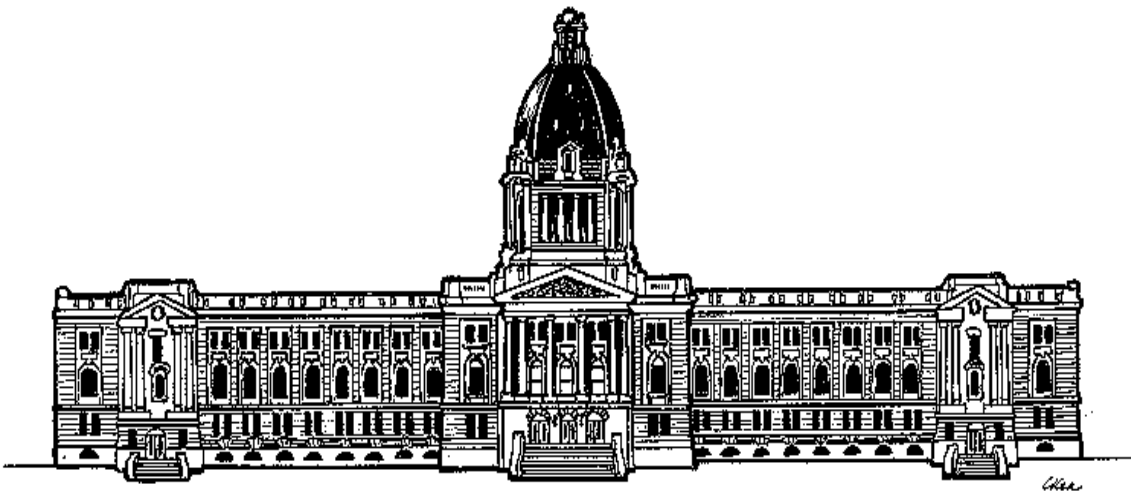




STANDING COMMITTEE ON CROWN AND CENTRAL AGENCIES

Hansard Verbatim Report

No. 41 – January 22, 2010



Legislative Assembly of Saskatchewan

Twenty-sixth Legislature

STANDING COMMITTEE ON CROWN AND CENTRAL AGENCIES

Mr. Tim McMillan, Chair
Lloydminster

Mr. Buckley Belanger, Deputy Chair
Athabasca

Mr. Denis Allchurch
Rosthern-Shellbrook

Mr. Fred Bradshaw
Carrot River Valley

Mr. Dan D'Autremont
Cannington

Mr. Randy Weekes
Biggar

Mr. Trent Wotherspoon
Regina Rosemont

[The committee met at 10:00.]

Inquiry into the Province's Energy Needs

The Chair: — Good morning. I'd like to welcome everyone to the 14th day of our meetings of the Standing Committee on Crown and Central Agencies, the inquiry into Saskatchewan's energy needs. I am Tim McMillan, the Chair of the committee. I would also like to introduce the other members of the committee: Mr. Weekes, Mr. D'Autremont, Mr. Bradshaw, Mr. Ottenbreit. We have Mr. Belanger and Mr. McCall from the NDP [New Democratic Party].

All of the committee's public documents and other information pertaining to the inquiry are posted daily to the committee's website. The committee's website can be accessed by going to the Legislative Assembly of Saskatchewan website at legassembly.sk.ca, under "What's New," and clicking on the Standing Committee on Crown and Central Agencies.

The hearings will be televised across the province on the legislative television network, with audio streaming available for meetings outside of Regina. Check the website for information regarding locations, cable companies, and channels. The meetings will also be available live and on the website with past proceedings archived on the website as well.

Before we hear from our first witness this morning, I would like to advise witnesses of the process of presentations. I'll be asking all witnesses to introduce themselves and anyone that may be presenting with them. Please state your name and, if applicable, a position within the organization you represent. If you have written submissions, please advise that you would like to table them. Once this occurs, your submission will be available to the public with electronic copies available on the committee's website.

The committee is asking for submissions and presentations in answer to the following question: how should the government best meet the growing energy needs of the province in a manner that is safe, reliable, and environmentally sustainable while meeting any current and expected federal environmental standards and regulations and maintaining a focus on affordability for Saskatchewan residents today and into the future?

Each presentation should be limited to 15 minutes, with question-and-answer to follow. I will direct the questioning and recognize each member that is to speak. Members are not permitted to engage witnesses in debate, and witnesses are not permitted to ask questions of committee members. I would also like to remind witnesses that any written submissions presented to the committee will become public documents and will be posted to the committee's website.

With that I would like to ask our first presenters to introduce themselves and please go ahead with your presentation.

Presenter: Northeast Enterprise Region

Mr. Chopik: — I'm Patrick Chopik. I'm the CEO [chief executive officer] of the northeast enterprise region, and my

co-presenter is Dave Ferguson, the economic development officer for the town of Hudson Bay. And we're here to present on how northeast Saskatchewan can help meet Saskatchewan's energy needs.

We'll just pull up our PowerPoint here. We're going to be talking about how our forest can also help with this. And we have a nice picture there of the Porcupine Forest south of Hudson Bay as the opening picture on the screen. As you can see, the first slide is a map of our area in northeast Saskatchewan. And a little bit hard to see from this distance, but we include some of the major communities — Melfort, Hudson Bay, Carrot River, and Nipawin and Preeceville, Sturgis, Kelvington, Naicam are all included in that area.

Northeast Saskatchewan has been hard hit over the last few years due to the shutdown of the forestry industry from trade wars and the slowdown in the US [United States] economy. But northeast Saskatchewan is rich in resources that could become part of Saskatchewan's overall power generation needs.

Northeast Saskatchewan is rich in two resources that can be used to meet Saskatchewan's energy needs. The resources are coal and carbon-neutral biomass from Saskatchewan's forest and to a lesser extent from our agricultural industry. The options that we have in the Northeast for power generation include a coal-fired clean coal power plant, a series of carbon-neutral wood-fired power plants, biomass cogeneration with the existing forest industry and other value-added agricultural projects, and a mixed coal and biomass power generation.

Northeast Saskatchewan is rich with coal deposits encompassing a large per cent of our region. This is a higher quality coal than what's mined in the southeast Saskatchewan with a greater energy yield. It's also cleaner burning. It's expected when all the players are finished with their drill results, there will be coal for hundreds of years of power generation resulting in massive mining revenue for the province if a market can be found for this resource. The coal also has a very good strip ratio, making it very economical to mine.

We currently have a lot of players involved in coal exploration in our region. We have Goldsource Mines which made the initial find. We have Wescan Goldfields Inc.; North American Gem; NuCoal Energy Corp.; Wescorp Energy Inc.; Saturn Minerals and Swift Resources in a joint venture; Gold Star Resources Corp.; and NuCoal, Alix, and Geo Minerals joint venture project.

That is a map of the coal deposits around our region. We can't see the towns very good probably from this distance, but Hudson Bay would be right there. We move over here we're looking at Tisdale and Melfort, and then up here we're into Nipawin, with Carrot River over here and Tobin Lake. You see, because this is about 40 per cent of our region actually now is covered in coal claims, and so this is a massive resource that's been found in northeast Saskatchewan.

The benefits of a coal-fired plant are the high quality thermal coal we have is perfect for power generation. It's cleaner and higher BTU [British Thermal Unit] than the lignite coal in

southeastern Saskatchewan.

We've got good infrastructure already in place with power corridors, rail lines, and roads around the existing primary sites. The rail line actually goes right through the middle of the thickest patch of the coal.

We have abundance of biomass to mix in with the coal to reduce the percentage of CO₂ emissions. And we have a major biomass project in Hudson Bay beginning construction in spring that will sell wood biomass pellets to Europe to be used in coal-fired power generation plants there to reduce their percentage of CO₂. A second biomass project for wood pellets is envisioned for the Carrot River saw mill, as the new owners of the Carrot River saw mill have a proven track record of profitably selling biomass.

We also have world leaders in clean coal technology. They're interested in partnering with producers, the Government of Saskatchewan, and SaskPower to investigate the possibilities of creating a plant. This is conditional of course on government coming to the table.

One of the additional benefits to our coal is that the coal is extraordinarily thick. Often in southern Saskatchewan and worse in Alberta, these seams have become very thin — often 5 or 6 feet thick. Some of our seams are over 100 metres thick of coal. So that gives us excellent reduced costs in bringing this coal out of the ground.

And we already in the northeast have a population trained in strip mining. The large portion of them are now working in Fort McMurray since the forest industry's collapsed and commuting back to their families. So we already have a well-trained workforce that would like to come home.

Some of the pitfalls with regards to coal generation are of course the changing regulations around coal energy production and CO₂; the possible costs of making the coal clean — depending on how clean the coal becomes, the costs go up dramatically; and federal policies with regards to coal generation; and the projects need the support of the Government of Saskatchewan to go forward.

The next thing we're pitching for the Northeast is wood or biomass power generation. It has proven to be a highly cost-effective means of power generation. These plants are carbon neutral if the wood comes from a certified forest, which is a replanted forest, which is the entire forest in the northeast enterprise region is classified as a replanted or certified forest. Therefore these trees create carbon-neutral power. They can be cost effectively produced by our forests.

At present the forest has little value for wood, pulp, or paper production. Therefore using it for power production, at least in part, creates and keeps forestry jobs within our region. At present our region has one wood-based biomass project scheduled to start construction this spring to export wood pellets to Europe to be used at coal-fired power plants to reduce their percentage of CO₂ emissions. A second project is expected to be added to the Carrot River saw mill, as the new owners have added this feature to other mills and found it to be highly profitable.

These projects are using waste wood from wood production, such as sawdust, branches, needles, rotted up wood — this type of stuff. Areas ravaged by forest fire, or even if bark beetle should ever adapt to Saskatchewan, can also be used for this purpose. Apparently the worse shape the wood's in, the better it pellets.

Other materials, such as agri-products such as straw or peat which are abundant in the region, can also be used as carbon-neutral materials. And in places like India and China, that's what they're mixing in right now to reduce their CO₂ emissions in their plants and their coal plants.

There's an abundance of forest in the northeast region that can ensure a steady supply of wood. It's cost effective similar to natural gas. Depending on the price of natural gas fluctuations, it can be better or worse. Right now natural gas is a little low, so wood-fired would be a little bit more expensive. When natural gas goes up, wood becomes a little bit more effective. They both have similar power yields. Of course none of them can match coal, which has serious energy yield compared to other products.

We have a good infrastructure with power corridors, rail lines, and roads around the existing property. This can produce a baseline power source available for day and night without regards to weather conditions. It's capable of large-scale electricity production, usually 40 megawatts and up, for the plants. And like I said, it's carbon neutral.

And we theoretically, depending on how many plants and the size of them, have that inexhaustible, renewable source of energy for these plants in the northeast. There are similar projects operating around the world. Some of the more successful ones, being in the Norwegian countries, are producing very cost-effective and profitable power.

Also even though this carbon is considered to be carbon neutral coming off the forest, it still produces CO₂. But fortunately it's in the middle of a giant carbon sink, and the forest will drink up the CO₂, and it's just going to help the trees grow better. It also keeps our forestry workers working in the times of turndown and diversifies our forestry industry.

And this also may give the province a chance to open up more forest as certified forest before world environmental factors result in penalties for opening up new forest lands. So we can use this as a continual renewable resource or crop that can provide a renewable source of energy as well as wood production in the future.

[10:15]

Some of the pitfalls with this is that wood-fired plants need to be kept fairly close to the forest to reduce transportation costs of moving in the lumber. Best strategy would include multiple smaller plants rather than one giant plant like we would for coal. And wood-fired plants . . . Oh, I think I got that last point. Next slide.

The third option is to partner with existing industry in the northeast that could be used for added power production to their business plans. Wood processing plants in Hudson Bay and

Carrot River could be encouraged to burn their waste as power, and they could easily contract with SaskPower at rates that would be mutually beneficial to both parties.

Weyerhaeuser had previously looked at cogeneration to increase the profitability of their plants in northeast Saskatchewan. At present they have a restriction of capital, but they tell me it's still a possibility. They shared with us that some of their plants that have stayed open are the plants that are generating power. They said that a number of their plants at present, it's cheaper for them to do the night . . . They make more money on the night shift burning power than they are on the day shift producing their wood products.

