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A Question of Utter Importance: The Early History of Climate Change and Energy Policy in Sweden, 1974–1983

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ABSTRACT

This paper studies early arguments in Sweden for combating climate change. We show how scientific results in relation to climate change entered the political sphere as part of the debate on energy in the 1970s, a process we propose to name *energysation*. We argue that the use of climate science by pro-nuclear political actors served as a way of maintaining a course set by a high-energy society while simultaneously trying to outmanoeuvre the growing environmental anti-nuclear and low-energy movement. When the pro-nuclear power side met with resistance, this led to a displacement of climate change knowledge away from the realm of the national political sphere and specific energy forms, a process we conceptualise as *de-energysation*. By highlighting conflicts and the political framings of climate change in the early years 1974–1983, we suggest that the history of these frames influences current delay in climate change mitigation and limits the range of actions and ways of addressing the ongoing climate emergency.

KEYWORDS

Environmental history, climate change, delay, history of energy, Sweden

INTRODUCTION

This paper brings together the history of energy transitions¹ with political framings of climate change to understand societal inertia regarding our climate emergency. Sweden's energy transition away from fossil fuels to nuclear power, incineration of national and imported waste and biofuel combustion since the beginning of the 1970s has resulted in a comparatively low amount of CO₂ emissions from the energy system.² We argue that the two main ways in which climate change was framed during this period created a deadlock that has impeded more substantial transformations of the energy sector and society at large, first via the energysation frame of more and more electricity coming from nuclear power, second from the de-energysation frame which dealt with the emissions in isolation from energy and therefore displaced from the national political realm.³ This is particularly evident in Sweden with regards to the role of nuclear power in terms of hampering developments in renewable energy transitions.⁴ In Sweden the dominant response to climate change has been either to argue for an expansion, or at least maintenance, of nuclear operations or to insist that Sweden take the lead in securing global agreements on climate change action. We can see this in the late 1980s and early 1990s regarding the debates on climate change and the phasing out of nuclear energy;⁵ as well as in the early 2000s with the definitive rise of global climate governance;⁶ and again today when the climate crisis has become the most pressing issue of our time.⁷ But through what kind of struggles did these frames emerge? That is the question for this paper.

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1. Ian Jared Miller et al., 'Forum: The environmental history of energy transitions', *Environmental History* **24** (2019): 463–533.
 2. Measured in per capita emissions from combustion. IEA, CO₂ Emissions from Fuel Combustion: Overview (Paris: IEA, 2020) <https://www.iea.org/reports/co2-emissions-from-fuel-combustion-overview>
 3. Stefan C. Aykut and Aurélien Evrard, 'A transition so that everything can stay the same? Institutional change and path dependence in French and German energy transitions', [Une transition pour que rien ne change? Changement institutionnel et dépendance au sentier dans les "transitions énergétiques" en Allemagne et en France.] *Revue internationale de politique comparée* **24** (2017): 17–49; Martin Hultman. *Den Inställda Omställningen : Svensk Energi- Och Miljöpolitik I Möjligheternas Tid 1980–1991* (Möklinta: Gidlund, 2015).
 4. Yan Wang, 'Renewable electricity in Sweden: An analysis of policy and regulations', *Energy Policy* **34** (2006): 1209–20; Lars J. Nilsson et al., 'Seeing the wood for the trees: 25 years of renewable energy policy in Sweden', *Energy for Sustainable Development* **8** (2004): 67–81.
 5. M. Hultman, A-S. Kall and J. Anshelm (2021) *Att ställa frågan. Att våga omställning. Birgitta Hambraeus och Birgitta Dahl i den svenska energi- och miljöpolitiken 1971–1991* (Lund: Arkiv förlag).
 6. Jonas Anshelm and Martin Hultman, *Discourses of Global Climate Change: Apocalyptic Framing and Political Antagonisms* (London: Routledge, 2014).
 7. Daniel Lindvall, Kjell Vowles and Martin Hultman, 'Upphetning–Demokratin I Klimatkrisens Tid', *Fri tanke, Stockholm* (2020). Nuclear power as an answer to climate change in the period since the mid-1980s has been described as an international narrative of

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Concerns that carbon dioxide accumulating in the atmosphere, particularly from industry, transportation and the production of electricity and heat, can lead to profound climate change have been an increasing part of the international political debate since five decades ago.⁸ Starting with two United Nations organisations – the World Meteorological Organisation (WMO) and the United Nations Environment Programme (UNEP) – establishing IPCC in 1988, climate change has been a recurring political and scientific issue.⁹ The emergence of climate as a policy issue in the late 1980s posed a serious challenge to the fossil fuel industry, and, as documents show, they reacted by denying knowledge accepted by their own R&D departments.¹⁰ However, the intersection between climate science, party politics and company engagements in earlier periods is almost unknown.¹¹ We address the call from Aklin and Mildenerger to analyse the empirical links between national and international factors shaping climate policy, in this case with an historical perspective.¹² By focusing on a country that is known for its progressive climate policies, lacking major fossil fuel extractive industries and having low rates of explicit climate denial, yet still not acting fully on climate science, we gain an increased understanding of the political economy and broader culture of delaying climate action.¹³ Additionally, central in this article is scientist Bert Bolin, who was a vital figure in coordinating international climate research since the late 1960s up until enabling the launch of IPCC in 1988.¹⁴

nuclear renaissance: Núria Almiron, Natalia Khozyainova and Lluís Freixes, “‘This nagging worry about the carbon dioxide issue’”, in Núria Almiron and Jordi Xifra (eds), *Climate Change Denial and Public Relations: Strategic Communication and Interest Groups in Climate Inaction* (London and New York: Routledge, 2020), pp. 195–213.

8. Spencer R Weart. *The Discovery of Global Warming* (Harvard University Press, 2008); Mathias Martinsson, ‘Ozonskiktet Och Risksamhället: En Studie Av Den Svenska Politiska Diskussionen Rörande Ozonskiktet 1968–1992’ (Doctoral thesis, Linköpings universitet, 2001).
9. Stefan Cihan Aykut, Jean-Baptiste Comby and Héléne Guillemot, ‘Climate change controversies in French mass media 1990–2010’, *Journalism Studies* **13** (2012): 157–74.
10. Naomi Oreskes and Erik M. Conway. *Merchants of Doubt: How a Handful of Scientists Obscured the Truth on Issues from Tobacco Smoke to Global Warming* (London: Bloomsbury, 2012); Riley E. Dunlap, ‘Climate change skepticism and denial: An introduction’, *American Behavioral Scientist* **57** (2013): 691–98.
11. Much of what we know regarding industry knowledge stems from journalism and blogs like Desmog, with some notable exceptions, such as Benjamin Franta, ‘Early oil industry knowledge of Co2 and global warming’, *Nature Climate Change* **8** (2018): 1024–25.
12. Michaël Aklin and Matto Mildenerger, ‘Prisoners of the wrong dilemma: Why distributive conflict, not collective action, characterizes the politics of climate change’, *Global Environmental Politics* **20** (2020): 4–27.
13. David McDermott Hughes. *Energy without Conscience: Oil, Climate Change, and Complicity* (Durham: Duke University Press, 2017); Kari Marie Norgaard. *Living in Denial: Climate Change, Emotions, and Everyday Life* (Cambridge, Mass.: MIT Press, 2011).
14. While some of the specific policy processes in Sweden described in this paper have been analysed by political scientist Åsa Knaggård, we expand her analysis by including a larger

A growing body of research has since at least the early 2000s examined the inertia and obstructions haunting climate policy.¹⁵ Studies have shown how interest groups with vested interests have influenced and obstructed science and efforts to mitigate climatic changes,¹⁶ while others have discussed the limits of scientific practices and an overconfidence in linear science policy communication,¹⁷ or how cultural and psychological factors influence our propensity to combat climate change.¹⁸ The research on delaying discourses to a large extent focuses on recent developments and arguments used in contemporary debates, giving the impression that delay is the succeeding strategy when outright denial of climate science has proven to be a dead end.¹⁹

In this paper, we expand upon the research carried out in the field of political science and sociology, looking at the specific ways in which climate change has entered and been framed in political discussions.²⁰ We historicise the work of scholars trying to understand the delay of climate action in settings where the results from climate science are not questioned.²¹ Studies on conflicts over climate policy often begin in the late 1980s and the establishment of IPCC, or

pool of empirics such as archival and press material, thereby exploring the broader conflicts over energy and the specific context that climate change became a part of.

