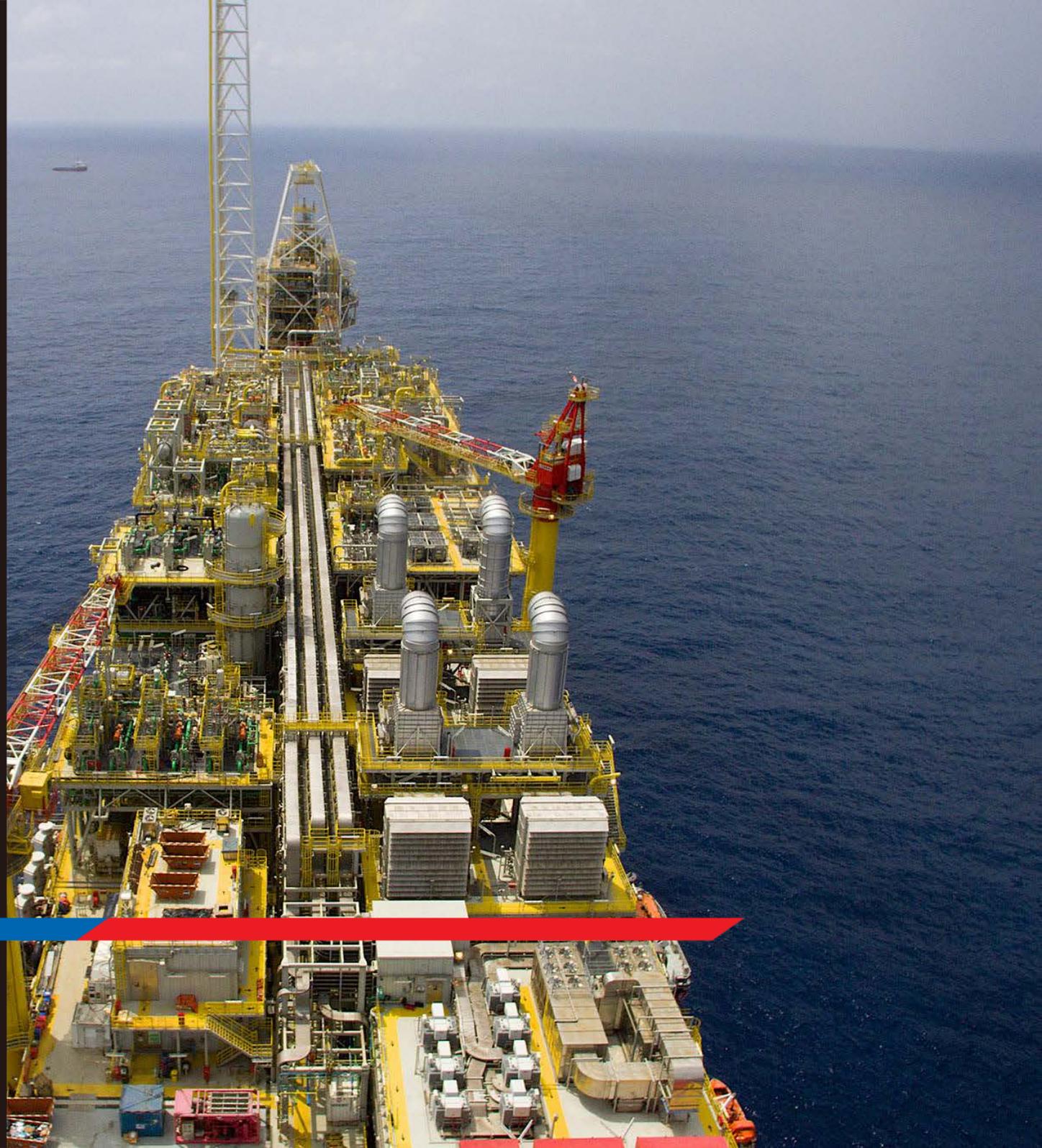




リオ商工会 産業見学会

FPSO Cidade de Campos dos
Goytacazes MV29



AGENDA

10:00-10:20	着替え
10:20-11:15	安全指導、プロジェクト説明
11:15-11:30	移動
11:30-12:30	昼食 (FPSO上Mess Roomにて)
12:30-14:00	FPSO見学
14:00	Brasfels Angra dos Reis 発
17:00	Edifício Argentina着・解散

FPSOとは？

- 生産設備, 船体設備, 係留設備の3つで構成される
- FPSOは中古タンカーを改造して造られる
- 石油を掘るのではなく生産する
- 生産が終了するまで移動しない (約20年)
- 大きい・深いところに浮かんでいる



