



# HANS MACIEJ

Date and place of birth (if available): 1928-08-18; Steglitz, Germany

Date and place of interview: 2011-7-12

Name of interviewer: Peter McKenzie-Brown

Name of videographer:

Full names (spelled out) of all others present: N/A

Consent form signed: Yes

Initials of Interviewer: PMB

Last name of subject: MACIEJ

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PMB: Would you say something, so I can...

MACIEJ: Would I say something, yes.

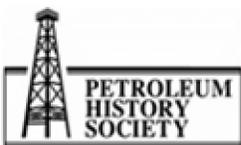
PMB: That's plenty.

MACIEJ: That's enough.

PMB: So I'm talking to Hans Maciej. M-A-C-I-E-J, and we're going to begin with maybe an hour, possibly hour and a half interview. So Hans, can tell me about your career? You and I worked together with for many years, 11 years; perhaps you can tell me about before that?

MACIEJ: Well before I came to Canada, I was educated in Germany and my first job was to join what later on became the Ministry of Economic Affairs of Western Germany, at the beginning it was really a by-zonal ministration on the economic side dealing primarily with the Marshall Plan affairs. That was for the British and American zone, because Germany, West Germany was divided into three zones and Berlin, the eastern part was the Soviets so, later the French joined, so we had basically the foundation for a Ministry of Economic Affairs which came into being with the formation of the West Germany government in 1949.

PMB: Hans did you receive an economics education in Germany?



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MACIEJ: I did but I never did graduate in economics because I, since I was all by myself, I didn't know where my parents were for 2.5 years after the war, so I did a lot of studies at night, at wherever I was at the time, because we moved around quite a bit, and then I eventually got what would probably be the equivalent of a Bachelor of Commerce rather than economics, my economic background really comes from the work in the planning division of the Ministry of Economic Affairs, when it became a full-fledged ministry, I was in the planning division and sort of had special jobs with regard, primarily with the Marshall Plan and a lot to do at the statistical end.

PMB: That's M-A-R-S-H-A-L-L. Marshall Plan.

MACIEJ: And then I, in 1951, Esso approached me to take a position, by that time, we were a full ministry and were stationed in Bahn, we had moved from Minton, to Frankfurt to Bahn.

PMB: What was the name of the first town? Minton?

MACIEJ: Minden.

PMB: M-I-N-D-E-N.

MACIEJ: That's right. As the ministry involved, you know, the way the political history, the post-war history came about, so after four years in public service, government service, I joined Esso and was primarily, that would be termed lobbyist, a liaison officer between Esso and the German Bundestag, the Parliament and the German Government, you know, the ministry said that they...

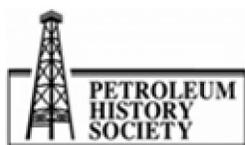
PMB: In Germany was it then known as Esso or as Standard Oil of New Jersey?

MACIEJ: No it was Esso AG.

PMB: AG, okay.

MACIEJ: Yeah, with [not understood]. So in '53 I decided I wanted to leave Germany and so I came to Canada and arrived in July of 1953, with no money in my pocket and it was on a Sunday morning in Edmonton, on a Monday, I went to see the Esso people who had an office in Edmonton, and introduced myself and they said, sure we'd have a job for you. So I became the so-called geophysical helper, which was nothing more than just a jug-hustler, really. And I spent two winters in the bush, I had some agreement about, you know, I actually asked for field experience and wanted to do, didn't want an office job when I arrived, because my English wasn't all that perfect, although I had the English knowledge and I wanted to get to know the country, so I agreed to go into field work for a year, which included one winter in the bush and when I came in out in the spring and Esso asked me whether I would stay for another year and I agreed, provided I was going to have a job when I came out in the spring, again another winter in the bush.

PMB: When you talk about "in the bush", where were you, were you in northern Alberta?



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MACIEJ: Well we were in northern Alberta but we covered a lot of territory up there, including in B.C. and in the lower Northwest Territories, but it was all in northern Alberta in the winter and then in the summer, we were down here in the south.

PMB: So you froze in the winter and you were consumed by black flies and mosquitoes in the summer, okay.

MACIEJ: I know what -71 Fahrenheit looks like, that was the lowest temperature we had experienced in our work. Of course, you can't get anything done at -72 but we were still out in the field, mostly playing cards, in the trucks, because we had to have the trucks running, 24 hours a day, at night somebody was assigned to check on the oil on the trucks so we didn't lose any trucks during the winter, and in the spring, every truck got a new engine. So it was interesting times, we learned a lot, got to know a lot of people, got to know a lot about Canada and so in '53, Shell was looking for somebody, for better description, to put some sort of economics department or statistical department, whichever way.

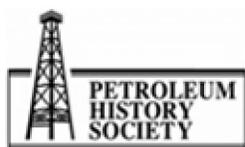
PMB: You said '53, did you mean '55?

MACIEJ: No. '55 sure. '55 sorry. So I had an interview and they hired me. So I did a lot of interesting studies, special studies for Shell and then, that was in the exploration department, and then at night I was heavily involved starting back in 1956, one of the first people that, one of the people that started the Calgary Olympic Development Association known as CODA, and we sort of put a tentative bid in for the Olympic Games in 1959 for the '64 games, but we were not prepared to really at that stage, seriously organize the games, but it was an introductory, the International Olympic Committee, that we would be coming back of course, with a firm bid and so we did make a formal bid in 1974 for the '68 games and lost by a very small margin and, but decided that we would go back with another bid in 1972 and so I took a leave of absence from Shell in 1966 to manage the Calgary Bid for 1972, which we also lost, unfortunately, there was a lot of politics, the IOC in those days, was a very much, very political body and really led by a very dictatorial president, Avery Brundage.

