



Émile Chappin

Associate Professor Simulations of Energy Systems
Head of Energy & Industry Group

[Personal webpage](#) — [TU Delft webpage](#) — [Google Scholar](#) — [LinkedIn](#)

Emile Chappin is an Associate Professor at [TU Delft](#). He is head of the [Energy & Industry Group](#). Also, Emile is co-director of the [TPM Energy Transition Lab](#), through which he leads a team to research behaviour and design in the energy transition. Emile is known for his work on *agent-based modelling in energy systems*. In his research, Emile connects developments in modelling methodology to an understanding of complex socio-technical energy systems in order to better understand how to model, analyse and design (parts) of the energy transition. Emile developed the [Energy Modelling Laboratory](#) and is a frontrunner in open, team science.

In research and teaching, Emile's focus is on *understanding the big picture*: on unravelling the possible long-term dynamics of energy systems with the power of computation as a *bicycle for the mind*. Modelling is a systematic approach, it is explicit and clear, and it can be transparent. Social simulations enable us to capture the behaviour of individuals, groups, companies, and governments in the energy systems that fuel our society. Emile grasps opportunities to bridge research fields and innovate how simulations enable us all to *accelerate the energy transition*.

Emile has a long publication track record, with *52 peer-reviewed journal articles* and, additionally, over 110 publications in conferences, books, reports, blogs, and media articles. Emile has over 2900 citations and [h-index of 30](#). His key publications include [emergent behavior in the energy transition](#), [An integrated multi-country discrete choice experiment with an agent-based model](#), [the Y factor for Climate Change abatement](#), and [simulating climate and energy policy with agent-based modelling](#).

Emile is elected member of the management committee of the [European Social Simulation Association](#); he is a recurring [invited expert](#). Emile is editor of the [Complexity Journal](#) and member of the editorial boards of [JASSS](#) and [RoFASSS](#). He leads the [special interest group on education](#) and organized sessions on energy systems and energy transition. Emile has (co-)lead and taken part in many research projects funded by EU H2020, NWO, DFG and others. Emile frequently features in public media.

Emile is an *award-winning teacher* with vast experience in teaching energy systems and simulation, developed courses on all educational levels, and was in various educational committees, amongst others in charge of redesigning the MSc curriculum Engineering and Policy Analysis. Emile is a widely appreciated supervisor; he supervised 12 PhDs (of which 9 ongoing), has supervised over 80 MSc, and over 50 BSc students.

Emile is an [all-round musician](#) with experience as an awarded pianist accompanying vocalists, as a musical director of a variety of musicals including world and European premieres, and as a composer for theatre projects, orchestral work, and children's songs. He published [his vision](#) of the connections between his academic and musical career and his reflection on science and work-life balance.

Education

- 2007–2011 **PhD**, *Delft University of Technology*, Delft
Simulating Energy Transitions, see <http://chappin.com/ChappinEJL-PhDthesis.pdf> [1]
- 2004–2006 **Master of Science**, *Delft University of Technology*, Delft
Systems Engineering, Policy Analysis and Management, Energy Track, [2]
- 2001–2004 **Bachelor of Science**, *Delft University of Technology*, Delft
Systems Engineering, Policy Analysis and Management, Energy & Industry Track, [3]
- 1995–2001 **Pre-university education (V.W.O.)**, *Oranje Nassau College*, Zoetermeer
Final exams in Mathematics, Statistics, Physics, Chemistry, Biology, Business Economics, Dutch, English, and German

Work experience

- 2023–present **Head of Energy and Industry Group**, *Energy & Industry Group, Engineering Systems and Services Department, Faculty of Technology, Policy and Management, Delft University of Technology*, Delft
- 2019–present **Associate Professor**, *Energy & Industry Group, Engineering Systems and Services Department, Faculty of Technology, Policy and Management, Delft University of Technology*, Delft
- 2013–2019 **Assistant Professor**, *Energy & Industry Group, Engineering Systems and Services Department, Faculty of Technology, Policy and Management, Delft University of Technology*, Delft
- 2012–2017 **Senior Research Fellow**, *Wuppertal Institute*, Wuppertal
2012 **Visiting researcher**, *Wuppertal Institute*, Wuppertal
- 2011–2013 **Postdoc**, *Energy & Industry Group, Faculty of Technology, Policy and Management, Delft University of Technology*, Delft
- 2007–2011 **PhD Candidate**, *Energy & Industry Group, Faculty of Technology, Policy and Management, Delft University of Technology*, Delft
Simulating energy transitions.
- 2007 **Researcher**, *Centre for Environmental Sciences, Leiden University*, Leiden
- 2004 **Internship**, *Delft University of Technology*, Delft
- 2002–2006 **Student Assistant**, *Delft University of Technology*, Delft, Education and teaching