生産設備, 船体設備, 係留設備の3つで構成される



FPSOは中古タンカーを改造して造られる

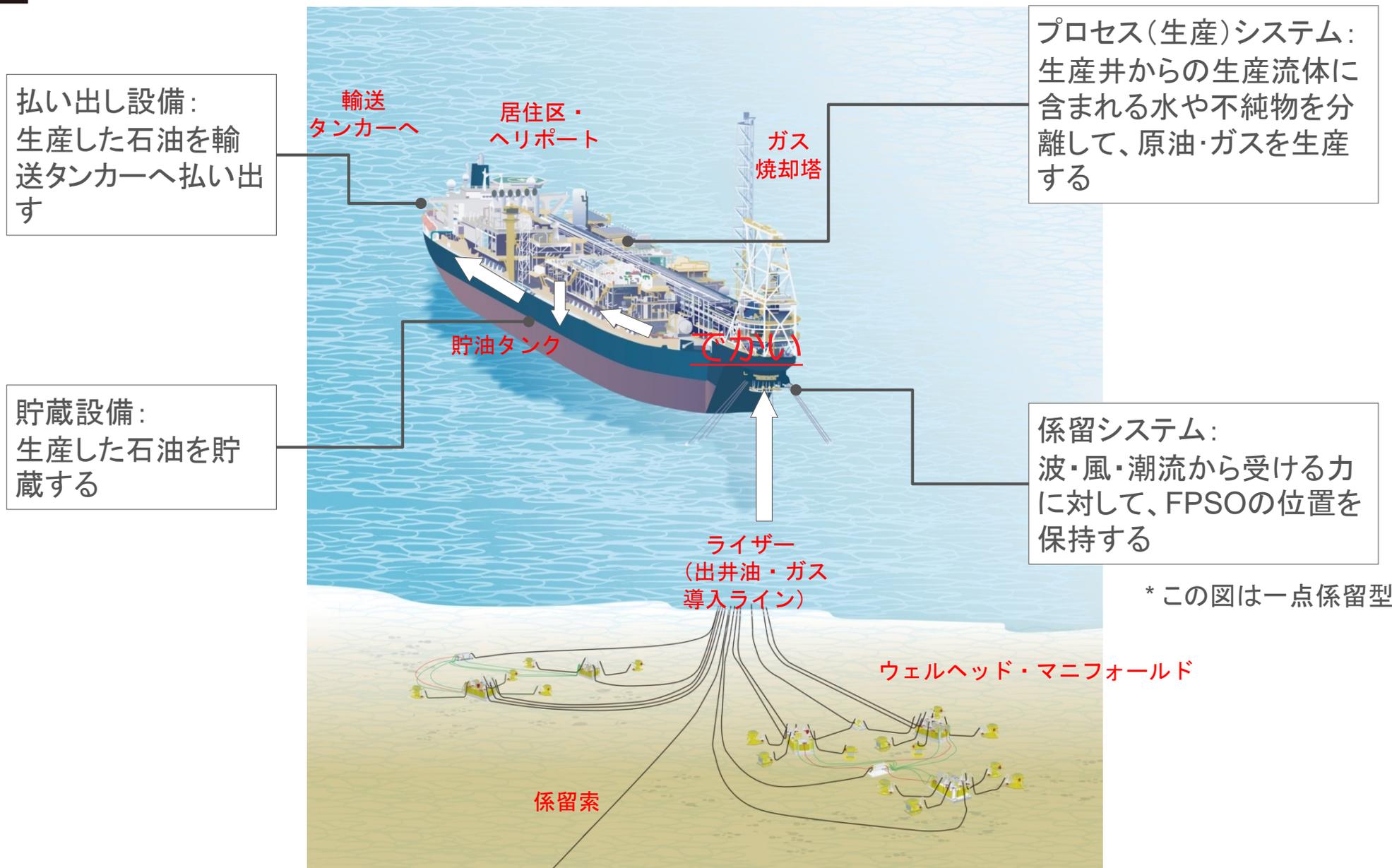


大量のCargo oilを
いかに早く
燃費良く
運べるか

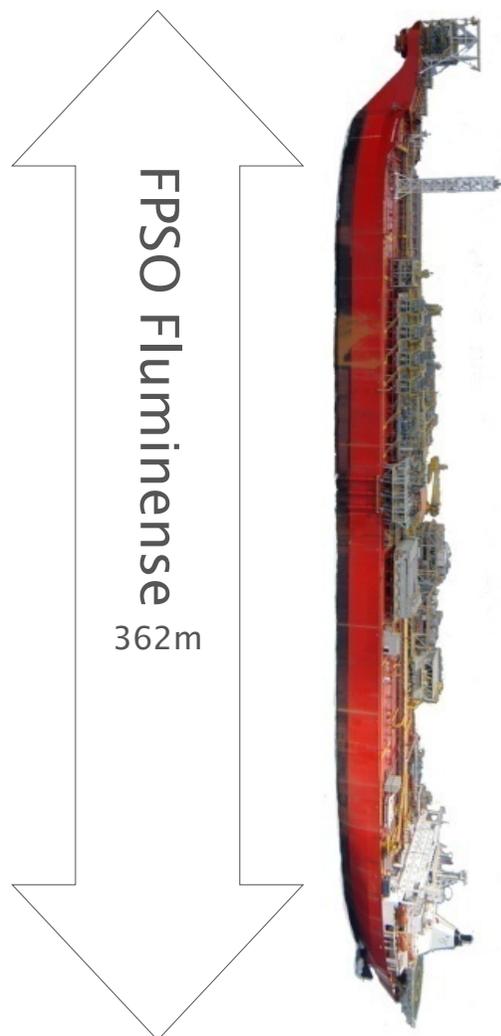


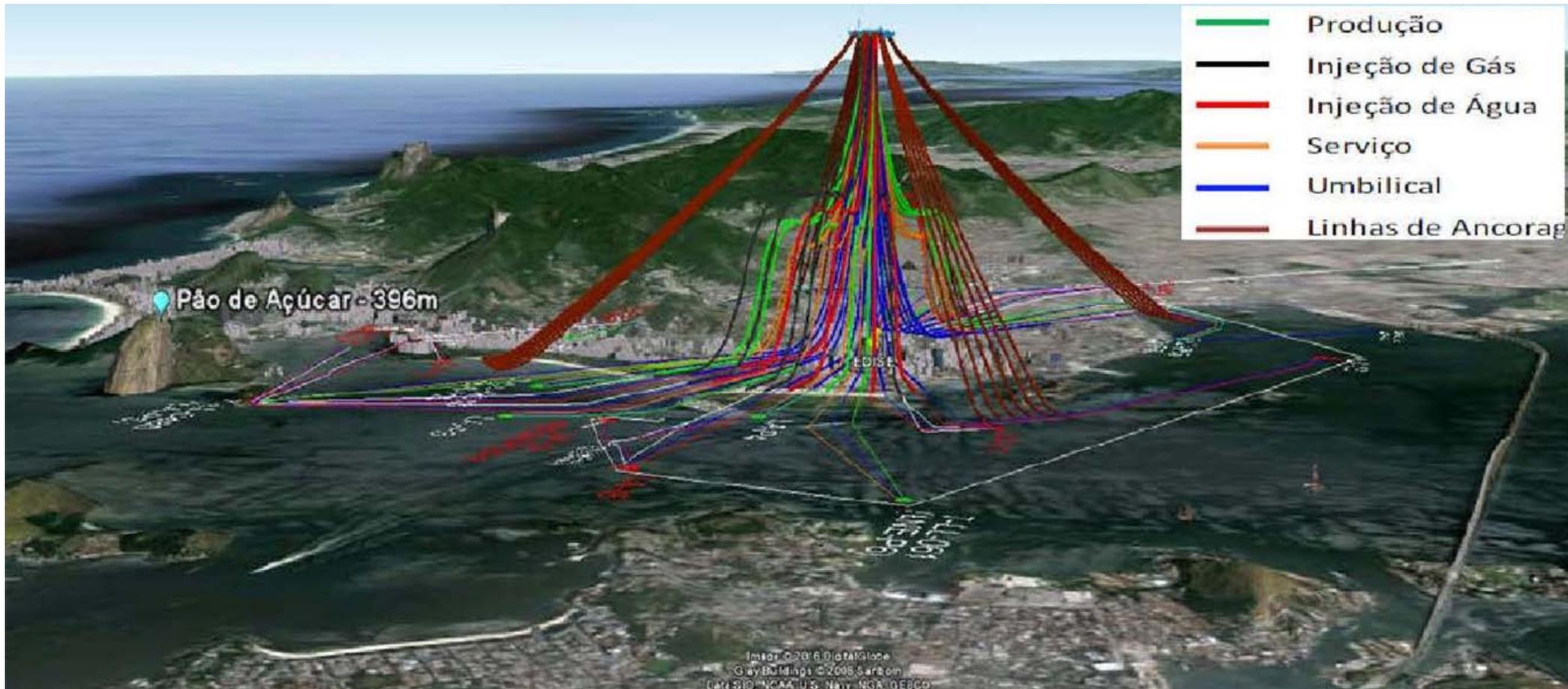
海底から出てくる油を
いかに効率よく
綺麗な石油・ガス・水に
分離し定期的に輸送タン
カーに払い出せるか

