

E-PAPER

Diversion from urgent climate action

How the European nuclear lobby undermines the EU's energy future



JAN HAVERKAMP

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About the Author

Jan Haverkamp MSc (1959) is a senior nuclear energy and energy policy expert with the World Information Service on Energy (WISE) and Greenpeace Netherlands. He is co-founder and vice-chair of Nuclear Transparency Watch. He is a Dutch citizen, and since 2017, based in the Netherlands, after having lived 21 years in the Czech Republic and Poland and having worked since 1985 in Central Europe.

His work as a developer of environmental organisations in Central Europe, and as an energy campaigner and nuclear energy specialist, has brought him into contact with nuclear power and energy policy in all EU and EU accession countries that operate, have operated or have taken moves to operate nuclear power stations, as well as Belarus, Russia, Ukraine, Switzerland, Canada, Japan, South Korea, South Africa, Taiwan, Turkey and the USA. He also worked for four years as Greenpeace's EU nuclear policy advisor in Brussels, including during the start of the Fukushima nuclear crisis and the following nuclear stress tests. He was involved in the development and following implementation of the Euratom Nuclear Safety Directive, the Nuclear Waste Directive and the Directive on Basic Radiation Standards. He has a long track record on issues of nuclear transparency, especially the implementation of the Espoo and Aarhus Conventions in the nuclear sector. He participates as an independent civil society expert in the European nuclear waste research project EURAD.

Jan received his level 5B certificate as a radiation protection advisor from the Technical University Delft. He has been involved in radiation protection work in Spain, Japan, Ukraine and France.

Jan Haverkamp has taught, between 2004 and 2020, at the Department of Environmental Studies at the Faculty of Social Sciences of the Masaryk University in Brno, Czech Republic.

He has a bachelor's degree in biochemistry from the State University in Leiden, the Netherlands, and a bachelor's and master's degree (academic engineer – Ir.) in environmental sciences from Wageningen University, the Netherlands.

About WISE

WISE (World Information Service on Energy) was founded in 1978 in Amsterdam, the Netherlands. In 1978 revenues from sales of the Smiling Sun were used to start up the organisation, and for about 10 years partly to finance the work of WISE. From the very beginning, WISE has always published a magazine, meant to keep the global anti-nuclear movement updated on developments, arguments and campaigns. In the year 2000, the WISE News Communique merged with the NIRS Monitor into the current Nuclear Monitor. For many years, it has been the last magazine totally devoted to the fight against nukes. WISE currently campaigns for a sustainable energy transition to a fully renewable future. It runs campaigns on carbon pricing, promotion of renewable energy and against nuclear power.

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Abbreviations

ANCCLI	l'Association Nationale des Comités et Commissions Locales d'Information
BWR	Boiling Water Reactor
CEA	le Commissariat à l'énergie atomique et aux énergies alternatives
CDA	Christen Democratisch Appèl (Christian Democratic Appeal, Dutch Christian Democratic party, right of centre)
CLI	Commission Locale d'Information
CNS	Convention on Nuclear Safety
CONGO	Corporate organised non-governmental organisation
CSO	Civil Society Organisation
DG ENER	Directorate General Energy (of the European Commission)
DIW	Deutsches Institut für Wirtschaftsforschung (German Institute for Economic Research)
ECR	European Conservatives and Reformists (Group in the European Parliament)
EEB	European Environmental Bureau
EESC	European Economic and Social Council
ENEF	European Nuclear Energy Forum
ENS	European Nuclear Society
ENSREG	European Nuclear Safety Regulators Group
EP	European Parliament
EPR	European Pressurised Reactor
ERDO	Association for Multinational Radioactive Waste Solutions
FvD	Forum voor Democratie (Forum for Democracy, far right populist party)
GM	Genetic modification
GMF	Group of European Municipalities with Nuclear Facilities
GMO	Genetically modified organism
IAEA	International Atomic Energy Agency
IEA	International Energy Agency (part of the OECD)
IGD-TP	Implementation of Geologic Disposal – Technology Platform
IPCC	Intergovernmental Panel on Climate Change
JRC	EU Joint Research Council
KBA	Korean Business Association Europe
LCA	Life-cycle assessment
MEP	Member of the European Parliament
MSR	Molten Salt Reactor
NIMBY	Not in my back yard
NGO	Non-government organisation, civil society organisation

NNWI	New Nuclear Watch Institute
NTW	Nuclear Transparency Watch
NUGENIA	Nuclear Generation II & III Association
OECD	Organisation of Economic Cooperation and Development
OECD-NEA	Organisation of Economic Cooperation and Development – Nuclear Energy Agency
ÖkoProg	Öko-Progressives Netzwerk e.V.
PBL	Planbureau Leefomgeving (the Dutch Planning Office for the Living Environment)
PWR	Pressurised Water Reactor
RAIN	Rusatom International Network (a subcompany of Rosatom)
RES	Regional Energy Strategy
SEK	Stichting Energietransitie en Kernenergie
SMR	Small Modular Reactor
SNETP	Sustainable Nuclear Energy Technology Platform
TNI	Transnational Institute (NGO based in Amsterdam, Netherlands)
TU Delft	Technical University Delft (Netherlands)
UK-NIA	UK Nuclear Industry Association
UNECE	United Nations Economic Council for Europe
UNEP	United Nations Environmental Programme
VVD	Volkspartij voor Vrijheid en Democratie (People's Party for Freedom and Democracy, a conservative liberal party, right of centre)
WiN	Women in Nuclear
WISE	World Information Service on Energy (NGO based in Amsterdam, the Netherlands)
WNA	World Nuclear Association

Executive summary

In several countries in the EU, as well as in the Brussels corridors of the European Union institutions, a vehement debate is currently taking place regarding the demand for more nuclear power. Only five years ago, this attention hardly existed. This study looks at the sudden surge in attention for nuclear energy and tries to understand the role of different actors on the side of the nuclear lobby. It investigates the case of the Netherlands, which turned from a *de facto* nuclear phase-out country to one where expansion of nuclear energy is currently under preparation, as well as the European Union, where a large minority of Member States have brought nuclear back to the table in many climate-related legislative debates.

The Netherlands

In the Netherlands, the mood around nuclear energy changed suddenly on 4 November 2018, when the satirical news TV programme *Zondag met Lubach* ran a 19-minute item claiming that there was a taboo concerning nuclear power. This appeared to be the turning point, introducing a growing wave of technopositivist thinking that was initiated in Finland and the US, and brought to the Netherlands by author and publicist Michael Shellenberger. He inspired a small but vocal new movement of ecomodernists, that drew the attention of, especially, but not only, a younger public with catchy digestible chunks of argumentation about why nuclear power should be supported. From that moment on, enthusiasm for nuclear power in the Netherlands sharply grew.

Three groups played a central role in the years that followed. The nuclear industry, of course, has tried to revive nuclear energy in the Netherlands for decades. It used for that purpose its aura of expertise and close contacts with the party-political centre in the country. A second group were political parties. In the political centre, there were the conservative VVD and Christian democrat CDA, which have ideologically supported nuclear energy for a long time. Additionally, a host of far-right parties see the opposition to nuclear energy from the established progressive and left parties as a red flag, and for that reason are proponents of the technology themselves. The third group consists of suddenly appearing more or less “grassroots” activity that started promoting nuclear energy, partially consisting of astroturf groups set up by industry, and partially drawing new blood from eager climate activists that want to use all that it takes to prevent a climate catastrophe.

Just as crucial as the Lubach broadcast was the direct response to it from the VVD to push nuclear back into the parliamentary debate. Although nuclear energy has been a long-time issue for this party and its CDA government allies, it picked up the easy, simplified, social media-savvy form of communication from the ecomodernist push and managed to create renewed enthusiasm among the right-wing electorate – not only in the political capital, The Hague, but also throughout the country at the level of provinces and municipalities.

The industry lobby picked up on that and provided speakers to increase the image that nuclear power deserved being among the solutions for the looming energy crisis, as well as the climate crisis in general.

When, in 2019, the Rutte III government commissioned studies that concluded that nuclear energy would make reaching the 2050 climate targets more expensive, it organised, with input from the industrial lobby, a counter-study that claimed the opposite. The 2021 Rutte IV government took the issue of nuclear energy up in its coalition agreement.

Since that moment, the Dutch debate around nuclear energy moves between simplified, catchy social media argumentation related to concrete steps for the preparation of new nuclear projects, and the complicated reality. The centre of gravity of the nuclear lobby has now moved to the political parties promoting nuclear.

The EU

In Brussels, the traditional nuclear lobby comes from the side of the industry. Since the establishment of the Euratom Treaty, large engineering firms have organised themselves in the organisation Foratom (since 2022, nucleareurope) to promote their interests. There are now over 100 lobbyists in Brussels dedicated to these interests, coming from nuclear utilities, nuclear engineering companies and the nuclear supply chain. These either have lobby offices themselves, or they are represented by specialised lobby firms.

Also, traditionally, this large industry has spun off research groups that represent their interests in the myriad of nuclear research taking place under the Euratom Treaty, and receives support from large international institutions with a nuclear promotion mandate, like the IAEA, the OECD-NEA and others. And former and current employees of the nuclear industry and its institutions have created their own groups supporting nuclear.

Relatively recently, these have been joined by a substantial amount of “grassroots” groups, most of which appeared as astroturf, that is, with industry backing. That includes, in several countries, upcoming ecomodernist groups (for instance, in the UK, France and Germany), but also so-called think tanks or expert groups.

In the huge networking setting that the EU institutions offer, these groups create a basis for positive nuclear attitudes within Brussels, but are, as such, not the key factors for the sudden increase in attention for this technology.

That is clearly delivered by a growing group of Member States, where national political dynamics have brought forward strong supportive nuclear policies. Thirteen out of 27 EU Member States currently have a government that supports the development of nuclear energy.

The centre of gravity at the EU level therefore exists at the European Council and the European Commission, especially because the European Parliament has no legislative functions under the Euratom Treaty.

The current enormous political lobby for nuclear energy – at the party-political level in the Netherlands and by a substantial group of Member States in the EU – leads to a diversion of attention and capital from urgent and effective climate measures and threatens to delay urgent climate action.

This study provides ideas about how this lobby may be countered. The chances for that lie in the complexity of the issue and the realities on the ground that may force the executive – the government in the Netherlands and the European Commission in the EU – to prevent the nuclear debate diverting too much attention and capital from urgent and effective climate action, keeping in mind that nuclear power itself will deliver virtually nothing to the climate emergency's resolution.

1. Introduction

This WISE report gives, with research support from the Transnational Institute (TNI), an overview of the role of the Dutch and European nuclear lobby in slowing down urgent climate action.

Nuclear energy is an industry in decline.^[1] But if one looks at the whirlwind of debate in the Brussels EU bubble or in the Dutch media, one gets a completely different picture. In the Netherlands, nuclear appears to be back with a vengeance. Until recently, there was hardly any public or political attention paid to nuclear power. Not in the energy debate, which was overshadowed by the earthquakes in the North of the country due to gas extraction. Not in the climate debate, which focused on the low position of the Netherlands in the European climate policy rankings. And not in the industry debate, which was overshadowed by the threat made by Shell to pull out of the country if it could not hold on to its tax advantages. Then, in 2018, one late evening satirical television news show, *Zondag met Lubach*^[2], changed all of that. With 19 minutes of positive spin, nuclear energy was no longer a taboo. The usual political suspects picked up the issue immediately – the conservative liberal party VVD passed a motion in parliament the day after the TV show.^[3] It received support from the Christian democratic CDA and from the far right. In the months that followed, Dutch social media were brimming with support for nuclear energy. Progressive liberal newcomer party VOLT picked up the issue in its 2021 election programme.^[4] Especially, the support among the younger generation, which had not experienced Chernobyl and for whom Fukushima was something from their childhood or teenage years, increased sharply.^[5] What prompted this sudden surge of support for nuclear energy?

Meanwhile in Brussels, several actors noticed that attention for the nuclear disaster in Fukushima, expressed in the call for, and implementation of, the European post-Fukushima nuclear stress tests, was slowly fading. This presented a new opportunity for lobby groups to push nuclear energy as an integral part of climate policy. Nuclear lobby organisations, such as [Foratom](#) (now [nucleareurope](#)^[6]) and the [WNA](#) (World Nuclear Association) – as well as a host of *astroturf*^[7] groups around them – focused on the opportunity to have nuclear energy taken up in the Taxonomy for Sustainable Finance, a piece of key-legislation from the EU to motivate the financial sector to move capital to the green transition. The push was turned into motion by traditionally pro-nuclear countries like France, Finland, the Czech Republic and Hungary, with support from the nuclear industry giants Rosatom, Westinghouse and EDF, as well as new Members of the European Parliament (MEPs) that had been voted in in the 2019 elections. Fresh blood seemed to pulse around in the nuclear debate and the European Commission caved in late 2021 by including nuclear in a delegated act under the Taxonomy Regulation.^[8]

The Russian invasion of Ukraine, in February 2022, did not diminish the support for nuclear in the Brussels bubble. Initially, there was widespread fear for the fate of the Chernobyl site during its occupation by Russian troops, and next the Zaporizhzhia nuclear power station,

where shelling, occupation, regular loss of off-site power and immense pressure on staff created a sincere and lasting threat of a potential new nuclear catastrophe.^[9] Nevertheless, voices calling for learning lessons from this situation, namely a malevolent attack on nuclear installations during war time, were a small minority. The energy crisis resulting from the Kremlin aggression continued to fuel the call for more nuclear in the EU. Forced by fears over security of supply, even anti-nuclear Germany decided to stretch the operation of its last three nuclear power stations for three and a half months past their initial shut-down date. In Sweden, a new right-wing government restarted preparations for new nuclear power stations. Poland pushed forward with agreements for new nuclear. Romania determined a site for small modular reactors. Not even ongoing problems with the newbuild European Pressurised Reactors (EPR) in Olkiluoto in Finland and Flamanville in France, nor the fact that half of the French nuclear fleet was unavailable during a large part of 2022, slowed down these developments.

In the meantime, we see that this nuclear lobby has a direct influence on the speed with which urgent climate action is taken. Our case study of the Netherlands shows how regional energy strategies are delayed because of discussions about nuclear projects that – simply because of unsuitable geography – will never deliver. We see that EUR 5 billion of the government's EUR 35-billion climate fund will not be spent on measures to reduce greenhouse gas emissions, but on facilitating the construction of new nuclear power stations.^[10] For this project, there is not even a hint of how construction can be financed. If they ever come on-line, that will be between 2035 and 2040 at the earliest, enabling further use of fossil fuels for many years, and replacing already cheaper and faster delivering low-carbon sources like wind and solar. At the European level, we see the Regulation for a Taxonomy for Sustainable Financing undermined by greenwashing in the form of inclusion of nuclear and gas – leading to a lower level of credibility, which hampers its function of speeding up the energy transition. Discussions about the (niche) use of hydrogen are derailed by proposals to include nuclear into the definition of green hydrogen, and under pressure from the nuclear lobby, the European Commission is looking at ways of enabling increasing sums of money to flow to nuclear projects.

