WEBVTT

00:00:10.376 --> 00:00:20.916
<v SPEAKER_2>Hello, everyone, and welcome to Energy Security Cubed, one of the world's foremost energy security podcasts presented by the CGAI, or Canadian Global Affairs Institute.

00:00:20.916 --> 00:00:24.596
<v SPEAKER_2>I'm Kelly Ogle, Managing Director here at CGAI.

00:00:24.596 --> 00:00:32.536
<v SPEAKER_3>And I'm Joe Calnan, Vice President of Energy and Calgary Operations at the Canadian Global Affairs Institute.

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<v SPEAKER_2>For today's podcast, we're featuring a discussion with Kathleen Gnocato and Shaz Merwat, where we had a great conversation about a recent research report from RBC Thought Leadership, focused on scenarios for LNG to help inform energy thinking for the G7.

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<v SPEAKER_2>But before we get into that, let's quickly talk to Joe about some of the news stories affecting global energy security this week.

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<v SPEAKER_2>There's a lot of things happening.

00:01:00.036 --> 00:01:01.276
<v SPEAKER_3>Yeah, for sure.

00:01:01.276 --> 00:01:06.416
<v SPEAKER_3>It's also Stampede Week this year, so notoriously a time where some deals get done.

00:01:06.476 --> 00:01:09.516
<v SPEAKER_3>And that's true this year as well.

00:01:09.516 --> 00:01:19.556
<v SPEAKER_3>There have been a few interesting events, a few interesting news stories coming out of discussion surrounding the Calgary Stampede.

00:01:19.556 --> 00:01:25.976
<v SPEAKER_3>The Ontario Premier Doug Ford was in town, as well as a number of people from Ontario.

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<v SPEAKER_3>Quite a few Americans were also in town for a site visit, site tours of a few of the important facilities.

00:01:34.556 --> 00:01:49.876
<v SPEAKER_3>And then we also had a number of, interestingly, a number of people who were pilots at the at the port of Prince Rupert, which is kind of an interesting note as well, considering some of these news stories.

00:01:49.876 --> 00:01:53.756
<v SPEAKER_3>But we can we can dive into this in just a second here.

00:01:53.816 --> 00:02:05.976
<v SPEAKER_2>Yeah, there's there's a lot going on, always is at Stampede, you know, and politicians have an opportunity to put their best foot forward, even if it's a lot of pie in the sky projections.

00:02:05.976 --> 00:02:09.196
<v SPEAKER_2>But we'll we're going to talk about some of that, right?

00:02:09.196 --> 00:02:10.636
<v SPEAKER_3>Yeah, for sure.

00:02:10.636 --> 00:02:25.236
<v SPEAKER_3>And how will we start by covering a few seismic shifts in the outlook for new energy pipelines carrying Western Canadian oil and gas through British Columbia, as well as the considerations for the Pathways Alliance Project.

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<v SPEAKER_3>And then also some considerations around Alberta-Ontario alignment on energy and broader minerals infrastructure as well.

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<v SPEAKER_3>On Saturday, July 5th, in an interview with Chris Varcoe at the Calgary Herald, Mark Carney, Prime Minister Mark Carney, said that, quote, I would think, given the scale of the economic opportunity, the resources we have, the expertise we have, that it is highly, highly likely that we will have an oil pipeline that is a proposal for one of these projects of national interest, unquote.

00:03:01.956 --> 00:03:08.896
<v SPEAKER_3>So this is in response to a specific question about the possibility of oil export pipelines to the Pacific.

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<v SPEAKER_3>So really interesting quote here from the Prime Minister.

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<v SPEAKER_3>This comment was paired with another comment from the Prime Minister, expressing his support for adding the proposed Pathways Alliance carbon capture and storage project to the major

projects list as well, adding that, quote, I am confident that my government will do everything we can so that those projects can be built, unquote.

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<v SPEAKER_3>And this builds upon comments from Natural Resources Minister Tim Hodgson saying that a new pipeline to tidewater would have to be paired with the Pathways project.

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<v SPEAKER_3>The combination of these projects sheds some light on the meaning of this idea of decarbonized oil.

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<v SPEAKER_3>If a new crude oil export pipeline is paired with the Pathways Alliance project, it is possible that all emissions from the oil enabled by the pipeline will be offset by new carbon capture and storage.

00:04:03.896 --> 00:04:13.296
<v SPEAKER_2>On a side note, normally we would try to provide an estimate for how much decarbonized oil export could be enabled by tying these projects together.

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<v SPEAKER_2>However, there is a dearth of information on how much carbon dioxide would be stored by the proposed project because the Competition Act amendments make it effectively illegal for companies to provide estimates for the impact of projects on emissions mitigation.

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<v SPEAKER_2>Nonetheless, this is a major vote of confidence in the concept for a new green field oil pipeline.

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<v SPEAKER_2>The question now is whether the private sector is interested in building not only the pipeline but also the carbon capture and storage facilities for the Pathways project.

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<v SPEAKER_2>We are also watching the potential role of the Government of Alberta in these discussions.

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<v SPEAKER_2>Premier Smith said late last month that she is expecting one or more private sector players will come forward with a pipeline proposal for carrying oil to the Port of Prince Rupert.

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<v SPEAKER_2>On the provincial side, the Government of Alberta and the Government of Ontario used the opportunity of the Calgary Stampede to sign two MOUs for an east-west infrastructure corridor linking Alberta's oil and gas and Ontario's critical minerals to markets, including to Ontario's refineries and the proposed deep water port of James Bay.

00:05:21.676 --> 00:05:24.856
<v SPEAKER_2>There are questions about how realistic these MOUs are.

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<v SPEAKER_2>Any proposed route which connects to Alberta's oil sands, a port on Hudson's Bay and the Ring of Fire would be challenging to say the least.

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<v SPEAKER_2>More so given the duty to consult with Indigenous communities along the route is also a major consideration.

00:05:42.216 --> 00:05:49.276
<v SPEAKER_2>You know, it's hard to not be glass half full here, Joe.

00:05:49.276 --> 00:06:12.276
<v SPEAKER_2>But you know, I look at the, you know, in the past, the, I don't want to be continually glass half empty, but this, I fear the court challenges, et cetera, of the certainly players in the, in the narrative that are 100% against any kind of resource development.

00:06:12.276 --> 00:06:17.776
<v SPEAKER_2>And they take the opportunity to use Canada's court system, the systems to slow these things down.

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<v SPEAKER_2>We'll see.

00:06:19.036 --> 00:06:20.296
<v SPEAKER_3>Yeah, that's true.

00:06:20.296 --> 00:06:21.656
<v SPEAKER_2>Remain hopeful.

00:06:21.696 --> 00:06:39.376
<v SPEAKER_3>Yeah, yeah, there's, there's questions about, and I mean, I hope that we can get some sort of final idea about constitutional validity and the, the general approach that the courts take to these sorts of projects.

00:06:39.596 --> 00:06:44.336
<v SPEAKER_3>I'm, I'm a big fan of kind of parliamentary supremacy of, of decision making.

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<v SPEAKER_3>So ideally, we have something like that.

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<v SPEAKER_3>But at the same time, with the charter rights and freedoms, you know, the courts are very, very powerful in Canada.

00:06:51.916 --> 00:06:54.016
<v SPEAKER_3>So that's for sure a consideration here, Kelly.

00:06:54.016 --> 00:06:58.376
<v SPEAKER_3>But like you said, I'm, I'm glass half full here too.

00:06:58.376 --> 00:07:10.656
<v SPEAKER_3>Even if these MOUs are more expressions of interest, it's really good to see the government of Alberta and the government of Ontario aligned on the need for this sort of infrastructure.

00:07:10.656 --> 00:07:25.696
<v SPEAKER_3>And also see the government of Canada really taking steps to get infrastructure put through because, you know, I've, I've said before that I think that infrastructure and foreign policy really need to be aligned here in Canada, especially in the current moment.

00:07:25.696 --> 00:07:27.136
<v SPEAKER_2>No question.

00:07:27.136 --> 00:07:28.556
<v SPEAKER_2>What else you got?

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<v SPEAKER_3>Well, as a second story, we should cover the headline results from the Energy Institute's Statistical Review of Energy 2025.

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<v SPEAKER_3>This data release, which is formally published by BP, is an excellent open-source look into the current state and recent developments in global energy.

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<v SPEAKER_3>It came out a couple of weeks ago, but we haven't had time to do the intro a little while, but I'd really like to cover some of these stories right here.

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<v SPEAKER_3>If I was to distill this data into a single sentence, I would say that 2024 was the year of all of the above energy.

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<v SPEAKER_3>All time records were reached across all forms of energy, including coal, oil, natural gas, renewables, hydro and nuclear.

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<v SPEAKER_3>Across-the-board growth in all energy sources is the result of robust energy demand growth around the world of 2% last year, and this includes a 4% growth in global electricity demand.

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<v SPEAKER_3>Electricity is growing faster than other types of energy demand, but broadly, energy demand is growing fast.

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<v SPEAKER_3>While wind and solar energy supply grew in an impressive 16% last year, their total growth was not enough to keep pace with energy demand growth worldwide, making growth in other forms of energy vitally necessary to meet energy demand needs and energy security.

