

Jan Rosenow Regulatory Project

Fri, 12/3 5:02PM 54:32

SUMMARY KEYWORDS

hydrogen, energy efficiency, regulation, energy, markets, europe, gas, member states, buildings, people, building, european commission, important, question, benefits, role, transition, system, utilities, electricity

SPEAKERS

Jan Rosenow, Michael LaBelle



Michael LaBelle 00:02

The regulatory transition project interview with Yan Rosa now, Episode 47, welcome to the My energy 2050 podcast where we speak here with the people building a clean energy system by 2050. This week, we're speaking with Yan Rosa, now he's the director of the regulatory Assistant Project, the word project, as Yan tells us was meant, actually kind of signaling just a short period of time that the project was meant to run for. But it's been decades now that has been going. And the project has grown into essentially a think tank consulting project that operates in China, Europe, India, and the United States. This is a great episode, maybe every episode is great. But if you love regulation, and understanding regulation, and governance, like I do, then then this is a fantastic episode to listen to. Because, as we know, I hope if you're a listener of this podcast now is that markets are not free. There's always different interventions into the markets, whether that's politics, whether that's lobbying on business organizations, so markets are not operating without government intervention. And the role of good regulation should be to guide the markets and make it a level playing field that's both good for business, and both good for consumers. And I think Yan really explains in a very concrete and elucidated way, about the role that regulation and policies play in the energy transition. So this is a great episode. And he's a fantastic speaker on this topic. Yan tells us that regulation is not just regulation implemented by energy regulators. But as I mentioned, it's also about policies, and the broader political. And it's not just technocratic regulation making as actually has been in the past, but rather, it's a much broader scope. And with that, we talked about the European Union, we even talked about America. And for the, for example, within the European Union, we get in details about the Green Deal, and the fit for 55 directives that are coming out to assist Europe's transition towards a much lower carbon energy system by 2030. And of course, zero net emissions by 2050. We go over that. And I do really want to emphasize that the point of today's podcast is to understand first, what is regulation, what is the role of regulation, and to understand how we can move faster and the role that regulation plays in moving us towards I would say, a zero carbon energy system, and Yan he ends the interview with a fantastic line about we can do it faster, and we can do it cheaper, and provide greater benefits to people by using effective regulation. One final note before we begin this week's episode, the my energy 2050 podcast is available on most podcast apps, we are active on LinkedIn. So you can go there and post some questions or make some comments on each episode. Feel free to do that.

Finally, the intent of the my energy 2050 podcast is to spread the knowledge about how the energy system can assist our transition towards a greener future. And now for this week's episode. Today, I want to welcome to the My energy 2050 podcast, Yan rose. Now he's the director of the regulatory Assistant Project. And Yan, if you don't mind, I'll keep the introduction about and your titles and everything you do short. And I just wanted to thank you for coming on to the podcast today.

J Jan Rosenow 03:39

Thanks for having me. Looking forward to the conversation. Yeah, I'm

M Michael LaBelle 03:42

definitely looking forward to the conversation. And I'm really interested looking at your profile and your education with what was that that drove you to study, particularly at that time, a master's degree and then a PhD, really focused on energy.

J Jan Rosenow 03:58

So my undergraduate was actually in energy or sciences. And I was extremely interested in, you know, the natural world and how it functions but also our impact as a human race on the planet and on the environment. When I quickly learned what I was really getting interested in was not so much just understanding the impacts, but really understanding, you know, how we can mitigate some of the negative impacts that we have on the planet, how we can reduce emissions in particular, I got really interested in climate change, but also other issues. And I studied environmental economics and environmental policy initially, and then specialized in energy efficiency policy and my PhD which really was at the time was a result of you know, there was funding for this and and I was really interested in the subject and that's got me into the energy space.

M Michael LaBelle 04:52

Excellent. And and how does regulation come into into this focus here?

J Jan Rosenow 04:59

I mean, regulation is a very broad view of what that encompasses not just regulations in the strict sense of the term, which is usually referred to as sort of regulation by the energy regulator of regulated entities, or regulation really means I think all of the different policies, you know, the different ways that we design markets, you know, how we how we essentially set government policy around the energy system. That, to me is what regulation is all about. And it is so critical that we get that, right. Because regulation always provides incentives one way or another, you know, we have an old saying, and wrap, which has said all regulation is incentive regulation. So even if you do not deliberately build in incentives, for market actors, for utilities, for consumers, there always is an incentive built into the system, even if you're not deliberately

putting these incentives in place. And often, unfortunately, these incentives work against, you know, some of the outcomes that we all want to achieve, for example, lower emissions, lower prices, system reliability, you all the different things that you would expect, the public would want to see from good energy regulation.