Practically spoken, if all 20 plans, including those that are still quite vague, for new nuclear power stations in the EU are successfully implemented by 2040, given that around 78 of the current 99 nuclear power stations in the EU will have closed down, nuclear will only deliver around 9% of the electricity in that year. This is down from 24% now. Without these new nuclear projects, the nuclear share will decrease to 4.5% of the electricity production. Within the overall energy transition, these numbers are marginal. In order to get this extra 4.5% power from new nuclear projects in 2040, we run the risk that a substantial part of the remaining 91% will not be delivered by low-carbon sources, but still by fossil fuels, severely delaying the urgent climate action we owe to the next generations.

Where did the sudden resurrection of the nuclear sector come from, only a decade after Fukushima?

This report will try to shed some light on the networks behind these developments, and their strategies.

Research questions

- Who are the main actors that pushed nuclear power into the Dutch political debate? What are their interests? Which strategic lines have they set out?
- Who are the main actors that brought nuclear to the forefront of the European Taxonomy debate? What are their interests? Which strategic lines have they set out?
- Is there a European renaissance of the nuclear debate?
- What are the push factors and how do they relate to each other?
- Nuclear lobbying appears to divert attention and capital from urgent climate action. Which threats and opportunities appear from the used strategies, so that ways can be found to remove this nuclear diversion from the current climate debate?

2. Nuclear lobby in the Netherlands

The Netherlands has been chosen as a case study because the developments in the Netherlands can be seen as a (maybe somewhat exaggerated) model for dynamics also recognisable in other European countries, such as the UK, Finland, Sweden, Belgium, Germany and, to a lesser degree, the Czech Republic, Poland, Italy and Estonia. For two decades, the public debate on nuclear energy in the Netherlands had been on a low level and support and opposition roughly balanced each other out. Powerful actors based in the nuclear industry and nuclear research institutes had, for a long time, been eager to turn the tables on how nuclear energy was perceived in the country, but did not manage to make waves. In came another new group of actors, that wanted to offer an alternative to the “old style” environmental movement, taking inspiration from the Finland and US- born movement of ecomodernists. And with the use of confrontational media and social media communication, they knew to draw attention to themselves. The Dutch nuclear debate turned from non-existent into one of the central political focal points in the climate discussion after one TV show in November 2018. And it has not stopped since.

The run-up to Zondag met Lubach – the Lubach broadcast

Sunday evening 4 November 2018 was a turning point in the nuclear debate in the Netherlands. There were no new developments, no nuclear accidents, no new technologies. Just a satirical news programme on television. During a 19-minute item, host Arjen Lubach^[11] posed the claim that there was a taboo to talking about nuclear energy within the framework of climate change, and that problems with nuclear power are overstated. Renewable energy sources, he continued, are not able to deliver. The segment contained

factual mistakes and disinformation about the effects of Fukushima and Chernobyl, nuclear technology, the state of the nuclear industry, radioactive waste, reports of the International Panel on Climate Change (IPCC), renewable energy sources and developments in the energy sector^[12] Nuclear power criticism was characterised as merely emotional.

Lubach's programme is wildly popular, especially among young people. The broadcast reached 856,000 direct views,^[13] which is a very high number in the Netherlands. The YouTube version has been watched, as of March 2023, 2,844,068 times.^[14]

The question, then, is why this progressive satirical programme decided to table nuclear power as a taboo that needs to be broken?

Michael Shellenberger

Being pro-nuclear has been an effective way to draw attention to oneself, especially if this position is adopted by someone with green credentials. We have seen this with people like James Lovelock, Mark Lynas and George Monbiot in the UK. Over three decades, industry (including nuclear) lobbyist Patrick Moore positioned himself as a 'former Greenpeace founder' (which he wasn't) who has seen the light.^[15] Another personality who built a profile on such a claimed "turn-around" is the US author and publicist Michael Shellenberger. He inspired people like nuclear promoter Kirsty Gogan (UK – see below concerning lobbying in the EU) and prolific pro-nuclear tweeter Zion Lights (US). Shellenberger first gained attention in the US as a climate activist. He co-founded the climate think tank the Breakthrough Institute. After internal problems, he founded the organisation Environmental Progress. With Breakthrough Institute and Environmental Progress, he pushed the ideal of technical progress tackling environmental and climate problems. He built upon a new stream of thinking that emerged from Finland: ecomodernism. From the mid-2010s, Shellenberger started networking with ecomodernists all over the world, was co-author of the Ecomodernist Manifesto^[16] and made the propagation of nuclear energy the core of his message. He campaigned in Korea and Taiwan to overturn anti-nuclear policies in those countries and was instrumental in developing the 'nuclear pride' movement in Europe.

Shellenberger appeared on 31 August 2018 at the DEPTH festival in Amsterdam as a known TEDx speaker. After this, in September 2018, he organised a workshop in Amsterdam to prepare for the first 'Nuclear Pride Fest' in Munich, scheduled for 21 October 2018 by the German pro-nuclear group Nuklearia. On 22 October, Shellenberger spoke at an event at renowned debate centre Pakhuis de Zwijger in Amsterdam. He was joined on stage by nuclear proponent Professor Jan-Leen Kloosterman, from the technical university Delft Reactor Institute, for a discussion on nuclear energy. The Amsterdam workshop was co-organised by people around the emerging Dutch ecomodernist movement, which included, among others, energy engineer Joris van Dorp, Olguita Oudendijk (later director of RePlanet Netherlands), Gijs Zwartsenberg (self-proclaimed energy philosopher, communication expert, chair of the Thorium MSR Foundation and secretary of e-Lise) and journalist Marco Visscher.^[17]

Shellenberger described part of his Dutch adventures in a long Twitter thread.^[18]

Sometime in mid-2018, Shellenberger was introduced to the editorial team of Lubach. After consultation with, among others, the environmental organisation WISE, the TV team decided not to pursue the issue, but a second contact appears to have changed that point of view^[19]. Given the nature of the content in the TV segment, it is likely that the Lubach team has then worked closely with Shellenberger allies like van Dorp, Visscher, Oudendijk and/or Gijs Zwartsenberg, who were also at Shellenberger's workshop. Environmental organisations with opposing views, like WISE, were not further consulted in the run-up to the broadcasted item on 4 November.

A day after Lubach's TV programme was aired, the parliament leader of the conservative VVD party, Klaas Dijkhoff, appeared in the evening news talk show *Nieuwsuur*, airing plans for new nuclear power stations. This seems like a strange coincidence, but may be less so given the close relationship that Shellenberger appears to have with VVD energy speaker in parliament, Dilan Yesilgöz-Zegerius, in the following months.

The industrial lobby

The pro-nuclear lobby within the energy industry and nuclear energy-related academia has, in the Netherlands, traditionally focused on direct influence on the pro-nuclear political parties (e.g. VVD and CDA, and to a lesser extent the social democrat PvdA) and on the key ministries of Economy, Finance and Education. The public debate was often seen as being too risky.

In reaction to the Chernobyl catastrophe, the Dutch parliament voted in 1994 for the closure of the Borssele nuclear power station at the end of 2003,^[20] a decision accepted by the government of CDA, PvdA and VVD. The nuclear industry in the Netherlands then focused first on breaking this *de facto* nuclear phase-out decision. Political lobbying managed to extend the operation time of Borssele to 2013. Their breakthrough chance came when the Borssele nuclear power plant was privatised and handed over to the utilities Delta and Essent. The new owners brokered a gentlemen's agreement with the government, under threat of legal action for compensation for 'lost profits', to have the lifetime of Borssele extended to its 60th anniversary in 2033. In return, they accepted that 2033 would be a hard legal closure date, whereas the operational license of Borssele would remain open-ended. In the meantime, there was a successful lobby, largely outside the public view, to expand nuclear energy, which was halted abruptly by the occurrence of the Fukushima nuclear catastrophe in March 2011. Since then, the nuclear industry and nuclear-related academia remained more or less silent, awaiting new chances. Some voices brought up the issue of nuclear power within the climate discussion, but they received little attention, creating the basis for Lubach's TV show claim in 2018 that nuclear energy had become a taboo subject. When his broadcast broke that taboo, the industry lobby immediately jumped on the band wagon and intensified its contacts with parliamentary parties that showed a renewed interest, especially VVD, CDA and progressive liberals D66.

The industrial lobby in the Netherlands is made up of the current management from nuclear companies, of retired nuclear managers, workers, policy people and researchers and academics from the field of nuclear science and the social sciences.

On the nuclear managers side, we find people like Carlo Wolters, CEO of Borssele operator EPZ, Ewout Verhoef, CEO of nuclear waste management facility COVRA and Ad Louter, CEO of uranium enrichment company Urenco Netherlands and former director of EPZ.

Among the group of retirees, recurring names are Georg Verberg (former Ministry of Education and Science, Ministry of Economy, CEO of the *Gasunie*, and Commissioner with Urenco and ECN in Petten) and André Versteegh (former ECN, NRG, Borssele Benchmark Commission). The group of nuclear physicists come mainly from the Technical University in Delft, that works on nuclear issues, like Professor Jan-Leen Kloosterman and the head of the Department of Radiation Protection at the Dutch technical support organisation RIVM Lars Roobol. On the social science side we find people from the universities of Utrecht, Groningen, Leiden and Delft, who are pushing for nuclear extension during fora, conferences, on social media and sporadically on TV or radio talk shows. They work closely with business lobby organisations like the VNO-NCW.

The industry itself is organised via the Netherlands Nuclear Society,^[21] the Dutch branch of the nuclear lobby group European Nuclear Society,^[22] which brings together researchers, scientists and consultants from the nuclear sector. The society functions like a traditional lobby organisation, with a wide network in the industry and contacts to politicians in The Hague. It is not very visible in the public debate, and does not have an inviting website or high presence on social media, but it is able to function as a central spider in the web of lobbying contacts.

The more visible branch of the nuclear industry lobby is the Initiative Group Nuclear Energy (Initiatiefgroep Kernenergie), which was, in August 2020, renamed to the Foundation for Energy Transition and Nuclear Energy (Stichting Energietransitie en Kernenergie^[23] — *SEK*). On its board, we find former industry people and actors from the political scene. Among its advisors, we find people with a top-level political background, industry background (including the directors of all main nuclear operators) and nuclear-oriented academics.

Stichting SEK:

Board

(former) industry people:

- George Verberg (chair)
- André Versteegh
- Lars Roobol (TSO RIVM head of radiation safety)
- Jacques de Jong (former head of the Energy Department of the Ministry of Economy)
- Tjardus van Citters (former lawyer at Roland Berger)

political party related people:

- Floriske Deutman (secretary – D66 Energy and Climate commission secretary)

Advisors

Industry people:

- Ad Louter (URENCO and former Borssele CEO)
- Carlo Wolters (Borssele CEO)
- Frank Verhagen (PZEM CEO)
- Allard Castelein (Port of Rotterdam CEO)
- Arnoud van de Slot (lawyer at Roland Berger)

Political scene:

- Maria van der Hoeven (CDA – former minister)
- Hans Alders (PvdA – former minister)
- Johan Remkes (VVD – former minister and vice premier)
- Hans Weijers (D66 – former minister)
- Alexander Rinnooy Kan (D66 – former senator, VNO-NCW)
- Marc Calon (PvdA – former provincial deputy)

Academia

- Tim van der Hagen (TU Delft, Rector Magnificus)
- David Smeulders (TU Eindhoven)
- Simon Friedrich (University Groningen, Science Philosophy)

Ecomodernists and RePlanet in the Netherlands

Around the time of the Lubach broadcast in 2018, the public debate was mostly initiated over social media by ecomodernists. The Dutch ecomodernists initially consisted of a loose grouping around journalists like Marco Visscher, Ralf Bodelier, Hidde Boersma and climate sceptic Marcel Crok, who together published the book *Ecomodernism – the new thinking on green and growth* in 2017,^[24] based on the ecomodernist movement as it was developing in Finland and the US. In early 2018, Visscher, Boersma and the earlier mentioned process moderator Olguita Oudendijk registered the Ecomodernism Foundation (Stichting Ecomodernisme)^[25] as a platform for belief in growth, technology and progress. The foundation finds its ideological roots in Michael Shellenberger and Ted Nordhaus's *The Death of Environmentalism*^[26] from 2004 and refers specifically to British climate blogger Mark Lynas and pro-GMO (Genetically Modified Organisms) and pro-nuclear writer Steward Brand.

From the start, the Dutch ecomodernists' strategy has been:

- positioning themselves – following Shellenberger – as environmentalists or former environmental activists;
- attacking the environmental movement as part of the establishment, outdated and anti-technology;
- promoting technopositivism, namely supporting nuclear energy, GMOs, industrial farming and urbanisation as tools to tackle today's environmental crises;
- putting an emphasis on climate change, and that all options to lower emissions need to be considered, including that nuclear power should be embraced as solution.

As described earlier, in September 2018, the ecomodernist group organised a workshop with Michael Shellenberger for European ecomodernists in Amsterdam. One of the new members of the group, Joris van Dorp, co-organised this event. He is a general energy engineer from the TU Delft and one of the most outspoken and aggressive voices of the ecomodernists on Twitter.^[27] The workshop was also joined by Gijs Zwartsenberg, a communication advisor, and André Wakker, a former employee of nuclear consultancy NRG and nuclear research centre ECN.

In December 2021, the Ecomodernist Foundation changed its name to RePlanet Nederland – following the European agreement among Ecomodernists to use one brand, while keeping its initial Policy Plan^[28] from the Ecomodernism Foundation.

Following Shellenberger's workshop in 2018 and Lubach's broadcast, the ecomodernists joined the first Climate March in Amsterdam in March 2019 with a small contingent of around a dozen pro-nuclear demonstrators. The group remained largely unnoticed. In 2021, the Climate March organisers had explicitly asked the group not to participate, because the pro-nuclear point of view ran against the organisation's vision. It notified the police that it

considered the small ecomodernist crew, with music and people dressed in blown-up polar bear suits, as a counter demonstration.^[29] The group of, again, around a dozen people simply participated in the march anyway, and caused a bit of controversy by announcing hostility against them from a few other demonstrators to the *Telegraaf* daily^[30] The group did not report the incident to the police. For the 2022 Climate March in Rotterdam, RePlanet announced participation as a 'block'. The organisers rejected this, but did not bar participation. The group again received little to no attention. In their own report, RePlanet included a photoshopped picture where anti-nuclear WISE participants were turned into RePlanet activists. They restated their position that they stand opposite the mainstream environmental movement, which, in their view, wants less of everything in order to tackle climate change, whereas RePlanet pleads for continued growth on the basis of nuclear power.^[31]

Their participation in the Climate March was not under the RePlanet brand, but used *kernvoorklimaat.nl* (nuclear for climate), an umbrella brand under which they also host the 'nuclear pride coalition', and under which they co-operate with the Nuclear Alliance (Atoomalliantie), an energy provider of nuclear-certified electricity, the Foundation for Energy Transition and Nuclear Energy and the pro-nuclear think-tank e-Lise (which has RePlanet's Olguita Oudendijk and Joris van Dorp as advisors, and Gerrit Zwartsenberg as secretary).

RePlanet also issues a newsletter for *kernvoorklimaat.nl*.

The newly branded RePlanet brought together the different ecomodernist movements in Europe. RePlanet Netherlands also hosts the European office and its director Olguita Oudendijk is responsible for EU relations for both RePlanet Europe and RePlanet Netherlands.

