

A RESPONSIBLE SOCIETIES COALITION PROJECT

REDUCING SCOPE 3 EMISSIONS OF FOSSIL FUEL COMPANIES

CHALLENGES, OPPORTUNITIES AND RESEARCH GAPS

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SUMMARY

This project is part of a programme to intensify collaboration between VU University Amsterdam (VU) and University of Twente (UT). As part of this ‘Responsible Societies Programme’, the project focused on the topic of reducing scope 3 emissions of fossil fuel companies, being one of the selected important sustainability research themes for the future.

Non-state stakeholders, including major fossil fuel companies, are increasingly held responsible for reducing their emissions. These also include scope 3 emissions – indirect emissions in the value chain, which form a major part of emissions in most business sectors. However, these emissions are most difficult to measure and account for, due to difficulties related to defining scope 3 emissions and ambiguities regarding responsibilities of stakeholders. They also involve the whole value chain of companies. Hence, this project sought to identify key challenges, opportunities and research gaps related to reducing scope 3 emissions of fossil fuel companies. In doing so, the project explored opportunities for research projects, built a network

of stakeholders and integrated the topic into VU and UT education.

For this purpose, the joint team of VU and UT researchers and societal partners carried out literature research, identified relevant stakeholders in the field and organised two stakeholder workshops in October 2022 and January 2023. Main results of the project are identification of key trends around scope 3 emissions in the fossil fuel sector, the identification of a stakeholder network for further research in this area and the identification of key research questions a consortium of VU and UT together with societal stakeholders could work on in the future. These include questions such as if carbon take-back obligation will stand in the way of phasing out fossil fuels, at what level carbon take back should be organised, how end-users can be held responsible for their indirect emissions and how can citizens be made aware of their personal fossil fuel use and its impacts on the environment.

1. INTRODUCTION

This project is part of a programme to intensify collaboration between VU University Amsterdam and University of Twente. This 'Responsible Societies Programme' aims to identify key societal research themes for the future linked to sustainability challenges, and to form interdisciplinary coalitions of researchers of the two universities to address these themes – together with other research partners and societal partners. Also, it is examined to what extent these themes can be integrated into the educational programmes of the two universities.

Reducing scope 3 emissions of fossil fuel companies is one of the important sustainability research themes for the future that were selected by the Responsible Societies Programme for further exploration. In the 2015 Paris Agreement, nearly 200 states agreed to reach a global peak of greenhouse gas emissions as soon as possible. Since then, non-state stakeholders, including major fossil fuel companies, are

increasingly held responsible for reducing their emissions. These include not only scope 1 emissions (direct emissions from owned or controlled sources) and scope 2 emissions (from direct purchases of energy), but also scope 3 emissions (all other indirect emissions in the value chain). The latter category of emissions forms the major part of emissions in most business sectors (Figure 1.1).

