PETROLEUM HISTORY SOCIETY

ARCHIVES

Newsletter of the Petroleum History Society *October 2013; Volume XXIV, Number 7*

P.H.S. Lunch and Learn Meeting – Wednesday, October 30, 2013

Alberta Reclamation – 50 Years of Conserving the Land

by Bruce Patterson and Larry Brocke, Reclamation Professionals

2013 marks the 50th Anniversary of Canada's first reclamation legislation. Having an abundance of varied resources like oil (and oil sands), gas, coal, silica sand, clays, quarriable minerals, gravel, timber, and gemstones, the development footprint has the potential to impact greatly on the various provincial ecological regions. The challenge since 1963 has been to stay on top of the developments while ensuring the conservation of the lands for future generations. Since the introduction of this first legislation, Alberta has undergone a developmental and social transition. Wellsite development has fluctuated, coal had great and poor decades, the oil sands have erupted and urban development has taken off. This has been paralleled by an increasing public demand to conserve the natural heritage and prevent the loss/ destruction of viable lands.

A group of government staff (past and present), industry representatives and consultants are working to record that history. This will include highlighting legislation and standards development, key players from government and industry, research developments, public interactions and milestone events. The presenters (both team members) will discuss their efforts to produce a book on the history, the intended content and audience and the financing issues. The book organization dealing with government, research, and six (6) key industries will be described. They will also highlight a number of positive examples for the different industries which may not be known or understood by the general public. ***Please see page 2 for the biographies of our speakers.***

TIME: 12 noon, Wednesday, October 30, 2013.
PLACE: Calgary Petroleum Club, 319 – 5th Avenue S.W. – Viking Room
COST: Members $30.00 and Guests $35.00 (most welcome) (cash or cheque only)

R.S.V.P. if you wish to attend to: Micky Gulless, 403-283-9268 or micky@fuzzylogic.ca by noon, Monday, October 28, 2013, if not sooner.

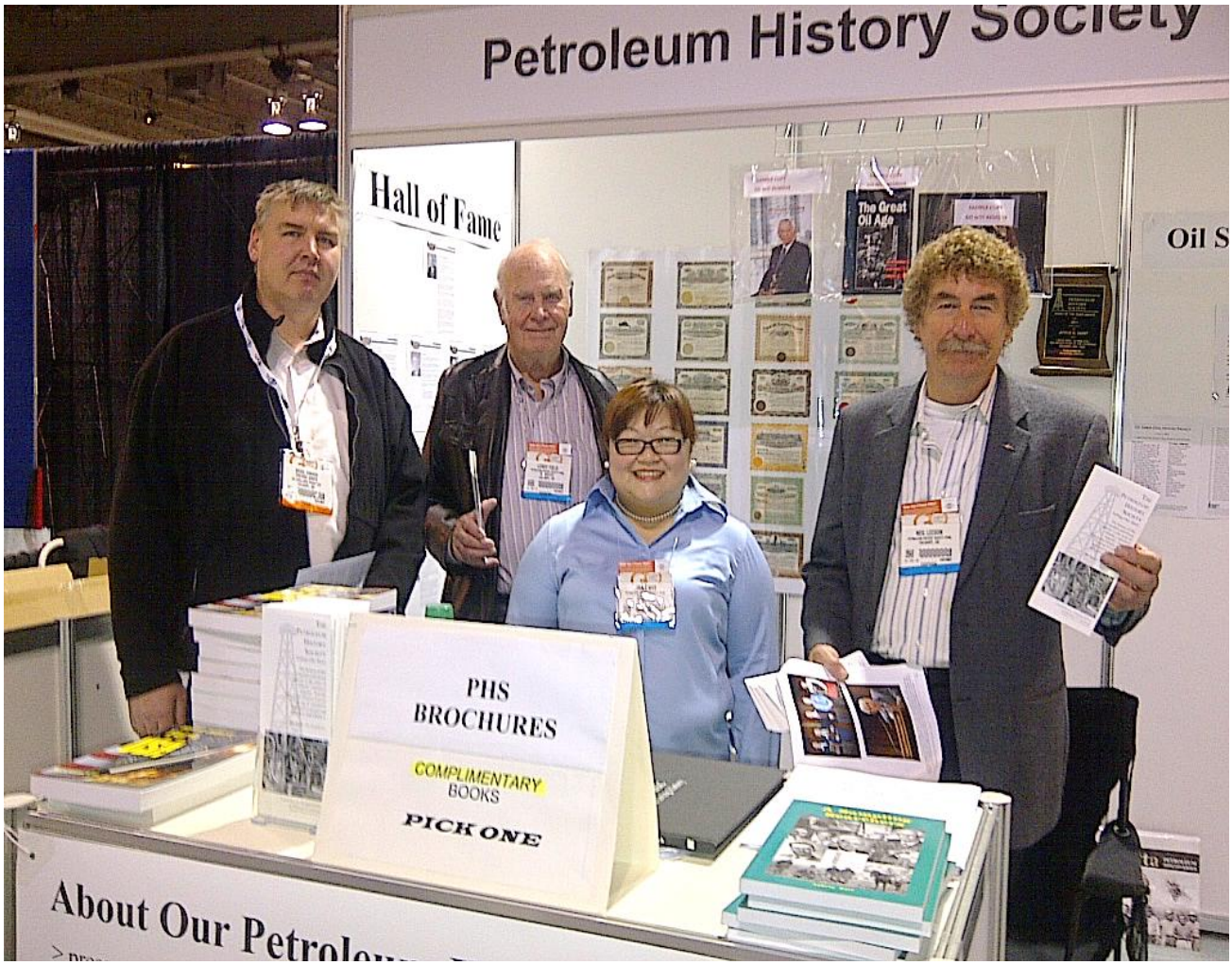
Individuals who indicate that they will be attending - but do not materialize - will be considered "no shows" and will be invoiced for the cost of the luncheon. Individuals who do not R.S.V.P. by the deadline cannot be assured of seating.