15. Aaron M. McCright and Riley E. Dunlap, 'Defeating Kyoto: The conservative movement's impact on US climate change policy', *Social Problems* **50** (2003): 348–73.
16. Riley E. Dunlap and Aaron M. McCright, 'Climate change denial: Sources, actors and strategies', *Routledge Handbook of Climate Change and Society* (Routledge, 2010), pp. 270–90; Robert J. Brulle, 'Networks of opposition: A structural analysis of U.S. climate change countermovement coalitions 1989–2015', *Sociological Inquiry* (2020): 1–22; Justin Farrell, 'Corporate funding and ideological polarization about climate change', *Proceedings of the National Academy of Sciences* **113** (2016): 92.
17. See Norgaard for an excellent summary of this research: Norgaard, *Living in Denial*, pp. 64–65.
18. Ibid.; Robert J. Brulle and Kari Marie Norgaard, 'Avoiding cultural trauma: Climate change and social inertia', *Environmental Politics* **28** (2019): 886–908; Kirsti M. Jylhä and Kahl Hellmer, 'Right-wing populism and climate change denial: The roles of exclusionary and anti-egalitarian preferences, conservative ideology, and antiestablishment attitudes', *Analyses of Social Issues and Public Policy* **20** (2020): 315–335.
19. Eric Bonds, 'Beyond denialism: Think tank approaches to climate change', *Sociology Compass* **10** (2016): 306–17.
20. Åsa Knaggård. *Vetenskaplig Osäkerhet I Policyprocessen. En Studie Av Svensk Klimatpolitik*. Vol. 156 (Lund University, 2009); Joshua P. Howe. *Behind the Curve: Science and the Politics of Global Warming* (Seattle: University of Washington Press, 2016).
21. Wim Carton, "'Fixing" climate change by mortgaging the future: Negative emissions, spatiotemporal fixes, and the political economy of delay', *Antipode* **51** (2019): 750–69; William F. Lamb et al., 'Discourses of climate delay', *Global Sustainability* **3** (2020): e17; T.W. Luke, 'Climate change and decarbonization: The politics of delusion, delay, and destruction in ecopragmatic energy extractivism', in Robert E. Kirsch (ed.), *Limits to Terrestrial Extraction* (London: Routledge, 2020), pp. 24–53; Heather W. Cann and Leigh Raymond, 'Does climate denialism still matter? The prevalence of alternative frames in opposition to climate policy', *Environmental Politics* **27** (2018): 433–54.; Nathan Young and Aline Coutinho, 'Government, anti-reflexivity, and the construction of public ignorance about climate change: Australia and Canada compared', *Global Environmental Politics* **13** (2013): 89–108.

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James Hansen's famous speech in the US Congress in 1988.²² Prior periods are rather understood as periods of scientific disagreement, not political.²³ But, as environmental historian Peder Anker has shown in neighbouring Norway, climate change and the affirmation of its gravity proved an immensely potent issue for reformulating a type of government-led environmentalism in the 1980s, as well as becoming a crucial player in climate policy design focused on compensating for national emissions through international investments (i.e. CDM).²⁴ The delaying rhetoric and structural inabilities to address climate change identified today have a longer history than what is usually acknowledged and they grew out of specific conflicts.²⁵

IDEOLOGY AND THE 'ENERGYSATION' OF CLIMATE CHANGE – ANALYTICAL PERSPECTIVES

Here we present a case of how the arguments in current climate politics are shaped by historical legacies, debates, and conflicts within environmental politics. What is analysed is the production of a certain way for societies, and especially political leaders, to disregard environmental threats and specifically climate change. Depending on the actors analysed and the level of intentionality, this process or state has been characterised as delay, response, implicative²⁶ or ideological denial.²⁷ We focus on ideological aspect which is in this paper understood in the Marxist sense as a dominant and largely unquestioned realm of reasoning producing specific and context-dependent power relations and types of governance as self-evident, thus obscuring social contradictions.²⁸

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22. Brulle, 'Networks of opposition'; Ruth E. McKie, 'Climate change counter movement neutralization techniques: A typology to examine the climate change counter movement', *Sociological Inquiry* **89** (2019): 288–316; Dunlap, 'Climate change skepticism and denial'.
23. Paul Warde, Libby Robin and Sverker Sörlin. *The Environment: A History of the Idea* (Baltimore: Johns Hopkins University Press, 2018).
24. Peder J. Anker, 'A pioneer country? A history of Norwegian climate politics', *Climatic Change* **151** (2018): 29–41; Anker, *The Power of the Periphery: How Norway Became an Environmental Pioneer for the World* (Cambridge: Cambridge University Press, 2020).
25. As Vettese has shown, this is evident in the counternarratives to the Club of Rome offered by neoliberal actors during the 1970s. Troy Vettese, 'Limits and Cornucopianism: A History of Neo-Liberal Environmental Thought. 1920–1970' (Doctoral Thesis, New York University, 2019). Similar debates are found in Sweden: Eva Friman, 'Domedagsprofeter Och Tillväxtpredikanter : Debatten Om Ekonomisk Tillväxt Och Miljö I Sverige 1960–1980', *Historisk tidskrift* **121** (2001): 29–61.
26. Stanley Cohen. *States of Denial : Knowing About Atrocities and Suffering* (Cambridge: Polity Press, 2001).
27. Brian Petersen, Diana Stuart and Ryan Gunderson, 'Reconceptualizing climate change denial: Ideological denialism misdiagnoses climate change and limits effective action', *Human Ecology Review* **25** (2019).
28. Rachel Jaeggi, 'Vad Är Ideologikritik', *Fronesis* (2015): 25–47.

Further, we argue that this self-evident quality needs to be produced and becomes visible when challenged.

The way we trace this production of something self-evident is through the case of Sweden where climate as a political argument first appeared in the wake of the 1973 oil embargo and subsequent demands regarding energy security. Climate and energy are two phenomena that have been closely related in contemporary history.²⁹ However, as stressed by Aykut and Castro, they have simultaneously evolved separately. While concurrently being ‘hyper-climatised’, debates on energy are ‘strangely absent from the core of the climate regime’ between 1992 and 2015.³⁰ Aykut and Castro describe this changing relationship as a declimatization and climatization of energy issues. They state: ‘In using climatization, we subsume attempts to frame questions on the production, trade and use of fossil fuels as issues of climate policy, and attempts to enable the climate regime to tackle those questions within its own organisational routines.’³¹ Declimatization here refers to the separation of these two fields. While their terms are highly relevant for the period and countries they study, this superior position of climate over energy is less applicable to the historical period studied in this paper. We are inspired by Aykut and Castro’s studies of a later period but reformulate their terms as energysation and de-energysation to better reflect the hierarchy of issues in the period and country studied here. Our conceptualisation is piloted in this study, not to be considered all-inclusive, but a way to describe efforts and process to subsume and frame climate change as a part of energy policy – especially when climate is tied to specific forms and locations of energy supply and energy extraction – or to separate climate change from the same.