M

Michael LaBelle 06:18

Maybe I back up and I'd ask you a question about free markets. And what about the idea that the the energy sector should be a free market, and we shouldn't have regulation?

J

Jan Rosenow 06:30

Well, markets are never entirely free, there's always a framework in which they operate. And that has always been the case in the energy space. So I think this idea that you have completely free markets, completely freed from any regulatory influence is a fantasy. I don't think that exists anywhere in the world. It's not desirable. So every market that exists in the energy space is regulated in some way or another. And that is very important. Because, you know, the risk, of course, is if we have a completely unregulated energy market, then you get outcomes, which are not desirable. You know, for example, you may get issues around the reliability of the energy system, and get prolonged periods of blackouts, which is clearly not something that that is desirable. But that may be an outcome of an energy market that has no safeguards put in place no requirements, to actually ensure reliability. So that that's why regulation is always going to be a function of any energy market. The question then becomes, what kind of regulation, how to design it, and how to implement it and ensure that it's actually being translated into real action.

M

Michael LaBelle 07:51

And maybe, maybe we go to the the real action, and you can describe what the regulatory Assistant Project is.

J

Jan Rosenow 07:58

Sure. So wrap, in short, the regulatory systems project is a group of energy experts, we don't really call ourselves a think tank, although people often refer to us as a think tank. We were founded in the early 1990s, almost three decades ago, pretty much around the time when the first when the Rio conference took place. Yeah, 1992. That's now, you know, history. And a lot of people don't even remember that. But that's when we were founded. And we were founded with a premise to assist the incoming generation of regulators. This was in the US when we were founded. And the idea was really to support them with developing better regulation to accelerate the transition to clean energy system that is also affordable. So that was the sort of mission and it was only, you know, a very small number of people that were involved in the early days of the organization, three people were the regulatory systems project. And the word project is actually indicating that it was always meant to be a one off project. And then it turned into an organization because the project became many projects. And out of the three people grew an organization that today is is about 60 people around the world. And we now no longer

just work in the US, but also in China, in India, in in Europe, which is the region that I lead where I lead the team. And the work we do is is now much broader. It's not just assisting your regulators with regulatory questions, but we also work with other institutions. For example, we work with governments, we work with international organizations, such as the IEA. We also work with the European Commission. We also support advocates and we also collaborate with industry. So we have a much broader remit in what we do, but the mission statement mentioned, the main idea was to create regulation to accelerate the clean energy transition is still the same. But I didn't have changed.

M

Michael LaBelle 10:09

I just want to say that I, we had a presentation from with some representatives from E 3g yesterday. And I mentioned to them that I was speaking to you today. And they said, Oh, we cooperate with them. So, yes. So so I can definitely say that your impact is even within the circle. I know. And then I really like how it has grown around the world is this project. And I'm just wondering why why do you think it has been able to grow and be so prominent in many countries, or in I would say, big markets.

J

Jan Rosenow 10:43

So the way there are several reasons, I think one reason is there is a real need in the energy space, to share best practices experiences, matter, good from different countries, and there's so much value in, you're having access to examples of past successes and past failures of energy regulation, and then carry those examples to decision makers in countries that want to change the existing regulatory framework. So that is one of the I guess, unique selling points of rap that we can say, Look, we work in all of these different regions. And we can carry the best practices from around the world and make them relevant to you. So you can adapt them and do something with them. So there's a demand for that kind of work. At the same time, we've been able to persuade our funders to expand to go beyond Europe. And as you already mentioned, the large power markets around the world where we active, that's where a lot of the emissions, of course are. So there's a real need to also work in those other regions. If we want to solve climate change, and reduce emissions, we can't just focus on one region, we have to really focus ideally on the entire world. But with limited resources, our approach has been to go there where the big emissions are from the power sector, and that is China, India, Europe and the US.

M

Michael LaBelle 12:08

Could you maybe describe some of the commonality, but also some of the differences in between these markets? When, when when when you approach them with with regulation, which is a very again, as you said, very beginning, it's a very broad spectrum of what is regulation? And so what could you, for example, if you learn something from the United States, or from Europe, how would that maybe apply in China or in India?

