LET'S TALK ABOUT TEXAS

In examining how Alberta stacks up against other competitor and comparator jurisdictions, the Panel is looking at the State of Texas. Texas is one of Alberta's main competitors when it comes to both crude oil and natural gas. In fact, due to weaker growth prospects in Alberta and higher ones in Texas, several Alberta-based companies have already shifted capital spending from Alberta to Texas.

Comparison with Texas is particularly relevant for a number of reasons:

- Texas is a significant direct competitor for capital to drill and produce shale and other tight oil and gas,
- It is has a similar history with drilling activity and producing wells, and
- Its production of oil and gas competes directly with oil and gas produced in Alberta.

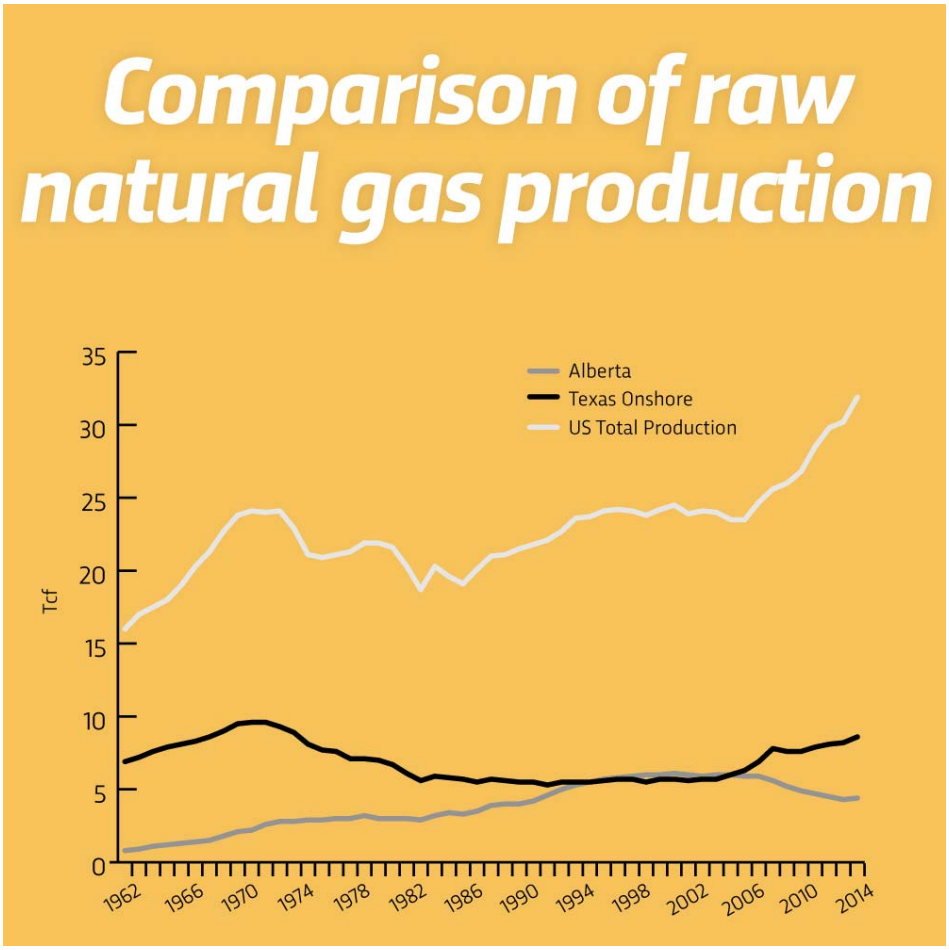
One of the biggest differences between Alberta and Texas is the ownership of resources. To compare the fiscal regimes of both jurisdictions you need to include both the State severance tax and private royalties in Texas, and compare that with Alberta's royalties. Since the private royalties in Texas are individual private contracts that do not involve government, they are not required to be reported. This makes the comparison challenging.

Geology and Geography

Texas has been an oil and gas producer for a very long time. The first major oil boom in Texas began in 1901 with the discovery of the Spindletop oil field. Since then, Texas has been synonymous with oil. Following decades of development, crude oil production peaked in Texas in 1972 at more than 3.4 million barrels per day. It then declined over time, to approximately 1.1 million barrels per day by 2008.