Edgewood Forestry Products, which is the Saskatchewan name for C & C Wood Products, has bought two of the old Weyerhaeuser mills and they have expressed an interest in including power generation as part of their future plans.

We have a number of existing value-added agricultural products in the area and some proposed projects that could also contribute to the power grid to a lesser extent. And we have a number of other biomass projects also being considered in the area.

The benefits to this is that our region is rich in forest and agricultural products. When we come to, you know, doing things like biomass, it just doesn't have to include products from the forest. If we have a really good hay year — which we've had a lot due to a lot of water up there — we got bales turning brown in the field that can all go to the pelleting plant too. And so basically most of the ag by-product can also be fed into these things.

And like it says, renewable carbon neutral energy again, cost of production again similar to natural gas. And it significantly reduces greenhouse gas emissions, carbon dioxide over burning any type of fossil fuel, and it reduces landfilling from agriculture and forestry wastes. The initial biomass project being built has several years of landfill biomass it can use before it ever has to go towards the forest. And cogeneration makes forestry and value-added agriculture projects more viable and competitive in world markets.

If our plants in the Northeast would have had power generation before, the chance is that those plants would have stayed more profitable, would require lesser price of wood, and would have likely stayed open longer. So it helps with their business plans and their profit margins if they can do that type of work.

Pitfalls is that some of the different smaller biomass projects will have varying different costs. The second point, I guess we have it as a pitfall but apparently it's only a pitfall in a forest that you're counting on regrowing itself. But since our forest is all replanted, cleaning out the excess biomass is actually a good thing, and it may compete with other forestry and agricultural products in times of increased demand or better prices. So if the price of wood for construction went way up then it could become competitive, but right now it's great. And projects need to be of a competitive scale. We can't have too many little ones or it throws off the cost model.

The final option, which is probably the best one for the region,

is mixed coal and biomass power generation in the Northeast. A mixture of using our coal and biomass can provide a competitive advantage not found in other parts of the province and also not in other parts of the world and the country as well due to the close proximity of our certified carbon-neutral forest.

So we have very cheap to get out of the ground coal. We have very cheap wood biomass. So putting the two of these together can produce coal-fired plants with very low overall CO₂ because we don't have to count the CO₂ from the biomass. And this is a major strategy for the European countries right now. So it would be advantageous to Saskatchewan to pick up on this particular trend for our own domestic use and to use our own domestic product.

Benefits again: we've got lots of coal, lots of forest and additional ag-bio product. Reduced use of coal as a non-renewable fossil fuel by adding a renewable fuel of biomass can create an environmentally acceptable option. It's an acceptable method of reducing CO₂ and coal-powered generation with all the proposed regulation that's going on now. European countries have proven the promotion of coal-firing between the two products for the development of biomass as well as the creation of expertise in biomass handling and combustion. And biomass is a Saskatchewan-made product that is of interest to export markets that can be used locally for our competitive advantage.

Some of the pitfalls is our existing power plants may not be able to currently accept biomass products. Biomass in new plants reduces emissions but it may not be enough for the environmental movement that still would like to have zero emissions. Biomass plants produce electricity with relatively lower efficiency than coal, again similar to what natural gas produces with its efficiencies more to 18 to 22 per cent where coal would be up in the 32 to 38 per cent range.

And it should be mentioned too at this point too that SaskPower has come to the table now to talk to us about these projects. They have expressed an interest in looking at all four options, but because of the regulatory stuff connected with this, we still need of course the government support as well.

So what we'd like the committee to consider is not to rule out coal and new coal technology to meet Saskatchewan's baseload power needs and for the export market. I think we should have a study to look at biomass in primary power production throughout the northern forestry belt, and to begin a project to use wood biomass as a greenhouse gas reducer for our new and existing coal-fired power generation, and to consider northern Saskatchewan's abundant coal and coal-based products, and to encourage partnerships in energy to make our forestry and value-added agriculture sectors more competitive in the world market, and to bring the forest industry back to Saskatchewan. And that concludes our presentation.

The Chair: — Well thank you very much. I have a couple of quick questions. The pellets that are being proposed, any idea what they're worth a pound or a tonne?

Mr. Chopik: — I don't know that specifically. Dave, do you recall?

Mr. Ferguson: — I don't have that number either.

Mr. Chopik: — We know he's been effective at selling it. So it can be competitively shipped to Europe, which is nice. But I'm not sure. I know he has 100 000 tonnes already pre-sold and he's building the plant for 240 000 tonnes. And he's not the only one that's looking at this in our region.

The Chair: — My second question is the map of the coal claims in your area. What was it, a year or two years ago we heard about those massive finds? Before that were there any claims up there at all? Or was . . .

Mr. Chopik: — No, all this is new. It all came up after the Goldsource guys made their initial announcement. Goldsource is the one we're working closest with. They're the first one in there. He says yes, after they announced it, everyone grabbed all the territory all around him. And they're quite extensive.

We have a bigger map here if committee members are interested in seeing it because it's kind of hard to see off the slide here. And like I said, we've got a lot of interest. And you know, we have geologists floating around our area quite heavily. And they're all beginning to release their results from their initial holes, and they're all finding these really thick, high-quality seams. So we're going to have a massive supply of coal by the time we're done up there.

The Chair: — That's incredibly exciting for a town that three years ago you didn't know you had such a resource.

Mr. Chopik: — Yes, and they went up there looking for diamonds.

The Chair: — Mr. Bradshaw.

Mr. Bradshaw: — Well thank you and thank you, Patrick and Dave, for your excellent presentation. And you know, it's certainly exciting coming from northeastern Saskatchewan which a good portion of us actually believe is the best part of the province.

I guess I would like you to explain a little bit more — and you talked about it briefly — about the grid and the rail service that is already sort of up there. If you could expound on that just a little bit more and explain a little bit more about that.

Mr. Chopik: — Okay. There is, right through the heart of the initial Goldsource claim, like right where this is thickest so far, the 100 metres thick, we have the rail line that runs up into northern Saskatchewan and into northern Manitoba and it's, like it's right through the heart of the claim. The base camp is actually sitting right beside the railroad track. And we have two transmission corridors that run through the region, one that comes up to Hudson Bay and the other one that goes to The Pas. So appropriating the land for the corridor is a big cost to any power project.

The lines would have to be upgraded if you were going to do something like a coal plant and start running that huge amount of power down there. But at least the land is already set aside for the corridors, which is a major stumbling block when trying to put in any kind of new project.

We also have good road development through the region as it's been used by the forest industry, so we're already set up for the trucks rolling up and down. So those are nice added features, and having the closeness of the biomass coal together is a possible solution for environmental concerns with regards to that. It again helps us quite significantly with our competitiveness.

Mr. Bradshaw: — Another question, and maybe you would know a little . . . And you may not know. With the biomass, with the pellets being mixed with the coal into a plant, what percentage of which is . . . like I mean is it 50 per cent biomass, 50 per cent coal? Do you know what they're using on that?

Mr. Chopik: — It's all over the place, depending on the country. We're seeing in countries where the coal is a little bit more expensive or less readily available, you're seeing higher percentages of biomass — especially when you're dealing with, say, Asian countries, in southeast Asia where they're seeing very high percentages of biomass. I believe in some of the more cleaner, environmentally friendly countries in Europe that are boasting their CO₂, they're using higher percentages than other countries that are not. So it depends on the build of your plant.

Biomass could probably go very easily into something like the Shand plant which is used to lower temperatures, where other plants that are used to burning higher energy coal, they'd probably have to do it to a lesser extent, I would think.

Mr. Bradshaw: — Another thing. There has just been a very recent announcement on shale oil and it looks like that project may be moving a little bit, coming on fairly quickly. Would this plant then also be able to supply power to that entity?

Mr. Chopik: — You bet. As well as providing power to our forest industry plants should they fire back up, which we're hoping will happen soon.

So there's sufficient renewable forest to meet a large portion of Saskatchewan's energy needs, and of course there's coal up there to meet the energy needs of Saskatchewan and a number of other large areas as well.

The coal resource, when we're looking at that, to do a new thing like the gen 3 coal plant that Capital Power's building outside Edmonton, which is going to be the new state of the art, they're one of the partners that's interested in coming to the table with us here. To build something like that, they're looking at something about 500 megawatts is the economy of scale for a plant incorporating all the new clean technologies. So 500 megawatts can power an awful lot of area.

Mr. Bradshaw: — I guess one more question. My time will run out here, but how about water supply on running a plant? How is the water supply there?

Mr. Chopik: — Overly abundant.

Mr. Ferguson: — I guess we asked that question and he just laughed at us. I feel like one of the first things they would do is they would excavate or strip mine one of the pockets of coal they found. And of course it's out in the swamp, so it's going to fill up with water, and they figure that's more than enough

water supply to run their plant.

Mr. Bradshaw: — Good. Thank you.

The Chair: — Mr. Belanger.

Mr. Belanger: — Thank you very much. A very exciting presentation, and also the optimism that you've exuded here today is something that should be admired, so keep up the good work. It's something that we all appreciate in building Saskatchewan and making it very strong.

[10:30]

I just wanted to point out that, in relation to your analysis of the carbon value when you talk about wood biomass, when you look at the comparisons of coal versus wood, have you done any of the analysis of that? Or has the company given you any information as to . . . Obviously coal is probably a bit tougher to sell in terms of greenhouse gas emissions than wood . . . [inaudible] . . . but is there a comparison between the two?

Mr. Chopik: — If I'm answering the question right, of course coal is a greater, much greater yielder of energy than wood is. It's also a dirtier project as far as the amount of carbon that comes off of it. So wood, like I said, is very similar to natural gas as far as its carbon goes. The difference between natural gas and wood though is that if ours comes from a carbon-neutral forest, we're not considered to be contributing to the greenhouse effect as nature will burn down that forest eventually if we don't anyway. And so we do have that benefit.

I don't know if I properly answered your question or not.

Mr. Belanger: — No, and the other thing I was going to ask is, while other folks have looked at the wood biomass option and yours would be complement of coal, probably makes it more viable and more interesting. But as you travel throughout the forest, you mentioned that earlier, there is forest waste on the floor of the forest.

Mr. Ferguson: — Yes.

Mr. Belanger: — Is there any analysis of whether that wood is of any value to the ecosystem or can you just simply clean it up and pick it up and there's no net effect or detriment to the actual ecosystem itself?

Mr. Ferguson: — I think there's very little impact on the ecosystem. And the reason being, the wood waste on the floor actually doesn't put as much back into the soil as one would think. And because we have the long rotation ages between cuts, the biomass on the forest floor builds up and then when you go in and cut it, of course it reduces it. And then it starts over again because you have the long rotation age. And if you maintain the long rotation age, then the soil nutrients and whatever really aren't affected by picking up the biomass on the forest floor.

The other thing is, if you get too much biomass on the forest floor, like limbs and tops, whatever, it actually inhibits the growth of new forest coming back. And also it's a very large safety problem for tree planters who are going in and trying to

replant the site. And if they're tripping over all these branches and limbs and stuff, there's a big safety factor there. So I think for the most part the answer is, no. There is no effect or very little effect.

Mr. Belanger: — No, the reason why I mention that is because it's obviously a good selling feature. Right?

Mr. Ferguson: — Yes.

Mr. Belanger: — When people say, well they're cleaning up the forest, is that meant there for a purpose? Is it God's way of replenishing the forest? And one needs to say, well no, this is the evidence that suggests that what we're doing actually complements; it isn't a detriment to the forest. Because that's a pretty important selling feature.

The wood pellet plant, I know my colleague asked that at the outset. But who actually develops the plants? What's the process of wood pellets? I imagine that you're shrinking the wood and making it more concentrated, I'm just assuming. And what is the cost, and how do you measure that? Who builds it? Where do they sell it to, and that kind of stuff? You haven't got any of the information handy, but it would be sure nice if we can get it.

Mr. Ferguson: — And we don't have that totally at our fingertips either, but the company that's currently looking at coming into Hudson Bay bought the old dehy plant in Hudson Bay when it went down — the alfalfa dehy plant. And the process for making dehy pellets out of alfalfa and pellets out of wood are very similar, so they're going to be using a lot of the same equipment that was in that mill originally for their project.

This company is a local company for the most part, backed by a local businessman. They do have some other financial backing from other partners. The size of the mill will start out at 100 000 tonnes and as Patrick said, it'll end up at 250 000.