J

Jan Rosenow 12:36

So yes, indeed, each place is different. And the, you know, the culture, the history of regulation

So yes, indeed, each place is different. And the, you know, the culture, the history of regulation, is different in each country. And even within the country, that take the United States at state level, there are differences in regulatory traditions, and capabilities, approaches. So we are very mindful of that. And, you know, we do not believe that you just have a blanket approach that he can impose on everybody or advocate to everybody to copy that will work. So regulation needs to be adopted and adapted at the same time, so that it makes sense. You're for the specific context in which it operates. One of the big differences that that I see. And of course, I focus mainly on Europe. So from what I know, it's basically, yeah, it's based on discussions with colleagues. But also, some involvement in the projects we're doing in these other regions, is that in the US, you have a lot of transparency, you have a highly regulated process where a lot of the utilities are still sort of vertically integrate vertically integrated. And all of the different bits of the utility are heavily regulated, with public utility Commission's in a lot of participation from other actors. That is quite different in other countries. In Europe, for example, we unbundled the energy system quite a bit. So we have a lot of companies that just focus on supply generation, or networks. And it's a quite, it's quite different. So the way utilities are regulated in the US is fundamentally different to how they're regulated in Europe. Because the supply side, the retail side in Europe, is not going through a similar process where your revenues are being determined by the regulator, that still happens where we have natural monopolies and then on the network side, but we do not do that in Europe, for the supply and retail and of the business. And that's the fundamental difference between most states in the US and Europe. Just how how utilities are being regulated, because of that difference in structure. And of course, in in places such as China, you have a completely different government system. And, and again, you can't just assume what works in Europe will equally work well in China. But there are elements of things that work well in Europe or in the US, that will also have high relevance in the Chinese regulatory system.

M

Michael LaBelle 15:19

You talked about the US, the US influence on Europe, on unbundling, for example. And maybe I'll just put in this neoliberal framework that that deregulation happened in the US first and then Europe kind of got on that as well, and D bundled and unbundled its different energy companies. And I'm just trying to think now, with higher energy prices, and we're in this, I would say, interesting and scary state at the moment with with such high energy prices, do you see things moving differently, almost, I don't say backwards. But, you know, going back to larger state involvement in the power markets, rather than just the role of regulation and the regulator as being an independent entity, but there could be more politics in the in the power markets in Europe,

J

Jan Rosenow 16:09

where we already see that I mean, the fact that, you know, power market design is debated now, in, in the national press, in several countries, is, is quite interesting, and, of course, exciting for people like me who work in this space. But it's also unusual, you know, quite often these market discussions take place amongst the expert community, you know, between the regulator, between market actors, government departments, but not really, you know, get lots of coverage in the media. And that has clearly changed. And we now see proposals for changing the current market framework in different member states. And there are calls for tweaking what we currently have, some of which, you know, raised some important question, but some of which are also problematic, because they suggest there's an easy fix to the current

gas price crisis, which there isn't, you know, this is this is a much more fundamental structural problem, and suggestions, such as you could simply, you know, pay everybody an average price, and avoid, you know, high prices in the electricity market, that that stem from the fact that gas is often on the margin and gas prices are very high. So it sets a very high clearing price in energy markets, I think are certainly problematic, because in the long term, this will lead potentially to under investment, and then you could have problems with relative reliability. So I think it down or short term fixes in terms of market design. But at the same time, it just highlights our dependency on on gas in many places. And it highlights a need for speed in rolling out the alternatives, no more demand side flexibility, more storage, more renewables to reduce the impact of gas price fluctuations on the electricity market. And also to reduce the demand for gas in other sectors, we talk a lot about electricity, and that made the headlines in the press. But when you look at where the gas is actually being used, at least in Northern Europe, most of the gas is used in buildings for heating, and not for making electricity. And that's an area that is completely under under appreciated in the discussion, where, you know, by simply reducing gas demands for energy efficiency, we could already alleviate some of the pressure that consumers face.

M

Michael LaBelle 18:43

Yeah, and maybe maybe we can get back to energy efficiency. And I'm sure we'll talk more about the power markets. But this is a great point point about energy efficiency, and the lack of investment so far, and maybe you can just describe, somewhat briefly, but what are the benefits of energy efficiency in buildings?