RePlanet Netherlands received, in 2021 still as Stichting Ecomodernisme, a grant of EUR 900,000 from the foundation of the electronic financial market operator Quadrature.^[32]

Political parties

In 2018, at the time of his workshop in Amsterdam and his contacts with the Lubach TV team, Shellenberger also seems to have had contact with Dilan Yeşilgöz-Zegerius, a fast-upcoming VVD politician and energy spokesperson for that party in the Dutch Parliament. Such contacts not only seem to have resulted in the well-timed airing of new nuclear plans by VVD leader Klaas Dijkhoff on the day after the Lubach broadcast, Yeşilgöz-Zegerius and Dijkhoff also organised a Youth Energy Lab (Jongeren Energie Lab) at the TU Delft on 11 February 2019, for the youth organisation of the VVD, featuring Shellenberger.^[33]

The conservative liberal VVD, currently the largest party in the Netherlands and the lead party in the last four governments headed by Prime Minister Mark Rutte, has always had a pro-nuclear stance. In the 1980s, it was a strong force behind the attempt to expand the Dutch nuclear fleet, which ended after the Chernobyl catastrophe in 1986, as well as the revival attempts in the 2000s, ending with the 2011 Fukushima catastrophe. Nuclear power remained part of the party programme, under the condition that newbuilds would be privately financed. But the lack of social support initially kept it off the policy agenda

of the different cabinets in which the VVD participated and which they later led. The VVD Secretaries of Economic Affairs, Henk Kamp and Eric Wiebes, were widely known for their dislike of nuclear newbuild proposals that involved government funding.

After the Lubach broadcast in November 2018, Yeşilgöz-Zegerius and Dijkhoff received strong support from Agnes Mulder, parliament spokeswoman for energy, climate and sustainability for the Christian Democrat CDA. The CDA had been relatively silent on nuclear energy over the previous years, although it did support the VVD push for new nuclear in the 2000s under the CDA-led cabinets of Prime Minister Peter Balkenende. Since around 2015, a new upcoming voice in the CDA was drawing attention to the need for urgent climate action: the prolifically tweeting physicist Henri Bontenbal, a strategy consultant at the electricity distribution network provider Stedin and junior fellow at the CDA scientific institute. After the parliamentary elections in March 2021, Bontenbal took over the speaker position on energy from Mulder, and took an even stronger pro-nuclear stance. Historically, the CDA has been supportive of nuclear energy, with the exception of its first election programme in 1977.^[34] Since then, the party has always hosted some critical voices as well, until, since the Lubach broadcast, the party moved to a very vocal and strong pro-nuclear position, nationally as well as provincially, and in many municipalities. An exception is the province of Groningen. When Prime Minister Mark Rutte, during an election debate on 28 February 2021, mentioned that he would like to see a nuclear power station in the Eemshaven, a port at the most northern point of the Netherlands, the CDA in Groningen strongly declared that it saw no space for nuclear power in the Eemshaven or in any other part of the province.^[35] Mulder, who studied in Groningen and joined the CDA there, supported this stance, but added that the CDA sees a future for nuclear energy in the energy mix and that several other provinces were interested.^[36]

With the renewed strong support from VVD and CDA, an unclear position on nuclear energy from the Christian Union, the other Christian party in the government coalition, and a split view in the progressive liberal party D66, nuclear power became a central issue for the current Rutte IV coalition government. In its 2021 Coalition Agreement, it stated:

“Nuclear power can, within the energy mix, be an addition to solar, wind and geothermal energy, and also can be used for the production of hydrogen. Also, it will make us less dependent on the import of natural gas. Therefore, the nuclear power station Borssele will remain open longer, with, of course, an eye on safety. Next to that, this cabinet will take the necessary steps for the construction of 2 new nuclear power stations. This means that we will, among others, facilitate market parties in explorations, support innovations, set out tenders, look at the (financial) contribution from the state, put, where necessary, laws and regulations in order. We will also take care of safe, permanent storage of nuclear waste.”^[37]

After VVD parliament leader Dijkhoff left politics in 2021 and energy speaker Dilan Yeşilgöz-Zegerius moved to the position of (outgoing) State Secretary, and later Justice Minister, her position in the Chamber was first taken over by Mark Harbers, who then left to become Minister of Infrastructure and Water Management (responsible for nuclear

safety). Climate change and energy policy is now handled by Silvio Erkens, a conservative economist and management consultant. Erkens and Christian Democrat Bontenbal are currently the driving parliamentary political force advocating for nuclear power.

The position of the other large coalition partner, D66, a progressive liberal party, is less clear. In 2020, the party was still critical about nuclear energy, which was voiced, among others, by then parliament leader, now Minister for Climate, Rob Jetten and energy spokesperson Matthijs Sienot. It accepted nuclear energy as low-carbon, but saw nuclear as too expensive and too slow, and was critical about its drawbacks, such as radioactive waste, accident risk and proliferation. The official position before the 2021 elections was that D66 'was open to nuclear energy, if that can be done in a sustainable, reliable and financeable way'.^[38] After the 2021 elections, this position started sliding when D66 joined the coalition with the VVD and CDA, and Climate Minister Rob Jetten can now regularly be heard supporting the cabinet position. Matthijs Sienot left politics after these elections. There are a few very active party members trying to move it to a pro-nuclear point of view. One of the most visible is Floriske Deutman-Bodisco Massink, secretary of the aforementioned Stichting Energietransitie & Kernenergie. She is a management consultant and owner of Dutch Sino Business Promotions.^[39] Within D66, she is secretary of the working group Energy and Climate and active in the theme group Economy. She filed several (failed) motions in the D66 party congress to have nuclear power taken up in a more positive sense in the party programme for the 2021 elections.^[40] She also signed the *Manifesto stichting Energietransitie en Kernenergie (SEK)*. Her pressure on the party grew when three prominent party elders also signed the manifesto: former ministers Jan Terlouw, Hans Weijers and Alexander Rinnooy Kan. Jan Terlouw has been instrumental in convincing climate minister Rob Jetten to change his opinion on nuclear power in a favourable direction.^[41]

Within the opposition parties, the right wing is in favour of nuclear energy and the left wing opposed, with the exception of VOLT.

VOLT is a relative newcomer in the wide and fractioned Dutch political spectrum. It is a pan-European party, which, in contrast to its German and EU wing, chose to promote itself, in an attempt to attract the young electorate that watches the Lubach broadcasts, by actively embracing nuclear. This also sets it apart from its main competitor in that market, D66. One member of parliament split off from the VOLT faction in early 2022, Nilüfer Gündoğan. Since then, as a party-independent parliamentarian, she presents herself as representative of RePlanet and the ecomodernist movement.^[42]

On the extreme right wing, it is the new party, JA21, that is the most outspoken. In 2020, JA21 split off from another far-right party, the Forum voor Democratie (FvD). Several members from FvD in the European Parliament moved to JA21 in December 2020 and joined the far-right conservative ECR group. Also, seven FvD senators (members of the First Chamber of Dutch Parliament) moved to JA21, as well as members of the provincial parliaments in Drenthe, Utrecht, Noord-Brabant and Friesland. In the 2021 parliamentary elections, JA21 achieved three seats in Parliament. There, faction leader Joost Eerdmans and energy speaker Derk Jan Eppink are the most outspoken supporters of nu-

clear power. In the European Parliament, MEP Rob Roos published a report from two EU lobbyists/lawyers^[43] on the cost of nuclear power, in an attempt to prove that nuclear power is cheaper than renewable energy sources.^[44]

Other than the parliamentary far-right parties PVV, FvD and JA21, the conservative Christian party SGP, the one-person factions Van Haga, Omzigt and de Haan, and the farmers protest party BBB are all strongly in favour of nuclear energy. BBB became the largest party in the 2023 provincial elections, and it will create the largest faction in the First Chamber of Dutch national parliament, which is indirectly chosen by the provincial parliaments.

The support for nuclear energy is driven by the pro-nuclear parties not only at the national level, but since the Lubach broadcast also at the provincial level, where coalitions of VVD, CDA and JA21 have organised seminars for provincial parliamentarians (at least in Zuid-Holland, Noord-Holland, Limburg, Utrecht, Gelderland, Friesland, Zeeland, Overijssel and Noord-Brabant, which represent 9 out of 12 provinces). The Lubach broadcast even spurred initiatives from local chapters of these parties, in many municipalities, together with independent local issue political parties, where nuclear was pushed into the discussions for Regional Energy Strategies (RES).^[45] These RES need to lead to municipal and regional plans to fulfil the 2030 renewable energy targets set by the national government in 2019. The introduction of the issue of nuclear power at this level is often used to prevent or slow down development of renewable energy sources in a NIMBY (not in my back yard) atmosphere. That can be seen, as some examples among many others, in three municipalities that would never be able to host a nuclear power station, because they do not fulfil basic infrastructural criteria: the municipalities of Woerden,^[46] Bunschoten,^[47] Castricum.^[48]

What is important to note when assessing the positions and activities of these political parties in the Dutch nuclear debate is that they are mainly ideologically techno-optimist, or have an ideological position counter to the centre and progressive/left-wing narrative. Within the far right (right of VVD and CDA), positions on nuclear energy are virtually always also linked to climate-sceptic opinions.

We do, however, see indirect influence from the nuclear industry, in the form of communication from industry-related party members or the participation of industry people in party seminars and events throughout the moderate party landscape, from CDA and VVD to D66. This includes the use of controversial reports that are promoted by the “old” industrial lobby, like the ENCO report,^[49] the report from e-Lise,^[50] the 2021 UNEP report initiated by the World Nuclear Association (WNA)^[51] and others (see under).

Within the more extreme right-wing parties, rather than with industry, exchanges take place with people from the astroturf and genuine pro-nuclear popular activism that emerged after Lubach’s broadcast, for example, in the form of the use of a report from a JA21 Member of the European Parliament.^[52]

Interaction between the three groups

The surge in attention regarding nuclear energy in the Netherlands is a result of synergic interaction between the three aforementioned groups. But they each have a different background, and they only marginally mix organisationally. We have observed close cooperation between Shellenberger and the VVD, but no open cooperation between RePlanet and political parties.

RePlanet is cooperating closely with the industry branch in the lobby domain. Olguita Oudendijk, Gijs Zwartsenberg and Joris van Dorp are part of e-Lise,^[53] a pro-nuclear consultancy including a physicist, a journalist, several communication specialists, a data specialist, a military radiation expert and an economist, which produced a report in February 2021 to support the political debate for nuclear power.^[54] It is interesting to see how e-Lise's budget plans^[55] imply a turnover of over half a million euro, whereas its last annual report (2021)^[56] indicates one of less than EUR 2,300. This budget proposal indicates that they do aspire to get a lot of income from the nuclear industry, as well as from government sources.

There is, traditionally, close cooperation between the nuclear energy sector and political parties. Since the Lubach broadcast in 2018, political parties have organised a wave of seminars on different governance levels – the parliament, provinces (e.g. Utrecht, Zuid and Noord Holland, Overijssel, Gelderland, Limburg, Brabant, Zeeland and Friesland) and municipalities (e.g. Rotterdam and others) – where they tend to invite lobbyists from the industry sector. Sometimes this is with the participation of one critical voice (e.g. the province of Utrecht or Rotterdam), which is then put into a difficult minority position, or more (e.g. parliament), where different parties seem to listen only to invitees supporting their own position, which in the current political landscape gives prominence to people from both the industry and ecomodernist sides.

At a more structural level, we see the activities of the Foundation Energy Transition and Climate, where former politicians actively participate under the lead of people from the industry lobby, pushing for nuclear to their prominent party members that are still active.^[57]

A more problematic level of cooperation between the industrial lobby and politics appears in the production of reports for the government. Under the former Rutte III cabinet, economy minister Eric Wiebes, from the pro-nuclear VVD, commissioned, on request of a 2019 parliament motion from Yeşilgöz (VVD) and Mulder (CDA), a report on the cost of introducing nuclear energy within the proposed scenarios to arrive at decarbonisation of the Dutch energy system in 2050. This report, published in March 2020 by a cooperation between the consultancy Berenschot and research bureau Kalavasta,^[58] came to the conclusion that the costs of introducing nuclear energy would always be higher, unless nuclear reactors could be built on time, built within budget, the state would carry all the financial risk and they would be able to operate 24/7 ('must go' preference on the grid). Only in that case, cost levels could be comparable to a fully efficient and renewable energy mix. This did not land well with the political right and the nuclear lobby (all three segments), and Wiebes was pressed to commission another report to the Viennese research bureau ENCO.^[59] This

report was published in September 2020, and came to completely opposite conclusions. Although the report did not mention authors, investigative journalists found that it was written by ENCO director Bojan Tomic and former Borssele nuclear power station director Mario van der Borst.^[60] Bojan Tomic is a former International Atomic Energy Agency (IAEA) staff member and generally seen as a pro-nuclear consultant, as well as member of the so-called benchmark commission that was established in 2006 in the Covenant between the Dutch government and (privatised) Borssele operators RWE and Delta to establish and monitor whether Borssele “belongs [...] to the 25% safest nuclear power stations of comparable types in Europe, the USA and Canada.”^[61] Tomic was proposed for that position by Borssele license holder EPZ (owned at the time by RWE and Delta). The other author, Mario van der Borst, is a former EPZ director and the current president of the Netherlands Nuclear Society^[62], the Dutch branch of the nuclear lobby group European Nuclear Society^[63], which brings together researchers, scientists and consultants from the nuclear sector. The report was received extremely critically. Research bureau Kalavasta even took the unprecedented step to write a counter-expertise in reaction, because they noticed the ENCO report was used to push their earlier report to the side^[64]. In its rebuttal, Kalavasta concluded that the ENCO report used for 2040 higher investment costs for solar and wind than the investment costs already existing in 2020 – noting that renewable costs tend to decrease. It noticed that ENCO did not take the Dutch market into account, for instance where “must run” obligations for nuclear power stations are not a given. They observed further that ENCO uses for 2050 a lower penetration (50%) of wind and solar energy in the Dutch grid than the legally fixed target of 70% in 2030. And, although ENCO argues that system costs are crucial for establishing cost comparisons, its report does not include system costs in its calculations, but introduces them from outside the system, not adapting them to the Dutch situation. They also conclude that the ENCO study was not peer reviewed, whereas the Kalavsta study was reviewed by the Dutch Planning Office for the Living Environment (PBL) and the OECD-NEA (the Nuclear Energy Agency of the Organisation of Economic Co-operation and Development).^[65]

Since this controversy, the Ministry of Economic Affairs has become more careful with its choice of consultants on the nuclear portfolio, using consultancy KPMG for a market consultation,^[66] and Consultancy Wittenveen+Bos and eRisk Group for a scenario study.^[67] It has to be noted, however, that the co-author of this last study, Laetitia Ouillet from eRisk, also functions as a member of the Borssele benchmarking group for EPZ, and Ruut Schalijs from eRisk represents the Canadian company General Fusion in the Netherlands, which works on a nuclear fusion reactor concept.

Figure 1: Cartoon in the daily TROUW on 22 November 2020



The minister had a nuclear energy problem. Nuclear energy is unpayable, says this study. Unprofitable.

Solve that, Dingeman. Yes, your excellency.

I still knew a small research bureau in Vienna. Could Sie not calculate das nuclear energy story a bit more handy, bitte? Mal sehen... bit fuzzling with the prices, connection costs... Katze in the bag!

