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Management Scope A meeting of minds is published by Scope Business Media, Stroombaan 4, 1181 VX Amstelveen.

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BEYOND THE TIPPING POINT

I am often asked for my perspective on the energy transition in our society. In my opinion we have already made great progress, yet we still have a considerable journey ahead towards 2030, 2040, and bevond. Looking back on the situation a decade ago, many of the discussions centered on the need for drastic measures to tackle climate change. Today, the focus has shifted towards how we implement and shape the energy transition. The issue of affordability also plays a major role, as support for these changes is directly linked to it. It prompts the question: Who will bear the costs associated with moving towards a fossil-free society? These investments will be substantial. Consider the investments needed in the Dutch electricity grid to maintain a stable electricity network. With an increasing demand for electricity, as well as a growing supply, the current network is no longer adequate, at least not always. This results from changing dynamics and increased volatility in the energy market. The increased electricity production from wind and solar is not always predictable, which, while contributing to essential CO₂ reductions, places an immense strain on our electricity grid. Unfortunately, the grid is yet to be adapted to this new reality. The energy transition also demands a lot from both households and businesses. Companies must make the switch from natural gas to electricity but are faced with both grid congestion and substantial investments to adapt business processes. Households must become more sustainable, eventually moving away from natural gas to be heated by district heating or (hybrid) heat pumps, for instance.

My conclusion is that we have crossed the tipping point and the energy transition is in full swing, with all the challenges that come with it. It seems that the energy transition is moving at a faster pace than any of us can keep up with. Hence, making informed choices and decisions now is critical to actually achieving our sustainability goals. Energy affordability is only one aspect of a complex puzzle. Aligning energy supply and demand is another and will become increasingly important. Successfully navigating this requires collaboration between all parties involved: businesses, governments, civil society organizations, households and energy companies. As far as I am concerned, cooperation is the crucial factor in a successful energy transition. As my colleague Marco Bosman argues in his essay: Trust and cooperation are the real success factors of the energy transition. And I fully agree with him.

However, that also outlines the complexity of the issue, as we must maintain momentum amidst changing circumstances. Speed of realization is an important theme in the roundtable discussion held with *'future energy leaders'*. In an article in this special edition, you will find that they all pursue the same goal, but the pace remains a point of discussion.

Personally, I encourage that the conversation is about the 'how' and not the 'why'. This underscores the importance of an event like the World Energy Congress, fostering dialogue on this critical issue. To have it here in 'my' city of Rotterdam makes it all the more special. It is incredibly important to discuss the various complex aspects of the energy transition on this international platform and to work together to accelerate it.

Cindy Kroon

Chief Commercial Officer Vattenfall Netherlands





'THE ENERGY TRANSITION NEEDS A BOTTOM-UP APPROACH'

For Angela Wilkinson, Secretary General and CEO of the World Energy Council a successful energy transition does not lie in grandiose projects. Rather, local initiatives that enthuse citizens will be a great help. 'This way, we succeed more effectively in putting people at the center of the energy revolution.'

TIT



'We need to redesign the energy system in such a way that global energy transitions can not only be fast, but also fair'

rom April 22 to 25, Rotterdam will be the stage for the 26th World Energy Congress. Political leaders, scientists, NGOs, CEOs and other stakeholders from across the globe will gather to discuss how to accelerate energy transitions. The objective of the international event is not only to debate how to reach net zero CO₂ emissions by 2050, but also to inspire participants to take impactful actions that could help solve wider societal problems. The organizer of the world's most important energy event is the World Energy Council, which was founded in 1923 and has, since its inception, played a major role in driving global energy transitions. The Council is funded by its registered members and is therefore independent and impartial. This is important for bringing together stakeholders from all parts of the global energy ecosystem to discuss how energy systems might be reimagined to better serve people and communities globally. Or, as the theme of this year's Congress theme reads: 'Redesigning energy for people and planet.'