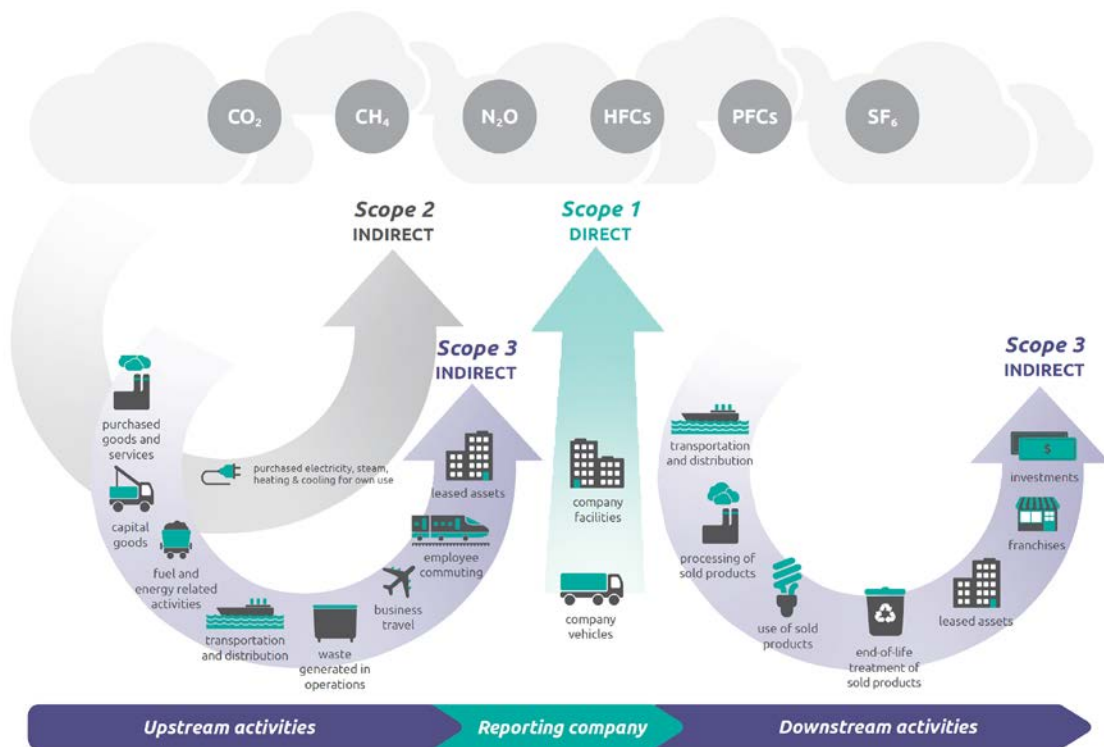


FIGURE 1.1: SCOPE 1, 2 AND 3 EMISSIONS OF COMPANIES

SOURCE: GHG PROTOCOL, 2013

Scope 3 emissions are also the category of emissions that is most difficult to address for companies, as reducing these emissions for a company will typically involve increased cooperation with all upstream and downstream parties throughout the whole value chain. These parties, which at the same time might be competitors of the firm, are often situated in other countries and cannot be in any way forced into cooperation. More importantly, addressing scope 3 emissions also runs into definition and accountability problems, as the

scope 3 emissions of one firm are often the scope 1 or 2 emissions of another one. For fossil fuel companies these issues are exacerbated by the fact that scope 3 emissions form a particularly large part of total emissions (more than 75%¹) and by the fact that successfully reducing emissions might have to involve convincing customers to buy less of their key product, fossil fuels, hence requiring a fundamental rethinking of the existing business model of these companies.

¹ McKinsey (2021) The big choices for oil and gas in navigating the energy transition, March 10, 2021, <https://www.mckinsey.com/industries/oil-and-gas/our-insights/the-big-choices-for-oil-and-gas-in-navigating-the-energy-transition>

2. PROJECT OBJECTIVES

In line with the objectives of the Responsible Societies Programme as a whole, this project has a fourfold objective related to topic of scope 3 emissions of fossil fuel companies:

1. To identify main challenges, opportunities for action and research gaps;
2. To build a network of stakeholders to address these questions;
3. To find possibilities to integrate the topic into VU and UT education;
4. To explore opportunities for future research projects in this area.

'Fossil fuels companies' in this project are defined as companies selling final fossil fuel products to end-users (i.e. downstream sales companies, like petrol stations for mobility, utilities for residential heating by natural gas, B2B supply to customers like airlines, etc.).



3. IMPLEMENTATION

The project was implemented by a joint team of VU and UT researchers together with a retiree from a fossil fuel company in the period September 2022 to March 2023. In that period, two workshops were organised, one in October 2022 and a second workshop in January 2023.

Using a basic design methodology, the first workshop focused on 'divergence', collecting as many views on main challenges, opportunities for action and research gaps as possible. The second workshop focused on 'convergence', trying to reduce the number of options proposed to a few main directions. For each workshop, a discussion paper was prepared by the project team based on literature review that was sent to the participants prior to the workshop.

For organising the workshops and writing the workshop discussion papers, an extensive literature search was carried out into societal and policy trends around scope 3 emissions of fossil fuel companies. Also, a stakeholder network in the Netherlands was identified and invited for participation in the workshops. The network search aimed at including researchers, policy makers, companies, non-governmental organisations, and emissions accounting organisations, with a focus on relevant stakeholders in the Netherlands.