J

Jan Rosenow 19:05

Well, there's so many right. And the IEA have famously had their their flower of all the benefits, you can find it on the web, if you Google multiple benefits, energy efficiency, flower, you find this beautiful graph where they have many, many benefits of energy efficiency, but I would say you kind of separate that into different types of benefits. So one benefit is directly accruing to the occupant of the building. And the building owner, which in some cases is the same person and sometimes it's not so in, you know, for example, reduced bills, right, higher comfort levels, higher value of the property, potentially there's a correlation between your energy performance and property values that's been established in academic research. So that's a direct benefit from energy efficiency for the occupant, but also the owner of the property. And then of course they are wider system benefits for the energy system. To reduce demand, I already mentioned that. But also if you think about, you know, as we electrify more and more buildings, we move away from combusting fossil fuels for heat generation. There's, there's now an opportunity to use buildings as a flexible resource on the system to modulate electricity demand. To make this specific, you know, you could, for example, preheat a building that's using a heat pump, in the early hours of the morning, when there's a lot of wind on the system. Yeah, especially in Denmark, for example, that is the case there's a good correlation between offshore wind generation and the potential for pre heating. And equally, you could take advantage of solar and do cooling, pre cooling, if you have a better insulated buildings. So you can use well insulated buildings as a system resource. And then finally, of course, yeah, they're the wider societal benefits around reduce carbon to meet our climate goals, less air pollution, not many people know that actually, in inner cities, often the contribution from heating buildings to things like NOx emissions is very sizable, it's very significant. And and that is something that can be

addressed to energy efficiency. So there are these kind of three categories here, the building owner and occupant, the energy system, and then society with all of honor for benefit from energy efficiency.

M

Michael LaBelle 21:32

And then the benefit for investing in energy efficiency. Has this knock on effect for we'll just take gas because this is a really important topic in Europe right now. And D gasification, I guess, and electrification of heating is really on the agenda.

J

Jan Rosenow 21:48

Yes, I mean, that clearly, there is huge potential, and I don't think anyone has, has modeled this in a meaningful way, sort of demonstrating, you know, if we improve the energy efficiency of buildings by this much this would be the impact on the gas price. Of course, you could model that. But I don't think anyone has done that yet. But very clearly, the import dependency, in terms of the amount of gas that we import in Europe, is growing, we that's quite different to the US, when you look at the US a lot of the gas is produced domestically, and especially with the shale gas revolution in the US that amount has gone up. But in Europe and the import dependency, it actually goes up, and every year we import more and more gas, and that is causing some of the problem. So reducing that gas demand by improving energy efficiency of buildings in particular, will you first of all, reduce the amount of gas used in buildings, of course, and therefore reduce the gas bills that people have to pay. But it would also be logical to then assume that that that will also lower gas prices, because you have a lower demand for gas, which should reduce or reduce gas price also in the other sectors, including the electricity sector?

M

Michael LaBelle 23:13

And what we like could be the role of regulation in this to encourage energy efficiency, and maybe even how could How could regulation be built to assist buildings, I'll just say buildings moving away from gas as a source for heating.

J

Jan Rosenow 23:31

We had an Avalon tradition with energy efficiency programs for utilities, of course, and we talked about the US tradition before of regulation. And in the US after the two energy crises in the 1970s, the first energy efficiency obligation on utilities was put in place in California. And this was an idea that was essentially a response to the energy crisis, it to say, look, we may be able to achieve the same service more cheaply if we not just rely on supply side resources. But if we also mobilize the demand side and reduce energy demand in the first place. So the utilities were required to reduce energy consumption or to quit to attempt to point it more specifically, to increase energy efficiency, especially in buildings. And these programs have been rolled out across I think it's now 26 states in the US, but we also have them in about 16 member states in Europe now. So we have very large, very sizable programs for utilities to reduce energy demand for energy efficiency. Some of this these are really big in the in finance

that's which is the biggest energy efficiency obligation in Europe. The program is about 4 billion euros per year. possibly more, which is a very sizeable in size, the amount of investment that goes into energy efficiency. So that's one important component. And of course, you then have other means you can regulate not just the utilities, but you can also regulate the building owners, for example. And that is something that's currently being discussed very lively in Europe, because we have a review of the what is called the Energy Performance of Buildings Directive, which sets standards primarily for new buildings, but also major renovations. and the European Commission is intending to have what they call a minimum energy performance standard, potentially, for all existing buildings. And you could use that as a as a vehicle to overtime, you know, require that the least efficient buildings are graded, to make them future proof. And to make sure that we get on track towards climate neutrality, which is the European goal, of course, for 2050. So you can regulate different entities in that way, whether that's, you know, starting something further upstream, whether utilities are further downstream with it with a building owners, and in both of this is happening. And we see that, you know, evaluations demonstrate consistently, that these policies work, you know, they're not, they're not perfect, they're, they have their flaws, as any policy has. But they work, you know, overall, they have reduced emissions and reuse energy, and they have reduced customer bills.

M

Michael LaBelle 26:26

So maybe this is part of the going forward, the fit for 55 package, and there's, is there going to be a new, I just want to make sure we're on the same page, the new energy efficiency for Buildings Directive coming out. And these are some of the elements that could be in it.

