WEBVTT

00:00:10.376 --> 00:00:20.916
<v SPEAKER_1>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_1>I'm Kelly Ogle, Managing Director here at CGAI.

00:00:24.596 --> 00:00:32.536
<v SPEAKER_2>And I'm Joe Calnan, Vice President of Energy and Calgary Operations at the Canadian Global Affairs Institute.

00:00:34.976 --> 00:00:36.496
<v SPEAKER_2>Okay, the recording has started.

00:00:37.636 --> 00:00:49.756
<v SPEAKER_2>For today's interview, recorded October 10th, 2025, we discussed the development of energy infrastructure in Africa and the international policies shaping this development.

00:00:49.756 --> 00:00:52.916
<v SPEAKER_2>With us to talk about this is Brenda Shaffer.

00:00:52.916 --> 00:00:56.696
<v SPEAKER_2>Brenda is an International Energy and Foreign Policy Specialist.

00:00:56.696 --> 00:00:58.676
<v SPEAKER_2>She is a faculty member at the US.

00:00:58.676 --> 00:01:05.396
<v SPEAKER_2>Naval Post-graduate School and a Senior Fellow at the Atlantic Council's Global Energy Centre in Washington, DC.

00:01:06.276 --> 00:01:23.256
<v SPEAKER_2>She is a contributor to Prosperity, Not Poverty and the author of the recently released report for the Centre for North American Prosperity and Security titled, Disempowering Africa, How the West's Energy Policies Fuel Poverty in the Continent.

00:01:23.256 --> 00:01:25.576
<v SPEAKER_2>Delighted to have you on the podcast, Brenda.

00:01:25.576 --> 00:01:27.776
<v SPEAKER_3>Thank you so much.

00:01:27.776 --> 00:01:33.176
<v SPEAKER_2>Now, before we get into the details of your report, I'd

like to get into what really inspired it.

00:01:33.596 --> 00:01:44.496
<v SPEAKER_2>People who follow you will know that you have extensive work in the Middle East and the Caspian Sea region, as well as some other related files in energy, but may be less aware of your work on Africa.

00:01:45.536 --> 00:01:49.696
<v SPEAKER_2>What caused you to focus on Africa for this paper?

00:01:49.696 --> 00:02:16.936
<v SPEAKER_3>I think for about the past close to 10 years, I felt like in the script of The Emperor's New Clothes, where most people are afraid or somehow don't even see the reality and maybe identifying with the child that says the king is naked, when we've had people saying, well, we don't need any fossil fuels.

00:02:16.936 --> 00:02:20.056
<v SPEAKER_3>We're in an energy transition to renewable energy.

00:02:20.056 --> 00:02:22.436
<v SPEAKER_3>It's just around the corner.

00:02:22.436 --> 00:02:25.936
<v SPEAKER_3>International Energy Agency telling us, don't invest anymore in fossil fuels.

00:02:26.296 --> 00:02:27.036
<v SPEAKER_3>We don't need them.

00:02:27.696 --> 00:02:33.476
<v SPEAKER_3>And I look at very basic facts, just the data.

00:02:33.476 --> 00:02:36.236
<v SPEAKER_3>Renewable energy doesn't replace fossil fuels.

00:02:36.236 --> 00:02:36.896
<v SPEAKER_3>It works.

00:02:36.896 --> 00:02:41.376
<v SPEAKER_3>Today's generation of renewable energy works hand in hand with fossil fuels.

00:02:41.376 --> 00:02:53.736
<v SPEAKER_3>So if you're using primarily wind, solar, geothermal, hydropower, generally you can have a base load of natural gas or nuclear, some other countries, coal, right?

00:02:55.136 --> 00:02:56.896

<v SPEAKER_3>And they work hand in hand.

00:02:56.896 --> 00:03:06.736
<v SPEAKER_3>And actually renewables rarely replace the fossil fuels because you're keeping the fossil fuel base load on standby all the time.

00:03:06.736 --> 00:03:17.896
<v SPEAKER_3>Second point that this, not only does it create demand, do renewables create demands for fossil fuels, but as I just described here with the base load, you're basically operating two energy systems.

00:03:17.896 --> 00:03:19.136
<v SPEAKER_3>So you raise costs, right?

00:03:19.136 --> 00:03:33.876
<v SPEAKER_3>So you're having your, let's say your normal energy system you have, let's say based on natural gas, coal or nuclear, you're adding renewables and you're not really depleting the costs for keeping those, that previous energy system running, which you need.

00:03:33.876 --> 00:03:36.596
<v SPEAKER_3>In addition, you add costs for stabilizing the grid.

00:03:36.596 --> 00:03:54.056
<v SPEAKER_3>If we see, for instance, that this tremendous blackout that was in Spain and Portugal, and you see that it illustrates a complexity for a grid to receive, to manage, renewables and more stable fuels.

00:03:54.056 --> 00:03:58.676
<v SPEAKER_3>Then third is an issue of energy density.

00:03:58.676 --> 00:04:05.456
<v SPEAKER_3>Sorry, a little energy nerdity, but there's how much energy you can pack into a space or weight.

00:04:05.516 --> 00:04:09.216
<v SPEAKER_3>Just today's renewables are extremely low density.

00:04:09.216 --> 00:04:16.656
<v SPEAKER_3>When you compare them with nuclear, coal, oil, natural gas, which are much more energy packed into small places.

00:04:16.836 --> 00:04:30.296
<v SPEAKER_3>This has to do with environmental issues like land usage, but it also means how much it costs to ship or to transport energy over distances.

00:04:33.196 --> 00:04:43.136
<v SPEAKER_3>Then an additional issue, we just don't have the materials to create the energy from renewable energy.

00:04:43.936 --> 00:04:47.376
<v SPEAKER_3>If we're really to go on a high scale.

00:04:47.676 --> 00:04:57.596
<v SPEAKER_3>I'm looking at all these things and looking at something really, really basic like what percentage does fossil fuels provide of our global energy consumption.

00:04:57.656 --> 00:05:20.796
<v SPEAKER_3>Today, it's 87 percent up from estimates last year that were closer to 82 percent and higher than we had in the 1970s when we started the sort of the embarked on the path towards or to increase renewable energy.

00:05:20.796 --> 00:05:24.676
<v SPEAKER_3>It's not even a normative assessment here.

00:05:24.716 --> 00:05:28.356
<v SPEAKER_3>It's not like, oh, renewable is good, fossil fuel is good, bad.

00:05:28.356 --> 00:05:29.776
<v SPEAKER_3>It's just the fact.

00:05:29.776 --> 00:05:36.256
<v SPEAKER_3>And again, I felt like for about 10 years, I felt like that kid saying, hey, the emperor is naked.

00:05:36.256 --> 00:05:41.696
<v SPEAKER_3>And now I think there's a lot more realization that these are the facts.

00:05:42.116 --> 00:05:52.416
<v SPEAKER_3>If let's say your Prime Minister, Mark Carney, said a couple of years ago that 90 percent of Canada's fossil fuels need to stay in the ground, I don't think he would say that today.

00:05:55.016 --> 00:06:06.136
<v SPEAKER_2>And in fact, I think just the other day, he was down in Washington, DC promoting the Keystone XL pipeline, which is a big turnaround for someone like Mark Carney.

00:06:06.136 --> 00:06:07.376
<v SPEAKER_3>Right.

00:06:07.716 --> 00:06:19.176

<v SPEAKER_3>So the connection of all that introduction on where we're going to Africa, combined with the fact that I'm an avid traveler in East Africa, it's one of my favorite parts of the world.

00:06:19.176 --> 00:06:23.256
<v SPEAKER_3>And so seeing how people live, and interacting with people.

00:06:23.256 --> 00:06:45.876
<v SPEAKER_3>And then seeing that, well, who has paid the price for these really awful policies that didn't help climate, have created energy scarcity, which means prices going up, have helped China because where the West wasn't willing to fund, suddenly fund fossil fuels, China was stepping in.

00:06:45.876 --> 00:06:47.736
<v SPEAKER_3>And I said, well, who's really paid the price?

00:06:47.736 --> 00:07:03.116
<v SPEAKER_3>So in high-income countries like Canada, the poor have paid the price, especially, you know, pensioners on fixed incomes, because in low-income homes, energy is a much higher part of their monthly family budget than in high-income homes.

00:07:04.356 --> 00:07:05.036
<v SPEAKER_3>That's obvious.

00:07:05.036 --> 00:07:08.996
<v SPEAKER_3>So the increase in prices means more for poor people.

00:07:08.996 --> 00:07:14.136
<v SPEAKER_3>But where it's had the hugest impact is in the world's poorest in Africa.

00:07:14.136 --> 00:07:23.156
<v SPEAKER_3>And we're seeing, you know, a backpedaling in electricity access in sub-Saharan Africa, something we haven't seen for decades.

00:07:23.156 --> 00:07:32.476
<v SPEAKER_3>So, you know, and so just seeing that with my eyes, but also, you know, and that people, you know, go on cocktail parties in the Upper East Side.

00:07:32.476 --> 00:07:43.796
<v SPEAKER_3>And, you know, do you remember that film, Bridget Jones, where, you know, she walks around the cocktail party, wants to sound sophisticated and says, Oh, isn't it awful what's happening in Chechnya?

00:07:43.796 --> 00:07:47.896

<v SPEAKER_3>And then, you know, I go to these cocktail parties, people say, yes, it's so bad.

00:07:47.956 --> 00:07:50.616
<v SPEAKER_3>There's fossil fuels, so bad for the planet.

00:07:50.616 --> 00:07:57.216
<v SPEAKER_3>And I'm thinking like, well, there's people in Africa that would really like to replace the smoke in their huts with some fossil fuels.

00:07:57.456 --> 00:08:08.016
<v SPEAKER_3>And, you know, these people that walk around with the, oh, it's just so awful, you know, really have no idea of the price real people are paying for these policies.

00:08:08.016 --> 00:08:08.756
<v SPEAKER_2>Yeah, absolutely.