4. MAIN RESULTS

4.1 Trends around scope 3 emissions of fossil fuel companies

The playing field for reducing scope 3 emissions of fossil fuel companies was found to be complex. While in voluntary scope 3 emission reduction initiatives are taken in various sectors, including the fossil fuel sector itself, several factors complicate further scope 3 emission reductions, including lack of a legal obligation for reduction of such emissions, difficulties to unify reporting and disclosure systems that have been built up in recent years by various organisations, and an increasingly controversial societal discussion about the licence to operate of fossil fuel companies in the Netherlands and in other countries (Figure 4.1).

In the project it was also found that several directions for solutions to address scope 3 emissions in business sectors are already emerging (Figure 4.2). Various parties are working to develop an integrated measuring and accounting system for scope 3 emissions. Also, in various business sectors an increasing number of companies has agreed to voluntarily work on reducing their scope 3 emissions, thereby also forming new coalitions in their value chains. Current legislative action on EU and national levels includes extending producer responsibility for products throughout their whole value chain. Further, a new instrument proposed specifically for the fossil sector is a 'carbon take-back obligation' that would make fossil fuel companies responsible for the CO₂ they produce throughout the whole life cycle of their product, thereby effectively stimulating a huge expansion of carbon capture and storage facilities. An increasing sense of urgency is further seen in recent policy documents of the Dutch government, where it is noted that in particular important companies in a value chain could have a role to stimulate others in the chain to reduce their (scope 3) emissions. Additionally in these documents, it is suggested to install a 'Climate Urgency Office' that could amongst others monitor that companies inventory their scope 3 emissions and other "circularity context" of the company².

Finally, it was found that the discussion on reducing scope 3 emissions of fossil fuel companies is very much interwoven with the intensifying societal discussion around the 'social licence to operate' of fossil fuel companies. In the Netherlands, this is showing for instance in a court case of the environmental

STATE OF PLAY

Scope 3 emissions

- No legal obligation for emission reduction
- Various reporting initiatives are working on unified disclosure and accounting system
- Companies in many sectors voluntarily engage in scope 3 accounting and emission reduction for their own business

Future of fossil industry

- Part of industry explores and engages in voluntary scope 3 emission reduction options
- Some see these initiatives as (by far) insufficient
- Increasingly legalised and controversial societal discussion in the Netherlands and other European countries

FIGURE 4.1: SCOPE 3 EMISSIONS – STATE OF PLAY

EMERGING ROUTES AND INSTRUMENTS FOR SOLUTIONS

- Supporting technical upstream and downstream solutions, innovation and further voluntary initiatives
- Agreeing on unified disclosure system and its legal adoption
- Extended producer responsibility legislation
- Carbon take-back obligation
- Leaving fossils in the ground / carbon non-proliferation treaty

FIGURE 4.2: POTENTIAL ROUTES AND INSTRUMENTS FOR SCOPE 3 EMISSION REDUCTIONS IN THE FOSSIL SECTOR

NGO Milieudefensie against the fossil fuel company Shell. In addition, NGOs like Extinction Rebellion demand a complete ban on fossil fuel extraction. Thereby scope 1, 2 and 3 fossil fuel emissions will have to be tackled from the source, but also many questions for an effective global energy supply for the future would still have to be solved.

During this research project also universities in the Netherlands received internal petitions from employed scientists ('University Rebellion') to stop all (scientific) cooperation with, and financing from fossil fuel companies (in particular Shell). This triggered fierce debate within universities and with university boards. At the date of publication of this report this debate continues and the outcomes are still to be awaited. The research team is aware of the additional sensitivities this discussion gives around this project, but the petition itself has not been part of the project discussions.

² Rijksoverheid (2023) Scherpe doelen, scherpe keuzes: IBO aanvullend normerend en beprijzend nationaal klimaatbeleid voor 2030 en 2050, Rapport, 13-03-2023, <https://www.rijksoverheid.nl/documenten/rapporten/2023/03/13/bijlage-2-hoofdrapport-ibo-klimaat>

4.2 Workshop outcomes

Workshop 1

Workshop 1, held on 25 October 2022, was attended by 10 participants from VU, UT, Kuijper Consultancy and the Ministry of Economic Affairs and Climate. Based on the analysis of trends and issues made, in workshop 1 four main perspectives around scope 3 emissions of fossil fuel companies were highlighted for discussion:

Technological perspective

What solutions are there regarding definitions, boundaries and disclosure of scope 3 emissions and what technological solutions could help? Are there best practices from other sectors that could be helpful?