J

Jan Rosenow 26:41

Yeah, so there's a whole raft of, of legislation coming our way, some of which was released already. In the summer, on the 14th of July, were the Energy Efficiency Directive, the renewable energy directive, the European emissions trading system reform, you know, all of these were released in the summer, we now get, you know, other parts of the fit for 55 package, which has been put out there to achieve the goals of the European Green Deal. And that includes the energy performance and Buildings Directive, but also the the gas market package, which will come out very soon, it's expected to for December, it might get delayed. But that's legislation that we now see coming out, which will set more ambitious standards for buildings, most likely, but we are we are at the beginning of a very long legislative process. So this is just the initial proposal. And you can expect very, very long nights, many long nights in Brussels, between European Parliament between the member states and the commission to agree on a final framework.

M

Michael LaBelle 27:50

And maybe maybe I won't push for what could happen in the future of what this will look like. But maybe ask about the role of regulation, and maybe even a description of how does it go from being an EU directive, and then being implemented in member states? And what is the role of regulation in that?



J**Jan Rosenow 28:11**

Well, it depends really on what kind of legislation you look at, there are some there are some types of regulation that need to be transposed into national law directly. And then there is a majority of EU legislation in the energy space. And then there's legislation that needs to be interpreted and adapted. So it can fit with the with the National Energy context. And of course, that's that's, that's been a long process, energy was traditionally seen as a national matter. It's a matter of national security, something that the European Commission should not get involved with too much. But that has shifted over time. So you know, in the early 90s, that was still the predominant view. But over time, we've seen much more integration, partly because the markets are becoming more integrated in especially the electricity market where you have more connections, more integrated markets, markets that actually cover wider geographical regions. So there's a lot going on, but also because of things like European climate goals, and goals for renewables and energy efficiency. So it's no longer possible to completely rely on national action. And that's why Europe has become more interventionist, if you will, but it still requires an interpretation by Member States and rap has assisted both the commission in implementing the European legislation from a European Commission point of view, but we also work with national governments and supported them in finding a good pathway to comply with European legislation. And it's it's a complex process, because in many cases, it's not crystal clear what exactly is required and you know, there's there's room for interpretation instead cases member states need to sort of reassess the institutional setting that which they have to they have the capabilities of actually, for example, monitor and evaluate and verify what's going on, or they need to set up a new and your body for that your laws may need to be changed. Often, that's primary legislation at national level, there's a complicated process involved in that, which is not always straightforward. So regulation that comes out at the other end at the member state level, often goes through a pretty lengthy process. And and then, of course, you need to sort of look back at what's actually in the directive, and what has the Member State done to implement that. And in some cases, there's a good match. But in some cases, there's a big gap. And you find that what's what's been the intention of the original legislation is not matched with what a member state has actually put in place in practice.

M**Michael LaBelle 31:00**

And then maybe I go down one more level, rather than focusing on the role of governments, but the look the role of maybe like local governments, or people kind of in general. And I know what I'm trying to get at how can and I think maybe this is part of the new package, or at least from what I've learned, is that how can the European Commission or just maybe you could say the EU institutions themselves, create, and I know, this is actually one of the priorities create a more direct, stronger connection with, with people in the different member states, rather than relying on the member state governments themselves mediating this relationship?

J**Jan Rosenow 31:40**

That's a hard question. It's a really difficult question. And I think it's a question that you have a commission certainly is asking. And it's a lot more difficult for the European Commission, of course, to connect with people all over Europe. It's much, much easier for them, it's difficult enough for national government, but much easier for national government to do that. So that it's really hard. And I think, you know, one of the areas of concern, of course, around European, not just energy policy is that, you know, if it becomes too detached from sort of people's daily

lives, and in how they see the world and and what they think is important, then, yeah, that that's that that is a potential for people not feeling, not not buying in into the sort of European energy transition in the way that we really need them to, because that's, that is going to be critical. But how to involve people in European policy is very difficult. I mean, now our ways of, of demonstrating why we do all of this, but I think member states ultimately have the responsibility to communicate why we're doing what we're doing. In Europe, why that is important. I think the commission has a relatively limited potential to do that. But it's, it's also outside of my area of expertise, how exactly the commission engages with citizens. I think this is I see see member states more as being in charge of being sort of a mediator between the European Commission and consumers.