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<v SPEAKER_2>Joe, I've been around a lot longer than you, and they've been talking about peak oil for almost my whole business career.

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<v SPEAKER_2>But in contrast, global oil demand grew by 1% last year, and natural gas demand grew by 2.5%.

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<v SPEAKER_2>As a result, fossil fuels met around 60% of the additional energy demand worldwide.

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<v SPEAKER_2>Still, in total, probably around 80% of total energy would be from fossil fuels when you add coal.

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<v SPEAKER_2>This raises questions about whether renewables will be able to fully meet global energy demand growth, let alone replace fossil fuels entirely, which is a wishful shimera, I believe.

00:09:37.236 --> 00:09:47.836
<v SPEAKER_2>Electricity demand is of key importance, of course, as DEA centers electrical vehicles, air conditioning, heat pumps and general economic development increase energy needs around the world.

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<v SPEAKER_3>Yeah, no, it's interesting that, you know, really should be remarked here that renewables, they're great for meeting electricity demand in certain circumstances.

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<v SPEAKER_3>They're very cheap and we'll get a little bit into the cheapness of solar in particular here.

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<v SPEAKER_3>But like you said, 60% of the additional energy requirements are being met by, were met by fossil fuels last year.

00:10:16.676 --> 00:10:21.616
<v SPEAKER_3>So fossil fuels starting from a very, very much stronger base than renewables.

00:10:21.616 --> 00:10:27.176
<v SPEAKER_3>So 1% growth in demand for oil is a hell of a lot of energy.

00:10:27.816 --> 00:10:35.776
<v SPEAKER_3>So 16% increase in renewables, that's, of course renewables are really taking off in terms of how much energy they're producing.

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<v SPEAKER_3>But really we need to talk about demand.

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<v SPEAKER_3>Like demand is key here for considerations of how fast any sort of energy transition or electrification can happen.

00:10:47.376 --> 00:10:58.916
<v SPEAKER_3>Because if we have rapid demand growth, we're just going to be seeing renewables acting as additional energy rather than replacing any of the traditional energy sources.

00:10:58.916 --> 00:11:01.496
<v SPEAKER_2>Yeah.

00:11:02.196 --> 00:11:12.616
<v SPEAKER_3>So something else that is remarkable from the Energy Institute Report and from other data points is how the story of solar is increasingly a China story.

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<v SPEAKER_3>And this has been the case for some time.

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<v SPEAKER_3>But I really want to dig into the numbers here.

00:11:17.796 --> 00:11:19.976
<v SPEAKER_3>So Energy Institute CEO Dr.

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<v SPEAKER_3>Nick Waithe commented that, no country has shaped this outcome more than China.

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<v SPEAKER_3>Its rapid expansion of renewable capacity alongside continued reliance on coal, gas and oil is driving global energy trends.

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<v SPEAKER_3>The scale and direction of China's energy choices will be pivotal in determining whether the world can deliver a secure, affordable and low carbon energy future.

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<v SPEAKER_3>So according to a report from Ember, last year China accounted for a remarkable 39 percent of global solar energy production, with 834 terawatt hours of electricity produced by solar power.

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<v SPEAKER_3>So this is greater than the solar power produced by the next five countries combined.

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<v SPEAKER_3>So that's the United States, India, Japan, Brazil, and Germany.

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<v SPEAKER_3>So the solar output of all those countries combined is not as much as that from China.

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<v SPEAKER_3>So this shift is largely driven by the astonishingly low prices for Chinese manufactured solar panels of less than 12 cents per watt, driven by a prolonged price war between the largest Chinese solar module manufacturers.

00:12:33.756 --> 00:12:41.316
<v SPEAKER_2>However, there are questions about how well the pace of this solar boom will withstand several key policy changes implemented by the Chinese government.

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<v SPEAKER_2>Reuters reported on July 3 that China's industry minister is looking to curb this price war in an attempt to stabilize the industry, potentially reducing China's solar production capacity in the process.

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<v SPEAKER_2>A recent statement released by the ministry quotes

Minister Li Lesheng as saying China should promote the orderly exit of outdated production capacity.

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<v SPEAKER_2>This follows on a statement from the Central Financial and Economic Affairs Commission, the top Chinese economic policy body, castigating the solar industry for engaging in an overly destructive price war.

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<v SPEAKER_2>This news also comes in the wake of a big policy shift in China implemented June 1, which requires new solar plants to sell their power at market prices, rather than a regulated rate linked to the price of coal.

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<v SPEAKER_2>As a result, new Chinese solar plants will be much less profitable.

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<v SPEAKER_2>Nevertheless, Chinese manufactured solar panels are likely to remain among the cheapest energy technologies in the world.

00:13:43.256 --> 00:13:44.596
<v SPEAKER_2>Really interesting story, Joe.

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<v SPEAKER_2>That's the command versus market economy and the friction between the two, right?

00:13:52.856 --> 00:13:53.396
<v SPEAKER_3>Yeah.

00:13:53.396 --> 00:14:10.056
<v SPEAKER_3>I think the Chinese government might be regretting a little bit, creating such a monster in a way, because the industry became dependent, of course, on the really low-interest loans provided by state banks.

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<v SPEAKER_3>These would be, of course, the central banks, but then also the banks that are controlled by each individual Chinese province.

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<v SPEAKER_3>They're providing tons of subsidies and other subsidies coming directly from the states.

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<v SPEAKER_3>Then these subsidies coming from having regulated rates

that are set by coal, which doesn't make any sense for something like renewables, where the renewables are entering the market, where they're basically swamping the whole market with electricity, but they're getting paid prices that don't reflect how much that power is actually in demand.

00:14:42.456 --> 00:14:47.876
<v SPEAKER_3>Now that all of these policies are changing, there's not going to be as many subsidies for all this stuff.

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<v SPEAKER_3>We might see some of these big Chinese solar manufacturers, well, definitely curtailing operations, maybe some of them will go out of business.

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<v SPEAKER_3>I think what will be left, of course, is still really big Chinese solar panel manufacturers who are very lean and mean and still, of course, some of the cheapest energy in the world, but maybe not the absolute bottom of the barrel prices that we're seeing right now.

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<v SPEAKER_3>And then I think the Chinese government doesn't want to be starting an industry that's entirely reliant on government subsidies.

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<v SPEAKER_3>They want this to be one of their new modes of production where it's contributing to the economy rather than really being a drain on Chinese government finances.

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<v SPEAKER_3>So I think that's the turn that we're seeing right here is a Chinese government that's trying to transition the solar industry from something that's just a pure drain on the Chinese government to something that can really be a source of tax revenues as well.

00:15:46.956 --> 00:15:50.616
<v SPEAKER_2>Very good, got Joe really good stories today.

00:15:50.616 --> 00:15:52.876
<v SPEAKER_2>Thanks for bringing this all together for us.

00:15:52.876 --> 00:15:54.256
<v SPEAKER_3>For sure, not a problem, Kelly.

00:15:54.256 --> 00:16:03.236
<v SPEAKER_3>And to our listeners, if you're interested in these updates, I know that I haven't been very good on this lately, but I'll

get back into it during the summer as things quiet down here.

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<v SPEAKER_3>Please do subscribe to the Energy Security Forum newsletter to get access to these stories and more, as well as some tidbits on what we're doing on the activities around energy.

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<v SPEAKER_3>So please do subscribe.

00:16:17.196 --> 00:16:20.516
<v SPEAKER_2>Okay, let's go talk to Kathleen and Shaz.

00:16:20.516 --> 00:16:24.196
<v SPEAKER_1>Hi, I'm Dave Perry, the President and CEO of the Canadian Global Affairs Institute.

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<v SPEAKER_1>I hope you're enjoying Energy Security Cubed, Canada's leading podcast on energy issues.

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<v SPEAKER_1>If you're listening and you'd like to help us keep bringing informed discussion of Canadian energy issues to key government decision makers, thought leaders and the business community, then consider sponsoring the podcast.

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<v SPEAKER_1>Reach out to us at contact at cgai.ca for options and pricing.

00:16:43.956 --> 00:16:46.396
<v SPEAKER_1>That's contact at cgai.ca.

00:16:48.256 --> 00:17:00.936
<v SPEAKER_2>For today's interview, which Joe and I recorded July 2nd, 2025, we discussed key considerations for the global trade of natural gas, including how natural gas contributes to energy security and Canada's role in LNG.

00:17:00.936 --> 00:17:08.936
<v SPEAKER_2>I'll just let, as we know yesterday, the first shipment of LNG left Kitimat.

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<v SPEAKER_2>Canada is now a player in the global LNG world.

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<v SPEAKER_3>On that note, I bet that the LNG Canada players did coordinate everything so that first cargo would go out on Canada Day,

which is a real signal of their kind of political role here as well.

00:17:29.816 --> 00:17:53.336
<v SPEAKER_3>But with us to discuss the global role of LNG, and especially where it comes to the recently completed G7, is Kathleen Gnocato and Shaz Merwat, authors of a recent report from RBC, titled, quote, A G7 Plus Strategy for Natural Gas, Four Scenarios for Energy Security in the 2040s, unquote.

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<v SPEAKER_3>We will, of course, link this report in the show notes, and we really recommend that listeners check it out.

