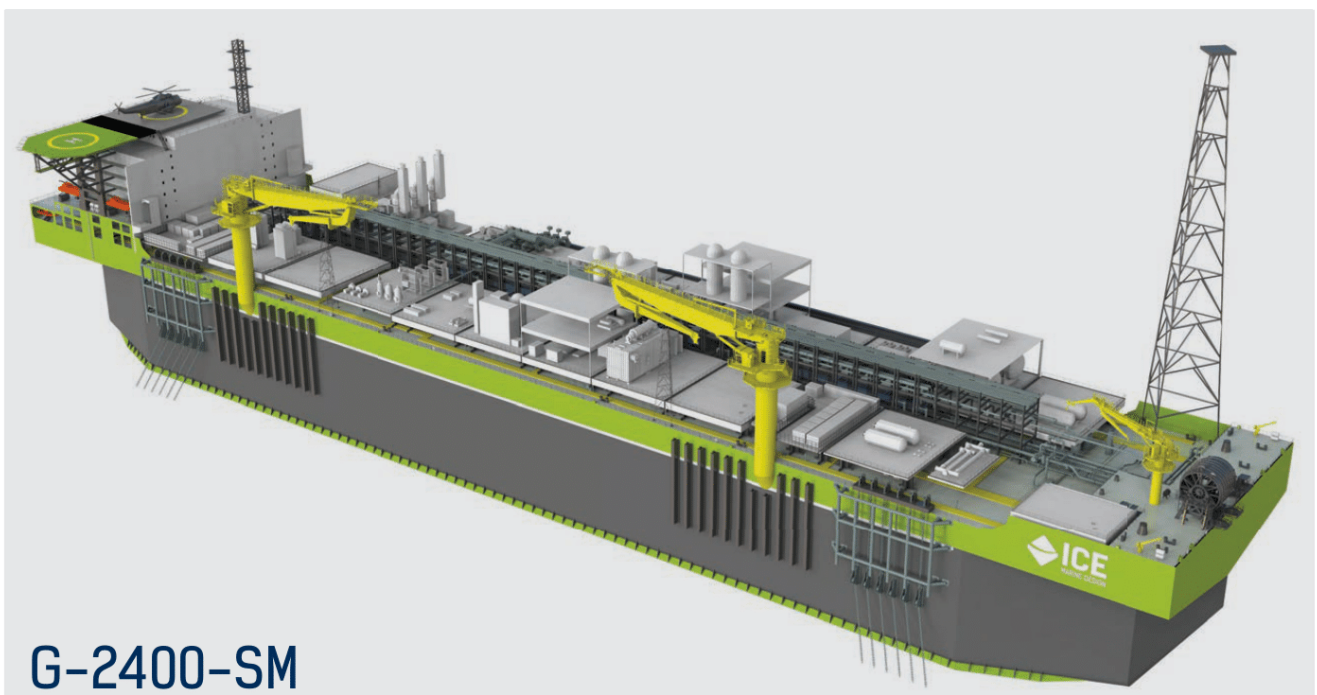


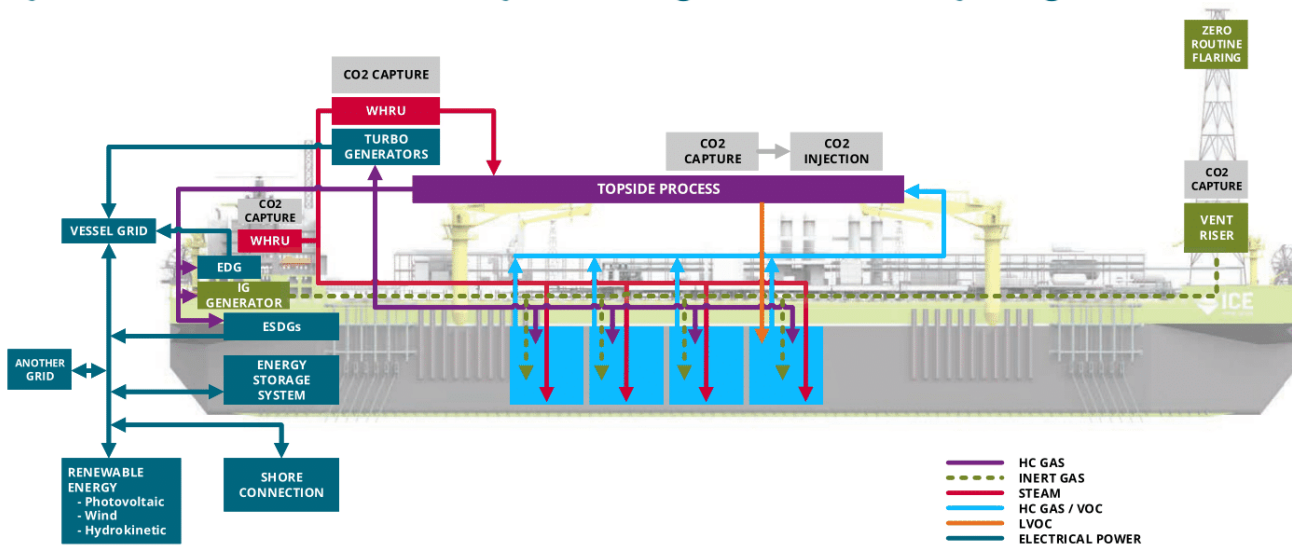
## 2.4 M Bbl Generic FPSO Hull (G-2400-SM)