Governance and legal perspective

What is the current legal basis for scope 3 emission reduction actions in the fossil fuel sector on national and EU levels as well as in the Paris Agreement, and how could this be strengthened? What are the possible implications of present court cases for future emission reduction actions in the fossil fuel sector? What national legislation could be helpful or needed?

Organisational and business perspective

Which new product and service designs could help the fossil fuel sector to make the switch? Which new business and sector organisation models would be needed for a zero-carbon transition?

Consumer and demand-side perspective

What are options for fossil fuel end-user engagement directed at Scope 3 emission reduction? What are options for behavioural change towards zero-carbon solutions relevant for the fossil sector?

In the workshop, various topics related to these perspectives were discussed: First, disclosure and how to prevent double counting, ensure real-time measuring and get to standardisation. Second, the role of national governments and their responsibility for scope 3 emission within national borders. Third, what to learn from scope 3 responsibilities taken by companies in other sectors and from extended producer responsibility for the fossil fuel sector. Finally, how increased cooperation between parties in the chain could contribute to all this and what the impact could be of competition.

Based on the outcomes of the first workshop a set of three main emerging research directions was formulated for discussion in the second workshop. Rather than being disciplinary, it was concluded that these directions would all require integrated, interdisciplinary knowledge combining technological, governance and legal, organisational and business and demand and consumer-side perspectives in various degrees.



FIGURE 4.3 WORKSHOP 1, 25 OCTOBER 2022

Workshop 2

Workshop 2, held on 31 January 2023, was attended by 9 participants from VU, UT, ElementNL and the Ministry of Economic Affairs and Climate. The three main directions for further research with their respective sub questions as discussed in workshop 2 were:

1. Visions, storylines and scenarios

Knowledge fields required: qualitative storyline and scenario building, design thinking, social sciences, economics

- What are possible visions/storylines/narratives in which fossil fuel companies and suppliers take full responsibility for demand-side emissions? 'Fossil fuels companies' here defined as companies selling final fossil fuel products to end-users (i.e. downstream sales companies, like petrol stations for mobility, utilities for residential heating by natural gas, B2B supply to customers like airlines, etc.). What can we expect from gas and oil companies in terms of transitioning towards business models built on renewable energy sources and increased energy efficiency? How could a carbon neutral portfolio of fossil fuel companies look like in the short and longer term?
- What are possible visions/storylines if rather fossil end-users would take full responsibility for their own emissions, and other parties in the chain for their own scope 1 and 2 emissions (by way of labelling of CO₂ related to products, e.g. every litre of petrol is 2,5kg CO₂ and 1,9kg per m³ natural gas for end-users)? How to make own emissions visible to citizens and business end-users like bakeries, restaurants, farmers, industrial, etc. as well as to intermediate parties like power generating companies (from gas, coal) taking care of their scope-1 emissions?

2. Governance and its effects

Knowledge fields required: multi-level governance, law, economics, political science, international relations, behavioural sciences

- Non-state actor governance: could taking responsibility for scope 3 emissions provide a social licence to operate for fossil fuel companies? Can voluntary actions be sufficient? How to deal with geopolitical scenarios in which other countries take over the current roles of fossil fuel companies in industrialised countries?
- National governance: what would be the implications of making national governments also responsible for scope 3 emissions within their borders?
- EU governance: What are the mechanisms and potential effects of recently launched EU policies and legislation (e.g. initiative on green claims; products and organisations

environmental footprint; corporate sustainability reporting directive; corporate sustainability due diligence directive; sustainable finance legislation) in terms of reducing scope 3 emissions of fossil fuel companies? Will EU measures regarding taxation of the CO₂ burden of imported goods work (EU border tax)?

3. Instrumental design

Knowledge fields required: multi-level governance, law, economics, political science, international relations, behavioural sciences

- Overall value chain: competition and cooperation: working on scope 3 emissions in a value chain would require increased cooperation between the parties in the chain. What would that mean for competition? What partnerships are needed to help making the transition towards new business models and a fossil-free portfolio of products and services? What could be the role of the public sector (e.g. public procurement)?
- Fossil fuel companies disclosure: how to prevent double counting of emissions and achieve holistic accounting for impacts? How to get to standardisation of emission counting and disclosure? Do we need real-time emission measuring or lifecycle approaches? Carbon take back obligation: Can we model the functioning of a carbon take-back obligation? Certification (e.g. textiles) and liability mechanisms (e.g. tobacco industry): What can we learn from other sectors? Regulations: should there be stricter regulation for disclosure of CO₂ emission information, also involving scope 3?