Next Luncheons: Len Maier will be speaking to us on Nov. 27 concerning the PanArctic blowout on King Christian Island in the High Arctic in 1971. Our luncheon slate is shaping up for January-June 2014. We are seeking speakers and interesting subjects. If you are considering making a presentation, please contact Clint Tippett, President P.H.S., at 403-691-4274.

October Luncheon Speakers: Bruce Patterson: Bruce graduated from U. of New Brunswick (B.Sc. – Biology and Geology Minors) and U. of Alberta (B.Sc. Agr. – Soil Science). Early work was in Agriculture and Forestry. Bruce spent over 34 years with Alberta Environment in the reclamation field. The first half of his career was spent in Edmonton on approvals for Coal and Oil Sands. During this served on the three Application Review Committees, some policy review committees and a public interaction committee. The second half was spent in Calgary in inspection on coal, gravel, pipelines, and wellsites; covering both Reclamation and also the Water Act. Bruce worked with other agencies concerning projects on extractive operations, waste recycling, and weed management and as a guest lecturer in a U. of Calgary course. For the last 9 years he has been occupied as a consultant doing environmental auditing, vegetation management and site compliance monitoring (for government and landowners). **Larry Brocke:** Larry graduated from the U. of Alberta in 1970 with an M.Sc. in soil science. He began doing soil inventories for coal companies in the early 1970's to assist them with reclamation plans. He continued this work including oil sands until 1983 when he joined Alberta Environment as Chairman of the Development and Reclamation Review Committee which was responsible for reviewing the reclamation plans for major projects (coal and oil sands). Larry retired from Alberta Environment in 1999 as Director of the Land Reclamation Division and began Millennium EMS Solutions to assist companies with regulatory requirements/applications including reclamation plans. He retired in 2011 to enjoy traveling and pursue documentation of the history of land reclamation in Alberta.

Canadian Centre for Energy Information: The P.H.S. has a "Content, Marketing and Traffic Partnership" with the Centre. This arrangement is an expression of the mutually beneficial cooperation that exists between our two organizations. Please see www.centreforenergy.com for more details. Of particular interest to our members is their on-line historical volume "Evolution of Canada's Oil and Gas Industry" that can be downloaded free of charge.