00:08:08.756 --> 00:08:26.176
<v SPEAKER_2>And it feels as though people have forgotten about the first energy transition, which allowed industrialization, the dramatic improvement in standards of living, which is a transition from these sort of traditional energy forms to the fossil fuels and unlocked an enormous amount of prosperity in the process.

00:08:26.516 --> 00:08:38.336
<v SPEAKER_3>And also save the forest, like, if we don't have to tear down forest for wood and burning charcoal, so we had like reforestation trends in North America.

00:08:38.336 --> 00:08:43.176
<v SPEAKER_3>And also saving the animals, when plastics could replace animal bones.

00:08:44.616 --> 00:08:53.996
<v SPEAKER_3>I mean, I remember from a grandmother, a tortoise comb, a brush comb that she had, right?

00:08:53.996 --> 00:08:55.096
<v SPEAKER_3>Tortoise shell.

00:08:55.336 --> 00:08:57.176
<v SPEAKER_3>Well, today, we just buy it from plastic.

00:08:57.176 --> 00:09:00.816
<v SPEAKER_3>We wouldn't have to use a shell of an animal for this object.

00:09:00.816 --> 00:09:02.736

<v SPEAKER_3>So, yeah.

00:09:02.736 --> 00:09:08.336
<v SPEAKER_2>But I think we should get into the real problem in Africa with their current energy.

00:09:08.336 --> 00:09:11.596
<v SPEAKER_2>And so, starting off with a big challenge here.

00:09:11.716 --> 00:09:20.096
<v SPEAKER_2>So, your report points out some of the major energy access problems and their consequences for economic growth and public health in Africa.

00:09:20.096 --> 00:09:25.556
<v SPEAKER_2>And this is particularly related to the widespread use of, like, quote unquote, traditional biomass.

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<v SPEAKER_2>But, you know, we can get into what really that means.

00:09:28.536 --> 00:09:32.476
<v SPEAKER_2>But what is the issue, Brenda, with traditional biomass?

00:09:32.476 --> 00:09:40.976
<v SPEAKER_2>And can you provide some context on how developed countries, you know, historically transition themselves off of this biomass?

00:09:43.316 --> 00:09:46.756
<v SPEAKER_3>So, you know, humans need energy no matter what.

00:09:46.756 --> 00:09:54.296
<v SPEAKER_3>You know, where they're going to live, they have to cook food, purify water, scare off animals, you know, for defense.

00:09:54.296 --> 00:09:56.776
<v SPEAKER_3>Some places, they need heat.

00:09:56.776 --> 00:09:57.916
<v SPEAKER_3>So they're going to use energy.

00:09:58.376 --> 00:10:10.496
<v SPEAKER_3>If you don't have access to modern energy, they're going to burn, you know, biomass is kind of a euphemism for mostly animal dung, you know, wood, charcoal, lump, coal.

00:10:10.496 --> 00:10:14.636
<v SPEAKER_3>And basically, this creates tremendous indoor pollution.

00:10:14.636 --> 00:10:16.016
<v SPEAKER_3>So people are living in there.

00:10:16.016 --> 00:10:20.256
<v SPEAKER_3>So the most vulnerable people are women and children that spend more hours at home.

00:10:20.256 --> 00:10:29.276
<v SPEAKER_3>And they're being exposed on a daily basis to really intense smoke, which affects, you know, their lungs, respiratory diseases, eyesight.

00:10:31.336 --> 00:10:39.476
<v SPEAKER_3>And if you take away access to modern energy or don't enable access to modern energy, it's not like they're just, you know, the sort of this vision.

00:10:39.476 --> 00:10:43.536
<v SPEAKER_3>And I don't know what the Canadian version of vision equivalent is.

00:10:43.536 --> 00:10:55.716
<v SPEAKER_3>But the American New Green Deal, the European Green Deal, that somehow, but before industrialization, humans just lived in this beautiful harmony with the animals and the plants.

00:10:55.716 --> 00:10:59.596
<v SPEAKER_3>And there's sort of this assumption that they were just like kind of vegetarians and everything was clean.

00:10:59.596 --> 00:11:00.236
<v SPEAKER_3>Right.

00:11:00.236 --> 00:11:01.336
<v SPEAKER_3>But it's the exact opposite.

00:11:01.336 --> 00:11:20.116
<v SPEAKER_3>Again, if you've ever visited a place where there's no regular electricity access, the first thing you notice is that the smoke, the bad smell, the, you know, just that there's nothing clean about it.

00:11:20.116 --> 00:11:21.176
<v SPEAKER_3>It's actually the opposite.

00:11:21.176 --> 00:11:33.036
<v SPEAKER_3>If you have electricity that can, you know, replace this smoke, but, you know, in homes, yes, you have some outdoor pollution, but you don't have indoor pollution.

00:11:33.036 --> 00:11:35.596
<v SPEAKER_3>And this indoor pollution has, you know, tremendous health effects.

00:11:35.596 --> 00:11:48.596
<v SPEAKER_3>I don't, out of respect for the people I've met, I don't even want to, you know, describe some of the things I've seen, but, you know, you really see like women going blind in their late 30s, 40s from this, you know, constant exposure to smoke.

00:11:48.596 --> 00:11:51.776
<v SPEAKER_3>And it's very, it's, you know, it's very difficult.

00:11:53.336 --> 00:11:59.856
<v SPEAKER_3>So, basically if people don't have access to, you know, the idea that, you think of these terms, clean energy, right?

00:11:59.856 --> 00:12:06.896
<v SPEAKER_3>So the assumption is that renewal, low-carbon energy is clean and other energy is dirty, right?

00:12:06.896 --> 00:12:08.856
<v SPEAKER_3>The fossil fuels are dirty, right?

00:12:08.856 --> 00:12:10.136
<v SPEAKER_3>But it's exactly the opposite.

00:12:10.136 --> 00:12:13.516
<v SPEAKER_3>If you want to have water purification, you need fossil fuels.

00:12:13.516 --> 00:12:16.976
<v SPEAKER_3>If you want to have waste management, you need fossil fuels.

00:12:16.976 --> 00:12:32.596
<v SPEAKER_3>I mean, the whole idea of, you know, these plastics going into the sea and trapping, you know, poor seals and dolphins, that's not happening in places like Canada that has modern sanitation and modern waste treatment.

00:12:32.596 --> 00:12:42.236
<v SPEAKER_3>Waste management is happening in poor places that don't have sufficient energy, and so they're just dumping into the sea, dumping into rivers, and that's ending up, you know, affecting the animals.

00:12:42.596 --> 00:12:46.376
<v SPEAKER_3>And so basically, like people who...

00:12:47.696 --> 00:12:56.316
<v SPEAKER_3>Actually, the clean energy is, you know, especially natural gas nuclear, which has, you know, very little environmental impact.

00:12:56.316 --> 00:13:04.856
<v SPEAKER_3>And, you know, the dirty energy is actually what, you know, the closest thing to it is when we just leave nature as it is.

00:13:04.856 --> 00:13:05.076
<v SPEAKER_2>Yeah.

00:13:05.076 --> 00:13:13.136
<v SPEAKER_2>Well, humans, if we're going to have any sort of civilization at all, of course, we could all go back to being hunter-gatherers, but the world's not going to support us for very long.

00:13:13.136 --> 00:13:24.796
<v SPEAKER_2>But, yeah, we need this energy, and it's been a huge boon to have these sort of fuels that allow us to tap into that energy.

00:13:24.996 --> 00:13:27.596
<v SPEAKER_3>You're pointing about going back to hunter-gatherers.

00:13:27.596 --> 00:13:52.436
<v SPEAKER_3>I think that a lot of the so-called climate movement is actually an anti-development industrialization movement, and the way you know this is their approach to nuclear energy, because if they really were so concerned about carbon emissions, what would be wrong with a source of energy that has no carbon emissions, very small land footprint?

00:13:52.436 --> 00:13:54.656
<v SPEAKER_3>You would think, okay, this would be the solution, right?

00:13:54.656 --> 00:13:56.176
<v SPEAKER_3>But they're also anti-nuclear.

00:13:56.976 --> 00:14:08.536
<v SPEAKER_3>So they're basically in favor of very low energy use, and what comes with that in terms of the industrialization, in terms of modern life?

00:14:08.976 --> 00:14:16.656
<v SPEAKER_2>Yeah, and I think that that's a big challenge when people who are technically anti-human development are in charge of development organization.

00:14:16.656 --> 00:14:19.436
<v SPEAKER_2>So we can talk about that a little bit here.

00:14:19.436 --> 00:14:25.976
<v SPEAKER_2>So yeah, so the West does often think about foreign assistance in Africa from the point of view of health and humanitarian aid.

00:14:25.976 --> 00:14:33.376
<v SPEAKER_2>So very much like the most basic parts of Maslow's hierarchy of needs, I suppose.

00:14:33.536 --> 00:14:44.376
<v SPEAKER_2>But I think your report underlines the enormous infrastructure needs of the continent for them to be providing for their own health and humanitarian resources for their own populations.

00:14:45.416 --> 00:14:46.616
<v SPEAKER_2>I was really surprised.

00:14:46.616 --> 00:14:47.796
<v SPEAKER_2>You mentioned this earlier.

00:14:47.796 --> 00:14:54.996
<v SPEAKER_2>There's a chart report that showed that the number of people in Africa without electricity access has actually grown since 2010.

00:14:54.996 --> 00:14:56.516
<v SPEAKER_2>Now, this is not development.

00:14:56.516 --> 00:14:57.696
<v SPEAKER_2>This is the opposite of development.

00:14:57.696 --> 00:15:08.416
<v SPEAKER_2>This is regression, I think, when you don't have this infrastructure being built to give people these higher standards of living that we just take for granted over here in the West.

00:15:08.416 --> 00:15:22.176
<v SPEAKER_2>So even though that there's these major challenges with electricity access and with infrastructure, the World Bank does not list limited energy access as a constraint on Africa's economic growth, which makes very little sense to me.