00:17:59.516 --> 00:18:07.236
<v SPEAKER_3>Kathleen is an independent consultant and a lead for the RBC Thought Leadership LNG Research Initiative.

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<v SPEAKER_3>We're hoping to also be able to announce some key collaborations with Kathleen and the RBC team in the near future, so please listen for that.

00:18:16.636 --> 00:18:24.056
<v SPEAKER_3>Shaz is the Energy Policy Lead at the RBC Climate Action Institute and RBC Economics and Thought Leadership.

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<v SPEAKER_3>Before joining RBC, Shaz gained extensive experience in energy and sustainability analysis at CIBC Capital Markets.

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<v SPEAKER_2>Delighted to have you both on the podcast, Kathleen and Shaz.

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<v SPEAKER_4>Thank you for having us.

00:18:39.796 --> 00:18:40.376
<v SPEAKER_5>Yeah, thanks guys.

00:18:40.376 --> 00:18:42.076
<v SPEAKER_5>It's a pleasure to be here.

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<v SPEAKER_2>I'd like to start off with some of your thoughts on the recent G7 and how it did or didn't engage with energy.

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<v SPEAKER_2>What were your key takeaways about how Canadian resources, in particular natural gas, fit into the discussions in and

around the G7 Summit?

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<v SPEAKER_4>Great.

00:18:59.896 --> 00:19:00.896
<v SPEAKER_4>Well, thank you.

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<v SPEAKER_4>And what a timely question coming out of the Kananaskis Summit just a few short weeks ago.

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<v SPEAKER_4>So first of all, let me just take a moment up front here to kind of set the context within which this G7 Summit took place.

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<v SPEAKER_4>And as we know, these summits tend to be kind of agenda setting exercises.

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<v SPEAKER_4>So in a word, if I were to kind of summarize the topic of this summit, it would be security.

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<v SPEAKER_4>It was about security.

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<v SPEAKER_4>There was this tremendously tense backdrop behind that sat right behind the summit where geopolitical tensions were heightened.

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<v SPEAKER_4>We saw missiles exchanged between Israel and Iran during the summit, regional conflicts in Ukraine and the Middle East.

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<v SPEAKER_4>There's this tremendously fragmented trading landscape that the G7 and counterparts are facing and supply chain vulnerabilities, disruptions.

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<v SPEAKER_4>So we saw security front and center in this G7 summit.

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<v SPEAKER_4>And in terms of energy security, it fits squarely within that agenda.

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<v SPEAKER_4>We saw a few key outcomes in that regard.

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<v SPEAKER_4>The creation of the Critical Minerals Production Alliance, which is a Canada-led G7 initiative, and that is intended to guarantee critical minerals supply for advanced manufacturing and defence sectors, critical minerals like germanium, gallium, graphite, rare earths.

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<v SPEAKER_4>And of course, we saw the need for collaboration stated in the chair's statement coming out of the summit.

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<v SPEAKER_4>And this is collaboration amongst the G7, but also plus other members.

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<v SPEAKER_4>So there was an energy security session, which Prime Minister Mark Carney called the most important session of the summit.

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<v SPEAKER_4>That included Brazil, South Africa, and India, in addition to the G7 allies.

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<v SPEAKER_4>In that energy security session, there were discussions of advanced technology and innovation, the need to diversify supply chains, build infrastructure and mobilize investment to enable affordability and security of energy supply.

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<v SPEAKER_4>And this is really where natural gas fits into the conversation.

00:21:18.036 --> 00:21:29.696
<v SPEAKER_4>So Prime Minister Carney reiterated, of course, the plan for Canada to become an energy superpower in both clean and conventional energy, and that includes LNG.

00:21:29.696 --> 00:21:40.036
<v SPEAKER_4>And there was this LNG partnership conversation that started to take place in Kananaskis and that we'll see continue through to the Energy Ministerial in the fall.

00:21:40.036 --> 00:21:44.096
<v SPEAKER_4>And we expect to see more specifics on natural gas in that timeframe.

00:21:44.156 --> 00:21:50.116
<v SPEAKER_4>Actually, earlier today, the IEA published a report,

which is one of the next steps.

00:21:50.116 --> 00:21:54.896
<v SPEAKER_4>It was produced at the request of the Canadian G7 presidency.

00:21:54.896 --> 00:22:00.656
<v SPEAKER_4>And the report is on the opportunities for certified natural gas, which is, of course, currently voluntary.

00:22:00.656 --> 00:22:03.096
<v SPEAKER_4>And we can talk about that a bit further.

00:22:03.096 --> 00:22:07.056
<v SPEAKER_4>It only represents about 7.5% of global natural gas today.

00:22:07.056 --> 00:22:12.996
<v SPEAKER_4>But there's this major market opportunity and climate imperative for that market to scale.

00:22:14.136 --> 00:22:15.516
<v SPEAKER_4>In the coming months and years.

00:22:15.516 --> 00:22:17.636
<v SPEAKER_4>So I'll pause there.

00:22:17.636 --> 00:22:21.076
<v SPEAKER_4>That's kind of where we landed after Kananaskis.

00:22:21.076 --> 00:22:22.616
<v SPEAKER_3>Yeah, fantastic.

00:22:22.616 --> 00:22:25.876
<v SPEAKER_3>Yeah, of course, Kananaskis happened out here in Western Canada.

00:22:25.876 --> 00:22:30.116
<v SPEAKER_3>The town was abuzz for a little while there with all of these issues.

00:22:30.116 --> 00:22:36.816
<v SPEAKER_3>And yeah, really interested to see how this develops out until, like you said, the Energy Environment Ministerial.

00:22:36.816 --> 00:22:39.476
<v SPEAKER_3>And we're still seeing final dates on.

00:22:39.476 --> 00:22:41.376
<v SPEAKER_3>We're still waiting for final dates on that.

00:22:41.696 --> 00:22:45.616
<v SPEAKER_3>But, you know, hopefully we can get involved with that set of things.

00:22:45.616 --> 00:22:56.336
<v SPEAKER_2>You know, I'll just interject before we continue, Joe, that you know that the quote certified natural gas unquote is an interesting sidebar here.

00:22:56.336 --> 00:23:10.356
<v SPEAKER_2>And if you recall, Joe, when we had our natural gas summit in Washington, DC a month ago, this very topic came up with, you know, the aspect of Canadian natural gas with hydropower at the choke points and etc.

00:23:11.556 --> 00:23:15.556
<v SPEAKER_2>Really Canada really is well placed in this in this narrative.

00:23:15.556 --> 00:23:17.276
<v SPEAKER_2>I'll just add that.

00:23:17.276 --> 00:23:18.616
<v SPEAKER_3>Yeah, absolutely.

00:23:18.616 --> 00:23:23.796
<v SPEAKER_3>But I'd like to quickly dig into this report that we were talking about earlier here.

00:23:23.796 --> 00:23:31.456
<v SPEAKER_3>And we should start with kind of the four scenarios that you built out in collaboration with Ristad Energy.

00:23:31.456 --> 00:23:41.756
<v SPEAKER_3>And these four scenarios are the divided gas world, the dystopian gas world, the decarbonized gas world, and the democratic gas world.

00:23:41.756 --> 00:23:45.916
<v SPEAKER_3>So of course, the adjectives used here, I think, really tell a big story.

00:23:45.916 --> 00:23:50.256
<v SPEAKER_3>But I'd really like to dig into these scenarios a little bit more.

00:23:50.256 --> 00:23:54.176
<v SPEAKER_3>And I think, Shaz, you're fairly well suited to go through this.

00:23:54.276 --> 00:23:57.756
<v SPEAKER_3>Could you quickly walk us through these four scenarios?

00:23:59.656 --> 00:24:00.996
<v SPEAKER_5>Yeah, sure.

00:24:02.196 --> 00:24:20.936
<v SPEAKER_5>So really, we were lucky enough to work with Ristad, obviously, a global energy consulting firm, that's very well respected on the gas side, to kind of chart through four different pathways that could emerge from what we're seeing in gas.

00:24:20.936 --> 00:24:34.436
<v SPEAKER_5>And really, I think the core of what we wanted to demonstrate in this is that it's very difficult to know what role gas is going to play as part of a larger energy transition.

00:24:34.436 --> 00:24:46.456
<v SPEAKER_5>Everyone kind of has scenarios, just because how uncertain it is to know specifically how the commodity is going to compete with the likes of renewables, especially when we look further out 15, 25, 30 years or so.

00:24:46.456 --> 00:25:03.116
<v SPEAKER_5>And so we felt it was prudent for policy makers to take a look at this under a pre-context of what the different scenarios could be and what could policy look like if you were to take an agnostic approach depending on which scenario comes out.

00:25:03.116 --> 00:25:15.436
<v SPEAKER_5>And I think from the core of it, it was very helpful because there was some common ground as to things that were likely going to require incremental focus from the policy side.

00:25:15.436 --> 00:25:31.116
<v SPEAKER_5>And I think a key part of that is at the end of the day, one of the key balancing act that we're trying to solve in today's world is really the energy needs that we need from a fact where power demand is expected to triple by 2050.

00:25:31.936 --> 00:25:35.856
<v SPEAKER_5>And at the same time, what does that mean from a climate perspective?

00:25:35.856 --> 00:25:39.476
<v SPEAKER_5>And then you could even add the third element around energy security and stuff.