石油を掘るのではなく **生産** する・生産が終了するまで **移動しない**



大きい





Pre-salt Development

Located in a remote area, up to 300 km offshore

Water depths that can exceed 2,000 meters

2000m

Corcovado

709m

3000m

Salt

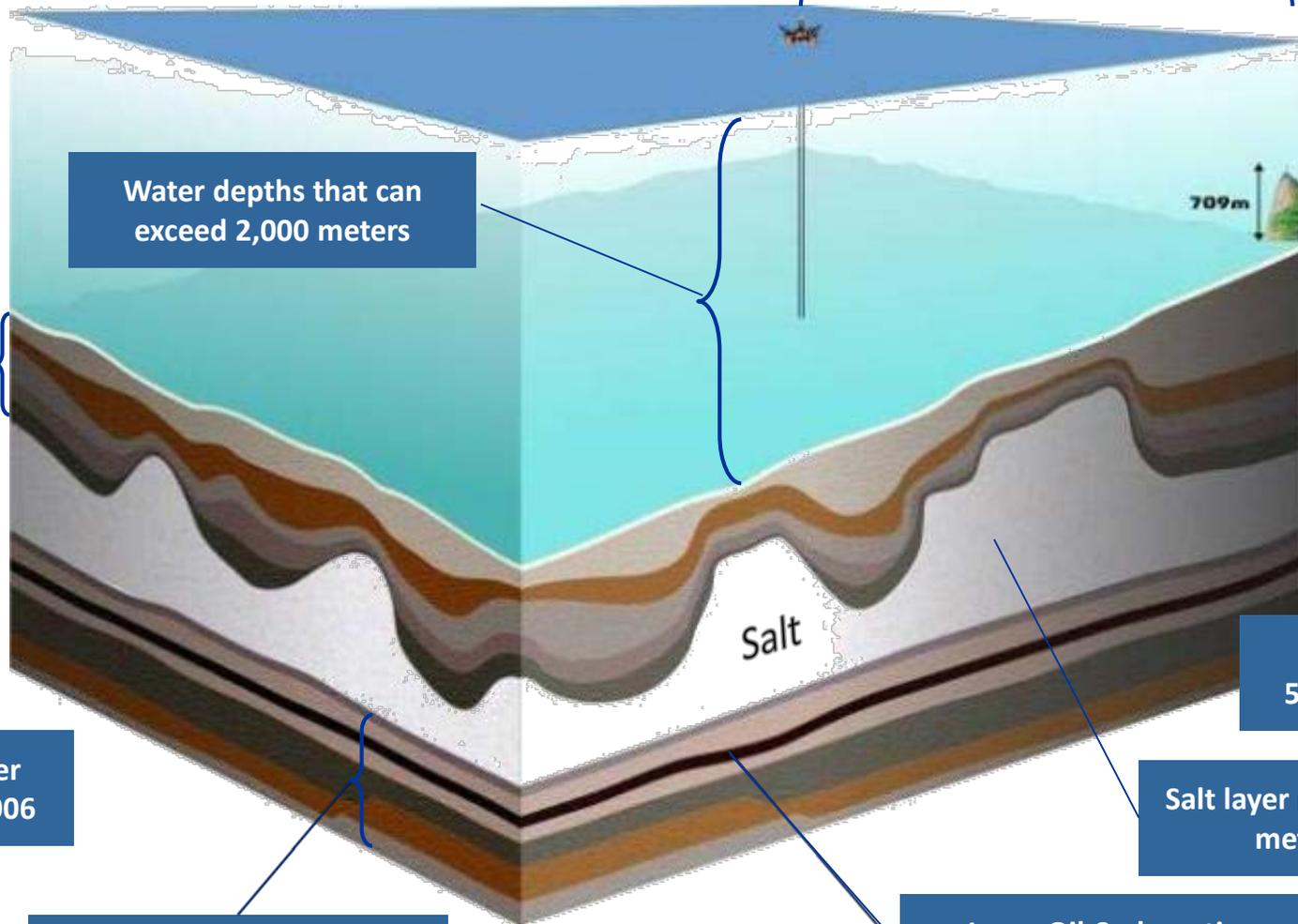
Total depth from 5,000 to 7,000 meters

Post-Salt Layer
Focus up to 2006

Salt layer more than 2,000 meters thick.

Pre-Salt Layer
New Exploratory Frontier

Large Oil Carbonatic
Reservoirs



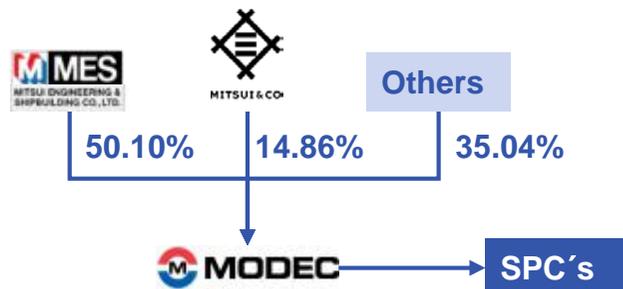
The MODEC Group has a successful track history on both of its business segments



Who we are

- Founded in 1968, MODEC Group is an international company headquartered in Tokyo but with major subsidiary offices in Singapore, Houston, Brazil as well as regional offices in Angola, Australia, China, Cote d'Ivoire, Ghana, New Zealand and Vietnam.
- It specializes in both the design and construction of floating offshore platforms and in the operation of those platforms. Having operated its first FPSO in 1986 it now operates 18 vessels in Australia, Brazil, Ivory Coast, Ghana, New Zealand and Vietnam
- MODEC has ~4,000 employees with citizenship from more than 25 countries

Shareholders



What we do

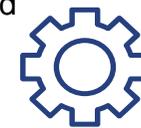
EPCI

- EPCI (Engineering, Procurement, Construction and Installation) refers to **general contract of floating production systems**
- **MODEC has delivered 44 floating production systems so far**



Charter

- Charter is a contract type that concedes possession and usage to an operator for a specific timeframe
- MODEC currently **owns 12 FPSOs, 3 FSOs, 3 FPSOs under construction.**



Operations & Maintenance

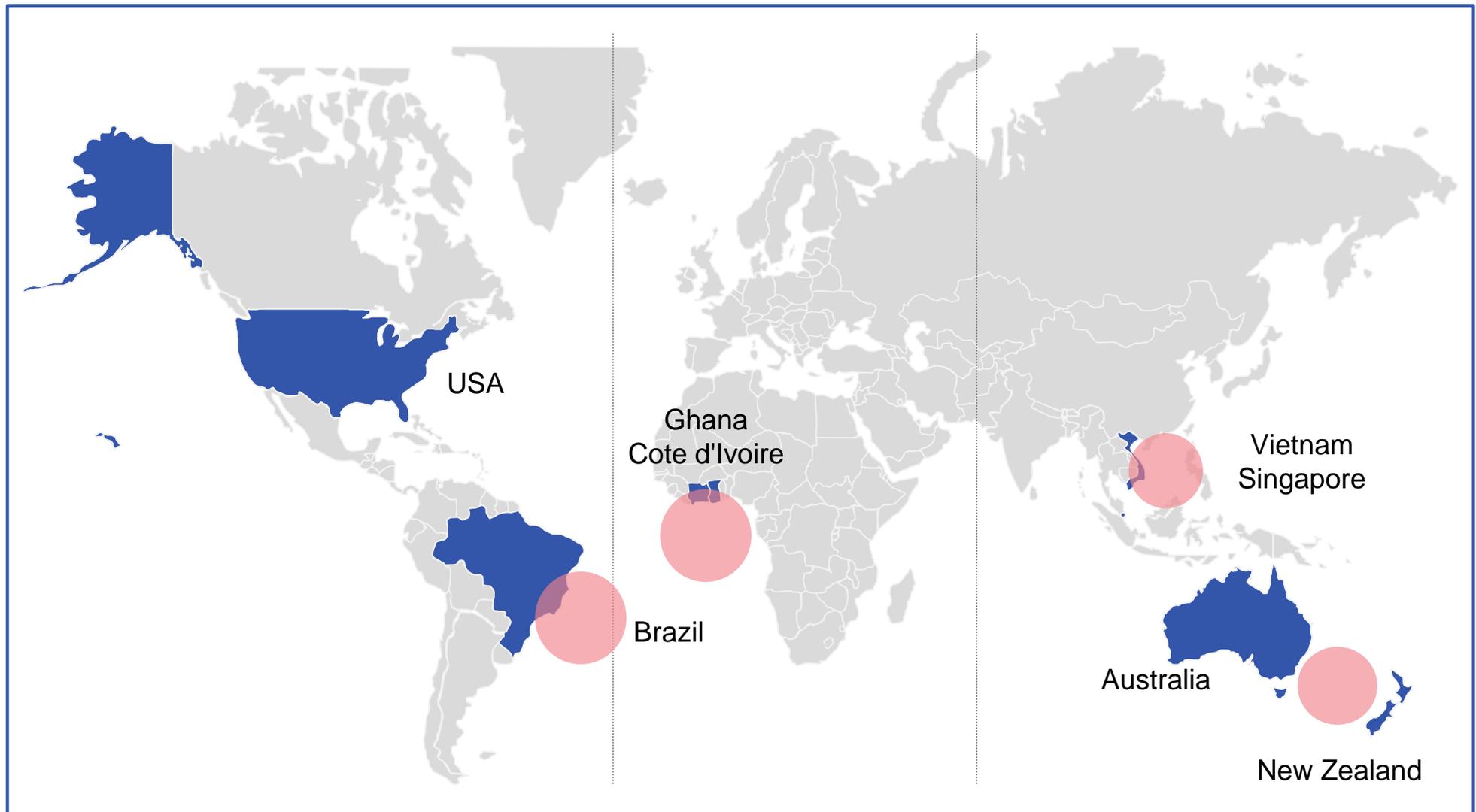
- O&M (Operations and Maintenance) is the business line **accountable for operating different types of platforms**
- Modec has **over 200 years of accumulated Operation & Maintenance experience on nearly 30 floating production units**
- MODEC **currently operates 18 platforms,** being 15 FPSO's and 3 FSO's