And their markets right now are Europe for the coal-fired generators over there, but they're looking around at all their options. And if we could get something going around the biomass generator in the area, in the northeast, that would just be icing on the cake for those guys.

Mr. Belanger: — In terms of the, again your wood analysis, the waste wood complement, this coal-fired partner plant so to speak, what kind of amount in cubic metres if you can, or even in tonnes, would this plant consume each year? You say 100 000 to 250 but . . .

Mr. Ferguson: — That's a very good question, and we've just started doing some of our analysis. And on the south half of the Porcupine Forest, which would supply the plant in Hudson Bay, the first analysis gave us roughly 220 000 cubic metres of wood waste from the existing logging sites and from stands that we could pick up that were right in the immediate area of those logging sites, meaning that we don't have to expand the roads or anything like that. We can just bring stands that would normally be left — the edges and stuff — we could bring them to roadside and also use them.

So you would double that to take in the north, so you're

probably at 450 000. And then there's other things that you can do with wood that's not currently being allocated and not currently being used by anybody, so you're probably in the neighbourhood of 700, 800 000 cubic metres out of the certified forest. Just a rough guess.

Mr. Belanger: — Thanks. And my final question I would have in terms of the process here we're undertaking in terms of alternative energies. We all know that the carbon question is coming down the pike and we also know that SaskPower indicated yesterday, I think, that they are looking at a base price for any other generated power sources other than what they're doing with biomass or wind or whatever. And I think they had a fairly low price that they were looking at offering as a competitive process, and also the fact that there's a limit to how much power that you can generate.

Is SaskPower's current decision in relation to what they would like to see, does that fit with what you envision that should happen? Because most people are saying no. Is that the case here?

Mr. Chopik: — Well I've had an initial chat with them and we've just started the process with them, but at this point they're considering it to be of interest and they want to spend some time analyzing it more. But we've just started our process with getting them to the table here so we'll have to learn more about that as we progress.

Mr. Belanger: — All right. Thank you very much.

Mr. Chopik: — But I should add that they did agree with us on the pricing of it compared with natural gas. They had done some analysis and they felt the wood fire would be competitive with the natural gas as far as cost of production went.

The Chair: — Mr. D'Autremont.

Mr. D'Autremont: — Thank you. Very good presentation. I noticed in your commentary that you made the comment that wood pelleting biomass continues to emit CO₂ emissions.

Mr. Chopik: — Yes.

Mr. D'Autremont: — If you mix the biomass and the coal as you're proposing to do in a plant, how much of a reduction of CO₂ per megawatt do you get?

Mr. Chopik: — I'm not the engineer at the power plant to answer that one, unfortunately. Basically if you were burning, if you were getting half your energy yield from biomass and half your energy yield from coal, that would basically reduce your emissions by 50 per cent. Now of course coal is putting off a lot more energy, right, than the biomass is, so if you were trying to do half you'd actually be burning a lot more biomass than you would be coal to produce the same BTUs of energy.

Mr. D'Autremont: — Two-thirds biomass to one-third coal.

Mr. Chopik: — So rating it by a BTU level, you can actually cut your CO₂ by exactly that amount if you do it by the energy yield coming off of it. But as far as volumes going in there, the volumes of biomass would be a lot bigger than the volumes of

coal to make that kind of reduction. So it depends on what the boilers at these plants can handle.

Mr. D'Autremont: — Would it be a reduction of CO₂ or a reduction in the CO₂ that you have to account for?

Mr. Chopik: — It's a reduction in the CO₂ you have to account for, but it's also a reduction in the amount of CO₂ that comes out because the biomass is producing less CO₂ than what coal would produce.

Mr. D'Autremont: — Yes. That was the number I was interested in, how much is that reduction.

Mr. Chopik: — Okay.

Mr. D'Autremont: — You know, if you generate a megawatt using biomass and you generate a megawatt using coal, what's the reduction in CO₂?

Mr. Chopik: — It's looking like it's approximately 40 per cent given that one note we had on our presentation about the optimization. So it's in that ballpark, but . . .

Mr. D'Autremont: — So there would be some actual reduction in CO₂?

Mr. Chopik: — Yes.

Mr. D'Autremont: — Okay. I think as we look at where we are in the world today on generation, I doubt very much that, at least in this country, we're going to see the establishment of any coal plants that don't have some reduction methods involved. So in your proposals at looking at a coal-fired biomass plant, are you looking at any other means of reducing the CO₂ emissions?

Mr. Chopik: — Yes. Talking to the two partners that we've brought to the table, one of which is Capital Power from Alberta, which operates the cleanest coal-fired plants as well as wood-fired power plants in the US — they have a number of profitable wood-fired plants in the US — they have a whole range of different technologies that they're currently employing that would become standard in any new plant that would be built.

Siemens, of course, being the fourth largest company in the world, is also a leader all over the world in power generation. And they also had new designs that they would be bringing out in any kind of power plant.

Mr. D'Autremont: — You mentioned cogeneration as well in some of the existing plants, that there is some consideration being given to that and that they had previously looked in the past at cogeneration. Could you give us some sort of an indication as to what happened with those previous considerations, when they happened, and why they didn't go ahead if they didn't go ahead?

Mr. Chopik: — Part of it was the inability at the time to sell energy back on to the grid. They could produce power to meet their own needs, and I think that actually happened at the pulp mill in P.A. [Prince Albert]. I've been told that it was a

65-megawatt plant that was initially envisioned for the Hudson Bay area to burn off that wood. But that would be more of a yield than what they needed so they needed . . . To make that feasible they needed to sell it back to the grid, and that was denied at the time by the government of the day and SaskPower.

Mr. D’Autremont: — Okay, thank you.

The Chair: — Mr. McCall.

Mr. McCall: — Thanks very much. And to start, my apologies for my late arrival. It was slower coming up than I’d anticipated. But certainly it is an interesting presentation and does indicate a lot of interesting possibilities and potential for the region. So good work on presenting those.

I guess one of the first questions I have is the companion piece to the . . . You’ve got the sort of quantitative analysis done on what the available forestry biomass resource looks like. In terms of the agricultural resource, is there any kind of analysis that’s been done on what is potentially out there for incorporation into these different projects?

Mr. Chopik: — We know it exists and we have in the past had various projects that have run at different scales that have come and gone through the region. We have some still running. They are a fractured group so it’s hard to tell exactly what they are drawing into this or not. Of course a lot of it has to do . . . A lot of our waste biomass depends on the weather. If we’re having a wet year and we got a lot of hay rotting in the field, it’s good for the biomass guys. If it’s a dry year, it’s not so good.

[10:45]

So the agriculture can contribute to this and it can help with the bottom lines of various agricultural producers and projects having this extra option of being able to sell biomass to it. But I don’t believe we have any detail, to my knowledge, as to what exactly might be produced in a year. I think it varies quite a bit.

Mr. McCall: — I guess I appreciate your point about the brown bales. I certainly think of that any time I see someone burning off flax straw.

Mr. Chopik: — Yes.

Mr. McCall: — That there’s got to be a better way to go about this. And this certainly holds out that promise. In terms of the clean coal technology, if you could just, if there’s not any sort of problem with stating, if you could again clarify which agents or which players you’re dealing with in that regard.

Mr. Chopik: — We started discussions with two players. And our first choice was to contact Epcor, which has now renamed its power generating unit Capital Power, out of Edmonton. I had previously been a contractor to Epcor and had worked on some of their acquisition stuff when they purchased 50 cogen plants in the United States. So I was aware of how clean their technology was.

So they are a world leader, and they are the leader in North America. And they are currently building a new coal-fired plant

outside of Edmonton that is going to be the new state of the art. And I am also told that they were the major contributor to the paper that the feds took to Copenhagen as well, with regards to policies around coal. So they’ve been a chief developer in strategies to keep the use of coal in play in this country. So they were the first one we had contacted.

And Siemens is considered a world leader at this, so they were the second ones on the list. Siemens, unlike Capital Power, just sells the technology. So they’ll design it, build it, and finance it, but they don’t operate it, not in this part of the world, because they want to sell, of course, to all the players. But they said they would source us an operator if we required one.

Mr. McCall: — Okay. Not to be a bit of a homer on this but of course I’m from Regina and the work that’s done out at the International Test Centre, in conjunction with HTC, is there any contemplation of the technology that they are working on, in terms of . . .

Mr. Chopik: — Oh definitely. That was key to our initial discussions with SaskPower. SaskPower of course is also working on new technologies, so there might be a mating of minds between these major companies and SaskPower to employ some of this new technology that’s being developed. It might be the next generation after the new generation 3 plant. Maybe we can have the generation 4.

Mr. McCall: — Indeed. And I guess the last question around . . . Well two — two last questions. Just out of curiosity, do you have any idea what . . . In terms of the relative life cycles between a straight-up coal plant and a coal-biomass plant, does a coal plant last longer — I guess would be one way to put it — compared to biomass?

Mr. Chopik: — Oh they should be just, they should be the same. They would build the . . . If you’re burning the coal, the coal has to be built to a higher spec. So it would be the coal that would age it out first. And they build these coal plants to last for like 100 years when they build them. The biomass is actually easier on the process, so you should have no difference.

Mr. McCall: — Okay. Last question being the different claims on, in terms of coal exploration, Goldsource being the first in, what is the state of play around moving to production?

Mr. Chopik: — Goldsource right now is in feasibility study mode, so they’re doing up their initial business plan. So part of what they need to move to that next steps is to identify ready markets for the coal. I’m told by SaskPower that our coal in the Northeast is not going to work in the plants down in the South because it burns too hot. Those plants were built to use a lower BTU, lower energy yield coal. So to use it for energy production, it has to go into a newer plant here in Saskatchewan.

Of course they’re all working at various export markets. Coal is for the most part controlled by a couple of major players in North America. So now we have a bunch of smaller cap players who have invested in northern Saskatchewan, so they have to work their way into markets that are tied up by the big boys.

Our coal, though very high-quality, is not the stuff that can be

used for steel production, which is the primary export of coal overseas. So it does primarily need a market within North America to become a viable resource; so working with us on this power generation is part of their feasibility plans to move towards having an actual operating line. If they know there's a power project being envisioned, then all these things become viable projects in the Northeast.

Mr. McCall: — Thank you very much, gentlemen.

Mr. Chopik: — Thank you.

The Chair: — Mr. Bradshaw.

Mr. Bradshaw: — Actually mine is more of a clarification on . . . Mr. Belanger had asked about pellets and pelletizing. I used to be on the dehy board in Arborfield for a number of years, so I have a little expertise — not that much, but a little expertise — on pellets.

But anyways they're called, it's actually I guess the name is called a California pellet. And what they did with the dehy's, they run it through dryers and through a hammer mill and through a pelleting system. And in talking to Edgewood, they actually plan on using the same type of a pellet. It's the same technology as what they use for a dehy plant where, like I said, on dehydrating alfalfa pellets, it's about a quarter-inch pellet.

But Edgewood also has been working and developing a larger, what they call a commercial grade pellet, where they could not just use wood waste but actually could take some of the stuff coming from the existing nuisance grounds, etc., and running that through and it's quite a bit larger pellet. And they showed me one and I'm going to say it's probably about half an inch in the diameter, which is a larger pellet.

But it basically all works the same way. It goes through your hammer mills and then goes through a pelleting mill and I know that the existing dehy plant over in Hudson Bay has that same technology that what we had at the Arborfield or have at the Arborfield plant. And so that's how it works and then it just, it comes out into a pellet. And it's very dense, very hard, very dense. But it goes through in a pellet and that's what they plan on selling. So that's just a little clarification on the pelleting end.

The Chair: — Mr. Belanger.

Mr. Belanger: — The reason I wanted to clarify is obviously the value and the attraction of a wood pellet versus a semi load of wood hauled over some of the roads. Is there a kind of correlation of how many cubic metres you can fit in, say, a wood pellet? Like what size are these pellets? Is it regular? When I'm thinking about a wood pellet, I think about . . . you know.

Mr. Ferguson: — If you're talking about load size, a typical truck would have, say, 55 cubic metres of wood on it. That would be 8-foot wood with six bunks on a trailer. We're thinking that if you were trying to use kind of the same size of truck and trailer unit for a wood pellet product for tops and limbs, that you'd have to take at least a third of that volume away because of the air. And you know, it's kind of like a

beehive. You load it in there, but you can't really pack it down very good. So you'd likely lose about a third of your volume.