End-users

Personal carbon allowances: is there a way to change consumers' behaviour? Which instruments generate behavioural changes – and in which directions? What is/are the desired changes from who? Reducing fossil fuels consumption, re-use of carbon (e.g. synthetic fuels), storage of carbon? Less consumption, substitution, avoidance, free-riding, bypassing/fraud? Pricing: how can pricing be incorporated in solutions (e.g. true pricing)?

In order to emphasise the different stakeholder perspectives (or the role of different stakeholders), it was chosen to discuss these research directions making use of two different potential scenarios for policies regarding scope 3 emissions

of fossil fuel companies: (1) fossil fuel companies are held responsible for reducing scope 3 emissions and (2) fossil fuel end-users are held responsible for reducing scope 3 emissions (Figure 4.3)

	SCENARIO 1: FOSSIL FUEL COMPANIES RESPONSIBLE	SCENARIO 2: FOSSIL END-USERS RESPONSIBLE
Most promising routes		
Roundtables slot 1 (13.35 - 14.20 hours)	<ol style="list-style-type: none"> 1. Upstream (well-to-tank) 2. Downstream (well-to-wheel/home) 3. Phasing out fossils 4. Other 	<ol style="list-style-type: none"> 1. All business responsible, citizens not 2. Business plus voluntary citizen carbon budgets 3. Business plus obligatory citizen carbon budgets 4. Other
'Responsibilities'		
Most promising instruments		
Roundtables slot 2 (14.35 – 15.20 hours)	<ol style="list-style-type: none"> 1. Financial instruments (ETS, energy taxes, carbon border adjustment, true pricing) 2. General extended producer responsibility & labelling of origin 3. Carbon take-back obligation 4. Fossil non-proliferation / keeping fossils in the ground 5. Other 	<ol style="list-style-type: none"> 1. Extended ETS to all business worldwide 2. Technological innovation and information stimulating voluntary citizen carbon budgets 3. Obligatory citizen carbon trading system 4. Other
'Governance and instruments'		

FIGURE 4.3: TWO MAIN SCENARIOS FOR ADDRESSING SCOPE-3 EMISSIONS OF FOSSIL FUEL COMPANIES AS DISCUSSED IN WORKSHOP 2

The discussion on the first scenario showed that it is difficult though important to define the system boundaries of fossil fuel companies and, if they are held responsible, to think about what this implies for other actors. In the discussion, several other sectors were suggested to learn from: palm oil, deposit system on plastic bottles, services economy and methane regulations. The roundtable on the second scenario reflected mostly on the idea of carbon budgeting for businesses and citizens, and how carbon budgeting remains equitable for all.

As a next step, the workshop participants discussed concrete instruments for both scenarios. More specifically, they discussed what governance actors should be engaged and at what level (local to international), and how the instruments can be categorised (on the spectrum from mandatory to voluntary).

The roundtable discussion on the first scenario showed that an effective combination should be found between financial instruments (e.g. tax and ETS) and regulations (national and European level). Moreover, the instrument of a carbon take back obligation was identified to potentially play an important role. The roundtable on the second scenario discussed technological innovation and information to stimulate voluntary citizen carbon budgets, and specifically the need for certification and government facilitation.

The outcomes of the workshops resulted in a proposed research agenda that is discussed in chapter 5.