PMB: How do you spell that? B-R-U-N-D-A-G-E.

MACIEJ: So, and then when I went back to Shell in '67 after my leave of absence was over, we were looking at possible changes as to what I was going to do and something came up at that particular time that I found very attractive to do was a major development at Lake Louise which some of the developers, of course in my background was the Olympics, etc, etc and with the sport, thought I might be a good guy to handle them and I said, well no, I... some of it involved retail, the retail end of the business and I of course had no idea, I mean, although in Germany when I was working for Esso I was involved in the refining and marketing end, I really basically at the retail level didn't have any experience, so I persuaded Shell to give me a lease on a service station.

PMB: The one in Lake Louise?



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MACIEJ: No, here in Calgary.

PMB: Oh here in Calgary, okay.

MACIEJ: Yeah, so I took one that was never was making any money, they lessees always didn't do too well and I couldn't understand that and so I took on that challenge for two years. And at the end of two years, I was approached by the owner of the automobile dealership and that I would become a partner with him and I was always interested in cars and so I said, yes.

PMB: Did that service station end up making money?

MACIEJ: I did make money, yes.

PMB: Good.

MACIEJ: I did make money on the station, but it took a lot of work, a lot of work you know. Well small business always becomes a 24 hour job. So I agreed to becoming a partner, I was really looking into it, you know, more out of interest in cars than in enthusiasm, as it turned out, it was not a very successful business and I learned a lot about the dealership contracts and wholesale financing and all that kind of stuff, but what turned out to be this company really didn't have enough capital, you know, so after two years, I decided look, my partner and I just decided look, there's not enough room in here for two salaries, I said I'm going to look for something else and you keep running the outfit and keep my financial interest in it but I'm going to look for something else and that's when the job came up at the Canadian Petroleum Association.

PMB: Okay now that was an automobile dealership that dealt with basically high-end vehicles, like Fiat, Peugeot, Citroen, Alpha Romeo and Triumph?

MACIEJ: All European. European models.

PMB: Does it still exist?

MACIEJ: No. It eventually, eventually it was sold out to another dealership in Calgary.

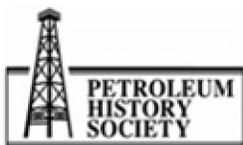
PMB: Okay, and then you joined the Canadian Petroleum Association in 1971.

MACIEJ: Right.

PMB: And your job then was director, technical director?

MACIEJ: No, I was actually hired as an Executive Assistant to the Alberta Division Manager, at that time, the CPA had an Alberta division and Saskatchewan division, a...

PMB: B.C. division.



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MACIEJ: ...B.C. division, right. But then the board decided that since, you know, the Alberta division really handled most of the business including the federal business, so they decided, well we might as well fold in, discontinue the Alberta division and CPA sort of, well here in Calgary became the CORE, you know, without the divisional aspect, we still kept the Saskatchewan division of the [?] was simply handed down from, you know.

PMB: Okay.

MACIEJ: So eventually I took over as Alberta division manager when the merger than subsequently, the merger, the discontinuance of the Alberta division came about and then I became the technical, you know, type of changes.

PMB: Technical director. And then I as recall in the mid-80's you became a vice president.

MACIEJ: Yeah, the titles, they really don't mean very much, it's the stuff that you, what you are doing.

PMB: Just for the record, you and I worked together at the CPA for 11 years until it merged with IPAC in 1971.

MACIEJ: Right.

PMB: And it became the Canadian Association of Petroleum Producers.

MACIEJ: That was in 1991.

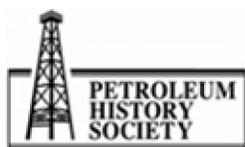
PMB: Sorry, I meant to say 1991.

MACIEJ: 1992, the merger actually was 1992, I retired at the end of 1991 when it was still CPA and the rumours started about a possible merger.

PMB: Oh I didn't remember that.

MACIEJ: The merger actually came about in 1992.

PMB: Okay, so you're right, so I stand corrected on all of that. Okay, now, Hans what I would like to do, I worked with you at the CPA and there were a, I remember that we were not very much involved in the oil sands because it wasn't really a going concern until much later, but I have a number of questions that I'd like to ask you based on your long time involvement in the oil industry and in Alberta, so let's begin with this, do you remember the early objections to the development of the oil sands in the 1960's when Suncor for example came on and what are some examples or illustrations of that?



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MACIEJ: Well the biggest issue is really if you were to start an operation in the oil sands, it had have guaranteed production but everything else was prorated, that was the days of proration and because we had so much oil and limited markets.

PMB: Okay, so please just briefly explain proration for the record.

MACIEJ: Well the ERCB regulated how much everybody could produce from each well and from each company because it was really government controlled sharing of the market which was very limited, and the productive capacity was way beyond that, and here you're coming in with a project that's just going to, in order to go ahead, was to have a guarantee that it would not be prorated, because that would have been just because of the high capital investment and really the beginning of a technological development, would have never got the project off the ground.

PMB: So it would have been financial suicide for the oil sands producer to agree to that.

MACIEJ: Essentially, yes. And everybody, you know, I mean it was really questionable whether the operation by Great Canadian Oil Sands which really was the company at the Suncor subsidiary that that had the project, whether you could make any money, you know, it was very, very doubtful and a lot of people said no way.

