How we operate

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

We operate in more than 70 countries, and our systems of governance, management and operation are designed to help us conduct our business while respecting safety, environmental, social and financial considerations.

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.

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 hydrocarbons in offshore areas such as the Arctic and eastern Canada; and integrated supply and trading activities across the North American gas, power and oil markets.

For more information
bp.com/aboutbp

For more information
bp.com/canada

Cover image

The Sunrise Project in Alberta Canada, is a joint venture between BP and Husky Energy.
The need for Canada’s oil sands
BP aims to provide reliable energy, responsibly produced.

The world’s population is projected to increase by 1.5 billion from 2014 to 2035, with real income likely to more than double over the same period. We expect world demand for energy to increase as well, by as much as 34% over the same period, with nearly 95% of the growth to occur in non-OECD countries.

The energy challenge facing policymakers and our industry is how to fuel the world’s economy and address concerns about energy security while reducing the amount of carbon dioxide and other greenhouse gases (GHGs) being emitted. This challenge is global and complex, involving many difficult energy decisions. It links geopolitical concerns with environmental trends and the energy needs of people everywhere.

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, GHG emissions, water use and local communities.

BP believes Canada’s oil sands offer significant benefits:
- A high-quality, plentiful resource.
- A politically stable operating environment.
- A strong governance and regulatory regime.

We believe a diverse mix of fuels and technologies can enhance national and global energy security while supporting the transition to a lower-carbon economy. Canada’s oil sands play a key 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.

97% of Canada’s oil reserves are located in the oil sands.
About the oil sands

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

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. Canada’s oil sands are the third-largest known reserves in the world, after Saudi Arabia and Venezuela. An estimated 167 billion barrels of oil lies 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, a production 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 as we assess the best manner and timing of development.

Sunrise

The Sunrise project is a 50/50 joint venture between BP and Husky, in which 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 bitumen resources. The first phase of development has a capacity of approximately 60,000 barrels per day. It began producing oil in early 2015, and is currently producing approximately 20,000 barrels per day.

Pike

BP has a 50% non-operated interest in the Pike leases with Devon as our 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 activities are under way to design and plan the construction of the first phase of development. Appraisal activities are ongoing to evaluate the remainder of the lease.

Terre de Grace

BP operates and has a 75% interest 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. Value Creation Inc. is our partner in this property.

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.

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<table>
<thead>
<tr>
<th>Lease area</th>
<th>BP’s interests</th>
<th>Operator</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sunrise</td>
<td>50% owner</td>
<td>Husky Energy</td>
<td>Phase 1: Oil production began in 2015. Future development phases have been identified.</td>
</tr>
<tr>
<td>Pike</td>
<td>50% owner</td>
<td>Devon</td>
<td>Phase 1: Granted initial regulatory approval in November 2014. Engineering is ongoing. We continue to evaluate potential further development of the lease.</td>
</tr>
<tr>
<td>Terre de Grace</td>
<td>75% owner, in partnership with Value Creation Inc.</td>
<td>BP</td>
<td>This lease is currently under appraisal.</td>
</tr>
</tbody>
</table>
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 operator or not, we monitor the performance of our oil sands projects and the mitigation of risk.

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 and monitor performance, including adherence to regulatory requirements and the use of good industry practices. 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 comprehensive and rigorous requirements as set out by regulatory agencies in the province of Alberta and by the Canadian federal government. These cover environmental impact assessments, stakeholder consultation and resource management. The industry in Canada is collaborative, the regulatory framework is progressive, and we are supporting government and industry initiatives to look at the cumulative impacts of oil sands developments.

Regulatory agencies engage a range of stakeholders, including industry organizations such as the Canadian Association of Petroleum Producers, during the development of new regulations, in an effort to ensure that they are credible, appropriate and deliver the right outcomes. BP actively monitors emerging regulatory issues to enable us to be appropriately involved.

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 and a price on 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 – will actively engage in this process.

Environmental performance 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 almost 800 distinct technologies and innovations. One of the technology projects BP is supporting, for example, is examining how to increase the efficiency of steam production for bitumen recovery and reduce the volume of wastewater that cannot be recycled.

cosia.ca

The governments of Canada and Alberta are working together to continuously improve the comprehensive system of environmental monitoring in the oil sands and understand the long-term cumulative effects of oil sands development. As part of this plan, the Alberta environmental monitoring and reporting agency (AEMERA) has been formed to monitor, evaluate and report on key environmental indicators. AEMERA provides related information such as environmental assessments and data on its website. Alberta also has a public information portal about water, air and biodiversity issues.

For more information please visit aemera.org and osip.alberta.ca
Managing our environmental impacts
BP and our partners in oil sands projects work to develop technology and address potential impacts on the landscape, greenhouse gas emissions and water use.

Impact on the landscape
The use of steam assisted gravity drainage (SAGD) 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 habitat after the completion of our activities. In 2015 at Terre de Grace, we planted approximately 12,000 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.

Should BP and its partner decide in future to proceed with the design of a first project at Terre de Grace, we will assess the impacts of lease work by identifying and recording environmental, social and economic constraints. The results will guide the placement of future facilities, 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 emission of greenhouse gas (GHG) from steam generation. Improvements in technology present an opportunity to continuously 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 reduce emissions and to continue to meet the comprehensive and rigorous regulatory requirements.

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, for example to improve our operational performance or heat buildings on site. 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.

We are funding a heavy oil research laboratory at the University of Surrey in the UK to examine heavy oil chemistry and recovery processes. One of the key research areas is aimed at improving rates for thermal recovery methods such as SAGD.

Water
Water supply and management are key elements in planning a SAGD project. 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 Energy Research Institute, Alberta Research Council and industry members) and Canada’s Oil Sands Innovation Alliance. Examples of ongoing research aimed at priority issues can be found at cosia.ca/focus-areas.
Managing community impacts

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 lease. 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. In 2015 these meetings were few, in light of our limited activities on the Terre de Grace lease.

We track stakeholders’ interests, issues and concerns in our stakeholder commitments register. The register logs 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.
Reports and publications

BP’s corporate reporting suite includes information about our financial and operating performance, sustainability performance and also on global trends and projections.

Sustainability Report 2015
Details of our sustainability performance with additional information online. Published in March.
bp.com/sustainability

Strategic Report 2015
A summary of our financial and operating performance in print and online. Published in March.
bp.com/summaryreview

Annual Report and Form 20-F 2015
Details of our financial and operating performance in print and online. Published in March.
bp.com/annualreport

Energy Outlook 2016 edition
Projections for world energy markets, considering the global economy, population, policy and technology. Published in February.
bp.com/energyoutlook

Statistical Review of World Energy 2016
An objective review of key global energy trends. Published in June.
bp.com/statisticalreview

Unconventional gas and hydraulic fracturing issue briefing
BP’s approach to unconventional gas.
bp.com/unconventionalgas

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