Canadian Centre
for Energy Information
www.centreforenergy.com



Petroleum History Society Booth at the Gas and Oil Expo, June 11-13, 2013
(L-R) Expo delegate, P.H.S. Director Leroy Field, P.H.S. Director Cimmy Wee and P.H.S. Director and event organizer (for the P.H.S.) Neil Leeson. Other P.H.S. Board members who volunteered were Peter McKenzie-Brown, Don Yont, and Penny Colton. P.H.S. Member Ned Gilbert also assisted.
Books and brochures being given away as membership promotions are in the foreground.
Posters illustrate historical stock certificates, P.H.S. Awards, Canadian Petroleum Hall of Fame members who are also affiliated with the P.H.S., and recent publications.
Thanks to all who were involved and supported this initiative.

Archives is published approximately eight times a year
by the Petroleum History Society for Society members.

Back issues are archived on our website at www.petroleumhistory.ca
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PASSINGS

Ian Crawford: Ian was born April 27, 1920 in Edmonton and passed away in Calgary on September 18, 2013 at the age of 93. He was the son of a coal miner and lived in many small mining towns in Alberta including Nordegg, Mercoal and Coleman. He received a Bachelor's degree and a Master's degree in Geology from the University of Alberta where he interacted with many of the pioneering geologists of the time including Charlie Stelck. Ian settled in Calgary and worked for Shell Canada for 46 years including a number of international postings. A recollection from Ian's early career is when Shell terminated its Western Canada exploration programs at the end of 1946 following a streak of dry holes. Most operational staff was sent to New Brunswick to support an exploration initiative there but Ian was left to look after the small collection of properties that Shell had built since its entry into Western Canada in 1939. Amongst these was the Jumping Pound Field that went on to become a crown jewel in Shell's production portfolio following the construction of the Jumping Pound gas plant in 1951 to supply part of Calgary's growing needs and to fill the demand created by the decline of natural gas production from the Turner Valley Field

Stephen Cosburn: Stephen was born in Calgary on July 17, 1916 and passed away in Victoria on October 4, 2013 at the age of 97. He graduated with a B.Sc. from the University of Alberta in 1938. Stephen was best known as the wellsite geologist on Leduc #1. More background is available in Aubrey Kerr's book "Leduc".

Other notables (we have built up a backlog so a few of these are somewhat dated):

Ernie Montgomery on January 14, 2012 at the age of 88. (Shell, Montech).
Geoffrey Leech on April 17, 2012 at the age of 93 (G.S.C. Rocky Mountains).
George Mitchell on July 26, 2013 at the age of 94 (Mitchell Energy – Barnett play).
Norman Haines on March 23, 2013 at the age of 73 (Newsman, P.H.S. member).
Betty Daly on October 16, 2012 at the age of 82 (early Board member of the P.H.S.).
Rodney Kirkham on February 29, 2012 at the age of 74 (G.S.C.).
Allan Bates on December 20, 2011 at the age of 65 (Gulf, Husky).
Glenn Brant on December 8, 2011 at the age of 82 (Texaco, Prairie Oil, Glencoe).
Glascott Dawson-Grove on February 16, 2012 at the age of 87(Shell, Home Oil).
Augusto Gansser in 2012 at the age of 102 (famous Himalayan and Alpine geologist).
Alan Rudkin in 2011 (Imperial, Petromark).
Alan Grant on June 14, 2012 at the age of 79 (G.S.C. East Coast Offshore).
Al Dillabough on January 13, 2012 at the age of 73 (Shell, CanHunter).
Ross Hamilton on June 6, 2012 at the age of 83 (Supplementary Land, Great Basins, MJ).
Don West on April 7, 2012 at the age of 74 (Mobil, Great Plains, Total-Rigel).
Ernie Carter on June 28, 2013 at the age of 99 (Royalite, Carter Mapping).
Larry Darling on August 8, 2012 at the age of 83 (classic obit picture with hard hat and wrench).
Ernie Shaw on September 8, 2012 at the age of 82 (Imperial).
Ray Thorsteinsen on April 23, 2012 at the age of 91 (G.S.C. Arctic explorer).
Scotty Cameron on June 18, 2013 at the age of 82 (PanAlberta).
Bob Reid on June 27, 2013 at the age of 65 (IPAC, PanAlberta, Westcoast).
Ted Newell on April 26, 2012 at the age of 77 (Dupont, Nova).