METHOD

In the paper, we use a genealogical perspective to trace the historical conflicts and constructs having shaped our current framing of the energy-climate nexus. Genealogy is a method conceptualised by Foucault and described as a ‘history of the present’.³² In such perspective, the present state is understood as influencing the point of departure, rather than only letting historical circumstances or dominant themes in the past frame the analysis. Knowing we have not successfully dealt with climate change, our ambition is to trace how and why the response in Sweden have largely been limited to either suggestions of nuclear

29. Weart, *The Discovery of Global Warming*.

30. Stefan C. Aykut and Monica Castro, ‘The end of fossil fuels?: Understanding the partial climatization of global energy debates’, *Globalising the Climate* (London: Routledge, 2017), pp. 173–93.

31. *Ibid.*

32. David Garland, ‘What is a “history of the present”? On Foucault’s genealogies and their critical preconditions’, *Punishment & Society* 16 (2014): 365–84.

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power expansion or ambitions to take on the role of a global leader in climate negotiations. As Garland notes, genealogy is not about searching for origins – we are aware of the longer history of climate change science and its appearance in other arenas – rather, the method is used to trace ‘...how contemporary practices and institutions emerged out of specific struggles, conflicts, alliances, and exercises of power, many of which are nowadays forgotten’.³³ Taking our point of departure in the present also justifies our focus on climate change, which in the 1970s was relatively peripheral among environmental issues, both in formal politics and in the social movements of the time.³⁴

We conduct our analysis through a qualitative reading of the way climate change as a political issue emerged as part of the debates in the early 1970s on energy security and resource limits, and continued until the Swedish referendum on nuclear power in 1980 and its aftermath up to 1983. Initial inquiries were conducted by scanning the Swedish national library’s digital collection of OCR-scanned major newspapers for the Swedish equivalents of ‘climate’ + ‘carbon dioxide’ and ‘climate change’, resulting in 282 relevant articles from the period 1960–1983, with a sharp increase in coverage from 1974 and onwards.³⁵ These searches made it clear that the salient players discussing climate change were the Social Democratic Party (through Olof Palme), scientists (most notably Bert Bolin and others engaged in writing public reports) and, finally, the energy sector, represented by the state-owned energy utility Statens vattenfallsverk (Vattenfall) and the power-coordinating agency Centrala driftsledningen (CDL). While seldom prominent in the debates, a partly unnamed opponent was also present: the environmental movement and the political branches of the anti-nuclear movement. The search led us to analyse the Swedish Government Official Reports (SOU) on energy produced during the period as part of the Energy Commission’s work, as well as parliamentary debates and propositions. Further, key sections of archives and magazine articles from Vattenfall as well as the anti-nuclear campaign were consulted. The private archives of politicians Olof Palme and Birgitta Dahl and of scientist Bert Bolin were also reviewed. Our analysis ends in 1983 with the publication of a large report from a state commissioned investigation on environmental and

33. Ibid.

34. Nonetheless occurring in the preparatory documents to the Stockholm conference 1972: ‘Identification and control of pollutants of broad international significance’, United Nations Conference on the Human Environment, a/conf. 48/8, pp. 18–22; Knowledge of climate change was also circulated through the SMIC report *Inadvertent Climate Modification: Report of the Study of Man’s Impact on Climate (Smic)*, [Stockholm, June 28 to July 16, 1970]. (Cambridge, Mass., 1971). The problem of issues being obscured by lack of attention has been described as ignorance as a lost realm: Robert N. Proctor and Londa Schiebinger (eds), *Agnology: The Making and Unmaking of Ignorance* (Redwood City: Stanford University Press: 2008).

35. National Library of Sweden, <https://tidningar.kb.se/> 2019-11-19. Searches conducted during the period 2 February 2019 to 1 August 2019. In Swedish, both the combinations kolsyra + klimat and koldioxid + klimat were used for carbon dioxide + climate.

health effects of coal. In the sources, the object of study appears as discussion of ‘a changed climate’, ‘climate change’, ‘global warming’ and ‘greenhouse effect’. Throughout the paper, we use the term *climate change* since these two words combined constituted the most common way of describing the issue during the period studied.

ENERGY AND ENVIRONMENT IN SWEDEN DURING THE POST-WWII PERIOD

The dominating political response to environmental issues in Sweden has since the 1930s been characterised as bearing the marks of ecomodernism. In this ideological frame, environmental problems are merely unwanted side effects of progress that could be eradicated through technological advances and planning with the aim of becoming a model nation.³⁶

Since the late 1960s, and the establishment of Naturvårdsverket (Swedish Environmental Protection Agency, Swedish EPA) in 1967 and the following 1972 UN conference on the global environment in Stockholm, Sweden has claimed to be, and has also been widely recognised as, one of the most environmentally progressive countries in the world.³⁷

During the post-WWII years, nuclear energy had been researched and put forward as the energy source that, in the words of Social Democratic leaders and industrialists, could guarantee clean cheap energy and a surplus value to be invested in the continuous expansion of the welfare state in accordance with the social democratic ideology.³⁸ In 1972, the first commercial nuclear power plant was put into use. In this period, about 75 per cent of the total Swedish energy supply was met by imported oil.³⁹ When the 1973 oil embargo hit the Swedish market, the argument for pursuing the transition to nuclear power was

36. Erland Mårald and Christer Nordlund, ‘Modern nature for a modern nation: An intellectual history of environmental dissonances in the Swedish welfare state’, *Environment and History* 26 (2020).

37. Rolf Lidskog and Ingemar Elander, ‘Ecological modernization in practice? The case of sustainable development in Sweden’, *Journal of Environmental Policy & Planning* 14 (2012): 411–27; Martin Jänicke, ‘Ecological modernisation: New perspectives’, *Journal of Cleaner Production* 16 (2008): 557–65; Lennart J. Lundqvist, *Sweden and Ecological Governance: Straddling the Fencenull* (Manchester: Manchester University Press, 2004). David Larsson Heidenblad, *Den Gröna Vändningen: En Ny Kunskaphistoria Om Miljöfrågornas Genombrott under Efterkrigstiden* (Lund: Nordic Academic Press, 2021).

38. Jonas Anshelm, *Mellan Frälsning Och Domedag : Om Kärnkraftens Politiska Idéhistoria I Sverige 1945–1999* (Eslöv: B. Östlings bokförl. Symposion, 2000); Jenny Andersson, *Between Growth and Security*, (Manchester: Manchester University Press, 2013); Maja Fjaestad, *Visionen Om Outtömlig Energi: Bridreaktorn I Svensk Kärnkraftshistoria 1945–80* (Stockholm: KTH, 2010).

39. SEA, ‘Total energitillförsel per energivara fr.o.m. 1970, TWh’, Swedish Energy Agency, <http://www.energimyndigheten.se/statistik/den-officiella-statistiken/statistikprodukter/arligen-energi-balans/diagram1/> (accessed 25 Oct. 2020)

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strengthened.⁴⁰ While disregarding the transnational aspects of raw materials for nuclear power, it was framed as a secure and domestic source of energy.⁴¹ As others have shown, the embargo turned energy and energy security into highly contested topics.⁴² During the same years, Nobel laureate Hannes Alfvén and MP Birgitta Hambreaus from the Centre Party exposed the more or less non-existent hazard assessment of Swedish nuclear power. This revelation led to an in-depth existential critique against the industrial and political elites in Sweden, the core of which was the debate on a nuclear-based, high-energy centralised society or a renewable-based, low-energy decentralised society.⁴³

During the late 1960s, environmental concerns were mainly directed at issues such as pollution, overpopulation and resource scarcity. As several researchers have underscored, a form of global consciousness around issues of environmental destruction and social crisis grew during this period.⁴⁴ In the Swedish debate during the 1970s, pollution, especially in the forms of acidification, disruptive hydropower plants and nuclear power represented the dominant issue in terms of environmental and future threats.⁴⁵

CLIMATE SCIENCE PRESENTED TO SWEDISH POLITICIANS

Amid the oil crisis and with raised critique against nuclear power, the issue of climate change was presented to Swedish politicians. On 25 April 1974, meteorologist Bert Bolin and the *Royal Swedish Academy of Sciences* had invited