So that is a bit of an economic problem, getting the wood from the forest into the plant. And one way around that is they actually chip it right in the bush and then blow it into trucks, you know, with a top on them and bring it in that way.

Mr. Belanger: — The other question I had in terms of the carbon tax, so to speak, because we obviously want to utilize our resource, and SaskPower makes the vast majority of decisions. It's important to set the policy as to what happens.

But SaskPower is a corporation that runs power services, and many people are all looking at ways that SaskPower has to redesign themselves, so to speak. Some think it's going to be this wild, wide-eyed privatization. Others say there's a complement. Others say that SaskPower needs to retain their role as a Crown corporate. There's all these compelling arguments, but the economics will dictate which power supply is best for SaskPower to utilize.

Now based on the carbon tax that we're all grappling with, is there a magic number that basically says if they go any higher than this in their carbon tax, that it no longer makes coal-fired plants viable in terms of the new way of generating power for Saskatchewan?

Mr. Chopik: — I don't have an answer to that because that number tends to be in flux. It's never been set. Numbers are shot around, but they haven't actually been nailed down at this point in time. You know, the environmentalists would like to have zero. However, I think the world will end up in some form of compromise on this. And I know if you talk to the guys from Capital Power that made that paper for the feds, I think they would have a number of scenarios they could run by you. However, we're not properly qualified to answer that question.

Mr. Belanger: — So you don't have any figure as to the companies that you're sitting down with and talking, if they were to tell you, well if they go any higher than \$35 a tonne, as an example, that then all of a sudden we're in trouble here, guys. Like they didn't mention a figure to you, right? Because the ranges go from \$30 to 60, some of the speculation.

Mr. Chopik: — Yes. It depends on how clean it goes. If you went to zero emissions out of there, I'm told that would increase the cost of power about three times over what it would be on a retail rate. But it depends on where it sits with the compromise. That's why both these companies were feeling that the most economical bang for the buck use of clean coal technology would be to have the coal-fired biomass. Out of all the technologies out there, that's actually the cheapest way to reduce the emissions is to do that, which makes it the most competitive option for coal is to have the mixed biomass-coal production.

The Chair: — Well thank you very much for your presentation and taking the time to answer our questions. So thank you very much.

Mr. Chopik: — Thank you.

Mr. Ferguson: — Thank you.

The Chair: — The committee will now recess for about four minutes while our next presenter gets set up. Thank you.

[The committee recessed for a period of time.]

The Chair: — I'd like to welcome everybody back to the committee hearing. If anyone who is having side conversations could take them outside, it would be greatly appreciated. Before we hear from our next witness, I would like to advise witnesses of the process of presentations.

I'll be asking all witnesses to introduce themselves and anyone else that may be presenting with them. Please state your name and, if applicable, the position within the organization you represent. If you have any written submissions, please advise the committee you would like to table them. Once this occurs, your submissions will be made public and electronic copies will be available on the committee's website.

The committee has asked all submissions and presentations to be in answer to the following question: how should the government best meet the growing energy needs of this province in a manner that is safe, reliable, and environmentally sustainable while meeting any current and expected federal environmental standards and regulations and maintaining a focus on affordability for Saskatchewan residents today and into the future?

Each presentation should be limited to 15 minutes, with time set aside for questions to follow. I will direct questioning and recognize each member that is to speak. Members are not permitted to engage witnesses in any debate, and witnesses are not permitted to ask questions of committee members. Just a reminder that any documents submitted will become public documents and will be available on the committee's website. With that, please introduce yourself and go ahead with your presentation.

Presenter: Precision Rewind

Mr. Fyke: — Hello ladies and gentlemen. My name is Carey Fyke. I own a business in town here called Precision Rewind. I've been involved with electricity since six years of age. I've learned who I am from shock treatments — they're very effective.

To give you a little bit of history about why I have any concern about municipal waste disposal, back in 1999 we went to Kelowna on a holiday. And I noticed there's a big lumber mill in Kelowna and that lumber mill takes all of the scrap lumber and produces all of their own electricity and can't use it all. They supply the excess to the city. And the pollution that was coming out of this power generation facility was a little bit of white water vapour. And they couldn't use all their power. And I mean, they had all these big 300-horse saw motors and stuff. I was tremendously impressed.

I then come back here and went to the landfill and noticed the mountain of garbage that we're dealing with continually. And there has to be a way of dealing with this because it's not a healthy situation. So I then dived into what do you do to dispose

of waste? Well I'm a farm boy to begin with, so you've got a burning barrel on the farm. That barrel had to be hauled to the garbage dump a little over one time a year. There was enough garbage produced every day to fill it once a day, so it was really good in reducing the volume that was to deal with.

In my research with this, I've got Stefan Bymack, who is part of the waste management in the town here, and I have got together. We've talked and talked and talked and he's always talking about zero waste. Well when we're talking about zero waste, we're not talking about any easy solution. We're talking about putting a facility in place that is going to sort and manage and deal with everything that is being brought forward. I mean you've got metals. You've got plastics. You've got everything to deal with, and when they're all together, they're useless and they're worthless. But when they're separated into commodities, there's some value to them.

So to get to the position of zero waste, we'd have to collect everything and take it to this facility and have everything separated and made into valuable components. So it would involve a tremendous workforce and people needed to carry it out.

Now there's many methods of dealing with municipal garbage, and landfills have been primarily the biggest thing that's been used. But in a landfill situation, we all know how healthy landfills are from rodent population to ground water contamination to methane gas being produced. What are the advantages of a landfill? Just an easy place to dump our garbage in and walk away. And it's out of sight, out of mind, but the disadvantages are enormous.

Another method that has come about recently is gasification. When you're gasifying garbage, you're taking and you're heating that garbage in an environment where there's not enough oxygen for it to burn, but in essence it is incinerated. The gas, rather than being burned, is being vacuumed off of it. And then the gas is taken and used, run through an engine that is usually attached to a generator, producing electricity.

With the ash that remains after gasification, you're looking at about 8 to 15 per cent of the original volume. The ash is classed as toxic, and not good if it gets in the groundwater. It also has a lot of greenhouse gas issues.

Then we go to plasma arc gasification. The only difference between this is this is a plasma arc. It's an electrical arc producing the heat. Now when you have, if any of you have ever welded, when you've got an arc, you've got something that is losing. You're going to have major maintenance issues in keeping your plasma machinery together. With that, the same thing. Everything is done under negative pressure, and rather than being burned, it's incinerated and the gas is saved.

Then we go to — I'm not sure exactly how you pronounce this — pyrolysis. It's basically the same thing. They're taking and they're using heat to remove the burnable gas from it and saving that. So in essence, they're all the same type of technology.

[11:15]

Then we get to anaerobic digestion. With that we're in essence talking about compost. They're taking and they're shredding everything, and they're putting a bacteria with it. And the bacteria breaks it down, and they take the methane and the gases off of it. And again that is what's utilized for your production or whatever you're going to use it for. With this situation, where you're looking at it being in digestion for 15 to 40 days, so you've got to have large capacity machinery in place to be able to handle that big a volume. The biogas that is generated from it is methane and carbon dioxide for the most part, with a little bit of hydrogen.

Last is incineration. Now in all these that we've talked about other than the last one, we're basically using incineration. It's the same type of situation, just different degrees of it. Now when you're taking gases off of the process and using gas to run an engine to produce electricity, now you've got pollution from the engine. You've got to keep that engine running. You've got countless maintenance issues.

When we're going to incineration, incineration has been around for well over 100 years. Pretty much all of the pollution aspects of it have been dealt with. It's been very much regulated in Europe. With incineration you're looking at removing 95 to 96 per cent of your solids, so you're left with ash.

Now the thing I like about the incineration and the power you get from incineration is the heat. You take the heat and it produces steam, and the steam is used in a turbine to provide electricity. So you have no pollution associated with running an engine or anything for producing the electricity. The steam itself is the lubricant for the turbine. So it's a win-win situation. You're just taking the heat and utilizing the heat.

Now we think of incineration and some people think, well that's very dirty and whatnot. We've had cremation around for how long? None of us complains about cremation that's done in a very healthy manner.

The other thing about incineration now, a backyard burning barrel will produce 580 grams or 20 ounces of dioxins a year. Now when you talk about an industrial incinerator that's incinerating 200 metric tons of waste per year, is producing less pollution than one burning barrel. So it's very environmentally friendly.

The other thing is the ash that's produced from an incinerator now has many uses. It's excellent for restoring the pH balance in soil, so if you're . . . I come from the other side of the province. It's very alkalized soil, a lot of it, so if that soil could be made productive for agriculture purposes, that's huge.

The ash is better than sand when used in concrete. It can be used in concrete. The ash is used in the manufacture of asphalt for highways and stuff and gives a smoother, more durable surface. Ash is very good for fill for the bottom main part in road construction. It's also good for fills at the landfill.

So my conclusion is my belief that the best choice of technologies is a continuous burning incinerator. The reasons for that are the costs of putting it in place are more economical. The energy created would be in its simplest form, heat. Heat would be used to run steam turbines to produce electricity. At

2007 levels, the city of Yorkton has the capacity to generate 1.2 megawatts of electricity per hour. Any excess heat could be utilized for recycling process. We could take our plastics, sort out what's usable, and make sign posts, that type of thing, turn it into a decent commodity. Our metal could all be again separated and sold as a valuable commodity. We could be to a zero waste situation.

The other thing that's interesting with this, when you put a facility like that in place, you also have the ability for teaching — teaching waste management, teaching plastic production, teaching electricity production. It opens up many opportunities.

And that's all I have to say. Thank you.

The Chair: — Well thank you very much. Do the committee members . . . Mr. D'Autremont.

Mr. D'Autremont: — Thank you. Interesting presentation. Waste management and generation from waste gases is something that has been raised before, and something I think that people are looking at across the continent and are using in some locations as a source of fuel. Do you have any idea what the cost per megawatt would be for utilizing the generation that you're proposing?

Mr. Fyke: — Well what we would be looking at, about a 20 million cost for what I'm looking at, would be two incinerators. So 20 million over 20 years. It basically works out to, by the time all is said and done, you've made nothing. But it's cost you nothing at the end of the whole cycle, if you know what I mean, if you're talking just electricity production.

Now I've talked to a place by Houston, Texas. Sorry, I can't remember. They have two of them there. They don't generate electricity, but they have a tipping fee for all waste that's brought in and they make money. They make a lot of money apparently every year, and they've have that in place for quite a number of years.

They also have an incinerator for hazardous waste. They bring waste in from a thousand-mile radius of the incinerator and there is zero pollution from it.

Mr. D'Autremont: — But you don't know what the cost would be for the electrical generation. You haven't calculated that.

Mr. Fyke: — Well that's all in that. The machinery is all in that cost. Your cost after that is just paying off the principle of the machinery that's purchased and your people to run it. Now I haven't checked with SaskPower, but on 100 kilowatt and under units, SaskPower pays 8.42 cents per kilowatt. Now when you go into megawatt production naturally, I would think that would be less but I have no way of knowing that. I didn't take the time to talk to SaskPower about that.

Mr. D'Autremont: — Okay. Thank you.

The Chair: — Mr. Belanger.

Mr. Belanger: — So your theory based on the whole notion of alternative energies is to try and use the municipal waste system as a complementary source of ways to generate power. And

when you say there's different ways you can do it, whether it's wood waste and certainly paper waste and all that, have you had any discussions with the area waste management group? Because I know a number of years ago there's an effort to kind of coordinate our waste disposal system. Like I think it's React in Humboldt, is it?

Mr. Fyke: — Yes.

Mr. Belanger: — That does some of this work. Have they ever had any types of discussions as to how they could utilize your waste to generate power, at the same time reduce a lot of the challenges associated with them?

Mr. Fyke: — I've talked to Humboldt. It was a number of years ago but it was just a very brief phone conversation. As for local waste management, I did have a meeting with them two years ago on the subject but they were looking at, again there was many different methods that they wanted to look at. And that was the last that I've heard.

Mr. Belanger: — Right. And I think the whole notion of your concept, it certainly bears a lot of discussion because it has a lot of win-win. Not a lot of profit attached to it, but it does provide some of the solution to meeting our power needs. So I like the connect that you have here.

I note that one of the issues that all of the waste management zones or systems or regional waste landfill agreements, paper is their biggest problem. They don't know where to deal with this matter because they can't really put a surcharge on paper, so it tends to be collected. And we get paper from all over the place in Saskatchewan, so how do you deal with that? This could be one of the solutions to that.