If you are interested in any details, please contact Clint.

EARLY PROPANE (AND ETHANE) AT TURNER VALLEY

An extract from "Early Developments in the Canadian Gas Processing Industry:
The Turner Valley Example" by Sandy Gow,
published in Prairie Forum, Fall 1998, v. 25, no. 2, pp. 247-263.

In 1952, the same year that the sulphur plant went into operation, Royalite acquired the propane plant, a second significant development. It began as the brain child of James Barber, an American engineer who had worked in the Colorado oil fields. He arrived in Turner Valley in 1938 and in 1940 purchased an oilfield machine shop in nearby Longview which was in later years to become known as Barber Machinery, a major oilfield service company. Barber was aware that the Royalite flare gas contained mainly ethane and propane, and he decided to attempt to build an ethane extraction plant for the manufacturing of ethylene, a much needed product in the expanding petrochemical industry. His plant would be a propane plant first and an ethane plant second; that is the plant would split the flare gas into ethane and propane with the propane being the first commodity to be marketed. The company Barber formed was Western Propane, and he constructed his plant about half a mile up Sheep Creek from the Royalite/Madison plant. In order to deal with the hydrogen sulphide content Barber had to install a Girbitol sweetening unit, followed by the actual refrigeration-fractionation plant. There was no precedent for this type of plant anywhere; it was entirely new, because no Canadian firm had ever before attempted to extract natural gas products by refrigeration. Western Propane's deeply chilled propane reflux produced a product of 99 percent purity, probably because Barber was looking ahead to the time when he would need extremely pure ethane for the making of ethylene oxide.

Although the plant managed to produce a thousand barrels of propane a day, the market of the late 1940's was not yet ready for Barber's product. In the end, Western Propane was sold to Royalite, and in 1952 the propane plant, and some of the former Western Propane personnel, moved down to the Royalite plant site. Within months the propane unit was integrated into the main plant operation and the liquid propane was being stored in the now familiar long, narrow tanks. Production was about 18,000 imperial gallons per day. The product, which contained better than 95 percent propane by volume, was dry and contained no hydrogen sulphide.

Editor's note: Comments are welcome. One of the most challenging aspect of petroleum history as it relates to Turner Valley is to try to understand all of the physical (compression, expansion) and chemical (sweetening, liquids extraction) processes that took place there and how they evolved over time given the normal life cycle of any producing oil and gas field. This is paired with the business environment and the operational decisions made in that context, for example flaring.

Blessed by Geology, Cursed by Geography.

By David Finch – Historian, March 27, 2013 daafinch@gmail.com
This is the text of David's address to the P.H.S. Annual Meeting on this date.
Our thanks to David for allowing us to reproduce it here.

In 2007 I gave a talk here about the Royalty review then underway by the Alberta government. My main point was that nobody was paying attention to how the royalty rate had been changed in the past and that we could learn from those experiences. Here are some lessons I think we can learn from that royalty review.

Firstly, regular reviews are important. From 1931 to 1971 they were done once a decade. In the 1980s and 1990s they were done during crises - low oil prices. And in the early 2000s no review was done because the price was high. As a result of not having a regular review process in place, the one in 2007 and 2008 was much more acrimonious than necessary. Secondly, as part of a regular review - every ten years - government and industry need to sit across the table and update each other on the realities they are facing. I think NGOs and academics should also be at the table, because the more they all know about the factors that affect the royalties the better. Thirdly, emotional exchanges about royalty rate adjustments are best done in private - not on the front pages of newspapers, or sound bites on television and radio. Royalty reviews have always been emotional, but a half-truth, blurted out in the midst of heated debate, is seldom in the public interest. Finally, for blatantly political reasons, it is a good idea for the government of the day to do regular royalty reviews so as to avoid the mess that happened in 2007 and 2008. I think it is fair to say that the mismanagement of the royalty review pushed thousands of votes into the arms of the opposition. No one was paying attention to how the royalty rate had been changed, back in 2007, or learning from those experiences.