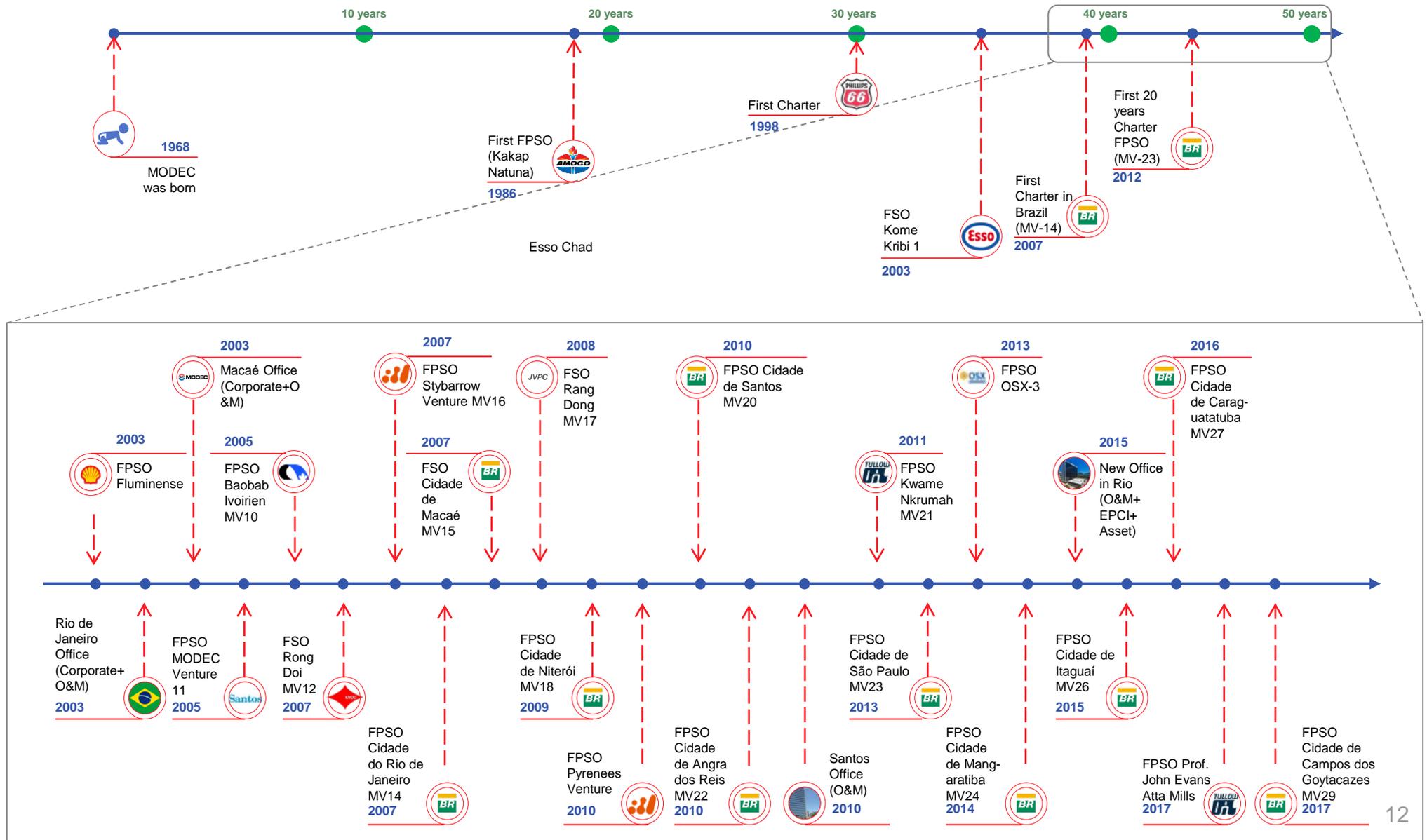
MODEC has 3 regional areas of operation, that are supported by 11 offices in 8 countries



● MODEC FPSO Operations ■ MODEC physical presence

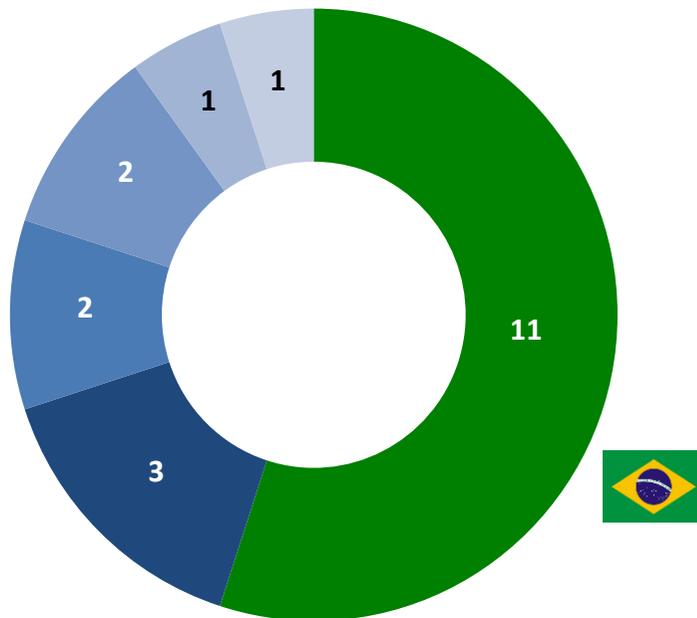


MODEC History – We are 50 years old but there was significant grow and change of business operation in last 10 years