M

Michael LaBelle 33:30

I just say, first, I like asking questions that I don't know the answer for and then sometimes don't have an answer. And, and that that usually was really good for students. And then the other the other point is, you know, I live in Hungary so so understanding and even, I would say, even maybe on the Polish side a bit, but seeing how some governments maybe don't represent their people or have kind of gone off the rails and representing their people or representing what the EU is about, then then it maybe it also depends part of the answer, at least from my side would be it depends on on the location where you're from, and and how much because, for example, in Hungary, there is a lot of trust in the EU institutions. But how then how that how that relationship is mediated through the national government here in Hungary, results in a different perspective be being given out. So this is kind of the basis of my question, this kind of this divide of newer member states, compared to older member states, how these directives and maybe we don't have to talk, we could just, again, maybe stay general, but in the energy space, there's very different interest being represented, for example, in Poland and the role that coal plays or even the role that gas plays and I would say gas and nuclear power is is strongly supported in Eastern Europe. Maybe overall My question would be, how can the European Union as a whole navigate this very tricky area of energy policy and the energy mix going forward?

J

Jan Rosenow 35:12

Yeah, I think you're absolutely right. You there is a divide. And this is something that is inconsistently challenging, because you have some countries that have more resources, more experience and different politics, then than other countries. And that, that creates tension. But by default, you can see that in debates in the European Parliament, but you can also see that in national responses to European policy. So that that is that is that is clearly a challenge. I mean, we, as an organization work in all of these places. So we've worked for many, many years in Poland. We've worked for many years in the UK, we've worked for many years in Germany, we also have a colleague who was based in Budapest in Hungary. And we do not just hired someone who is going to join us early next year, who is from Poland, and worked in the energy sector there. So we deliberately do not just focus on let's say, the usual suspects, right, you could you could decide on let's just work with a Nordic countries, for example, and, you know, where there's some really exciting innovation happening around electrification renewables. And that's all great. And we, you know, we and we have worked in Sweden, and we have collaborated with people in Denmark. But it's important, I believe that we work in member states from all geographical areas, you're also in southern Europe, explain Italy, we have

engaged Greece, and maybe even outside of Europe, in some of the countries that currently would copy some of the European policy, because they are on a journey towards closer EU alignment. So we also work in Turkey, and in Bosnia Herzegovina, for example, for that reason, so I think it's important to kind of keep engaged in all these places, and not lose sight of what happens. And in some of those countries, where it's a bit more challenging, and also to acknowledge that it's a lot harder, you know, if you are reliant on cheap electricity, from old coal power plants, to suddenly, you know, buy into this vision of, you know, replacing our fossil generation with renewables, and, and zero emissions, dispatchable, thermal generation, storage and flexibility. Yeah, that's a completely different vision of where we need to go. So that takes time. But I would also say what I think is encouraging, is that we now see signs emerging, also, in some of the newer member states, that the Clean Energy Transition is, is coming to a point where it's taking off, I mean, you could look at Poland to stay with that example, for a minute. And the amount of investment for into offshore wind in the Baltic Sea, is is pretty substantial, and it's expanding. And that was unthinkable, you know, just five years ago, so then we were has really changed. So I think that that sort of transition, once it catches will be much faster. But I think there's resistance, that that can only be broken down by focusing on some of the on the positives of their wealth, which there are many on really demonstrate that this is this is beneficial to the economy, is this beneficial to the citizens of the country. And it's not something that you need to be scared of.

M

Michael LaBelle 38:55

And maybe that brings us back to actually our initial discussion of the oil subsidies or lack of subsidies, but but the the cost of renewables themselves and the cost of energy efficiency dropping so much, and being so much in being very competitive against fossil fuels. So this is the maybe we can be visionary for the last few minutes and see that that is the role that regulation has played in the past in Europe to encourage renewable energy and to encourage energy efficiency. Yeah, you see this as a turning point. I mean, we're in some countries, and now it's really picking up and others that kind of help. We're holding back a little bit.

J

Jan Rosenow 39:37

Yeah, certainly the discussion has completely changed. I remember very well 15 years ago when you know, renewables were, in most places still significantly more expensive than the new fossil generation, and you had to justify your subsidies for renewables based on the negative economic environmental costs. of fossil generation. So you could you could make a case for subsidies, when now there are many instances where you no longer need any subsidies because, you know, building new capacity, often, utility scale solar, for example, is cheaper than building new coal power plants. And that is clearly very attractive. So the discussion has changed, and renewables have dropped so much in price and continue to drop in price. We also see other technologies, I mean, battery technology, amazing innovation happening with with prices coming right down and continuing to draw. And now we're seeing the same happening in other sectors where we haven't done as much in the past. I mean, you could look at we talked about buildings before, huge need to decarbonize. So things like heat pumps, but also rolling out energy efficiency more cheaply, we will see I'm believe very strongly in that we will see a reduction in costs in that space as well. So I think the proposition for the clean energy transition is now quite different. You know, it's no longer just about carbon, but I think it's also about achieving something better. That's, you know, at lower cost with less

air pollution, and not relying on fossil imports, in a lot of cases. You know, it's domestic energy that's produced within countries that benefits people locally and directly. And I think that's, that's a positive news story around the energy transition. That is, I think emerging, and we're going to see much more of