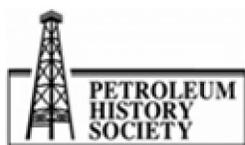
PMB: And to that a large extent that was because it was such a small operation.

MACIEJ: Well it's a small operation because the technology was really unproven. We had some lab results, and then the hot water process, you know, yes, no, but anyway, because of the bigger resource that was up there, you know, I think the powers to be decided that yes, they would yield to that demand because remember, it was even contentious in Sun Oil in the U.S., it was really Mr. Pew, who was the chairman of board of the president of Sun Oil at that time, he was the one that was pushing for it, looking at the unlimited resource that was up there.

PMB: That's J. Howard P-E-W, Pew.

MACIEJ: And you know, as the story goes, this board was very reluctant or against starting the project and he threatened the board that he would put up his own money. Now that to me for a long time was just hearsay. I had to chance to confirm that when I ran into the Pew's personal lawyer in Philadelphia during a senior tennis world championships, that I was playing in, and I don't know whether he sought me out me or whether we met by accident and we started talking about it and I asked him about it, I said, was it really true, or was that just hearsay or the legend and he said, no, it was quite a board meeting he said, and Pew threatened to walk out of the meeting and he said, I'll put up my own money.

PMB: Wow, okay, I've heard that story too; it's nice to get that confirmed. I've heard of stories from the 60's, in at least one occasion, somebody tried to get an oil miner, as the Suncor people were called, get an oil miner thrown out of the Petroleum Club because of the antagonism between conventional producers and the oil sands producers was so intense. What were the, I'm going to ask



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this question the way I've kind of written it, based on your experience and knowledge what were the early challenges that the Great Canadian Oil Sands Project face, what were some of the ways they dealt with them?

MACIEJ: Well there were two problems on the technical side, one was the mining side, although mining, you know, mining is mining but it was quite different in the oil sands since you were dealing with something totally different, you were dealing with a very abrasive sand, you know, that contained the bitumen, and so you may recall they brought it from Germany the big...

PMB: Bucket wheel, the wheel reclaimers.

MACIEJ: Which really was in Germany was used to mine soft coal, peat moss essentially, that's what it was, which is not very abrasive, it's very smooth material, you know, and brought it in here. Well very quickly it turned out that the teeth on the bucket wheels would barely last 12 hours because they were gone, you went up there at night and watch the operation, you could literally see the teeth burning red, you know, because of the abrasion that it caused. I think the bucket wheel is still down as a museum piece up someplace up there at the mine. So that was the big challenge, it was a matter of getting out of the ground, but getting it out of the ground continuously because every so often and I can't remember what the interval was, you had to stop the operation to replace the teeth on the bucket wheels and it was quite a big bucket so it took quite some time to exchange those things. And so now the challenge was to find some metal that would last longer than the material that was used which was essentially the same stuff that we were using on the brown coal operation in Germany.

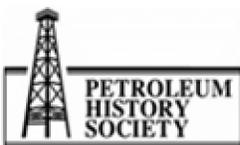
So, and they made progress, they made considerable progress, the period when they could continuously without stopping to put new teeth on it, on the front piece and you know, it was lengths and so that was one part. The other part, of course, is you were mining sand with bitumen. It was a separation issue and although there was a process in existence that did work, but there was essentially very primitive, it was a washing machine, through the velocity and the gravity, kept the sand in one place and the bitumen on the outside and so that was the other challenge, but he research had been going on anyway, it was essentially the Clarke water process at the beginning, you know, and it was continuously refined and it was one of the biggest secrets in the industry, I mean if you wanted to go there, there was no way you got anywhere near where the separation process was.

PMB: Because they wanted to keep that technology and how they developed secret, really?

MACIEJ: That's right, yeah, because that was a secret for them to make some money out of it and there was a lot of spying going on, industrial espionage but I think they pretty well kept the lid on it, even when people left.

PMB: And when Suncor actually began, the Great Canadian Oil Sands Project actually began production in '67; oil was only \$2.00 a barrel.

MACIEJ: That's right.



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PMB: And so it was many years before they started making money wasn't it.

MACIEJ: Oh yeah.

PMB: I have heard that until, in the mid-80s after the oil price crashed at 1986, they were literally at the point where they were trying to decide whether to continue the operation.

MACIEJ: That's exactly it, yeah.

PMB: Then eventually they solved those mining problems by introducing the truck and shovel system.

MACIEJ: Yeah, right.

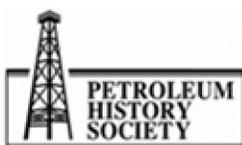
PMB: Wow, that was really interesting Hans, I hadn't heard any of that before. I want to talk to you, you would've been involved in the CPA at this time, about the time the Lougheed government introduced AOSTRA to help develop the oil sands using in situ techniques as well as to find better ways to develop the mining systems, how did it come about, what are the strengths of the system, what were its weaknesses, and as I recall Hans, you were involved to some degree with the Lougheed Government in that period, as a volunteer, or sitting on boards or something for the political party, so maybe you have some inside information that you would be happy to talk about, or not?