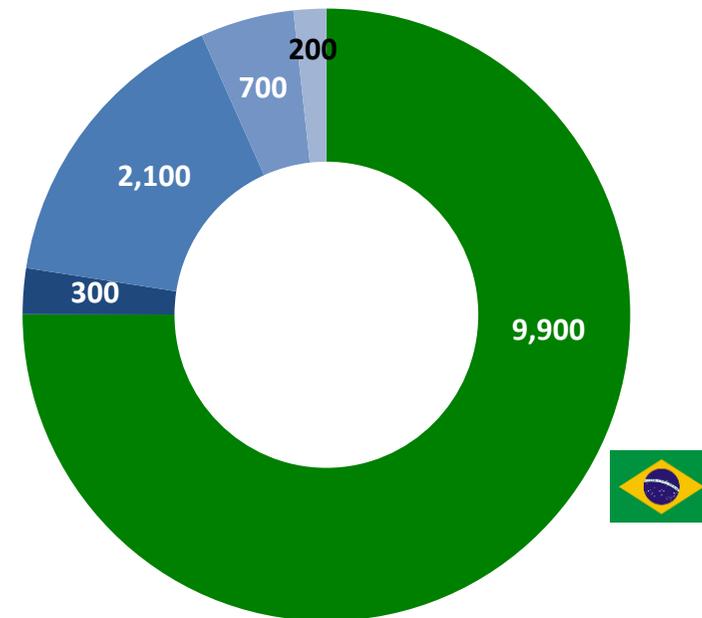
Brazil has become the main market

In Nr. of vessels *Fleets*



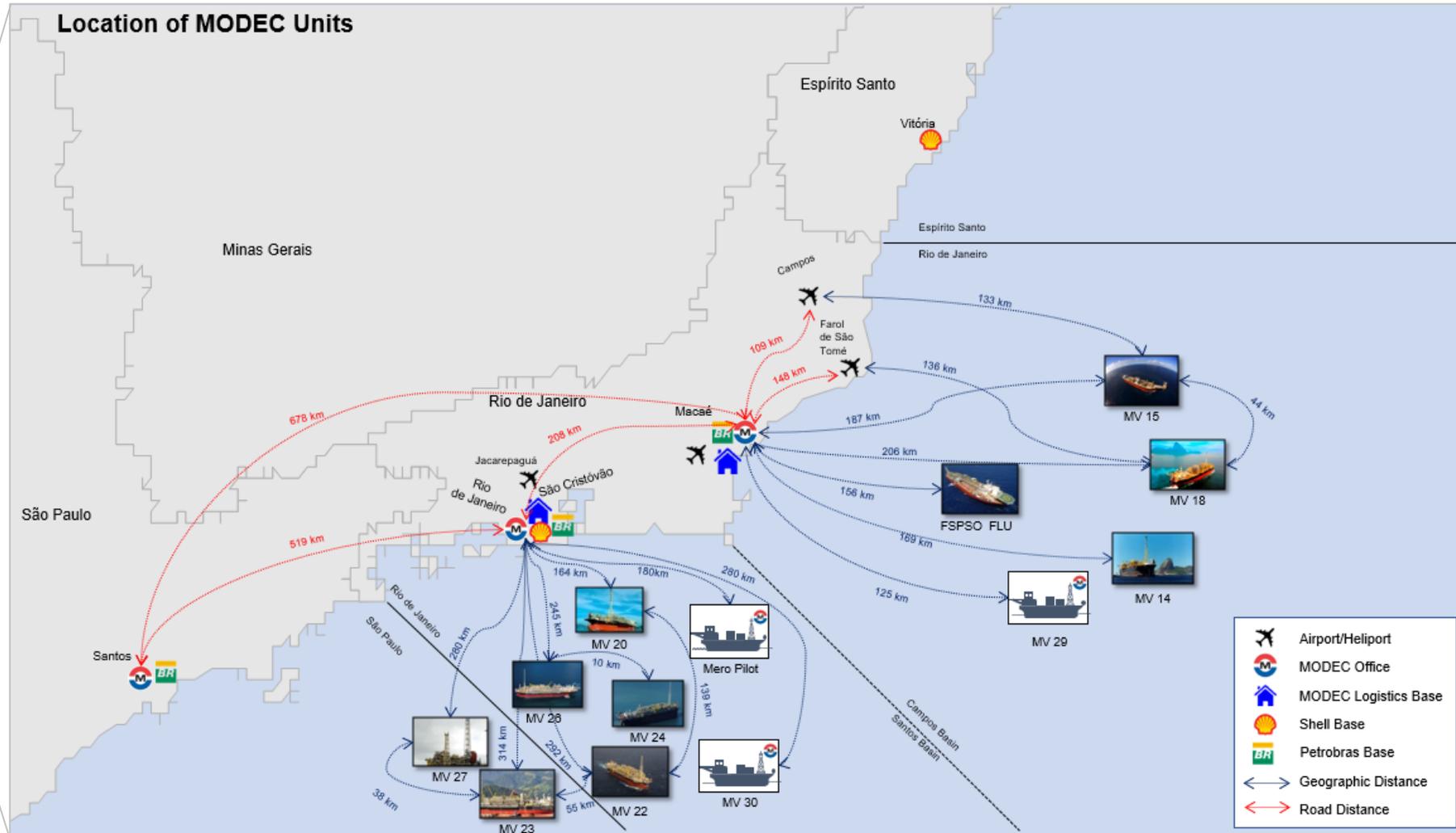
In CAPEX *USD mil*

✘ Except Raroa (New Zealand)

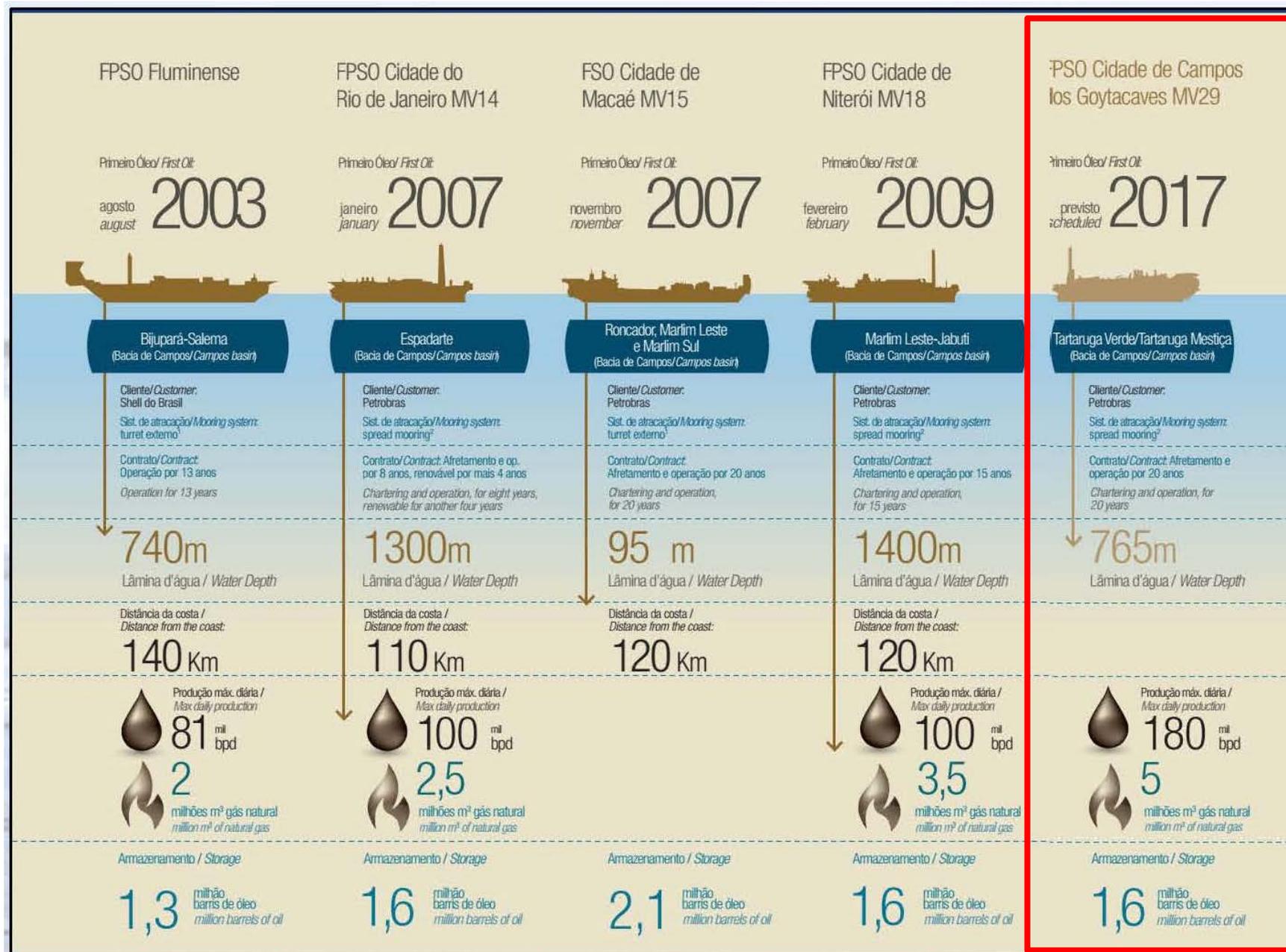


■ Brazil
 ■ Vietnam
 ■ Ghana
 ■ Australia
 ■ Ivory Coast
 ■ New Zealand

4 Offices / 3 logistics warehouses
 5 facilities in Campos Basin & 6 in Santos Basin / Two different states



5 Facilities in Campos Basin



6 Facilities in Santos Basin

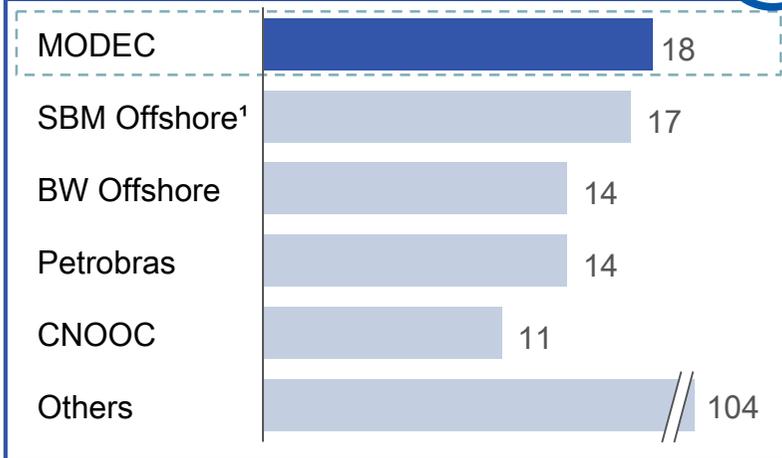


This makes MODEC one of the largest independent FPSO operators both globally and in Brazil