00:15:22.176 --> 00:15:28.136
<v SPEAKER_2>Like energy access is, to me, is key to any sort of development process.

00:15:28.136 --> 00:15:45.036
<v SPEAKER_2>So do you think that in light of Africa's real energy infrastructure challenges, should the priorities of Western assistance

organizations, development organizations be reframed with these infrastructure challenges in mind?

00:15:45.036 --> 00:15:48.236
<v SPEAKER_3>Yeah, so great question, introduction.

00:15:51.076 --> 00:15:52.596
<v SPEAKER_3>I mean, there's so many parts here.

00:15:52.956 --> 00:15:57.676
<v SPEAKER_3>So, I mean, first thing, leave it alone.

00:15:57.676 --> 00:16:00.556
<v SPEAKER_3>Not only what you should be doing, but you should be doing more.

00:16:00.556 --> 00:16:09.556
<v SPEAKER_3>But between 2010 and 2020, 40% of global gas discoveries volumes were in Africa.

00:16:09.556 --> 00:16:20.496
<v SPEAKER_3>Most of these were not developed, didn't get investment to go into production, and those that did are going to export and not to domestic markets in sub-Saharan Africa.

00:16:22.436 --> 00:16:25.396
<v SPEAKER_3>So why has this happened?

00:16:25.396 --> 00:16:29.496
<v SPEAKER_3>A lot of this has happened because of the policies of the West.

00:16:29.496 --> 00:16:42.236
<v SPEAKER_3>One, to actively encourage Wall Street or I think in candidates, is a base street, not to invest in fossil fuel projects.

00:16:42.836 --> 00:16:58.036
<v SPEAKER_3>And all the international multilateral organizations have, the G7 have decided not to allow or not to encourage investments in fossil fuel projects.

00:16:58.096 --> 00:17:00.776
<v SPEAKER_3>So who does this affect?

00:17:00.776 --> 00:17:08.896
<v SPEAKER_3>It doesn't affect people in Canada and the United States because they don't need loan guarantees, they don't need funding, they don't need public finance.

00:17:08.896 --> 00:17:17.356

<v SPEAKER_3>If someone wants to build a power plant, you might have a problem with the permit, but if there's a demand for the energy, the private market is going to pay for this.

00:17:17.356 --> 00:17:19.516
<v SPEAKER_2>It only hurts the world.

00:17:19.516 --> 00:17:21.336
<v SPEAKER_3>Yeah, it only hurts the world's poorest.

00:17:21.376 --> 00:17:32.676
<v SPEAKER_3>Like let's say, and it's sort of a chicken and the egg too, like going into Africa, because you have unreliable electricity, if you're an investor, you have to think of adding the cost to your project of actually of the electricity, right?

00:17:32.676 --> 00:17:37.336
<v SPEAKER_3>You need to, that has to be part of your, to build something too.

00:17:37.336 --> 00:17:40.656
<v SPEAKER_3>So they're already like an advantage for investments.

00:17:40.656 --> 00:17:56.656
<v SPEAKER_3>And then when most of the, it's kind of funny when President Trump decided to close down US aid and put it, it actually didn't stop US foreign aid, but he put it under the, you know, the state department.

00:17:56.656 --> 00:18:00.656
<v SPEAKER_3>But yes, clearly there is a desire to reduce, you know, US aid.

00:18:00.656 --> 00:18:06.016
<v SPEAKER_3>And I heard a lot of people screaming, what about, you know, influence, ceding it to China, soft power, right?

00:18:06.016 --> 00:18:18.616
<v SPEAKER_3>But when the G7 in 2021 decided to stop all loans for fossil fuels, again, public finance, no one was shouting, wait, are we going to cede this whole sector to China?

00:18:18.616 --> 00:18:24.276
<v SPEAKER_3>Which is very important because, you know, energy infrastructure is like the lifeblood of these, you know, these countries, right?

00:18:24.276 --> 00:18:34.456
<v SPEAKER_3>And so we easily ceded geopolitical influence to China in the name of the walking around the cocktail party and saying no to

fossil fuels, right?

00:18:34.896 --> 00:18:41.596
<v SPEAKER_3>But with aid, suddenly, you know, suddenly there was some, you know, commotion about it.

00:18:41.596 --> 00:18:44.196
<v SPEAKER_3>So I think, you know, more on a partisan level.

00:18:44.236 --> 00:18:49.596
<v SPEAKER_3>And I think also projects that, I mean, the policies of dependence versus independence.

00:18:49.596 --> 00:19:05.636
<v SPEAKER_3>If African countries can have stable electricity, they can produce cheaper fertilizer and therefore their agriculture can grow and then maybe don't need, you know, food shipped from high income countries, you know, to their countries.

00:19:05.636 --> 00:19:10.156
<v SPEAKER_3>If they have electricity, they can start, you know, increase their own manufacturing.

00:19:10.156 --> 00:19:11.816
<v SPEAKER_3>But what is the West telling them to do?

00:19:11.816 --> 00:19:12.836
<v SPEAKER_3>I mean, it's wild.

00:19:12.976 --> 00:19:21.676
<v SPEAKER_3>If you read, and these are like from the World Bank, the International Energy Agency, the UN, not from like sort of peripheral, you know, sort of NGOs or something like that.

00:19:21.676 --> 00:19:26.776
<v SPEAKER_3>They're telling them, don't produce energy and get carbon credits for that.

00:19:26.776 --> 00:19:34.276
<v SPEAKER_3>You know, so like sit on your, sit on your, well, whatever you sit on, sit down, don't work and get some hand out from the West.

00:19:34.276 --> 00:19:37.536
<v SPEAKER_3>And of course, that money won't go to wide parts of the population.

00:19:37.536 --> 00:19:44.376
<v SPEAKER_3>A few people that will tap into the carbon credit scheme will make, make some money off of, off of air, right?

00:19:44.376 --> 00:19:51.816
<v SPEAKER_3>And second, they're telling them, and this is like explicitly in World Bank, International Energy Reports, there's no future to fossil fuels, which is a lie, right?

00:19:51.816 --> 00:19:54.616
<v SPEAKER_3>But there's no future to fossil fuels.

00:19:54.616 --> 00:19:58.356
<v SPEAKER_3>What you need to do is mine, mine for the energy transition.

00:19:58.356 --> 00:20:01.876
<v SPEAKER_3>So think about that, what that does in terms of dependency.

00:20:01.916 --> 00:20:28.916
<v SPEAKER_3>Their mining will mean, again, if you guys will get rich in Africa, or richer in Africa, and the markets abroad will get these materials, and so there's really no growth factor there and, you know, for Africans, that, you know, are just dependent on the markets versus developing their own, especially their natural gas, having electricity and being able to develop their own, you know, their own economies.

00:20:29.176 --> 00:20:35.316
<v SPEAKER_3>So, this is, you know, this is such, I don't know, I guess, electricity colonialism.

00:20:35.556 --> 00:20:45.396
<v SPEAKER_3>And again, like by the people, or if you take the last International Energy Agency Report on Africa, I believe it was released in June 2025.

00:20:45.396 --> 00:21:01.836
<v SPEAKER_3>So, they admit there that having no fossil fuel replacement for indoor smoke, for biomass means more pollution, more health threats, and more even carbon emissions.

00:21:01.836 --> 00:21:10.196
<v SPEAKER_3>But still, they won't advocate, okay, let's get, you know, LPG, liquefied petroleum gas into homes in Africa.

00:21:10.196 --> 00:21:16.716
<v SPEAKER_3>Let's figure out, let's get their electricity, because it has that dirty word, fossil fuels in it.

00:21:16.716 --> 00:21:32.056
<v SPEAKER_3>So, it's become like a religion, even though fossil fuels with lower emissions, lower pollution, help people, still our, what do

you, we could call it, you know, development community isn't willing to advocate for it, because fossil fuels have become a dirty word.

00:21:32.596 --> 00:21:32.956
<v SPEAKER_2>Yeah.

00:21:33.076 --> 00:21:53.136
<v SPEAKER_2>And to be clear, this isn't the development of energy export infrastructure, because Africa already has tons of that, but it's more about the development of the natural gas grids and the electricity grids and all of the distribution infrastructure you need in order to provide this energy for Africans by Africans, right?

00:21:53.136 --> 00:21:58.096
<v SPEAKER_2>So, like, this is the real infrastructure that is a base bone of society.

00:21:58.096 --> 00:21:58.576
<v SPEAKER_3>Right.

00:21:58.576 --> 00:22:16.216
<v SPEAKER_3>And what happens is, like, with a lot of, you know, a lot of places where they have gas resources that could serve the domestic market, but end up either being idle or going only for export is because it's sort of a chicken and the egg thing.

00:22:16.216 --> 00:22:24.276
<v SPEAKER_3>If you don't have those, if you don't have that infrastructure, you don't have the grid, you don't have the pain in customers, you don't have a local market that's attractive.

00:22:24.456 --> 00:22:31.996
<v SPEAKER_3>But actually, usually, you know, sort of in the gas industry, you start, you have a gas discovery, your first place to look for is the domestic market.

00:22:31.996 --> 00:22:35.396
<v SPEAKER_3>That's the cheapest and simplest, you know, less complex way.

00:22:35.396 --> 00:22:39.776
<v SPEAKER_3>You're not looking for, and then you're going to go to pipeline, and then you'll go to LNG.

00:22:39.776 --> 00:22:45.416
<v SPEAKER_3>So like going to expensive LNG means for the, for the investing companies that you really don't have a local option.

00:22:45.416 --> 00:22:48.296
<v SPEAKER_3>You prefer, you know, a local market.

00:22:48.296 --> 00:23:01.336
<v SPEAKER_3>But the development policies actually are counterproductive to grid development because what's the big, you know, kind of sexy thing in electricity access in Africa is off-grid solar, right?

00:23:01.336 --> 00:23:03.316
<v SPEAKER_3>Off-grid means no grid, right?