MACIEJ: No, I really don't have any insight in there, it wasn't, my involvement was really sort of working with AOSTRA, you know, and getting that organizing, very limited involvement in getting it put into place, besides, I think the government quite rightly recognized, you know, looking at the last resource and the secrecy surrounding the oil sands operation that was there, found the need that, that if there was going to be any process on the technical side, that there has to be some independent research organization and so they founded AOSTRA and financed it and I think the industry put money into it too. But there is again, you know, you always have that issue of proprietary ownership of technology, although what, and they did one hell of a good job, AOSTRA, they really did, you know and all that stuff was made available to anybody in the industry, you know, it lifted the restrictions that you find when you're dealing with proprietary technology.

PMB: Now some companies and I cite Vern, an interview I had with Vern Larson, tells me that Imperial absolutely refused to work with AOSTRA, Imperial for example, because it wanted to own the technologies.

MACIEJ: Well that's right and they had very early started laboratory work and eventually had a pretty big research organization in place in their own company and they may have actually been ahead of AOSTRA, you know, but they also found out certain things to AOSTRA.

PMB: Imperial did?



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MACIEJ: Yeah. So there was a little loose, well maybe it became more when certain things became knowledgeable because people personnel was changing, although you take your knowledge and your experience with you when you go to another job, so it became a little bit more open.

PMB: What were Peter Lougheed's motivations for creating AOSTRA? We've often heard him talk, and he was the first person I interviewed, and one of the first things he said is look, this resource belongs to Alberta and therefore, his argument would be he didn't say this, his argument would be it therefore makes sense for the people of Alberta, the Government of Alberta to invest money to unlock the secrets to this technology to make it economically feasible.

MACIEJ: Right, well, you know, make it available to everybody in the first place, you know, I mean he recognized that there was research going on and just about anybody that had any leases up there had any interest, and so you obviously had some duplication and people pursued the same, you know, the same aspect of any technology without interchanging it and AOSTRA to a certain degree broke that down, that was really was, I think, the real issue behind it, is to get to some duplication out of the way and turn it over to AOSTRA and a lot of financing actually came from the oil industry, not just from the government. So it was really to break that part of it because obviously the progress, technologically progress would be faster than everybody sitting somewhere in a cubicle and working by itself.

PMB: To what extent was it successful and what failures did it have in your opinion?

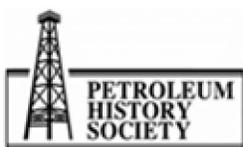
MACIEJ: Well, failures, there's all kinds of failures that come about in R & D and here you, while you very often had very promising results in the lab, it has to have been upgraded to a pilot project and eventually to a commercial project, what works in the lab does not necessarily work at the other end, you know, and that was the other problem and so there were many failures in individual companies, and some aspect probably that helped AOSTRA was the failure by individual players, that simply like let's put it over there. So it was a good idea to establish it, I think, from an economic point of view, it saved a lot of money, avoiding duplication and more concentration on particular aspects of the whole process, whether it was on the mining or whether it was on the...

PMB: In situ.

MACIEJ: Yeah. Not in situ, we weren't dealing with in situ, in situ was...

PMB: Well there was some AOSTRA funding available for in situ projects, one when I was at Gulf, I remember that we got some for example.

MACIEJ: But in situ way down may confuse in situ with the separation process, but not looking at in situ as we have it today. We always knew that there was only a certain portion, limited portion of the oil sands was capable of mining because of the... what made it either economic on 80% of the resource was the thick overburden, because you had two costs, you know, you had to remove the overburden first before you got to the sands.



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PMB: Sure, so what I think I hear you saying is that in early days of AOSTRA the focus was on the mining aspect of it.

MACIEJ: No it was on some aspects of the mining process, and one was the development of steel that could last longer for the bucket wheel, but the other concentration that AOSTRA really was the separation process, separating the sand, the bitumen from the sand.

PMB: Because later on in the organization's history it, for example, Roger Butler developed the SAGD process.

MACIEJ: Yeah.

PMB: And I think, I remember when they first announced the UTF, the Underground Tunnel Facility, in the late 1980's which was really proved that technology, so.

MACIEJ: But it really was developed, I really, it really was developed for conventional use, you know, SAG process.

PMB: The UTF and SAGD?

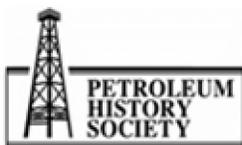
MACIEJ: There was some, and I don't know, again, you didn't hear very much about it, but there was, in the Lloydminster type of heavy oil there was work going on about how to improve the recovery efficiency, you know, because Lloydminster recovery probably in those days, in the early days, you recovered probably 7-8% of the oil in place and there was something going on about increasing, how do we increase the recovery efficiency, how did you get more oil out, you know it's there.

PMB: Okay, well that kind of makes sense, because when Roger Butler originally proposed the idea, it was at the Cold Lake Project, which is quite different from the Athabasca for example.

MACIEJ: That's right, yeah.

PMB: Very interesting Hans, thank you. I want you to go back to 1975, when the, actually it was 1974 when the Syncrude consortium went through the Syncrude crises and then all of it ended up with the Winnipeg Agreement, what are your recollections of those events?

MACIEJ: Well, the recollection was the big fight at, you know, Alberta was prepared to put x dollars into the process, you know, but Lougheed insisted that there had to be federal involvement financially because this wasn't just going to be an Alberta operation, but one that benefited the entire country, you know and the way the political scenery was at that time, you know, was the only way you could break the ice, was really through financial commitment, so Lougheed really wrestled the Federal Government into putting up some money, that was the big thing.