'Women, workers, youth, indigenous and vulnerable communities, as well as the new emerging middle class. We need to engage all these groups in the energy transition process.' That is the message of Angela Wilkinson. The UK based energy expert has served as Secretary General and CEO of the World Energy Council since 2019. Wilkinson is the World Energy Council's sixth Secretary General since its founding in 1923 - and the first woman to have held this influential position since the Council was established more than a century ago. Wilkinson previously held various governance roles in the public and private energy sectors, including time at the OECD, Shell, British Gas, and others. In addition, she is an academic researcher at the University of Oxford and has written four books on energy issues. She is passionate in her mission to humanize the energy transition. 'It is time to stop talking about technology and investments, but most of all it is time to put people at the center. Energy transitions must move from a 'top-down', to an inclusive 'bottom-up' approach. Only then can we succeed."

Leading up to the event, Wilkinson visited several innovation incubators in Rotterdam. She praised the city for not only having formulated strong sustainability ambitions, but also for having an eye for social opportunities in the transition process. This affords Cindy Kroon, Chief Commercial Officer of Vattenfall, a Rotterdam native herself, some pride. Like Wilkinson, she has a positive hands-on mentality and believes that success stories are important in driving the energy transition. During an interview with Wilkinson, she looks ahead to the Congress. Vattenfall is participating in the congress in Rotterdam as speaker and in addition Kroon is a member of the board of World Energy Council The Netherlands.

The World Energy Council is celebrating its 100th anniversary. What do you think are your organization's most important achievements?

'In the past hundred years, we have proven to be very good at three things. First, we manage to bring together many different stakeholders in the energy field. These stakeholders are from all over the world - a total of 120 countries have joined the World Energy Council. We not only have power blocs like the Middle East, China, and America at the table, but also smaller countries and communities that participate. Second, at every transition in history, we have been strong in 'connecting the dots'. We know how to bridge differences of opinion and translate ambitions into results. We did that when we formed in the 1920s - just after World War I and the Spanish Flu – when a new energy system had to be built. Seventy years ago, we linked energy to social equality; as more households were connected to the energy system, women, for example, were given more opportunities. That boosted women's emancipation. Twenty years ago, we developed the World Energy Trilemma framework to link energy security to affordability and equality, as well as sustainable development. We use this to measure how countries perform on energy security on three dimensions: affordability, equality and sustainability. The framework has now been rolled out in 120 countries. We can compare



countries and distill best practices from it. Third, we are 'changemakers.' We have a diverse network that includes government leaders, local administrators, scientists, CEOs and varied community groups. We share a common belief that we must make the world more sustainable and better. If we fail to do that, we humans simply will not survive.'

There are many conferences on energy. Why is it valuable for companies to attend the World Energy Congress?

'We are not a commercial conference where CEOs from the energy industry talk about their companies and successes. We are not financed by a single, or a few, large companies. The World Energy Congress aims to share as many insights and experiences as possible. We give a stage to visionary leaders and experts from around the world who explain how they make a difference, who they work with to do so, and how they get it done. Participants also set goals and commit to achieving their ambitions. Usually, the results are presented at a subsequent conference. We aim to share successful examples to inspire each other. The congress is



ANGELA WILKINSON

Education Bachelors, Physics, University of Leicester

Experience

2019 - present Secretary General and CEO, World Energy Council

2017 - 2019 Senior Director, Scenarios and Business Insights, World Energy Council

2019 - present Fellow, Centre of Strategic Foresight, U.S. Government Accountability Office (GAO)

2016 - present CEO, Oxford Futures Limited

2013 - 2016 Head of Strategic Foresight, OECD

2010 - 2013 Director, Futures Programmes, Smith School of Enterprise and the Environment, University of Oxford

2006 - 2010 Director, Scenario Planning and Futures Research, University of Oxford, Saïd Business School

1999 - 2006 Head of Special Project, Global Business Environment, Shell International

1996 - 1999 Director, Reputation Management and External Affairs, Shell International



MORE ABOUT ANGELA WILKINSON: WWW.MANAGEMENTSCOPE.NL



not held in Rotterdam for no reason. Both the port and the city have sustainability ambitions. The port wants to become an international hydrogen hub. The city of Rotterdam wants to tackle the social inequality that may arise from the energy transition. Not everyone can make their home sustainable and thus benefit from more affordable solar energy. That is why the city wants to convert problematic neighborhoods into energy districts.'

What are the main themes of the 26th World Energy Congress?