A few hours later, nuclear power was not any longer specifically expensive. This report makes solar and wind energy billions more expensive, your excellency! Bravo. You shopped well, Dingeman!

Proudly, the VVD presented the good news to the tax payers. Hurray! Left wing clean energy is just as unpayable as right-wing one! Ha ha, you see! We have won, we have won, hoi, hoi!

Lobby platforms of the ecomodernist groups – strengths and weaknesses

We have already seen that the ecomodernist groups functioned as the engine behind the renewed attention for nuclear energy in the Netherlands. Their activities were instrumental in causing the wave of attention around the Lubach broadcast in November 2018. Since then, they have been active on several platforms.

The first wave of attention for their message in the mainstream media stems from the 2017 publication of their book *Ecomodernisme* and their ecomodernist manifesto. The counter-positioning towards the environmental movement won them a large following on social media from other, one could call them, counter-culture groups – groups of people pushing back on what they see as “the elite”, often circling around the extreme wings of political thought. But by keeping to their own profile of highly environmentally motivated people that have developed a new perspective (“seen the light”), they were able to draw the attention from mainstream news media – dailies, talk shows, etc. – for a while and increase attention for their message. Because the message itself is relatively extreme,^[68] the media slowly turned away from them. Still, they are regularly invited to create a “balanced” situation opposing critical experts from the environmental movement.

They appropriated some of the tactics of the environmental movement. They have participated in the Climate Marches with positive messaging in the form of live music and eye-catching, cuddly, blow-up polar bear suits called 'Melty' (!), while in the meantime causing controversy. This has increased attention, mainly among right wing and some extreme left-wing supporters.

The ecomodernist movement used the vacuum in nuclear information that had appeared after almost a decade of silence on the issue in the media very well. They plugged easy digestible chunks of perceived advantages of nuclear energy: it would be cheap, fast to implement and safe ('Nobody died at Fukushima'); there is no waste, only resources; thorium; we can still grow; it is "and, and" (implying nuclear energy is needed next to renewable energy); we follow the science; anti-nuclear sentiment is a historical ideology; and anti-nuclear sentiment is emotional. And they linked their cause to climate change. At the same time, they played the card of nuclear being a long-time victim: nuclear energy is a taboo, and the evil environmental movement wants to take economic growth away from people. This mixture caught the attention of many people who previously had no solid opinion on nuclear power. That includes the political party VOLT, and some within D66 and the socialist SP. But it definitely rang a bell on the right side of the political spectrum, where the style and message were eagerly taken over by the VVD, CDA, PVV, JA21 and BBB. Politically, ecomodernists targeted, above all, those who were on the front line of the debate in the party landscape: D66. There, they were able to create a split opinion – extremely strategically, as D66 is the second largest parliamentary and government party after the VVD.^[69]

On social media, especially on Twitter, ecomodernists are not a steady presence. Their attention is not continuous, but rather comes in waves – often around their own activities (the climate marches, a petition to urge for lifetime extension of German nuclear power plants, etc.). Some are prolific tweeters, like Joris van Dorp, and have created a bubble of fans around them.^[70]

Members from these groups increasingly turn up on larger nuclear debates (including officially organised ones) and sometimes are invited in order to show different sides of the discussion. The media also contact them, with journalists eager to show a discussion with two sides, for example, quotes from RePlanet members featuring next to critical quotes on nuclear energy. This does, however, create a 'false balance': simplified, rather fringe arguments (radioactive waste does not exist, Fukushima caused no casualties, we cannot do without nuclear power, etc.) are featured alongside more sophisticated, more complex argumentation around cost, development of energy mix, risks and so on, and thus gain more acceptance. These arguments (including references to mainly grey literature supporting them, like the life-cycle analysis (LCA) report published under the name of the United Nations Economic Commission on Europe (UNECE), the JRC report for the European Taxonomy, the ENCO report and the e-Lise white-paper on the role of the Dutch state in the business case for nuclear energy) are then moving further in the social media sphere – often in simplified forms. This has created a larger bubble of more or less fanatical followers that spread this information in reaction to any public outing concerning energy, nuclear or otherwise. Gerard Brinkman, from the

anti-nuclear organisation WISE, put it this way: 'If you tweet about any issue related to climate, it is just a matter of time before someone raises the issue of thorium reactors'.^[71]

The simplicity of their messaging delivers them space – nuclear critics are pushed into the defence, having to explain backgrounds that are not so easy to pass on because of their complexity. And very importantly, although most exponents from this movement are in their forties and fifties or older, they know how to charm a younger audience.

Their largest strength appears to be that the simplicity of their message has created space within the member base of political parties for easily arguable support for nuclear energy.

However, the simplicity of argumentation is also one of the movement's weaknesses. The interest of the media appears, at the moment, to be slowing down in comparison with one or two years ago, and the amount of space that ecomodernists get in serious media outlets seems to be decreasing.

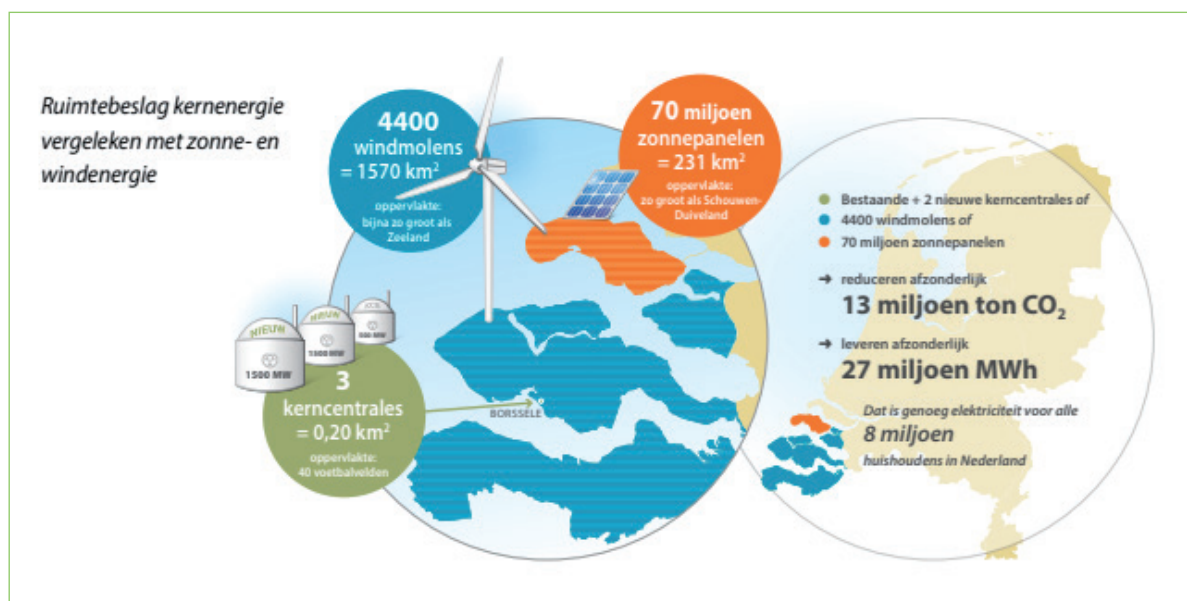
Lobby platforms for the industrial lobby – strengths and weaknesses

The industrial lobby continues to focus on the traditional media platforms. The Stichting Kernvisie (Nuclear Vision Foundation – with a board from the nuclear industry under chair Andre Versteegh, formerly of TU Delft and nuclear research group NRG), which aims to increase the support for nuclear technology and all its implementations, issues its own magazine, namely *Kernvisie*.^[72] We see exponents of the lobby regularly publishing in specialised media, such as *Energieia*,^[73] daily media and weeklies. In particular, the weekly *EW Magazine* (formerly *Elsevier's Weekblad*) and the right-wing daily *Telegraaf* eagerly give space to nuclear industry spokespeople.^[74] This lobby branch is less prominent on audio-visual media and social media, with the exception of some prolific tweeters (e.g. TSO RIVM's radiation safety head Lars Roobol and Thorium Foundation's Gijs Zwartsenberg). On LinkedIn, there is an active pro-nuclear community.

The strength of the industrial lobby lies in its direct contacts to the political sphere, not in its media presence.

In the meantime, industry has focussed more on getting its foot in the door in political discussions around climate.

Figure 2: Space need of different power options according to Borssele operator EPZ (source: EPZ (2020))



During 2021 and 2022, it argued that the Netherlands should support the European Commission proposal to include nuclear energy in the Taxonomy for Sustainable Finance and generated quite some attention with that. It spread simplified messages on perceived strengths, such as use of space (see Figure 2),^[75] and Dutch and Finnish progress in dealing with radioactive waste, and also tried to position nuclear energy next to renewables as necessary low-carbon technologies, including the notion that ‘only wind and solar will not be sufficient’. In expert meetings for government bodies or government advisory bodies,^[76] it tries to undermine the picture of the high costs and long construction times of nuclear power stations, and the lack of progress in the development of solutions to radioactive waste. Some also stress the claim that nuclear energy would be the safest form of energy. In economic terms, the Dutch nuclear industry pushes the claim developed by the OECD-NEA that when including so-called ‘system costs’ (e.g. necessary grid adaptations), inclusion of more nuclear energy in a decarbonised energy mix would be profitable^[77] – in spite of these costs being an integral part of scenario studies carried out for the government, including those of TNO^[78] and Berenschot/Kalavasta.^[79] One of the ways in which they were able to push this was, as mentioned earlier, by getting the government to commission the controversial ENCO study.

Another line of argumentation hangs strongly on the promise of so-called Small Modular Reactors (SMRs), especially thorium molten salt reactors. Because there is a line of research looking into this option at the Technical University in Delft, the lobby for a more active Dutch role in the development of this reactor type has been riding high on the wave of the new attention for nuclear. Not only on social media, but in many political debates, the word ‘thorium’ suddenly pops up whenever climate issues are discussed, and a vocal group around the research group of Jan-Leen Kloosterman of the Technical University Delft, the research group at NRG in Petten and Gijs Zwartsenberg’s Thorium Foundation feeds such

debates whenever there is an opportunity. They have been especially effective at inserting the potential of thorium reactors into provincial and municipal debates on regional energy strategies, even though these strategies only deal with investments until 2030 and SMRs therefore cannot play any role.^[80]

Because many in the nuclear lobby have either studied nuclear physics, or hold (or have previously held) positions in the nuclear industry, they have the advantage of an aura of expertise. This gives them a strong position in the social and political debate – even when, for example, a nuclear scientist is talking about the economics of nuclear energy, that is, outside his or her sphere of expertise. This enables the industry, for instance, to easily override strong economic argumentation with a low-quality report, as could be seen in the case of the Berenschot-Kalavasta report versus the ENCO report.

However, this strength of a perceived monopoly on expertise may also become a weakness of the lobby. In the Netherlands, there exists a culture of looking at problems from different angles. And when the lobby does not accept that, it also may lose influence. For instance, during the deliberations of the Council of the Living Environment and Infrastructure for its advice on nuclear power,^[81] an advisor from the nuclear industry ended his involvement in the process, because he felt his input was not recognised to a sufficient degree in the much broader setting of the discussion on the basis of values, even though all other sides had carefully listened and taken his views into account.^[82]

Lobby platforms for political parties – strengths and weaknesses

The debate on nuclear power from the side of political parties is riding high on social media, especially Twitter. People like VVD energy spokesperson Silvio Erkens and CDA energy speaker Henri Bontenbal use this platform to create a wide support base for nuclear issues. Where Bontenbal appears to do this from a position of conviction, Erkens mainly seems to focus on nuclear for electoral reasons. Interestingly enough, political parties do not proactively use the printed and audio-visual media a lot to draw attention to nuclear. For these media, it remains a side-issue with a specific audience. The nuclear lobby's targeted audience seems to be better serviced with social media, which they mainly connect to via their personal Twitter accounts.

Within political parties, the issue of ideology is a strength for the nuclear lobby. Parties like the VVD are ideologically in favour of nuclear power; there is no internal debate and lobby arguments are accepted without much critical reflection, whereas critical issues are not taken seriously. In parties on the far right, however, nuclear power is not as ideological, but rather the counter-position to what is seen as 'left wing anti-nuclear sentiment' and the 'climate hoax'. The nuclear industry is capable of influencing the conservative VVD, the conservative Christian democrat CDA and, to a certain extent, the progressive liberal D66. The extreme right-wing parties BBB, PVV, JA21 and FvD, as well as the one-person factions, are more influenced by the argumentation from the ecomodernist wave – simple one-liners that can be easily used as a fast counter of nuclear critical points of view.

Where public opinion in the Netherlands has always been overshadowed by the group that is 'undecided', lately the part of the population being critical has decreased, while the part being in favour of nuclear has sharply increased in the years since the Lubach broadcast. Taking courage from this shift in public opinion, the nuclear lobby within political parties has become increasingly self-confident. Critical voices on nuclear are now countered by pro-nuclear political actors with argumentation like 'you are going against the stream [with criticism on nuclear] – the race is over'.^[83]

The fundamental weakness and strength of the Dutch debate

Because of realities on the ground, it remains highly unlikely that new nuclear power stations will be added to the grid in the Netherlands. These realities include the issue of cost and financing, the issue of necessary long-term political stability, and a small but vocal hard core of opposition to nuclear energy in society and politics that will make it difficult to sweep challenges completely under the carpet.^[84] Long preparation and construction times, as well as cost increases, especially for SMR projects like current NuScale and Rolls Royce, are also not a supportive case for fast delivery. A long-time horizon may make nuclear an easy tool now for kicking the can of urgent climate action down the road. But it could also make it difficult to maintain the strong support and attention needed. At least, long enough to overcome the enormous cliff of financing, especially in comparison with the fast roll-out of other technologies.

The populist, bullet point argumentation from the ecomodernist lobby stream seems to be petering out a little in its influence because of this complexity. The industrial lobby does not seem to have any other answer than diversion of attention – steadily introducing other factors that would make nuclear energy more attractive: system costs, the use of nuclear for the production of hydrogen, load-following^[85] and the use of nuclear reactors for the production of medical isotopes. All of these are not, or insufficiently, relevant for the financing question looming over the future of nuclear energy, but sufficient to keep the issue of nuclear power in the debate. The political lobby, driven by the VVD and CDA, tries to overcome this question by speeding up investments in preparation and urging for easing procedures. That latter point will be very difficult, because these procedures are largely fixed by internationally agreed directives (EU) and conventions (Aarhus, Espoo, Convention on Nuclear Safety (CNS)). When the relevant Climate Minister Rob Jetten has to respond to motions of this kind in parliament, these ambitions will hit the wall of realism.

The chances of the Netherlands actually pushing operation of its only nuclear power station Borssele beyond the current maximum foreseen lifetime of 60 years, as well as construction of new nuclear power in the country, remain for these reasons very low. However, the amount of attention, space and, indeed, money that the surrounding debate consumes, practically diverts necessary capacity from urgent climate policy. And this on all levels of governance, from the local to the national.