00:25:39.476 --> 00:25:46.056

<v SPEAKER_5>But from a climate perspective specifically, then it's really a function of emissions, not necessarily gas.

00:25:46.056 --> 00:25:48.496
<v SPEAKER_5>And then what does gas look like?

00:25:48.496 --> 00:25:53.176
<v SPEAKER_5>What sort of gas does it look like, depending on the scenario that you're in?

00:25:53.216 --> 00:26:01.816
<v SPEAKER_5>And really, for listeners, the core of the scenario is we have rising LNG demand, we have rising gas demand over the next 10 years.

00:26:01.816 --> 00:26:10.756
<v SPEAKER_5>And then it's just a question of what happens in the mid 2030s, late 2030s, does gas suddenly then decline, which it does quite pronounce in our decarbonized scenario.

00:26:10.756 --> 00:26:18.036
<v SPEAKER_5>Is the decline a bit more steady as what happens in what we would consider a more base case?

00:26:20.436 --> 00:26:26.616
<v SPEAKER_5>And then the last being in a dystopian world, what happens if gas demand is actually not declining?

00:26:27.816 --> 00:26:30.036
<v SPEAKER_5>In our democratic scenario, we do the same.

00:26:30.036 --> 00:26:34.536
<v SPEAKER_5>And so what shape and form does gas look like in each of those scenarios?

00:26:34.636 --> 00:26:40.576
<v SPEAKER_5>And that's really kind of where the purpose of the work lays.

00:26:40.576 --> 00:26:59.456
<v SPEAKER_4>And if I may add, just to kind of take a step back, the scenarios and the gas demand story that plays out in these four worlds is really playing out under a backdrop of a variety of other factors, many of which we saw playing out over the course of the G7 Summit.

00:26:59.456 --> 00:27:03.276
<v SPEAKER_4>And that includes the state of geopolitical stability.

00:27:03.276 --> 00:27:10.216
<v SPEAKER_4>It includes the state of population and economic growth

and where that comes from in terms of emerging markets, for instance.

00:27:10.436 --> 00:27:23.936
<v SPEAKER_4>And the deployment of data centers also features quite prominently in a couple of the scenarios, those power-hungry data centers, and how will the energy demand from those assets be met, for instance.

00:27:23.936 --> 00:27:31.716
<v SPEAKER_4>And so you have this, as Shaz outlined, this kind of divergence in terms of what is plausible in the future.

00:27:31.716 --> 00:27:39.716
<v SPEAKER_4>And this is something that is hotly debated on this podcast included, in terms of where will gas fall and gas demand fall.

00:27:40.376 --> 00:27:52.256
<v SPEAKER_4>And the discrepancy really is 371 million tons per annum, in terms of the high growth scenario and kind of the low demand scenario.

00:27:52.256 --> 00:27:58.096
<v SPEAKER_4>And in the lowest case, you actually also have this risk of stranded assets from LNG.

00:27:58.296 --> 00:28:03.156
<v SPEAKER_4>So there's quite a range of plausible futures that we've outlined and modeled.

00:28:03.156 --> 00:28:09.036
<v SPEAKER_4>And they really are set in these backdrops of other factors that are driving gas demand.

00:28:11.916 --> 00:28:18.976
<v SPEAKER_2>Well, and that leads to my next question because it becomes a supply and demand question, right?

00:28:18.976 --> 00:28:29.036
<v SPEAKER_2>And there's been lots of discussion in recent years about the potential risks of, you know, the conversation goes up and down about global LNG oversupply.

00:28:29.036 --> 00:28:36.076
<v SPEAKER_2>However, one of your scenarios predicts a substantial oversupply of the fuel, that is the decarbonized gas world scenario.

00:28:37.276 --> 00:28:41.576
<v SPEAKER_2>In other scenarios, we see major growth in LNG demand right out to 2050.

00:28:41.576 --> 00:28:45.796
<v SPEAKER_2>That would probably be where I would land, but that's just me.

00:28:45.796 --> 00:28:52.096
<v SPEAKER_2>In this modeling, where do we see the most major growth in LNG demand in your scenarios?

00:28:53.516 --> 00:28:53.976
<v SPEAKER_5>Yeah, sure.

00:28:53.976 --> 00:29:00.256
<v SPEAKER_5>So, I mean, I'll probably answer from both a sector standpoint and from a geographic standpoint.

00:29:00.336 --> 00:29:04.176
<v SPEAKER_5>And I think one's a bit more, let's say, well understood, if you will.

00:29:04.396 --> 00:29:13.056
<v SPEAKER_5>I think, obviously, the near-term demand driver, as Kathleen had mentioned, really around data centers is really on the power side.

00:29:13.056 --> 00:29:28.236
<v SPEAKER_5>And then the second key sector is really on the industrial use, let's just say heavy industry and using natural gas in areas where it's difficult to substitute from the heat content from gas, either be through electrification.

00:29:28.236 --> 00:29:32.916
<v SPEAKER_5>And if you look at those two sectors, it's really about 65%, 70% of total LNG demand.

00:29:32.996 --> 00:29:44.436
<v SPEAKER_5>Obviously, you do have some additional gas demand around residential and buildings and heating and whatnot, but those are really kind of the two main demand drivers, with power being the larger one.

00:29:44.676 --> 00:29:47.816
<v SPEAKER_5>And that really doesn't change much across the scenarios.

00:29:47.816 --> 00:29:51.716
<v SPEAKER_5>It's just a function of what does that demand look like across the power sector.

00:29:51.716 --> 00:29:56.416
<v SPEAKER_5>Obviously, in a decarbonized scenario, electrification is a clear winner.

00:29:56.416 --> 00:30:06.276
<v SPEAKER_5>And so you have A, number one, the substitution away from gas into technologies and industrial processes, which can be electrified.

00:30:06.276 --> 00:30:14.096
<v SPEAKER_5>And then through the electrification itself, the nature of power obviously being one where you have less of a loss of fossil fuel.

00:30:14.096 --> 00:30:21.876
<v SPEAKER_5>And I think that narrative is probably pretty already well understood, as we kind of think through what the different demand drivers are.

00:30:21.876 --> 00:30:39.016
<v SPEAKER_5>What was novel, I think, from taking a look and being able to leverage Rice Data and the data that they have out to 2050, is really from a geographic standpoint, how much of this really depends on Southeast Asia for the security of long-term demand in and around gas.

00:30:39.216 --> 00:30:48.976
<v SPEAKER_5>And that's something that was already, let's say always stated, but sometimes a bit difficult to quantify in their modeling and in the modeling that we used.

00:30:49.696 --> 00:30:53.116
<v SPEAKER_5>It was actually the emerging markets that's supposed to be the biggest wedge of demand.

00:30:53.116 --> 00:30:59.756
<v SPEAKER_5>So countries like Indonesia, Thailand, Pakistan, Bangladesh, which, frankly speaking, usually don't get mentioned a lot.

00:30:59.756 --> 00:31:03.276
<v SPEAKER_5>It's the nature of China and their increasing use potentially of gas.

00:31:03.276 --> 00:31:06.616
<v SPEAKER_5>Japan and Korea and what happens there over time with data centers.

00:31:06.616 --> 00:31:10.296
<v SPEAKER_5>And then India, as that country naturally industrializes.

00:31:10.296 --> 00:31:22.156
<v SPEAKER_5>But there's this huge wedge of other emerging markets in

Asia also, but also in Africa, where that's actually by far where the biggest wedge of demand is expected to go.

00:31:22.576 --> 00:31:28.956
<v SPEAKER_5>And that's actually, for me, the key takeaway as to how do you actually unlock that demand of growth in those regions?

00:31:28.956 --> 00:31:41.976
<v SPEAKER_5>Because if that's not to be the case, then you may never actually see this potential coal to gas switch that is often used as a bull case for gas in the long term.

00:31:42.036 --> 00:31:43.396
<v SPEAKER_4>And I think-

00:31:43.396 --> 00:31:44.796
<v SPEAKER_3>Go ahead, Kathleen.

00:31:44.796 --> 00:31:51.236
<v SPEAKER_4>The other side of that coin that's really important to acknowledge is who's then producing that gas.

00:31:51.236 --> 00:31:54.216
<v SPEAKER_4>And that is also played out in these four different worlds.

00:31:54.276 --> 00:32:10.056
<v SPEAKER_4>So you have this divided world, for instance, that's highly fragmented, that has Australia, Russia, Qatar, continuing to dominate that gas supply and an influx in Australia and the US, of course, over the past decade and going into the next decade.

00:32:10.056 --> 00:32:34.956
<v SPEAKER_4>And then you have this equally plausible scenario that's outlined where you have this influx of democratic gas production and the use of a coordinated G7 framework in order to enable that democratic supply of natural gas and to counterbalance against, you know, Russia, for instance, or other actors where the supply may not be as stable.

00:32:35.296 --> 00:32:52.336
<v SPEAKER_4>And so that's another big question when Shaz talks about this wedge of where demand is coming from, what enables the industrialization and growth of those emerging markets and who enables it, becomes a really critical question for the G7 plus.

00:32:52.336 --> 00:33:01.876
<v SPEAKER_3>Yeah, and just going a little bit off script here with a quick side note, you know, the Just Energy Transition Partnership in Indonesia is really under strain right now.