M

Michael LaBelle 41:38

and could you maybe expand on the role of hydrogen? I see his LinkedIn, you've been posting on that? And I, and I'm interested because, yeah, hydrogen, and now just use my own label is like the new shale gas, it seems like so it seems like for some it can solve everything. But for others, it's it's yeah, it's not there yet. So could you maybe reflect on the future of hydrogen in the EU?

J

Jan Rosenow 42:04

Good question. So let me start with a positive statement about hydrogen. So I believe hydrogen is going to be essential in the energy transition. And it's going to be important that this the hydrogen that we use is ideally zero carbon, because we have climate goals that require almost the full decarbonisation of the economy. And it will be especially important in the electricity sector, where hydrogen, for example, could be used for dispatchable power generation of which I believe we will need quite large amounts of especially as we electrify more of the transport and billing sector. So it's going to be important that that hydrogen is going to be zero carbon. So green hydrogen will have to be the priority. There's lots of other applications where hydrogen is going to be needed. You can think of high temperature applications in industry where it's simply not practical to use alternatives, because you don't get the right temperatures. Or you could think of areas where hydrogen is used as a feedstock for fertilizer production, when you simply can't electrify for example. And then of course, you know, there's a discussion about shipping and aviation, long distance transportation, where you just don't get currently the energy density with battery storage and may not be cost competitive. I think the jury is still out, you know, to what extent can you electrify these applications? And to what extent do you need other forms of, of energy carriers such as hydrogen, but clearly there is potentially a role. Right, I do not see a role for hydrogen. And that's why I've been quite vocal, because I can see that there's a lot of you that not a lot of arguments being put forward is the use of hydrogen, for low temperature heating in the building sector. And the use of hydrogen, in, in personal transportation, in in vehicles, in cars, and also light bands, for example. And that's simply because there are other alternatives that are more efficient, lower cost, and more achievable. I mean, if we were going to replace all the natural gas and all the heating oil in the building sector with hydrogen, for example, you can you can run the numbers and see how much hydrogen will be required. If we made that from green electricity. How many more renewables will we need to build out in Europe and the numbers you get a really scary, you know, it just looks unfeasible simply on the grounds of how much additional capacity you need. Of course, you may say, Oh, why don't we just do blue hydrogen and use natural gas, you see Mithuna reforming and then sequester, capture the carbon and store it. The problem with that is that currently You and also in the future, it's not going to be possible to get to zero emissions with that technology. And there's a debate out there, and I'm not going to go into that. Can we get to more than 90%? Can we even get anywhere close to 90% emission reduction. But the key point here is that even with the best available technology, if you assume very low leakage of methane further, upstream, you still do not get to zero emissions, which to me suggests that

if you use no hydrogen, then you need to be quite careful when you use it. And there needs to be very good reason for it. But to the thing that we can just replace all the gas we currently use with hydrogen. It's not not going to get us anywhere close to 40 carbonization. That's that's the problem with blue hydrogen.

M

Michael LaBelle 45:51

Yeah, oh, I'll just express my opinion. It's kind of stupid. So so if we have gas, natural gas, and then why convert it into another gas, when you could just use it directly, but you probably shouldn't use it anymore. So we should just yeah, do something else or pink pink hydrogen, I think is the is the other kind of, maybe we can, I won't say neutral. But but that was something from from nuclear power. Maybe I could I can buy into so yeah, but but the blue hydrogen is not there. And maybe maybe my question is, if we're producing, rather than producing green hydrogen to heat homes, why not just use the electricity that's being produced to heat homes. But that's kind of