Based on experience from more than 40 FSO and FPSO projects, ICE has designed a robust hull readily adaptable as a platform for high-capacity, deep-water O&G production, with the following main standard features:

- Suitable for a range of topside configurations up to 40,000 tons and storage of 2.4 million barrels of oil,
- Well-balanced hydrodynamic and motion characteristics for harsh metocean conditions,
- Symmetrical hull form, allowing either end to be positioned towards the prevailing weather,
- Double hull including double bottom,
- Spacious deck area thanks to a fully rectangular main deck,
- Spread mooring, optionally adaptable to internal or external turret or tower yoke mooring solutions,
- Energy efficient accommodation for up to 200 persons,
- Minimum 25-year design service life without dry-docking,
- Reduced risk and short lead time thanks to a mature design developed by an experienced designer with substantial capacity,
- Conventional shipyard technology; the hull may be assembled from joinable hull modules built in more than one yard.



ICE has substantial experience in design for reduced emissions and increased energy efficiency and will work with operators and topside process designers to select equipment and systems to meet industry-leading sustainability targets.



## Sustainability

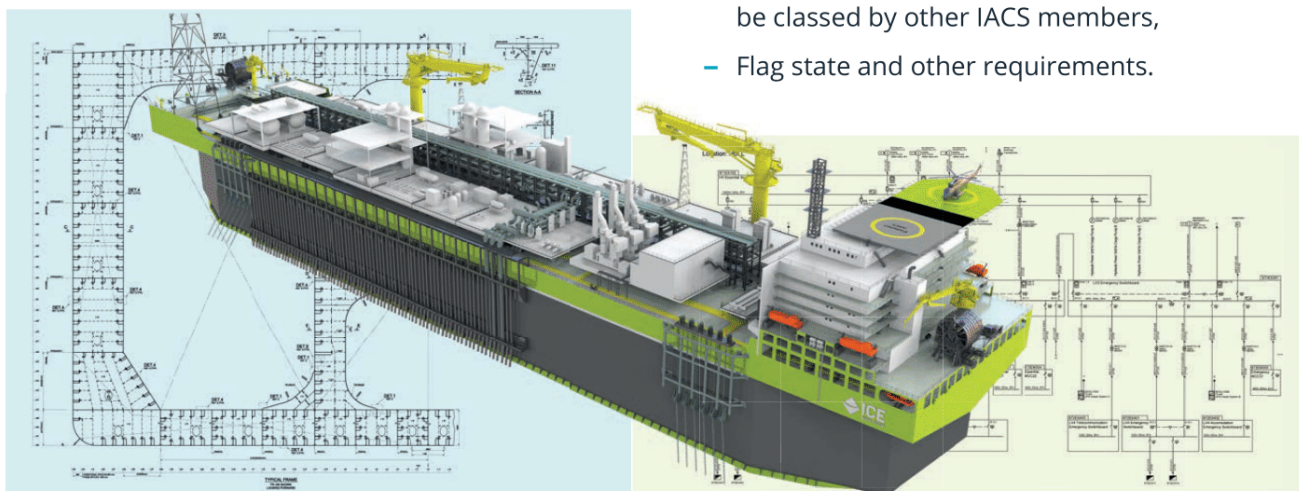
Low emission and high energy efficiency due to integration of systems such as:

- HC gas blanketing,
- VOC recovery,
- CO2 capture (optional),
- Waste heat recovery,
- Fuel management,
- Hybrid power and storage (optional),
- HVAC energy recovery,
- Integrated wet and dry waste treatment,
- Other systems as specified by the Operator or Company.