00:23:03.316 --> 00:23:10.076
<v SPEAKER_3>So your, your, your, your, where you're getting energy access, it doesn't support the grid.

00:23:10.076 --> 00:23:15.496
<v SPEAKER_3>So it kind of means in the end, these gas resources will not, there's no domestic market to demand them.

00:23:15.496 --> 00:23:18.816
<v SPEAKER_3>And then also you're providing very partial electricity.

00:23:18.816 --> 00:23:30.736
<v SPEAKER_3>So it's saying like, okay, a guy in Canada, when he gets electricity hookup, it actually supports, you know, heating, cooking, power tools, water pumps.

00:23:30.736 --> 00:23:37.676
<v SPEAKER_3>But the guy in Africa gets something that's good for a lantern, charging a phone, but can't really pull him out of poverty.

00:23:37.856 --> 00:23:47.816
<v SPEAKER_2>And, you know, off-grid, these sort of like microgrids, off-grid microgrids, these are not in any way sufficient to support industrialization.

00:23:47.816 --> 00:23:50.716
<v SPEAKER_2>You know, like this is not a development pathway.

00:23:51.316 --> 00:23:54.396
<v SPEAKER_2>This is a bandaid solution really for a place in Africa.

00:23:55.316 --> 00:24:06.796
<v SPEAKER_3>But it's like, but it's pretty admired because, you know, because it's not fossil fuels, it's like admired by the, you know, I mean, a fourth of all new electricity access in Sub-Saharan Africa is off-grid solar.

00:24:06.796 --> 00:24:11.576
<v SPEAKER_3>So it means like, you know, never making it to the, to real energy.

00:24:11.576 --> 00:24:23.736
<v SPEAKER_3>And then also, you know, if you look at like even that development organizations, the, you know, Save the Children, this, they're all at like your point before that there's really no development without energy access.

00:24:23.736 --> 00:24:33.056
<v SPEAKER_3>That all these NGOs even are advocating for, you know, off-grid solar and not fossil, you know, real electricity.

00:24:34.636 --> 00:24:46.956
<v SPEAKER_3>I don't know if it's out of lack of knowledge or just because again, like there's so much into the anti-fossil fuel cult that they just can't think of, you know, recommending it.

00:24:47.516 --> 00:24:48.816
<v SPEAKER_3>How do you have medical access?

00:24:48.816 --> 00:24:52.696
<v SPEAKER_3>How do you get vaccines if you don't have reliable refrigeration?

00:24:52.696 --> 00:24:57.456
<v SPEAKER_3>You know, something so basic like that, which off-grid solar can't provide for you.

00:24:57.956 --> 00:25:04.916
<v SPEAKER_2>Yeah, like, you know, the various, you know, CAT scans and stuff like that, those take a lot of power to run.

00:25:04.956 --> 00:25:17.636
<v SPEAKER_2>So, and your report, of course, you talked about this a little bit earlier, but you kind of single out the attitudes of the World Bank, especially as one of the major problems for African energy infrastructure development.

00:25:17.636 --> 00:25:23.296
<v SPEAKER_2>So, the World Bank, of course, is the largest single multilateral financier of infrastructure in Africa.

00:25:23.296 --> 00:25:29.076
<v SPEAKER_2>And I think that's around $15 to $20 billion in investments annually, US dollars for investments.

00:25:29.076 --> 00:25:42.136
<v SPEAKER_2>Therefore, you know, the attitudes and policies within the World Bank and the way that they're influenced by things like the G7 and the International Energy Agency and various other kind of NGOs also that interact with them.

00:25:42.216 --> 00:25:46.536
<v SPEAKER_2>This has direct impacts on the direction of infrastructure in Africa.

00:25:46.536 --> 00:26:07.336
<v SPEAKER_2>So, Brenda, just to get like a little bit of context, what really caused the World Bank, because I think traditionally they would have been providing a lot of financing for traditional fossil fuel infrastructure, but what caused them, like, what year did this start that they started to turn away from this and into more of the microgrids and other sorts of infrastructure?

00:26:07.336 --> 00:26:11.216
<v SPEAKER_3>Yeah, that's a really interesting question, like the historical aspect of it.

00:26:11.216 --> 00:26:17.776
<v SPEAKER_3>I think if there's any listeners out there looking for a master's thesis, PhD thesis topic, it's a good one.

00:26:20.896 --> 00:26:27.756
<v SPEAKER_3>Well, I think, let's start with before even how they changed, what type of energy they advocate for.

00:26:27.756 --> 00:26:43.536
<v SPEAKER_3>You could say that there's been like a general mission creep, that if their task was eradicating poverty, they become a full-fledged climate change organization.

00:26:44.996 --> 00:26:54.356
<v SPEAKER_3>They commit that by the end of 2025, 45 percent of their current funding will go to climate finance, whatever that means.

00:26:56.096 --> 00:27:13.616
<v SPEAKER_3>Even under the first Trump administration, the World Bank started in 2019, their decision to phase out almost all loans and funding for natural gas and for oil.

00:27:13.616 --> 00:27:25.436
<v SPEAKER_3>Even though Trump administration has been around 10 months, we still haven't got explicit guidance from the Secretary of Treasury, Besson, to change these policies.

00:27:25.436 --> 00:27:29.896
<v SPEAKER_3>Even though in 2021, Secretary of the US.

00:27:29.896 --> 00:27:41.496
<v SPEAKER_3>Treasury, Yellen, gave explicit guidelines that the World Bank has to stop funding fossil fuels and the World Bank happily

complied.

00:27:42.076 --> 00:27:49.896
<v SPEAKER_3>I think in terms of the years 2013, the World Bank stopped funding for coal projects, anything related to coal.

00:27:49.896 --> 00:27:56.636
<v SPEAKER_3>2019 announced that it's going to stop funding for oil and natural gas.

00:27:56.636 --> 00:28:00.736
<v SPEAKER_3>And in 2021, this was essentially implemented.

00:28:00.736 --> 00:28:01.336
<v SPEAKER_3>It is interesting.

00:28:01.616 --> 00:28:04.496
<v SPEAKER_3>I'm writing a new book on energy and climate.

00:28:04.496 --> 00:28:08.656
<v SPEAKER_3>And it also fascinates me to how did the world shift?

00:28:08.656 --> 00:28:35.296
<v SPEAKER_3>Like, how did we go from a place where, let's say, even President Obama talked about energy all of the above, to a situation that President Biden is talking about, no fossil fuels, absolutely no fossil fuels, and to a point that on the eve of the six months before the election in the United States, he stops all new liquefied natural gas export permits from the United States.

00:28:35.296 --> 00:28:46.236
<v SPEAKER_3>Like, how did we go from Obama that was sort of pro the LNG exports to 10 years later to Biden cutting them?

00:28:46.236 --> 00:29:02.336
<v SPEAKER_3>And I think, I guess there was sort of a momentum from the Paris Agreement, even though in 2015, even though it's non-binding, it sort of set sort of the vision of reality.

00:29:02.336 --> 00:29:23.476
<v SPEAKER_3>And from that point, you start to see not just international institutions like the World Bank, International Energy Agency coming on board, but also the investors thinking that this truly like thinking that this was a trend and sort of this energy transition to renewable fuels was presented.

00:29:23.476 --> 00:29:33.076
<v SPEAKER_3>Like first thing, that energy transition was a capital T as if it's a fact, but it was presented in the world, I think mostly like a train and a train has left the station.

00:29:33.076 --> 00:29:37.276
<v SPEAKER_3>I mean, I heard that from so many people who argued with me, Brenda, the train has left the station.

00:29:38.296 --> 00:29:40.936
<v SPEAKER_3>You are on the wrong side of history here, right?

00:29:40.936 --> 00:29:42.456
<v SPEAKER_3>The train has left the station.

00:29:42.456 --> 00:29:45.356
<v SPEAKER_3>And the question is, well, when does Canada get on board?

00:29:45.356 --> 00:29:47.176
<v SPEAKER_3>When does Alberta get on board?

00:29:47.476 --> 00:29:49.676
<v SPEAKER_3>And by the way, you're based in Calgary.

00:29:49.676 --> 00:29:53.516
<v SPEAKER_3>I think part of the problem was also the energy industry.

00:29:53.576 --> 00:30:16.176
<v SPEAKER_3>Instead of being, you know, saying the truth out loud and saying no, like we're producing something that keeps people from freezing in Canada, that allows industry to operate successfully in Europe, is bringing growth where companies are moving from Mexico to the United States because of cheap energy.

00:30:16.176 --> 00:30:22.896
<v SPEAKER_3>You know, tried to play this game that, no, no, we can be, you know, we're not part of the problem.

00:30:23.216 --> 00:30:26.516
<v SPEAKER_3>We can be good and, you know, maybe we'll go into renewables.

00:30:26.656 --> 00:30:33.896
<v SPEAKER_3>And you saw, I mean, look at the companies that lowered their production of oil and gas and tried to move into renewables.

00:30:33.896 --> 00:30:36.556
<v SPEAKER_3>And, you know, their stock value crashed.

00:30:38.116 --> 00:30:41.936
<v SPEAKER_3>And it's not really what the market, what people want.

00:30:41.936 --> 00:30:46.976
<v SPEAKER_3>People want reliable, cheap energy.

00:30:46.976 --> 00:30:54.436
<v SPEAKER_3>Sure, with a low environmental impact, but what we've been doing, first thing, we substituted climate for environmental.

00:30:54.436 --> 00:31:05.836
<v SPEAKER_3>So, you know, things like I, one of the reasons I became kind of, I don't know, I don't want the word, you know, more critical of the climate policies is that I'm a real greenie.

00:31:05.836 --> 00:31:11.076
<v SPEAKER_3>I actually like open spaces and I don't want them covered with wind towers and solar.

00:31:11.076 --> 00:31:11.976
<v SPEAKER_3>I won't call them farms.