But in order for us to engage on a more comprehensive Saskatchewan model based on your information today, I think the regional waste systems themselves have to be heavily engaged. And that's the reason why I asked the question because there is a waste association. I don't have their name handy right now, but you haven't had any discussions with them to try and prompt them, like through groups like SUMA [Saskatchewan Urban Municipalities Association], SARM [Saskatchewan Association of Rural Municipalities] and so on and so forth because they would be engaged in this stuff?

Mr. Fyke: — No, I haven't. My association's with a gentleman named Stephan Bymak who is the head of the recycling in town here, and he's tied in with SARCAN and that type of thing. So I'm not sure what discussions they've made.

As far as for your topic of paper, I'm in agreement with you with paper. And don't get me wrong, I'm not against recycling, but my belief with recycling is if recycling is going to be effective, it has to be done locally — here. If you're going to be packaging your paper up and shipping it thousands of miles, that which is being done now, I think the city is running a \$200,000 deficit a year just in freight costs. So that's my thoughts on that: if we can recycle locally, by all means; other than that, it's not viable.

Mr. Belanger: — No. I certainly appreciate that point. But I was just maybe alluding to the notion that, yes okay, we could

do this locally, but it would be nice if we had a provincial-wide system that encourages that local development.

Because right now paper, it does cost money. Right? And we can't surcharge paper, like surcharging *Leader-Post* for 2 cents environmental levy, to cover some of that like the deficit you're speaking about. But we can't do that because it becomes unpopular for governments to pass. So how do we find alternative uses for that that would actually handle the problem at no cost or some profit. So I think your idea does have a lot of merit to it.

Mr. Fyke: — Well again when you, when you get to what you're talking about, paper is very burnable. And we are taking it from one substance and making another useable substance out of it, so it's win-win situation as far as I can see. Now the other thing . . . I'm sorry. Is it okay if I add something here?

In my research, methane gas is used, can be utilized tremendously in power production. And I'm told old landfill sites can have a farming network put into them. I was, in my investigation, we could up that 1.2 megawatts in town here up by point three seven or 1.37 megawatts just by farming the methane off of our old landfills. Or the other thing that we can do is dig up our old landfills and run them through the incinerator and then you're left with 30 per cent waste.

Mr. Belanger: — I think my final point is that a notion that we manage our landfills. We separate the waste; we find ways to collect from the user or the consumer of those wastes. And any residual wastes left — whether it be waste wood, paper that costs money to transport, any other products that you mentioned — you're suggesting that perhaps we find ways to utilize that to generate power, reducing costs overall, and helping the environment and meeting our needs as per the committee's mandate today.

Mr. Fyke: — Yes.

Mr. Belanger: — So I just want to make sure that I encapsulated that correct. And thanks again for your information.

Mr. Fyke: — One other thing that's just been on my mind and I notice an awful lot, we have railway ties all over the province. You see them laying along every track. They are now designated as a hazardous commodity. The railways are having to take them to Missouri to be disposed of. In Missouri they are incinerated. Why can we not be doing that locally? Just a thought.

Mr. Belanger: — Thank you.

The Chair: — Mr. Ottenbreit.

Mr. Ottenbreit: — Thank you, Mr. Chair. And thank you, Mr. Fyke, for coming before the committee. I've known Mr. Fyke for some time, and I know his passion for this subject. Just to sort of clarify, Carey, Mr. Belanger's question about . . . it seems to think he's thinking or more thinking on a local level. But in fact from what I gather from your presentation, you're thinking of a local level here but expanding it as a provincial initiative.

[11:30]

Mr. Fyke: — Oh, by all means. I mean there's no reason why every city should not be dealing with their waste. And even from our perspective here, I believe waste could be brought in from probably up to a 100-kilometre radius of the city and taken care of here.

I go to Regina and I see Mount Blackstrap there, the waste mountain. I mean the amount of homes that could be provided electricity just from generating electricity from that waste, you couldn't imagine how much.

Mr. Ottenbreit: — And I think in past talks we've had as well, you talked about the option for these types of facilities, actually farming old landfill sites not only for methane, but actually as a fuel source as well?

Mr. Fyke: — Yes.

Mr. Ottenbreit: — Do you have any numbers? I think I've seen some in the past, but would you have any numbers that you could pull off the top of your head for general amounts of waste in the province and how much power could potentially be produced by using those unrecyclable wastes for power generation?

Mr. Fyke: — Not provincially; just locally.

Mr. Ottenbreit: — So on a per capita basis — like if you use Yorkton as an example which is probably fairly comparative, you know, per capita — with generation as waste produced, would you have those numbers?

Mr. Fyke: — About 8 tonnes per hour.

Mr. Ottenbreit: — Of waste. And that would produce how much energy?

Mr. Fyke: — For Yorkton, 1.2 megawatts. You're looking at, you can figure out your waste on 4.4 to 5 pounds of waste per day per person generated.

Mr. Ottenbreit: — And my understanding is these type of facilities, waste energy facilities like this, there is a cost for size. I mean the larger the size, the economy of scale comes into effect, but they do get more expensive for the size. So from what I understand from your presentation, you're proposing that for cost effectiveness these facilities may be sized for the need of unrecyclable waste and have waste still being recycled as a cost-effective method.

But in the effect that we see things happen like we've seen over the last couple of years with markets dropping out for some of these commodities, these products, that would be an alternative for expensive stockpiling or expensive shipping or loss of income in producing, using these recycling facilities as an opportunity to possibly bring that cost down. And use these, instead of landfilling like some communities are doing, putting them through a waste energy facility and actually producing waste with the unusable by-products.

Mr. Fyke: — The other thing that these incinerators can

handle, they can handle tires, which again is another waste product that has got to be dealt with.

Mr. Ottenbreit: — So virtually any material that's burnable or has a BTU part to it or value to it could be put through one of these facilities. Thank you, Carey.

Mr. Fyke: — All I am told is they recommend that you remove propane and gas tanks. But they said they will go through.

Mr. Ottenbreit: — I guess one final point. You mentioned railway ties as a hazardous waste. And so these facilities, actually, they burn to a high enough temperature that it neutralizes hazardous waste?

Mr. Fyke: — Yes, with railway ties. And I believe with the former presentation, a pelleting machine was brought forward. With railway ties, that's what they have too. They have a machine that it grinds up the railway ties into pellets or specific-sized pieces of wood. So it's a continuous flow. When I was investigating the railway tie situation, I talked to both CN [Canadian National] and CP [Canadian Pacific]. They both said they would be very willing to have us do their ties. But that would have brought our power production up to 15 megawatts an hour.

Mr. Ottenbreit: — I guess just one final question or point. You touched on obviously something like this as an alternative to landfilling, which in our province we have a lot of land. But I mean it's become quite an environmental hot spot that, you know, look after the land and to be more environmentally responsible regardless of how much land we do have.

We do see quite an issue in the North, specifically with landfills and the issue of landfilling. So do you see this as an opportunity for possibly handling maybe a more northern-placed waste energy facility that would possibly be part of the answer to that northern landfill problem?

Mr. Fyke: — Well I believe so. I believe the first thing we need to do is get the first one in place and train our personnel and just expand from there and continue. I don't see why this couldn't be a province-wide situation.

Mr. Ottenbreit: — So a facility like this as a test bed, say in Yorkton, would be a pretty good place to start, do you think?

Mr. Fyke: — I would have no problem with it. I mean really when you're thinking of it, I presume Regina or Saskatoon would be a good test site as well. But them being the size of cities that they are, maybe it would be better off starting out in a smaller place and getting all the ... [inaudible] ... and problems ironed out here before it would continue.

Mr. Ottenbreit: — That's all I have. Thank you, Mr. Chair. Thank you, Mr. Fyke.

Mr. Fyke: — Thank you.

The Chair: — Mr. D'Autremont.

Mr. D'Autremont: — Thank you. Having had some experience with sites, do you know of any place in

Saskatchewan where waste generation is taking place at a site or where there is a collection system in place? I'm wondering if the public is prepared to accept that kind of a generation system or that kind of a collection system.

I know there was a proposal down near Estevan a number of years ago for a site to do commercial incineration, and the public was up in arms about it, and it never happened. Do you think the people of Yorkton would be prepared to have an incineration electrical generation site put in place? And would they be prepared to have the transportation of the materials through their community into the generation site?

Mr. Fyke: — I believe the biggest problem that we as people have is being misinformed. I think if the people of the province knew and understood what was being put forth, they would be more than willing to welcome it. But as in most situations, not knowing brings fear. I mean when you bring up the subject of nuclear, instantly everybody's petrified. And why is that? It's because we don't know.

So I guess the other thing is I'm one who is . . . Seeing is believing. And when I seen that in Kelowna, it made me a believer instantly. I mean the amount of pollution that we are generating at each landfill each year is unbelievable. In this information it says how much methane gas is produced by each pound of garbage, and it's just unbelievable.

That is something that we as the people of the province don't know or don't understand. It's at the landfill; it's out of sight, it's out of mind. Unless you're living right close to the landfill, you have no problem with it.

Mr. D'Autremont: — Do you think the answer is education?

Mr. Fyke: — I believe so.

Mr. D'Autremont: — Thank you.

Mr. Fyke: — And I mean some of us don't hear too well too.

The Chair: — Well thank you very much for your presentation and taking the time to answer our questions.

Mr. Fyke: — Thank you very much for having me.

The Chair: — The committee will now stand recessed until 1 o'clock. No, we will take a recess for five minutes.

[The committee recessed for a period of time.]

The Chair: — The committee is now coming out of recess to announce that we will again recess until 1 o'clock. Thank you.

[The committee recessed for a period of time.]

[13:00]

The Chair: — Before we hear from our next witness, I'd like to advise witnesses of the process of presentations. I will advise all witnesses to introduce themselves and anyone else that may be presenting with them. Please state your name and, if applicable, your position within the organization you represent. If you have

written submissions, please advise that you would like to table your submissions. Once this occurs, they will be available on the committee's website.

The committee has asked all submissions and presentations to be in answer to the following question, and that is: how should the government best meet its growing energy needs for the province in a manner that is safe, reliable, and environmentally sustainable while meeting any current and expected federal environmental standards and regulations and maintaining a focus on affordability for Saskatchewan residents today and into the future?

Each presentation should be limited to 15 minutes with question-and-answer to follow. I will direct all questioning and recognize each member that is to speak. Members are not permitted to engage witnesses in debate and witnesses are not permitted to ask questions of committee members.

I would also like to remind witnesses that any written submissions presented to the committee will become public documents and will be posted to the committee's website. With that, I ask you please introduce yourself and go ahead with your presentation.

Presenters: City of Yorkton and Agmar International Marketing Inc.

Mr. Putz: — Okay. I am David Putz. I am city manager for the city of Yorkton, and I will be making this presentation today with Judie Dyck.

Ms. Dyck: — Good afternoon. My name is Judie Dyck and I am vice-president of Agmar International, a company owned by my husband and myself, out of Saskatoon. And some of you may have known me in my days with the Saskatchewan Canola Growers and the Saskatchewan Biofuels Development Council.

Mr. Putz: — Okay, background. The city of Yorkton has a population of approximately 17,200 and we are continuing to grow. There is a new 350-lot subdivision development taking place. And we also have two major commercial developments, being JRI and LDM Foods, constructing two canola plants. LDM is also presently in the stages of starting up their plant. Oil activity and a potential potash mine are also impacting the growth of the city.

The city is taking a progressive and long-term view of the growth and is developing a regional waste centre in southeastern Saskatchewan. We are currently providing waste management services to 25 surrounding communities and rural municipalities with a population of approximately 11,000. We have been approached by other communities in the region to handle residential and commercial and industrial wastes, and with a trading area of more than 100,000 people and a location situated with three major highways, the city is in a prime location to act as a regional waste management centre.

The city wants to use new technology, specifically pyrolysis, to convert waste to power in an environmentally sustainable manner. Waste would include municipal solid waste; sludge; commercial, industrial, forestry, and agricultural wastes. This technology also has the capability to safely process some

hazardous wastes as well. Using new technology would limit the need for a landfill and extend the life of the city's current landfill. The development, monitoring, and liability of new landfills is very expensive. This cost would be offset at least by some of the costs of utilizing new technologies.