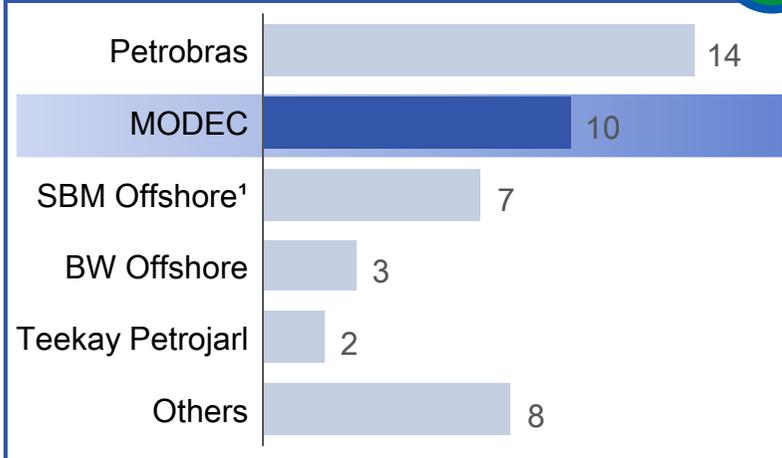
Global FPSO fleet – operators¹

of FPSOs in operation



Brazil FPSO fleet – operators¹

of FPSOs in operation



10 vessels in ops
3 new vessels in pre-ops



500+ kbbbl/day
avg. oil production
in 2017



418 Offloading in 2017



~18% of Brazil's oil
~45% of Pre-salt
production



5 higher local content EPC
projects delivered

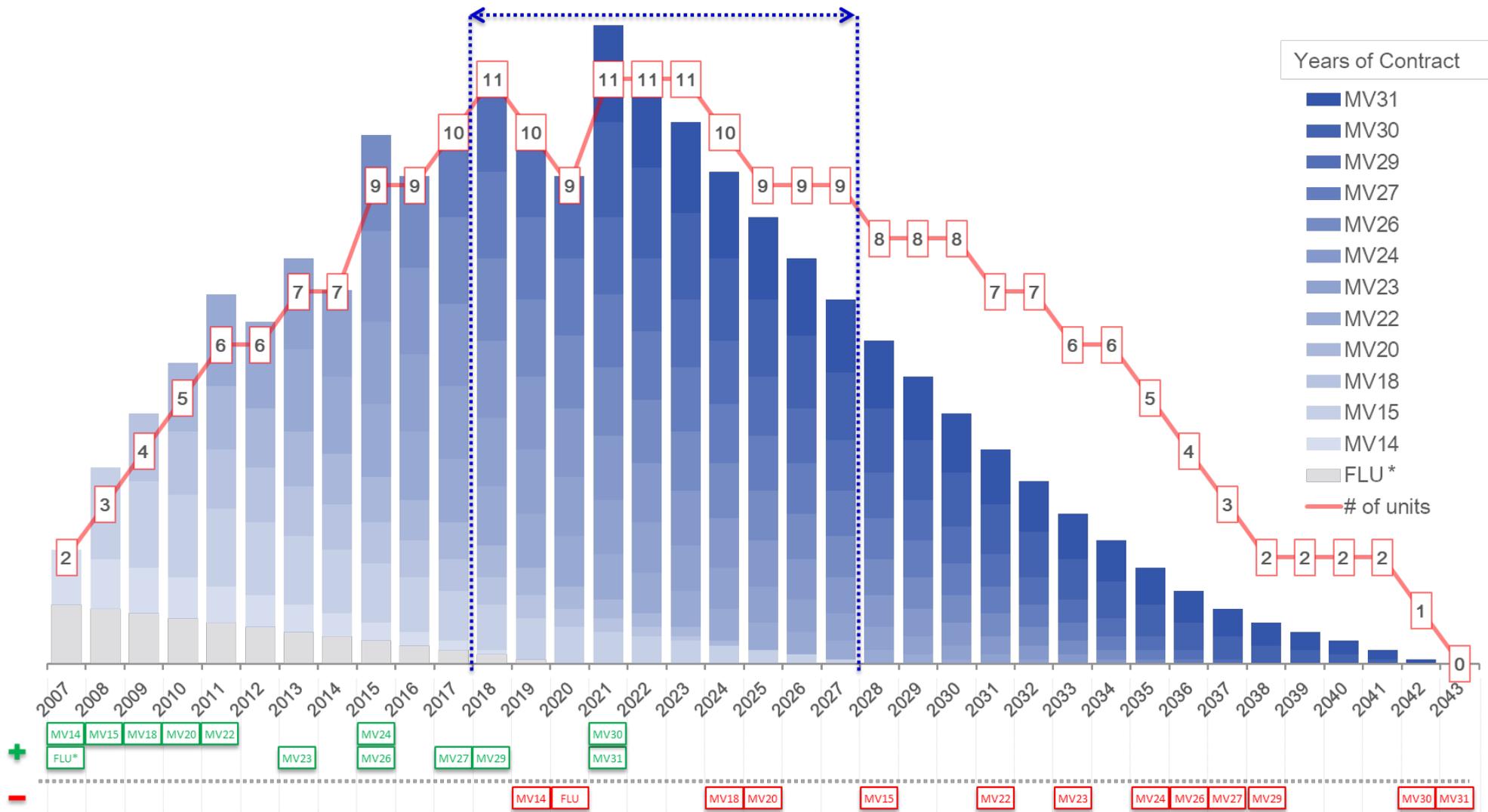


2000+ employees
to run production
service and EPC



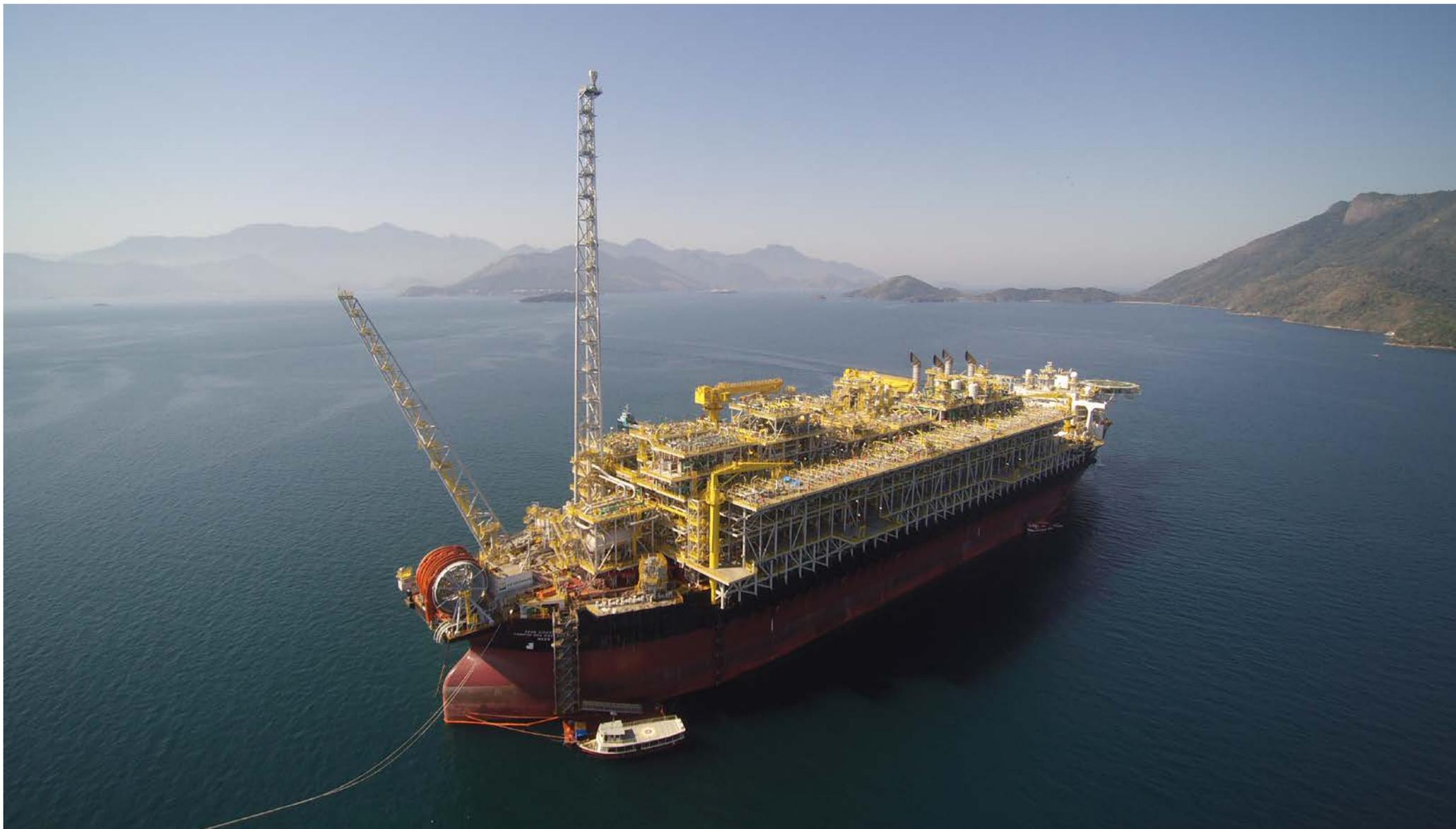
¹ Including 1 MOPU and 1 Semi-submersible unit
SOURCE: Mustang Worldwide FPSO Survey 2017; ANP

