Delivering LNG solutions
A global LNG portfolio of scale and diversity

The industry continues to evolve and LNG is becoming attractive to new and emerging markets. We can bring our deep technical, commercial and project management expertise along with our extensive LNG supply and shipping portfolio to deliver LNG solutions for any market, large or small. BP's capability extends beyond LNG supply and includes building and financing of new land-based or offshore import infrastructure and development of integrated power.
Deep technical, commercial and project management expertise

BP has the technical capabilities to unlock potential gas resources and transport them by pipeline, ship or truck to our customers. We have a truly global LNG portfolio, and the experience to develop domestic markets in gas, NGLs and power. BP is leading the development and execution of some of the world’s most challenging capital projects. We have more than 1,000 experienced technical and project management professionals, and our structured processes bring consistency and best practices throughout the project life cycle.

Cove Point, USA
BP, Shell and Statoil hold capacity in the Cove Point LNG import terminal.

Isle of Grain, UK
BP and Sonatrach hold capacity rights of 3.3mtpa.

Guangdong, China
BP holds a 30% equity share in the GD LNG terminal, making it the first and only international company to own an LNG import terminal in China.

Rovigo, Italy
BP’s capacity in the terminal makes it the only regulated LNG regasification capacity holder in Italy.
Developing a new supply chain can be complex. BP’s detailed understanding of liquefaction, distribution, safety, pricing and commodity risk management allows us to successfully deliver LNG, gas and power to new markets.

Building gas value chains

Gas supply
Liquefaction
Distribution
Customer

Keeping the world’s energy moving

Adding value

Understanding the benefits: Working with our partners and customers to understand their energy requirements and develop the best LNG, gas and power solutions.

Multi-fuel partner: Leveraging our world-class, and global expertise across all hydrocarbon fuel products to bring you flexibility and choice.

Managing commodity and pricing risk: Offering tailored commodity risk management products and services to support customers throughout the value chain.

Safety: Bringing rigor through decades of experience in LNG operational safety.
Delivering **innovative solutions** across the supply chain

**Guangdong - China’s first LNG Terminal**

The demand for LNG is growing across Asia and BP is working to meet this demand as well as develop the gas economy of China. For example, BP played a leading role in the development of Guangdong Dapeng LNG - China’s first LNG import terminal and gas trunkline project - which celebrated its tenth anniversary on 28 September 2016. The 750 LNG cargoes delivered since its start-up amount to 62% of the total volume of gas supplied to the Guangdong province and 37% of the supply to Hong Kong. BP retains a 30% stake in terminal, which includes four 160,000 cubic metre LNG storage tanks, a berth capable of accommodating 80,000 – 217,000 cubic metre LNG carriers, and nine sets of LNG vaporizers. A 440km pipeline network supplies gas to customers in the East Pearl River Delta region.

**Vietnam - Gas to power**

BP led the development of Lan Tay, the first gas field offshore Vietnam, building and operating an offshore gas processing platform, a 400km two-phase pipeline and a 720MW combined cycle gas turbine power plant, establishing gas as a major new source of energy for the country. Today, gas fuels 7.2GW of Vietnam’s power generation capacity, meeting 30% of national requirements.

**BBE - LNG to power**

BP was a founding member of the BBE and BBG joint ventures that developed an LNG import terminal and an 800MW combined cycle gas turbine in Bilbao, Spain. BP is now a 75% shareholder in the BBE joint venture that generates electricity for domestic, commercial and industrial use. BP’s innovative offer helps to supply, optimize and risk-manage our customers’ plants and gas purchases in Europe’s main power markets.
Pioneering LNG shipping and terminal solutions

- Pioneer in open water commercial ship-to-ship operations
- Proven track record of commissioning and start-up of conventional and unconventional LNG terminals
- LNG delivery into the entire range of FSRU based receiving terminal concepts worldwide

Delivering innovative solutions to meet industry challenges

- Pioneer in open water commercial ship-to-ship operations
- Proven track record of commissioning and start-up of conventional and unconventional LNG terminals
- LNG delivery into the entire range of FSRU based receiving terminal concepts worldwide

Keeping the world’s energy moving
Financing expertise

As a leading producer of oil and gas, we understand the financing, trading and risk management challenges faced by our customers. We have extensive experience as a lead sponsor and participant in the financing of LNG projects. Our projects were conceived and implemented to address local market and infrastructure conditions, and we capture the best available economic upside for our customers and partners.

Bilbao regasification, Spain $200m value
Financed with support of the European Investment Bank. BP provided project management lead and technical support to the project.

Tangguh LNG liquefaction, Indonesia $3.5bn value
Financed on a sponsored guaranteed basis by a consortium of commercial banks, JBIC and Asian Development Bank.

North West Shelf, LNG liquefaction, Australia
Funded from shareholder internal resources.

Angola LNG liquefaction
Funded from shareholder internal resources.

Guangdong Dapeng regasification, China
Financed by commercial banks in USD and RMB.

We have also led financing of numerous oil/gas projects including the Baku-Tbilisi-Ceyhan crude oil pipeline from the Caspian to world markets. Total value of financing c. $3.6bn funded partly via limited recourse project financing by leading commercial banks and partly by shareholder financing.