## Adaptability

Robust generic platform design, adaptable to customised solutions such as:

- A wide range of standard or field specific topside module arrangements,
- Various offloading systems (hose reel, floating hose, catenary risers connected to a buoy),
- LQ capacity can be sized above or below 200 POB (temporary or permanent),
- Flexible crane positioning due to standardized crane integration solution,
- Davit launched or free-fall lifeboats,
- Helideck size can be increased to allow parking of a second helicopter,
- Developed to ABS rules but can alternatively be classed by other IACS members,
- Flag state and other requirements.





## Principal Dimensions

Length o.a. ....	330.00 m
Breadth .....	62.00 m
Depth .....	33.00 m
Draught, summer .....	24.50 m
Topside deck area .....	abt. 17,000 sqm
Topside weights .....	40,000 mt
Hull .....	Barge type, double hull (incl. double bottom)

## Capacities

Crude Oil Capacity (98% full) .....	387,400 cbm
Crude Oil Capacity (98% full) .....	2,400,000 bbl
Offspec tank (98% full) .....	7,300 cbm
Produced water (98% full) .....	7,300 cbm
Slop tanks (98% full) .....	11,700 cbm
Diesel oil tanks (98% full) .....	5,800 cbm
Fresh water tanks (100% full) .....	1,700 cbm
Water ballast tanks (100% full) .....	148,000 cbm
Methanol (98% full) .....	1,600 cbm
Chemicals (98% full) .....	1,600 cbm

## Mooring System

Type (base design) .....	Spread-moored (optional turret)
Water depth .....	2,000 m
Number of mooring lines, up to .....	24

## Accommodation & Safety

Accommodation, up to .....	200 POB
Totally enclosed davit launched lifeboats (4x100 POB), MOB/Fast rescue (2x50 POB), inflatable life rafts (12x35 POB) .....	

## Design service life: minimum 25 years without dry-docking

## Helideck

Helicopter type .....	Sikorsky S92A, S-61N or Eurocopter EC-225
Diameter .....	21.00 m
Optional parking area for a second helicopter.	

## Deck Cranes

Offshore cranes .....	2 x 7.5t@60m / 25t@40m
Deck cranes .....	2 x 10t@20m (offloading aft & fore)

## Cargo System

Cargo tanks .....	21 units
Cargo / Offspec tank .....	1 unit
Cargo submerged pump .....	1 unit per cargo tanks
Portable submerged pump .....	2 units
Fiscal metering skids .....	1 unit
Offloading systems .....	2 x stern & bow hose reels
Offloading capacity .....	1,000,000 bbl/day