Research projects

- 2023–present **SPR Change**, *RIVM funded project, supervision of Lynn de Jager*
- 2022–present **Align4Energy**, *NWO funded project, supervision of Kevin Goes*
- 2021–2022 **Emergent Behaviour in the Energy Transition**, *RVO funded project in cooperation with the Topsector Energy, outlining the state of the art and a research agenda. Final report: [127]*
- 2020–present **Energy Transition Lab**, *Co-director TPM Energy Transition Lab, supervision of Lukas Schubotz, Mariëlle Rietkerk, Tristan de Wildt, see <https://www.tudelft.nl/tbm/energy-transition-lab>*
- 2020–present **FutureChargingProject**, *Supervision of Mylène van der Koogh [12]*
- 2020–present **SIAM**, *Studying human behaviour in and between groups: combing the Social Identity Approach (SIA) and Social Simulation (see <https://www.siam-network.online/>)*
- 2020–present **NWO Neelke Doorn's VIDI Water and resilience**, *Supervision of Aashis Joshi [11] (see <https://waterandresilience.org/>)*
- 2017–present **Y-factor**, *The Y-factor for climate abatement (see <http://emlab.tudelft.nl/yfactor>) [17]*
- 2011–present **EMLab**, *Energy Modelling Laboratory (EMLab) (see <http://emlab.tudelft.nl>) [34]*

- 2013–present **Bibliometric studies**, Range of bibliometric studies with various methods, amongst others on TU Delft’s energy research (project leader, 2013-2014), transitions [47] and the built environment [48], on CCS [29], and on energy research [26]
- 2007–present **Electricity market game**, (see <http://emg.tudelft.nl>), [116]
- 2015–2020 **NWO Values in energy systems**, NWO funded project Capturing the societal value of smart energy systems, supervision of Tristan de Wildt [14, 20, 25, 26]
- 2016–2019 **H2020 Cheetah**, Work package leader H2020 CHEETAH project: Changing Energy Efficiency Technology Adoption in Households (lead Fraunhofer ISI, since 2016) [24] [138, 139]
- 2016 **Port decarbonization**, Decarbonization Pathways for the Industrial Cluster of the Port of Rotterdam (see <https://wupperinst.org/en/p/wi/p/s/pd/628/>)
- 2012-2015 **KfC INCAH**, Knowledge for Climate – Infrastructure Networks Climate Adaptation and Hotspots (see <http://knowledgeforclimate.climateresearchnetherlands.nl/>), [27, 47, 51]
- 2012-2015 **EDGaR**, Energy Delta Gas Research – Understanding gas sector intra- and inter-market interactions (see <http://www.edgar-program.com/nl/projects/A1>)
- 2015 **Climate policy instruments in the Netherlands**, Climate policy instruments in the Netherlands (project leader, part of project by Cologne Institute for Economic Analysis for Bundesverband der Deutschen Industrie e.V.

Teaching

Postgraduate level

- 2014 **Developed and taught 2-day Agent-Based Modelling course**, Wuppertal Institute
- 2009–2012 **NGInfra Academy (Energy Track)**, NGInfra Foundation
Track manager, lecturer, game facilitator
- 2010 **33rd IAEE conference on Energy Economics**, IAEE, Rio de Janeiro
Electricity Market Game Workshop
- 2009–2010 **Professional training**, TopTech, Utrecht, Delft
Lectures and trainings for CapGemini and Energy professionals