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40. Per Lindquist, 'Det Klyvbara Ämnet. Diskursiva Ordningar I Svensk Kärnkraftspolitik 1972–1980' (Lund University, 1997); in contrast to circumstances in USA: Robert D Lifset, 'Nuclear power in America: The story of a failed energy transition', *Environmental History* **24** (2019).
 41. Anna Åberg and Maja Fjæstad, 'Chasing uranium: Securing nuclear fuel on a transnational arena in Sweden 1971–1984', *The Extractive Industries and Society* **7** (2020): 29–38.
 42. Mirroring the debate in the US shown in Matthew T. Huber, *Lifeblood: Oil, Freedom, and the Forces of Capital* (Minneapolis: University of Minnesota Press, 2013); and for the emergence of energy as a contested political field, compare Cara New Daggett, *The Birth of Energy: Fossil Fuels, Thermodynamics, and the Politics of Work* (Durham: Duke University Press, 2019).
 43. Anshelm, *Mellan Frälsning Och Domedag*.
 44. Gustaf Johansson, *När Man Skär I Nuet Faller Framtiden Ut: Den Globala Krisens Bildvärld I Sverige under 1970–Talet* (Uppsala: Department of History, Uppsala University, 2018); David Larsson Heidenblad, 'Överlevnadsdebattörerna: Hans Palmstierna, Karl-Erik Fichtelius Och Miljöfrågornas Genombrott I 1960–Talets Sverige', *Efterkrigstidens Samhällskontakter* (Lund: Mediehistoriskt arkiv, 2019), pp. 157–84; Frederick Buell, *From Apocalypse to Way of Life: Environmental Crisis in the American Century* (London: Routledge, 2004).
 45. David Larsson Heidenblad, 'Mapping a new history of the ecological turn: The circulation of environmental knowledge in Sweden 1967', *Environment and History* **24** (2018): 265–84; Tom Selander, *Sverige År 2000: [24 Svenska Framtidsforskare Om Morgondagens Samhälle]* (Stockholm: Rabén & Sjögren, 1969).

Hermann Flohn from Bonn to Stockholm to talk before the government's advisory board on research. Flohn was a climate scientist who had already in 1941 published a paper discussing anthropogenic climate change. The reporter present at the time, Tom Selander,⁴⁶ wrote that Prime Minister Palme listened 'thoughtfully' during Flohn's exposition.⁴⁷ In August the same year, Bolin organised a conference on the climate with seventy attendees. The participants were to discuss the state of the climate and the severity of the threat of climatic changes. Both projections of a cooler and a warmer climate appeared, but Bolin ruled the evidence for a global warming more convincing, and the main representative for the theory of a cooling process did not attend.⁴⁸ In line with the debate in the US and the uncertain state of scientific data, the overall policy implications were identified as more research being needed.⁴⁹ Three months after the conference, the momentum concerning the threat of climate change seems to have led Olof Palme to speak out on the issue. In an article structured as a duel, Palme and the leader of the Conservative Party (Moderaterna), Gösta Bohman, talked about their vision of Sweden in 2000. Palme was asked which threat concerned him the most and answered: 'The risk of a changed climate due to human activities ... To me, this question seems of utter importance.'⁵⁰

As a result of the three events in 1974 (Flohn in Sweden, Bolin organising a large conference and Palme recognising the threat publicly), climate science had also entered the Swedish civic sphere. But how and why did the Social Democratic Party go about further raising awareness on climate change? Which measures were suggested, given the nature of the scientific knowledge at the time?

A QUESTION OF SCALE – CLIMATE CHANGE IN THE DEBATE ON CENTRALISATION AND ENERGY EFFICIENCY

In 1975, the issue of climate change went from being a scientific endeavour, with results coming in from a disparate network of scholars, to becoming an

46. For a greater understanding of Selander's role in early environmental reporting, see David Larsson Heidenblad, 'The emergence of environmental journalism in 1960s Sweden: Methodological reflections on working with digitalised newspapers' (paper presented at Writing for Change: Environmental Journalism Then and Now, 2020).

47. Tom Selander, 'Konsumtionsökningen kan ge klimatförändringar', *Svenska dagbladet (SvD)*, 26 Apr. 1974, 12.

48. Jan Mosander, 'Forskarna inne på katastroflinjen' *Expressen*, 8 Aug. 1974.

49. Howe, *Behind the Curve: Science and the Politics of Global Warming*, p. 112. 'Klimatforskare: Dubblad koldioxid ger varmare klimat', *Dagens Nyheter (DN)*, 9 Aug. 1974.

50. Tom Selander, 'Partiledare om Sverige år 2000', *SvD* 29 Nov. 1974, bilaga SvD 90 år: 28. A similar statement was made by Palme in early 1975: Elisabeth Crona and Karin Hallman, 'Regeringens energiplan: Försiktig kärnkraftssatsning' *SvD*, 2 Jan. 1975, 8. Unless otherwise stated, all translations from Swedish are made by the authors.

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argument in Swedish energy politics.⁵¹ As energy rose to be a contested political issue in the early 1970s, the question revolved around the issue of supply and security. In January 1975, the Energirådet (Energy Council) arranged a hearing on future energy production, touching upon the dangers of oil and coal combustion. The hearing was one of the occasions leading up to the 1975 energy plan.

Though not a formal part of the council, Bolin was a key figure in the discussion. In his presentation, he linked climate change to the dependence on fossil fuels and raised the risk of future global warming and melting ice caps.⁵² Climate change as an issue entered the political arena in relation to tangible questions of energy production and national energy independence. The next speaker, biologist Bengt Hubendick, interpreted Bolin's statement as a defence of the low-energy and decentralised society he favoured. This was challenged by physics professor Tor Ragnar Gerholm who saw this vision as a result of 'the new ecologism'.⁵³ At the hearing, Gerholm envisioned a decoupling of growth and energy output, while contradicting the warnings of climate change with warnings of the effect low-energy measures would have for the 'third world', thus echoing today's climate delaying discourses.⁵⁴ In this debate, climate change became an argument for different future energy scenarios and linked to different energy sources. Thus, climate change was subsumed in the, at the time, established issue of energy. Advocates for a low-energy model proposed energy efficiency as well as research on renewables,⁵⁵ while advocates for the high-energy model rather highlighted the transition to a society dependent on nuclear power and growth in the service sector. The chairman of the energy council as well former director general of Vattenfall, Erik Grafström, together with the Social Democratic leadership, exhibited an aversion to small-scale solutions, evident in the strong links established by these actors between the concept of small-scale and low-energy visions and an earlier, poorer, less equal and less modern Sweden.⁵⁶ As a result, Prime

51. Energy, as shown by Daggett, became a popular political concern as late as the 1970s: Daggett, *The Birth of Energy*, p. 4.

52. Bert Bolin, 'Energi och klimat' presentation at Energy Council hearing, 1 Sept. 1975, Box A14:001, Appendix, Energifrågan. Olof Palme Archive, Swedish Labour Movement's Archive and Library Stockholm (hereafter Olof Palme, ARBARK).

53. Katrin Hallman and Lennart Lundgårdh, 'Klimatet förstörs om vi eldar upp all olja och kol i världen', *SvD* 1 Oct. 1975; Vettease, 'Limits and Cornucupianism'.

54. 'Underutveckling och energi', Tor Ragnar Gerholm presentation at Energy Council hearing, 1 Sept. 1975, Box A14:001, Appendix, Energifrågan. Olof Palme, ARBARK. Gerholm would later in life become actively engaged in the group European Science and Environment Forum (ESEF) together with well-known climate change denialists such as S. Fred Singer. Anshelm and Hultman, *Discourses of Global Climate Change*, p. 111.

55. 'Synpunkter på forskning om energi och samhälle', Björn Eriksson et.al. Box A14:001, Appendix, Energifrågan. Olof Palme, ARBARK.