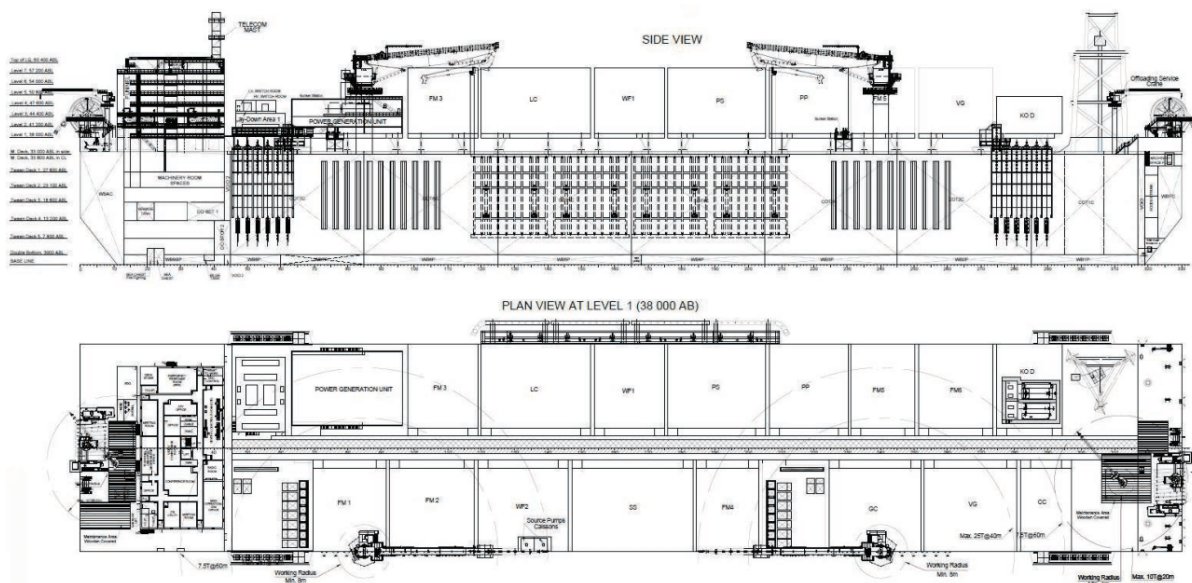
## Power Generation

Main Power Generation .....	Gas Turbine Generators, 3 x 50% dual fuel, 3 x 24,500 kW, 13,800 VAC, 60 Hz, 3-phase
Essential Power Generation (ESDG) .....	Diesel Generator 3 x 50 % dual fuel, 3 x 3,360 kW, 13,800 VAC, 60 Hz, 3-phase
Emergency Power Generation (EDG) .....	Diesel Generator 1 x 100% 1,500 kW, 480 VAC, 60 Hz, 3-phase

## Class – ABS

✕A1 Floating Production, Storage and Offloading (Ship-Type), ✕AMS, ✕AMCCU, HELIDK(SRF), CRC (OC-PL+), HL(25), EFP -A, UWILD

*Other leading Class designations are optional.*





# ICE GROUP CAPABILITIES AND RESOURCES

ICE is an independent full service marine design company with substantial capacity, serving clients world-wide. Our experience includes 40+ FSO / FPSO projects (new construction, conversions and various studies), jack-up drilling platforms, drill ships, semi-submersible drilling rigs, self-elevating vessels for wind turbine installation, well intervention vessels, converter platforms, etc. We are familiar with the rules of the major IACS Classification Societies and with Brazilian, UK and Norwegian (NORSOK and PSA) regulations. Most of our work is done for repeat clients.



ICE Main Design Office



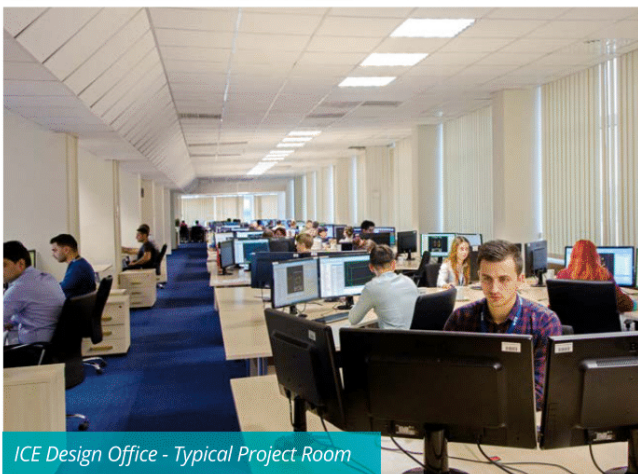
Drill Ship Design for Clients in the Netherlands, Brazil and Japan



Wind Turbine Installation Vessel



Solar-powered Zero-emission Demonstration Vessel



ICE Design Office - Typical Project Room



FPSO Conversion (Dubai)



FSO Conversion



## ENGINEERING CERTAINTY

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With a 55-year track record and an annual output having exceeded 700,000 professional engineering man-hours, the International Contract Engineering (ICE) Group is Europe's largest independent ship design consultancy. We provide high-calibre multi-discipline design services to yards and owners in the commercial shipping, defence and offshore energy industries, ranging from conceptual studies and Class drawings to detail design and production information. We cover a full range of naval architecture and marine engineering disciplines such as hydrodynamics, structural, mechanical, piping, electrical, instrumentation, outfit and HVAC. Our experience includes gas carriers, passenger vessels, navy and coast guard ships, chemical tankers, drill ships, FSO/FPSOs and a range of other vessels. We also have available proprietary designs that can be adapted to clients' requirements.

With our head office in the Isle of Man and engineering facilities in Romania and Croatia, we provide high quality design and engineering at very competitive prices.