J

Jan Rosenow 46:37

that's, that's pretty precisely what we would say. And that's not to say that there's no role for hydrogen in heating, I mean, that you could see a role for hydrogen for the purpose, you just, you just mentioned, you could use it to run thermal plants. During those days when there isn't enough renewables on the system to generate the electricity that is then used in heat pumps to heat our homes, which is much more efficient than using the hydrogen in a, for example, in the hydrogen boiler in a home. Another application potentially might be in some district networks, where you might have combined heat and power plants. You know, there isn't a great evidence base yet on that, but it's one of the areas where maybe they are. Yet there are applications where this is a good alternative as a complementary heat source. And And finally, you know, there might be some areas where you have high industrial usage of hydrogen already, and local clusters, where, you know, there may be cases where a hybrid system where you have a heat pump coupled with a hydrogen system could be cheaper than upgrading the electricity network in that area. I'm not medically against any of those options. I'm not even against using 100% hydrogen for heating in some buildings, as long as you can demonstrate that it is the cheapest, lowest cost option to decarbonize and delivers the highest amount of benefits. I mean, that that should always be the metric that we use when we assess any technology. Yeah, it should be about economics, the ability to reduce emissions and the wider system impacts. And in some cases, that will lead to us saying hydrogen is a great option. And in other cases, we would say, well, actually, there are better alternatives. And that should guide our decision making. Not, I think, a belief in a specific technology versus another, I think it should be about applying common sense criteria to decision making.

M

Michael LaBelle 48:39

I'm just I'm just my one question would be in that maybe it's an actually another question is just that a lot of this talk is about saving the gas sector itself and gas companies converting them to hydrogen companies instead. But my further question would be, would it be better to kind of just redo and create a brand new hydrogen network rather than repurposing the gas network?

J Jan Rosenow 49:05

Well, there will be parts of the gas network that will still be needed. Of course for you, let's say we switch entirely to hydrogen for applications where gas is currently being used. Certainly, if you still have a large requirement for hydrogen in sectors I mentioned before industry, power generation, potentially shipping, aviation, etc. So there's still a need for transportation of hydrogen. So the transmission pipelines will still be important. The more important question I guess it's about the distribution grid and a lot of the gas distribution grid serves domestic properties for heating, and then it is very clear that a lot of that will become a standard asset as we move towards either district heating or electrification and For the companies currently run these networks, of course, the question then arises, where do we what do we do instead? And, and this, this is an interesting debate, because clearly there are some skills that these companies have, that could also be applied to this to Kitty networks, for example, that there they are technologies, that that, that they could roll out to diversify, to not just rely on the gas network, but we just said the beginning of that discussion. And currently, what we see is a lot of pushback. You know, we've seen that before, remember the coal phase out? The asking the suggestion, we can just retrofit coal power plants, with CCS, technology, you know, we could make sure that all new coal power plants are CCS ready and essentially continue as we have by retrofitting the fossil infrastructure. And then is led to very little, there's only one operating, commercially operating coal power plant in the world, in Canada. And no other plant exists the last one shut in the US, I think, last year, the one in Europe that received a lot of press, I think shut in 2014, at least the CCS facility. So I don't think we can rely on on a quick fix here. The Heart Truth, I think, is for the gas industry, that this is going to be a transition that will involve a reduction in gas use, every scenario that's credible shows that we use use less molecules, more electrons, and you can try to delay that. But ultimately, that is something that's going to happen. And I would hope that more gas companies will become part of the solution. And not as trying to delay this, because ultimately this will happen will have to happen. And practice companies that want to be part of the solution will will potentially benefit. But if you just trying to delay, I think you will end up with stranded assets, and you will end up with an outdated business model. And that's not something that needs to happen. I think there's there's there's there's an opportunity here to be much more pragmatic about this and not just try to prolong the the current model of operating.

M Michael LaBelle 52:29

Yes, and Yan, we could talk another hour just on stranded assets. But maybe we'll we'll conclude there, because I think that's really a good call for companies to get on board with this energy transition and not try to muddle through and prevent a transition from happening more and more actively. My final question to you is, and it's the question as everyone is, is what kind of energy system are we going to see in 2050.

J Jan Rosenow 52:56

So we I believe, we will see a much more electric energy system, it will be much more digital, it will be smart, much more flexible, much more decentralized, you know, think that this model of having centralized generation, transmission distribution, and then the end consumer is already becoming a lot more fuzzy every year, but I think in 2050, it's going to be much more

decentralized than we can imagine today, much more integrated between different countries. And it's going to be zero carbon way before 2050. And it will be cheaper to operate than the current system is and deliver better service.

M Michael LaBelle 53:43

I love that cheaper to operate and better service. So excellent. Yan, I want to thank you very much for coming on the podcast. Thank you.

J Jan Rosenow 53:51

Well, it's a pleasure to be here. Thank you for having me.

M Michael LaBelle 53:54

Thank you for joining us. For this episode, we produce the my energy 2050 podcast to learn about cutting edge research, and the people building our clean energy system. If you enjoyed this episode or any episode, please share it. The more we spread our message of the ease of an energy transition, the faster we can make it. You can follow us on LinkedIn where we are the most active on the My energy 2050 web page. We're on Twitter and Facebook. I'm your host Michael LaBelle. Thank you for listening to this week's episode.