



Oil sands Issue briefing

bp.com/sustainability

How we operate

BP recognizes that we need to produce energy responsibly – minimizing impacts to people, communities and the environment.

The energy we produce helps to provide heat, light and mobility in a changing world.

Across BP's operations, established practices support the management of potential environmental and social impacts from the

pre-appraisal stage through to the operational stage and beyond – reflecting BP's values, responsibilities and local regulatory requirements.

With increasing oil and gas supply and gradually moderating demand growth over time, combined with increasing energy competition and climate challenges, BP's strategy includes a shift to gas and advantaged oil in the upstream. Innovative and ongoing environmental and cost performance improvements in oil sands are creating opportunities for investment.

About BP in Canada

Based in Calgary, Alberta, BP Canada Energy Group ULC's activities include developing energy from Canada's oil sands, located in north eastern Alberta; exploring for oil in offshore areas such as the Arctic and eastern Canada; and integrated supply and trading activities across various energy commodities in North America.

i More information

bp.com/canada
bp.com/sustainability

The need for Canada's oil sands

BP aims to provide reliable energy, responsibly produced.

We expect the world demand for energy to increase by around 30% between 2015 and 2035 – largely driven by rising incomes in emerging economies. The extent of this increase is being curbed by faster gains in energy efficiency, as there is greater attention around the world on using energy more sustainably.

The global energy landscape is changing. The energy mix is shifting, driven by technological improvements and environmental concerns. Fast growing emerging markets are overtaking traditional centres of demand.

The energy transition underway poses a significant challenge – how to meet the world's growing demand for energy while also reducing carbon emissions. That raises important choices and opportunities for BP and our industry.

We are evolving our strategy – allowing us to be competitive in a time when prices, policy, technology and customer preferences are changing. Our strategy anticipates a range of

scenarios to give us flexibility in our approach, rather than pursuing a single view of the future.

We carefully reviewed the decision to invest in Canada's oil sands, as we do for all major investments, taking into consideration factors including commercial viability, impacts on the landscape, greenhouse gas (GHG) emissions, water use and local communities. We regularly review the commercial viability of our oil sands developments against the current and forecast economic environment.

BP believes Canada's oil sands offer significant benefits, including:

- a high-quality, plentiful resource
- a politically stable operating environment
- a strong governance and regulatory regime
- a comprehensive climate policy.

Canada's oil sands play a part in our strategy to deliver energy to the world by targeting basins and prospects with the greatest potential to create value, while exercising due care for the impacts associated with it, and minimizing risks.



About the oil sands

Canada's oil sands are the third-largest known reserves in the world, after Venezuela and Saudi Arabia.

Canada's resources

About half of the world's total oil reserves that are open to private sector investment are contained in Canada's oil sands. An estimated 166 billion barrels lie buried in sand and rock formations, mainly in northern Alberta.

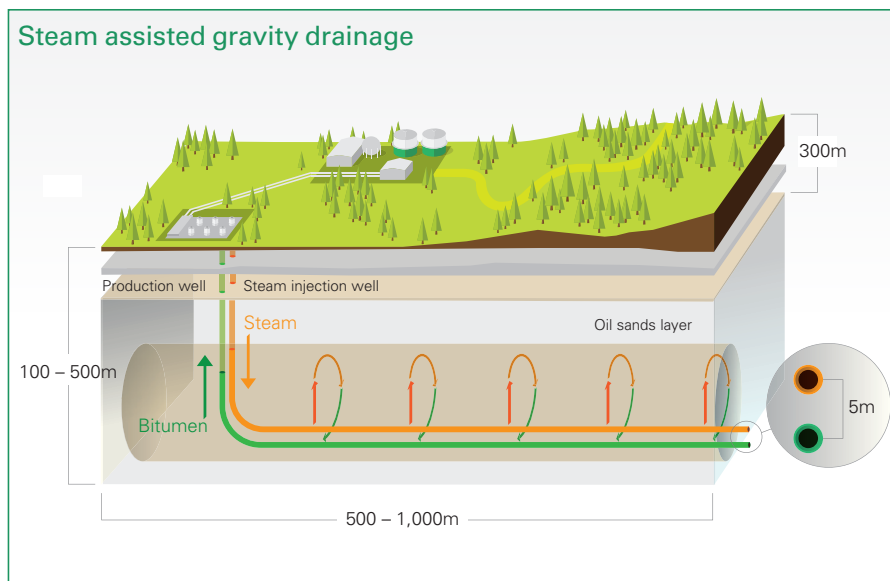
The oil sands are a natural mixture of sand, water, clay and bitumen. They are found at varying depths and in some cases are directly exposed to the surface. There are two methods of extracting this resource – in situ recovery and surface mining. Due to the depth at which our oil sands resources are located, BP and our partners use, or plan to use, in situ technology called steam assisted gravity drainage (SAGD).