'The theme of this year's World Energy Congress is '*Redesigning Energy for People & Planet*'. We very deliberately chose the term redesign because the relationship between people and planet is fundamentally changing. As this occurs, everyone must have access to the future energy system and be able to benefit from it. This means that we need to redesign the energy system in such a way that global energy transitions can not only be fast, but also fair. What new points should we connect to accelerate the energy transition in all parts of the world? This cannot be achieved without also considering the societal aspects of the energy transition. Until now, the conversation about the energy transition has revolved mostly around technology and investments. However, we need to humanize the energy transition, in other words, put people at the center. Who are the users of the future energy system? What needs do they have, what opportunities do they have? How do we ensure that everyone benefits from the future energy system? It is not just about 'net zero' in 2050, but about something additional: it is also about 'how' we achieve this and 'with whom' and 'for whom'. Experiments are being conducted in a multitude of places around the world and are resulting in positive outcomes.'

There is much debate around the energy transition in the Netherlands. If we do not pay attention, the energy transition will lead to inequality and people with the lowest income will benefit the least. How can we prevent this group in society from rebelling?

'It is a given that we live in a world of inequality. Because of our capitalist system, we do not all have the same level of income. However, we need to bridge that inequality. No one should be left out. It is essential to involve everyone in society in the energy transition. We need to bring different groups from society to the table. If we do not do so, we will miss social support and the necessary energy transition will not get off the ground despite the available technology.

The narrative of the energy transition needs to change. At the moment it centres around weighty themes like hydrogen, new technologies, electrification. For ordinary citizens, the energy transition is over their heads. It is a power game in which they do not participate. Instead, the narrative should be about what role renewable energy can play in citizens' lives, how important it is for their future and what contribution they can make. Local initiatives must get off the ground. This requires new forms of cooperation between municipalities, local administrators, entrepreneurs, energy companies and citizens. Success stories must be shared. It should not be the mayor, or the CEO of the company concerned, who spreads the news, but citizens who benefited from it. This is how we will succeed in activating different groups in society.'

The energy transition is accompanied by significant polarization. On the one hand, there are activists who say that the transition to a sustainable planet is going too slowly. On the other hand, there are critics who argue that climate change is nonsense and that there is no need to fund the energy transition with vast amounts of money. How do we navigate such a polarized landscape?

'I have ongoing conversations with my 23-year-old daughter. She has no interest whatsoever in the energy transition because she has so many other concerns as a young adult.

'The energy transition is a huge opportunity to redesign not only the energy system but also society'

How will she find a well-paying job? How will she become financially independent? She does not want to be concerned with global problems such as climate change. Many of her generation think that way, but whether they like it or not: they too cannot avoid the climate issue. We must find ways to appeal to these young people and convince them that the energy transition is necessary and that they have their part to play. How is that possible? By having an eye not only for the energy transition but also for the social problems they are struggling with – the high cost of living, the housing shortage. But we also need to get away from the constant debate about who is going to pay for the energy transition. It is very simple: everyone is going to pay for it, because everyone is also going to benefit from it. There is also room for improvement at international level. In my experience, the energy transition is a competition for many countries. Who is the most sustainable and who takes the lead? Europe in particular is eager to be the best in class. But this has significantly limited the continent's options in terms of energy supply. The focus in Europe is very much on green-only, on renewable energy sources only. Our approach to policymaking should also be examined. Policy is rather bottom-down, determining from the top-down what is green and what is not. Just like determining which technology and investments are made. All of that has driven up the price of the energy transition tremendously. And that is why you see a countermovement emerging in Europe. Citizens may consider sustainability important, but not at any price. And certainly not if energy security comes under pressure. In other parts of the world, leaders are more pragmatic. For the time being, they are focusing on a wider energy mix, not only to meet national energy needs but also to keep energy affordable.'

Which countries are doing well and can set an example for Europe?