We will have constant large scale operation minimum in next 10 years

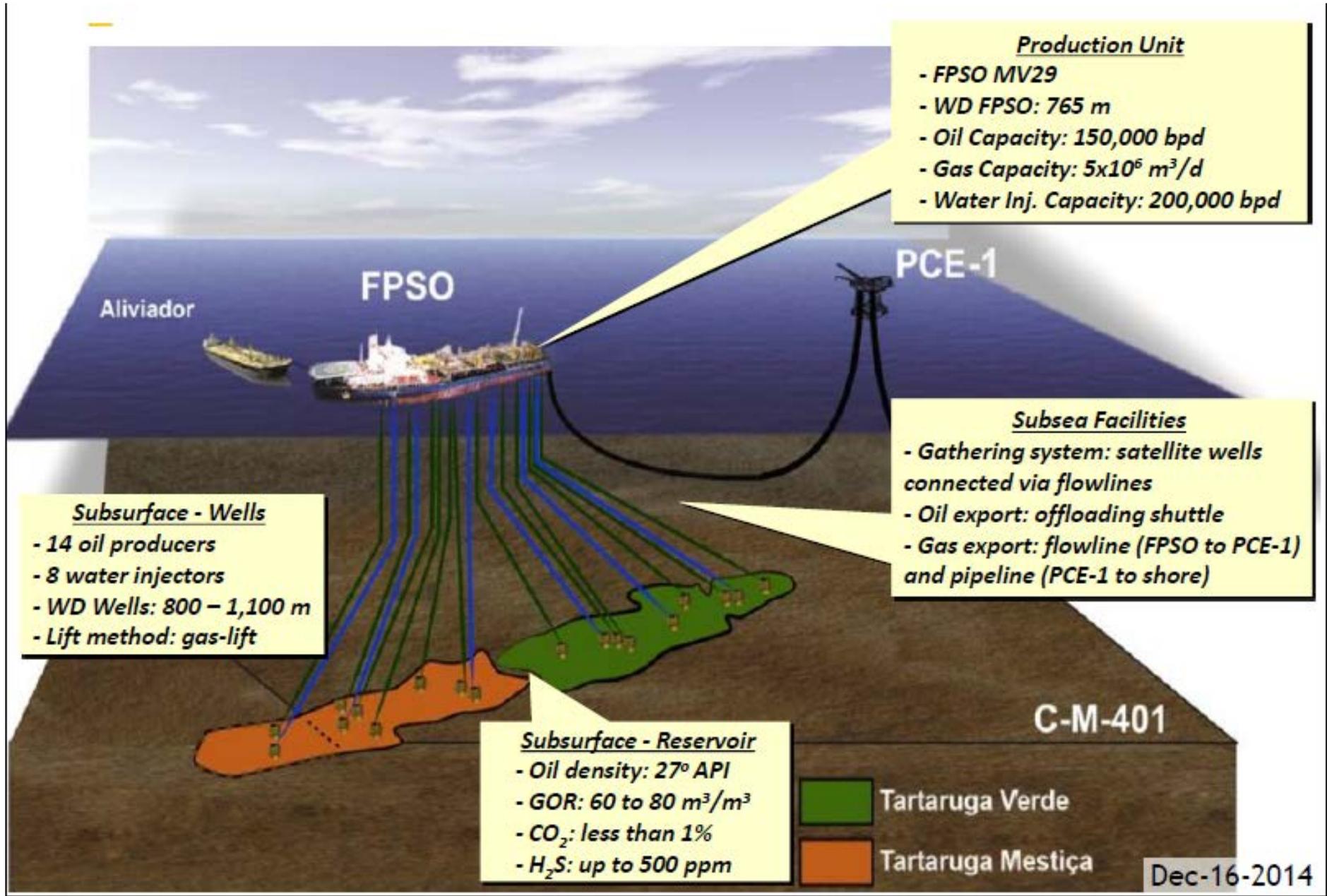


* Started in 2003. Only Operations Contract

FPSO Cidade de Campos dos Goytacazes MV29



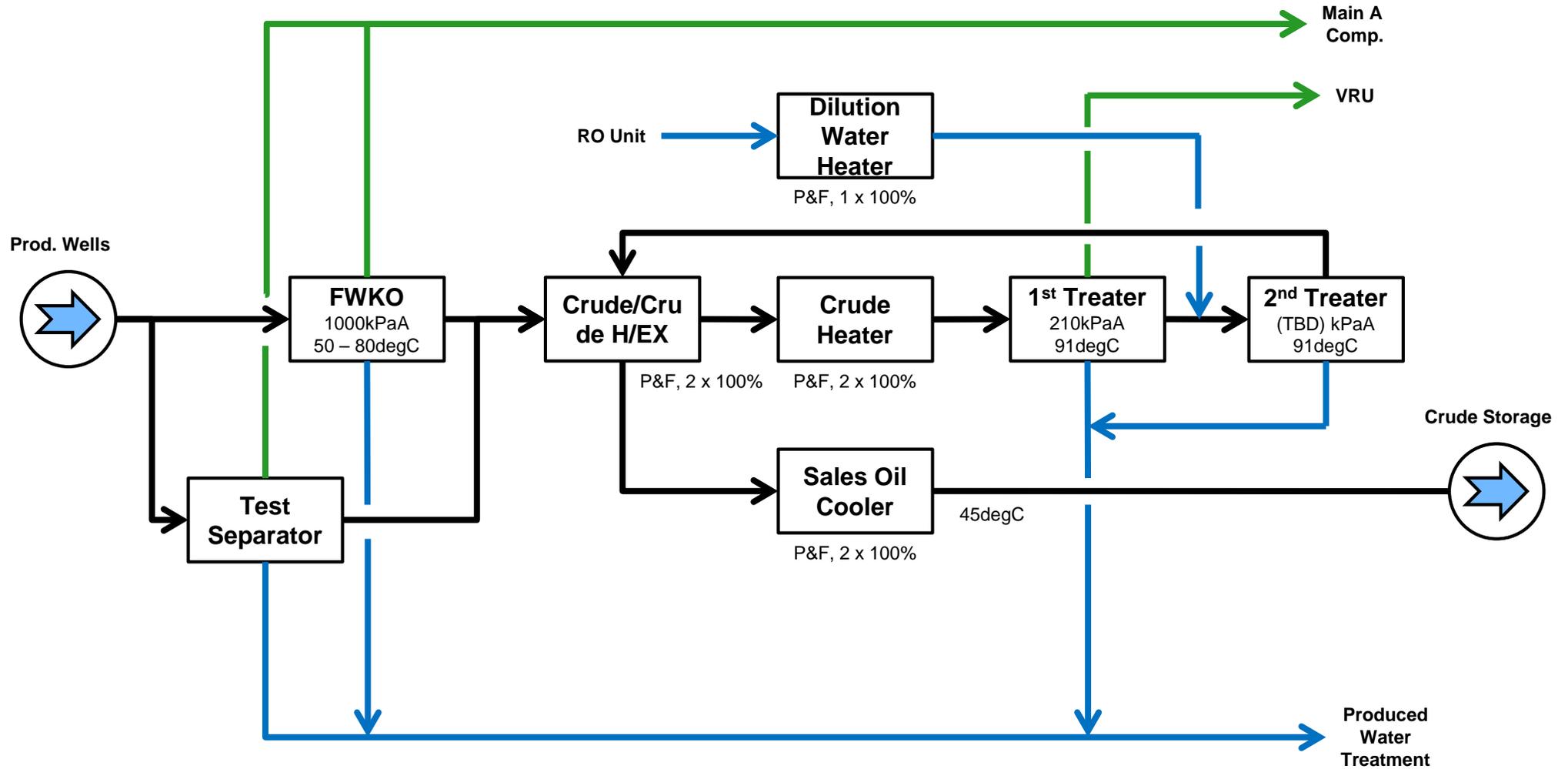
FPSO Cidade de Campos dos Goytacazes MV29



FPSO Cidade de Campos dos Goytacazes MV29

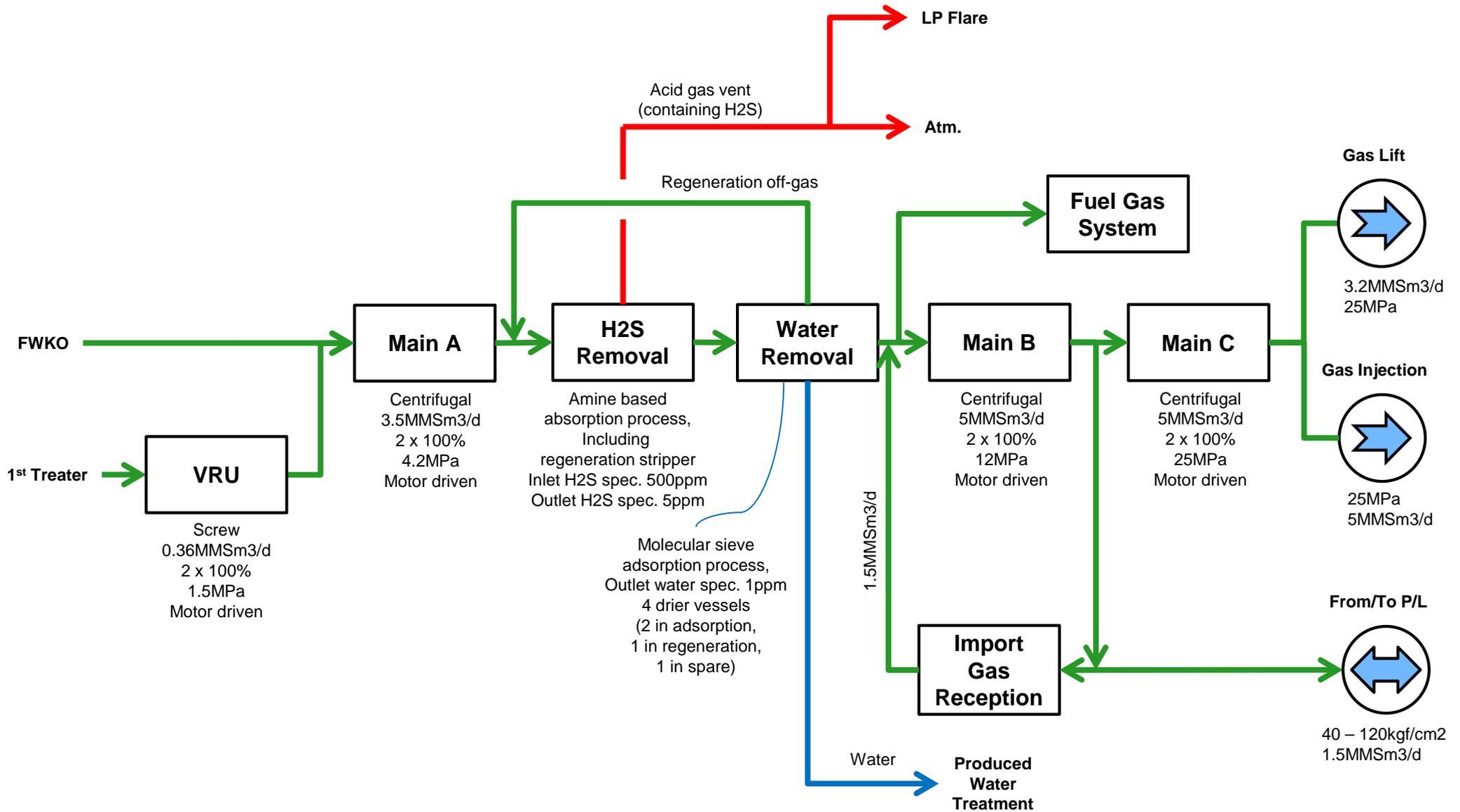
Description	MV23	MV24	MV26	MV27	MV29
Total Liquid	150,000 BPD	180,000 BPD	180,000 BPD	120,000 BPD	180,000 BPD
Crude Oil	120,000 BPD	150,000 BPD	150,000 BPD	100,000 BPD	150,000 BPD
Produced Water	120,000 BPD	150,000 BPD	150,000 BPD	100,000 BPD	162,000 BPD
Total Gas	177 MMscfd	283 MMscfd	247 MMscfd	176 MMscfd	177 MMscfd
Maximum Gas Lift	71 MMscfd	141 MMscfd	71 MMscfd	28 MMscfd	113 MMscfd
Maximum Gas Export	124 MMscfd	254 MMscfd	254 MMscfd	N/A	53 MMscfd
Total Water Injection	150,000 BPD	240,000 BPD	264,000 BPD	120,000 BPD	200,000 BPD
One well gas lift	8.73 MMscfd	12 MMscfd	8.73 MMscfd	7 MMscfd	14 MMscfd
One well production	30,000 BPD	30,000 BPD	30,000 BPD	30,000 BPD	25,000 BPD

FPSO MV29 – Oil Train



- All pumps in oil separation section have 2 x 100% configuration

FPSO MV29 – Gas Train





End of the Document