00:31:11.976 --> 00:31:19.876
<v SPEAKER_3>Solar, you know, solar, solar metal field, the land, you know, the land impact.

00:31:19.876 --> 00:31:29.036
<v SPEAKER_3>And also, you know, the fact that like environmental, so-called environmental movements turn mining into green, like something that so has a huge environmental impact.

00:31:29.036 --> 00:31:37.556
<v SPEAKER_3>But because it fed their green, their renewable energy projects, suddenly mining was viewed very positively.

00:31:37.556 --> 00:31:39.576
<v SPEAKER_3>If you're a miner, you're green energy.

00:31:39.576 --> 00:31:44.176
<v SPEAKER_3>If you're, if you mine liquids from the sea, like oil, you're a bad guy.

00:31:44.336 --> 00:31:51.096
<v SPEAKER_3>If you mine minerals, critical minerals from, you know, caves, whatever, you're a good guy.

00:31:51.096 --> 00:31:55.336
<v SPEAKER_3>Well, you know, that just doesn't make sense, you know, from an environmental perspective.

00:31:56.416 --> 00:31:56.636
<v SPEAKER_3>Yeah.

00:31:56.636 --> 00:32:07.976
<v SPEAKER_2>And there's, there's always this question of like, what

is the ideal mix of environmental protection and ensuring high standards of living?

00:32:07.976 --> 00:32:13.396
<v SPEAKER_2>And I think that that's something that we've been talking about as societies for a long time now.

00:32:13.976 --> 00:32:18.856
<v SPEAKER_2>And, yeah, I agree that there are still tradeoffs with renewables.

00:32:18.856 --> 00:32:25.556
<v SPEAKER_2>And there's tradeoffs on the environmental side of things, like let's take, you know, the rare earth elements production that we need now.

00:32:25.556 --> 00:32:30.876
<v SPEAKER_2>Like rare earth elements, mining and processing is very environmentally disruptive.

00:32:30.876 --> 00:32:33.656
<v SPEAKER_2>And China has taken on that pretty much that entire burden.

00:32:33.656 --> 00:32:36.476
<v SPEAKER_2>And they might regret it at some point.

00:32:36.476 --> 00:32:38.836
<v SPEAKER_2>But, yeah, that's a big question.

00:32:38.836 --> 00:32:53.036
<v SPEAKER_2>But one important takeaway from your report is, and this is, I think, a really central component of how we think about kind of this energy transition and how we think about how developing countries are being treated.

00:32:53.036 --> 00:32:56.676
<v SPEAKER_2>And this is the idea that there's no, quote unquote, energy leapfrogging.

00:32:56.676 --> 00:33:05.356
<v SPEAKER_2>So there's this really common idea, like right now, Africa, they never develop landlines, like telephone landlines.

00:33:05.356 --> 00:33:13.776
<v SPEAKER_2>They just switch right into cell phones because it's just, you can easily just put up cell phone towers and then have everybody buy a phone and they'll all be connected.

00:33:13.776 --> 00:33:16.196

<v SPEAKER_2>No need for all of that infrastructure.

00:33:16.196 --> 00:33:29.816
<v SPEAKER_2>And I think that there's this idea that this is a one-to-one, you know, similarity with energy infrastructure, that you can just have people do like a plug-and-play sort of solar panel and then suddenly they have electricity access.

00:33:29.816 --> 00:33:35.936
<v SPEAKER_2>But I think that you make a good point that that's not exactly how it works.

00:33:35.936 --> 00:33:39.016
<v SPEAKER_2>Energy isn't the same thing as being connected to a cell phone tower.

00:33:39.836 --> 00:34:01.756
<v SPEAKER_2>So this idea of energy leapfrogging though is that countries can just build their grid around renewable energy, especially kind of these microgrids, and then maybe eventually link these microgrids together into a larger grid or something like that, but very much like a different pathway than the way that any other country in the world has developed an energy system.

00:34:02.156 --> 00:34:10.476
<v SPEAKER_2>This is a very much like a isolated and little bits of energy here and there rather than a base energy system.

00:34:10.476 --> 00:34:13.156
<v SPEAKER_2>But you think that you're really skeptical of this idea.

00:34:13.156 --> 00:34:25.396
<v SPEAKER_2>But why in your view is it so difficult to build an energy system without this kind of like base underlying grid for electricity or natural gas or all of the other infrastructure that's required?

00:34:25.396 --> 00:34:28.056
<v SPEAKER_2>So I'll let you take it from there.

00:34:28.056 --> 00:34:28.476
<v SPEAKER_2>Right.

00:34:28.476 --> 00:34:51.356
<v SPEAKER_3>So I think your example of cell phone technology is an important example, because you hear this on a lot of as a counter argument to a lot of things related to energy infrastructure, like for instance, I've seen in places where I'm advised on gas market design and people say like, well, why can't we just do like we did with cell phones?

00:34:51.356 --> 00:35:00.216
<v SPEAKER_3>We just deregulate, let the companies compete and then they'll get gas prices down and this, just like we did with cell phones.

00:35:00.216 --> 00:35:00.376
<v SPEAKER_3>Right.

00:35:00.496 --> 00:35:19.796
<v SPEAKER_3>But because of the infrastructure needs, the first sort of real physical infrastructure needs that you have with electricity and natural gas provision, that you don't have the same kind of needs with cell phones.

00:35:19.796 --> 00:35:23.916
<v SPEAKER_3>Because of the necessity of redundancies and backup.

00:35:23.916 --> 00:35:29.896
<v SPEAKER_3>Like if your cell phones go down for an hour, that's really bad, that's disruptive.

00:35:30.516 --> 00:35:36.976
<v SPEAKER_3>But if your electricity goes off for an hour, those same CAT scans that you mentioned suddenly are going to get damaged.

00:35:36.976 --> 00:35:40.836
<v SPEAKER_3>Refrigeration is going to go, your people are going to get stuck in elevators.

00:35:42.836 --> 00:35:51.056
<v SPEAKER_3>The disruption of electricity has much higher cost prices than let's say cell phone coverage.

00:35:51.056 --> 00:35:52.096
<v SPEAKER_3>It's much more sensitive.

00:35:52.096 --> 00:35:59.456
<v SPEAKER_3>I think this is something that our publics don't appreciate and not when they just think about, well, let's just produce more renewables and throw it out of grid.

00:36:00.116 --> 00:36:05.036
<v SPEAKER_3>And even the idea that we'll want that make things more secure because we'll have a more diverse fuel mix.

00:36:05.036 --> 00:36:06.616
<v SPEAKER_3>So to a certain extent, that's true.

00:36:06.616 --> 00:36:13.756

<v SPEAKER_3>Yeah, having diversity is good and of sources of technologies of source physical locations.

00:36:13.776 --> 00:36:19.996
<v SPEAKER_3>But the grid itself really, you know, it really needs, it's kind of like a, you know, a little baby and it needs a lot of hugs.

00:36:19.996 --> 00:36:26.916
<v SPEAKER_3>It needs a lot of comfort, you know, and doesn't work well with changes.

00:36:28.236 --> 00:36:32.276
<v SPEAKER_3>So, yeah, I think that just, you know, sure.

00:36:32.276 --> 00:36:48.996
<v SPEAKER_3>It's, you know, it's probably good to have both types of thinking going on, which is that sure, there should be some people in sort of thought, you know, labs thinking, OK, what, how do we do power not through electricity and grids and this?

00:36:48.996 --> 00:36:49.576
<v SPEAKER_3>Great.

00:36:49.576 --> 00:36:51.216
<v SPEAKER_3>People should be thinking like the same way.

00:36:51.216 --> 00:36:57.996
<v SPEAKER_3>Like I think I don't want to compete with China in the rare earth or renewable space.

00:36:57.996 --> 00:37:06.136
<v SPEAKER_3>I want to think how we can develop energy sources that don't need those rare earths and critical minerals because China is going to win in that race.

00:37:06.136 --> 00:37:10.696
<v SPEAKER_3>I want to run a race where I have a competitive or the West has a competitive advantage.

00:37:10.696 --> 00:37:15.176
<v SPEAKER_3>But so I agree on one hand, there should be people that are thinking how to do it completely differently.

00:37:15.176 --> 00:37:19.856
<v SPEAKER_3>The question is, why should Africa pay the price for when we don't have an answer?

00:37:19.856 --> 00:37:22.296
<v SPEAKER_3>We don't have a leapfrog technology.

00:37:22.296 --> 00:37:36.576
<v SPEAKER_3>And I think probably places like Africa where there's weak states, weak institutions, high corruption, it's really not the place where this kind of new model is easily going to emerge.

00:37:36.576 --> 00:37:47.456
<v SPEAKER_3>I mean, I've even heard stories of when you have mini-grids, it means you have some sort of local rich guy, can turn the power on, turn the power off.

00:37:47.476 --> 00:37:50.056
<v SPEAKER_3>There's a lot, there's actually, you know, power is power.

00:37:50.056 --> 00:38:03.556
<v SPEAKER_3>And I think there's a lot of, you know, danger and sort of decentralization of the energy systems in terms of the, you know, people's freedom that's enabled by electricity access.

00:38:03.556 --> 00:38:06.796
<v SPEAKER_2>Yeah, I tend to agree for sure.

00:38:06.796 --> 00:38:11.016
<v SPEAKER_2>But I think I need to, you know, play a little bit of devil's advocate as well here.

00:38:11.836 --> 00:38:20.956
<v SPEAKER_2>So, you know, while the World Bank is a major source of investment in African infrastructure, I think you also brought up another huge source is Chinese investment.

00:38:20.956 --> 00:38:31.056
<v SPEAKER_2>So there's also the Belt and Road Initiative, but there's just general growing trade and investment links between China and various countries within Africa.

00:38:31.056 --> 00:38:37.856
<v SPEAKER_2>China also has immense overcapacity in the manufacturing of solar, wind and batteries.

00:38:39.296 --> 00:38:43.656
<v SPEAKER_2>China also leads the world in ultra-high voltage, long-distance electricity transmission.