4.3 Network built

The project team from VU and UT, as well as a retiree from Shell formed the nucleus of the network built for future research on scope 3 emissions of fossil fuel companies. Searching for potential invitees for the two workshops, a network of in total 33 stakeholders in the Netherlands was formed that **showed interested** in research into the area. The network formed includes policy makers from the Ministry of Economic Affairs and Climate, non-governmental organisations, consultants, the umbrella organisation of fossil fuel companies in the Netherlands, other research organisations and emissions accounting organisations (Table 4.1)

STAKEHOLDER NETWORK BUILT

- Vrije Universiteit
- Universiteit Twente
- University of Eastern Finland
- Shell
- ElementNL
- Milieudefensie
- TNO
- PBL
- Kuijper Consultancy
- Value Change Initiative Secretariat (hosted by SustainCERT)

TABLE 4.1: NETWORK BUILT FOR FURTHER RESEARCH INTO SCOPE 3 EMISSIONS OF FOSSIL FUEL COMPANIES

4.4 Integration into teaching activities of VU and UT

Project members have integrated the topic of scope 3 emissions of fossil fuel companies into their teaching activities, or plan to do so in the future. For example, Lisa Sanderink (UT) is teaching the course 'case project energy management' in the master program Environmental and Energy Management. In this course, student teams study an energy-related challenge for ten weeks. One of the student teams decided to study how fossil fuel companies can accelerate emission reductions and particularly the impact of public involvement. Insights from the VU-UT collaboration will be provided while supervising the student team.

At the VU, the topic will be integrated into the IVM Summer Course "Global Energy Transition in a Fossil World". This course is held every year for international energy sector practitioners and students from advanced bachelor to PhD level. The course aims to give a broad overview of current issues, dilemmas and solutions for energy transition.



5. CONCLUSION AND NEXT STEPS

The project set out to explore four main areas around the important issue of reducing scope 3 emissions of fossil fuel companies: 1) To identify main challenges, opportunities for action and research gaps; 2) To build a network of stakeholders to address these questions; 3) To find possibilities to integrate the topic into VU and UT education; 4) To explore opportunities for future research projects in this area.

5.1 Main challenges, opportunities for action and research gaps

An extensive analysis of societal trends around reducing scope 3 emissions of fossil fuel companies was made in this project. The issue showed to be complex and to include two main societal and policy discussions: on one hand a discussion on possibilities for scope 3 emission reduction and responsibilities of all companies and business sectors, on the other a discussion on the societal “licence to operate” of fossil fuel companies and the future of fossil fuels. Thereby a distinction could be made between the responsibilities of companies on the one hand, and those of citizens on the other hand. Main challenges for action can be found in both discussions, including the difficulty of companies to act in a value chain outside of their direct sphere of influence of suppliers and clients and the dilemmas of fossil fuel companies between “only” reducing emissions of their own operations or fully converting to new zero-emission business models. Likewise, opportunities for action can also be found in both discussions,

varying from implementing policies on extended corporate responsibility to finding policy pathways to stimulate a swift switch from fossil to non-fossil business models without endangering the continuity of global energy supply. Several main research gaps were found to relate to technological aspects, but even more were identified relating to the governance, business and consumer side. The latter include for instance the need to investigate how to hold companies responsible for their emissions in a whole value chain (governance), how to facilitate a switch to non-fossil based business models in times of high fossil fuels profitability (business) or how to make consumers aware of, and stimulate to take action on reducing their own emissions, which are a main part of business scope 3 emissions (consumers) (Table 5.1).

CHALLENGES	OPPORTUNITIES	RESEARCH GAPS	MAIN FIELDS OF KNOWLEDGE REQUIRED
Measuring and accounting for scope 3 emissions	<ul style="list-style-type: none"> • Unifying existing measuring and accounting frameworks 	<ul style="list-style-type: none"> • Closing data gaps • Solving definitions issues 	Technological, governance, legal
Giving proper responsibilities for swift action to companies and consumers	<ul style="list-style-type: none"> • Providing policy mix of voluntary, financial and legislative action 	<ul style="list-style-type: none"> • Action possibilities and limitations for companies in value chain • Economic system organisation between competition and cooperation/ sustainability partnerships 	Governance, economic, policy
Putting zero emission business models in practice	<ul style="list-style-type: none"> • Global closed-loop CCS governance • Post fossil business models, product and service designs 	<ul style="list-style-type: none"> • Geopolitical and economic theories of change taking into account conflicts of interests between stakeholders • Pathways to phase out fossils while guaranteeing security of energy supply 	Technological, governance, geopolitical
Making consumers use less fossil fuel products	<ul style="list-style-type: none"> • Fossil fuel emissions awareness and behavioural shifts 	<ul style="list-style-type: none"> • Acceptance and support for policy measures and behavioural changes • Positive societal post fossil fuel narratives • Visualising personal emissions, voluntary personal carbon tracking 	Behavioural

