



Sankofa: the first oil from Ghana's OCTP development
July 2017



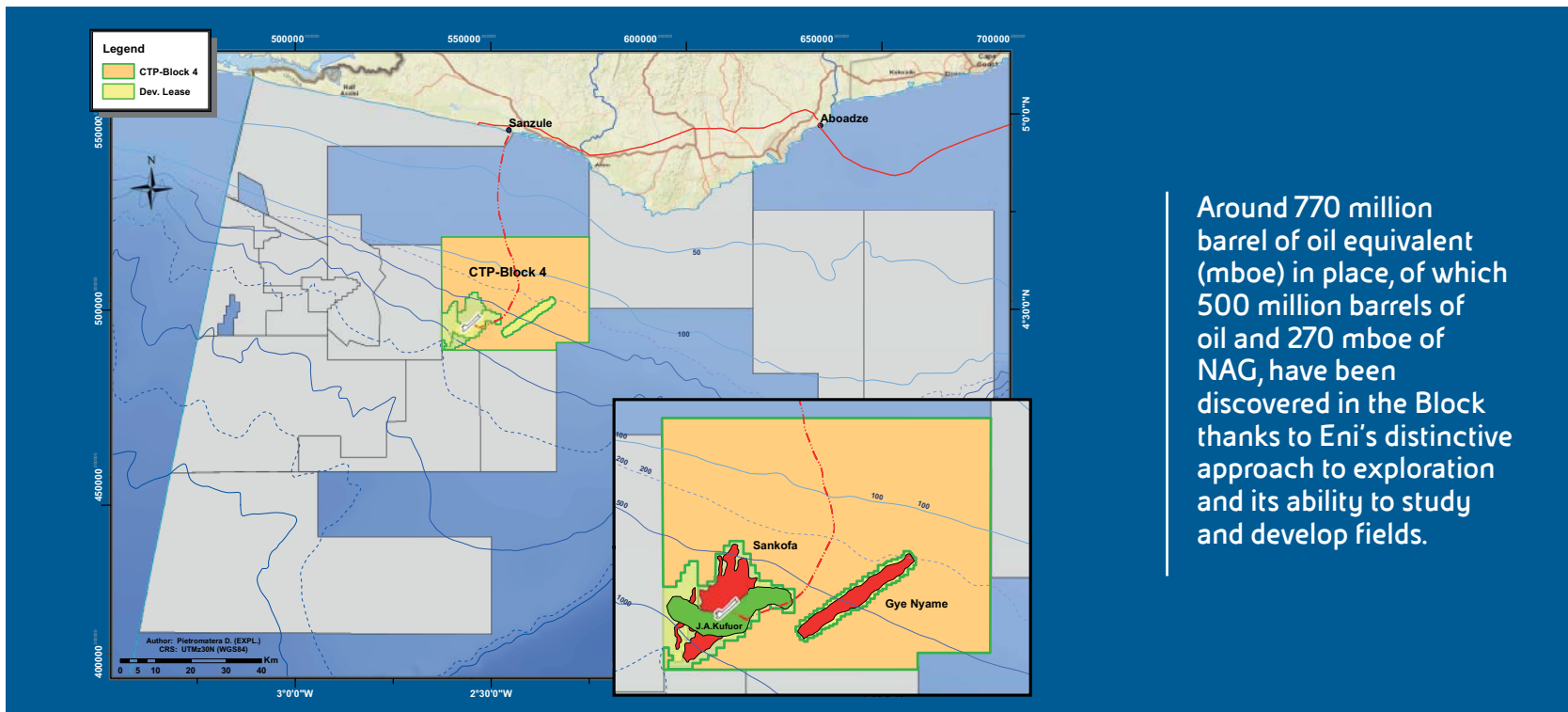
OCTP Development Project

The OCTP (Offshore Cape Three Points) license is located offshore 60 km from the Western Coast of the Republic of Ghana. The integrated Oil and Non Associated Gas (NAG) project consists of the development of the Cenomanian (Oil), Sankofa Main & East (NAG) and Gye Nyame (NAG) reservoirs.

The production will take place by means of 19 wells and a Subsea Production System (SPS) tied back via Subsea Umbilicals, Risers,

Flowlines systems to the "John Agyekum Kufuor" Floating, Production, Storage and Offloading (FPSO) unit.

The oil will be processed, stored and offloaded directly offshore using oil tankers. The gas from the NAG project will be transported through a subsea pipeline to an Onshore Receiving Facility (ORF) and subsequently delivered to the Ghana National Gas Company (GNGC).