'There are different routes to a cleaner society, just as there are different visions on how to shape the energy transition. Take China which, thanks to the socialist model, has made enormous progress in a short time. The state made massive investments in renewable energy, electric vehicles, green public transportation and biodiversity protection. That country is now considering what productivity really means for a more sustainable society. There are ambitions to transform from an industrial society to an ecological civilization, where people live in much greater harmony with nature. This is a solid mission. Europe likes to shout that it is leading the way, but in fact China has overtaken our continent. What I observe with many countries is that they do not have a single-issue agenda. They are not only focusing on reducing CO_2 , but also on improving biodiversity or resilience – how can we arm ourselves against the effects of climate change. We have been shouting that we have sustainability goals and are faithfully living up to them since the 1980s, but in fact this is too limited. Europe too needs to do some redesigning. Do we only want to achieve the climate goals? Or do we also want to tackle other social problems? The energy transition is a huge opportunity to redesign not only the energy system but also society.'

What would a successful World Energy Congress look like to you?

'I would be satisfied if at least ten new ideas for local initiatives that contribute to the energy transition emerged during the conference. These do not have to be grandiose projects, such as electrification of public transport in a country or large-scale hydrogen production. In addition to big ambitions we especially need smaller, local initiatives in which we also enthuse citizens. We can keep talking about expansive plans at a high level but with the realization of local initiatives and new forms of cooperation, the energy transition will have a far more bottom-up approach. This way, we succeed more effectively in putting people at the center of the energy revolution. We are not an activist movement, but activator: an organization that wants to encourage action.'



INTERVIEW CINDY KROON

Kroon is CCO Vattenfall NL. She interviews and writes for *Management Scope* about the energy transition. Her contributions can be found at her personal page on <u>managementscope.nl/manager/</u> <u>cindy-kroon</u>

TEXT ELLIS BLOEMBERGEN PHOTOGRAPHY DAVID WOOLFALL

OPTIMISM, BUT MOST OF ALL DECISIVENESS AND REALISM'

The longing for a society that is cleaner, more innovative and more equitable is how one of the three young professionals at our roundtable powerfully summarizes the essence of the energy transition. It is about time for policymakers, scientists, citizens and the industry to act together. Optimism is important, but must not take over. 'Sit back with the idea that everything will turn out fine? *We are f***cked*!'

In the run-up to the World Energy Congress 2024 in Rotterdam, Management Scope spoke with three young professionals closely involved in the energy transition: **Dion Huidekooper** (Chairman of the Youth Climate Movement), **Fabian Dablander** (Postdoctoral Researcher at, among others, the Institute for Biodiversity and Ecosystem Dynamics of the UvA), and **Simone de Bruin** (Policy Advisor Sourcing & Pricing at Vattenfall Heat and also a member of the Vattenfall Young Board of Directors). It is a conversation in which the young generation's sense of urgency is made crystal clear. In addition to words like 'optimism' and 'hopeful,' words like 'disgraceful,' 'immoral' and 'unacceptable' pass the table.

All three of you play a specific role in the energy transition. What led you to make this decision?

De Bruin: 'In Vattenfall, I work in a team that deals with the sourcing of heat and connecting new sustainable sources to our heat networks – think of geothermal heat, industrial residual heat, or data centers. During my master's degree in Delft in the field of





Simone de Bruin, Dion Huidekooper and Fabian Dablander

'There is too much emphasis on hypocrisy in the climate debate. Nobody is perfectly sustainable yet in a system that is grounded in fossil resources'

DION HUIDEKOOPER

complex system engineering, I gained a good overview of the challenges at various levels of the energy transition, from technical to political and economic. I am intrigued by this challenging puzzle. In addition, the greening of the heat sector is quite neglected in the energy transition, while more than half of our energy consumption is used for heat applications. That is why I did my master's thesis at Vattenfall Heat, which led me here.'

Dablander: 'I have three roles in the energy transition. The first is that of researcher; I recently completed my Ph.D. focusing on early warning signals for tipping points in complex systems - think of sudden, drastic changes. My research focused on how to increase our anticipatory capacity in this area. Through my research work I became more aware of the scale of the climate crisis. For this reason, I last year started a postdoctoral program focusing on switching society to an 'emergency mode', so we can stop using fossil fuels faster. I am also involved with the research institute Polder, which connects policymakers with researchers in the field of complex systems. Among other things, we develop simulations in co-creation to increase understanding of the consequences of policy measures. Finally, I have a role in Scientist Rebellion Netherlands, with more than 500 scientists from various disciplines, focused on action and civil disobedience. I strongly believe in the power of collective action.'