Landfills are also a source of greenhouse gas emissions and groundwater contamination. The city would like to use the power generated by this facility to supply the city's facilities with power and would use SaskPower to provide alternate or backup power. The city of Yorkton has been working with Judie Dyck of Agmar International Marketing to develop a closed-loop pilot project demonstrating pyrolytic technology to convert waste to power. In addition to addressing the city's needs, the intention is to demonstrate and develop a model for other communities. The technology can be scaled up or down and can generate power per module of up to 10 megawatts of power.

The pilot project of 8 tonnes per day will generate sufficient power to operate the city's sewage treatment plant. At this scale the intention is not to put power into the grid, but future plans are to scale up the technology where the intention is to put power into the grid. The expected power generated will depend upon the caloric value of the feed stock, likely somewhere in the range of three to five megawatts.

Ms. Dyck: — I just want to talk about the technology, and this is technology that I have had an opportunity to start examining a few years ago, particularly when we got into the whole food versus fuel, biofuels issue, which of course in my opinion is a bogus issue.

And so I was looking at ways to deal with municipal solid waste. It's a liability and turning it into an asset. The company's out of California. And I will table this presentation, this video, or else you can even look on their website, showing the technology and how it's operated. It's a commercial operation in Los Angeles and they've been working with the LA [Los Angeles] County, which includes the city of Los Angeles.

But this technology of course is 100 years old, just like the production of ethanol is thousands of years old, and it's been used in the chemical industry or for other industrial applications. In particular, pyrolysis, depending on the temperature you use, your end products are going to be syngas which can be converted into fuel or into power, your bio oils, and your biochar. And these type and amount of end products are dependent upon the feedstock and, as I mentioned, the temperatures.

So basically what this system does is it takes a pre-processed feedstock. So it can take your black bin and you shred it and then it goes . . . which has a very high organic material, and then it's subjected to an elevated temperature of approximately 1500 degrees Fahrenheit.

Now in the US they are diverting 50 per cent by law in California from the landfills and so only 50 per cent is going into this particular system. However this system can handle all wastes, except it does not handle glass and metal. So the city would not have to necessarily have what they call a MRF, or material recovery facility, to develop this technology.

But the organic material decomposes into a gas, and the gas resulting from the pyrolysis process is a high temperature combustible product that is sent directly to an oxidizer. In the oxidizer the gas is combined with sufficient oxygen to support combustion and ignite to create heat. So these hot gases, approximately 2000 degrees Fahrenheit, are directed to a high temperature cyclone separator which removes about 90 per cent of the particulate matter, which is of course important in terms of environmental concerns.

Then it goes through a steam generator and activated carbon is injected prior to the gases entering into a baghouse or a dust collector. And these gases then go through a catalytic reduction system before being cooled in a wet scrubber and then passed through a mist eliminator and then released into the atmosphere.

The power generation system consists of a steam generator, a steam turbine generator, a condenser feedwater system, makeup water treatment system, the cooling water system, and will produce superheated steam at approximately 600 psi [pounds per square inch] and 800 degrees Fahrenheit.

Mr. Putz: — New energy producers need to be assured of a long-term policy by SaskPower for ways to power projects of varying sizes and utilizing new technologies in order to be viable. Potential power producers such as the city should be allowed to supply power for profit to their own facilities, with SaskPower providing an alternate or backup power source.

SaskPower should establish and publish a rate schedule for the purchase of power based on the amount of power generated. The current policy for small producers of power appears to be on a one-on-one basis. These rates should be tied to and reviewed when consumer power rates are adjusted.

SaskPower should establish clear and concise policies and associated costs regarding the requirements that must be met to connect to the power grid and supply power to the system. With the future development of a carbon credit system in Saskatchewan, any benefits accruing from producing green energy should belong to the producers.

The components of the Ontario *Green Energy Act* should be considered by Saskatchewan. Under that Act, there is an obligation for the authority responsible for power to purchase, to grant priority and obligatory purchase of power from green energy projects.

As well the Ontario government has developed a mechanism to raise financial capital.

Ms. Dyck: — I just want to talk a little bit about the benefits of green energy to Saskatchewan. New technologies have the opportunity to provide both economic benefits, through waste-to-power generation and employment, as well as environmental benefits through reduction of methane and carbon dioxide emissions at the landfill.

New technologies can also eliminate or reduce common air pollutants such as particulate matter, ground-level ozone, carbon monoxide, sulphur oxides, nitrous oxides, and lead. And in a recent report published by the Saskatchewan Enterprise in October of 2009, Saskatchewan ranked ninth in Canada in

terms of the adoption of new technologies. And I believe that this is an opportunity to look at an area that would benefit and start utilizing some of the technologies that are out there.

Currently power rates to Saskatchewan consumers are low at the average cost of Saskatchewan power generation to be 5.78 cents per kilowatt hour. In comparison to new technologies, it is difficult to compete at this rate. However SaskPower has stated that their costs will double and triple current production costs. As SaskPower's costs increase, the new technologies become more competitive.

Mr. Putz: — Opportunities. There's opportunities to generate additional green power in local communities, reducing the stress of increased demand on the province's current power requirements and possibly its infrastructure. Assuming that other urban communities could generate similar megawatts of green energy, the province could see a potential of 50-plus megawatts of power annually.

Virtually eliminate the need and additional cost for landfills which produce two main gases — methane and carbon dioxide — which contribute greenhouse gas emissions. Methane, the main component of natural gas, can dissipate into the atmosphere, causing a long-term source of pollution and possible irritation to local residents. One tonne of household waste produces approximately 180 to 250 cubic metres of methane over a 15- to 20-year period. Saskatchewan currently has over 500 municipal landfills in operation.

Other environmental concerns are over the common practice to burn material to reduce volumes and to control vermin, which also attract wildlife. Exposure to fumes from burning refuse at landfills can also result in health problems.

Another opportunity is to provide an alternative to recycling when there is insufficient market opportunities or an economical alternative. Cardboard is an example where the current market is poor and many communities are stockpiling, waiting for an improved market. While recycling is occurring around the province, the amount and type of recyclables vary. A survey of recycling program costs in the province reveals an average of \$149 per tonne, but varying from 18 to \$800 per tonne.

As cities and the private sector begin to invest in new technologies for green energy production, it would permit SaskPower to free capital for investment into the grid infrastructure and other capital requirements.

It is well known that the province of Saskatchewan is one of two provinces in Canada which generate large amounts of greenhouse gas emissions. SaskPower will see increased power demand in the short to long term. It will also require innovative methods and technologies to reduce greenhouse gas emissions and other critical pollutants in generating power and improve infrastructure to the grid system. Their rates for power will increase, resulting in new technologies becoming more competitive.

Locally produced and used green energy for power generation would be one alternative to reduce greenhouse gas emissions and provide needed power.

To develop alternatives for power generation in the province, we need a clear and concise signal from SaskPower in their regulations and policies in order to embrace new technologies as well as attract the investments and financing required to develop the new green power generation projects.

The province has the opportunity to be a leader in the advancement of green energy, which would also bring both economic and environmental benefits to the province.

That concludes our presentation and ... [inaudible] ... provided the documents if it can be submitted.

The Chair: — Great, thank you. First question, Mr. McCall.

[13:15]

Mr. McCall: — Thank you very much, Mr. Chair. And thank you very much for a most interesting presentation.

I guess the first observation I'd make is that we've certainly heard a lot about the *Green Energy Act* in Ontario and the kind of possibilities that opens up for both a more distributed power generation model, but the opportunities for communities such as that which the city of Yorkton sees in this project. Is there anything you'd like to add on to your observations around the *Green Energy Act* in Ontario in terms of lessons that we should be paying attention to here in Saskatchewan? Anything you'd like to add to that which you brought forward in the presentation?

Ms. Dyck: — Well I was just going to close up. Well firstly and, you know, I've been involved in bioenergy policies, and in fact I also sit on the biofuels and bioproducts sector team. But I'm not here representing that team.

But certainly I think any time a government gives a clear signal and has a comprehensive Act outlining the details so everybody's clear as to the direction that the government's going, as well as sort of what are the rules ... And I also believe that the flexibility around the program, because under point 2 it talks about tariffs are differentiated on the basis of technology resource intensity, project scale, and location to ensure projects are economically viable in communities. You also have with you a copy of our proposal that the city's looking at in terms of the 8 tonnes per day, which can be scaled up. Of course if you scale up, it becomes much more economical.

But the reality is we have smaller communities that could take advantage of technologies, and that was one of the reason looking at pyrolysis because it is a little bit more adaptable. And this particular company goes from 8, 45, and 125 modular units which can be, you know, you can have two units or three units. So the flexibility around there is good.

I like the aspect in terms of the focus on the First Nations and Métis because I think there is some opportunities for that sector as well. And I think the whole notion around finance, there's interest. I think there's interest in P3s, private-public partnerships, but I think any time that you have access to some funding, especially in the early stages, is extremely helpful.

Mr. McCall: — Well I guess as you've mentioned, certainly the *Green Energy Act* in Ontario does place a certain emphasis on Aboriginal and community-based projects. In the work that the city of Yorkton is doing, are you anticipating any sort of partnership, say, with for instance the Yorkton Tribal Council or individual First Nations in the region?

Mr. Putz: — There's a potential to work with them in the future. At this point in time, we haven't progressed down that road. Our present situation is that we've been struggling to find alternate funding because again this technology is somewhat risky. So for a city council to take it on all on its own without some assistance from others such as the province, it's a very large challenge.

The situation has been that . . . One of the barriers has actually been the fact that SaskPower does not have a clear policy with respect to what is required to connect to the system. There is no clear indication and no information readily available with respect to what kind of costs might be incurred or what kind of revenues SaskPower might pay to an organization such as the city of Yorkton if we were generating power and contributing it to the system.

There's no policy about the possibility of us contributing or using the power that we generate to operate our own facilities and have SaskPower act as a backup system for us. So that's the stage that we're at. We're not able to move and progress into the area where we would start trying to engage other organizations such as First Nations.

Mr. McCall: — So again, the biggest imperative is getting clarity on policy from SaskPower?

Mr. Putz: — Yes.

Mr. McCall: — And has SaskPower made any undertakings in terms of the timeline for the provision of that clarity? Or I guess obviously the work of this committee is part of that consideration. But has SaskPower made any undertaking in terms of when new policy will be put forth or clarified?

Mr. Putz: — The last discussions I was part of, they indicated that they were working on developing a policy but they did not have any timelines.

Ms. Dyck: — We had thought maybe they might have something out by now, but I think their program that they've come out with now is, minimum is 10 megawatts. So right now, that wouldn't fit right now. And the fact is the city is looking at utilizing the 8 tonne per day to operate, provide power to the sewage treatment plant. So we wouldn't have to get into the grid.

But we did receive a letter from SaskPower, and that's where it mentioned about the one-on-one basis, where SaskPower indicated, based on the output, that if we were to theoretically to put it into the grid, they would give us, what was it, eight and a half, or nine and a half cents. So that's not, you know, it wouldn't pay to do that.

Now one of the challenges is, as Dave mentioned, is that, if you go to say a larger unit, then we have to go to SaskPower to look

at what's the feasibility of connecting to the grid. And so if it's the larger size, at this point my understanding is they can't give you a specified price what it's going to cost to do the feasibility to look at that. Like send us a cheque, and then, you know, we'll let you know. So I mean it would be really helpful when you're trying to do a budget is and what your costs are is, okay it's going to cost you at the outside this, to look at the feasibility of where you're going to hook into the grid.

Mr. McCall: — As opposed to bigger than a breadbox, smaller than Montreal, I guess.

Ms. Dyck: — Yes, something like that.

Mr. McCall: — Okay. In terms of the pilot project that the city is anticipating around the sewage treatment plant, do you have a price tag associated with that? And how soon can you get that ramped up? And I'm imagining that the answer to the last question, or perhaps all these questions, is in the second document. But I guess price tag, timeline, and are you buying the technology off the shelf from a certain company or what?

Mr. Putz: — The majority of the technology is off of the shelf with IES [International Environmental Solutions]. The price tag is approximately \$5 million. The time to move it forward, my expectation is that if everything could line up we could do it with less than a year.

Mr. McCall: — Okay. That's all the questions I have for now, Mr. Chair. Thank you.

The Chair: — Mr. Bradshaw.