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PMB: Well in those days, if I recall, there was huge antagonism between the two and now recognizing that the source might be bias, Bill Mooney really argues that it was the work of the team of executives that went from Edmonton to Ottawa and back and forth, and back and forth, that were really able to negotiate that and his argument is that the discussions were really through his executive group, who communicated every night with Don Getty in Edmonton and Donald McDonald in Ottawa.

MACIEJ: That's quite true, if it was to come about, you know, I mean Lougheed and Trudeau really weren't talking to each other, there had to be some gold between and it was the executive group as you say that sort of, you know, because Lougheed wasn't going to give an inch and the Federal Government at that time was still, really, looking at taking over the resources period, you know, ignoring the whole situation and go after, it was international interest, you know.

PMB: Because at that time we had just been through the rapid ramp up in oil prices because of the new muscle of OPEC and then there was a tax on exports of oil exports in order to finance the import of oil to east coast and so on, so there was a tremendous amount of political tension.

MACIEJ: Well that's right, you know, and what also became apparent at that time, remember the matter of self-sufficiency, you know, and here you were sitting on this huge resources although at that time, we still didn't know how big it really was, that we were looking at trillions of barrels of oil in place, you know, but still it was already a recognized, it was huge and that eventually had to in the interest of self sufficiency had to be exploited because everybody knows that conventional production after you reach it is big, it declines, and the more you produce, the more you have to find and all that kind of stuff. But it was self-sufficiency and that was the political at both ends.

PMB: Now, as I recall in 1972 American oil production peaked, and it went through a fairly rapid decline and there was a lot of feeling around Canada that Canadian conventional oil production would also begin to decline soon, and so that was one of the motivators.

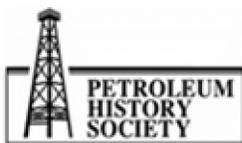
MACIEJ: Well that's right, that's what I'm saying, but it was that self-sufficiency, because you know here was big OPEC that was going to control everything whenever it felt like the price was going down and that was controlling the U.S. of course, at that time, already producing, importing a vast amount of oil from the middle east, you know.

PMB: And almost 40 years later, the eastern Provinces of Canada are still importing, although we produce oil than we can consume, they are still really reliant on overseas sources.

MACIEJ: Yeah, but that's about to change. We again reverse the pipeline and ship oil sands oil to east coast.

PMB: Oh I hadn't heard that.

MACIEJ: Yeah. It's at line 9, which I remember was an import line, and then it was reversed the other way, and then of course, Hibernia...



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PMB: This was from Montreal to Bangor, Maine wasn't it? Was that the line?

MACIEJ: Yeah, to Maine but it was a different place, but that doesn't...but now the consideration is again to reverse it the other way.

PMB: Oh I hadn't heard that?

MACIEJ: One of the provinces the east coast, the refinery configuration that is existence in eastern Canada is not suitable, although I should say, the off-shore production from Newfoundland is not really what the refiners want in eastern Canada, so that production goes to the U.S. and we import the oil that is suitable for the eastern refineries, and that's why now, I mean you can't build a new refinery in Canada, no matter how you try it, you know, Shell the last closures to Montreal refinery, you know because not in my backyard and that sort of thing, so the only option that you have left these days, in terms of dealing with demand on the refinery side is extending or changing the operation of the refineries that are in place, you don't have that environmental problem.

PMB: So until the refiners change their systems so they can use bitumen or heavy oil, it's because of them and that requirement that that part of the country continues to be reliant on imported oil probably.

MACIEJ: That's right.

PMB: Okay, good. Thank you, Hans.

MACIEJ: And you have to realize that worldwide light oil production is slowly but surely disappearing, they gravity is getting lower and lower, so develop this stuff that's coming in from OPEC and that's one of the discussions right now, how long can OPEC really supply in terms of productive capacity and we're talking mainly on the light oil end, you know, I mean the question in Saudi Arabia, for example, Saudi Arabia claims, oh we've got 4 million barrels a day with spare capacity, that spare capacity is all heavier, not heavy, but heavier sour oil which nobody wants, because you've got the sulphur problems to start with, and you've got configuration the refineries is really not there, they would have to invest billions and billions of dollars to make it suitable for that stuff so that's...

PMB: So this is a kind of imaginary shut-in production.

MACIEJ: That's right. To be useful, I mean the capacity's there, but the usefulness I mean, as to how you would market it and where, because there's nothing you can do about the refineries are there, and this is their process, it would take years and years to build some extra coking facilities or hydro-cracking facilities that become more expensive all the time, and so things are changing, things are never the same.

PMB: I remember the sense of crises that we all felt in the early 1980's shortly after I joined the CPA when Cold Lake, which was meant to be a huge project, right after the NEP, it just, Imperial



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basically said no way, and then at roughly the same time, Alsands, which was a Shell project, did the same, could you talk a little bit about that?

MACIEJ: Well yeah, rather than to say politics at that point killed both operations, they just made uneconomic. And nobody, nobody really bought into the proposition that the oil price would just go up, you know what goes up, everybody that has any brains knows what goes up, comes down and then when you know, when Regan together with Saudis collapsed the oil price.

PMB: That's Ronald Regan.

MACIEJ: Yeah, but everybody realized how tender, how sensitive that situation was, so people had to make a decision. So in the case of some of the, the costs were going up, a lot of it was from the technological side of it, a lot of risk, so people just didn't have any choice but you say, we can go, at least not this time.

PMB: And but there was some specific measures in the natural energy program to contributed to the collapse of those projects, or not?