00:38:43.656 --> 00:38:51.256
<v SPEAKER_2>So all these technologies, like you said, China has a huge leg up over pretty much the rest of the world in making all of these happen.

00:38:51.256 --> 00:38:59.816
<v SPEAKER_2>And China also has deep, deep knowledge about how to build very effective infrastructure fast and cheaply.

00:38:59.816 --> 00:39:05.736
<v SPEAKER_2>And so, you know, there's all these advantages for Africa partnering with China on all of these fronts.

00:39:06.876 --> 00:39:26.916
<v SPEAKER_2>And we should be frank that it's also beneficial that China doesn't really care about the domestic politics of these places, whereas Western countries get squeamish about dealing with countries that have weak governance and governance models that are very different from democratic governance models.

00:39:26.916 --> 00:39:29.916
<v SPEAKER_2>We can just leave it at that on that front.

00:39:29.916 --> 00:39:39.336
<v SPEAKER_2>But with China's huge overcapacity in the manufacturing of renewables, they've dropped the price down to bargain-basement levels, basically.

00:39:39.336 --> 00:39:43.016
<v SPEAKER_2>They're producing way more than they could possibly consume themselves.

00:39:44.396 --> 00:39:57.996
<v SPEAKER_2>And China, I think, would be interested in building out a China-dependent infrastructure base, energy infrastructure base, based upon Chinese manufactured renewables and batteries and all that.

00:39:58.356 --> 00:40:03.296
<v SPEAKER_2>I think that would be within China's interest to tie Africa to them.

00:40:04.056 --> 00:40:22.976
<v SPEAKER_2>And there's a big question about, well, now that the West isn't that interested in providing much real energy investment in Africa, could it be that these countries could build kind of an infrastructure base based upon these Chinese technologies within their own countries?

00:40:22.976 --> 00:40:26.476
<v SPEAKER_2>And I think that it's feasible.

00:40:26.476 --> 00:40:32.536
<v SPEAKER_2>It might be difficult for them to have these base grid requirements based upon this.

00:40:32.636 --> 00:40:36.736
<v SPEAKER_2>But I think with enough solar and batteries, it's possible.

00:40:36.736 --> 00:40:38.436
<v SPEAKER_2>And then that would tie them to China.

00:40:38.436 --> 00:40:45.656
<v SPEAKER_2>So do you think this would be possible for Africa to just get tied to China in this way?

00:40:45.656 --> 00:41:05.936
<v SPEAKER_3>So, yeah, I mean, definitely by the West and, you know, G7, World Bank, IEA, you know, advocating for, you know, no more funding for fossil fuels abroad, basically just hand it this lever, this important geopolitical lever over to China, because, you know, like you said, why would someone care?

00:41:05.936 --> 00:41:07.796
<v SPEAKER_3>Fine, World Bank doesn't want to finance it.

00:41:07.796 --> 00:41:08.796
<v SPEAKER_3>China will.

00:41:08.796 --> 00:41:09.616
<v SPEAKER_3>I'll accept it.

00:41:09.616 --> 00:41:13.116
<v SPEAKER_3>You know, welcome, you know, come in.

00:41:14.136 --> 00:41:26.196
<v SPEAKER_3>And so, you know, definitely the West's decision to stop fossil fuel funding doesn't lower fossil fuel consumption.

00:41:26.696 --> 00:41:31.336
<v SPEAKER_3>It just turns it over to, you know, Chinese development.

00:41:31.336 --> 00:41:34.336
<v SPEAKER_3>By the way, like most of the cutting of emissions, right?

00:41:34.336 --> 00:41:36.716
<v SPEAKER_3>You're exporting your emissions to China.

00:41:36.716 --> 00:41:46.236
<v SPEAKER_3>Then the same hardware of solar and wind that China is producing for export to the West is being produced by electricity mostly on coal, right?

00:41:46.236 --> 00:41:48.916
<v SPEAKER_3>So it's, and that's why it can be produced.

00:41:48.916 --> 00:42:02.656
<v SPEAKER_3>One of the additional reasons that China can produce, manufacture cheaper, you know, and quicker than in the West when we're using more expensive electricity in most places in the West, certainly in Europe.

00:42:02.656 --> 00:42:15.996
<v SPEAKER_3>I think that the issue of the price, though, that you mentioned, unfortunately, so many of the reports and media versions of the price of electricity focus on the production of electricity, right?

00:42:15.996 --> 00:42:30.536
<v SPEAKER_3>So if you take, like, that's why people are interested in the price of a solar panel or the price of a wind tower, or, you know, something, because I look at it like you can produce this many units of electricity versus from natural gas or from coal or from nuclear.

00:42:30.536 --> 00:42:41.256
<v SPEAKER_3>But as you know, the goal or sort of the task in energy is not producing electricity, but it's delivering it to homes and to businesses.

00:42:41.256 --> 00:42:51.636
<v SPEAKER_3>And that's much more complex and has a lot of costs that when you just compare the input of, you know, solar and wind versus natural gas and nuclear, you don't see that, right?

00:42:51.636 --> 00:43:08.896
<v SPEAKER_3>So the total cost of, you know, delivering that electron of solar by the time it reaches a home is a lot more because we've kept that base load, you know, you're saying by battery, you know, battery back up, I'm saying base load of, you know, natural gas or nuclear, right?

00:43:08.896 --> 00:43:12.096
<v SPEAKER_3>So by the time you add in all those costs, no, it isn't cheaper, right?

00:43:12.556 --> 00:43:17.936
<v SPEAKER_3>And today, you know, solar plus batteries is not an option.

00:43:17.976 --> 00:43:24.056
<v SPEAKER_3>You know, it's not an option, certainly it's not an option for very poor places like sub-Saharan Africa.

00:43:24.056 --> 00:43:35.016
<v SPEAKER_3>So you can't, isn't it again, like sort of one of the,

you know, crimes of the World Bank is that what they're offering to people in sub-Saharan Africa is the most expensive forms of energy.

00:43:35.016 --> 00:43:39.536
<v SPEAKER_3>You know, this combination of again, yeah, like batteries and solar, right?

00:43:39.536 --> 00:43:46.316
<v SPEAKER_3>So how do you extend energy access to people that when you're offering the most expensive option?

00:43:47.316 --> 00:44:02.856
<v SPEAKER_3>So I think the price issue, I don't, I think when you look at the whole leverage cost, I don't think anyone's saying that solar, well, some are saying, but are accurately saying that solar is cheaper than, you know, straight natural gas or straight coal.

00:44:02.896 --> 00:44:08.856
<v SPEAKER_2>Yeah, yeah, I think there's, there are very many challenges with, with building your grid entirely around renewables.

00:44:08.856 --> 00:44:16.336
<v SPEAKER_2>And we're seeing that increasingly, like you said, in Spain with the question of frequency and voltage disruptions.

00:44:17.676 --> 00:44:24.876
<v SPEAKER_2>But I could also for sure see a situation where, let's say that a natural gas grid is developed in Africa.

00:44:24.876 --> 00:44:34.976
<v SPEAKER_2>And, and China is at the forefront of developing this, but this is paired with the solar development, because Africa is one of the best places in the world.

00:44:34.976 --> 00:44:38.536
<v SPEAKER_2>Parts of Africa is some of the best places in the world for solar radiation.

00:44:38.536 --> 00:44:48.916
<v SPEAKER_2>So that I could definitely see, you know, China taking, you know, a forefront role in developing this infrastructure in Africa.

00:44:48.916 --> 00:44:53.036
<v SPEAKER_2>And I don't think we should underestimate how much influence that would give China over these countries.

00:44:54.396 --> 00:44:54.516
<v SPEAKER_2>Right.

00:44:54.516 --> 00:44:56.996
<v SPEAKER_3>I mean, Africa is the fastest growing continent.

00:44:57.156 --> 00:45:05.936
<v SPEAKER_3>If current demographic trends continue in 2050, you know, fourth of all people will be located in Africa.

00:45:05.936 --> 00:45:14.156
<v SPEAKER_3>And yeah, and of course, energy infrastructure, energy systems are, you know, a big leverage of geopolitical power.

00:45:14.156 --> 00:45:19.896
<v SPEAKER_3>So it's good for the West to think about the geopolitical aspect as well of its policies.

00:45:21.616 --> 00:45:23.476
<v SPEAKER_2>Now, I have one last big question.

00:45:23.716 --> 00:45:28.856
<v SPEAKER_2>This, I think, I hope wraps it all kind of together here before we wrap up here.

00:45:28.856 --> 00:45:34.096
<v SPEAKER_2>So the real discussion here seems to be kind of development pathways for African industrialization.

00:45:34.096 --> 00:45:43.936
<v SPEAKER_2>And, you know, there's all this talk about development, but I think, you know, getting Africa industrialized into that sort of next stage here is really important.

00:45:43.936 --> 00:45:50.576
<v SPEAKER_2>And traditionally countries develop by moving citizens from low-productivity, small-scale agriculture.

00:45:50.576 --> 00:45:52.636
<v SPEAKER_2>And much of Africa's economy is like that.

00:45:52.636 --> 00:46:02.836
<v SPEAKER_2>Right now, it's, you know, there's a term for this kind of industrialization before, or urbanization before industrialization, which I think is a big problem.

00:46:03.796 --> 00:46:08.276
<v SPEAKER_2>And so they have these small-scale services, low-productivity services too.

00:46:08.276 --> 00:46:12.536
<v SPEAKER_2>But they kind of need to move into this high-productivity manufacturing.

00:46:12.536 --> 00:46:18.756
<v SPEAKER_2>And high-productivity manufacturing requires huge amounts of reliable baseload energy, in my view.

00:46:18.756 --> 00:46:27.376
<v SPEAKER_2>So the UK, Germany, the United States, Canada, China, all developed in this way by getting their high-productivity manufacturing going.

00:46:27.376 --> 00:46:30.996
<v SPEAKER_2>And then eventually they can move into high-productivity services.