The nuclear lobby in the media

Although we see in the Netherlands an unprecedented move towards support for nuclear energy, the amount of attention in the traditional media remains limited. Journalists are careful to give voice to different sides of the debate, and the media are careful to balance the overall attention. Nevertheless, the ecomodernist journalist Marco Visscher knew how to generate a wave of pro-nuclear attention around the Lubach broadcast in late 2018. The fact that he did not 'out' himself as one of the early ecomodernists in the Netherlands backfired a bit,^[86] and he has lost his media platform for journalistic nuclear stories to some extent.^[87]

Social media is the main transporter of the nuclear debate, whereby the dynamics support an ever-deepening polarisation between those in favour and those in opposition. The important actors in this come from all three lobby streams, though the political party-affiliated lobbyists seem to create the most traffic, with some dedicated people from industry, such as Roobol and Zwartsenberg, a clear second. The attention for nuclear on social media is further helped by the communication background of people like Fleuriske Deutekom, who uses social media to support her networking position for nuclear within D66.

And what about Arjen Lubach? After the late 2018 broadcast, he has returned to the nuclear issue several times, but mostly in one sentence. Having taken a strong position in *Zondag met Lubach*, he seems to have walked into – in what he defined in another of his broadcasts dedicated to social media as a 'fables trap' – an information bubble from which it is hard to escape. With that he has cemented himself into a nuclear position based on the ecomodernist bullet points; a position that is not easy to step back from. The continued popularity of his show to this day supports the lobby in favour of nuclear power.

3. Nuclear lobby in the EU

The climate and energy debate within the EU is strongly influenced by national interests and views. Austria, Denmark, Germany, Lithuania, Portugal and Spain have traditionally developed a strong renewable energy-oriented discourse at the national level. In particular, the German energy transition, the *Energiewende*, that started in the late 1990s inspired many in the EU. An important role in this is played by the phase-out of nuclear energy that the country started in 2002, and confirmed in 2011 after the Fukushima catastrophe. The last three nuclear power plants were shut down in April 2023. On the other hand, countries in Central Europe have argued, both internally and with Brussels, that they can only face the climate challenge if they develop their traditional nuclear fleet. In Finland, Sweden and the Netherlands, new ecomodernist movements spread the belief that nuclear is now viewed positively, especially among the young – an image that draws attention in Brussels. France was divided and confused after its attempts to start a nuclear renaissance seemed to hit more and more barriers. The construction in Finland, France and the UK of what

should have been the new nuclear flagship, the EPR reactor, became a saga of technical difficulties, resulting in construction delays and extreme budget overruns. Memorandum of understanding after memorandum of understanding did not bring any new contracts for the French nuclear industry, and new orders were delayed or simply did not materialise. Majority (and soon fully) state-owned nuclear giant EdF, which had acquired the French nuclear construction arm Framatom of the former Areva, slowly slipped into a *de facto* bankruptcy, but it was deemed too big to fail. In order to turn the tide, French president Macron decided to focus on a new nuclear renaissance, under French lead, building on the need for low-carbon energy: a jump forward to have nuclear declared “green” under the Taxonomy for Sustainable Finance and other EU policies. The traditional nuclear lobby saw the opportunity and jumped on board, ramping up its lobby efforts and communication in the Brussels bubble. On one side, they did this partially with the help of many new small groups that pushed nuclear as a key ingredient of climate action (active in the popular Brussels publication *Euractiv*, among others), and on the other side, supported by international institutions that traditionally promote nuclear technology, such as the IAEA and the OECD-NEA, and those institutions that were instrumentalised to push a more nuclear-friendly message, such as the OECD’s International Energy Agency (IEA) and the UNECE.

Who is who in the Brussels nuclear debate?

The traditional nuclear lobby

The nuclear industry has traditionally been very active in the Brussels bubble. Already at an earlier stage, during the development of the Euratom Treaty in 1957, large engineering firms with a potential stake in this then new market developed intensive networks to promote nuclear power. In 1960, six national associations of nuclear involved industries founded **Foratom** to represent the sector in Brussels.^[88] Since then, Foratom has been the main vehicle for the nuclear industry to influence policy in the EU institutions. In 2022, it changed its name to **nucleareurope**. According to its EU transparency register registration, it employs eight people on half-time basis, has an annual budget of up to EUR 400,000 and received EUR 70,772 in EU grants in 2022.^[89] It lists nine meetings with EU commissioners or their cabinets in the 2020/2021 run-up to the decision on inclusion of nuclear energy in the EU Taxonomy on Sustainable Financing.^[90] It represents 15 national nuclear associations and six corporate members, as well as a total of nearly 3,000 companies, and has an office with 8 (half-time) lobbyists in Brussels.^[91] Seven of its 22 member organisations are also individually registered in the EU Transparency Register,^[92] with a total of 45 lobbyists, most of them based in Brussels.

The former German Deutsches Atomforum, now called Kerntechnik Deutschland e.V., is not a member, but it is registered independently in the EU Transparency Register with one person working on European issues.^[93] Kerntechnik Deutschland e.V. is further represented by the VGBE e.V. – the German association of energy companies, with three lobbyists.

Nucleareurope shares its office with two lobbyists from the European Nuclear Society (ENS) – the association of national nuclear societies and professionals.^[94] Next to 22 national societies, ENS also has 31 corporate members, including nuclear construction companies Westinghouse, EdF/Framatom, GE-Hitachi, Rosatom (currently suspended), several main providers and operators, as well as research institutes.

Nucleareurope works closely with the global nuclear lobby organisation **World Nuclear Association** (WNA), with almost 200 member companies, among which are all the major actors on the global market. WNA has one person dedicated to EU work.^[95]

All major nuclear operators and suppliers are represented in Brussels with their own lobby offices. **EdF/Framatom**, for example, operates an office with 14 lobbyists directly next to that of nucleareurope. It also houses a lobbyist for the Nuclear Generation II & III Association (**NUGENIA**).^[96] French nuclear fuel giant **Orano** has another office in Brussels, with nine people. **Hitachi** has an office with six, and **GE** has eight lobbyists. **Westinghouse** Europe/Middle East/Africa operates from Brussels, but is not registered in the EU Transparency Register. Korean nuclear conglomerate **KHNP** is represented in Brussels (with around 400 other companies, also including all the main Korean nuclear suppliers) through the Korea Business Association Europe (KBA Europe), which has four lobbyists in Brussels.^[97]

The Russian military–civilian nuclear giant **Rosatom** traditionally has a strong foothold in Europe, especially after the expansion of the EU eastwards. In 2017, it sponsored the Platts First European Power Generation Week in Brussels.^[98] Rosatom played a strong and active role in the lobby towards taking up gas and nuclear energy in the EU Taxonomy on Sustainable Financing.^[99] After the start of the Russian invasion in Ukraine, Rosatom largely escaped sanctions,^[100] and companies not falling under sanctions were explicitly exempted from the entrance ban to the European Parliament, decided on 22 June 2022^[101] Nevertheless, Rosatom seems to have disappeared from Brussels. It is no longer listed in the EU Transparency Register. Its subsidiary Rusatom International Network (RAIN), which on 19 April 2022 still featured on the EU Transparency Register,^[102] was removed. Rosatom subsidiaries Rosatom France, Atomenergoprom and AtomEnergPromSbyt appeared on the EU Transparency Register in previous years – with Rosatom hiring at least two consultancies, and the other two having top-level Commission meetings.^[103] Rosatom's Brussels office is no longer listed on its webpages.^[104] It was also ousted, after the Russian invasion in Ukraine, from one of its EU shop-window projects, the Fennovoima-led^[105] nuclear project at Hanhikivi in Finland, with which it influenced Finnish positions in Brussels for quite a while.^[106] In order to get a foot in the door, Rosatom even hired, in 2012, the Finnish head of the independent nuclear regulator STUK as vice-president of Rosatom Overseas – a function he started mere days after his retirement from STUK.^[107] Given the increasing presence in Brussels of Rosatom in the last decade, it is unlikely it will have completely gone. Rosatom still has an office in France,^[108] it is still a member of the WNA, and customers with a large dependency, like Orano, EdF/Framatom and the Hungarian government, have continued to block any steps towards sanction measures against it.

It also traditionally received extensive support from the Permanent Mission of the Russian Federation to the European Union in Brussels.^[109]

Next to the nuclear industry lobbying itself and its dedicated lobby companies, there is also a wide spectrum of **specialised lobby offices** that represent nuclear industry clients. For example, the former director of Foratom (now nucleareurope), Sami Tulonen, has run the Finnish business oriented Aula Europe consultancy since 2012.^[110] Although the word nuclear does not appear in their PR material, nor in their EU Transparency Register entry, it is noticeable that in the run-up to the decision to include nuclear energy in the EU Taxonomy on Sustainable Finance, Aula Europe had several meetings with the European Commission on exactly that issue.^[111] Aula Europe counts large nuclear companies like TVO and Westinghouse among its customers.^[112]

Another example is a report produced in January 2021, published by the Dutch far-right JA21 MEP Jan Roos for the European Conservatives and Reformists (ECR) group^[113] to influence the discussion on inclusion of nuclear energy in the EU Taxonomy on Sustainable Finance.^[114] This report was written by two professional lobbyists, the lawyers Katinka M. Brouwer, of consultancy Interlex N.V., and Lucas Bergkamp, at the time working for the large consultancy Hunter Andrews Kurth LLP.^[115] The report does not assess legal aspects but mostly makes claims on the spatial requirements and costs of nuclear energy.^[116] It was published with the claim that it is peer-reviewed, though potential co-authors and reviewers remain anonymous.

This means that there are well over 100 lobbyists from the top of the nuclear industry dedicated to influencing European nuclear policies. This is still apart from the presence in Brussels from the nuclear supply industry and the 19 other EU nuclear operators besides EdF. Furthermore, it must be noted that due to continuing poor registration, many of those lobbyists still do not appear on the EU Transparency Register or in compulsory meeting listings within the European Commission. A comprehensive listing of meetings with Members of the European Parliament or the delegations of the Member States to the European Council (among others, the Council Atomic Questions group) does not exist.

The SMR wave

Since the early 2000s, there has been an increasing interest in Brussels for so-called small modular reactors, or SMRs. These are new nuclear power reactor designs that are supposed to address the drawbacks of the current boiling water reactor (BWR) and pressurised water reactor (PWR) designs. The SMR narrative gained traction after the Fukushima nuclear accident and has been appearing everywhere in the nuclear debate in recent years, including in Brussels. Some of the designs come from the existing nuclear industry, like GE-Hitachi and EdF/Framatom, or from traditional nuclear countries like Belgium and the Czech Republic, and are lobbied for by them. But the SMR industry also includes new start-ups with new lines of financing and advocacy. How this SMR narrative influences the nuclear lobbying landscape can be illustrated by a recent article covering the SMR push in Canada.^[117]

A good example concerning the Brussels EU bubble is the **Breakthrough Energy Catalyst Foundation** of multi-billionaire and Microsoft founder Bill Gates. This organisation promotes SMRs worldwide, and Gates is involved in several SMR projects. The Brussels office registered six lobbyists active on the EU Transparency Register,^[118] but the list of meetings with the European Commission shows 27(!) meetings with European Commissioners or their cabinets in 2021 and 2022 concerning the energy transition, including meetings with Bill Gates himself.^[119]

Research groups

Another tool by which the nuclear industry traditionally influences Brussels nuclear policy is the use of **research groups**. The Euratom Treaty enables the establishment of large research projects on all aspects of nuclear technology. Participation in these groups consists of people from regulatory authorities, technical support organisations (some of which, like the French IRSN, are independent from industry, whereas others, like the Czech UJV or the Slovak VUJE, are owned by the industry), academia, industry and industry consultancies, and over the last few years have also included a few from civil society (French CLIs/ANCCLI, Nuclear Transparency Watch and other civil society experts). For some issues, the industry has set up groups with their own specialists in order to run or co-ordinate research projects, or at least influence EU and Euratom research programmes. Examples include the Sustainable Nuclear Energy Technology Platform (SNETP), the Implementation of Geological Disposal Technology Platform (IGD-TP) and the Association for Multinational Radioactive Waste Solutions (ERDO).

SNETP^[120] focuses on the development of small modular reactors and generation IV reactors (its original remit), mainly bringing together people from industry and the industry research community. It also hosts the SMR pre-Partnership, in which it brings together industry, staff of the European Commission DG ENER, the European Nuclear Regulator Group (ENSREG) and lobby group nucleareurope.^[121] Through SNETP, the industry has regular access to the European Commission and policy making without it appearing in EU transparency registration.

IGD-TP is similarly organised around the issue of radioactive waste management.^[122] Like SNETP on the issue of SMRs, IGD-TP wants to promote certain industry solutions to problems that the nuclear industry faces in order to take away barriers for further development of the sector. For IGD-TP, that is the issue of high-level and long-lived radioactive waste. It actively promotes deep geological disposal and wants to increase public confidence in it. It brings together a wide spectrum of consultancies and industrial research organisations with other industry lobbyists, such as nucleareurope and ENS. Although it initially stated it was open to all stakeholders in the field, an NGO like Greenpeace, that joined the Platform in 2010, left the organisation in 2012, after it became clear it was held outside of all important networking, decision making and working groups, and its suggestions were kept outside of policy and research documents.^[123]

ERDO started as an initiative to research the possibility for multi-national shared disposal sites for nuclear waste.^[124] Radioactive waste organisations from Belgium, Croatia, Denmark, Italy, the Netherlands, Norway, Poland and Slovenia, as well as a Swiss consultants group, coordinate research and propagate a so-called dual-track approach that is used in the Netherlands, in effect, to silence much of the debate around nuclear waste. Temporary storage is made sufficiently long-term to pass the issue on to future generations, while at the same time the option of disposal outside of the country is kept open.

ERDO and IGD-TP are not registered on the EU transparency register, though they do facilitate contacts with the European Commission and the European Parliament and forward their agenda to argue that the radioactive waste problem should be seen as a minor issue.

Next to EU-wide nuclear research groups, national research institutes also reach out to the European Commission. These include, among others, the Commissariat à l'énergie atomique et aux énergies alternatives (CEA), from France.^[125] The CEA has around 50 people involved in 'European Affairs', from which seven are accredited to access the European Parliament premises. Other research groups with a history of nuclear promotion that appear frequently at EU-organised events include SCK-CEN (Mol, Belgium),^[126] NRG (Netherlands),^[127] Helmholtz Gemeinschaft Deutscher Forschungszentren e.V. (Germany),^[128] UJV (Řež, Czech Republic)^[129] and others.

Under the Euratom Treaty, the European community plays an active role in promoting nuclear research to the benefit of the industry. For that, the **Joint Research Centre** was established in 1958, with research institutes in Belgium (Brussels – headquartered in Geel – directorate nuclear safety and security), Germany (Karlsruhe – research on nuclear safety and security), Italy (Ispra – nuclear safeguards, non-proliferation and nuclear security), the Netherlands (Petten – nuclear competence centre, policy support nuclear safety, JRC Euratom research and training) and Spain (Seville – economics). Over the years, the mandate of the JRC was expanded from Euratom and nuclear-related research to scientific support for the work of the European Commission. But due to JRC's history, it still has close links with the nuclear industry and is widely perceived as playing a promoting role for nuclear energy within the European Union. An important example of this was the JRC expert report to support the European Commission's decision to include nuclear energy in the Taxonomy on Sustainable Finance.^[130]

Official European Commission advisory groups sometimes contain members from the nuclear industry. An example is the Group of experts on financial aspects of nuclear decommissioning and spent fuel and radioactive waste management,^[131] which counts four Bulgarian and four Slovak industry people among its members, as well as observers from the IAEA and OECD-NEA, two organisations with a nuclear energy promotion mandate.