The same applies, I think, for the pipeline topic. Political science students at University of Calgary are studying energy and politics. "Pipelines" is one of their topics and Ted Morton had me talk to his class a few weeks ago. I have compressed my ideas into this presentation today, and I offer these comments as preliminary observations.

Pipelines are much in the news these days. People are picking sides. The future of the Canadian economy is at stake! But is that really the case? As students of history, we must step back from the fray and look for themes that can help us understand the issues today. It is not enough to say that we must support pipelines and vilify the environmentalists who oppose them - or support the environmentalists and vilify the pipelines. So what can we learn from pipeline history?

A review of the role pipelines have played for the last hundred years in the Canadian West provides some context. **Ownership** of the resource affects the pipeline development process…Pipelines are a **disruptive** force. **Timelines** for pipelines are often not in sync with political, economic and social realities. Pipelines are a **passive** force in society. **Politicians** often use pipelines for their purposes

My first point today is about the ownership of natural resources. Back when the US invaded Iraq my wife, an American, and her sister were talking about the reasons for the invasion. "That oil under Iraq belongs to the people of the world," said my sister-in-law, "it doesn't belong to the people of Iraq!" An interesting point of view, and one that reflects the American people's need for international oil. That is, a commodity belongs to the consumer. Canada's oil belongs to the people of Canada, but also specifically to the people of Alberta or B.C., or wherever the oil is

produced. The oil off Newfoundland belongs to all the people of Canada - though the people of NF get the royalties, and in the North the new devolution agreement means it sort of belongs to the locals AND to all Canadians. Ownership is important.

In the 1930s, for example, independent Turner Valley producers wanted to gain access to regional markets. By building a pipeline to Winnipeg, but Imperial Oil was again the plan. The Alberta Government had to weigh the benefits for the Alberta independents against those of the large Canadian company, based in Toronto and owned by Standard Oil. In the end, World War II demand for oil in the West made that pipeline unnecessary. But the precedent was set. The Alberta government would eventually have to decide who would build pipelines and under what conditions. In the 1950s Alberta had to decide whether or not to export natural gas, and if so, how much it needed to protect for the Alberta market. At first, 30 years seemed like a good supply, and for a time that was the minimum amount that had to be kept for Alberta - the rest could be exported. It was the ERCB that made the studies about reserves, and that body turns 75 years old this year.

During a worldwide oil shortage in 1971 the federal government put export restrictions on petroleum - some Canadians were worried we would run out of oil. Multinational oil companies operating in Canada did not like the government's policy and claimed that, at 1970 production rates, Canada had 923 years of oil reserves and 392 years of natural gas. Imperial Oil's 1972 annual report stated that reserves of petroleum were adequate to supply markets for "several hundreds of years." It warned that any lost markets due to restrictions on exports could prove impossible to regain, and could create "a genuine economic setback for Canada." So how do pipelines fit in with this point? Pipelines move oil and gas out of the province to other parts of North America, and as soon as the petroleum - a resource that belongs to the people of Alberta - leaves the province, it is exposed to numerous additional forces.

One more ownership point. For 57 of the last 75 years Alberta has enjoyed surplus budgets and that's why we have no PST today. The province did have a PST, in 1936 and 1937, but the Social Credit government and Premier Aberhart rescinded it. By the late 1930s oil income was booming, from Turner Valley production, so the PST was not necessary. But it took until 1950 for oil revenue to surpass the booze tax! Petroleum wealth, from the resource owned by the people of Alberta, and shipped by pipeline to consumers, is part of our story.

My next point is that pipelines are a disruptive force in society. By disruptive I am not saying that pipelines are a bad - I am not making a value judgment. Let me explain how pipelines disrupt. A disruptive technology or a disruptive innovation is a tool or a way of doing business that changes, or disrupts, the way things have been done in the past. The disruption can be wonderfully positive or disastrously negative, of course, but the same can be said about any kind of change. In the 1950s, coal was a disruptive influence. Oil and gas had replaced coal in many applications, but then coal found a new market. Calgary Power, faced with the lack of hydro expansion capabilities, turned to coal. Not underground coal mining, which was dangerous and expensive, but surface mining in a way never considered possible before. Huge draglines removed the earth from above the coal seams, and then those draglines pulled coal out from the pits by the millions of tonnes. Alberta today produces and consumes much more coal than it ever did when coal was the main fuel for society. Surface coal mining completely put underground mining out of business. This is what we mean by a disruptive innovation.