Huidekooper: 'I am the Chairman of the Youth Climate Movement. We aim to ensure that young people's voices are heard in policymaking – the climate crisis affects the youngest and future generations the most. We sit on the Social and Economic Council (SER), bringing the input of young people to the table, and we aim to increase awareness among youth about sustainable lifestyles through education and workshops. We also facilitate international collaboration among youth and, for example, have drafted the Youth Climate Agenda, a hopeful vision of what our climate-neutral society should look like in 2040.'

How do you personally find the balance between pragmatism and dogmatism when it comes to sustainable lifestyles?

Huidekooper: 'When travelling, I opt for the most sustainable form of transportation. I am vegetarian and I avoid

fast fashion. In short, I try to minimize my own impact. It is important to think about what you can do yourself. Also, having 'moral ambition' – contributing to sustainability in your work – is valuable. But I do also find that there is currently too much emphasis on hypocrisy in the climate debate. We need to acknowledge that nobody is perfectly sustainable yet because we are stuck in a system that is grounded in fossil resources.'

De Bruin: 'During the last energy crisis, turning on the heating in our student house was something we could not afford. We turned it into a game to be more conscious of our energy consumption, but the dependence on imported fossil energy was a true eye-opener. I limit my energy usage wherever I can, although it is often challenging to find the balance between ideals and practical feasibility. I enjoy traveling, but since flying is the least sustainable mode of transport, I have a small van which is converted into a camper. I want to continue doing things I enjoy whilst being aware of the impact.'

Dablander: 'For the past few years, I have been living a more sustainable lifestyle: eating vegan, flying less, lowering the thermostat. But I also realize that I am one of billions of people on this planet: what difference can I make with my individual actions? If you are in a role like ours, 'walk the talk' is crucial. It makes you more effective as an advocate and enables you to avoid the hypocrisy discussion. I often hear people say they find it difficult to give up certain things. My advice is to join collective actions. It is more effective to make the catering in your organization sustainable than just not eating meat yourself. Collective action enables systemic changes. Flying is cheaper than taking the train, but those with a small budget cannot afford the train. You need public pressure to change this.'

De Bruin: 'At Vattenfall we also recognize the value of collectivity. This is in fact about effectiveness and scaling up. That is why we recently established the Young Board of Directors here – originating from the youngest generation of employees who want to contribute to sustainability. We gather ideas from young colleagues and discuss with Vattenfall's board how we can turn these ideas into improvements or changes. We encourage young employees to critically examine the decisions made within the organization and to make their voices heard.'

What do you see as the main obstacles in the societal discussion about the energy transition?

Huidekooper: "Whataboutism' plays a significant role in our country: China opens hundreds of coal-fired power plants annually, so sustainability policies in our country would be pointless. It is a way to avoid individual responsibility. The principle of 'common but differentiated responsibilities' has been formulated by the UN: all countries are responsible for addressing environmental problems from an international environmental law perspective, but not to the same extent. This principle also applies to individual people and major polluters. The latter group has a greater responsibility for sustainability because they have more influence and impact.'

Dablander: 'A hugely significant obstacle is the lack of urgency. The Netherlands aims for 'net zero' by 2050. That is an absolute scandal. We only have a global CO, budget of 1.5°C for another four years. If you calculate more honestly - the 23 richest countries in the world are responsible for half of the emissions - the Netherlands would have exceeded its CO₂ budget long ago. This is why a country like India says, 'why should we bother?' Additionally, there is a huge underestimation of climate risks. The more insight scientists gain, the more concerns increase. In 2001, a temperature increase of 5 degrees was still seen as no risk for tipping points, but now we know that exceeding 1.5°C can already cause multiple tipping points. We need to realize that we in Europe – the continent that is warming the fastest – are not safe. Even if you are wealthy. The Atlantic Gulf Stream, which determines our climate, is at risk of slowing down. This means a temperature drop of more than 3°C per decade in parts of Europe. Society cannot adapt to such rapid changes. Scenarios like these are not given space in public debate, let alone in policymaking. Although it is possible to intervene, far too little is being done. This lack of urgency justifies collective civil disobedience.'

That urgency was indeed high on the agenda for a while. Think of 'An Inconvenient Truth' by Al Gore from 2006. What changed?