00:33:01.876 --> 00:33:22.536
<v SPEAKER_3>And I think that's largely because Indonesia was, of course, planning on using international finance to build up renewables in combination with natural gas, whereas now their energy plans are planning on continuing their coal-fired power plants and even building more and scaling back on their natural gas-fired power plants.

00:33:22.536 --> 00:33:25.436
<v SPEAKER_3>So there's big questions around that as well.

00:33:25.436 --> 00:33:34.796
<v SPEAKER_3>And I think that this really relates quite a bit to the question of the price of LNG and the relative competitiveness of different sources of LNG.

00:33:34.796 --> 00:33:44.816
<v SPEAKER_3>So I think Kathleen, you kind of laid out a few cases that kind of are you in favour of Canadian LNG, which is of course on the climate side.

00:33:44.816 --> 00:33:56.716
<v SPEAKER_3>Like I think we're taking a really proactive role in methane emissions and kind of the whole supply chain emissions for natural gas, as well as the fact that it's from a G7 partner.

00:33:56.716 --> 00:34:10.356
<v SPEAKER_3>I think I always make the case for Canada being a more stable and reliable source of these fuels, as opposed to Russia, which often plays politics with their fuel supply.

00:34:10.356 --> 00:34:23.736
<v SPEAKER_2>But just before you go on, Joe, just to add that, you know, when you think about it in the context of the G7 and Kathleen points it out, like, and it isn't, who's your friends in Southeast Asia?

00:34:23.736 --> 00:34:26.316
<v SPEAKER_2>It's what are your interests?

00:34:26.316 --> 00:34:36.256
<v SPEAKER_2>Like, as it comes down to that, we can all talk about democracy and pushing toward these scenarios we'd like or what's going to play out.

00:34:36.256 --> 00:34:39.876
<v SPEAKER_2>But at the end of the day, every country has its interests.

00:34:39.876 --> 00:34:42.576

<v SPEAKER_2>And that will be the decider.

00:34:42.576 --> 00:34:49.236
<v SPEAKER_2>The fact that you have a group of seven countries that pretty much play along the same, they're trying to swim in the same lane.

00:34:49.396 --> 00:34:55.696
<v SPEAKER_2>And to take that scenario out to the broader world is an existential challenge.

00:34:56.856 --> 00:35:03.536
<v SPEAKER_2>That said, it can be, with hope, it will turn out to be that way.

00:35:03.536 --> 00:35:19.056
<v SPEAKER_2>So it's, I applaud the effort here by you folks to give us a broad view of what this looks like, not just to 2030, 2035, we're out there, because that's really the question, right?

00:35:19.056 --> 00:35:22.476
<v SPEAKER_2>Like what happens in the longer term?

00:35:23.916 --> 00:35:28.096
<v SPEAKER_2>So I'll just, that was my narrative for my little editorial.

00:35:28.096 --> 00:35:29.896
<v SPEAKER_2>It's always about interests.

00:35:29.896 --> 00:35:30.436
<v SPEAKER_3>Yeah.

00:35:30.436 --> 00:35:42.696
<v SPEAKER_3>And I think for poorer countries like the ones in Southeast Asia, like of course, they're developing countries, they're rapidly industrializing, and it's really important to understand the energy needs in those circumstances.

00:35:42.696 --> 00:35:48.156
<v SPEAKER_3>But the price of their fuels is a really important component of their energy security.

00:35:49.576 --> 00:35:53.076
<v SPEAKER_3>You can just look at the price and the reliability of supply.

00:35:53.076 --> 00:35:58.516
<v SPEAKER_3>So you can just look at Pakistan for how the challenges that they've had with LNG.

00:35:58.516 --> 00:36:12.476
<v SPEAKER_3>And so something that we've talked about before on the podcast, and in particular, I'd like to flag our podcast with Ira Joseph earlier this year, is a tricky balance, of course, between LNG prices and LNG demand.

00:36:12.476 --> 00:36:22.796
<v SPEAKER_3>So there's a question about how to supply the, how to ensure that prices are high enough for suppliers, while still low enough for substantial demand.

00:36:22.796 --> 00:36:35.336
<v SPEAKER_3>So prices high enough to justify increasing supply of LNG, especially in kind of high cost jurisdictions, can often, might be sort of too high for who are developing countries to swallow.

00:36:35.336 --> 00:36:42.176
<v SPEAKER_3>So this is kind of a tricky question, and this is more of a discussion point than a real question.

00:36:43.156 --> 00:36:53.736
<v SPEAKER_3>But how could the evolution of LNG demand in these scenarios impact the economics of, let's say, additional Canadian LNG export?

00:36:53.736 --> 00:36:57.536
<v SPEAKER_5>Yeah, it's a great question, Joe.

00:36:57.676 --> 00:37:01.176
<v SPEAKER_5>And again, we were lucky enough to work with Dr.

00:37:01.176 --> 00:37:02.616
<v SPEAKER_5>Robert Johnston on this.

00:37:02.616 --> 00:37:12.056
<v SPEAKER_5>And at Columbia, so obviously, a colleague of IREZ tapped into their very impressive intellectual capital on this particular topic.

00:37:12.056 --> 00:37:20.316
<v SPEAKER_5>I think at the end of the day, really, the core way that we kind of think about it is it's a cold to something switch.

00:37:20.456 --> 00:37:28.196
<v SPEAKER_5>And so one way or another, if you have LNG pricing at $10 per MCF or $11 per MCF, it's just too expensive to enable the switch.

00:37:28.196 --> 00:37:38.796
<v SPEAKER_5>So either you're reducing the price of that gas LNG or

you're increasing the price of the coal and then obviously batteries playing a role in there as well as to what it could potentially do.

00:37:38.796 --> 00:37:46.156
<v SPEAKER_5>And then the one that maybe we didn't discuss enough in the report is just the fact that you do nothing and you just continue to use coal as a peaking source.

00:37:46.156 --> 00:38:05.836
<v SPEAKER_5>And so in scenarios where you have increasing demand, I think we talked about the need of supply, but at the same point, in some of our more bullish cases, we're talking about 750 million tons of global LNG demand out to 2050.

00:38:05.836 --> 00:38:20.276
<v SPEAKER_5>But if you look at all the announced projects from the LNG side, those including, those that are not yet FID, we have on paper 900 to 1,000 million tons of LNG potentially out on supply.

00:38:20.276 --> 00:38:23.376
<v SPEAKER_5>It's just a question of whether or not those projects come through.

00:38:23.376 --> 00:38:29.936
<v SPEAKER_5>And some of these LNG projects are so sticky in the sense, if you look at Alaska LNG, it brings on 40 million tons all in one go.

00:38:30.416 --> 00:38:33.136
<v SPEAKER_5>One project's FID often kills another project's FID.

00:38:33.136 --> 00:38:38.636
<v SPEAKER_5>And so coming back to Kathleen's comment about what kind of gas do you want?

00:38:38.636 --> 00:38:46.996
<v SPEAKER_5>If North America doesn't do anything, it seems Qatar is kind of there in the waiting, willing to bring on as much gas demand as they want.

00:38:46.996 --> 00:38:55.096
<v SPEAKER_5>But from a pricing standpoint, working at a Climate Action Institute, maybe some are a bit surprised to hear this.

00:38:55.096 --> 00:38:57.236
<v SPEAKER_5>I think at the end of the day, you need a bit of oversupply.

00:38:57.236 --> 00:38:57.956
<v SPEAKER_5>You need more supply.

00:38:57.956 --> 00:38:59.796
<v SPEAKER_2>No question about it, you do.

00:38:59.796 --> 00:39:02.196
<v SPEAKER_5>Than what you currently have because you need those prices to come down.

00:39:02.196 --> 00:39:05.096
<v SPEAKER_5>If the price is not coming down, you're not enabling a switch, number one.

00:39:05.096 --> 00:39:07.596
<v SPEAKER_5>And then number two, you need a supply buffer.

00:39:07.596 --> 00:39:19.396
<v SPEAKER_5>You need the infrastructure, not only at the regasification standpoint, but then at the transportation standpoint, at the storage standpoint of all of this to be able to provide that level of stability where you don't have your price spikes.

00:39:19.396 --> 00:39:30.576
<v SPEAKER_5>And so when you're talking about a resilient market, ultimately a resilient market is geographically diverse supply, but also ample storage capacity, and then ultimately ample swing supply that can come on.

00:39:30.576 --> 00:39:40.896
<v SPEAKER_5>And so it's one of those things we're trying to price for perfection on LNG at a time where we have this energy transition and so much energy that we need, it just seems a bit futile.

00:39:40.896 --> 00:39:46.816
<v SPEAKER_5>And so ultimately it's something for investors and companies to think about.

00:39:46.816 --> 00:39:53.516
<v SPEAKER_5>But one way or another, you have to bridge that gap between what coal 2X is.

00:39:53.516 --> 00:39:59.056
<v SPEAKER_5>And so one way or another, that gas price conceptually does need to come down.

00:40:00.336 --> 00:40:15.436
<v SPEAKER_4>And I think the point that we make in the report, and this was, as Shaz mentioned, this was informed by a variety of contributors from different organizations, including Columbia University, the Institute for Energy Economics Japan.