00:46:32.116 --> 00:46:58.816
<v SPEAKER_2>What seems to be happening here, though, is that Western advocates are worried that traditional African development, like developing Africa in the traditional way with fossil-fuel-backed, stable, large-scale grids to enable this industrialization, would result in infrastructure lock-in for fossil fuels, and especially things like natural gas, and therefore a much higher GHG emissions projection well into the future.

00:46:58.816 --> 00:47:07.616
<v SPEAKER_2>So because Africa is such a huge continent with such a large growing population, if it does industrialize in this way, there's worry about those emissions.

00:47:07.616 --> 00:47:10.216
<v SPEAKER_2>And I think that's really holding people back.

00:47:11.076 --> 00:47:15.796
<v SPEAKER_2>So, Brenda, do you think this is an accurate read of the current situation?

00:47:15.796 --> 00:47:28.796
<v SPEAKER_2>And if so, how should we start putting poverty reduction in Africa back on the front burner rather than versus the balancing of this kind of environmental focus?

00:47:28.916 --> 00:47:29.676
<v SPEAKER_3>Right.

00:47:29.676 --> 00:47:42.676
<v SPEAKER_3>So, I think this whole idea of not locking into fossil fuels, you know, you had this for about the first 10 to 15 years of the 21st century in Europe, right?

00:47:42.676 --> 00:47:54.996
<v SPEAKER_3>So, they were, you know, Europe is the largest gas

importing region and it's a high-paying region, so it's very attractive to exporters.

00:47:54.996 --> 00:48:11.016
<v SPEAKER_3>And Europe actually, while it doesn't have a lot of domestic gas, it sits next to the biggest reservoirs in the world of natural gas, whether it's Russia, Azerbaijan, Turkmenistan, and the Caspian, Middle East, North Africa, Eastern Mediterranean, right?

00:48:11.016 --> 00:48:12.836
<v SPEAKER_3>Tons of gas all around it.

00:48:12.836 --> 00:48:18.676
<v SPEAKER_3>How is it that Europe harnessed very little of this new gas?

00:48:18.696 --> 00:48:30.476
<v SPEAKER_3>Like one of the only successful projects was the Southern Gas Corridor from Azerbaijan into Europe, but still Europe didn't succeed in harnessing even more gas.

00:48:31.636 --> 00:48:39.356
<v SPEAKER_3>They supported the building of this infrastructure, but still haven't yet had a second stage of Azerbaijan gas or Turkmen gas, right?

00:48:39.356 --> 00:48:41.076
<v SPEAKER_3>So why hasn't this happened?

00:48:41.076 --> 00:48:44.856
<v SPEAKER_3>It's because for this ideology that Europe said, well, why lock ourselves into gas?

00:48:44.856 --> 00:48:58.396
<v SPEAKER_3>So what did they do instead is they have gas shortages, have the highest gas prices in the world, and you have industry crumbling, deindustrialization, exporting there.

00:48:58.396 --> 00:49:14.116
<v SPEAKER_3>So instead of using natural gas at home, they're instead exporting their factories to the East, which is using coal instead, so that there's nothing for the climate, but it just creates deindustrialization.

00:49:16.376 --> 00:49:36.376
<v SPEAKER_3>The idea that Africa should suffer by not locking itself into gas, if we look at the European example, which all it did is lead to deindustrialization, higher coal and higher coal usage, well, maybe it's better to lock yourself into gas.

00:49:36.376 --> 00:49:38.516
<v SPEAKER_3>And then you can ask a second question.

00:49:38.516 --> 00:49:42.996
<v SPEAKER_3>How did we ever get to this real demonization of natural gas?

00:49:44.556 --> 00:49:54.636
<v SPEAKER_3>I mean, this is also like, again, with like the Embers new clothes, and another one of these like crazy ideas that people are saying, you know, most of like, again, I'm not talking about just peripheral NGOs.

00:49:54.636 --> 00:50:00.436
<v SPEAKER_3>I'm talking about, you know, the World Bank International Energy Agency, you know, the G7, right?

00:50:00.436 --> 00:50:02.476
<v SPEAKER_3>We should have no fossil fuels.

00:50:02.476 --> 00:50:05.016
<v SPEAKER_3>So it's 87% of global energy.

00:50:05.216 --> 00:50:06.056
<v SPEAKER_3>So what are you going to do?

00:50:06.416 --> 00:50:09.476
<v SPEAKER_3>And most of the climate movement is against nuclear.

00:50:09.476 --> 00:50:16.256
<v SPEAKER_3>So you have no, you know, fully renewable option, but that's what you're working for.

00:50:16.916 --> 00:50:20.136
<v SPEAKER_3>Like, you know this doesn't work, but that's your policy, right?

00:50:20.136 --> 00:50:22.876
<v SPEAKER_3>Like, it doesn't make much sense, right?

00:50:22.876 --> 00:50:28.956
<v SPEAKER_3>But I've also been looking at this current book that I'm writing about, how did suddenly gas go from the darling to the devil?

00:50:28.956 --> 00:50:46.276
<v SPEAKER_3>Because I'm sure with your energy background, you know that for years what we've been advocating in the, you know, development and energy policies is switching from coal to natural gas, lowers air pollution significantly, lowers greenhouse gases significantly.

00:50:47.596 --> 00:50:53.456
<v SPEAKER_3>We were finding a lot more gas all over the world, especially in the United States, so gas prices were going down.

00:50:54.196 --> 00:51:05.736
<v SPEAKER_3>The United States with no policy was able to have dramatic reductions in its greenhouse gases just from switching from coal to natural gas, not because of government intervention, but simply because gas was cheaper than coal.

00:51:05.736 --> 00:51:11.116
<v SPEAKER_3>So, you know, so why wouldn't you take the cleaner option when it's also cheaper, right?

00:51:11.116 --> 00:51:21.336
<v SPEAKER_3>But suddenly in the late, you know, 2017, 2018, 2019, you see the main environmental organization suddenly going sour on gas.

00:51:21.436 --> 00:51:30.116
<v SPEAKER_3>You see the International Energy Agency suddenly going sour on gas and saying, you know, that it's suddenly these things that, you know, just pulled out of nowhere.

00:51:30.116 --> 00:51:32.016
<v SPEAKER_3>The journalists just repeat and repeat.

00:51:32.016 --> 00:51:36.196
<v SPEAKER_3>Methane is more potent greenhouse gas than the carbon dioxide.

00:51:36.196 --> 00:51:42.516
<v SPEAKER_3>There's no new research, no proof, you know, just like, you know, I don't know, 87 times more potent, you know, I don't know.

00:51:42.516 --> 00:51:43.676
<v SPEAKER_3>I don't know how.

00:51:43.676 --> 00:51:44.476
<v SPEAKER_3>I mean, there's the research.

00:51:44.476 --> 00:51:56.196
<v SPEAKER_2>And then we see it over a 30-year time span, even though that's not how the potency of any other greenhouse gas is measured, you know, there's comparison issues there too, but sort of a random thing, you know.

00:51:56.196 --> 00:51:56.376
<v SPEAKER_3>Yeah.

00:51:56.576 --> 00:52:16.016
<v SPEAKER_3>And also, I mean, I'm not, I mean, not in any sense trying to claim climate sciences, but I would think in order to convince a policymaker like Joe Biden or Mark Carney, it should at least avoid that, it should pass the test of also sort of general academics like myself, like, you know, like, like yourself, right?

00:52:16.016 --> 00:52:34.336
<v SPEAKER_3>And that, for instance, the scientific community doesn't know what happens when methane, when greenhouse gasses actually interact, like that if you increase methane, it's not really clear that it actually has the same potent, you know, that it continues to have the same potency that it has at lower, you know, the lower level impacts.

00:52:34.336 --> 00:52:36.276
<v SPEAKER_3>So, so we don't, we know very little.

00:52:36.276 --> 00:52:55.776
<v SPEAKER_3>What I do know, though, is China started to pour money into environmental organizations that are anti, and started these natural gas campaigns, like the Rocky Mountain Institute in Colorado, that's, you know, that was very much with its campaigns against natural gas stoves and appliances.

00:52:55.776 --> 00:53:06.916
<v SPEAKER_3>You see suddenly these organizations talking about, well, if we don't care that Trump, you know, it's bad Trump pulled out of the Paris agreement, but we have China now as the leader, right?

00:53:06.916 --> 00:53:14.116
<v SPEAKER_3>China is the top consumer and producer of coal in the world, but, you know, they're getting all this money, the environmental organizations from China.

00:53:14.116 --> 00:53:19.456
<v SPEAKER_3>And suddenly you see they never, they talk about natural gas as a danger to the climate.

00:53:19.636 --> 00:53:24.856
<v SPEAKER_3>Do you know how many of the global methane emissions come from natural gas?

00:53:26.096 --> 00:53:28.256
<v SPEAKER_2>I don't have the number on top of my head, but...

00:53:28.256 --> 00:53:28.716
<v SPEAKER_3>Okay.

00:53:28.716 --> 00:53:29.156

<v SPEAKER_3>Okay.

00:53:29.156 --> 00:53:29.536
<v SPEAKER_3>It's 4%.

00:53:30.776 --> 00:53:37.336
<v SPEAKER_3>So if you are going to start with like, let's say you really believe that methane was more potent than carbon dioxide, very dangerous, right?

00:53:37.756 --> 00:53:41.296
<v SPEAKER_3>Wouldn't you start with like the top, the top source of the methane?

00:53:41.296 --> 00:53:48.576
<v SPEAKER_3>When you go with 4%, which is also the major source of electricity generation in the West, right?

00:53:48.576 --> 00:53:50.976
<v SPEAKER_3>Would you start with that 4%?

00:53:50.976 --> 00:53:53.796
<v SPEAKER_3>Or would you start, for instance, with rice, which is 10%?

00:53:55.556 --> 00:54:01.536
<v SPEAKER_3>Now, which is cultivated out, the leaders are China and India, but some years it's China, right?