Around 770 million barrel of oil equivalent (mboe) in place, of which 500 million barrels of oil and 270 mboe of NAG, have been discovered in the Block thanks to Eni's distinctive approach to exploration and its ability to study and develop fields.

Block OCTP is one of Eni's most important assets, an example of success

Key Facts

19 subsea wells	deep water wells with a measured depth range 2,730-4,566 msl
64.8 km umbilicals	24 umbilicals + 19 X-mas Trees & 13 FLETs
110 km flexible pipes	19 flexible risers, 20 flexible flowlines
water depth range 600-1000 metres	12 mooring lines as FPSO anchor
more than 4,000 workers per day at peak	FPSO storage capacity 1.4 MMBLS

Joint Venture

Eni is the Block's Operator with a 44.44% share. Other partners are Ghana National Petroleum Corporation with 20% and Vitol with 35.56%.



Main Contractors - Oil Development

Main Contractors working on the Ghana OCTP project are Yinson (FPSO), GE (SPS), Oceaneering (Umbilicals), NOV (Risers & Flowlines), SRI EMAS (SURF Transportation & Installation), Maersk (Drilling & Completion).

Floating Production Storage Offloading (FPSO)



Subsea Production System (SPS)



Risers & Flowlines



Transportation & Installation



Umbilicals



Drilling & Completion (D&C)



Our Passion: Health, Safety and Environment

Eni plans, realises, manages and disposes of its tangible assets, guaranteeing the safeguard of health and safety, minimising environmental impacts and optimising the use of energetic and natural resources. Eni operates in different and challenging conditions with people from more than seventy countries active on our projects worldwide. One aspect connects all of us in Eni: we have a common passion for looking after our people's safety and health as well as environment. Our targets are:

- zero harm and this is the obvious choice because we set the highest industry standards;
- develop safety leaders who are passionate and courageous in creating a culture where safety is a driving value. Every day. Everywhere;
- operate by applying the highest Eni and WBG HSE standards and working conditions enabling everyone to go home safe and sound.

Eni's seven safety leadership expectations that lay out the best practices for safety leaders are:

- creating the safety vision;
- maintaining safety focus;
- motivating and inspiring others;
- being credible and trustworthy;
- being team oriented;
- communicating effectively;
- giving feedback and recognition.

These expectations are strictly connected with the motivation to spread the culture of safety in Eni.

Regarding the environmental actions, Eni Ghana is targeting, in line with Eni and WBG standards, a zero flaring approach.



| Safety is our everyday activity



| Safety Leader - Leading by example

Community Relations and Development

By promoting a free, prior and informed consultation, Eni informs and engages local communities for the purpose of considering their requests concerning new business projects, impact assessments and community investments. Creating value for stakeholders, and using resources so that the needs of future generations will not be compromised, respecting people, the environment and the society as a whole lies at the heart of our operations in being sustainable. Local content is the added value that the company can bring to the socio-economic system of the countries in which it operates, it is also the way in which, in the management of its operations, the company can be a driver of development in the different contexts in which it operates.

By Local Content Eni means:

- Participation of local people and businesses in Eni's industrial activities
- Transfer of skills and knowledge
- Reinforcement of communities' skills assets