00:40:15.436 --> 00:40:16.956
<v SPEAKER_4>They're all kind of acknowledged there.

00:40:16.956 --> 00:40:26.836
<v SPEAKER_4>And it's really interesting because, of course, the natural gas market has been subject to a boom-bust cycle, and prices have fluctuated in reaction to that.

00:40:26.836 --> 00:40:40.476
<v SPEAKER_4>And what we recommend is that there is this opportunity for coordination that brings, you know, the control, relative control of pricing amongst the G7 coalition to bear.

00:40:40.476 --> 00:41:04.056
<v SPEAKER_4>So, you know, this notion that through a coordinated natural gas strategy, there is this opportunity to create a global and liquid market around natural gas and to align the different interests of producers and consumers to ensure that that pricing becomes more stable and to ensure that other market mechanisms like certified natural gas are brought to bear on that pricing.

00:41:04.056 --> 00:41:08.536
<v SPEAKER_2>Let's turn to some of the policy recommendations for the G7.

00:41:08.536 --> 00:41:10.156
<v SPEAKER_2>You know, the summit is long over.

00:41:10.156 --> 00:41:11.596
<v SPEAKER_2>Well, it's over.

00:41:11.596 --> 00:41:16.496
<v SPEAKER_2>We should be looking toward the Energy and Environment Ministerial Plan for this summer.

00:41:16.496 --> 00:41:25.756
<v SPEAKER_2>What are the main recommendations that you have provided G7 governments for policy around natural gas and energy security in the near future?

00:41:27.896 --> 00:41:33.656
<v SPEAKER_4>Yeah, so we have five core recommendations, as any good report does.

00:41:33.736 --> 00:41:34.436
<v SPEAKER_2>Sure.

00:41:34.436 --> 00:41:37.736
<v SPEAKER_4>Down, there's some nuances to each one that you can read in the report.

00:41:37.736 --> 00:41:41.616
<v SPEAKER_4>But the first one is a G7 compact.

00:41:41.716 --> 00:41:47.136
<v SPEAKER_4>So really, what we've recommended is that the G7 do what alliances do best, which is to coordinate.

00:41:47.976 --> 00:41:53.356
<v SPEAKER_4>The G7 has just done this on critical minerals in the past summit.

00:41:53.356 --> 00:42:10.836
<v SPEAKER_4>What this means is actually bringing a set of principles and standards to natural gas amongst what we call the G7 plus allies, so including EU member states that are not formal members of the G7, for instance, as well as Australia and others.

00:42:11.756 --> 00:42:17.256
<v SPEAKER_4>This could include principles around abated natural gas and certified natural gas.

00:42:17.256 --> 00:42:37.036
<v SPEAKER_4>But really the goal of the compact is to break that boom bust cycle that we've seen that contributes to energy insecurity, lack of affordability, price volatility, and to bring this set of principles to bear amongst G7 plus nations so that there is this energy security future.

00:42:37.036 --> 00:42:41.756
<v SPEAKER_4>In light of the fact that there could be a range of futures that the G7 faces.

00:42:41.756 --> 00:42:50.656
<v SPEAKER_4>Really, it's about a coordination mechanism rather than predicting the specifics around natural gas demand and the specifics about what is required.

00:42:50.656 --> 00:42:55.996
<v SPEAKER_4>The second major recommendation is to create a stable gas market.

00:42:55.996 --> 00:43:04.536
<v SPEAKER_4>By this, we really mean that it's global and liquid and that it attracts importers and investment as well as capital.

00:43:05.456 --> 00:43:16.696
<v SPEAKER_4>We've looked at a mechanism like the producer, consumer dialogue that is led by Japan right now as something that can contribute to the stability of the gas market going forward.

00:43:17.556 --> 00:43:20.816
<v SPEAKER_4>A mechanism that could be built upon by the G7.

00:43:21.976 --> 00:43:30.236
<v SPEAKER_4>Third is that we've recommended to invest in decarbonized gas and to cut emissions with new technologies.

00:43:30.236 --> 00:43:41.376
<v SPEAKER_4>It's really interesting because in the recent IEA report that was actually just released this morning, there is this assertion that a lot of the technology around abatement actually already exists.

00:43:41.376 --> 00:43:56.896
<v SPEAKER_4>And so what is needed now is to explore the regulatory pathways to unlock the value of that technology and to reduce methane emissions and GHG emissions, mainly upstream emissions on natural gas.

00:43:56.896 --> 00:44:03.296
<v SPEAKER_4>And then there's a couple of really interesting kind of final recommendations here, including the need to promote new financial tools.

00:44:03.356 --> 00:44:07.036
<v SPEAKER_4>And this is something that requires a lot more research and exploration.

00:44:07.036 --> 00:44:14.036
<v SPEAKER_4>We had the opportunity to speak to some of the multilateral development banks during our research and the process that we undertook.

00:44:14.036 --> 00:44:21.416
<v SPEAKER_4>And the opportunity is really to use different kinds of tools like the multilateral banks to invest in clean growth in emerging markets.

00:44:21.416 --> 00:44:24.316
<v SPEAKER_4>Shaz alluded to this earlier in the episode.

00:44:24.316 --> 00:44:35.156
<v SPEAKER_4>And there is an imperative, we believe, for the G7 plus to create a clear policy signal that unlocks those untraditional sources of capital.

00:44:35.156 --> 00:44:47.816
<v SPEAKER_4>Finally is, and this is kind of where Canada, I think, we talked about Canada's opportunity here has a major role to play, is the creation of a center of excellence that would share insights and technology and best practices.

00:44:47.816 --> 00:45:02.736
<v SPEAKER_4>And the global average emissions for gas are 12 kilograms of CO2, and Canada falls below that at 10 grams as compared to Norway, which is the lowest in the world at 2.

00:45:02.736 --> 00:45:05.196
<v SPEAKER_4>So you kind of get a sense of where Canada plays.

00:45:05.196 --> 00:45:20.016
<v SPEAKER_4>There is, under the G7 presidency, the Canadian G7 presidency, there is this opportunity to bring some of these lessons together and for Canada to play that leadership role and create the center of excellence to drive these best practices forward.

00:45:21.036 --> 00:45:22.556
<v SPEAKER_3>Yeah, fantastic.

00:45:22.556 --> 00:45:31.336
<v SPEAKER_3>It's good to know that there's some actionable stuff that Canada can do, well, sort of unilaterally, but bringing in these partners to discuss about this.

00:45:32.156 --> 00:45:39.856
<v SPEAKER_3>If they do end up creating a center of excellence, I would love to get it on the ground floor of that one to provide some of my recommendations.

00:45:39.856 --> 00:45:45.276
<v SPEAKER_2>Well, let me put my emissions reduction Alberta hat on now, Joe, for a minute, right?

00:45:45.276 --> 00:45:50.196
<v SPEAKER_2>Some of the people who listen to this podcast know I'm the chair of the board of emissions reduction Alberta.

00:45:51.376 --> 00:45:57.296
<v SPEAKER_2>We're doing, we've got, we've done scores of projects around methane reduction.

00:45:57.296 --> 00:46:03.436
<v SPEAKER_2>Canada is a world leader without question, the world leader in this, in this aspect of the whole gas field.

00:46:03.436 --> 00:46:15.956
<v SPEAKER_2>And I think that this particular policy initiative would really enhance the ability of we that I'm just going to say know a lot about this to take it global.

00:46:15.956 --> 00:46:18.196

<v SPEAKER_2>And that's, I think that's a wonderful thing.

00:46:19.476 --> 00:46:26.336
<v SPEAKER_3>Yeah, there's, there's, I think that there's a long future for natural gas, as we've seen from these scenarios.

00:46:26.336 --> 00:46:42.416
<v SPEAKER_3>Even in a situation of rapid decarbonization, I think that natural gas can be, and LNG can be used as a very important carrier of both energy and the chemical bonds, but also of the hydrogen atoms that are in the methane molecules.

00:46:42.416 --> 00:46:56.836
<v SPEAKER_3>So we should, we should really pay attention to that, because there's some interesting work being done on the question of, hold on, why are we talking about liquid hydrogen carriers, where we turn hydrogen into a liquid hydrogen carrier, when we already have a hydrogen carrier in the form of methane?

00:46:56.836 --> 00:47:01.076
<v SPEAKER_3>So big, big questions around that, that I think we'll be exploring more.

00:47:01.076 --> 00:47:14.676
<v SPEAKER_3>But as one last question, and kind of building off what you were talking about with the Japanese model of Kathleen, I'm really interested in the idea of carbon clubs for reducing emissions from natural gas projects.

00:47:14.736 --> 00:47:24.096
<v SPEAKER_3>So building on what Kelly was saying here as well, because Canada does have an enormous amount of R&D going into reducing these upstream and midstream emissions.

00:47:24.096 --> 00:47:36.536
<v SPEAKER_3>And specifically, the both of you, the report uses the example of Japan's GX bonds as a model for helping finance low carbon infrastructure.

00:47:36.536 --> 00:47:41.916
<v SPEAKER_3>And I'm assuming these would be mostly focused on developing countries, but I'm not 100% sure.

00:47:42.396 --> 00:47:43.956
<v SPEAKER_3>I don't know enough about it.