Pipelines were a disruptive innovation 101 years ago. In early **1912** a pipeline began delivering natural gas from Bow Island in southeastern Alberta to downtown Calgary. Town gas, or synthetic

gas, or coal gas had been supplying customers in Calgary. But it was expensive. Canadian Western Natural Gas, Light, Heat and Power Company Limited - today's ATCO - put that coal gas company out of business instantly - it sold natural gas for quarter of the cost of town gas. The **1930s** pipeline I mentioned above is another example of a disruptive force - pitting, as it did, the independents in Turner Valley against Imperial Oil. Their business interests were diametrically opposed. The pipelines of the **1950s** were disruptive, opening continental markets for Alberta oil and gas. A pipeline out of the North in the **1970s** would have been disruptive too, and may disrupt in the future. Not all disruptive technologies gain a toehold. For example, in the late 1920s Calgary Power considered generating electricity using waste natural gas from the Turner Valley oilfield. It could have purchased gas for next to nothing - producers with no access to gas pipelines were burning off $10 of natural gas to produce $1 of gasoline. Instead Calgary Power, now called TransAlta, built the Ghost River Dam on the Bow River and continued expanding its hydro capacity. But the story of electricity generation in Alberta would have been quite different had Calgary Power moved over to natural gas in the 1920s. In summary, pipelines were a disruptive force that allowed society to **change** from dependence on coal as its main fuel to petroleum products.

Next I want to talk about **timelines**. Pipeline projects sometimes take years to complete, and are often out of sync with economic social and political timelines. And they can be very quickly influenced, made redundant, or forced to change in order to survive. The **Mackenzie Valley pipeline**, first proposed in the 1970s, is a perfect example. It may eventually be built, but its repeated delays seem to have put the project on hold forever. Then again, if the price of natural gas goes to $10 per mcf again, the project will be a go! Same goes for pipeline projects today. There is a glut of petroleum on the North American market today, but it could quickly disappear. War, hurricanes, and changing attitudes have affected the price of oil many times in the past. And if the United States moves away from coal as its major fuel for electricity generation, and stops building nuclear power plants, and its economy rebounds again, then the demand for natural gas may skyrocket. As will its price and profitability. A new pipeline to deliver oil to the west coast might make economic sense now, but when it is completed - 5 or 10 or 15 years from now - will there be any market for that oil? Markets are **fickle** and so is the weather and so are wars. One more timing issue is the economic **rollercoaster**. Environmental activism seems to be stronger when times are tough, but when society is booming people seem willing to turn a blind eye to some of the darker sides of development.

Next, pipelines are a passive force in society. My point here may not be immediately obvious, but in a moment I think you will understand. A pipeline has **limited utility** - it can really only do one thing. An energy pipeline delivers natural gas, liquids, oil, or bitumen to customers. It cannot be repurposed to deliver automobiles or wheat or nuclear weapons. Or even people.
A **railway** by contrast can deliver many different kinds of products. And **highways**, going to many different places, can deliver even more products to more markets - once a day or once a year. Pipelines are not easily rerouted or changed to a new destination. As a result, a pipeline can be stranded delivering a product to a market that is already saturated with that commodity.
This does not mean the pipelines can be easily replaced with railways or roads. No transportation system is more efficient for delivering petroleum than a pipeline. Pipelines just sit there, buried, underground, nearly invisible. Efficient, quite safe, but still passive.

My final point is that politicians of all sorts use pipelines. Though pipelines are a passive force, they are **NOT unemotional**. Politicians often use pipelines as a political tool. Any transportation system that moves a valuable **commodity** halfway across the continent is going to step on political toes. The first few long-distance pipelines were relatively uncontested. Built quickly, with

a sense of urgency, after World War II, they were deemed to be in the national interest. But given that certain parts of Canada import oil, and other parts export oil, **political issues** inevitably arose.