MACIEJ: That was largely the pricing issue, you know, the price was controlled by the government, I mean it wasn't the world price, it was the "made in Canada" price to start with and then there was the uncertainty of about the world oil price, we really had two problems. Eventually, supposedly the Canadian price was going to go to world price by the time it happened, the world price came down to the Canadian price.

PMB: Wasn't there briefly a period when the Canadian price was higher than the world price?

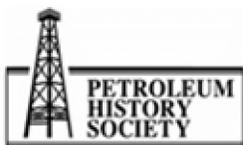
MACIEJ: For sure, yeah.

PMB: Hans, I just wanted, I think you and I talked about this a long time ago, I want your opinions, if you'd record it briefly. There was an argument in the late 1980's that the reason Ronald Regan and the Saudis worked together to cause oil prices to collapse was to destabilize the Soviet Union which was totally reliant on oil exports to survive, and the follow up to that argument is that they were successful and this is the main thing that led to the collapse of the Soviet Union in 1989.

MACIEJ: Well yes, eventually that became the consequential; the objective of collapsing the world oil price really was to deprive Soviet Union of running it. Because their main revenue came from oil production, remember they were producing \$12 million barrels or \$9 million barrels a day...or whatever that number was...

PMB: It was 12 million a week.

MACIEJ: ...so they were making a lot of money with the help with of OPEC, now because OPEC was controlling the prize, and at the same time there was an arms race going on, remember you're in the Cold War period, there's an arms race going on between the United States and the Soviet Union



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and in order to keep up the Soviet Union needed all the oil revenue that they could possibly get, as soon as the price collapsed, they had lost the arms race and now the political consequences entered into.

PMB: And the economic destabilization of the country, good.

MACIEJ: That's right, yeah.

PMB: I had heard that, I think we talked about it 20 years ago, and I wanted to get that on tape. Anything else you want to say about Cold Lake or Alsands?

MACIEJ: Well not really, Cold Lake turned out to be a very, very successful operation and the technology has increased tremendously, and it had quite an impact on the environmental side because I remember Cold Lake came up with the pad development, rather than drilling every ten feet.

PMB: So you drill from pad, P-A-D, you drill a number of wells from a single pad and steam them.

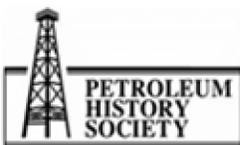
MANCIEJ: Yeah, and you of course, needed the technology to horizontal drilling because you needed to get the well spread out.

PMB: And this was a form of modular development wasn't it?

MACIEJ: I'm probably incorrect in saying that Imperial Oil may have pioneered side-tracking and horizontal drilling through the Cold Lake development. I'm not sure whether I can credit them with the, but a lot of it had to do because in order to go to the pad development you had to have the technology to horizontal drilling and side-tracking wells.

PMB: On that I heard from Vern Larson the other day, that in the 1970's, I think early 1970's Imperial drilled a horizontal wells at Norman Wells, and then in around 1981 or '82 working with Roger Butler, who was then on the Cold Lake Project they did drill a first, horizontal well into the oil sands and they did an experiment with SAGD at that time, so that is confirmed pretty well. When the Canadian Petroleum Association, today CPA was pretty active in oil and gas policy, in fact as I recall that was one of your major concerns, what policy measures to the organization, or did the organization propose to further development of the oil sands, because I remember very little interest that we had in the oil sands, especially after Alsands and Cold Lake collapsed.

MACIEJ: I totally would have assumed we had very little. That was all individual companies and like I say, the secrecy aspect with many projects was such that we couldn't possibly have anything to do with it, because we couldn't keep it, as an organization, couldn't keep it secret because we had all of the members. I think that happened naturally, except for one thing. Remember the Statistical Handbook which I started and kept on going?



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PMB: Statistical Handbook, still the major most important resource on oil and gas statistics in Canada.

MACIEJ: We started reporting production, oil sands production from the Great Canadian Oil Sands and we weren't carrying any reserves in our reserve support, so one day, I said look, I said, I can't keep this going including oil sands production in Canadian production.

PMB: So it's as though this stuff is appearing out of nowhere?

MACIEJ: That's right, I said, where the hell is it coming from? And that was quite the discussion in the Reserves Committee but eventually they agreed. Well we have to do something about it, now the question was, what are we going to do about it? Well one thing was very easy, we could put whatever Great Canadian Oil Sands produced, let's say that produced a million barrels that year, well we just produced a million barrels in reserves, you know, wipe it out. Well that didn't go very far, I made it that simple and so I said, oh, we need to have a process and we can argue about the numbers, we have to put something in the reserves report, and everyone said, okay, hallelujah, and said yeah but what, you know. So after lengthy discussions we decided that we would credit every producing project, and every project that had approval and were sort of certain to go ahead, because there was a risk like oil sands, that it may not proceed, although they have ERCB approval to go ahead, so there was some judgment involved in there but we say we credit them with 25 years of production.

PMB: So if I said I had a thousand barrels of production, of annual production, you would say okay, there 25,000 barrels of reserves.

MACIEJ: On the reserves, yeah. And we kept that going forward, 25 years was a very conservative estimate as to how long those projects would produce year round, but, however just to get things going we finally agreed on the 25 years and we agreed on producing projects and those that had approval with some judgment factor there.

PMB: Hans, that sounds to me, tell me if I'm wrong here, that sounds to me almost as though it's based on the proration system, because the proration system basically said that you had to, it was 25 years, oil production, production from a field was based on 25 years of production wasn't it.