SAGD involves pumping steam into the oil sand reservoir through a horizontal well to heat the oil, which is then extracted through a second, lower horizontal well.

Our projects

BP is involved in three oil sands lease areas in Alberta: Sunrise, Pike and Terre de Grace.

BP requires oil sands projects, like all of its investments, to be commercially viable over the life of the project. In light of changing global oil prices, some of our oil sands opportunities remain under evaluation while we continue to monitor and assess emerging technologies and economic conditions to inform the best manner and timing of development.



Sunrise

The Sunrise project is a 50/50 joint venture between BP and Husky. Husky operates the Sunrise leases, and BP operates the Toledo refinery in Ohio in the US, where some of the Sunrise bitumen is processed.

Sunrise is estimated to have more than three billion barrels of recoverable bitumen resources. The first phase of development has a capacity of approximately 60,000 barrels per day. It began producing oil in 2015, and is currently producing approximately 36,000 barrels per day.

Pike

BP has a 50% non-operated interest in the Pike leases with Devon as our joint venture partner and operator. Pike is in the southern Athabasca oil sands region and is approximately 25 kilometres southeast of Conklin, Alberta.

Pike Phase 1 was granted regulatory approval in November 2014. Engineering for the first phase of development is currently paused until the conditions are right for both parties to support moving forward.

Terre de Grace

BP operates and has a 75% interest, alongside Value Creation Inc., in the Terre de Grace oil sands leases, located approximately 60 kilometres northwest of Fort McMurray, Alberta in the western part of the Athabasca region.

BP has conducted several summer and winter work programmes, consisting of environmental field studies, seismic exploration, delineation drilling and reclamation work. Terre de Grace is under appraisal for future development.

Lease area	BP's interests	Operator	Status
Sunrise	50% owner	Husky Energy	Phase 1: Oil production began in 2015. Future development phases have been identified.
Pike	50% owner	Devon Energy	Phase 1: Granted regulatory approval. Engineering is currently paused.
Terre de Grace	75% owner, alongside Value Creation Inc., which has a 25% interest.	BP	These leases are currently under appraisal.



Responsible management and oversight

We recognize the need to be responsible in the way that oil sands projects are managed.

As with all of our assets, whether we are the operator or not, we work with our joint venture partners to confirm our oil sands projects are managed and monitored effectively.

In addition to the day-to-day oversight by operators, the assets are managed through contractual joint venture processes, which include governance committees with representation from BP and our partners. These committees establish business plans, approve investment decisions and monitor performance, including adherence to regulatory requirements. The project operator is required to provide timely reporting on various financial, operational, environmental and safety metrics. All of these are benchmarked against BP's performance expectations.

BP representatives on the governance committees are also responsible for confirming that project direction and activities are consistent with BP's investment requirements and code of conduct. The partners have established joint processes to monitor areas including:

- health, safety and environmental issues
- stakeholder relations
- project quality and execution
- the status of regulatory approvals
- subsurface understanding and uncertainty
- facility design and project execution
- product transportation
- technology.

The regulatory environment in Alberta

Oil sands developments are subject to rigorous requirements and monitoring set out by regulatory agencies in the province of Alberta and by the Canadian federal government. These cover environmental impact assessments, stakeholder consultation, operational practices and resource management. The industry in Canada is collaborative, the regulatory framework is progressive, and we are supporting government and industry initiatives to manage the cumulative impacts of oil sands developments.

Regulatory agencies engage a range of stakeholders, including local communities, aboriginal groups and industry organizations such as the Canadian Association of Petroleum Producers, during the development of new regulations, in an effort to ensure that they are appropriate and deliver the right outcomes. BP actively monitors and contributes to regulatory discussions.

The provincial government of Alberta has announced a set of new energy and climate change policies, including a phase-out of coal-fired power generation, limits to emissions on oil sands, sector-specific performance standards and economy-wide pricing from carbon emissions. Consultation is under way with industry and other stakeholders on the specifics of these policies and their implementation, and BP – along with our peers – has engaged in this process.