56. Erik Grafström, 494/73, 8 Aug. 1973, Box A14:008, Appendix, Energifrågan. Olof Palme, ARBARK; Statsrådsberedningen, 'Förslag till inledning vid energirådets första sammanträde

Minister Palme, with the support of council member and then director general of Vattenfall Jonas Norrby, could maintain strong faith in nuclear power as the solution to the issues of both energy security and climate change.⁵⁷

Interestingly, none of the experts presenting small-scale alternatives at the hearing in 1975, such as the interdisciplinary research group Centrum för Tvärvetenskap (Centre for Interdisciplinary Research, CFT) or the more ambivalent Bert Bolin,⁵⁸ were formal members of the energy council, in contrast to critics such as Gerholm.⁵⁹ By presenting nuclear energy as the answer to both climate change and the issue of energy security, Palme and the Social Democrats could maintain the ideology of ecomodern solutions identified by Nordlund and Mårald. This energysation of climate change, first and foremost in relation to nuclear power, created a possible solution to climate change but also an ideological bind that marginalised contrasting positions. This development is also evidence of how energy transitions can enable not just transformations but also a continuance of certain energy and societal political fields, as examples from France and Germany show.⁶⁰

As is evident from the inclusion of CFT in the hearings but not in the formal council, visions of a future society based on renewables and a precautionary principle regarding the environment entered the Swedish public sphere at this time.⁶¹ However, the perspectives put forth by CFT failed to gain any large traction in policy discussions.⁶² As shown by Nilsson and colleagues, Sweden has since 1975 made substantial investments in renewable energy research, but this research failed to transition into policy suggestions up until the 1990s.⁶³ This is in stark contrast to German conditions, where the politicisation of en-

onsdag 19.12.1973' Box A14:001, Appendix, Energifrågan. Olof Palme, ARBARK; 'Energipolitik för ökad välfärd, redovisning av rådslaget' Socialdemokraterna, pp. 4–5. Box A14:002, Appendix, Energifrågan. Olof Palme, ARBARK. Björn Berglund and Birgitta Nyblom, 'Vi har 30 år på oss att finna alternativ'. *DN*, 1 Oct. 1975, 28. Knaggård arrives at similar conclusions: Knaggård, *Vetenskaplig Osäkerhet I Policyprocessen*, pp. 156, 123.

57. For instance, signature JVN 'Energikris?', *Vi i Vattenfall* 25 (7) (15 Sept. 1972). Norrby had also in 1971 reported in an editorial on the potential dangers of CO₂ emissions, *Vi i vattenfall*, no. 3, 2 April, 1971, Volume 24.

58. However, Bolin seemed to have the ear of the Social Democratic leadership. In 1972, preceding the UN environmental meeting, he was invited to a meeting with the former prime minister Tage Erlander: 'Kallelse från Erlander 1972' Konferenser och möten, 4D.1, Bert Bolin Personal Archive, Centre for History of Science. Stockholm.

59. Bolin's position in the policy process would become more formal as he became part of the government offices 1986–1991.

60. Aykut and Evrard, 'A transition so that everything can stay the same?'

61. Johansson, *När Man Skär I Nuet Faller Framtiden Ut*.

62. Thomas B. Johansson and Peter Steen, *Sol-Sverige : En Skiss Till Ett Förnyelsebart Energisystem* (Stockholm: Projektgruppen Energi och samhälle (Stockholm.Sekretariatet för framtidsstudier, 1977); Kåre Olsson and Emin Tengström, *Välsviken - Om Resurshushållning Och Demokrati Vid Planering Och Förvaltning Av Bebyggelse: Resultatet Av En Förstudie* (Göteborg: Centrum för tvärvetenskap, 1976).

63. Nilsson et al., 'Seeing the wood for the trees', 80.

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ergy and especially renewables during the 1970s made these forms more viable and important alternatives to ‘dirty’ sources of energy such as coal and oil.⁶⁴ A similar point is argued by Heymann and Nielsen whereby ‘wind power in Denmark proved to be a viable addition to the power system’.⁶⁵ In a talk before the party board in 1975, Olof Palme stated that one of the important goals in energy policy was to ‘create freedom of action in future decision making’ regarding energy.⁶⁶ As we shall see below, evidence points to the result being the opposite. While the concept energysation captures the initial framing of climate change together with energy issues, it is apparent that the issue gained traction only in relation to one source of energy favoured by the dominant political and industrial elites – nuclear power.

DISARMING THE ANTI-NUCLEAR OPPOSITION BY INCLUDING CLIMATE CHANGE IN THE DEBATE

In early February 1975, the government’s office, through its press secretary, formulated a list of arguments on ways to counter the growing critique of nuclear energy from Centre Party leader Thorbjörn Fälldin and the anti-nuclear movement. In the introduction, the government’s office states: ‘As the reader will see, up until now Fälldin’s only realistic alternative to nuclear energy has been oil and coal. As a result, there is a section on the environmental hazards of oil and coal in this compilation.’⁶⁷ The designated paragraph discussed, with the support of Bolin’s research, the accumulation of carbon dioxide in the atmosphere in terms of ‘half-life’ effects, thereby making the comparison to the dangers of nuclear power possible and relevant.⁶⁸ Here, we see how the explicit energysation of climate change in terms of fossil fuel emissions was designed to favour nuclear energy over other sources of energy. The argument was framed as an issue of realism effectively hiding competing policy frameworks and arguments. The *argument* of climate change also had the benefit of portraying the anti-nuclear movement and its parliamentary branch as less apt in terms of addressing future environmental problems compared to the Social

64. Stefan C. Aykut, ‘Energy futures from the social market economy to the Energiewende: The politicization of West German energy debates, 1950–1990’, in Jenny Andersson and Egle Rindzeviciute (eds), *The Struggle for the Long-Term in Transnational Science and Politics* (Routledge, 2015), pp. 63–91.

65. Matthias Heymann and Kristian H Nielsen, ‘Hybridization of electric utility regimes: The case of wind power in Denmark, 1973–1990’, *RCC Perspectives* (2013): 69–74.

66. Olof Palme, ‘Anförande vid Partistyrelsens sammanträde i Sundsvall 75-02-01’ p. 12. Box, A14.002, Appendix energifrågan, Olof Palme, ARBARK.

67. ‘Fälldin och energin’ Government’s office, Press secretary, 7 Feb. 1975, p. 1 (a previous version exists issued by Tage Levin 10 Dec. 1974 to TGP (probably Tage G. Peterson a member of the energy council) Box A14:008, Appendix, Energifrågan. Olof Palme, ARBARK.

68. ‘Fälldin och energin’ Government’s office, Press secretary, 7 Feb. 1975, p. 2, Box A14:008, Appendix, Energifrågan. Olof Palme, ARBARK.