Working with regulatory authorities
BP has regulatory personnel in a number of countries who actively participate in regulatory debate to understand ongoing issues and lobby effectively with our contributions to developing regulatory regimes.
Offering **bespoke commercial solutions**

Flexibility is at the heart of what we offer. Our broad range of standard physical and financial products form the basis of creating a bespoke solution tailored to your specific needs. Whether you’re looking for pricing flexibility, fuel supply flexibility, price risk management, or the development of an entire LNG supply chain, our team can help.

BP can leverage our expertise and assets to provide customers with robust LNG supply chains as part of the fuel mix.

- Commodity risk management products and services
- Multi-disciplinary management teams
- Development of supply chains
- Extensive technical, operational and commercial experience
- Crude and natural gas producer, supplier and transporter
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The energy of our people makes the difference
Conventional onshore terminal

Land based LNG storage tanks and vaporisers, suitable for large, long-term gas demand

Pros
- Well proven concept
- Site-specific design, optimised for individual project requirements
- Opex typically lower than leased floating options
- Easily expandable, subject to land availability
- Large volume of onshore storage provides resilience to supply interruptions
- Potential for energy integration with nearby process and power plants

Cons
- Typically highest capex of all potential solutions
- Typically longest development schedule of all potential solutions
- Requires more land than other options
- Permitting typically more complex than floating solutions

Keeping the world’s energy moving
Floating Storage Unit (FSU) + Onshore regasification

Utilising ‘floating storage’ can reduce capex. Installing a small onshore tank can provide buffer storage, should the FSU need to depart for bad weather.

Pros
- Typically lower initial capex than onshore terminal, especially if FSU is leased
- Provides an option for early gas when developing a conventional onshore terminal

Cons
- FSU lease costs mean operating costs are typically higher than onshore terminals
- Offshore storage is more vulnerable to weather-related supply interruptions than onshore terminals
Floating Storage and Regasification Unit (FSRU)

Carrying out all storage and major gas processing on a ship minimizes onshore infrastructure, providing a flexible low capex solution for bringing gas to market.

Pros
- Typically lower initial capex than onshore terminal, especially (if FSRU is leased)
- Quick to deploy, especially if a suitable FSRU is available in the market
- Standardised design, based on LNG carrier, suitable for multiple locations
- Flexible - vessel can be redeployed either in different locations or in trading service
- Offshore concept means low land/permitting requirements

Cons
- FSRU lease costs mean operating costs are typically higher than onshore terminals
- Offshore storage is more vulnerable to weather-related supply interruptions than onshore terminals
- ‘One-size-fits-all’ approach means FSRU is often oversized for smaller gas markets
- Limited potential for expansion

Keeping the world’s energy moving
Floating Regasification Unit (FRU) + FSU

Regasification on a barge or small ship coupled with storage on an FSU potentially brings the benefit of an FSRU to smaller markets.

Pros
- Potentially lowest initial capital investment (if Regas Barge and FSU is leased)
- Suitable for smaller gas markets or as short term solution during ramp-up of demand
- Offshore concept means low land/permitting requirements

Cons
- May require additional FSU for storage and thus additional lease cost on top of barge lease cost
- Offshore storage and regasification more vulnerable to weather-related supply interruptions than onshore terminals

Keeping the world’s energy moving
FSU + Regasification on island berth

The requirement for a jetty can be eliminated by locating regasification equipment on an island berth. Storage is provided by an FSU and gas transported to shore by a subsea pipeline.

**Pros**
- Provides an option where a near-shore jetty is not feasible or there is no existing suitable offshore infrastructure.
- Locating further from shore could potentially minimise traffic issues in existing port (subject to suitable metocean conditions).
- Offshore concept means low land/permitting requirements.

**Cons**
- FSU lease costs mean operating costs are typically higher than onshore terminals.
- New subsea pipeline may bring construction and permitting challenges.
- Offshore storage more vulnerable to weather-related supply interruptions than onshore terminals.
- Limited potential for expansion.

Keeping the world’s energy moving.
Single Point Mooring (SPM) + Shuttle FSRU

For intermittent demand, a shuttle FSRU utilising an SPM and subsea gas pipeline potentially provides fastest way to bring gas to market.

**Pros**
- Minimal infrastructure required, particularly if there is already existing pipeline system for tie-in
- Offshore concept means low land/permitting requirements
- Locating further from shore could potentially minimise traffic issues in existing port (subject to suitable metocean conditions)

**Cons**
- Vessels must be specially adapted. Only a limited number of shuttle FSRU are available
- More suited to intermittent demands as shuttle FSRU must leave for refilling
- New subsea pipeline may bring construction and permitting challenges
LNG Power barge / Power ship

Power barges offer an integrated regasification and power generation solution on a single platform. Additional LNG storage can be provided by an FSU.

Pros
- Offshore concept means low land/permitting requirements
- Highly integrated solution with potential cost and schedule savings compared to traditional onshore developments
- Direct power generation without need for gas transmission pipeline

Cons
- Limited operational examples to date
- Power barge lease costs mean operating costs are typically higher than onshore terminals
- Offshore storage more vulnerable to weather-related supply interruptions than onshore terminals
- Limited potential for expansion

Keeping the world’s energy moving