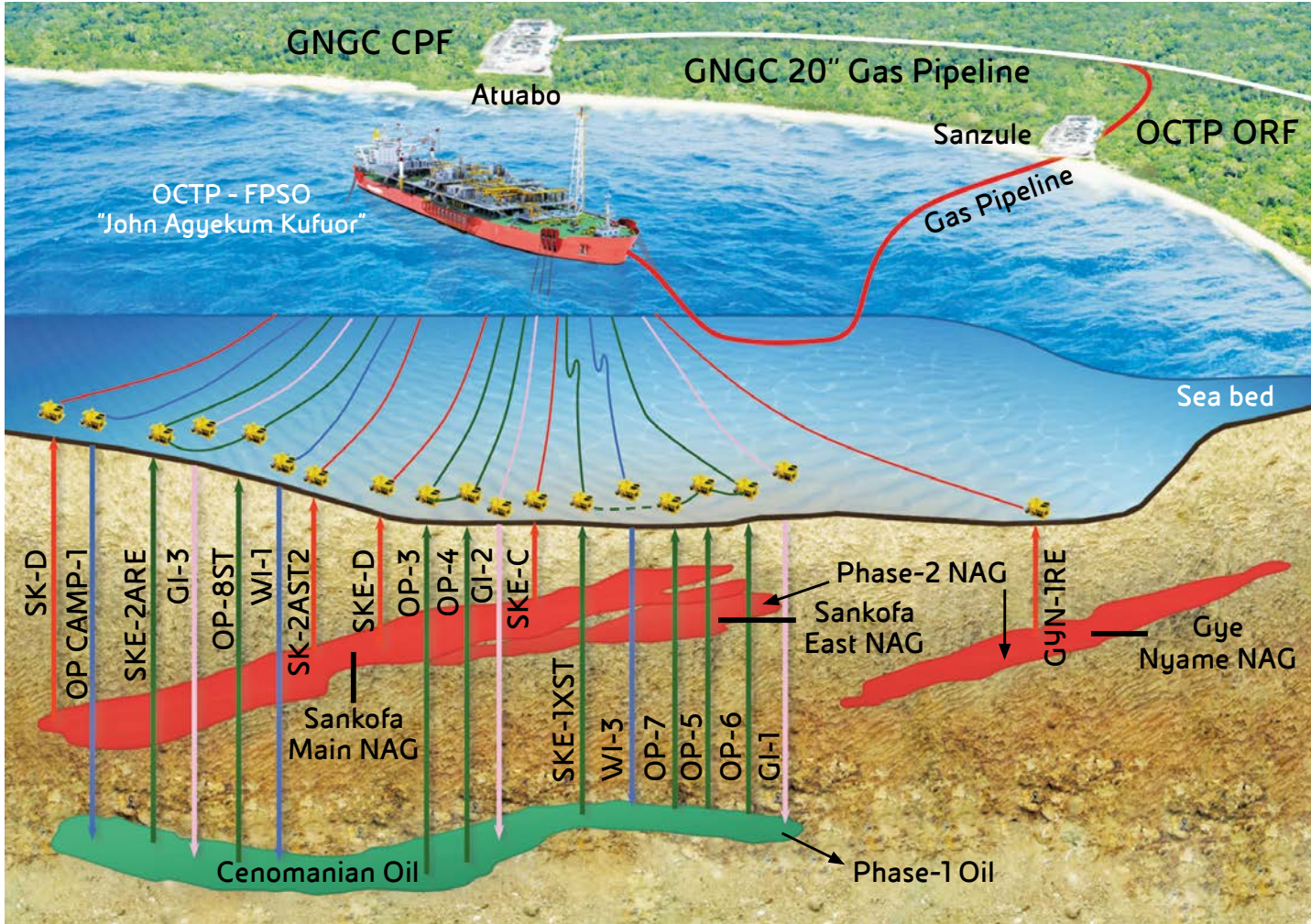
Eni's approach, which can also be called a **"dual flag"** approach (literally "flying the flags of both the host country and Eni"), is that of a great international company that aims to cooperate with host countries and seize new opportunities for economic and social development in an increasingly complex global environment.

To this end, in 2016, Eni launched the inter-functional 'Local Content Assessment Model' Project with the aim of developing a simple and easily replicable model for assessing the direct, indirect and secondary effects of its activities in operating contexts. This model was applied for the first time to a pilot case in Ghana, supporting the definition of a local content plan in line with IFC and World Bank requests. Eni pursues a proactive dialogue with all relevant stakeholders and promotes the conditions that enable the establishment of a long-term cooperation with them throughout all phases of our operations.



Community-based Health Planning and Service (CHPS) compound and ambulances donated by Eni Foundation

Ghana OCTP: Development Plan



Reservoir

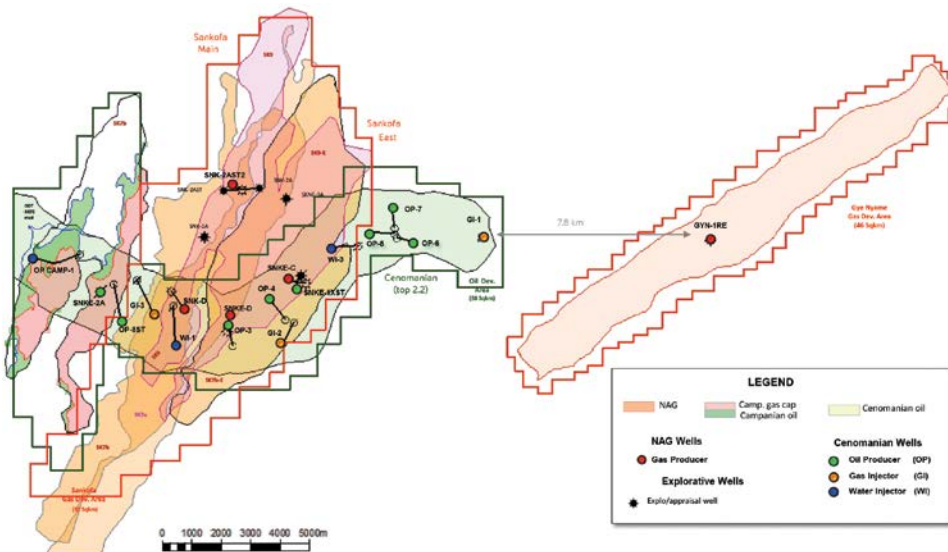
Three reservoirs, one oil bearing and two gas bearing, have been discovered in the eastern part of the OCTP Block license, 60 km from the Coast, overlaying about 88 km², in a water depth range of 600-1000 m.

