
- 2 FPSO ANOA NATUNA
- 3 FSO NANHA SHENG KAI
- 4 FPSO NANHA SHENG LI
- 11 FSO VIETSOVPETRO 01
- 13 FPSO LANGSA VENTURE MV8*
- 14 FPSO RUBY PRINCESS
- 15 FSO PATHUMABAHA
- 18 FPSO CUULCNG MV9*
- 21 FPSO JASMINE VENTURE MV7*
- 23 FSO RONG DOI MV12
- 29 FSO RANG DONG MV17
- 30 FPSO SONG DOC PRIDE MV19

WEST AFRICA

- 6 FSO ESCRAVOS
- 7 FSO MADELA & TCHATAMBA A MOPU*
- 17 FSO KOMB KRIBI 1
- 22 FPSO BAOBAB IVOIRIEN MV10
- 24 TLP OVENG
- 25 TLP OKUMB EBANO
- 36 FPSO KWAME NKURUMAH MV21
- 37 FPSO PSVM
- 43 FPSO PROF. JOHN EVANS ATTA MILLS

BRAZIL

- 16 FPSO FLUMINENSE
- 26 FPSO CIDADE DO RIO DE JANEIRO MV14
- 27 FPSO CIDADE DE MACAE MV15
- 31 FPSO CIDADE DE NITEROI MV18
- 34 FPSO CIDADE DE SANTOS MV20
- 35 FPSO CIDADE DE ANGRA DOS REIS MV22
- 38 FPSO CIDADE DE SAO PAULO MV23
- 40 FPSO OSX-3
- 41 FPSO CIDADE DE MANGARATIBA MV24
- 42 FPSO CIDADE DE ITAGUAI MV26
- 44 FPSO CIDADE DE CARAGUATATUBA MV27
- 46 FPSO CIDADE DE CAMPOS DOS GOYTACAZES MV29
- 48 FPSO CARIOCA MV30
- 49 FPSO GUANABARA MV31

EUROPE - NORTH SEA

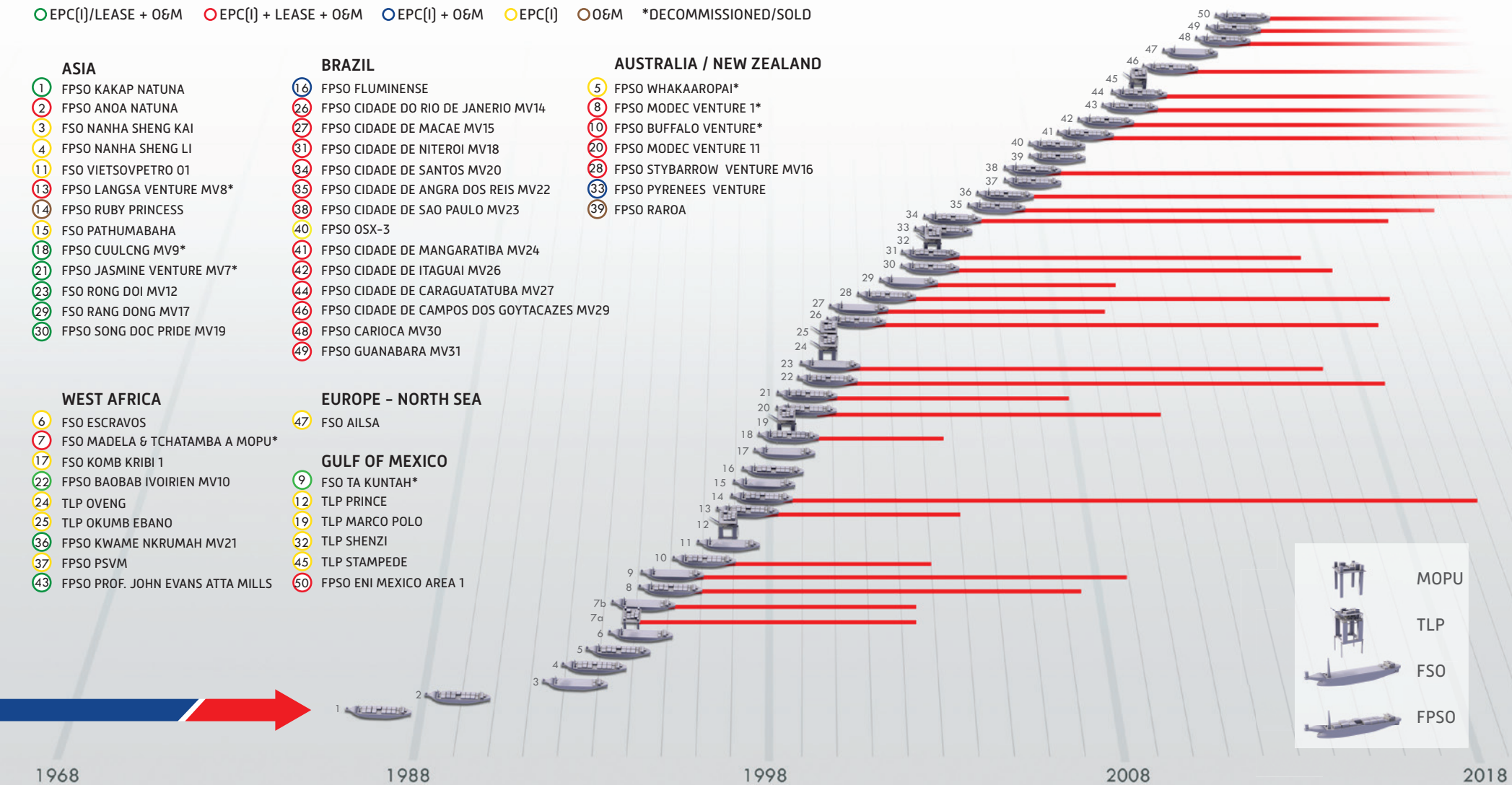
- 47 FSO AILSA

GULF OF MEXICO

- 9 FSO TA KUNTAH*
- 12 TLP PRINCE
- 19 TLP MARCO POLO
- 32 TLP SHENZI
- 45 TLP STAMPEDE
- 50 FPSO ENI MEXICO AREA 1

AUSTRALIA / NEW ZEALAND

- 5 FPSO WHAKAAROPAI*
- 8 FPSO MODEC VENTURE 1*
- 10 FPSO BUFFALO VENTURE*
- 20 FPSO MODEC VENTURE 11
- 28 FPSO STYBARROW VENTURE MV16
- 33 FPSO PYRENEES VENTURE
- 39 FPSO RAROA



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