00:54:02.196 --> 00:54:11.296
<v SPEAKER_3>So I made this presentation before on this war on natural gas in Asia before, and they say, what are you talking about?

00:54:11.296 --> 00:54:12.936
<v SPEAKER_3>We should stop producing rice?

00:54:12.936 --> 00:54:13.376
<v SPEAKER_2>I agree.

00:54:13.376 --> 00:54:15.736
<v SPEAKER_3>It's ridiculous to ask them to stop producing rice.

00:54:15.736 --> 00:54:20.516
<v SPEAKER_3>It's also ridiculous to ask the US and Canada to stop producing electricity.

00:54:20.516 --> 00:54:45.656
<v SPEAKER_3>But as you pointed out in the beginning of your question, the idea of the West lowering the use of the fuels that it has an ample access to, like natural gas, and instead going over to

dependence on hardware from China, is a huge geopolitical benefit to China.

00:54:45.656 --> 00:54:54.956
<v SPEAKER_3>It's not surprising that they pumped a lot of money into our Western environmental organizations to promote this war on natural gas.

00:54:57.296 --> 00:55:13.156
<v SPEAKER_2>And you were saying that the Chinese government, which is the People's Republic of China, is providing a lot of funding for climate organizations in the United States.

00:55:13.156 --> 00:55:13.776
<v SPEAKER_2>Is that the case?

00:55:14.316 --> 00:55:15.676
<v SPEAKER_2>I haven't heard much about this.

00:55:15.736 --> 00:55:16.616
<v SPEAKER_2>But yeah.

00:55:16.616 --> 00:55:17.116
<v SPEAKER_3>Right.

00:55:17.116 --> 00:55:17.496
<v SPEAKER_3>Yeah.

00:55:17.496 --> 00:55:21.596
<v SPEAKER_3>I mean, and I'm just starting to dig into this.

00:55:21.596 --> 00:55:38.736
<v SPEAKER_3>But even from just the tax state reports of many international NGOs, and some of the China sponsors, some kind of organizations that distribute the funds.

00:55:38.736 --> 00:55:51.116
<v SPEAKER_3>So let's say China will send funds to their organization in San Francisco, so the Energy Institute, and then it will appear in the books of the Environmental Defense Fund or Rocky Mountain Institute as a grant from the Energy Institute.

00:55:51.116 --> 00:55:58.556
<v SPEAKER_3>So if you're not looking carefully, you don't realize that it's actually laundered money from China.

00:56:00.736 --> 00:56:04.716
<v SPEAKER_3>In a very easy, transparent way, you can find this.

00:56:04.716 --> 00:56:09.256

<v SPEAKER_3>There's been some hearings in the US Senate on something.

00:56:10.316 --> 00:56:26.836
<v SPEAKER_3>I bet in China, and sorry to say this about Canada, but I bet in Canada, it's even more robust because of a more maybe tolerant attitude towards trade and interaction with Chinese institutions.

00:56:28.216 --> 00:56:56.396
<v SPEAKER_3>So yeah, I would love to always love that term, I'm sure some serious forensic accountants can even find a bigger picture of this, but even from openly American NGOs have to have transparent tax reports, and you can see these contributions from China.

00:56:56.396 --> 00:57:08.416
<v SPEAKER_2>Well, I can assure our listeners that as an NGO that operates in Canada, I don't think we get a single cent from any organization associated with the government of China.

00:57:08.416 --> 00:57:10.656
<v SPEAKER_2>I'm happy to say that.

00:57:10.656 --> 00:57:10.916
<v SPEAKER_2>Yeah.

00:57:10.916 --> 00:57:11.756
<v SPEAKER_2>Well, fantastic.

00:57:12.016 --> 00:57:13.756
<v SPEAKER_2>That's really interesting information.

00:57:13.756 --> 00:57:21.336
<v SPEAKER_2>I'll have to look more into that side of things because it is a worry when you have foreign interference.

00:57:21.336 --> 00:57:32.316
<v SPEAKER_2>That's something we've been dealing with here in Canada is foreign interference from China and Iran and various other countries that are our concerns for us.

00:57:32.316 --> 00:57:32.596
<v SPEAKER_2>Yeah.

00:57:32.596 --> 00:57:33.916
<v SPEAKER_2>Well, thanks so much, Brenda.

00:57:33.916 --> 00:57:37.096
<v SPEAKER_2>This was a fantastic conversation and we always have one last question.

00:57:37.096 --> 00:57:45.396

<v SPEAKER_2>I know that we're eating up a lot of your day here, but this is always something that our listeners are interested in.

00:57:45.396 --> 00:57:47.456
<v SPEAKER_2>This is our last question.

00:57:47.456 --> 00:57:50.596
<v SPEAKER_2>Are you reading anything for pleasure these days?

00:57:51.716 --> 00:58:01.616
<v SPEAKER_2>We'll take a novel or anything you do to relax, but also if you have any technical works which you'd like to recommend, we would just love to hear them.

00:58:01.616 --> 00:58:02.436
<v SPEAKER_3>Okay.

00:58:02.436 --> 00:58:18.456
<v SPEAKER_3>This is a little nerdy because I just finished the autobiography of Harold Hamm, the founder of Continental Resources, the father of modern hydraulic fracturing, fracking.

00:58:20.996 --> 00:58:24.876
<v SPEAKER_3>I was going to read it as just sort of a professional read.

00:58:24.876 --> 00:58:32.616
<v SPEAKER_3>I was kind of interested in the history of fracking and the same things, like you're talking about history of technologies, how they develop.

00:58:32.616 --> 00:58:36.296
<v SPEAKER_3>But it's an incredible personal story.

00:58:37.736 --> 00:58:41.676
<v SPEAKER_3>I think there are 11 children after school.

00:58:41.676 --> 00:58:47.816
<v SPEAKER_3>They would work picking cotton just to help the family pay the basic bills.

00:58:49.096 --> 00:59:19.876
<v SPEAKER_3>So how a guy from this very poor background could rise so high, have established one of the most important and valuable companies in the United States, and be the father of a technology that really basically saved the US economy, or let's say revitalized the US economy, gave us a second big run, and contributed to global energy security, contributed to alleviating energy poverty.

00:59:19.876 --> 00:59:23.876

<v SPEAKER_3>He's also, the issue of energy poverty is very important to him.

00:59:23.876 --> 00:59:27.636
<v SPEAKER_3>He makes some of these same points about when do we stop worrying about poverty.

00:59:28.936 --> 00:59:32.796
<v SPEAKER_3>And, you know, and so that's one read.

00:59:32.796 --> 00:59:51.336
<v SPEAKER_3>I actually just, I just picked up a book on tourism in Nova Scotia and Halifax, because I'm very interested in, we, US., we have this beautiful New England, but I have a feeling that, that sort of north, north of New England, there's also a beautiful area, so I'm curious to explore this area.

00:59:51.336 --> 00:59:58.576
<v SPEAKER_3>By the way, Alberta is one of my most favorite spots, Greater Alberta in the world.

00:59:58.576 --> 01:00:01.476
<v SPEAKER_3>I think one of the most beautiful areas in the world.

01:00:01.476 --> 01:00:06.776
<v SPEAKER_3>As you can see, I like, I'm a travel, travel that wonderlust, definitely.

01:00:08.536 --> 01:00:13.056
<v SPEAKER_3>So yeah, that's for the, anything close to what you could call reading for fun.

01:00:13.056 --> 01:00:13.776
<v SPEAKER_3>Okay.

01:00:13.776 --> 01:00:14.636
<v SPEAKER_2>Fantastic.

01:00:14.636 --> 01:00:15.796
<v SPEAKER_2>Well, thanks so much, Brenda.

01:00:15.796 --> 01:00:18.316
<v SPEAKER_2>And yeah, very, very interesting books.

01:00:18.316 --> 01:00:22.796
<v SPEAKER_2>I'll have to pick up that autobiography of Harold Hamm.

01:00:22.996 --> 01:00:24.956
<v SPEAKER_3>It's called Game Changer, Game Changer.

01:00:25.056 --> 01:00:26.056
<v SPEAKER_2>Yeah, fantastic.

01:00:26.056 --> 01:00:26.456
<v SPEAKER_2>Yeah.

01:00:26.456 --> 01:00:32.396
<v SPEAKER_2>And I suppose that there's some discussion about the future of the shale patch down the states.

01:00:32.396 --> 01:00:34.436
<v SPEAKER_2>I think it still has a long way to run.

01:00:34.436 --> 01:00:42.576
<v SPEAKER_2>But considering American energy needs, Canada is happy to continue being a solid energy security partner for you folks down there.

01:00:42.576 --> 01:00:48.696
<v SPEAKER_2>So we're happy that we're able to continue this partnership into the future.

01:00:48.696 --> 01:00:49.056
<v SPEAKER_2>Okay.

01:00:49.056 --> 01:00:50.176
<v SPEAKER_2>Well, wonderful, Brenda.

01:00:50.176 --> 01:00:51.776
<v SPEAKER_2>Thank you so much for coming on.

01:00:51.776 --> 01:00:53.656
<v SPEAKER_2>It was a great conversation.

01:00:53.796 --> 01:00:56.316
<v SPEAKER_2>So we'll have you on again some time soon.

01:00:56.696 --> 01:00:57.376
<v SPEAKER_3>With pleasure.

01:00:57.376 --> 01:00:58.816
<v SPEAKER_3>Thank you so much.

01:01:00.756 --> 01:01:06.916
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01:01:06.916 --> 01:01:11.416
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01:01:11.416 --> 01:01:13.616
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01:01:18.856 --> 01:01:24.156
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01:01:30.096 --> 01:01:35.176
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01:01:35.176 --> 01:01:36.096
<v SPEAKER_1>I'm Kelly Ogle.

01:01:36.096 --> 01:01:38.176
<v SPEAKER_1>Thanks for joining us on Energy Security Cubed.