Cenomanian Oil reservoir was discovered by the drilling of Sankofa East -1X well in 2012 during the appraisal campaign of the Sankofa East NAG reservoir and, after the drilling of a development well in the western part of the license, an oil column of 535 m TVD was confirmed.

The Cenomanian development consists of 14 underwater wells: 8 oil producers, 3 water injectors and 3 gas injectors.

The Non Associated Gas Project consists of the development of two structures: Sankofa Main & East reservoir discovered by the well Sankofa-1A in 2009. Gye Nyame reservoir, located westward, discovered by Gye Nyame-1 well in 2011. The full NAG project will take place through 5 gas producers, 4 in Sankofa Main & East and 1 in Gye Nyame.

The entire project will operate with zero flaring and zero discharge policy.

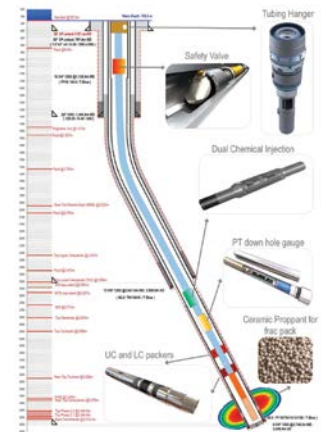


| Reservoir map and wells location

Well Operations

Drilling campaign started on July 11, 2015 and to date 18 wells of OCTP field have been successfully drilled. The completion campaign is still being executed using a 6th generation dynamic positioning dual activity drilling ship, and planned to be completed by the end of 2018.

Eni Continuous Circulation Device[®], Eni patented technology for continuous circulation, has been adopted during the pre-drilling campaign to reduce drilling time and to drill all the wells at the highest safety standards. The drilling ship has been equipped with double BOP and state-of-the-art pressure test management in order to reduce rig time and to increase safety on BOP running and testing. Well architecture has been standardized for all OCTP wells. A continuous improvement approach has been implemented throughout the entire campaign, striving for excellence in all the operations. Pre-drilling campaign has been completed 208 days ahead of POD (Plan of Development) schedule. Sand control has been performed through cased hole Frac-Pack for the well producers, in order to maximize production. Upper completion installation time has been optimized to match the challenging start-up date defining detailed engineering and real time monitoring of operation performance.



| Well drilling design

Utilization of dopeless tubing has been introduced for the completion activities in order to reduce operations time.

Wells are cleaned up prior to the hand-over to the FPSO, in order to guarantee smoother start-up and higher well productivity since the beginning.