00:47:43.956 --> 00:47:51.596
<v SPEAKER_3>But could the both of you help kind of unpack this idea further and how it could be leveraged in Canada?

00:47:54.116 --> 00:47:54.996
<v SPEAKER_5>So, yeah, sure.

00:47:55.156 --> 00:47:58.016
<v SPEAKER_5>I'll just speak really quickly on the GX bit.

00:47:58.036 --> 00:48:08.696
<v SPEAKER_5>And then, Kathleen, feel free to provide any overlaying, higher end up carbon club type of concept that might go beyond just Japan.

00:48:08.696 --> 00:48:18.996
<v SPEAKER_5>But yeah, effectively, Japan is moving ahead with their own emissions trading scheme, really oriented in the long term towards Europe and the European Union.

00:48:18.996 --> 00:48:25.436
<v SPEAKER_5>I think they view that as the more sustainable long-term pathway that we're still gonna have carbon pricing, China is kind of doing the same.

00:48:25.436 --> 00:48:30.536
<v SPEAKER_5>And really, so increasingly, you're seeing Asia model what the Europeans are doing.

00:48:30.536 --> 00:48:37.536
<v SPEAKER_5>Obviously, the US is moving in a different direction, but question marks as to what that looks like four years from now.

00:48:37.536 --> 00:48:44.776
<v SPEAKER_5>And so, Japan ultimately is energy dependent, energy reliant needs to import a lot of that, a lot of those technologies.

00:48:44.776 --> 00:48:52.876
<v SPEAKER_5>And so they have a scheme of what they consider GX bonds, where effectively they are able to raise a certain amount of capital.

00:48:52.876 --> 00:49:01.736
<v SPEAKER_5>And then ultimately those bonds are actually paid for over time based on the emissions allowances and the increasing carbon price that comes from that and stuff.

00:49:01.736 --> 00:49:12.036
<v SPEAKER_5>And so, it's not specific, like you're not going to find anywhere explicitly on a website or anything as to what they are not able to invest in.

00:49:12.036 --> 00:49:23.816
<v SPEAKER_5>But Joe, if you guys have had great work over the last couple of years, I've been at some of your events and having

leadership come in from Japan, really talking about hydrogen and the need for hydrogen and their sort of a market.

00:49:23.816 --> 00:49:55.236
<v SPEAKER_5>So, I think they've already done some deals with Australia and really looking forward to, or sorry, trying to find a need as to how they can achieve their decarbonization targets, ultimately being import dependent with these and ultimately across a GX bond market, that's well north of 200 to 250 billion dollars in total funding, obviously provides a substantial amount of capital if oriented that way.

00:49:55.236 --> 00:49:55.476
<v SPEAKER_3>Yeah.

00:49:55.636 --> 00:50:08.936
<v SPEAKER_3>So, these bonds are not in any way tied to development assistance or anything like that, but purely the energy security and the climate, ensuring the energy security aligns with the climate objectives, correct Shaz?

00:50:08.936 --> 00:50:10.836
<v SPEAKER_5>Well, yeah, it's a good question.

00:50:10.836 --> 00:50:22.116
<v SPEAKER_5>I mean, maybe some of the narrative of the reasoning behind some of these projects ultimately could be one of this north to south relationship, if you will.

00:50:22.116 --> 00:50:24.396
<v SPEAKER_5>But in and of itself, it is independent.

00:50:24.396 --> 00:50:33.656
<v SPEAKER_5>I guess you could probably view that climate financing, JETP type of initiatives as being technically separate.

00:50:33.656 --> 00:50:38.256
<v SPEAKER_3>Yeah, I think this is an area that we need to focus on a little more.

00:50:38.256 --> 00:50:47.536
<v SPEAKER_3>The financing side of it and how all these different financing mechanisms are being combined and layered on top of each other.

00:50:47.536 --> 00:50:50.896
<v SPEAKER_3>Kathleen, do you have any final thoughts on this side of things?

00:50:53.236 --> 00:50:56.036

<v SPEAKER_4>I mean, maybe just two quick thoughts to close.

00:50:56.036 --> 00:51:03.916
<v SPEAKER_4>One is, I think there is absolutely, as you said, Joe, this imperative to look at innovative financing mechanisms.

00:51:03.916 --> 00:51:16.036
<v SPEAKER_4>I really think things like the multilateral development banks and their role in this requires leadership from the member states that fund those institutions.

00:51:16.036 --> 00:51:20.116
<v SPEAKER_4>This fits with that broader energy security agenda and the need for coordination.

00:51:21.036 --> 00:51:44.216
<v SPEAKER_4>The second, just final comment here that I am kind of fascinated by is that there is this finding very recently that up to 40% of emissions related to natural gas, and like I said, about 70% of those are upstream, could be avoided at no net cost today.

00:51:44.396 --> 00:52:10.196
<v SPEAKER_4>So I just think when we're talking about financing low carbon infrastructure, we need to be very crisp and clear about what we are actually funding and what we are talking about, and to kind of debunk this narrative and dig into the data on, does this really require net new costs with the technology that is available today?

00:52:10.196 --> 00:52:12.436
<v SPEAKER_4>So just kind of two final reflections.

00:52:13.896 --> 00:52:22.136
<v SPEAKER_2>Yeah, in my mind's eye, I am seeing, and again I'm promoting some of the things happening in Alberta.

00:52:22.136 --> 00:52:48.776
<v SPEAKER_2>Thinking of the entropy gas plant at Glacier northwest of Grand Prairie, where they're going to inject the CO2 right at site, and that particular project, half a billion a day gas plant of advantages in the next few years, will ship gas, it's almost emissions-free.

00:52:52.836 --> 00:52:56.856
<v SPEAKER_2>That's part of that 40 percent scenario I'm going to gather, Kathleen.

00:52:56.856 --> 00:52:59.116
<v SPEAKER_2>So yes, this can be done.

00:53:00.516 --> 00:53:02.856

<v SPEAKER_2>It comes down to the will.

00:53:02.856 --> 00:53:07.136
<v SPEAKER_2>And as Shaz said, what's the price of gas?

00:53:08.196 --> 00:53:12.096
<v SPEAKER_2>At the end of the day, we could talk about all these things for hours.

00:53:12.096 --> 00:53:14.316
<v SPEAKER_2>What's the price?

00:53:14.316 --> 00:53:17.676
<v SPEAKER_2>And how does that fit into the global whole commodity mix?

00:53:17.676 --> 00:53:19.856
<v SPEAKER_2>So this has been a great conversation.

00:53:21.236 --> 00:53:27.396
<v SPEAKER_2>I'd like to explore that 40 percent number, Kathleen, on another podcast completely to just talk about that.

00:53:29.036 --> 00:53:30.076
<v SPEAKER_3>Absolutely.

00:53:30.076 --> 00:53:30.416
<v SPEAKER_3>Yeah.

00:53:30.416 --> 00:53:32.336
<v SPEAKER_3>And yeah, this is a great conversation.

00:53:32.336 --> 00:53:37.396
<v SPEAKER_3>Of course, here in Alberta, we're very used to extremely low prices of natural gas.

00:53:37.396 --> 00:53:45.196
<v SPEAKER_3>So I think that any future for natural gas will involve these sorts of issues.

00:53:45.196 --> 00:53:47.616
<v SPEAKER_3>And yeah, this is a great conversation.

00:53:47.616 --> 00:53:50.976
<v SPEAKER_3>And I'd like to also flag that this podcast will come up during Stampede.

00:53:50.976 --> 00:53:58.696
<v SPEAKER_3>So for our listeners here in Alberta, I think this will be music to their ears for sure.

00:53:58.696 --> 00:53:59.356
<v SPEAKER_2>Great.

00:53:59.356 --> 00:53:59.756
<v SPEAKER_3>Okay.

00:53:59.756 --> 00:54:05.136
<v SPEAKER_3>And one last question for the both of you, Kathleen and Shaz, what are you reading these days?

00:54:05.136 --> 00:54:10.356
<v SPEAKER_3>Ideally for pleasure, but if it's a thick technical book, we'll take that as well.

00:54:12.676 --> 00:54:15.196
<v SPEAKER_3>Kathleen, how about you go first?

00:54:16.216 --> 00:54:21.616
<v SPEAKER_4>Well, I will say I've been reading a lot of IEA reports and G7 share summaries.

00:54:21.916 --> 00:54:23.336
<v SPEAKER_2>Same on you.

00:54:24.876 --> 00:54:30.816
<v SPEAKER_4>But for pleasure, I'm actually reading a book that is very inspiring.

00:54:30.816 --> 00:54:33.396
<v SPEAKER_4>It's called From the Ashes.

00:54:33.396 --> 00:54:41.556
<v SPEAKER_4>It's written by Jesse Thistle, and it's about a Métis man who was homeless and about his resiliency.

00:54:42.856 --> 00:54:48.536
<v SPEAKER_4>It's an interesting, very human story that sits in Canada.

00:54:49.576 --> 00:55:00.236
<v SPEAKER_4>It's a topic that we didn't address on this podcast specifically, but I think is really imperative actually to the gas conversation, indigenous participation.

00:55:00.236 --> 00:55:09.416
<v SPEAKER_4>That is a whole other conversation and podcast and requires a whole other range of experts and representatives from those communities.