The Alberta government, in **1954**, created the Alberta Gas Trunk Line pipeline system in order to have control over the natural gas gathering system, and make sure that the people of Alberta, and not the oil companies, made the maximum profit. The great pipeline debate of **1956** about the TransCanada Pipeline included many complex issues. Nationalism, funding of the pipeline, and whether or not we should export natural gas were just some of the points of contention. In the end, the Liberal government of the day forced through a solution, and lost the election the next year as a result. The National Energy Board, formed in **1959**, was also a political tool. It allowed Ottawa - not the owner of the natural resources in the Canadian West - to have control over energy policy when the petroleum products crossed provincial or international boundaries.
In **1967**, when Sun Oil began producing bitumen, the Alberta government carved out a portion of the market in the pipeline for the bitumen - there was not enough pipeline capacity for all the conventional oil so all oil producers were limited by the amount they could sell. Conventional oil producers were not amused, and for a long time oil sands executives were not welcomed in this club.

In **1985**, the Halloween Agreement deregulated the petroleum industry as well as the pipeline industry. It created an opportunity for producers to create another pipeline and the Alliance Pipeline came about as a result of this political decision. Arne Nielsen's perspective on the National Energy Program and the industry's reaction to it are well documented in his recent autobiography. All I will say is that the NEP forced him into politics for a few years. Politics are much at play **today** in the debates over the pipelines that are being proposed in the United States and in Canada. It's interesting to watch how the Democrats and Republicans debate the pipeline topic in the United States, and the Conservatives and the New Democrats do the same here in Canada.

Though invisible, pipelines are a legacy issue for our society today. 10 km of pipeline lie hidden underneath Alberta soil for every 1 km of paved road. Pipelines gather petroleum, take it to gas plants and upgraders and refineries, and then move the products to consumers. They are invisible, efficient, effective, and ubiquitous. The fact that we know so little about them, and pay so little attention to them, is not in the public interest. Like many parts of our modern life, we are woefully uneducated about pipelines. It will be interesting to see how the pipeline issues of today work out over the next 10, 15, 20, and 50 years. Given that most pipelines in North America are younger than most of the people in this room, this is a very young topic indeed.

What do we know as a result of our review of pipeline history?

Markets are where you find them. Natural gas today generates electricity at a facility here in downtown Calgary, across from the King Eddy. It is a cogeneration plant, making power and steam heat, which is used to heat city buildings. Diesel from the Northwest upgrader? Natural gas for cars, trucks, trains? $10 and $50?

Emotions will always get heated during debates about petroleum policy and pricing, the way we move it - trucks, trains, ships or pipelines, and who benefits from the wealth it creates. British Columbia wanting in on Alberta's wealth in exchange for a new pipeline to the coast is an example.

Disruptive innovations will continue to change the economy. Fracking is a recent example, though the technology has been around for generations. In Turner Valley they fracked with liquid nitroglycerine! Centralized power generation was disruptive a century ago, when hydro on the Bow River displaced small electrical utility plants in communities around Alberta. Today, decentralized electricity generation might prove disruptive. TransAlta went into the decentralized electricity generation business in the 1990s in Ontario. If shale formations and fracking make oil and available almost everywhere, then maybe decentralized electrical generation using whatever fuel is handy will become the norm - oil, gas, bitumen, wood waste, run-of-the-river hydro. Northern gas might one day be shipped from the Mackenzie Delta overseas without ever entering a pipeline....if the warming of the oceans opens the Northwest Passage for most of the year. Pipelines and **politics** are perpetual partners. And that makes reading the daily news a great source of entertainment.

In summary, are we: Blessed by geology! Certainly! Our coal, oil, natural gas, bitumen and many other geological birthrights make us fabulously wealthy. Cursed by geography? In a way, but we live next door to our best customer.... For better, and for worse, pipelines are an important part of our story, a chapter in a book our society continues to write every day.

Top: Joining sections of pipeline between Turner Valley and Calgary (1920-29) Bottom: Laying gas pipeline between Carbon and Calgary 1958. Images courtesy of the Glenbow Archives.