Mr. Bradshaw: — Thank you very much and thank you for your presentation. I just have a couple of quick questions. One, you had talked about them doing this in Los Angeles and you said they were doing about 50 per cent of their waste, if I'm correct, in Los Angeles. Why wouldn't they be doing 100 per cent of their waste? If it's working well, what's the . . .

Ms. Dyck: — Okay. If I can just back up a little bit and make sure I answer your question when I back up. When I started looking at this, I mean in terms of due diligence, I don't have a research department. I'm an agronomist, not a biochemist.

The city of Los Angeles, which is part of LA county, started looking at, a number of years ago, different technologies. And so they went looking around the world for various technologies and they had a third party to do some investigation. And so what happened is that's how International Environmental Solutions got selected. Of the four they were the only US company.

And so they're working now at the second . . . That was phase 1. Second phase was to start looking specifically at the technologies. Phase 3 is now to develop a park around utilizing technologies to do the testing. The state of California has an Act stating that they have to divert 50 per cent. It was phased in over a period of time but it is now 50 per cent from landfill.

So one of the questions I had, and if you look in this document . . . And I've had discussions with Mr. Ottenbreit and with others, and they have the same question as I do. Because if you

look at the caloric content . . . For example, this unit can take everything but glass and metal. So if you want to recycle your plastics . . . So in places in California they're shipping it off to China. What is your carbon footprint to do that? What is your carbon footprint to send off tires if you can run it through the system and generate more power? Because the tires have a lot of power.

That was the reason we looked at the costs of recycling anywhere from \$18 to \$800 a tonne. If you look at Saskatchewan — a large area, 1 million population dispersed over a large area — my thought is maybe we don't recycle. Maybe this is our recycling.

But there still seems to be a bit of a motherhood issue around recycling. You know, people have a sense of feeling good. I think with the right education around this system, people can still feel good that they're generating renewable green power. So the answer to your question is nobody's really looked at that issue of maybe we should step back from recycling and look at diverting 75 or 80 per cent from the landfill into this kind of a system. But recycling is still very much a motherhood issue for many areas.

And even my discussions with the Federation of Canadian Municipalities organization — because they have some funding available — well they want to see 50 per cent diverted from the landfills. And I said, well have you thought about this issue, about what's the carbon footprint and what is the cost at the end of the day? And they said, no they hadn't looked at that.

Mr. Bradshaw: — Okay. Just one more question. And since they are doing it there, what is their costing per kilowatt in Los Angeles? What's, you know . . .

Ms. Dyck: — Oh, gosh. I don't know what their cost, but I know areas in the US they're getting, you know, talking to other technology providers in other states, they're probably getting at least about 10 cents a kilowatt hour for green energy.

Mr. Bradshaw: — Okay, thank you.

The Chair: — Mr. D'Autremont.

Mr. D'Autremont: — Thank you. Very good presentation. I asked this question of an earlier presenter today and, you know, as we know, one person's meat is another person's poison. He was promoting the idea of electrical generation from waste as well. But are the public in Yorkton prepared to accept an incinerator and waste heat generator and the transportation of municipal waste, which could include hazardous materials, into the city for the production of electricity from the use from municipal wastes?

Mr. Putz: — With respect to the system that we're considering utilizing or implementing, one of the reasons that we find it very attractive is the fact that it has a very small emissions compared to the alternatives. And from an environmental perspective the balance would be significantly in favour of going with this technology, as opposed to continuing to do things the way that we have been in just filling the landfill, having methane gas evaporate into the atmosphere, and so on.

With respect to hazardous material, at this point in time we have not given any consideration at all to accepting hazardous material. And should we look at that in the future, we would expect to go through an extensive public consultation process before implementing something like that.

The materials that are presently being transported to our landfill are coming in, as we've indicated in our submission, from more than 25 different locations at this point in time from outside the city boundaries. And that has been ongoing for the past . . . Well we've increased significantly the number of communities in the past four years, but prior to that we were taking refuse from I believe it was 12 communities four years ago.

Mr. D'Autremont: — So there has been no concerns about the transportation of these materials? And I don't know where your landfill is. I don't know how close it is to the city or what the transportation routes are at all. So there has been no difficulty with concerns of that. Because I'm thinking of another location in Saskatchewan that was proposed for commercial incineration and it became a very difficult issue and in fact it did not proceed.

[13:30]

Mr. Putz: — At this point in time we have not received . . . And I've been with the city for just under four and a half years. As far as I'm aware, we have not received one complaint in that time period with respect to waste being transported to our landfill. Our landfill is located to the northeast of the city just outside of our boundaries.

Ms. Dyck: — If I could just add to that. This process produces no fly ash. And when people talk about incineration, that can mean, some people that means just burning in sort of a containment. But this is a pyrolysis system; there's no fly ash. The company in California is the only company, the first and only company to receive a clean air permit. So they have to meet some very stringent environmental guidelines, and of course California is well noted for having the most stringent guidelines for environmental concerns.

Mr. D'Autremont: — Well this proposal was about 10 years ago for a commercial and high-intensity incineration, and the surrounding community was not prepared to accept it. In fact is, they changed the municipal council to make sure it didn't happen.

Another question though. If the city of Yorkton goes to production of its own electricity for use in your own facilities but you still want to maintain a connection to SaskPower for backup, what kind of proposals or considerations have you given to SaskPower's costs of infrastructure, maintaining the connection, and maintaining the generation capacity to back up your system?

Mr. Putz: — At this point in time we have not had any discussions at all with SaskPower about those areas, and that's, I guess, from a city's perspective, we could enter into discussions with SaskPower. That's also potentially an area where SaskPower might set some policy guidelines that would apply across the province — so that it would be the same for any potential user or potential producer — that could then be

considered in doing an analysis of the feasibility of establishing a project.

Ms. Dyck: — If I can just add to that in response to what I said to Mr. McCall, was that in my discussions with SaskPower, is that depending on the size of your project, you enter into a contract with them for them to determine what the feasibility would be and what those costs, and could they do it, and how that all would come about, and what would be the costs. So there has to be some upfront costs by the city or whomever that wants to do that in order to get those answers. So that's why it makes it a bit difficult because you have to lay down a lot of money before you have answers.

Mr. D'Autremont: — Some of the presenters that we've had come before us seem to feel that they can put power on to the grid and yet bear none of the costs of the transmission system or that they should bear none of the costs of maintaining a reserve capacity to back up their system.

So if you're producing, let's say, 8 megawatts a day, SaskPower has to have 8 megawatts available at all times to back your system up. Who pays for that 8 megawatts of reserve capacity? I guess that's the kind of question that, you know, I would seek some direction on from you. Are you prepared to pay something towards that reserve? Because obviously you wouldn't be using the reserve all the time, but you need to have that available.

Mr. Putz: — I feel that that would only be reasonable that we would be paying something for that as would be the expectation that we would be paying for utilizing the grid. With respect to providing power to our sewage treatment plant, that would be directly adjacent to the location of this facility so we wouldn't even utilize the grid to provide power to the sewage treatment plant.

However, in trying to provide power to any of our other facilities within the city, such as Gallagher Centre or our water treatment plant, the expectation is that we would use the grid and that it would not be for free. There is a cost. Realistically it is a business. The grid has to be maintained. It has to be replaced and updated, so every user should be paying a portion of that.

Mr. D'Autremont: — I think there was an announcement earlier this week. And I think you mentioned that the small producers, power producers program, and I think the number that I read on that was 100 kV [kilovolt], from there to 10 megawatts. So it's not a minimum of 10 for this particular program. It's 100 kV to 10 megawatts that would be available for connections to the grid.

The presenter earlier today talked about the possibilities of cogeneration up in the Hudson Bay area and that SaskPower in the past has turned down those kind of requests. I think we're hearing from people across the province that they would like to see that opportunity be provided by SaskPower, that people be allowed to access the grid and provide electricity at some sort of compensated rate, not necessarily subsidized but that there would be a viable rate provided to them. So, you know, I think your points on that are well taken.

The Chair: — Mr. Ottenbreit.

Mr. Ottenbreit: — Thank you, Mr. Chair, and thank you, Ms. Dyck and Mr. Putz, for presenting before the committee today.

Kind of touching on Mr. D'Autremont's comments he just made here now. I understand through a project like this, it is an alternative to a landfill and with that I would assume you'd be looking at sources of revenue coming to that facility through tipping fees anyway. With all things accounted for, do you have an idea of what rate you would need for power generated from a facility supplying on to the grid for recouping the cost or making a project like waste energy viable?

Ms Dyck: — Well as I mentioned earlier, the compensation rates in the US that I've seen have been somewhere in that 10 up to 15 cents, somewhere around in that rate. And also it looks at . . . So it's a combination of, you know, what kind of income you can generate from the power but also, as you mentioned, the tipping fees. And so one of the things about this project was to examine all those kinds of issues, to look at what is in the waste, what power can be generated out of that, what would be sort of the costs so that you can determine a fair cost of tipping fees. And certainly I think that's, the tipping fee discussion would be more for Dave, but it's a combination of revenue.

Plus the fact is depending on the . . . One of the discussions that I've had with Dave is the feedstock. So let's say during the week you run your municipal solid wastes, and then you stockpile, for example, your agricultural wastes and your wood wastes, and then you run through those on the weekend, possibly to look at what kind of biochar you can develop out of that system which could also . . .

And biochar, in our proposal worked with . . . Saskatchewan Research Council is doing work on biochar. Biochar has the ability to be a soil amendment and it helped to . . . It's not a nitrogen fertilizer but it would help reduce nitrogen fertilizer. So anybody in the ag sector concerned about greenhouse gas emissions, you know, the production of nitrogen is an issue. So there are potentially revenues from that source, but it has to come from a very specific feedstock.

But Saskatchewan Research Council's also interested in what kind of benefits could you derive out of municipal solid waste biochar. So that was some of the area that we would be looking at in this project. And actually there's a regional initiative now to develop a Prairie biochar organization, which I am part of organizing. So there is some potential around there.

So that's part of the idea of developing the modelling around this unit so that you can take it and scale up or take the same scale and go to other communities.

Mr. Ottenbreit: — Yes. So basically what we're talking about is — just for clarification — it's a test bed research project to supply power to the waste treatment plant for the development of the information to expand it to possibly a provincial . . . not a silver bullet, but something that fits into a provincial energy production system that not only looks after maybe some energy needs for some of the more populated areas.

Ms. Dyck: — Just one other comment. One of the things that I liked about Ontario's program is the flexibility. It looked at size in terms of viability. Because you know, one of the things about

a lot of the technologies out there is, if you remember the ethanol industry, every region was going to have a 25-million-litre ethanol plant. Well what happened is everybody went 150. That was one of the things I wanted to look at. Where is there technology that you can scale up? So if you take communities the size of Yorkton versus a community the size of Humboldt, Humboldt's a much smaller city so they're going to need a smaller unit, which the cost per unit is going to be higher. So that flexibility, it seems to me . . . So some flexibility in terms of those rates and those costs.

Mr. Ottenbreit: — So in talking about the size you talked about approximately, or Dave touched on approximately \$5 million for this 8 tonne per day unit. If this project was to go ahead, and it seems like it's feasible to expand, as you expand a system like that is it \$5 million per 8-tonne unit or as you add on these different cells or these different . . . I'm not sure what the terminology is.

Ms. Dyck: — They're modular size.

Mr. Ottenbreit: — One of the modules. Is it pretty much 5 million per module or as you expand does it get . . .

Ms. Dyck: — Well no, because the efficiencies . . . Currently I mean the company developed the 8-tonne-per-day. I mean, they started out with their development years ago it was 2 tonnes, but 8 tonne per day was not really developed, was developed more for specific uses around particularly hazardous uses, so where you had some very high-end waste that you wanted but you didn't have large amounts. So that's what that unit was developed, but we thought this would be a good size. It's the same unit as their 40 tonne per day which is in the video, and they also have a 125 tonne per day. So you could take two 40's, you could take a 125 and a 40; it just depends on what you want to put through in your tonnage.

So if you look at the averages of a tonne per person per year for municipal solid wastes, and then whatever other commercial, industrial wastes that you may get.

Mr. Ottenbreit: — So you see this project, or projects like this, as sort of a multi-faceted approach not only to energy production but landfilling issues and low market value on recycling issues, and as with the case of the city of Yorkton moving more to a regional model for landfilling, sort of an answer to regional waste management, a solution to some of the regional waste management issues as well?