Another large player in nuclear debates in Brussels is the Organisation on Economic Co-operation and Development (OECD), especially its nuclear agency **OECD-NEA**. This Paris-based agency brings together national governments and industry around nuclear issues, and participates in many meetings, commissions and other nuclear-related events. Where

its sister agency the IEA has, over the last decades, been recognised as more or less objective, the OECD-NEA has a nuclear promotion mandate. This is not always very visible, and the organisation tries to keep up a veil of objectivity, but it can be recognised in its many reports that are widely used in the Brussels bubble,^[132] and during events that involve participation from the European Commission. It is important to note that the messaging of the OECD-NEA has also started influencing that of the IEA – especially where its energy scenarios are involved. The IEA has never modelled a development of nuclear phase-out in its annual World Energy Outlook, but did go along in modelling a scenario based on the WNA/OECD-NEA-promoted doubling of nuclear capacity in 2050.^[133]

Recently, the nuclear industry, and more specifically the WNA, has been using the front of the United Nations Economic Council for Europe (UNECE) for plugging positive studies about nuclear energy in Brussels, including a recent study on the footprint of different energy sources, where all sources of energy-related numbers in the nuclear sector appeared to stem from ‘WNA consultation’ (!).^[134]

The astroturf initiatives

Over several decades, quite a few people active within the industrial lobby and within the Euratom part of the European Commission have already found their way late in their careers, or after retirement, to small and often new organisations propagating nuclear energy, and are continuing to use their professional contacts and networks. These groups range from small, more research-oriented groups, like ENCO or Nucadvisor, to hard core propaganda groups like New Nuclear Watch.

The established nuclear lobby organisations have also set up astroturf initiatives. Nucleareurope (formerly Foratom) started the group Nuclear for Climate. WNA has its Women in Nuclear and Young Nuclear Generation. Nuclear utilities have set up the Group of European Municipalities with Nuclear Facilities (GMF).

This cloud of astroturf is present at all conferences and seminars organised around the EU institutions on the issue of nuclear power, and regularly issues reports that are implicitly or explicitly addressed to the European Institutions, or even on request of the European Commission itself.^[135]

Brussels also includes a large amount of more general lobbying NGOs, that cover a host of issues. Some of these have also taken up the role of nuclear propagandists, like the initiatives Confrontation Europe and its spin-off Entretiens Européens.

More recently, roughly since the dust of the Fukushima catastrophe started to settle a bit, another type of corporate organised non-governmental organisations (CONGOs) has started to appear. Small entities with names like Energy for Humanity and Voices of Nuclear were seen to enter the debate with argumentation that seems to be derived from, or is feeding into, the ecomodernist messaging. The larger ecomodernist movement joined the discussion around the EU Taxonomy debate in the form of the then just established brand RePlanet.

GMF – The Group of European Municipalities with Nuclear Facilities was established in 2000^[136] by several mayors from nuclear municipalities with close relations to the nuclear industry. In the first decade and a half, it functioned as a nuclear promotion group, but in the latter half of the 2010s, participation from a more varied group of stakeholders has made it more independent, though many of its members are still close to the industry. After NGOs had left the European Nuclear Energy Forum because of greenwashing, GMF was invited to participate in the steering committee of this annual event to represent civil society.

Entretiens Européens^[137] is an initiative of the study and training company ASCPE, set up by Claude Fischer-Herzog, which among other issues, but with quite a bit of vigour, promotes nuclear energy at the European level. Fischer-Herzog, spouse of former communist MEP Philippe Herzog, boasts a large network in both the nuclear industry and Brussels. ASCPE/Entretiens Européens participated in the organisation of many nuclear promotion seminars in Brussels, including, for instance, in 2013 in Poland.^[138]

Voices of Nuclear is a French group that was set up by people with a background in the French nuclear industry,^[139] who earlier tried to improve the position of nuclear by industry activities within the climate debate. Although it claims to be independent, it receives funding from the French nuclear industry,^[140] and most of its active members also have backgrounds there. It indicates that it has six people actively working on EU nuclear policies. Its chair, Myrto Tripathi, suddenly rose to fame when she organised a debate in 2021 on the role of nuclear energy, together with Brussels media outlet Euractiv, in which she also used the RePlanet brand (as co-sponsor), but did disclose her links to the nuclear industry.^[141] This led to the retraction of some members of the planned panel, including its moderator. Registration on the EU Transparency Register of Voices of Nuclear also dates from that period, possibly because such registration is compulsory when Members of the European Parliament participate in these kinds of activities organised by lobbyists.

Around this time, Voices of Nuclear became an important engine within the ecomodernist RePlanet movement. Tripathi wrote a piece with Dutch ecomodernist journalist and RePlanet co-founder Marco Visscher for Euractiv,^[142] on the day of the on-line seminar,^[143] promoting the uptake of nuclear in the EU Taxonomy. Furthermore, Tripathi registered the ecomodernist group RePlanet France – les Ecohumanistes, with five people involved in EU lobbying. Its sources of financing are unclear. It indicates that its entire income comes from the Stichting Ecomodernisme, the predecessor of RePlanet Netherlands.^[144]

Voices of Nuclear was one of the founding organisations of the ecomodernist umbrella organisation **RePlanet**.^[145] RePlanet is not itself present in Brussels – its EU-relations person is Olguita Oudendijk, chair of RePlanet Netherlands. Besides its own registration, we also find its members RePlanet Netherlands,^[146] RePlanet France – Ecohumanistes and the Öko-Progressives Netzwerk e.V. (ÖkoProg) in the EU Transparency Registration. Together they have 19 people listed as active on EU policy. In 2021, RePlanet Netherlands's predecessor Stichting Ecomodernisme received a grant of EUR 900,000 from the foundation of the electronic finance market operator Quadrature.

Although RePlanet Netherlands, Finland and France have their own websites with full names, it is unclear who is behind RePlanet Europe, which only gives examples of activists under their first names. The website does not mention Oudendijk as EU-relations person.

One of the team members of Voices of Nuclear is the co-founder and director of another astroturf group, **Energy for Humanity**,^[147] Kirsty Gogan Alexander. In 2014, Gogan, a gifted speaker, set up this group with Robert Stone, the director of the ecomodernist and nuclear propaganda film *Pandora's Promise*.^[148] In 2022, Energy for Humanity closed down. Although Gogan profiles herself as a former (or still active) environmental activist, her career started in UK government communication for, among others, the Department for Energy and Climate Change and the press office of the UK Deputy Prime Minister, after which she moved to the UK Nuclear Industry Association (UK-NIA) as a spokesperson.

After moving to Switzerland, she set up Energy for Humanity, profiling herself as an environmentalist who supports nuclear power. At Energy for Humanity, she was in close contact with other ecomodernists, like Voices of Nuclear^[149] and the Finnish Ekomodernistit.^[150] In 2022, she closed down Energy for Humanity after having joined the communication firm **LucidCatalyst**^[151] as managing director and from there set up the non-profit **TerraPraxis**.^[152] Both LucidCatalyst and TerraPraxis are promoting nuclear power, but hardly mention the word. In her bios for these organisations and others, as well as in media publications and her LinkedIn profile,^[153] Gogan Alexander's past in the UK-NIA is left out.^[154]

The former conservative Member of the UK Parliament Tim Yeo set up his own astroturf group New Nuclear Watch, also known as New Nuclear Watch Europe, and later turned into **New Nuclear Watch Institute (NNWI)**.^[155] This group has regularly targeted the EU institutions, but has never included itself on the EU Transparency Register. In the past, two lobby companies registered New Nuclear Watch Europe as a client.^[156] The NNWI cooperates with Bill Gates' TerraPower project (one of his SMR involvements) and Kirsty Gogan's LucidCatalyst consultancy, as well as two Chinese entities (the Chinese nuclear operator and builder CGN and the Chinese Nuclear Energy Association), Korean KEPCO (the engineering firm working with KHNP) and the Canadian Nuclear Association.^[157] Director Veronika Struharova comes from the UK chapter of Women in Nuclear (WiN)^[158], the astroturf co-founded by Kirsty Gogan when she was still working as spokesperson for the UK Nuclear Industry Association.

Where Gogan and her groups came from outside the Brussels bubble, the astroturf organisation **weCARE** ('weCARE for Clean Affordable Reliable Energy for Societal Sustainability') was set up in 2019 by former employees of the European Commission DG Energy's nuclear departments, the Joint Research Council's nuclear research, Foratom/nucleareurope^[159] and the nuclear industry. Among its member organisations, we see a mixture of industry astroturf^[160], nuclear research astroturf organisations^[161] and ecomodernist offspring^[162]. WeCARE has built up a considerable lobby potential in Brussels with, according to its EU Transparency Registration, 13 people involved. None of its member organisations are registered on the EU Transparency Register. It claims to work on a zero budget.

It is noteworthy to see that in weCARE's self-descriptions, nuclear is only marginally mentioned, although its activities, as described in its activity reports, almost entirely centre on the promotion of nuclear power. This is something that reappears in several of their member organisations (e.g. Sauvons le Climat, TerraPraxis, EAES and ISE).

Networking

Next to one-on-one meetings with European Commission staff or Commissioners, networking during meetings plays an important role in the Brussels bubble. Seminars, workshops and conferences help in setting agendas and priorities. In the nuclear field, these include the bi-annual conference of the European Commission-established European Nuclear Regulators Group ENSREG,^[163] the annual European Nuclear Energy Forum (ENEF), workshops organised by the European Commission, the Aarhus Round Tables on Nuclear,^[164] conferences and workshops of the OECD-NEA, seminars in the European Parliament organised by one or more MEPs, and others.

In particular, the **European Nuclear Energy Forum (ENEF)**^[165] plays an important role for the nuclear lobby. The Forum was established by a decision of the European Council in 2006 as a platform for discussion between all stakeholders on the opportunities and risks of nuclear energy and information and transparency on nuclear issues.^[166] It was shaped in a similar way as the already existing Madrid Forum on gas, the Berlin Forum on coal and the Amsterdam Forum on renewable energy and efficiency, with working groups and a plenary meeting organised in the capital of one of the, in this case, two organising Member States, namely the Czech Republic and Slovakia.

Initially, the Forum was accompanied by three thematic working groups, each with three sub-themes. The working group on opportunities was chaired by the then president of Foratom Jean-Pol Poncelet, and the working group on risks by EDF research director Noël Camercat. Only the working group on transparency had an independent chair, Janos Toth, succeeded by Richard Adams after his untimely passing, both from the European Economic and Social Council (EESC). The strong industrial bias within the working groups, as well as the small (invitation only) participation of civil society (Greenpeace, Friends of the Earth Europe and the French Réseau Sortir du nucléaire with each one person) made an objective discussion, as mandated by the Council, virtually impossible.

The important first half-yearly, later annual, plenary meetings of ENEF were run by the organising Member States Czech Republic and Slovakia as pro-nuclear events, where their top political brass, prime ministers and industry ministers, could especially show off to the national and international press the perceived importance of nuclear energy. Civil society groups tried to counter-balance this with critical interventions, even on some occasions with direct actions during the Forum, but in May 2009, the NGOs decided to withdraw from ENEF and called for a civil society boycott.^[167] The ENEF continued without fulfilling its mandate from the Council. For that reason, there were discussions around 2015 to cancel it altogether, but the organising Member States Czech Republic and Slovakia used the European Council to force the European Commission to continue the Forum and make it live up to the mandate.

The European Commission then attempted to re-engage civil society participation over the newly established NGO Nuclear Transparency Watch (NTW) together with the European Environmental Bureau (EEB). These two organisations assessed, at the 2016 ENEF, possibilities to restart participation of civil society. They participated in the steering committee, next to the nuclear lobby, the organising Member States and the European Commission. After a very critical assessment,^[168] the working groups were abandoned, and an attempt was made to break open the format of the plenary sessions of the 2017 ENEF with the introduction of a World Cafe discussion in one of the topical sessions. Civil society participants without sufficient means were supported financially to attend. In an attempt to regain control, the Czech organisers suddenly, and without any coordination with the steering committee, featured Kirsty Gogan of astroturf Energy for Humanity as key-note speaker^[169] Slovakia, as organiser of ENEF 2018, dropped changes to the format again and broke several agreements made during the steering committee sessions. Nuclear Transparency Watch and EEB decided to once more suspend their cooperation after this event.^[170] Since 2022, the European Commission has again tried to involve civil society by inviting EEB and NTW, but it appears to be difficult to create a format in which Slovakia and the Czech Republic, as organisers, do not turn the event into greenwashing. ENEF 2023 will take place in Bratislava, with participation of the EEB and NTW in the steering committee, next to industry group Eurelectric, EESC, the originally astroturf group GMF, nucleareurope, the organising Member States Slovakia and Czech Republic, and European Commission DG ENER.

Pro-nuclear Member States

That the Czech Republic and Slovakia volunteered to organise the ENEF did not come as a surprise, nor that they use it as a vehicle for nuclear propaganda. In both countries, nuclear energy is historically deeply rooted (Slovakia producing well over 50% of its power from nuclear, the Czech Republic boasting a large nuclear construction industry), and can be considered as something like a religion. Critique on the technology is disproved of widely in both countries.

French president Macron announced in 2022 that France had abandoned its earlier policy to reduce reliance on nuclear energy. This happened in an attempt to tackle the financial and organisational problems its largely state-owned nuclear industry was sliding into. He easily found allies in Central and Eastern Europe. Within Poland, nuclear energy has become the golden bullet to end all energy discourse, and Hungary under Orbán is developing its nuclear sector arm in arm with Russia. Macron was easily able to bring in Slovenia, which was at the time ruled by the populist SDS of Janez Janša, as well as traditionally nuclear-oriented Romania. With this group of seven Member State allies, France launched a lobby push to get financing for nuclear energy falling under the Taxonomy on Sustainable Finance classification.^[171] The group was later expanded, with the Christian Democrat-led Croatian government of Andrej Plenković and traditionally pro-nuclear Bulgaria, as well as Finland, Italy, the Netherlands, Romania and Sweden, to slide nuclear into any proposal from the European Commission dealing with renewable energy sources.^[172] It is remarkable that at the founding meeting of this coalition, the European Commission was also represented.

France, the Czech Republic, Poland and Hungary most vigorously use their lobby machinery to support the nuclear industry. France and Hungary even use their veto, for instance, to prevent sanctions on the nuclear industry of Russia.

Who drives nuclear lobbying in the EU?

Where in the Netherlands the nuclear debate is mainly driven by political parties in parliament – either on ideological grounds (VVD and CDA) or a combination of ideology and opportunism (the far right) – in Brussels, the driving factors are governments of Member States, supported (or even spurred on) by a strong corporate lobby under the lead of nuclear-europe (formerly Foratom).

In both cases, a wave of mainly ecomodernist civil society groups and corporate astroturf organisations initiated this new nuclear lobby renaissance, but these seem to have lost a bit of their initial steam and moved more to the background.

