

CBC radio Saint John interview with Gordon Edwards on Small Modular Nuclear Reactors (Information Morning Show)

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CBC Saint John

New Brunswick is one of four provinces planning to develop small modular nuclear reactors. The government made this announcement this week and pitched this as a safe and clean power source. The Energy Minister calls it an exciting step forward in energy innovation. And yesterday on this show at around this time, we spoke with Professor Assam Hussain with the Canadian Nuclear Society, who said much of the same, but not everyone sees the potential in this technology. Gordon Edwards is the president of the Canadian Coalition for Nuclear Responsibility and a longtime consultant on nuclear issues. Good morning, Mr. Edwards.

Gordon Edwards

Good morning, Julia. How are you?

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I'm very well. So what did you think when you heard that four provinces are going to be moving ahead with this with these plans for SMRs.

Gordon Edwards

To tell you the truth, I felt very sad, because I think we should be dealing with the climate emergency. This is an emergency, it's not something we can postpone for 10 to 20 years. And when you talk about building new nuclear reactors that haven't even been built or tested previously, we're really talking about kicking the can down the road, rather than dealing with the problem quickly. Renewable energy, for example, is four times cheaper than nuclear at the present time. And it's about four times faster to get deployed. So if you want to do something quickly, you should be investing in things that are quick. And energy efficiency, saving energy, and renewables are far cheaper and faster than nuclear. So I think I consider it a step backward rather than a step forward.

CBC Saint John So officials from this group of provinces, which includes New Brunswick, who are involved in this development plan, say that it is safe and it's reliable, and it's clean. And this is the only way that we're going to get to net zero before 2050. What would you say to that?

Gordon Edwards

Well, it's not safe and it's not clean. We've seen situations. For example, we just heard about troops from Russia, in Ukraine, who dug foxholes near a nuclear reactor and now they have radioactive contamination on their bodies. And they, some of them got radiation sickness and they had to leave. The problem is that nuclear is not clean. It produces hundreds of radioactive materials which become pollutants, some of them are released into the environment. And that's true with the small ones as well. And they become radioactive wastes themselves, even the buildings become radioactive waste.

In fact, I just finished yesterday putting in a report to the Canadian Nuclear Safety Commission about the \$700 million fund that has been put aside to decommission the Point Lepreau reactor

eventually, to take it apart. It all has to be done very gingerly, because it's all, the whole structure is radioactive at that point, and it becomes a huge amount of radioactive waste. The same thing happens with small reactors. You know, yesterday, I heard professor Hussain talk, and he said that there are three letters: S small, M modular, R reactor. He left out the letter N, Small Modular NUCLEAR reactor. And the reason they don't like to talk about the nuclear part is because that's where the problem is. The problem is, nuclear is not clean. It produces waste that lasts for hundreds of 1000s of years. And it's not safe because if you had, for example, if you had deployed these things in Europe and Africa and around the world, anytime there's a conflict – armies coming in and bombs going off – you have the possibility of the spread of radioactive poisons over very large areas.

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So for you, this is black and white. This is not safe, that's what you just said. Like what, why is there such a push to develop this technology? If for people like yourself can see that so clearly?

Gordon Edwards

Well, the reason is, the industry is not doing well. By the time I graduated from high school in 1957, all of these ideas were already old ideas. There are no really new ideas. These reactors have already been built back 50 years ago, 40 years ago, only on an experimental basis, and none of them became commercially successful at that time. And now they're trying to revitalize them. Why? Because the industry is not doing well.

For example, here in Canada, you've got the Point Lepreau reactor in New Brunswick, and we have one in Quebec here. Those were among the last reactors ordered in North America, because since 1978, there haven't been any new reactors ordered and built and brought to the marketplace. There have been a few that have been thought about, for example, there were four down in the southern United States, giant ones that were planned almost 20 years ago, and two of them have been cancelled, even after spending billions of dollars on them, because the costs were just skyrocketing. And the other two are not yet completed.

So it's terrible when you have a climate emergency and you're waiting 20 years for an energy supply that just isn't coming. And that's what's going to happen, I'm afraid, in Canada. The reason why the Premiers are investing in this is because they have been given a sales pitch by a lot of new startup companies that are very eager to rescue the nuclear industry from oblivion. Over the last 25 years, the share of nuclear electricity, in terms of world electricity has been on a steady decline. It was 17% of global electricity back in 1997. And today, it's only 10%. And it's still going down. So it's really the fate of the nuclear industry that they're trying to rescue, the nuclear industry. They think that nuclear is going to keep its promises. But one of the things we found out about nuclear is it doesn't always keep its promises. In fact, in this case, I think it's almost impossible, because the cost is going to be too great. And the delay is going to be such that it's not going to be giving us any relief from climate change for at least 10 or 20 years, if ever.