The governments of Canada and Alberta are working together to continuously improve the comprehensive system of environmental monitoring in the oil sands and understanding of the long-term cumulative effects of oil sands development. As part of this plan, the Alberta Environmental Monitoring and Science division provides related information such as assessments of environmental monitoring and available data on its website. See environmentalmonitoring.alberta.ca and osip.alberta.ca for more information.

Canada's Oil Sands Innovation Alliance

BP is a founding member of Canada's Oil Sands Innovation Alliance (COSIA), an initiative comprised of oil sands producers.

The alliance aims to enable responsible and sustainable growth of Canada's oil sands while delivering accelerated improvement in environmental performance through collaborative action and innovation.

The creation of COSIA builds on work done by the industry, as well as research and development organizations, over many years. By taking a collaborative approach, COSIA will focus on the most pressing oil sands environmental challenges, specifically water, land, greenhouse gases and mine tailings; and aims to accelerate the discovery and development of environmental technologies.

Since 2012 the alliance companies have shared over 930 distinct technologies and innovations. One of the COSIA technology projects BP is supporting, for example, is a fuel cell that captures carbon dioxide from natural gas-fired processing units while generating electricity. See cosia.ca.



Managing our environmental impacts

BP and our partners in oil sands projects work to address potential impacts on the landscape, greenhouse gas emissions and water use.

Impact on the landscape

The use of in situ technology results in less land disturbance than mining as the operations have a smaller physical footprint and do not require tailings ponds. Alongside our partners, we work to promote the regeneration of habitats after the completion of our activities. In 2016 at Terre de Grace, we planted approximately 11,000 trees, completed aerial and ground assessments for vegetation and landscape, and undertook weed control activities following earlier resource appraisal work. This activity will help restore the landscape following the exploration programme.

If the decision is taken in the future to proceed with the design of a first project at Terre de Grace, BP will assess potential impacts of lease work by identifying and recording environmental, social and economic constraints. The results will guide the placement of future facilities and infrastructure, such as roads and pipelines, and will help determine how we can minimize impacts in the area.

Greenhouse gas emissions

A focus area for oil sands operations using SAGD is the emissions of greenhouse gases (GHGs) from steam generation. Improvements in technology present an opportunity to reduce these emissions.

In 'well-to-wheels' studies – which measure GHG emissions from producing the oil (well) through to combustion (wheels), crude produced from oil sands applying SAGD technology is around 8% more GHG intensive than the average crude refined in the US. We are working with our partners to meet the comprehensive and rigorous GHG regulatory requirements and to find ways to reduce emissions.

We are working to deliver improvements through heat integration and recovery techniques in our processing facilities. These allow us to use energy that would otherwise be lost into the atmosphere. We are exploring



new high efficiency boiler options along with lower carbon fuel alternatives. We also aim to reduce energy use at well sites through the use of insulated tubing and electric submersible pumps. We encourage our partners to use the best available energy efficient technologies in the design of plant and field facilities.

Water

Water supply and management are key elements in planning a SAGD project. Working with our partners, BP is committed to maintaining a high level of water conservation and our oil sands projects are designed to meet or exceed regulatory requirements. At Sunrise the water used to make steam is primarily recycled from the wells. Where additional water is required, this is recycled from other operators in the area or drawn from deep underground aquifers that are not suitable for human consumption. Any water that cannot be recycled is injected into a deep disposal well, isolated from drinking water aquifers.

Technology

BP is working to incorporate existing technologies and research new technologies and techniques. We are doing this in three ways:

- 1 Company-specific initiatives:** by playing to BP's strengths with initiatives focusing on carbon management, reservoir management, SAGD enhancement, and energy and water efficiency.
- 2 Joint venture collaboration:** by working with our partners on emissions reduction, water treatment technologies and improving data modelling so that less exploratory drilling is required.
- 3 Industry associations:** by progressing oil sands technology through collaborative industry bodies such as AACI (a consortium including the Alberta Innovates and industry members) and Canada's Oil Sands Innovation Alliance (COSIA). For example, COSIA is investigating ways to reduce energy use and associated GHG emissions through the development of innovative technologies for in situ and mining operations, including using algae to convert carbon dioxide into biofuel and biomass products. For more information about ongoing research aimed at priority issues, visit cosia.ca/focus-areas.