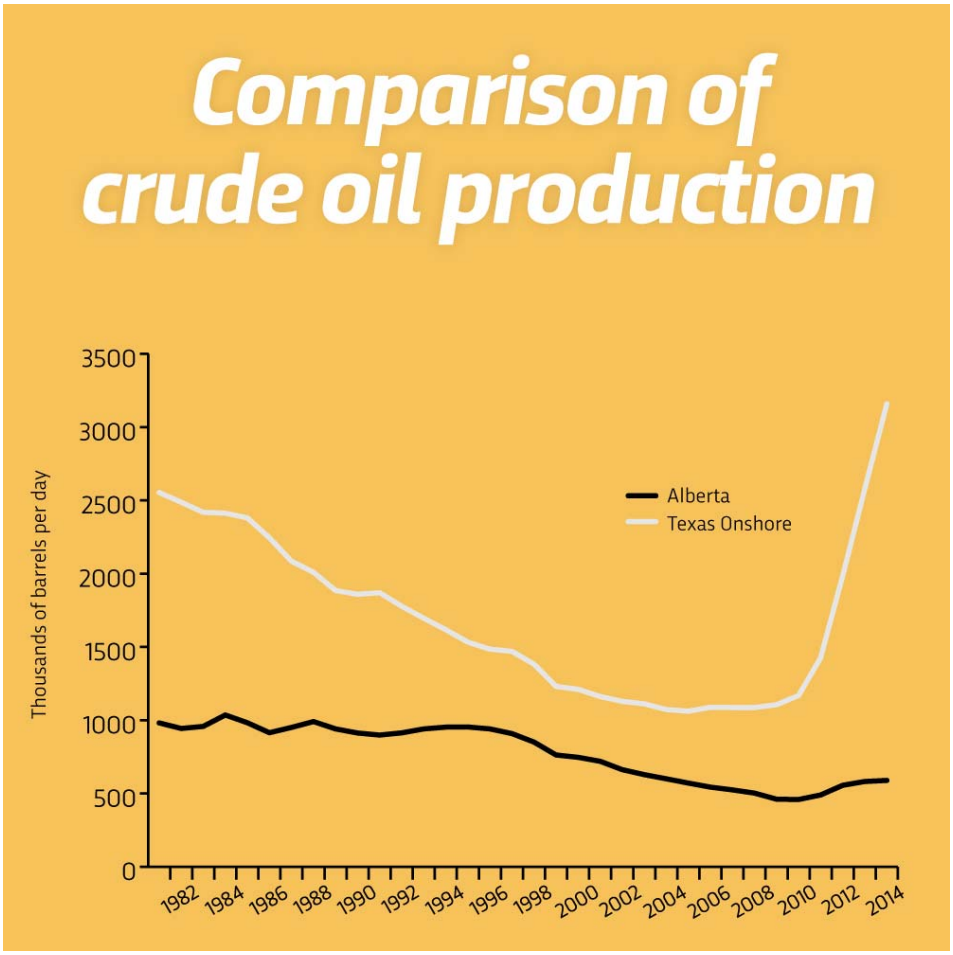
Over the past seven years, Texas has seen a renaissance in oil and gas production thanks to new technologies such as horizontal drilling and hydraulic fracturing. These are enabling producers to unlock huge volumes of oil and gas that are trapped in shale and other tight formations.

In 2014, Texas had around 104,000 producing gas wells, with an estimate average productivity of 215 million cubic feet (mcf) per day. In 2014, Texas also had around 190,000 producing oil wells, with a average productivity of 13 barrels of oil per day. These numbers represent substantial increases in production due to the advent of horizontal wells. In 2010, the average productivity of Texas oil wells was only 6 barrels per day, and the average productivity of Texas gas wells was around 190 mcf per day. This part of Texas' resource picture looks a lot like Alberta's. (Note that these numbers include offshore wells, but the vast majority of the wells are onshore.)



Texas' recent growth in crude oil production is particularly astounding. Between 2009 and 2014 Texas's onshore crude oil production increased by 190%, reaching nearly 3.2 million barrels of oil per day. Alberta's combined crude oil and bitumen production in 2014 was slightly less than 2.9 million barrels per day. To put it another way, the same amount of production growth that we have seen in Alberta's oil sands over the last twenty years was achieved in Texas in just five years.

One-third of the United States' total crude oil and natural gas reserves are in Texas. Similar to Alberta, Texas has diverse geology, with oil and gas found at different depths and in different areas across the state. However, unlike Alberta, Texas' unconventional oil and shale gas resources are more well-known and have already seen considerable development.



Texas has five major oil and gas formations: Barnett Shale, Eagle Ford Shale, Granite Wash, Haynesville/Bossier Shale and the Permian Basin.