De Bruin: 'Our goal is to achieve an affordable, reliable, and sustainable energy transition. In today's debate, much attention is focused on the affordability of the energy transition, which requires significant investments. The way these costs are passed on to people and businesses is often seen as

'It is unacceptable that lack of profitability stands in the way of the energy transition'



FABIAN DABLANDER (1993)

has a PhD in statistical methods (with a focus on the climate crisis) from the University of Amsterdam and is currently a postdoctoral researcher at the Institute for Biodiversity and Ecosystem Dynamics. He is a fellow of Polder Research Institute and Scientist Rebellion Netherlands.

unfair – think of the recent discussion about the increased fixed rates of the Dutch heat networks. Low-income households are struggling, putting pressure on the public support for the energy transition. It is therefore good that alarm is raised so that solutions can be sought together. Actions by activist groups increase public awareness and help raise awareness of the urgency.'

Dablander: 'The dilemma is clear: we want an affordable energy transition, but we also want the economy to be healthy. The underlying problem is that our economy is based on maximizing shareholder value rather than human well-being. What is not profitable is put to an end. What is profitable despite being harmful, persists. Think of Shell scaling back its own sustainability plans. That company says it is willing to aim for lower CO, emissions,



DION HUIDEKOOPER (1993)

has been president of the Youth Climate Movement since August 2023 and has a seat at the Social and Economic Council with this organization. After completing his Master's degree in Public Administration at Radboud University, he started his career at the Ministry of Economic Affairs and Climate Policy as a (Policy) Advisor and later on as Spokesperson for Energy and Climate respectively.

but it must contribute to their profits. So, it does not happen. And because fossil fuels are so profitable, they lobby against climate measures. We have legislation allowing multinational corporations to sue governments if their profits decrease due to sustainability policies - think of RWE going to the Dutch court via the Energy Charter Treaty. Renewable energy is less profitable than fossil fuels; even Vattenfall scrapped an offshore wind farm in the UK due to lack of profitability. Therefore, we cannot rely on energy companies exclusively. It is unacceptable that 'lack of profitability' stands in the way of the energy transition. Governments will need to intervene.'

Huidekooper: 'To me Shell's decision is just another example of the immoral shareholder model in oil companies. We should shift the discussion away from costs only because it is about investing in a safe future and preventing – also enormously costly – climate damage. Good luck with bags full of money in an uninhabitable world.'

De Bruin: 'The energy transition comes with many challenges. There are many uncertainties as well: how will green gas and hydrogen markets develop, will residual heat remain available, what direction will policy take, who bears what risks? Despite this uncertainty, we need to act. There is a great need for efficient, effective, but above all predictable government policies to stimulate an attractive investment climate.'

Dablander: 'In an uncertain policy environment, you think twice. I understand the challenges faced by energy companies. But companies remain driven by profit maximization - advantageous for them, but not for society. That is why we need a strong government for the energy transition and more public ownership of critical infrastructure.'

Huidekooper: 'My fervent wish is for multinationals and energy companies – which so far have mainly lobbied for the status quo and thus against the transition - to truly get moving and join us in lobbying for more favorable market conditions for the energy transition and for stable and reliable government policies.'

Have you ever considered changing the established order from within?

De Bruin: 'I did consider it, but I would like to contribute now with concrete steps. At Vattenfall, concrete steps are being taken to unlock sustainable heat, and that is heading in the right direction. That is energizing: doing things rather than just talking. Working at Shell? I think at this stage I can make less of an impact there than with the work I do now.'

Dablander: 'Shell recently lowered its own climate goals. Shell is engaged in greenwashing. We should certainly keep an eye on what the individual can contribute concretely. My observation as a scientist is that the paradigm needs to change. The next question is: how to achieve it? Research shows that people are willing to contribute but are afraid to trust that others will do the same. What is lacking is leadership.'

'My fervent wish is for multinationals and energy companies to join us in lobbying for more stable and reliable government policies'

DION HUIDEKOOPER

'There is a great need for efficient, effective, but most of all predictable government policies to stimulate an attractive investment climate'

SIMONE DE BRUIN

Huidekooper: 'Having a prime minister who says that if you are looking for vision, you should go to the optician, does not help. Populists take advantage of this: they mainly talk about what you can no longer do or have. We need leadership that can connect people and inspire them into action.'