Umbilical lay-up

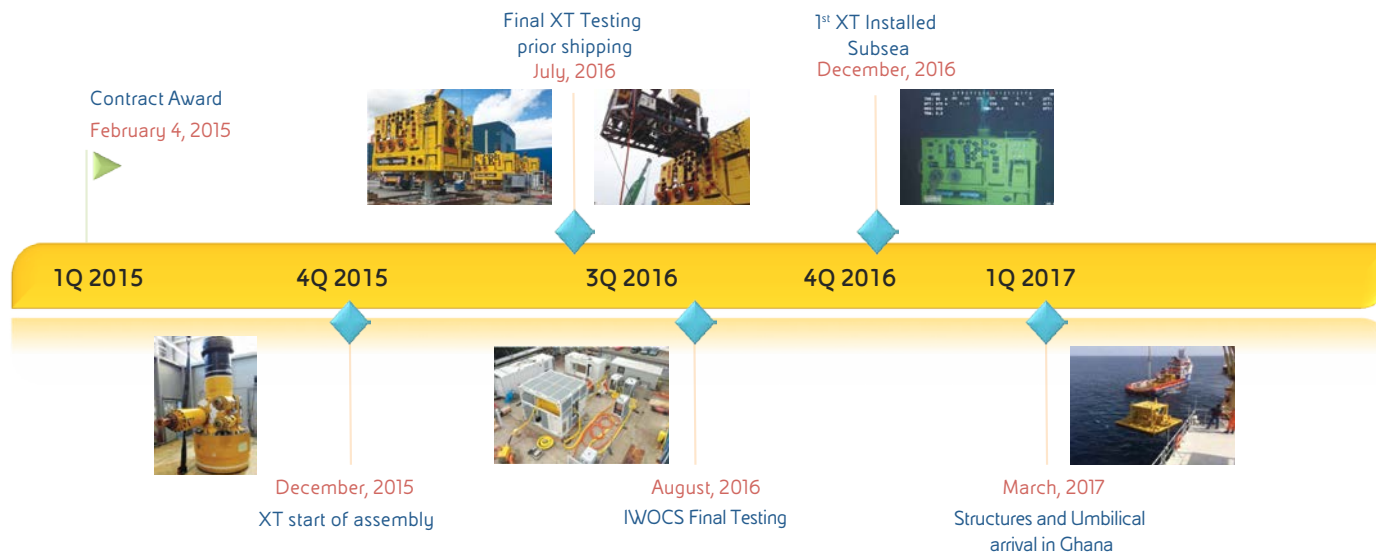
Subsea Production and Umbilical System

The oil production network consists of eight oil producers arranged in three production loops. Oil produced from the reservoir is conveyed through the actuated FLET (Flow Line End Termination) and tied back to the FPSO via insulated piggable 6, 8 or 10-inch nominal diameter flowline and riser. Reservoir pressure is maintained by both gas and water injection. Each water and gas injection well has a dedicated riser and flowline to enable injection from topside.

The Non Associated Gas network consists of 5 gas producers connected directly to the FPSO via individual risers and flowlines. Control of the Subsea Production System is ensured via a network of four umbilical systems.

Umbilicals are daisy-chained through Umbilical Termination Assemblies (UTA's). Hydraulics and chemicals are injected via hydraulic and steel flying leads to each X-mas Tree. Electrical flying leads are also connected to the X-mas Trees and aFLETs from the UTA.

Subsea Production System Timeline



Development scheme comprises GLSS, SSIV's, 13 FLETs, 19 X-mas Trees and IWOCS, tie-in system for spools, jumpers and 24 umbilicals, ROV installation tooling, and FPSO topside control system.

Risers, Flowlines, Transportation & Installation

All flexible risers and flowlines (19 risers and 20 flowlines) for the OCTP Project are being produced in National Oilwell Varco (NOV) facilities in Denmark. First Lot (4 risers and 4 flowlines, 20 km in total) were delivered to the Installation Contractor (SRI EMAS) on January 11, 2017 as per plan. The installation of the subsea structures, the umbilicals and flexible lines started in March 2017.

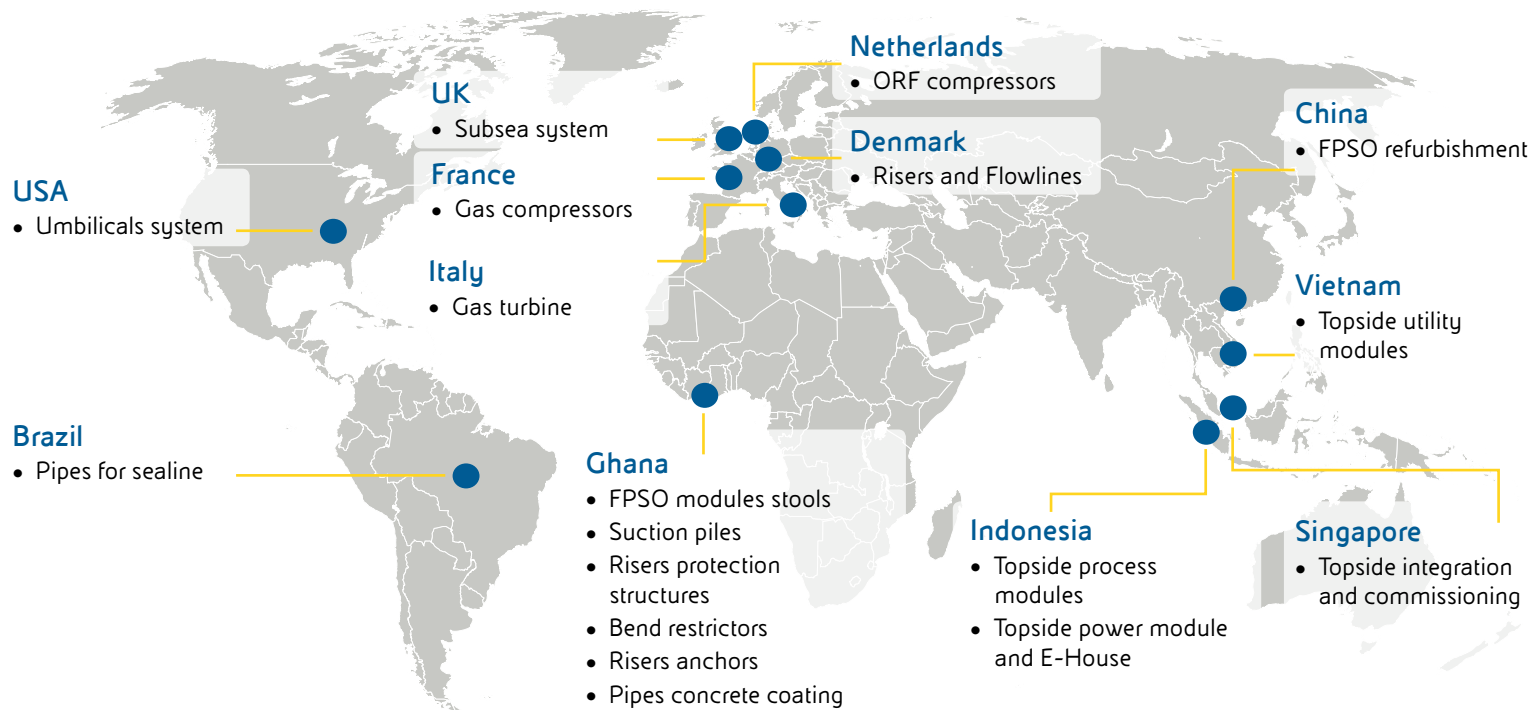
With the aim to anticipate the First Oil, the installation campaign started 1 month earlier than planned with the installation of 2 flexible oil lines + 1 umbilical (minimum required to achieve the first oil), which were laid and left on seabed (wet storage) prior to the arrival of the FPSO from Singapore. The wet storage allowed to accelerate the installation campaign and achieve an earlier start-up.