Mr. Putz: — Yes, and one of the greatest considerations for the city of Yorkton and what has moved us towards looking at technologies like this, and even potentially getting into the whole power cogeneration market, is the fact that the cost of landfills, given provincial regulations, is going up exponentially.

Our present landfill has the capacity to provide Yorkton 25 years of service. The situation is that with the growth that's been taking place, the amount of and the volume of material going into our landfill in the last four years has almost doubled. Where we used to dig one cell and have it last for a period of two years, we are now using that up every year. So the cost of digging a new cell, which is about 160,000 a year, used to last

us two years. With the growth that's taking place and the potential future growth, as well as accepting material into the landfill from other communities, that can significantly reduce that 25-year cycle for this landfill.

The cost of establishing a new landfill, my guess is that based on experience that I've had personally in other communities I've been in as well as having discussions with the city of Lloydminster, we would be looking at a cost of somewhere between 8 and \$10 million to establish a new landfill if we had to go out and do it today.

[13:45]

And as well then, when you start licensing that new landfill you're also dealing with new environmental regulations which require such things as putting in permanent liners as well as the monitoring, which we do now on an ongoing basis. The cost of putting in permanent liners for the city of Lloydminster when they developed their landfill about two years ago, their cost I believe was, if I remember correctly, was in the neighbourhood of about \$4 million. And their first cell they expected was going to last them for about four years and I believe it only lasted for two years. So there is a real incentive for municipalities such as Yorkton to find alternatives to deal with their landfill issues.

And the other one, which is probably the biggest one which was mentioned earlier about the concern about incineration, is the NIMBY [not in my back yard]. And I'm sure everyone around the table is familiar with the situation with the city of Regina and their efforts to locate a new landfill. I can remember them looking for a new one when I was going to school there and that was a long time ago.

Mr. Ottenbreit: — So from your perspective, looking at where my colleague, Mr. D'Autremont, touched on earlier about the in-acceptance of the community back 10 years ago in the Southeast not looking at a project like this. Or even I remember a number of years back, there was talk of a proposed waste energy facility somewhere between Yorkton and Melville. And I think there wasn't so much the transportation or the emission side of things then. It was more the cost of the project.

But now we see landfilling getting more expensive. Public acceptability of projects like this are getting a little bit stronger because of low emissions, if not no emissions. Transportation of this product is happening anyways so that's not an issue. And the cost of new development of landfills as opposed to development of something like this is more in line with each other as opposed to being cost prohibitive. So what we see, from what I understand, what we see happening right now is sort of a general acceptance of the public, in your opinion, to a project like this as opposed to 10 years ago.

Mr. Putz: — In my view it's getting much closer to being generally acceptable, yes. And a big part of that is the fact of the changing in the cost implications.

Mr. Ottenbreit: — And I think a large part, from what I've seen or talking to people around the province as well, is environment has become so high on the priority list now with some of the documentaries and things that we've seen that, even with the NIMBY mentality in play, the chance of having a new

landfill near a community as opposed to a power generation facility using that waste instead of burying it without the environmental impact sort of diminishes that not in my backyard kind of method of thinking.

Mr. Putz: — I would think so, yes. Again and in our case the city of Yorkton, we depend entirely on underground aquifers for a source of water, so trying to locate a new landfill in an area that would not have any potential impact on those underground aquifers would be a real challenge.

Mr. Ottenbreit: — And this might be a question for Ms. Dyck. This technology you're talking about, is it like some other waste energy technology I've seen — there's still the opportunity, if the facility has the capacity, to mine old landfills and put that waste through this type of facility as well?

Ms. Dyck: — That is an area that the US is starting to look at. So that's something that could be looked at. It would depend on your landfill in terms of what stage of decomposition, I suppose you could say. But in theory, yes. I mean one of the things with this technology is, you know, then becomes a cost issue in terms of drying.

So one of the discussions we've had with the company is, for example, sludge is an issue. In my discussions with the Communities of Tomorrow, they've been doing their own regional look at issues, and sludge was one of them. And I said, well under this technology, you could take some of the sludge and mix it with, you know, municipal solid waste or tires or whatever that's not as high in moisture so that you eliminate the need for drying. Because this will take, it will take 20 to 30 per cent moisture.

But if you start going higher, then your efficiencies become reduced. So then you try to manage. And that's part of one of the things that we want to look at, is how do you manage your waste coming in based on moisture content. But yes, that's an area of interest.

Mr. Ottenbreit: — So something like this has the possibility to not only to help generate power for the province on whatever scale it's implemented, but it has a possibility of not only looking after waste issues in the future, but some of our past mistakes we've made that could be . . .

Ms. Dyck: — One of the other areas too is potentially but, you know, in terms of . . . I don't know what the cost is, but theory, I mean I'm talking to the company. Some areas have looked at utilizing the methane as a source of power, you know, for the system. And so they're doing a number of different things. They're looking at a combination of power, utilizing wind power, so there's ongoing . . . This company's been around for a while, so they've just really become very hot market in terms of their technology and the things that they're doing.

This company has spent something like \$25 million, which is of course in my past life I've said it's very difficult for us in this province to compete with companies that have access to such, you know, angel investors and large capital to develop these technologies. And so it's very exciting — some of the things that they're doing, and the possibilities.

And one of the discussions I've had with the city of Yorkton, with Mr. Putz, is that, you know, there's all kinds of things that you can look at. You can evolve from this one piece of technology and where do you go with it.

Of course one of the things would be looking at, you know, the local college here has looked at utilizing, has developed a program for employees at the crush facilities. Well there's nothing saying that couldn't utilize the local college to develop a program on how to utilize municipal solid waste and that kind of thing. So all kinds of possibilities.

Mr. Ottenbreit: — Thank you very much. Thank you, Mr. Chair.

The Chair: — Thank you for allowing Mr. Weekes to get a question in.

Mr. Weekes: — Thank you, Mr. Chair. Thank you for your presentation. With an eye to public acceptance of a project like this or any others, just going back to waste biochar, I think you said the project would take everything but glass and metal. Okay, you've got plastics; you've got all those other items. What kind of contaminants are in biochar? And also what are the emissions from a plant that you're proposing as far as CO₂?

Ms. Dyck: — Okay. In my discussion earlier around biochar, one of the reasons to separate the wood and the agriculture wastes is because you do get a better biochar. So if you're taking tree limbs and you're taking, you know, flax fibre or straw, whatever, putting through, you're going to have a better biochar for soil amendment.

Saskatchewan Research Council expressed interest to look at what kind of biochar you would get from municipal solid waste, but you wouldn't get that much because, you know, your caloric value is going to be a factor in that. So you're not going to be spreading biochar on fields. I mean there would have to be some sort of quality control, and that's part of the reason to have an organization. But the little biochar that comes out of municipal solid waste could be just used as a landfill cover or it could be, some places are, you know, putting it in their asphalt, mixing it in with their asphalt.

Now what was the other question you asked?

Mr. Weekes: — Well CO₂ emissions. But also this biochar, I mean it's plants and trees will grow on this biochar. Is it that type of material?

Ms. Dyck: — Well biochar acts as a . . . It you know, helps to absorb like moisture, you know. It absorbs moisture. So your soil can absorb the rain when it comes, you know. So for example, some soils if you get too much rain, it runs off. Or you have drought. It has the ability to add, to maintain the moisture in the soil and also reduce the need for, you know, fertilizers.

And so I have just started looking in more detail in this whole area. There's been an international biochar initiative and website put up now. So there's some work being done on that.

As far as the CO₂, the company's told me that based on their system right now is that they're reducing from the landfill

two-thirds of the carbon dioxide. Now they're also working within their own system to make sure that they have zero . . . For example there's no dioxins and furans. If you're going to just incinerate, you could end up with dioxin and furans. Their system, there's no dioxins and furans.

So there is some nitrous oxides, but with some of the equipment they've put on, they're reducing that. And also they are looking at, as I said, to totally eliminate any of the nitrous oxides and some of the carbon dioxide. But the fact is if you're diverting that municipal solid waste from the landfill to this system, you're reducing it by two-thirds. So hopefully that if there's carbon credits, that those carbon credits would then be passed on to, you know, a facility like this as well, which could be another source of potential revenue once the details, I guess, are out.

Mr. Weekes: — Thank you.

Ms. Dyck: — Thank you.

The Chair: — As committee Chair, one thing I've learned is if I don't ask my questions at the start, there's very rarely time left at the end. But I do have just a couple quick ones, and being that I am the Chair, I do control the clock. So there is just enough time for a couple more questions.

You talk in terms of each of these modules as 8 tonnes. What is an 8-tonne in equivalent . . . How many megawatts is that?

Ms. Dyck: — Okay. Just a minute. There's 8-tonne unit, and they make a 40 tonne per day. These are per day — 40 tonne per day and 125 tonne per day.

The Chair: — I guess what is this . . . If you're comparing your 8-tonne unit compared to a wind mill, it's compared to a 1-megawatt wind mill? Like how much power . . .

Ms. Dyck: — Okay. As I mentioned, the 8-tonne wasn't really designed to be a power . . . to be part of a grid system. It's small. But the sewage treatment plant takes about point two megawatts and this system will be about 2.25. It depends on the caloric value of your system.

Now 40-tonne, it depends. If you're putting a lot of tires through, you could get 5 megawatts out of it. Otherwise so you're looking at 3 to 5 megawatts.

When you start getting into 125 tonnes, you could be looking at up to 10 megawatts, again depending upon the waste that you're putting in. If you have plastic, plastics have high caloric values as do tires. If you were just putting sludge in and organic material, it's less caloric value.

The Chair: — Okay. Just looking at that, what was the name of the program that was announced, I believe, Monday and was in the paper Tuesday?

A Member: — Green options partners.

The Chair: — There's a green options partners program that's just come out, and it is for people that want to put forward proposals between the 100 kilowatts and 10 megawatts, which

it sounds like this would fit in that. So this is, you know, as of this week, there may be an opportunity for you to put together a proposal that works for you that you think could be of interest to SaskPower. So maybe I will leave it on that note and . . .

Ms. Dyck: — Well if I can make comment to that.

The Chair: — Sure.

Ms. Dyck: — Yes, I misread it. I read the high end as the low end. I believe what they'll do is they'll compensate you so much. But it still doesn't address, in terms of doing a project, getting the funding around that. So it just addresses, it would address some of the compensation if you will.

The Chair: — Okay. Well thank you very much. We do have one question and I think we have time if Mr. McCall would like to sneak it in.

Mr. McCall: — You're very gracious, Mr. Chair. On page 13 of the secondary document, the project proposal outline, in the price breakdown of the capital costs, there's a discount of \$1 million that's included, based on it being a pilot project for IES. What's the window on that status and that discount? Like does it come due at some point and then the \$1 million discount . . .

Ms. Dyck: — Not to my understanding. No, it was something that I negotiated with the company because taking their project, and regardless whether the technology is in California or in Saskatchewan, I mean obviously in Saskatchewan . . . I mean in California they just have a cover over their system because of the temperature. We have to do a building.

But there's always some people felt that, well you know, the issue around, you know, you got a frozen bin. Well the shredders will go through concrete so they should be able to cover the frozen bins. But there was always those issues. And so, you know, show me; I'm from Missouri. Let's see how it works up here.

So the fact is that if we provided information and developed a pilot project that other people could look at and would be a model for other communities, that was where the \$1 million discount, US dollar discount came into place. And so I've no reason to believe that it wouldn't continue.

Mr. McCall: — Okay. Yes, we're all from Saskatchewan and we find \$1 million pretty interesting in terms of a discount. So I just wanted to make sure that it's not, you know, if you don't get the clarity that you require in the next couple of months, say, suddenly this project becomes \$1 million more expensive.

Ms. Dyck: — Maybe I should have answered that question differently then.

Mr. McCall: — Thank you.

Ms. Dyck: — Thank you.

Mr. McCall: — Thank you, Mr. Chair.

The Chair: — Thank you very much for presenting to us today and answering the questions. It was very helpful. With that, our

committee will adjourn until Monday morning at 10 in Estevan.
Thank you.

Mr. Putz: — Thank you and the committee for allowing us to present.

Ms. Dyck: — Thank you. And if you have any more questions or want further explanation, documentation, please feel free to contact David and he can get in touch with me.

[The committee adjourned at 14:01.]