TABLE 5.1: CHALLENGES, OPPORTUNITIES AND RESEARCH GAPS FOR REDUCING SCOPE 3 EMISSIONS OF FOSSIL FUEL COMPANIES

5.2 Stakeholder network

In this project, a stakeholder network was built to address issues for further action and research identified in the project. The network consists particularly of VU and UT researchers, but was also expanded to other research organisations, business, policy makers and non governmental organisations. The increasing controversy of the discussion on the future role of fossil fuel companies in the Netherlands showed that it was difficult to get all categories of stakeholders around the table, yet interest and recognition of the importance of the issue at stake was shown by all parties. Furthermore, the stakeholder search and discussions in the workshops showed that it is necessary to involve all categories of stakeholders to reach solutions and that the small core group of stakeholders built in this project can be only the beginning of a further network necessary to successfully address specific research questions identified in this project.

5.3 Integration into UT and VU education

A beginning of integration of findings on scope 3 emission reduction in the fossil fuel sector has been made in this project. Two courses in which the project team is directly involved have integrated these findings in the teaching. Further integration can be made as soon as follow-up projects provide more extensive research findings.

5.4 Opportunities for future research projects and proposed research agenda

The project did not research practical opportunities for future research projects in detail. Potential opportunities might be found in European Union Horizon or Life calls or in Dutch applied and fundamental research funding, as well as in direct policy research for the Dutch ministries and European Commission Directorates. These have to be explored in follow-up research.

As a first step towards such a follow-up, however, the project would like to propose, as a final synthesis of the project efforts, a concrete research agenda for future research into reducing scope 3 emissions of fossil fuel companies. Taking into account the different layers and complexity of the issue that was noted from the outset, and aiming to integrate all stakeholder inputs from the workshops, the main research questions that the project team considers relevant for the future are divided into research questions for incremental system change on one hand, and questions for more fundamental system change on the other hand (Table 5.2).

Research questions for reducing scope 3 emissions of fossil fuel companies Incremental system change (scope for immediate action)

- How to design and implement a unified and widely/ globally accepted system for measuring and accounting scope 3 emissions?
- What are possibilities and limitations for voluntary or mandatory action by companies to reduce scope 3 emissions beyond borders and what role can partnerships in the fossil fuel value chain play in this regard?
- What are possibilities and limitations of personalised individual carbon emissions tracking?
- What are possibilities and limitations for emerging scope 3 emission reduction instruments such as a carbon take-back obligation and extended producer responsibility?
- What policy instruments are required and what policy actors should be involved to facilitate the possibilities and address the limitations mentioned above?

Fundamental system change (scope for middle and longer term action)

- How to organise global economic value chains in such a way that companies can cooperate to reach sustainability goals and at the same time can compete for most efficient service provision to their customers?
- How to implement a global closed-loop CCS governance system?
- How to implement global pathways towards organised phase out of fossil fuels while guaranteeing equity, security and affordability of energy supply to consumers?
- What are new business models for fossil fuel companies that include reducing demand for fossils at the consumer side?
- What is the scope for policy measures directed at awareness of individual emissions impacts of consumers and for behavioural changes to reduce those?
- What are credible, positive societal narratives towards a post-fossil future?

TABLE 5.2: PROPOSED AGENDA FOR FUTURE RESEARCH ON REDUCING SCOPE 3 EMISSIONS OF FOSSIL FUEL COMPANIES



5.5 Next steps

This project has completed a first exploration of reducing scope 3 emissions of fossil fuel companies. A first research and stakeholder network has been built and in discussion with stakeholders several main research questions for the future have been identified that could be investigated by the stakeholder coalition formed, or with new coalitions that depart from this framework.