Once the FPSO was moored and declared ready for SURF hook-up (April 26, 2017), the pull in, hook-up and commissioning of the Oil Loop lines was successfully completed allowing to achieve the First Oil on 20th of May 2017. Overall offshore campaign was successfully completed ahead of schedule, keeping highest standard in Safety and Quality.

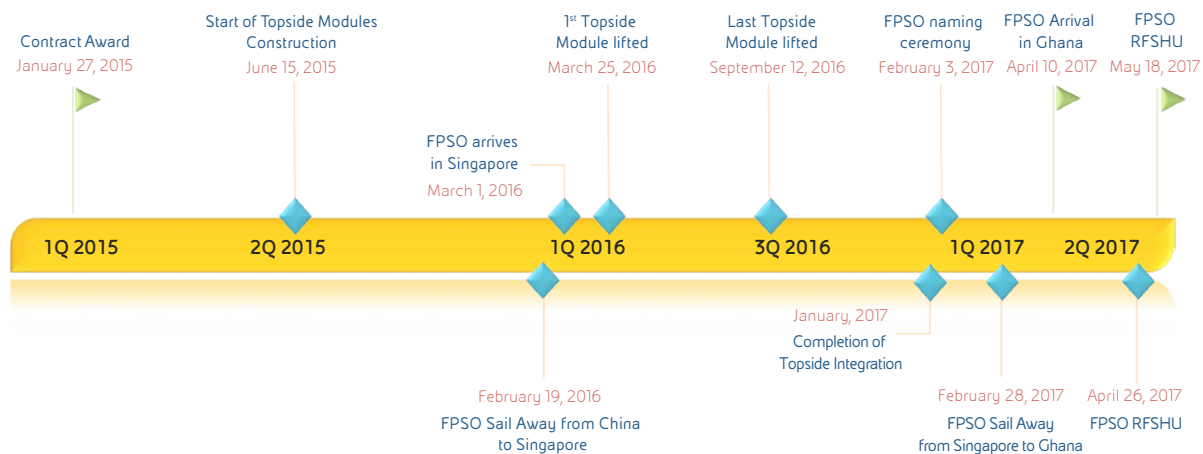


| Portside Area of FPSO showing the Fire Fighting main rings

OCTP Project Execution Strategy



FPSO Project Timeline



FPSO Main Characteristics

- **FPSO:** "New conversion" Double Hull
- **Oil Storage Capacity:** 1.4 MMbbls
- **Offloading:** Tandem Bow Loading
- **Riser Approach:** Double Balcony
- **Zero Flaring and Produced Water Discharge**
- **Production Availability:** 97%
- **Oil Treatment Design Capacity:** 58,000 BLPD
- **Non Associated Gas Design Capacity:** 210 MMSCFD
- **Gas Injection:** 150 MMSCFD
- **Water Injection:** 55,000 bbl/d