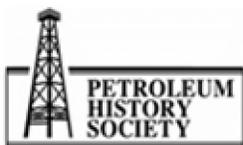
MACIEJ: I don't think so; I don't think that entered the proration system.

PMB: Was natural gas not done that way?

MACIEJ: Oh that, oh now you're getting on something else; this 25 years came in as, we have to have 25 years of reserve before we could export.

PMB: That's right, oh okay; I'm confusing the two things.

MACIEJ: That was different, so...



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PMB: Approximately when you did that Hans, where were the first reserves built...

MACIEJ: Well you would have to go back into the statistics and you'll find the start of it, I can't remember it.

PMB: Was it the 70's or the 80's?

MACIEJ: I think it was the 80's, yeah I'm sure it was the 80's because for a number of years, we had already been producing, production from the oil sands started in '67 so for a number of years we had already thrown the production in but didn't show anything...

PMB: What would be the impact of the first booking of oil sands reserves? Did that all of a sudden show that this is a real resource or...

MACIEJ: We had a little problem to tell you the truth, with the Americans, because we annually met with the reserves committee of API.

PMB: That's the American Petroleum Institute.

MACIEJ: And looked at the reserves picture in the U.S. and then in Canada, so we had to tell them about what we had done about the oil sands, you know, a little resistance, a little resistance, but not too much, everybody sort of agreed it was principally **Kenshall? Shell?** production without reserves, you know so, but I think there was some reluctance to you know, is 25 years the right number, etc, etc. And I don't know what happened after I left, I haven't followed it, but all of a sudden, all the oil and gas journal recognized about a 160 billion barrels of reserve, you know, I don't know what process they went through.

PMB: Because that happened about five years ago. All of sudden Canadian oil sands reserves were booked at, I thought it was a higher number, but something more than, at least 160 billion barrels of reserve.

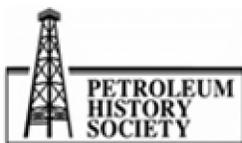
MACIEJ: Yeah, I think it was around 167 billion or something, it was around that number.

PMB: Something like that.

MACIEJ: All of a sudden, the whole world recognized that we were sitting on one of the largest resources in the world, yeah.

PMB: And so then my question is, how did they come to that number? That would be interesting to explore.

MACIEJ: Yeah, yeah. I have no idea, because that to me sort of came, I thought, no because we have, you know, the estimate of the resources. Well now the best estimate is about 1.7 trillion. Now the question, what of this is recoverable, you know, because the resource is fine, but what really



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matters is the resource number, which is the recovery portion, and they came out with a big number. You know, we had talked about, I think we had talked for a long time, about 120 billion should be the number for our ultimate reserves, but they came out bigger. Now all of a sudden it made such a difference because of all of a sudden, worldwide, here is one huge resource that we can recognize.

PMB: The so-called accessible oil reserves in the world, 52% of them are here in Alberta.

MACIEJ: That's right, exactly.

PMB: Accessible to private companies.

MACIEJ: Yeah, and you know I don't know whether CPA had any influence or had any discussion with the oil and gas journal or whether they just...

PMB: It was the oil and gas journal that came up with that number?

MACIEJ: As far as I know.

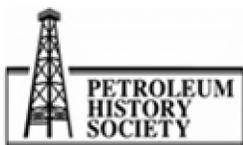
PMB: I thought it was the US Energy Agency...what's that body, that federal body in the U.S. that came up with those numbers, American... I'm trying to say American Energy Institute but that's wrong... there doesn't matter, we will leave that to future historians to figure it out.

MACIEJ: I thought it was [Yestrum?] that came up with the number, you know, they may have had the number but it wasn't publicly available that I know of.

PMB: Okay, very interesting. I want to shift to something that really happened after you and I left the CPA and that's the development of the SAGD process, which has just been, it's become a transformational technology. I kind of remember the UTF as being the first proof of that technology. Do you have any recollection as to whether the CPA had a role in it, in any way? What do you see as the strengths of the technology to whatever extent you've been following it since then?

MACIEJ: The association would have no role in it really, because again, one of the things that it was, a top secret technology, although it couldn't be kept that technology, except for the specifics of details because you have drilling contractors, that drill in something new, I mean before you could deal with horizontal drilling, you had to have the technology to deviate, you know, from the vertical to the horizontal so that whole angle there was a technological challenge and that had been solved, and then it became a matter of how far can you go, you know what distance can you drill, and that came about both the deviation as well as the lengths of it and the efficiency that came through the technology known as MWD, Measurement While Drilling.

PMB: While Drilling.



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MACIEJ: You see that was the key to it, because even then, I mean if you're wanted deviate, you wanted to deviate in the formations so you had to have some pretty precise measurements and that really, that made it popular.

PMB: Do you know whether they actually use the any of high pressure fracturing, that they use for example in the gas shales, in the shale gas shales, do they use much of that fracturing with SAGD? I'm trying to remember.

MACIEJ: Yes.

PMB: Is there?

MACIEJ: Yes. Well both on the conventional side and then people are going back in to old reservoirs for example, Pennwest Petroleum has a large spread in the **Penman** Field and they use multi-stage fracturing to get additional conventional oil and that is light oil, you know.

PMB: Well I'm thinking of whether when you're drilling a SAGD well, do you fracture the sand or not, or do you just heat it and let it somehow move; migrate through the pores down to the collection well.

MACIEJ: Well I think you would, if I look at decline rates, I would have to say, and you know, knowing **[unsure]**, but yes, they use multi-stage fracturing.