De Bruin: 'I think it is also difficult for many people to get a good understanding of the issues - there is a lot of information but also misinformation. A clear vision will help in this regard.'

Huidekooper: 'It is quite remarkable that it is us who are now teaching young people about what climate change entails and the impact of their personal decisions. The government could place far more emphasis on this in education.'

Dablander: 'Continuously emphasizing what cannot be done and what is no longer allowed does not contribute to support. We need to connect social issues and sustainability. People are not going to protest for increased electricity storage capacity. If you subsidize electric cars, you are giving money to people who can afford such a car. But wealth redistribution faces huge resistance from those in power.'

We are dealing with significant and often conservative and conflicting forces, which can make people desperate or even indifferent. What can we do in terms of optimism?

De Bruin: 'There are many visions and plans, but we need to invest our time in realizing them now; what are the challenges and how do we tackle them? This requires active collaboration among policymakers, scientists, citizens, and corporates instead of waiting or focusing on conflicting interests. In addition, it is important to celebrate the small successes."



SIMONE DE BRUIN (1997)

works at Vattenfall Heat and is involved in sourcing heat and connecting new renewable energy sources to our heat networks. In addition, she is a member of the Young Board of Directors at Vattenfall. She completed a degree in Complex Systems Engineering and Management at TU Delft.

Huidekooper: 'The secret would be in how to reduce this complex, big picture into practical solutions that improve people's lives. This might have to happen from person to person and from street to street: insulating homes, planting trees, having good public transportation. The encouraging perspective of the energy transition is a society that is cleaner, more innovative, and fairer. There is light at the end of the tunnel, and it is important that we continue to see that light.'

Dablander: 'Optimism is important, but determination and realism must form part of it. There is no time to sit back with the idea that everything will turn out fine. We are *f***cked*. Climate change is going to hit us hard. We need to act now and get ourselves organized. That, in turn, contributes to support, trust, and resilience. That is what I draw hope and strength from. To sit at home and wait? That way nothing can happen, except that you get depressed.'

INTERVIEW AND TEXT ERIK BOUWER PHOTOGRAPHY ROGIER VELDMAN

TRUST AND COOPERATION AS BUILDING BLOCKS OF THE ENERGY TRANSITION

Trust and cooperation are the real success factors of the energy transition – and perhaps even more decisive than technology or money. So argues Marco Bosman, Director of Public and Regulatory Affairs Netherlands at Vattenfall.

The energy transition – the necessary transition from fossil energy to energy from fossil-free sources – has been in the making for some time, but it faces increasing pressure. The causes for this include the current political landscape, scarcity in the energy infrastructure, rising costs and the urgency for action, which means that climate measures must be implemented faster. Because of the latter, public support may also come under greater pressure as the public and businesses feel overwhelmed.

Discussions on how best to approach the energy transition are taking place in an increasingly broad social context. This discussion is a valuable element of the transition: it will not happen by itself, which is why different approaches and perspectives are important. Broad involvement of consumers, businesses, governments and civil society organizations is necessary.

PROMISING PERSPECTIVE

The good news is that we found the right path. Until 2010, most efforts to make our energy supply more sustainable were relatively optional. But with the successful agreements concluded in the Energy and Climate Accord in the Netherlands, clear legal frameworks and goals for the transition have been established for this country. The statutory goal of reducing net greenhouse gas emissions to zero by 2050 is the main guideline, as is the goal of reducing these emissions by 55 percent by 2030 as compared to 1990.

This introduced several concrete implementation plans, many of which are now being implemented. Think of the realization of offshore wind farms. In addition, the scope of the transition has been broadened to what is happening within organizations - the built environment - and to the industrial transition.





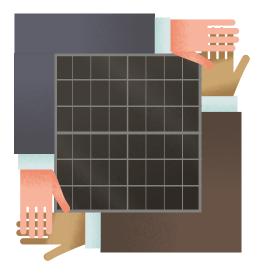
The bill of the energy transition is about both cost and financial feasibility. The switch to a fossil-free energy system incurs investment costs. But the question of who bears what costs comes into play. It is relatively straightforward to calculate a business case for insulating your home: the costs, subsidies and payback period are all easily mapped out. But who will bear what cost when natural gas networks and installations are replaced by a heat network? That question affects several players: the housing cooperative, the tenants, the homeowner, the heat company, the municipality and the national government. An equitable distribution based on cooperation will have to be reached, the reality being that the change to a sustainable built environment will require extensive investments.