| FPSO in navigation to Ghana

Project Timeline

March 2009
gas discovery



June 2012
oil discovery



December 2014
approval
of development plan



January 2015
commencement of FPSO Package



February 2015
commencement of Subsea Structures
& Umbilicals Package



| Conversion Works at China Yard



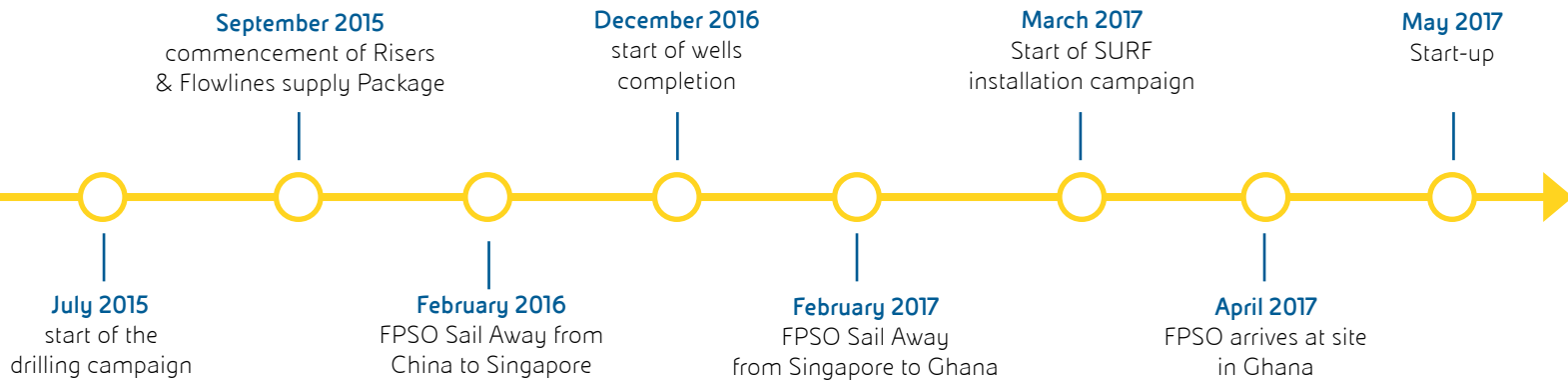
| FPSO at anchorage in Singapore



| Risers and flowlines load out in Denmark



| Transpoiling of flexible flowlines



| Naming Ceremony



| Sailing towards Ghana

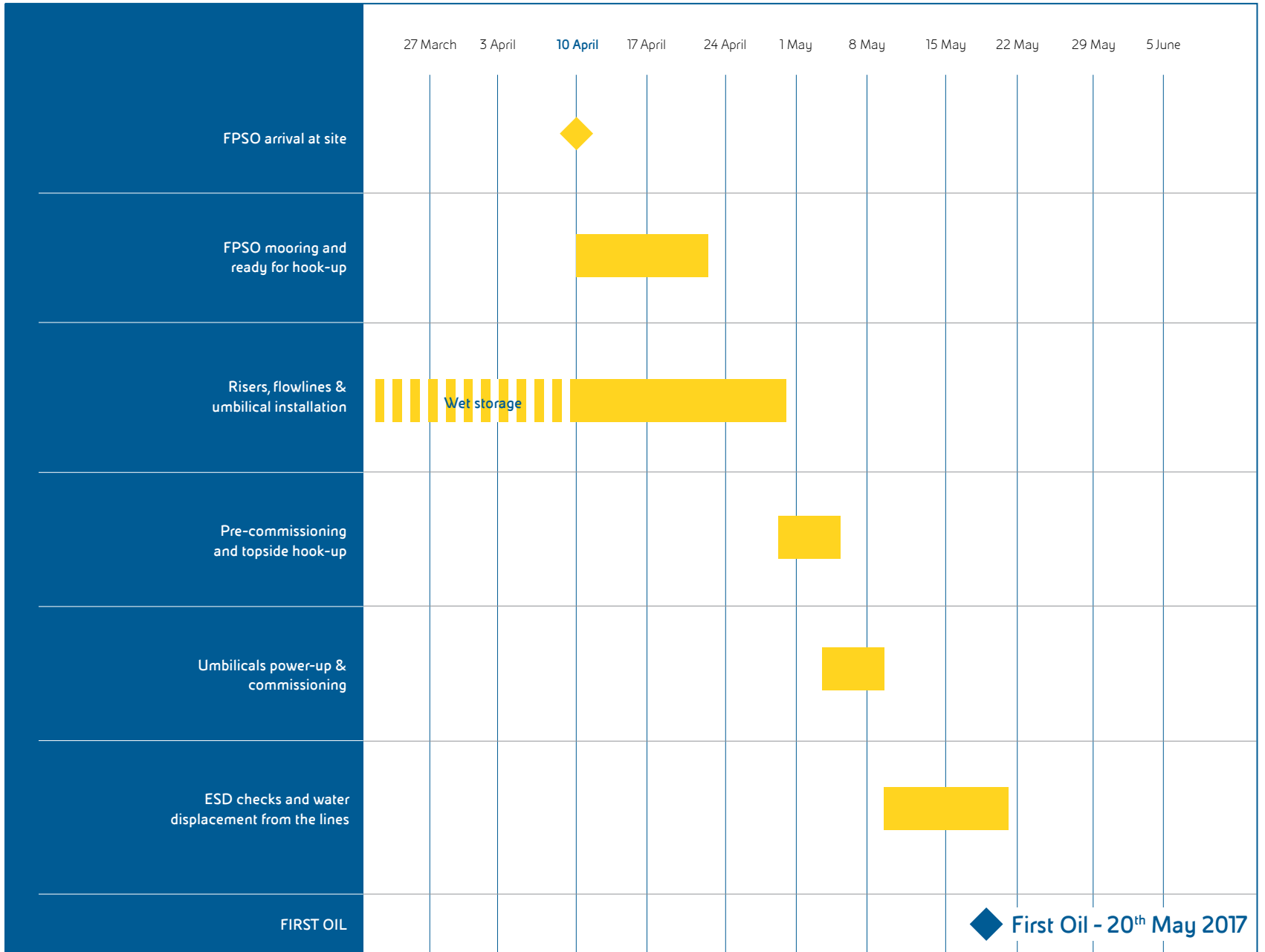


| Mooring completed



| Eni's team in Singapore

... from the arrival of the FPSO at the offshore site to the first oil in 40 days



Fully integrated commissioning & operations team



Optimization of in-field operations of installation vessels and drilling rig



Local Content: Empowering Local Companies/ Developing Human Capital

For us Local Content means added value brought to the socio-economic fabric of the host country, through the participation of the local people and enterprises in the industrial activities and the promotion of their development, the transmission of skills and know-how and the enhancement of the country's heritage as well as the communities' capabilities.

Highlights:

- \$ 1.82 bn awarded to Indigenous Companies;
- 320 Contracts awarded to Indigenous Companies;
- new concrete weight coating Plant established in Takoradi;
- 155 Direct Ghanaian Employees;
- 240 Ghanaian Contractors and Service Employees;
- Strong nationalization and local talents development plan being implemented;
- 25 Degrees/Masters for Ghanaian Students in Italian Universities through Eni Corporate University;
- 7 resources trained in drilling for 1 year in Eni facilities in Italy;
- 40 resources trained in Production & Maintenance for 1 year in Ghana and Eni operational sites in the World;