PMB: Okay.

MACIEJ: Because you know, you have a 40% decline rate in the first year, so there has to be something at the beginning that really opens the reservoir and that would be the multi-stage fracturing, you know. I'm just trying to be logical about it. And certainly, for example Shell and more as far as I know, has used multi-stage fracturing in some of the wells.

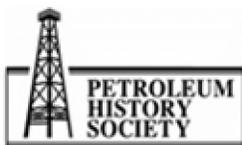
PMB: One of the reasons the shale gas has been so successful in recent years is that they haven't been producing gas, they do have to produce gas, but what they're really after are the liquids.

MACIEJ: Well that's because of the gas price, I mean, I don't.

PMB: But if you're getting a little bit, if you're getting a lot of gas out, and a substantial amount of liquids, that is what really makes it profitable, not the \$4.00 gas price.

MACIEJ: Well that's what you're going after is the shale, that you know has liquids in it, you know.

PMB: A couple of things, and I think you've answered this already, but maybe you can give different angles on that. In your opinion did the CPA contribute significantly to oil sands development and I think you said no, did you personally except the oil sands to be developed as rapidly as they have?



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MACIEJ: My own opinion is that it's been too slow, it should have been a lot more rapid and it would have been if we didn't have the National Energy Program, you know, it would have been a much more orderly development, yes because you had fewer players that were ready to go, both from a technological point of view and also from the monetary point of view, yeah.

PMB: So if Cold Lake and oil sands had been able to go, they would have been stage projects in different parts of the oil sands. They would have worked through a lot of the technologies and made it much easier and better to develop the technologies today.

MACIEJ: Exactly.

PMB: That's a very interesting concept.

MACIEJ: Yeah, there's no doubt about it. I always said, why in the world are you spending all that exploration money when you have a resource that you know is sitting there, why don't you just spend your money on developing the technology to get it out, and they'll laugh at you. Some people probably would say this that I said, [test aspect and you override all the exploration money and then you know, that plays into the takes a shot]. From an economic, an economist would look at that and say, you know [I'm going to have to spaces now], its looks a little different.

PMB: Hans in the last ten years there's been the development, I think really interesting phenomena of oil sands juniors, little companies coming out of nowhere, and they're saying okay, we're going to be an oil sands company and this is only really been made possible because of the new technologies, these are companies that are doing essentially what you've said, they're not putting money into exploration, they're getting a lease, and then their finding ways to develop it.

MACIEJ: But most of those are looking to be some part of it.

PMB: Most of them what?

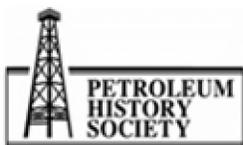
MACIEJ: Going in there to be bought out, they acquired leases and some of them are smart enough to buy leases and join in the large companies and so they're just waiting to be bought out.

PMB: Okay, so there's that, that's a line of business, basically.

MACIEJ: Yeah, that's right.

PMB: That there are companies, and I give as an example, Athabasca Oil Sands, or Oil Sands Corp. and there's also MEG Energy, but there are a number of ones that really started almost from scratch. MEG Energy is Bill McCaffrey, and his first meetings were at his kitchen table.

MACIEJ: Oh yeah.



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PMB: With some people and it really has become, I don't know, it must be worth hundreds of millions of dollars today...

MACIEJ: Oh yeah.

PMB: ...that company, or is it billions?

MACIEJ: Stock is \$50, it's a billion dollar company today, yeah.

PMB: And that literally happened in 15 years.

MACIEJ: But he's a little different, he bought big chunks.

PMB: When nobody else was interested. I used to work with him at Amoco, and it's my understanding that he was relieved of his position because of a conflict he had with his boss, and so off he went and set up that really, really, wildly successful company. At some point I gather he was putting debt on his credit card to advance the company.

MACIEJ: Right.

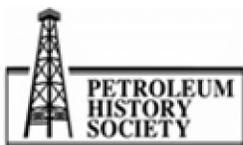
PMB: A great story.

MACIEJ: You know, I actually was always wondering about, you know, I mean today oil sands leases are pretty expensive to get, because the quantity between them are open and why people way back, you know, when you really had very little commitment, work commitment on the oil sands, they were basically forever, why people didn't go into and I'm looking way back at my career at Shell, one of the first studies I did, was, remember Shell was here before '47 and actually had leases in the Redwater Field and then pulled out.

PMB: Walked away from it.

MACIEJ: Walked away like so many others. And I was looking at how people went about acquiring lands, why did they go there, and what did they do afterwards, you know, did they do seismic, geo, or whatever did they do, trying to figure out for Shell whether some people had a particular strategy that made them successful, so I put some big reports together with land holdings and geophysical work and drawing work and all that kind of stuff to find out whether there is a strategy and there was a strategy, yeah, before '47 as to how people looked at it, even after '47, you know, as to where they went and got, in those days, the reservations, which was always a large block, not these small leases, and I was always wondering about the oil sands, why people sort of stayed away and didn't go in filing under the DES, eventually the government put some, not even I would say, stringent work commitments on it, but you had to drill a crow hole every township of that sort of thing, you know.

PMB: I'm sorry what did you call it? You had a drill a?



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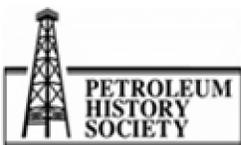


MACIEJ: Core hole.

PMB: Core hole.

MACIEJ: [Bell rings.] That's my wife.

[END OF RECORDING]



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