The European Parliament appears to hardly play a role in this power field, apart from the odd parliamentarian questions or seminars. This is partly related to the fact that different than under the Treaty on the Functioning of the EU, under the Euratom Treaty, the European Parliament has no co-legislative functions. It only has an advisory role to the European Commission, comparable with the role of the EESC and the European Committee of the Regions.

The corporate pressure in Brussels can be relentless. For large nuclear corporations (like EdF, Westinghouse, KEPCO and GE-Hitachi), the many SMR-start-up lobbyists (like Bill Gates' Breakthrough Foundation) and companies (like Rolls Royce and NuScale), as well as several EU-based initiatives (like Thorion from the Netherlands and Fermi Energia from Estonia) and their corporate sponsors (e.g. Vattenfal from Sweden, Fortum from Finland, PGE and several other companies from Poland), the EU is the only market that could possibly give sufficient demand pull for a nuclear renaissance. With the existing reactor fleet steadily in decline, these companies are fighting for their survival, and the EU is a crucial market for that. This results in highly frequent meetings with top European Commission representatives, a lot of influencing in the European Parliament targeted at European Commission positions around financial support measures (Taxonomy, participation in renewables programmes, market mechanisms, etc.) and strong support (morally, but also logistically) for the pro-nuclear Member State coalition.

The European Commission has moved from its more or less neutral point of view at the end of the 2000s and 2010s, to a more supportive position. This is largely because of the pressure from the French-led coalition in the European Council, but also because of political position changes in key countries like the Netherlands, Sweden and Italy. Where a few years ago an older informal coalition of nuclear critical Member States, led by Austria and Luxembourg, but then also including Germany, Greece, Italy, Lithuania, Portugal, Spain and, at certain occasions, Ireland and Denmark, was able to generate attention and tone down support in the Council for nuclear interests, these have now been moved more to the

background – not least because of political compromise positions weakening a strong critical stance on the side of Germany and the change of government in Italy.

The position of Germany deserves a bit more attention in this perspective. The Russian war in Ukraine has strengthened the position of the liberal FDP, as well as the pro-nuclear lobby within the social-democrat SPD, and facilitated some waves of attention for eco-modernist positions in the German media. This has made Germany more pragmatic in its dealings with nuclear issues at the EU level. However, because of a strong argumentative debate within the country itself, where not only the anti-nuclear movement is very vocal, but also renowned institutes like the German Institute for Economic Research (DIW), the Fraunhofer Institute or the traditionally nuclear-critical ÖkoInstitut, there continues to be balanced pressure on the government coalition not to completely let go of critical assessment of nuclear positions. This is true despite Germany's recently completed nuclear power phase-out.

The point of gravity of the nuclear lobby is situated in the European Council and its interaction with the European Commission. This dynamic is the most difficult one to influence for civil society, because it involves national governments, where positions are adopted on a much more political, rather than an argumentative, basis.

In the argumentative debate, we see at the national level populist and political right-wing discussions building a positive image of nuclear energy, albeit based on simplified evidence. This undermines the anti-nuclear narrative, even if that is based on stronger evidence, and in spite of the realities on the ground in the form of a declining nuclear industry. But the open ears that the pro-nuclear lobby are finding, especially among young people, and the national political filter that influences positions of Member States in the European Council – the platform where the decisions that matter at the EU level are made – make it not exactly easy to overturn the current dynamic.

The only opening to counter the lobby seems to be over strong content argumentation directed towards the European Commission. Important, in this respect, is that the European Commission needs to deliver on an effective climate policy, which will be seriously undermined when money and political attention keep flowing to a non-delivering nuclear debate.

As we have seen earlier, the Council cannot bring an end to the diversion introduced by nuclear energy in the climate and energy debate under the barrage of lobbying from a large group of its Member States. The European Parliament has no decision power, but it could play a supportive role by organising seminars and direct contacts between MEPs and the European Commission, as well as blocking attempts to arrange further (climate-fruitless) financial support for nuclear energy at the EU level.

But the more visible these efforts are, the stronger counter-reaction they provoke from the side of the corporate lobby (especially nucleareurope and their allies) and from pro-nuclear movements like Entretiens Européens and RePlanet. And it is their visibility that gives wind in the sails to more pro-nuclear-oriented people within the European Commission. Which brings us back to the problem of the visibility of simplified bullet-point communication

overruling the more tedious argumentation in all its necessary details, the latter of which is necessary to understand the counter-productive role of nuclear power in the climate, energy and sustainability discourses.

4. Final conclusions

There does not appear to be one coordinated nuclear lobby in Europe – neither at the EU level, nor at the national level. There are different streams that support the development of nuclear energy for different reasons: nuclear corporations, astroturf and/or “grassroots” initiatives, and political entities (political parties and EU Member States). But there is definitely synergy between these three streams. We see, as an example, the communication skills and bullet-point argumentation of the ecomodernist movement giving the more complex narrative of the nuclear industry the ammunition it needs to enter the party-political debate. And we have seen the simplified party-political debate at the national level create an unprecedented strong pro-nuclear coalition at the EU-level. This has resulted in a unified position with a very strong (mainly French, but not only) political drive to push forward the nuclear agenda, no matter the negative consequences for the wider climate and energy debate. One observer characterised the current pro-nuclear movement in the EU as Macron and his 12 disciples, hinting at the messianic political drive behind it.

The combination of the rather catastrophic situation of the nuclear industry, a wave of populism riding social media dynamics, and financial and communicational opportunities arising from the need for urgent climate action within the EU, have all unleashed an unprecedented nuclear lobby effort in both national and EU platforms. Nuclear-critical actors – whether from the environmental movement, other civil society stakeholders, academia or stakeholders with a high interest in pushing forward urgent climate action – would be well advised to concentrate on those decision moments that currently divert substantial time, money and capacity from national governments away from effective urgent climate action. At the EU level, this should target the European Commission, which cannot afford to lose momentum in urgent climate action. At the Member State level, the power position of the nuclear coalition of Member States should be undermined, especially supporting nuclear-critical Member States with good, evidence-based information to counter the pro-nuclear narrative. And nuclear-critical Member States should be encouraged not to accept the diversion and slow-down with regard to urgent climate action that the pro-nuclear coalition is causing.

The upcoming crucial EU decisions on financial instruments, where the pro-nuclear Member State coalition are trying to find a way in, are, of course, fed by national debates on nuclear issues. And here, short, bullet-point pro-nuclear argumentation overshadows the complexity of the narrative that explains why nuclear energy is a barrier to urgent climate action. It also explains why the historical demise of nuclear power because of costs, complexity, risks, waste and proliferation continues to deserve paramount consideration. In particular, a lack

of historical continuity in this debate has moved younger generations towards a less critical, or even supportive, position. In order to overcome the low level of critical reflection, more visibility by critical stakeholders on popular and social media platforms is needed to counterbalance the political pressure of the nuclear lobby. Good examples of that can be seen in the German debate around the nuclear phase-out, where top institutes, such as the Agora Energiewende, the German Institute of Economic Research (DIW), ÖkoInstitut and others, did not shy away from the public debate, to urge the energy transition forwards.

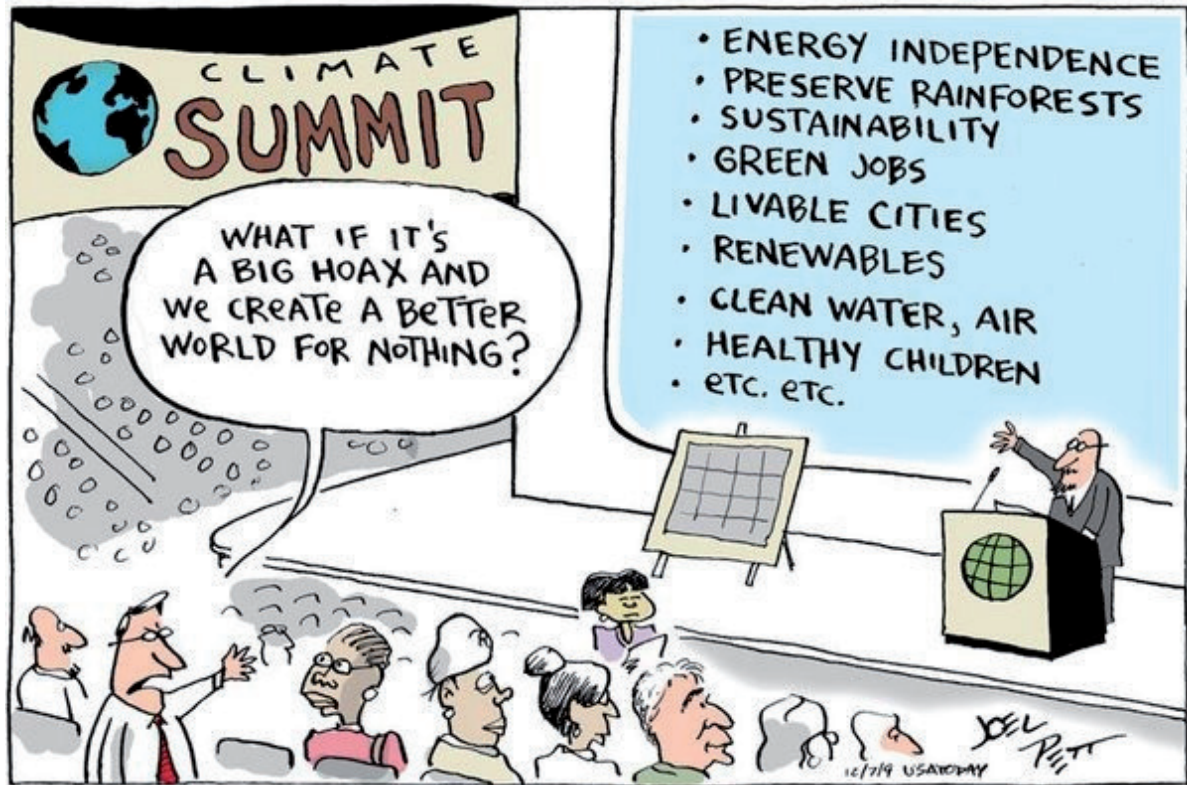
There is currently on the ground no visible renaissance of nuclear power in the Netherlands or the EU. All nuclear projects delivered in the EU this century have suffered, and continue to suffer, too many delays and cost overruns to give financiers sufficient trust for new nuclear adventures.^[173] But there is undoubtedly a European renaissance of nuclear debates. These cover issues of lifetime extension of the current fleet, new projects based on existing nuclear power station designs and the introduction of new designs. In order to bring these about, the political and industrial nuclear lobbies focus all their efforts on securing finance – no matter what the cost. This includes painting nuclear energy as clean, green and sustainable, or even renewable. It encompasses attempts to ease planning procedures and reduce or undermine independence of the nuclear safety regulatory system, both in an attempt to reduce costs. It tries to ease financial state support at all levels.

These debates do not originate from a consideration for the climate, as is often claimed. The origin can be found in an industry that still has a high political standing because of its relation to nuclear weapons (at least in France and the UK), but also in its almost religious aura of being the pinnacle of engineering (especially in countries like the Czech Republic, Slovakia and Romania). Political opportunism also plays an important role: political groups that until recently, and in some instances still, deny the urgency of climate change push nuclear energy as a silver bullet for the climate in order to divert attention from the fact that they don't want urgent climate action to be taken at all. This is given extra air by populist ideologies that see an opportunity to counter the environmental movement narrative, which is perceived as over-directive.

This renaissance of nuclear debate should be considered dangerous because its diversion from urgent climate action can already be felt today. The greenwashing of the Taxonomy for Sustainable Finance has severely undermined the credibility of this tool, which was envisioned as speeding up corporate climate action. We see large sums of money diverted from climate funds towards nuclear projects that will unlikely be successful – for example, the EUR 5 billion from the EUR 35-billion climate fund of the Netherlands that will be spent on facilitation (not construction!) of new nuclear capacity (as mentioned above).

The influence of the nuclear lobby on national and EU decision processes is currently extra-proportional. To avoid nuclear diversion from urgent climate change causing real damage, academia, nuclear-critical governments and evidence-based independent civil society actors will need to recognise the deep roots that this nuclear lobby has grown within some of the EU Member States and the EU institutions, and that this influence is growing in conventional and new (social) media. Against the simplified claims about nuclear energy, it

must now provide a clearer positive vision, where urgent climate action will be in the lead. A positive perspective of a more decentralised, less risky, more sustainable and cleaner energy system that can bring us, in reality, closer to a world where a 1.5° temperature increase this century is the maximum.



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- [85] Following a variable demand by ramping up and down capacity very fast. This is currently done by gas power stations. Normally, nuclear power stations are, for technical and economic reasons, seen as base-load power stations that continuously have to deliver 24/7 power. However, adaptations in design make it also possible for nuclear power stations to ramp up and down faster, so they could be more easily incorporated in a highly variable grid-system on the basis of variable input from wind and solar. But this goes against a severe economic loss.
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 Foro de la Industria Nuclear Española (Foro Nuclear) – 3 lobbyists: <https://ec.europa.eu/transparencyregister/public/consultation/displaylobbyist.do?id=260551919108-63>,
 Finnish Energy – 2 lobbyists in Brussels, total 19: <https://ec.europa.eu/transparencyregister/public/consultation/displaylobbyist.do?id=68861821910-84>
 GIFEN – 6 lobbyists: <https://ec.europa.eu/transparencyregister/public/consultation/displaylobbyist.do?id=117423440302-21>
 ČEZ a.s. – 10 lobbyists: <https://ec.europa.eu/transparencyregister/public/consultation/displaylobbyist.do?id=429600710582-32>
 KGHM Polska – 16 lobbyists: <https://ec.europa.eu/transparencyregister/public/consultation/displaylobbyist.do?id=458546625595-21>
 PGE (incl. PGE-EJ / PEJ) – 5 lobbyists: <https://ec.europa.eu/transparencyregister/public/consultation/displaylobbyist.do?id=818300434979-49>
 URENCO – 3 lobbyists: <https://ec.europa.eu/transparencyregister/public/consultation/displaylobbyist.do?id=352551438039-39>
- [93] <https://ec.europa.eu/transparencyregister/public/consultation/displaylobbyist.do?id=136929035888-78>, consulted 09/01/2023.
- [94] <https://www.euronuclear.org/>
 EU Transparency Registry: <https://ec.europa.eu/transparencyregister/public/consultation/displaylobbyist.do?id=083308125409-83>, consulted 09/01/2023.
- [95] <https://world-nuclear.org/>
 EU Transparency Registry: <https://ec.europa.eu/transparencyregister/public/consultation/displaylobbyist.do?id=382541932700-21>, consulted 09/01/2023.
- [96] NUGENIA (<https://snetp.eu/nugenia/>) is not any longer registered in the EU Transparency Register. It used to be registered from 2017: <https://www.lobbyfacts.eu/datacard/nuclear-generation-ii-iii-association?rid=499879825377-39>, consulted 25/01/2023.
- [97] Edf: <https://ec.europa.eu/transparencyregister/public/consultation/displaylobbyist.do?id=39966101835-69>
 Orano: <https://ec.europa.eu/transparencyregister/public/consultation/displaylobbyist.do?id=348369030395-22>
 Hitachi: <https://ec.europa.eu/transparencyregister/public/consultation/displaylobbyist.do?id=50213201578-64>
 GE: <https://ec.europa.eu/transparencyregister/public/consultation/displaylobbyist.do?id=4016736872-59>
 KBA: <https://ec.europa.eu/transparencyregister/public/consultation/displaylobbyist.do?id=14966899031-34>
 All consulted 09/01/2023.
- [98] <https://rusatom-energy.com/media/rosatom-news/rosatom-supports-european-power-generation-week-in-brussels/>
- [99] Greenpeace Money for Change, *How Russian Companies Lobbied for the EU Taxonomy to include Fossil Gas and Nuclear Energy*, Brussels (2022) Greenpeace EU Unit:
<https://cdn.greenpeace.fr/site/uploads/2022/05/How-Russian-Companies-Lobbied-For-the-EU-Taxonomy-To-Include-Fossil-Gas-Nuclear-Energy-1.pdf>
- [100] Wesolowsky, Tony, *The Rosatom Exemption: How Russia's State-Run Nuclear Giant Has Escaped Sanctions*, Radio Free Europe / Radio Liberty, 15 June 2022:
<https://www.rferl.org/a/rosatom-russia-nuclear-giant-escapes-sanctions/31899192.html>
- [101] https://www.euractiv.com/section/politics/short_news/european-parliament-closes-doors-on-russian-lobbyists/