- \$ 2.2 M investment in training per year.



| Minister of Energy visiting the FPSO



| Eni's EVP RESS briefing Minister of Energy and GNPC CEO



| Sharing the knowledge

Outstanding performances achieved in-country in terms of schedule and quality standards paving the way to a successful project delivery, reaching another record time-to-market

Eni CEO Claudio Descalzi said: "Starting production only two and a half years after the approval of the Development Plan is an extraordinary result and a reason for great pride".

The excellent exploitation of the local content and the performances achieved for all the activities carried out in Ghana has been a key success factor for the entire project.



| FPSO Construction and Commissioning team in Singapore

Several disciplines, different departments, one integrated project team: **NOI**







Project partners

Ghana National Petroleum Corporation (20%)

Ghana's National Oil Company, established in 1983 as a strategic commercial vehicle for State participation in the oil and gas industry with the mandate to undertake exploration, development, production and disposal of petroleum. It is the National Gas Aggregator and a partner in all petroleum agreements in Ghana.

Eni (operator 44.44%)

Eni is an energy company operating in 73 countries, engaged in oil and natural gas exploration, field development and production; refining and chemicals activities; sale of gas, electricity, LNG and oil products. Eni boasts a solid competitive position based on its focus on innovation, efficiency, sustainability and the environment.

Vitol Group (35.56%)

Vitol is an energy and commodities company. Its primary business is the trading and distribution of energy products globally and it trades over seven million barrels per day of crude oil and products.



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