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Let's talk about the cost side of this, because that is significant. You know, yesterday in my conversation with Assam Hussein with the Canadian Nuclear Society, you know, the \$5 million

for the first for the first of these reactors, it's the first of its kind technology. So what is the effect when that kind of expenses incurred is diverted away from other technologies that might be more deployable.

Gordon Edwards

You put your finger on it right there. This is called opportunity cost. And by the way, it was \$5 BILLION. He was talking about 5 billion for the first small modular reactor, in hopes that later reactors would be a little cheaper. But in fact, reactors have ... in Ontario, they wanted to build new reactors some time ago at Darlington, big ones. And it priced itself right out of the market, the government said we just simply can't afford \$23 billion for new reactors. I don't think New Brunswick can afford \$5 billion for new reactors.

So I think they're dreaming in Technicolor. Over 100 Canadian organizations have signed a declaration saying that these small modular reactors — which are not real, they don't actually have working examples of them, they're going to be building the very first of a kind — they actually constitute a dirty, dangerous distraction from the real job of fighting climate change using technologies that we know will work. And we know what the cost of them really will be. So yeah, I think the the cost is going to kill it. And people are not going to be able to afford them. They're going to wish that they had spent that money on something that really works.

Now the other thing is that you put the money into it -- the \$5 billion, let's say -- and then it produces waste that has to be dealt with. Let's say 20 years later, 30 years later, you have all the waste that costs more billions of dollars. And then you have the decommissioning. The decommissioning, that's just taking them apart. That costs billions of dollars as well. So you end up spending more and more money on things that . . . you really wish you had spent that money more wisely.

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So the promise or the expectation is that these reactors will I believe burn spent fuel. Is there no way to deal with that waste safely or to recycle it?

Gordon Edwards

Well, burning spent fuel is actually a misnomer. There's no way you can burn spent fuel. What you can do is you can extract about 1% of the material in the spent fuel, the used fuel, it is called plutonium. And by extracting the plutonium you can use that as nuclear fuel. That's correct. But the problem with plutonium is it's also what's used to make bombs. For example, the Nagasaki bomb back in 1945 was made from plutonium. North Korea makes its atomic bombs using plutonium. Pakistan made its bombs using plutonium. So did India, and so did the United States of America and the mighty five powers, they all use plutonium as a nuclear explosive. The problem with using plutonium as a fuel is you make it accessible for other purposes as well, that means you can make it accessible for bombs. By spreading these reactors around the world, as they hope to do, they'll be putting plutonium into countries that don't yet have plutonium. And anybody can -- even a terrorist group -- if they can get their hands on the plutonium once it has been separated from the used fuel, then they can use that to make bombs. So it's spreading the bomb as well.

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Is it your view that there is no room for nuclear energy at all in our decarbonisation effort as a society?

Gordon Edwards

The existing reactors, certainly are playing a role temporarily because they are providing energy, which is carbon free at the point of burning, at the point of producing the electricity. But new reactors are not a good investment, because as they say, it's too expensive, too slow and too problematic. And the fact is that renewables have really been outperforming nuclear around the world at a very tremendous pace.

And, you know, when you think about an electrical car, for example, what is it that drives an electrical car? it's not a nuclear reactor, it's a battery. A battery is what holds the electricity so that the car can drive, and that battery then has to be recharged. Well, it doesn't matter where that electricity comes from. That electricity can come from a nuclear plant, but it can come from solar or wind. And it doesn't matter if the sun is not always shining or the wind is not always blowing, you charge the battery. The future of the world in terms of clean energy is going to be dependent on batteries. If we want electricity to run our transportation sector, it's got to be done using batteries, as soon as you perfect good batteries the way Tesla has done. Tesla not only has batteries for the cars, by the way, but has also built industrial scale batteries that are used by Pacific Gas and Electric in California to replace diesel generators. Instead of having diesel generators, they have large industrial scale Tesla batteries, and they use that to store excess electricity, so that when they need more, they simply plug into the battery and use that rather than a diesel generator to get more. That's what we should be doing. Canada would be very smart to invest in batteries. That's where the future really lies.

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Gordon Edwards, thank you for sharing the other side of this debate with us this morning. Appreciate your time.

Gordon Edwards

You're very welcome. Thank you.

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That was Gordon Edwards, president of the Canadian Coalition for nuclear responsibility. He is a consultant on nuclear issues. And if you have thoughts on this or any other story that you're hearing this morning, always enjoy hearing from you on talkback, you can give us a call at 6327747 or toll free at 1-800-632-7743.

Note: Gordon's March 28 paper "Paying for Radioactive Rubble" explains why \$700 million is not enough to dismantle Point Lepreau: www.ccnr.org/GE_Lepreau_PRGI_pack_2022.pdf.

Another recent paper by Gordon documents why the Point Lepreau Emergency Response Plan is quite inadequate: www.ccnr.org/CCNR_CNCS_PLNGS_2022.pdf