Democrats. This way of arguing is similar to what Anker has described as the Norwegian Labour Party's dismantling of the deep ecologist arguments, during a later period and with different motives, by appealing to a technocratic tradition.⁶⁹

In late February 1975, the energy plan (Proposition 1975:30) was accepted, in which Palme repeated his concerns regarding the combustion of fossil fuels by stating that '...according to some scientists, this could lead to climatic change that in time could bring about catastrophic consequences for our way of life'.⁷⁰ This statement is, to our knowledge, one of the earliest acknowledgements of climate change by a government in an official policy document.⁷¹ This was immediately followed by words on the possibility of future technology solving the potential problems of climate change.⁷² The plan focused on energy efficiency and investments in nuclear power in order to break the reliance on foreign oil and to enhance 'energy security'.⁷³ Nevertheless, and contrary to the statement supporting a pairing of climate change and fossil fuels in the brief against the anti-nuclear movement, what troubled the government was not fossil fuels *per se* but their origin. The plan thus included further investments in the two state-controlled fossil fuel operations: *Petroswede AB* and *Oljepropektering AB*. These were joint extractive ventures comprising state-owned Vattenfall and mining company LKAB together with major companies in the industry sector. Instead of acting upon the threat identified by Bolin and highlighted by Palme, the plan represented a stronger involvement in fossil fuels through active prospecting and extraction.⁷⁴ It further strengthens our argument that climate change was used in the debate to ensure a continuation of the societal vision of an industrial modern nation dependent on larger and larger energy inputs. Some pieces of the puzzle with regards to this position could also be found in the ambition to safeguard the declining steel and mining industries, which were to a large extent run by state-led or mixed private/state corporations and highly dependent on cheap energy.⁷⁵ The danger of fossil fuels became more severe mainly due to its global character, while the threat of nuclear energy was smaller in scale and more concrete according to

69. Anker, 'A pioneer country?'

70. Prop. 1975:30, p. 5.

71. Statements on climate change have appeared earlier in political settings, such as in the report 'Restoring the Quality of our Environment' from the US Presidential Scientific Advisory Board in 1965. However, as Howe argues, they remained '...almost entirely within the purview of the scientific community'. Howe, *Behind the Curve*, p. 95.

72. Prop. 1975:30.

73. The construct of outside or foreign oil as a threat in energy discussions and society is well-described in Huber, *Lifeblood*, pp. 103–08.

74. See Hughes, *Energy without Conscience*, p. 142.

75. Kjell Östberg and Jenny Andersson. *Sveriges Historia. 1965–2012* (Stockholm: Norstedt, 2013). The role of these industries requires further examination.

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the Social Democratic leadership.⁷⁶ Furthermore, the transnational aspects of securing fuel for the reactors was not mentioned.⁷⁷

As Knaggård notices in her dissertation on uncertainties in climate policy, the 1975 proposition differed from the report *Energi och klimat* [Energy and Climate] published by Bert Bolin shortly after.⁷⁸ The proposition had acknowledged the risks but placed the response in the future. Bolin instead argued that the risks should influence decisions there and then. The press picked up on the challenging aspects of Bolin's report in an article, and his cautious statements were tuned up and illustrated with a flooded Stockholm city hall. Even though Bolin stressed the importance of renewables, he concluded by saying that, with the current high level of energy consumption, nuclear power was the only option.⁷⁹

It is evident that the argument of climate change in the 1970s could complement and sometimes strengthen the already set course of nuclear power supply but not influence politicians to consider alternative paths. Climate change as an issue of scientific knowledge was present in the discussions on energy but, as Knaggård also argues, it failed to transform into explicit policy proposals. Contrary to Knaggård, however, we would argue that the issue of climate change fits well into the Social Democratic Party's ambitions up until the referendum on nuclear power in 1980.⁸⁰ It could be used as an environmental argument against the anti-nuclear groups and for a continuation of how Sweden had addressed environmental problems through technological fixes and rational planning.⁸¹ This reading is supported by a 1977 editorial in *Dagens Nyheter* where the strategically deployed issue of climate change caught the eyes of contemporary political commentators:

Never before have so many sturdy men from industry, engineers and politicians been smitten by the environmental movement than when the well-known but ignored environmental and health risks [from oil and gas] became an argument for expanding nuclear power a few years into the 1970s.⁸²

76. 'Palme till Fälldin, Centern söker skrämman folk med kärnriskerna' *DN*, 16 Aug. 1975; 'Thage Petersson varnar: Förbränning av olja kan rubba klimatet', *SvD*, 2 June 1976.

77. Åberg and Fjæstad, 'Chasing uranium'.

78. Bert Bolin, *Energi Och Klimat: En Sammanställning Av Våra Kunskaper Om De Mekanismer Som Bestämmer Jordens Klimat Och Möjligheter Att Människan Direkt Eller Indirekt Påverkar Detsamma*, Delrapport, 99-0109219-1 ; [2] (Stockholm: Projektgruppen Energi och samhälle, Sekretariatet för framtidsstudier, 1975); Knaggård, *Vetenskaplig Osäkerhet I Policyprocessen* pp. 156, 111.

79. 'Ökad förbrukning av olja och kol ger klimatproblem', *SvD*, 10 May 1975.

80. Knaggård, *Vetenskaplig Osäkerhet I Policyprocessen*, pp. 156, 130.

81. Mårald and Nordlund, 'Modern nature for a modern nation'.

82. 'Olja och gas – Och sen', *DN*, 13 Feb. 1977.

DISPLACEMENT AND DE-ENERGYSATION OF CLIMATE CHANGE

In 1976, the Social Democratic Party lost power after forty years in government, in what is sometimes described as the nuclear power election.⁸³ In the newly formed coalition government, Palme's fiercest opponent in the debate on nuclear power, Thorbjörn Fälldin, became prime minister. Statements from the Social Democrats regarding climate change became less frequent in the public debate. As Fälldin resigned in 1978 due to internal conflicts on the issue of nuclear power, the new liberal/conservative minority government proposed an updated energy plan.⁸⁴ In this plan, the issue of climate change was discussed while uncertainties were also emphasised. The plan was based on the two government reports: SOU 1978:17 and SOU 1978:49. The sections on climate change were based on the summary report, *Impact on Climate from Energy Production* by Anders Björkström,⁸⁵ Bert Bolin and Henning Rohde. In this, different aspects of energy production and changes in the climate were discussed, primarily in relation to coal.⁸⁶ Compared to the previous report by Bolin in 1975, it was more concerned with the possibilities of mitigating feared climate change and the effect of pollutants other than CO₂. The authors classified emissions into three categories where carbon dioxide was described as an almost unavoidable problem. Nonetheless, the authors argued that important decisions should not be delayed due to the uncertainties.⁸⁷ But as the report travelled into the official governmental reports (SOU), these uncertainties were further highlighted. In SOU 1978:17, the commissioned researchers stated that the global supply of oil was too small to alter the climate, while burning coal might have to be restricted.⁸⁸

What was remarkable in this process was the stark contrast between the summary report and SOU 1978:17 in terms of temporal and geographical scale and subsequently its relation to Swedish energy policy. The final report firmly established climate change as a global future threat rather than as an issue of domestic energy policy. This was not a given, as the originally suggested formulation from commission member Anders Wijkman from the Conservative Party was: 'During recent years, scientists have issued serious warnings against the burning of fossil fuels due to the effects of these on the climate.'

83. Östberg and Andersson, *Sveriges Historia. 1965–2012*, p. 228.

84. Prop. 1978/79:115.

85. Björkström was a member of the anti-nuclear movement and served as an expert on climate issues while also discussing the issue in the socialist environmental magazine *Miljötidningen*. 'Talarförmedlingen med föredragshållare' p. 4, F2B:1, Folkkampanjen nej till kärnkraft. Swedish National Archive. Stockholm. Anders Björkström, 'Ökad koldioxidhalt-på väg mot växthus eller öken' *Miljötidningen*, no. 7, 1978, pp. 26–27.

86. Anders Björkström, Bert Bolin and Henning Rohde, 'Klimatpåverkan av energiproduktion', *Rapport 1, Ds 1 1978:21*. Energikommisionen, Expertgruppen för säkerhet och miljö.

87. *Ibid.*, p. 33.