00:55:09.516 --> 00:55:13.756
<v SPEAKER_4>But it's an amazingly inspiring book.

00:55:13.756 --> 00:55:19.456
<v SPEAKER_2>Yeah, we've had both Karen Ogan and Crystal Smith and others on our podcast.

00:55:21.116 --> 00:55:22.076
<v SPEAKER_2>You're absolutely right.

00:55:22.076 --> 00:55:24.376
<v SPEAKER_2>It's integral to the conversation.

00:55:24.376 --> 00:55:25.936
<v SPEAKER_3>Absolutely.

00:55:25.936 --> 00:55:28.796
<v SPEAKER_3>Shaz, any book you'd like to recommend?

00:55:28.796 --> 00:55:31.036
<v SPEAKER_5>Yeah, I haven't gotten into it yet.

00:55:31.036 --> 00:55:35.616
<v SPEAKER_5>I feel like I've read more about this book through podcasts and the author than reading the actual book itself.

00:55:35.616 --> 00:55:38.356
<v SPEAKER_5>So probably have to like to do that over the summer.

00:55:38.456 --> 00:55:41.476
<v SPEAKER_5>But it's by Patrick McGee, and it's called Apple in China.

00:55:41.476 --> 00:55:47.496
<v SPEAKER_5>And I think one of the things I'm trying to wrestle with today is, what does China normalization look like?

00:55:47.496 --> 00:55:56.716
<v SPEAKER_5>I know we are in a period of, let's say, a bit more heightened tensions between North America and China.

00:55:56.856 --> 00:56:00.756
<v SPEAKER_5>That's been happening for really, I think, over the last seven or eight years.

00:56:00.756 --> 00:56:03.096
<v SPEAKER_5>And it's just a question of how long does that last?

00:56:03.096 --> 00:56:11.716
<v SPEAKER_5>Which obviously has huge implications on the energy

transition and how energy is procured given China's lead on things like batteries and on renewables.

00:56:11.716 --> 00:56:15.716
<v SPEAKER_5>But the book itself is actually about, it's really a case study on Apple in China.

00:56:15.716 --> 00:56:21.816
<v SPEAKER_5>And some of the statistics are just a bit like completely eye-watering.

00:56:21.816 --> 00:56:32.476
<v SPEAKER_5>I mean, really in the book, Patrick goes and looks and he kind of is just trying to trace what Apple's investment in China has been since 2008.

00:56:32.696 --> 00:56:37.216
<v SPEAKER_5>And he's traced that they've trained 28 million people during that time.

00:56:37.216 --> 00:56:40.576
<v SPEAKER_5>That's bigger than the entire labor force of California.

00:56:40.576 --> 00:56:47.376
<v SPEAKER_5>And then from 2015 onwards, Apple has invested $55 billion a year in China.

00:56:47.376 --> 00:56:49.796
<v SPEAKER_5>So over a 10-year period, that's half a trillion.

00:56:49.796 --> 00:56:53.076
<v SPEAKER_5>And in his words, there's no corporate equivalent of that.

00:56:53.076 --> 00:56:55.156
<v SPEAKER_5>He had to go back to the Marshall Plan.

00:56:55.156 --> 00:57:04.096
<v SPEAKER_5>And he basically converted Marshall Plan funding and noticed that Apple has invested two times what the Marshall Plan did coming out of World War II.

00:57:04.096 --> 00:57:07.236
<v SPEAKER_5>And the Marshall Plan was for 16 countries.

00:57:07.236 --> 00:57:10.236
<v SPEAKER_5>And so in a prior life, I was an ex-stock guy.

00:57:10.236 --> 00:57:11.876
<v SPEAKER_5>So I think it's kind of an interesting question.

00:57:12.436 --> 00:57:20.476
<v SPEAKER_5>When you look at Apple and it being the most valuable company in the world, I think a lot of people look at Silicon Valley and the value ultimately being attributed there.

00:57:20.476 --> 00:57:25.116
<v SPEAKER_5>But Apple's kind of in a situation where if they're not able to produce in China, now they have to shift to India.

00:57:25.176 --> 00:57:33.276
<v SPEAKER_5>Like what percent of actual Apple's market capitalization is ultimately effectively Chinese ecosystem rather than Silicon Valley ecosystem.

00:57:33.276 --> 00:57:39.716
<v SPEAKER_5>And so I think trying to wrestle with that ultimate concept of how do these two large superpowers integrate with one another.

00:57:39.716 --> 00:57:42.916
<v SPEAKER_5>And I think that obviously has impacts to the rest of us.

00:57:42.916 --> 00:57:44.316
<v SPEAKER_5>But it's a really fascinating read.

00:57:44.316 --> 00:57:45.856
<v SPEAKER_5>He's got great podcasts on it.

00:57:45.856 --> 00:57:48.436
<v SPEAKER_5>Again, it's called Apple in China by Patrick McGee.

00:57:48.436 --> 00:57:50.656
<v SPEAKER_3>Yeah, no, that's a really interesting question.

00:57:50.656 --> 00:58:08.436
<v SPEAKER_3>And you got to wonder, has Apple effectively sown the seeds of its own destruction with eventually Chinese tech companies taking over all of its supply chains and taking over all of its design work and all of that sort of stuff?

00:58:08.436 --> 00:58:09.376
<v SPEAKER_2>That's interesting, Joe.

00:58:09.376 --> 00:58:12.696
<v SPEAKER_2>You know, it brings up the whole question of the command economy, right?

00:58:12.736 --> 00:58:21.056
<v SPEAKER_2>Like at the end of the day, does that freer spirit of

entrepreneurship keep pushing forward?

00:58:21.056 --> 00:58:31.816
<v SPEAKER_2>Just a little interesting side note, as you were saying that, Shaz, I wrote an op-ed and a paper a decade ago, probably about Canada's inability to build infrastructure.

00:58:31.816 --> 00:58:41.916
<v SPEAKER_2>I remember one of the facts I found was that China poured more cement between 2002 and 2015 than the United States poured in the 20th century.

00:58:44.596 --> 00:58:55.196
<v SPEAKER_2>The number, like, it's the number, 55 or 28 million people, like, $55 billion per year, like, it's just, it's hard to even fathom those numbers.

00:58:55.196 --> 00:58:55.896
<v SPEAKER_2>It really is.

00:58:55.896 --> 00:59:04.136
<v SPEAKER_2>It's just, but it is, like, there's all kinds of facts out there about China, more rail-laid than other countries combined and stuff.

00:59:04.136 --> 00:59:05.856
<v SPEAKER_2>So I can, I believe it.

00:59:06.136 --> 00:59:07.516
<v SPEAKER_2>I'm certainly going to pick that book up.

00:59:07.516 --> 00:59:08.076
<v SPEAKER_2>Thanks for that.

00:59:10.796 --> 00:59:11.996
<v SPEAKER_3>Yeah, fantastic.

00:59:11.996 --> 00:59:14.916
<v SPEAKER_3>Kathleen, Shaz, thanks so much for coming on the podcast.

00:59:14.916 --> 00:59:22.596
<v SPEAKER_3>This was a really interesting conversation, and I think our listeners will love to look through your report and look through these scenarios.

00:59:22.596 --> 00:59:28.816
<v SPEAKER_3>And I'm sure they'll, they'd love to reach out to you guys, the Climate Action Institute as well, to chat more about this.

00:59:28.816 --> 00:59:30.316

<v SPEAKER_3>So thanks again.

00:59:30.316 --> 00:59:33.256
<v SPEAKER_2>And thanks for participating in our events in Toronto and Ottawa.

00:59:33.256 --> 00:59:34.596
<v SPEAKER_2>We appreciate it.

00:59:34.596 --> 00:59:36.016
<v SPEAKER_4>Thank you for having us.

00:59:36.016 --> 00:59:36.836
<v SPEAKER_5>Yeah, thanks again.

00:59:37.076 --> 00:59:37.776
<v SPEAKER_5>This was a lot of fun.

00:59:37.776 --> 00:59:38.836
<v SPEAKER_5>Appreciate it.

00:59:39.156 --> 00:59:42.456
<v SPEAKER_1>Fantastic.

00:59:42.456 --> 00:59:48.616
<v SPEAKER_2>Thanks everyone for listening to this episode of Energy Security Cubed on the Canadian Global Affairs Podcast Network.

00:59:48.616 --> 00:59:53.116
<v SPEAKER_2>You can find the CGAI Network on iTunes, Spotify and Google Play.

00:59:53.116 --> 00:59:55.296
<v SPEAKER_2>If you like the show, give it a rating.

00:59:55.296 --> 01:00:00.556
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01:00:00.556 --> 01:00:08.196
<v SPEAKER_2>If you liked this episode and want to help us keep creating content, you can support us by donating at cgai.ca slash support.

01:00:08.196 --> 01:00:11.816
<v SPEAKER_2>Energy Security Cubed is brought to you by our team at CGAI.

01:00:11.816 --> 01:00:16.896
<v SPEAKER_2>Thanks go out to our producer, Joe Calnan and to Drew

Phillips for providing our music.

01:00:16.896 --> 01:00:17.796
<v SPEAKER_2>I'm Kelly Ogle.

01:00:17.796 --> 01:00:19.876
<v SPEAKER_2>Thanks for joining us on Energy Security Cubed.