- [102] See Greenpeace Money for Change (2022), end-note 110:
<https://cdn.greenpeace.fr/site/uploads/2022/05/How-Russian-Companies-Lobbied-For-the-EU-Taxonomy-To-Include-Fossil-Gas-Nuclear-Energy-1.pdf>
- [103] Rosatom France states in its 2016 entry that it hired lobby consultants Sass Consulting; it is also listed as a client of Acceleration Management Solutions in 2020:
<https://www.lobbyfacts.eu/datacard/rosatom-france?rid=114465516906-25>;
 JSC Atomenergoprom: <https://www.lobbyfacts.eu/datacard/jsc-atomenergoprom?rid=429690823502-77>; AtomEnergPromSbyt (AEPS): <https://www.lobbyfacts.eu/datacard/atomenergopromsbyt?rid=820086423470-65>; Acceleration Management Solutions S.A.M. (AMS S.A.M.), lobbying for INTER RAO (Rosatom's international branch):
<https://www.lobbyfacts.eu/datacard/acceleration-management-solutions-sam?rid=99314656229-90>;
 consulted 17/01/2023; lobbying for Rosatom France:
<https://www.lobbyfacts.eu/datacard/acceleration-management-solutions-sam?rid=932094739001-26>;
 all consulted 17/01/2023.
- [104] <https://www.rosatom-europe.com/contacts/>
- [105] EU Transparency Register: <https://ec.europa.eu/transparencyregister/public/consultation/displaylobbyist.do?id=51375423794-46>, consulted 09/01/2023.
- [106] <https://www.reuters.com/world/europe/finnish-group-ditches-russian-built-nuclear-plant-plan-2022-05-02/>
- [107] <https://yle.fi/a/3-5054287>
- [108] Rosatom Western Europe SARL: <https://www.rosatom-europe.com/>
- [109] Rosatom, *Performance of State Atomic Energy Corporation Rosatom in 2020*, Moscow (2021), page 70, 1.5.5. Developing the network of Rosatom's representative offices affiliated with embassies and trade missions abroad:
<https://rosatom.ru/upload/iblock/d83/d832075be25854001173de592f99953d.pdf>
- [110] http://www.aulaeurope.eu/en_GB/front-page
- [111] <https://ec.europa.eu/transparencyregister/public/consultation/displaylobbyist.do?id=88742028087-64&pdf=true>, consulted 31/01/2023.
- [112] <https://ec.europa.eu/transparencyregister/public/consultation/displaylobbyist.do?id=88742028087-64>, consulted 31/01/2023.
- [113] https://ecrgroup.eu/article/ecr_co_commissioned_climate_study_advises_eu_to_embark_on_a_nuclear_renaissance
- [114] Brouwer, Katinka M. LL.M. & Dr. Lucas Bergkamp (eds), *Road to EU Climate Neutrality by 2050 – Spatial Requirements of Wind/Solar and Nuclear Energy and Their Respective Costs*, Brussels (2021) ECR Group. Although it is mentioned in the report, the RENEW group never endorsed it:
https://roadtoclimateneutrality.eu/Energy_Study_Full.pdf
- [115] Neither of the authors or the consultancies they represent are listed in the EU Transparency Register, nor were registered before – searches done at <https://ec.europa.eu/transparencyregister> and <https://www.lobbyfacts.eu/> on 31/01/2023.
- [116] The study claims, for example, that 'In realistic scenarios, there is not enough land to meet all power demand if the Czech Republic and The Netherlands were to rely solely or predominantly on wind and solar power.' This is countered by most studies, including those of [TNO](#) and [van de Ven e.a. in Nature](#) (2021).
- [117] Nelson & Joyce, *Mini-Nukes, Big Bucks: The Interests Behind the SMR Push – Why Canada is now poised to pour billions of tax dollars into developing Small Modular Reactors as a "clean energy" climate solution*, Sentinel 14 January 2021:
<https://watershedsentinel.ca/articles/mini-nukes-big-bucks-the-money-behind-small-modular-reactors/>
- [118] <https://ec.europa.eu/transparencyregister/public/consultation/displaylobbyist.do?id=424103441763-49>, consulted on 31/01/2023.
- [119] <https://ec.europa.eu/transparencyregister/public/consultation/displaylobbyist.do?id=424103441763-49&pdf=true>, consulted 31/01/2023.
- [120] <https://snetp.eu/>, European transparency register: <https://ec.europa.eu/transparencyregister/public/consultation/displaylobbyist.do?id=671767225420-82>, consulted 17/01/2023.
- [121] <https://snetp.eu/european-smr-pre-partnership/>
- [122] <https://igdtp.eu/>

- [123] https://www.nonuclear.se/files/greenpeace_withdrawl_letter_IGD_TP20120222.pdf
- [124] <https://www.erdo.org/>
- [125] <https://www.cea.fr/>, EU Transparency Register: <https://ec.europa.eu/transparencyregister/public/consultation/displaylobbyist.do?id=52774696782-43>, consulted 17/01/2023.
- [126] <https://www.sckcen.be/en>, not registered in the EU Transparency Register.
- [127] <https://www.nrg.eu/>, not registered in the EU Transparency Register.
- [128] <https://www.helmholtz.de/>, EU Transparency Register: <https://ec.europa.eu/transparencyregister/public/consultation/displaylobbyist.do?id=73792436593-97> – 10 people based in Brussels; consulted 17/01/2023.
- [129] <https://www.ujv.cz/en>, not registered in the EU Transparency Register.
- [130] <https://publications.jrc.ec.europa.eu/repository/handle/JRC125953>
- [131] <https://ec.europa.eu/transparency/expert-groups-register/screen/expert-groups/consult?lang=en&groupID=3777>
- [132] Although some OECD-NEA papers, like its regular overview [table of nuclear liabilities](#) or the famous annual [red book on uranium resources](#), count as standard reference materials, others are strongly promotion biased. Recent examples of this include its [Projected Costs of Generating Electricity](#), which reflects far lower LCOE costs for nuclear than, for example, the regularly updated independent [Lazard Levelized Cost of Energy](#). Another example is the recent report on the [Role of Nuclear Power in the Hydrogen Economy](#), which clearly has a promotion function. [The NEA Small Modular Reactor Dashboard](#), starts on the basis of the highly non-scientific intervention of taking the average nuclear growth figures from all IPCC SR1.5 assessed scenarios to “predict” a tripling of nuclear capacity in 2050, and, in spite of an explicit emphasis on the use of public data, its SMR profiles show a strong optimistic bias regarding the stage of implementation, whereby any critical analysis of drawbacks (costs, risks, waste, proliferation, etc.) is completely lacking. The publication [Meeting Climate Change Targets: The Role of Nuclear Energy](#) repeats the earlier mentioned unscientific averaging of IPCC SR1.5 assessed scenarios, and already starts with the claim ‘All credible models show that nuclear energy has an important role to play in global climate change mitigation efforts’, in spite of [IPCC’s SR1.5 and AR6](#) clearly showing credible models that show global climate change mitigation pathways with a decreasing role of nuclear energy.
- [133] In the IEA 2022 World Energy Outlook, its NZE-scenario postulates a more than doubling of nuclear capacity in 2050 compared to 2021: <https://iea.blob.core.windows.net/assets/830fe099-5530-48f2-a7c1-11f35d510983/WorldEnergyOutlook2022.pdf>
- [134] UNECE, *Life Cycle Assessment of Electricity Generation Options*, Paris (2021) United Nations: <https://unece.org/sites/default/files/2021-10/LCA-2.pdf>
- [135] ENCO and Nucadvisor, for instance, participate in tenders for reports from the European Commission. Examples: <https://op.europa.eu/en/publication-detail/-/publication/e6f9c4fb-8720-44e7-8ae5-331da3b1bfb8>, <https://op.europa.eu/en/publication-detail/-/publication/bf33494d-ec0d-11e9-9c4e-01aa75ed71a1>, <https://op.europa.eu/en/publication-detail/-/publication/08f1e63d-a8cf-11ec-83e1-01aa75ed71a1/language-en>
- [136] <https://gmfeurope.org/>
- [137] <https://www.entretiens-europeens.org/>
ASCPE, Entretiens Européens, and Claude Fischer-Herzog are all not registered in the EU Transparency Register. Confrontation Europe is registered as a think tank with five lobbyists, from which three with European Parliament accreditation: <https://ec.europa.eu/transparencyregister/public/consultation/displaylobbyist.do?id=01995086879-32>, consulted 25/01/2023.
- [138] http://agenda.euractiv.com/files/events/Invitation-EE-Pologne-2013_En.pdf
- [139] <https://www.voicesofnuclear.org/association/>; EU Transparency Register: <https://ec.europa.eu/transparencyregister/public/consultation/displaylobbyist.do?id=069633344719-02>, consulted 18/01/2023.
- [140] See its EU Transparency Register entry: in 2021, it received €90,500 from French Framatom (EdF) and €10,000 from Orano.
- [141] <https://twitter.com/greenpeaceeu/status/1466029369969852427?lang=en>
- [142] <https://www.euractiv.com/section/energy-environment/opinion/europe-must-support-nuclear-energy/>
- [143] <https://events.euractiv.com/event/info/eu-taxonomy-for-sustainable-activities-should-nuclear-energy-be-left-out>

- [144] EU Transparency Register: <https://ec.europa.eu/transparencyregister/public/consultation/displaylobbyist.do?id=996159244455-38>, consulted 30/01/2023.
- [145] EU Transparency Register: <https://ec.europa.eu/transparencyregister/public/consultation/displaylobbyist.do?id=179551845769-58>, consulted 30/01/2023.
- [146] <https://ec.europa.eu/transparencyregister/public/consultation/displaylobbyist.do?id=766505844253-83>
<https://ec.europa.eu/transparencyregister/public/consultation/displaylobbyist.do?id=996159244455-38>
<https://ec.europa.eu/transparencyregister/public/consultation/displaylobbyist.do?id=645929844471-06>, all consulted 30/01/2023.
- [147] <https://www.energyforhumanity.org/en/>
- [148] <https://www.foe.org.au/pandora>
- [149] See: <https://www.voicesofnuclear.org/association/>
- [150] See: <https://ekomodernismi.fi/yhdistys/>, where the Finnish Ecomodernists appear as the local branch of Gogan's Energy for Humanity.
- [151] <https://www.lucidcatalyst.com/core-staff>
- [152] <https://www.terrapraxis.org/about/our-team/kirsty-gogan>
- [153] <https://www.linkedin.com/in/kirsty-gogan-alexander-frsa-fei-honfnuci-8153095/>, consulted 25/01/2023.
- [154] Although Gogan Alexander regularly has spoken at EU events, none of her initiatives, companies or even herself have ever been included in the EU Transparency Register.
- [155] <https://www.newnuclearwatchinstitute.org/>
- [156] Cambre Associates/SEC Newgate EU: <https://www.lobbyfacts.eu/datacard/cambre-associates?rid=23020671103-67&sid=65113>, <https://ec.europa.eu/transparencyregister/public/consultation/displaylobbyist.do?id=23020671103-67>
 Instinctif Partners: <https://www.lobbyfacts.eu/datacard/instinctif-partners?rid=14365014904-34&id=41946>, consulted 06/02/2023.
- [157] <https://www.newnuclearwatchinstitute.org/about-us>
- [158] <https://www.winuk.org.uk/about-us/governance/about-us-governance-executivecommittee/>
- [159] <https://www.wecareeu.org/>; weCARE founders are Marc Deffrennes (former European Commission DG ENER nuclear departments), Richard Ivens (former Foratom) and Serge Crutzen (former JRC nuclear). EU Transparency Register: <https://ec.europa.eu/transparencyregister/public/consultation/displaylobbyist.do?id=473723535459-78>, consulted 30/01/2023.
- [160] These include: 100 TWh – Belgium; Jihočestí Tátkové – Czech Republic; Association for the Defense of Nuclear Heritage and Climate (PNC) – France; Sauvons Le Climat – France; Stichting Energietransitie & Kernenergie – Netherlands (see chapter on the Netherlands); 18for0 – Ireland.
- [161] Including: the European Agency for Energy Security (EAES) – Slovakia, Austria, UK; Institute for Sustainable Energy (ISE) – Poland.
- [162] Ekomodernistit Finland and TerraPraxis – UK.
- [163] <https://www.ensreg.eu/ensreg-conferences>
- [164] <https://www.nuclear-transparency-watch.eu/acn-round-table>
- [165] https://energy.ec.europa.eu/topics/nuclear-energy/nuclear-safety/european-nuclear-energy-forum-enef_en
- [166] https://energy.ec.europa.eu/system/files/2022-06/2008_conclusion_mandate_of_the_forum.pdf
- [167] <https://friendsoftheearth.eu/press-release/ngos-walk-out-of-industry-dominated-nuclear-talking-shop/>
- [168] <https://www.nuclear-transparency-watch.eu/a-la-une/opinion-on-ngo-participation-in-the-enef-conference-in-bratislava.html>
- [169] <https://www.mpo.cz/assets/cz/rozcestnik/pro-media/tiskove-zpravy/2017/5/Programme-ENEF-2017.pdf>
- [170] <https://www.nuclear-transparency-watch.eu/wp-content/uploads/2018/12/20181126-NTW-letter-EU-Council-and-EU-Commission-on-ENEF-1.pdf>
- [171] <https://www.euractiv.com/wp-content/uploads/sites/2/2021/03/Nuclear-letter-march-2021.pdf>
- [172] <https://www.reuters.com/business/energy/france-seeks-pro-nuclear-alliance-eu-energy-talks-2023-02-27/>
- [173] These include: Temelín 1,2 in the Czech Republic; Cernavoda 1,2 in Romania; Mochovce 3 in Slovakia; and Olkiluoto 3 in Finland, as well as the three currently remaining nuclear construction projects (Mochovce 4 in Slovakia, Flamanville 3 in France and Hinkley Point C, construction of which started when the UK was still part of the EU.

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Contact: Anton Möller, Head of Programme – Green Economic
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Heinrich-Böll-Stiftung European Union, Brussels

E Anton.Moeller@eu.boell.org

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