- The Barnett Shale is described by some experts as the second largest onshore natural gas field in the U.S. The most productive part of the formation is estimates to stretch from Dallas west and south, covering 13,000 square kilometres.

- The Eagle Ford Shale play trends across Texas from the Mexican border up into East Texas. It produces both oil and gas. The Eagleville oil field, only discovered in 2009, is part of the larger Eagle Ford formation and is considered by the U.S. Energy Information Agency to be the largest oil field in the country. The Eagle Ford also contains the Briscoe Ranch oil field, which is the fifth-largest oil field in the U.S. Notably, the rocks in the Eagle Ford are brittle and lend themselves well to hydraulic fracturing.

- The Granite Wash is a catch-all term that refers to a number of oil and gas producing areas located in the Texas Panhandle and western Oklahoma. It has both oil and gas.

- The Haynesville/Bossier Shale is located in East Texas and western Louisiana. It is a gas-producing shale.

- The Permian Basin is located in West Texas and an adjoining area of southeastern New Mexico. It is one of the most prolific oil-producing areas in the U.S., and has been a major contributor the resurgence of U.S. oil production.

Also, unlike Alberta, these sources of oil and gas are very close to refineries and major gas-consuming markets. The Texas Gulf Coast is the largest refining center in the U.S., with 27 petroleum refineries that can process more than 5.2 million barrels of crude oil per day. The majority of the refineries are clustered near major ports along the Gulf Coast, including the Houston area, Port Arthur, and Corpus Christi.

This is another way in which Texas is unique from Alberta: it has its own coastal access. Combined with the fact that it has access to a well-developed pipeline network within the U.S., this enables Texas to easily ship its hydrocarbon products to customers and markets throughout North America and around the world.

Structure of the Industry

Like Alberta, Texas is one sub-national jurisdiction that is part of a larger country. It has a stable democracy, the rule of law, and an open market economy. Also similar to Alberta, the energy industry in Texas is made up of lots of private companies. (The government is not directly involved in developing the resources through any kind of state-controlled energy company.)

However, more than 90% of Texas' oil and gas resources are privately owned. (Unlike most of Alberta's oil and gas resources, which are owned by the "Crown", i.e. Albertans.) Energy companies operating in Texas will typically pay royalties, but they do so through private agreements that they make with each private resource owner. As these are privately negotiated, they would tend to track the expected potential profitability of a lease at the time of the negotiation, so will tend have different terms in high and low price environments.

Fiscal Framework

Since most of Texas' oil and gas resources are privately owned (rather than the State), the Texas government does not collect royalties on oil and gas development. Instead, Texas earns revenue from a severance tax (a tax on the production of crude oil and natural gas), which is 4.6% of the market value of crude oil and liquids, and 7.5% of the market value of gas, both calculated at the wellhead.

Texas offers several programs to reduce severance taxes on certain development activities that are high cost, support environmental objectives, or involve low productivity wells, some of which are similar to existing royalty programs in Alberta. These include:

- **Enhanced Oil Recovery (EOR) Incentive** – Assesses a 2.3% severance tax (or half the standard rate).
- **High-Cost Gas Incentive** – Gas from wells defined as high-cost gas wells is eligible for a severance tax reduction; the level of reduction is based upon drilling and completion costs.

- **Incentive to Market Previously Flared or Vented Casinghead Gas** – If an operator markets previously flared or vented gas the operator may receive a severance tax exemption on that gas for the life of the well.
- **Severance Tax Relief for Marginal Wells–** This legislation provides severance tax relief to producers of marginal oil and gas wells when oil and gas prices fall below certain low levels.
- **Enhanced Efficiency Equipment Severance Tax Credit** – Severance tax credits are available for marginal wells (an oil well that produces 10 barrels of oil or less per day on average during a month) for using equipment that reduces the energy required to produce a barrel of fluid by 10% as compared to alternative equipment.
- **Incentive for Reuse/Recycling of Hydraulic Fracturing Water**
- **Advanced Clean Energy – EOR Tax Reduction**– Provides a tax rate reduction on oil produced from enhanced recovery (EOR) projects using anthropogenic carbon dioxide (CO_2).

Texas does not assess a state-level corporate income tax, however, energy companies in Texas must pay 35% federal corporate income tax. This is somewhat higher than energy companies in Alberta, which pay 27% in corporate income taxes (12% provincial and 15% federal).

Sources: Alberta Energy Regulator; U.S. Energy Information Agency; Railroad Commission of Texas; Texas General Land Office; University of Texas