SOCIALIZE COSTS

Sustainability creates an energy system with more variables than the traditional system. Energy production changes with weather conditions, grids and consumers will need to be more flexible and, in some cases, switching between electrons and (gas and heat) molecules will be necessary. This transition not only requires extensive investments, but also increases annual operational costs. For example, grid costs for electrolysers and electric industrial solutions are skyrocketing; these costs inhibit further investment. Therefore, some form of socialization of costs will be necessary. A good example is the Dutch Gasunie's construction of the hydrogen backbone. Through government support, the investment costs of 1.5 billion euros are partly socialized, but transport revenues from future users are also counted on.

LARGE COMPANIES PLAY A KEY ROLE

Large industrial players shape discussions about the transition significantly - this is also reflected in the discussion about the business climate for large companies. Large companies are under scrutiny, but they play a pivotal role in the energy transition. Providing companies with clarity about and confidence in consistent government policy allows investment decisions to be made. Due to the scope of these decisions, they are a prerequisite for triggering the supply of renewable energy (in the form of electricity and hydrogen). Industrial projects create the demand for sustainable energy, enabling energy companies to trust in realizing the supply. Bringing supply and demand together requires clarity, trust and cooperation. This also includes the predictability of policies.



OFFERING PERSPECTIVE

Until recently, companies could count on two substantial funds established by the Dutch government: the National Growth Fund (20 billion euros) and the Climate Fund (35 billion euros). There is a possibility that politicians may want to allocate the money in these funds differently. The industry's reaction is understandable. It slows down developments and investments necessary for climate and energy transition. This is a problem: without clarity, there is no investment perspective. Without an investment perspective, there is no investment confidence. Without investment confidence there is no innovation, scaling up and collaboration. This invariably leads to a delay, while it is exactly acceleration that is needed.

But how can we achieve such an acceleration? The government has already initiated many actions, and there are legal frameworks with objectives that must be met. What can be leveraged to give the energy transition the necessary boost? What becomes important are aspects such as shortening of permit procedures, the timely and affordable construction of energy infrastructure, and providing clarity on (intermediate) steps towards the end goal. It is important to realize that success also depends on doing the right things at the right time.

NEED FOR MORE PREDICTABILITY

An important reason for the potential delay now looming is the uncertainty about how the climate and energy transition will be facilitated and stimulated. Transitions categorically benefit from as much clarity as possible regarding goals and timelines. These goals and timelines need to be safeguarded by supportive policies aimed at further innovation, scaling, and execution. The Dutch electricity system must be completely CO_2 -free by 2035, where 10 years is quite a short period for energy companies. From 2040 onwards, no new emission rights will be available for the industry; this can well pose an even greater challenge. Households have a bit more time to transition away from gas, but some are ready and able to do so now. Allow each household the time it needs to make the switch and support them in doing so.

Without clarity, no investment perspective. Without perspective no investment confidence and thus no innovation, scale-up or collaboration

COLLABORATION

Finally: innovation tends to happen in bursts but is always more efficient when in collaboration with sufficient execution power. However, the societal trend is to distrust the big corporations. This is not a good basis for accelerating together. Companies will only invest when they have confidence that they can be part of a market for the long term. Conversely, large players possess significant investment capacity. Not collaborating with these large companies therefore imposes significant limitations. Focus on where each player wants to go and pay a little less attention to where they come from – that is the call here.

In short, we must consider the financial, technical, political, and infrastructural aspects, but let us not forget that we need everyone – and this is where the human aspect enters. Collaboration starts with people willing to sacrifice some self-interest. Both entrepreneurship and political leadership require the ability to look ahead: everything we do now is part of a sometimes-uncertain transition to a stable, fossil-free future. By trusting in the end goal and in our fellow travelers, we can collectively take the steps necessary for a sustainable economy.



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TEXT ERIK BOUWER ILLUSTRATION RICKY BOOMS