Managing impacts on local communities

Our oil sands projects, whether operated by BP or one of our partners, are being developed in consultation with local communities.

Building relationships with local communities

BP recognizes that some aboriginal communities living near Alberta's oil sands region are concerned about the potential impacts of oil sands developments.

We engage with local communities, including neighbouring First Nations and Métis, on activities relating to the Terre de Grace leases. We work to maintain relationships through regular meetings, field site visits – including those by our board committee for sustainability issues – and support for community events. During community engagements, we discuss current lease holdings and reclamation activities. As ongoing dialogue with community partners continues and as the project pace evolves, so does our interaction.

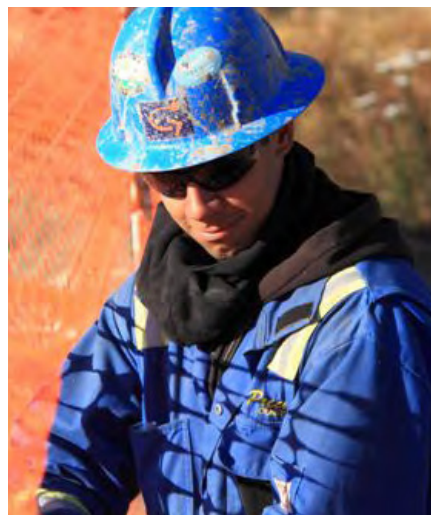
We track stakeholders' interests, issues and concerns in our stakeholder commitments register. The register records feedback on how issues are addressed and resolved, as well as tracking any commitments made.

Community engagement

Our partners in the Sunrise and Pike projects have their own established strategies and processes to achieve meaningful engagement with local communities. Both Husky and Devon provide stakeholders with opportunities to consult and share their concerns and priorities, which the operators can address during planning and throughout the life of the project.

For example, Husky has a stakeholder management strategy that outlines tools and accountabilities to achieve transparent and meaningful consultation. This plan encompasses aboriginal communities, local government, provincial and federal regulators, regional stakeholder groups, employees, unions and others. The framework provides a structure to identify and engage stakeholders.

Husky also has an established commitments register to capture concerns, track responses, and implement mitigation commitments to stakeholder issues.





BP's corporate reporting suite includes information on our sustainability and financial performance, as well as our global energy and technology projections. We also publish issue briefings on oil sands and unconventional gas development.



Sustainability Report 2016

Details of our sustainability performance with additional information online.

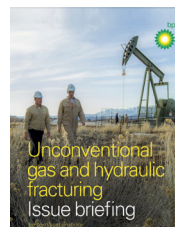
bp.com/sustainability



Oil sands issue briefing

Information on our approach to developing energy from Canada's oil sands.

bp.com/oilsands



Unconventional gas issue briefing

Details of our approach to managing the potential impacts of hydraulic fracturing and unconventional gas development.

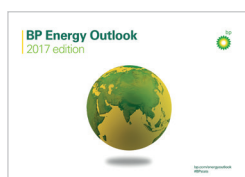
bp.com/unconventionalgas



Annual Report and Form 20-F 2016

Details of our financial and operating performance in print and online.

bp.com/annualreport



BP Energy Outlook 2017 edition

Provides our projections of future energy trends and factors that could affect them out to 2035.

bp.com/energyoutlook



Statistical Review of World Energy 2017

An objective review of key global energy trends.

bp.com/statisticalreview



BP Technology Outlook

Shows how technology can play a major role in meeting the energy challenge out to 2050.

bp.com/technologyoutlook



BP social media

Join the conversation, get the latest news, see photos and films from the field and find out about working with us.

You can order BP's printed publications free of charge from:

bp.com/papercopies

US and Canada

Issuer Direct

Toll-free: +1 888 301 2505

bpreports@issuereport.com

UK and rest of world

BP Distribution Services

Tel: +44 (0)870 241 3269

Fax: +44 (0)870 240 5753

bpdistributionservices@bp.com

Feedback

Your feedback is important to us. You can email the corporate reporting team at corporatereporting@bp.com

or provide your feedback online at

bp.com/annualreportfeedback

You can also telephone

+44 (0)20 7496 4000

or write to:
Corporate reporting
BP p.l.c.
1 St James's Square
London
SW1Y 4PD, UK