88. SOU 1978:17, 121–122.

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Therefore, when designing our energy system, we should contribute to limiting fossil fuel combustion.’ Wijkman’s suggestion was sent to Social Democrat Birgitta Dahl who made marginal notes and changed some wording. Instead of ‘contribute’ she suggested ‘consider’. She also suggested moving the issue from national politics to the global sphere.⁸⁹ Wijkman made the alterations and the final sentence in the report thus reads: ‘Therefore, when designing our energy system, we should consider that the total emissions of carbon dioxide on a global level need to be limited in the long run.’⁹⁰ Energy and CO₂ emissions are still mentioned in the same paragraph but the direct relation between the Swedish energy system and its emissions had been severed. As support for nuclear power waned, the climate argument had lost its specific function as an answer to national energy policy and issues of energy inputs. Instead, a process of de-energysation could take over, as the issue expanded into the future and to the global arena, specifically focusing on total emissions rather than limiting fossil fuel combustion. This was a reformulation that portrayed climate change in more uncertain terms and specifically pushed action and policy to the future, awaiting a collective effort on the global level. It thus shifted responsibility away from specific heavy polluting industries in Sweden to nations with comparable high emissions or to consumption more generally. In the final report from the energy commission, SOU 1978:49, there was barely any mention of climate change. This strategy predates the actions taken by the Norwegian government to shift the scale of the problem to the global level using a similar rationale: to keep fossil fuel alternatives open for debate and as potential energy sources.⁹¹

Thus, in the 1978/1979 energy plan, uncertainties regarding climate change and its potential consequences had grown, resulting in a de-energysation of climate and identified energy practices.⁹² Further research represented the main policy being advocated.⁹³ In this process, when climate change science moved upwards in the hierarchy of reports, the spatial and temporal dislocation expanded. The report made by Björkström and colleagues had framed carbon dioxide as a difficult problem based on the inability to remove it from the process of combustion, while nonetheless advocating for serious and immediate commitments. When the feasibility of addressing potential climate change through nuclear power waned due to opposition from a growing environmental movement, politicians separated climate change from energy, thus making it a concern for scientists and international organisations. This tension

89. Anders Wijkman, *Särskilda intressen att beakta vid utformningen av energipolitiken*, odat. version 1; Anders Wijkman, *Särskilda intressen att beakta vid utformningen av energipolitiken*, odat. version 2. Birgitta Dahls archive, ARBARK.

90. SOU 1978:17, 582.

91. Anker, ‘A Pioneer Country?’; Norgaard, *Living in Denial*, pp. 171-72.

92. Prop. 1978/79:115, 256, 264.

93. Prop. 1978/79:115, 228.

was also apparent a few years earlier in the debate in Swedish newspapers wherein climate change was interchangeably used as an argument against specific fossil fuel investments, in line with the framing we call energysation,⁹⁴ and simultaneously relocated by the EPA to the global level, in what we call de-energysation.⁹⁵ The process we describe as energysation of climate change had limited actions toward nuclear power expansion but also pushed the government to take responsibility for CO₂ pollution from Swedish industry and energy production. In contrast de-energysation relocated the issue away from domestic investments and CO₂-emitting operations through the focus on global emissions and on more research. The decoupling of energy and climate change is also evident in the international arena in later periods. What is shown here is how the omission of energy issues in global agreements and treaties in the period after the late 1980s was constructed in a national context prior to the rise of climate change as a global political issue.⁹⁶

For the anti-nuclear movement opposing both nuclear and fossil fuels, the problem of energy and climate change continued to pose a similarly tricky situation. In the mid-1970s, there was obviously some validity in the claim from the Social Democrats that the only existing alternative to nuclear power was fossil fuels. But instead of responding with a push for global agreements and scientific efforts, the anti-nuclear movement focused on aspects other than electricity production. In a special issue of the syndicalist paper *Arbetaren*, members of the anti-nuclear movement questioned the hypocrisy of actors using climate change as an argument for nuclear power but failing to consider emissions from cars.⁹⁷ This aspect was also highlighted in later periods and could be seen as a way of acknowledging and maintaining national responsibility for emissions while opening up possible ways of mitigating them.⁹⁸

94. 'Bygg inte fler oljekraftverk', *Expressen* 29 Mar. 1975; 'Oljan förstör din fiskesjö', *Expressen*, 26 Aug. 1975; 'Koldioxiden det glömda hotet från Stålverk 80', *SvD*, 12 May 1976. Similar to conditions in the Soviet Union: Katja Doose and Jonathan Oldfield, 'Natural and anthropogenic climate change understanding in the Soviet Union, 1960s–1980s', in Marianna Poberezhskaya and Teresa Ashe (eds), *Climate Change Discourse in Russia* (London: Routledge, 2018), pp. 35–49.

95. 'Koldioxiden det glömda hotet från Stålverk 80', *SvD*, 12 May 1976. Carbon dioxide was not seen as a pollutant in Swedish environmental legislation until the carbon tax was introduced in 1991.

96. Aykut and Castro, 'The end of fossil fuels?'

97. Maria Bergom-Larsson, 'Vi klarar oss med mindre olja!' Offprint, *Arbetaren-för NEJ-dagen* på Cirkus den 1 december 1979. Journalist Maria Bergom-Larsson was a core member of the feminist led anti-nuclear uprising in 1978–80 in Sweden. Ann-Sofie Kall and Martin Hultman, 'Pacifismo Femminile Ed Energie Rinnovabili Su Piccola Scala. La Mobilitazione Anti-Nucleare Nella Svezia Degli Anni Settanta', *La camera blu. Rivista di studi di genere* (2018).

98. The strategy to focus on emissions from cars continued into the 1990s: 'Protokoll, FMKK 28 April, 1990' Binder: PA129, Folkkampanjen mot kärnkraft och kärnvapen. Swedish National Archives, Stockholm.

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However, framing carbon dioxide as a ‘global’ and ‘difficult’ problem to address would also become apparent within the industry in the following years.⁹⁹

As the critique of nuclear energy had increased during the second half of the 1970s, coal had arisen as another way for Sweden to break free from its oil dependency. The heightened levels of carbon dioxide that would result from the increased use of coal did not stop the Swedish government from, on 14 June 1979, giving Vattenfall the task of studying the environmental and health consequences of coal-powered energy plants.¹⁰⁰ The project was named Kol-Hälsa-Miljö (KHM) and was to study the health and environmental risks of coal-powered plants focusing on a comparison with oil and specifically NO_x and SO_x emissions. The aim was to find ways to replace oil with coal and to create latitude for a transition from nuclear power.¹⁰¹ The project was described by environmental groups as an excuse for a massive increase in the use of coal.¹⁰² In the stated objectives of the project, the focus was on the environmental effects on a national and regional scale. In an early preliminary programme, the limitation to the national scale is explicit.¹⁰³ Possibly as a result of the identification in the report by Björkström and colleagues of NO_x and SO_x as pollutants that could be avoided, these were identified as important to study. Even though the early programmatic statements had shown a commitment to incorporate existing knowledge from previous environmental reports, we haven’t been able to trace any discussion on climate change or of the reports from Bolin or Björkström et al.¹⁰⁴ However, the researchers and the leadership at Vattenfall were not unaware of the risks.¹⁰⁵ In 1980, the project sent an engineer, Carl-Eric Holmquist, to the US Department of Energy to gather information on environmental risks of coal combustion.¹⁰⁶ These risks included CO₂ emissions and he summarised his findings in a report in August

99. Kristoffer Ekberg and Victor Pressfeldt, Victor. ‘Market governance, obstruction, and denial: Neoliberal environmental thought and policy in Sweden, 1988–2015’ (Draft paper, presented at the workshop Ecology of Economic Thought, 2021) https://programs.wcfia.harvard.edu/canada_program/Ecology

100. The timing is important, as the accident at Three Mile Island in March 1979 was the final nail in the coffin for the expansion of nuclear power.

101. ‘Utredning om miljövänlig teknik för kolanvändning’ Box A1:1, Styrelseprotokoll 1978–1979, KHM, Vattenfall.

102. Miljöförbundet, ‘Beträffande projekt, Kol hälsa och miljö’, 6 Oct. 1980, Box F1:23, Handlingar rörande gemensamma frågor, 1979–1983, Projekt Kol-Hälsa-Miljö, Statens Vattenfallsverk, Swedish National Archives, (hereafter KHM, Vattenfall) Stockholm. This was a correct assessment since coal use skyrocketed in the early 1980s, thereby replacing petroleum as a means for heating, subsequently replaced by other sources as the carbon tax was implemented in 1991.