Annex 1. Project Team

DR STEPHAN SLINGERLAND (VU/TNO)	Institute for Environmental Studies, Environmental Policy Analysis & TNO	Guest researcher social and geopolitical aspects of energy transition	Project lead, contact person & coordinator VU
DR LISA SANDERINK (UT)	Faculty of Behavioural Management and Social Science, Section Governance and Technology for Sustainability (Early career researcher)	Assistant professor energy transition and climate governance	Co-organiser, contact person & coordinator UT
DANIEL PETROVICS MSC (VU)	Institute for Environmental Studies, Environmental Policy Analysis (Early career researcher)	PhD Researcher Polycentric Governance in Energy	Co-organiser, advisor
DR NICOLIEN VAN DER GRIJP (VU)	Institute for Environmental Studies, Environmental Policy Analysis	Research associate environmental law and policy	Co-organiser, advisor
PROF. MICHIEL HELDEWEG (UT)	Faculty of Behavioural, Management and Social Science, Section Governance and Technology for Sustainability	Professor of law, governance and technology	Advisor
DR. EWALD BREUNESSE	Shell Nederland	Manager energy transition Shell (retired)	Advisor
ELLA FARMER	Student assistant		Workshop executive

Annex 2. Workshop programmes

Workshop 1, 25 October 2022



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Reducing scope-3 emissions of fossil fuel companies – challenges, opportunities and research gaps

Workshop Programme

Tuesday, 25 October 2022

Aim of the workshop is to collect and discuss the views of various stakeholders focused on challenges and opportunities regarding reducing scope-3 emissions by fossil fuel companies and to make the first steps in articulating a research agenda addressing these issues.

Welcome and introductions

- 13.00 Welcome by Stephan Slingerland (VU, moderator)
- 13.05 Who is Who: Round of short introductions by workshop participants
- 13.20 Setting the Scene: Reducing scope-3 emissions of fossil fuel companies (presentation of workshop paper by Stephan Slingerland, VU)

Identifying challenges and opportunities

- 13.35 Stakeholder game to identify challenges and opportunities in terms of reducing scope-3 emissions (moderated by Ewald Breunesse, Shell retiree)
- 14.15 Break

Exploring research topics and questions

- 14.30 Introduction to the World Café method (Nicolien van der Grijp, VU)
- 14.35 World Café Round 1: Discussing research questions proposed in the workshop paper in four groups (moderators: Ewald Breunesse (Shell retiree), Nicolien van der Grijp (VU), Michiel Heldeweg (UT), Daniel Petrovics (VU))
- 14.55 World Café Round 2: Same, but with different groups
- 15.15 Collecting research ideas based on reporting by the four moderators and group discussion (led by Stephan Slingerland, VU)
- 15.45 Wrap-up and next steps (Stephan Slingerland, VU)
- 16.00 End

Informal Drinks

Workshop 2, 31 January 2023

Reducing scope-3 emissions of fossil fuel companies – directions for action and research

Workshop Programme

Tuesday, 31 January 2023

Aim of the workshop is to arrive at substantiated ideas for action and research on reducing scope-3 emissions of fossil fuel companies.

Welcome and introductions

- 13.00 Welcome by Stephan Slingerland (VU, moderator)
- 13.05 Who is Who: Round of short introductions
- 13.20 Reducing scope-3 emissions of fossil fuel companies: state of play, bottlenecks and scenarios (by Stephan Slingerland, VU)

Responsibilities

- 13.35 Roundtables (part 1): From responsibility to action: *fossil fuel company versus energy end-user* (moderated by Ewald Breunese, Nicolien van der Grijp)
- 14.05 Plenary discussion (moderated by Ewald Breunese, Nicolien van der Grijp)
- 14.20 Break

Governance and instruments

- 14.35 Roundtables (part 2): Which governance and policy instruments fit with the two scenarios – *Fossil fuel company versus energy end-user?* (moderated by Michiel Heldeweg, Lisa Sanderink)
- 15.05 Plenary discussion (moderated by Michiel Heldeweg, Lisa Sanderink)

Research gaps

- 15.20 Plenary discussion: What are key action points and research gaps for successful scope 3 emission reduction? (moderated by Stephan Slingerland, VU)
- 15.45 Wrap-up (Stephan Slingerland, VU)
- 16.00 End

Informal Drinks

TWO UNIVERSITIES. ONE AMBITION. MORE SOCIAL IMPACT.

The Vrije Universiteit Amsterdam and the University of Twente are working ever more closely together in the areas of education, research and valorisation. In our teaching, we strive to give our students a broad academic and interdisciplinary mindset and our research aims to develop solutions to complex social issues.

 [MORE INFORMATION: VU-UT.NL](https://vuu.nl)



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