

Oil and Gas

By Susan Patey LeDrew, Cenovus Energy

Historical Context

The very first discoveries of oil and gas in Alberta were associated with grasslands landscapes. Gas was discovered at Turner Valley by an Okotoks farmer in the early 1910s, and two decades later exploration uncovered oil beneath that field's gas wells. The later discovery of oil at Leduc in 1947 reflects the history of the petroleum industry in the parkland landscape, also containing important grassland ecosystems. Right in the city of Calgary, the centre for oil and gas business and head offices in Canada, remnant native fescue prairie can still be found in urban and provincial parks (see http://www.ucalgary.ca/applied_history/tutor/calgary/oil.html).

Oil and gas development on grassland landscapes has greatly expanded since those first few wells. The Grassland Natural Region in Alberta now contains over 75,000 well sites, 45,000 km of access roads, and 3000 km of pipelines. Given the importance of native prairie described throughout this website, it is critical that industry, landowners, and governments work together to carefully plan the development of oil and gas reserves which lie beneath the remaining undisturbed native prairie (Sinton and Pitchford 2002).

Current Status

The oil and gas industry is an important sector in Alberta and is the number one source of revenue for the province, with \$14.3 billion paid to the province in 2005-2006¹. Alberta's oil sands contain 175 billion barrels of oil, and natural gas reserves are estimated to be a total of 268 trillion cubic feet². Oil and gas companies use innovative techniques to extract these resources from underground reserves in an environmentally responsible manner.



*Shallow gas well in foreground, oil well in background.
Photo Credit: S. Patey LeDrew*

Technology used to extract oil and gas from under the ground has greatly improved over the past 60 years; increasing the efficiency of extraction while reducing the impact to the landscape and wildlife. For example, shallow gas wells can be drilled in less than a day with minimal disturbance to the vegetation or soil. Trenchless pipeline techniques used for small diameter pipelines allow for minimal disturbance to the right-of-way. This preserves the surrounding landscape, maintains animal habitat, reduces the possibility of invasive plant species from establishing, and improves future reclamation success.



*Plowing in pipeline installation technique.
Photo Credit: S. Patey LeDrew*

The Federal and Provincial government as well as other regulatory bodies like the Energy Resources Conservation Board (ERCB) and the National Energy Board (NEB) provide a comprehensive framework for which oil and gas can be safely extracted, refined, and transported. Oil and gas companies that operate in Alberta also need to comply with legislation that protects wildlife and the environment. Water bodies, migratory birds, and species at risk are all protected under various federal and provincial legislation by which oil and gas companies are required to operate.



Photo Credit: C. Wallis

Issues and Future Challenges

Oil and gas development occurs throughout white (settled) zones and green (unsettled) zones of Alberta. The white area includes many diverse ecosystems. Large areas of native mixed-grass prairie rangelands are characteristic of east central and southern Alberta. Agriculture, ranching, recreation, as well as oil and gas development all impact this ecosystem³, however, all parties are participating in initiatives to reduce their impact and enhance biodiversity. Regional land use plans have been developed for various ecologically sensitive areas across the province to help provide guidelines for ecosystem protection and evaluation of cumulative effects on the landscape.



Photo Credit: S. Patey LeDrew

Oil and gas resources are an important part of Alberta's future. New techniques to extract oil and gas are reducing the environmental impacts, and the regulations adhered to by industry allow for the protection of valuable ecosystems.

References and Links

^{1, 2} Canadian Association of Petroleum Producers.

<http://www.capp.ca/getdoc.aspx?DocId=111607&DT=NTV>, accessed October 17, 2011

³ Alberta Prairie Conservation Forum.

http://www.albertapcf.org/PDF_Documents/PCAP2011.pdf, accessed October 17, 2011