103. ‘Programplan för projektet kol-hälsa-miljö’, 1 Nov. 1980, box A1:1, Styrelseprotokoll 1978–1979, KHM, Vattenfall.

104. Ibid.

105. As is evident in their participation in the Energy Council a few years earlier.

106. Holmquist’s visit occurred just one year after the head of the Carbon Dioxide and Climate Research Program, David Slade, argued for the development of ‘a national plan for

1980. Holmquist concluded that even though there were risks involved with continued reliance on fossil fuel, this was ultimately a concern for large emitters such as the Soviet Union, China and the US.¹⁰⁷ Evident here is that when the focus had shifted to trying to limit total emissions instead of national emissions – in line with the process we call de-energysation – efforts in Sweden could be disregarded as having little impact and the country's complicity in global warming was neglected.

The CO₂ issue and climate change did, however, appear in the final report of the KHM project in 1983. Here, the authors discussed the problem of climate change and CO₂, admitting to the increased emissions that would result from coal power. Simultaneously, however, they emphasised uncertainties regarding climate change, such as the influence of solar activity.¹⁰⁸ When the final report was sent out on referral to affected organisations, the omission of the effects of increased CO₂ emissions was noticed by the Swedish Meteorological and Hydrological Institute (SMHI). In a letter, SMHI criticised the scant formulations regarding coal power and its contribution to climate change.¹⁰⁹

The actions by the Energy Commission, the government and Vattenfall in the years after the shift in government in 1976 show how climate change knowledge was separated from national energy policy and became an issue for global research efforts. During the late 1980s, this shift also became particularly evident in Social Democratic policies, which had, since the loss in the election, and especially since 1979 and the accident at Three Mile Island, toned down their pro-nuclear position, not least through Palme's own call for a referendum in 1979 in response to a shifting public opinion.¹¹⁰ Thus, climate change knowledge – which entered the Swedish political sphere tightly linked to questions of energy and the dangers of fossil fuels in support for nuclear power – had during the period analysed shifted from a political issue with effects in contemporary national politics to a question of global science policy concerning a distant future and other geographical areas.

ameliorating and adapting to the unintended climatic consequences of fossil fuel consumption'. Howe, *Behind the Curve*, p. 116.

107. 'Rapport från resa i USA, 1980-08-03—23' Handlingar rörande programområde 2, kolkunskap, förbränning, rökgasrening 1980–1983, F3:4, KHM, Vattenfall.

108. *Kolets Hälsa- Och Miljöeffekter : Slutrapport April 1983. Underlagsdel 2 Miljö- Och Hälsoeffekter*. (Vällingby: Statens vattenfallsverk, 1983).

109. 'Yttrande över Kolets hälso- och miljöeffekter. Slutrapport april 1983 från projektet kolhälsa-miljö' Box F1:23, Handlingar rörande gemensamma frågor, 1979–1983, KHM, Vattenfall.

110. Knaggård, *Vetenskaplig Osäkerhet I Policyprocessen*, pp. 156, 160–61.

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CONCLUSION

We acknowledge that the transition to nuclear power in Sweden can in many ways be regarded as a success story in state planning and climate change mitigation since the 1970s. But, as the analysis shows, energysation of climate change at this period meant almost solely the combating of climate change by an expansion in nuclear power. Other areas such as transport were left alone. Since 2006 and the renewed focus on national commitments to combat climate change, nuclear power has, for the Swedish conservative political parties and industrial elites mainly, risen as the solution *par excellence* in Swedish politics.¹¹¹ Our analysis show that it is of importance when energy once again enters the core of climate negotiations that energy issues are considered in full, enabling a discussion both of choices between sources of clean energy but also of ways to reduce energy consumption or use energy in different ways. We argue that the way climate change entered political discussions in the Swedish 1970s sheds light on persistent dividing lines on climate action.

In the 1970s debate on energy, climate change proved a useful argument for the Social Democratic leadership to continue on a set course of nuclear power expansion and to counter the growing opposition to the same. However, this argument did not at the time translate into specific climate policies.¹¹² Using scientific results, highly uncertain at the time, the Social Democratic Party portrayed the environmental opposition as the actual environmental villains by positioning fossil fuels as the only alternative to nuclear power. This was a move that ignored solutions outside the ideological framework, such as solar and wind power or low-energy scenarios. We argue that this conflict regarding energy supply resulted in nuclear power becoming the self-evident response to climate change, a response in line with a tradition of looking upon environmental problems as merely dissonances in the modern project.¹¹³ The energysation of climate change also enabled actors to specifically criticise climate changing emissions from the production of electricity and heating while simultaneously disregarding emissions from cars and thus the nationally important car industry.

With the Social Democrats losing the election in 1976, partly due to strong opposition to nuclear power, the issue of climate change disappeared from the political debate. Thus, at the end of our period, we have outlined a process described as de-energysation whereby climate change was moved from domestic energy policy and into the realm of science and global agreements

111. The renewed interest in nuclear power is an international trend and can be traced to the late 2000s: see Tuula Teräväinen, Markku Lehtonen and Mari Martiskainen, 'Climate change, energy Security, and risk – debating nuclear new build in Finland, France and the UK', *Energy Policy* 39 (2011): 3434–42.

112. Knaggård, *Vetenskaplig Osäkerhet I Policyprocessen. En Studie Av Svensk Klimatpolitik*, 156.

113. Mårald and Nordlund, 'Modern nature for a modern nation'.

on emissions. This process sheds some new light on the relative omission of energy in global climate governance. While the focus on total emissions importantly highlights the global character of climate change and the need for pervasive international collaboration, it also disabled critique against the expansion of coal power and other domestic measures in the late 1970s and early 1980s. This process mirrors what Aykut and Castro have called de-climatisation of energy for later periods. Our findings add important insights on the changing relationship of energy and climate change policy and highlight the firm position of energy issues in the national political sphere.

Over time, this initial dualistic framing of climate change action has continued to play a part in Swedish climate policy with domestic nuclear expansion or taking a lead in global agreements posited as the two main solutions to address the issue. In debates in the late 1980s, climate change was being used to oppose the phasing-out of nuclear power, much as it was used to argue for its expansion in the first place. But in the same period there was also a shift in perspective that put emphasis on emissions and consumer choice rather than energy.¹¹⁴ Similarly, after the Kyoto protocol and the criticised local environmental policies from the Social Democratic party in the mid-1990s, the main Swedish tactic in dealing with climate change was through taking a lead in global agreements. But when the issue came closer to home, nuclear power was sure to be one of the main solutions.¹¹⁵ We argue that, over time, these frames have been used to safeguard heavy industry from competitive disadvantages that have been a feared companion to strong climate action. The possibility of shifting between these two frames has effectively restricted alternative framings and limited the toolbox with which climate change and the ecological crisis of today could be addressed. As such, the particular struggles in the Swedish 1970s regarding climate change also have relevance for more general questions regarding climate action today.

In relation to the literature on climate change denial and delay, we have shown how delaying tactics and structures have a longer history than has previously been acknowledged and that a delaying discourse or ideological denial should not be considered a historical 'next step' of obstruction after climate science conclusions have been acknowledged by a majority of actors. Instead, these kinds of subtle shifts in policy framings may be genealogically traced to the very appearance of climate as an issue in politics during the 1970s and they continue to reappear. As such, we urge future research in the field of climate change obstruction and denial to expand the objects of study beyond the usual suspects and common areas of interest.

114. Ekberg and Pressfeldt 'Market governance, obstruction, and denial'.

115. Lindvall, Vowles and Hultman, 'Upphetning–Demokratin I Klimatkrisens Tid'; Anshelm and Hultman, *Discourses of Global Climate Change*.

A QUESTION OF UTTER IMPORTANCE

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