MSc level

- 2017–present **Design of Integrated Energy Systems**, Delft University of Technology, Delft
Module manager, teaching, supervision projects.
- 2012–present **Systems Innovation in Energy and Industry**, Delft University of Technology, Delft
Guest lectures on transition and transition management
- 2011–2013 **Statistical modelling**, Delft University of Technology, Delft
Working classes, project group supervision, sporadically. lectures
- 2009–2011 **Multivariate modeling**, Delft University of Technology, Delft
Working classes, sporadically lectures
- 2005–2009 **Research methods and data analysis**, Delft University of Technology, Delft
Working classes, lectures (’07-’08), module manager (’07-’08)

BSc level

- 2014–present **Introduction to energy & industry systems**, Delft University of Technology, Delft
Module manager, developing and teaching lectures and working classes. Development of webreader [146] (see <http://eduweb.eeni.tbm.tudelft.nl/TB141E>)
- 2012–present **Governance Specialisation Energy and Industry**, Delft University of Technology, Delft
Developing and teaching lectures and working classes on the interaction of the CO₂ market and the electricity market
- 2010–2014 **Systems in energy, water and industry part I**, Delft University of Technology, Delft
Developing and teaching working classes
- 2010–2014 **Systems in energy, water and industry part II**, Delft University of Technology, Delft
Developing and teaching working classes

- 2008–2014 **Life Cycle Modeling and Economic Evaluation**, *Delft University of Technology*, Delft
Developing and teaching lectures on Life Cycle Analysis
- 2007–2016 **Research methods and data analysis project**, *Delft University of Technology*, Delft
Supervision of project groups on energy topics

Supervision

- 2013–present **PhD theses**, *Delft University of Technology*, Delft
Supervision of 12 PhD candidates (9 ongoing: Lynn de Jager, Lukas Schubotz, Mariëlle Rietker, Kevin Goes, Jerico Bakhuis, Sabine Pelka, Aashis Joshi, Marc Melliger, Mylène van der Koogh, 3 finished: Thorben (2013-2017), Jonas (2013-2017), Tristan (2015-2020))
- 2010–present **Master theses**, *Delft University of Technology*, Delft
Supervision of over 75 master thesis projects in the programmes Complex Systems Engineering and Management, Engineering Policy Analysis, Industrial Ecology, and Management of Technology
- 2009–present **Bachelor theses**, *Delft University of Technology*, Delft
Supervision of over 45 bachelor thesis projects in the Systems Engineering Policy Analysis and Management programme

Other activities (e.g. committees, management, music)

- 2023 **Keynote speech**, *CaterFly Meetup*[], Delft
Computeamsing Complexity in the Energy Transition
- 2022 **Keynote speech**, *DACH+EnergyInformatics2022*, Freiburg im Breisgau
Simulating complexity in the energy transition <https://energy-informatics2022.org/keynotes/>
- 2020–present **JASSS editorial board member**, *Editorial board member of Journal of Artificial Societies and Social Simulation*
- 2018–present **Editor of Complexity Journal**
- 2015–present **Special Interest Group leader**, *European Social Simulation Association*
Special Interest Group on Education
- 2014–present **Management Committee**, *European Social Simulation Association (ESSA)*
- 2014–present **Member Advisory Board**, *Catholic Youth Association WESP*, Zoetermeer
- 2011–present **Pianist, alternate conductor**, *SprinterSingers*, Zoetermeer
See <http://thesprintersingers.nl>
- 1999–present **Founder, chairman, musical director, conductor and project leader**, *Theaterorkest.nl Foundation*, Zoetermeer
See <http://theaterorkest.nl>
- 2015–2020 **Education Committee**, *Systems Engineering, Policy Analysis and Management BSc and MSc program (as of 2017 only BSc)*
- 2017 **Machine Learning Certificate**, *Stanford University*, Coursera
- 2006–2017 **Pianist, alternate conductor**, *Musical and Pop Choir Delft*, Delft
- 2015 **Studytour**, *Teacher*, Studytour to Abu Dhabi, Dubai and South-Africa
- 2015 **Organizer**, *Infrastructure Hackathon*
Hackathon on visualizing Dutch infrastructures, see <http://infra.tbm.tudelft.nl>
- 2015 **Keynote Speech**, *R&Dialoguge Project Meeting*, *Forschungszentrum Jülich*
Die Energiewende - A 'Delft' Perspective
- 2014–2015 **Curriculum committee**, *Redesign of Engineering Policy Analysis MSc curriculum*
- 2014–2015 **Background committee**, *Redesign of Systems Engineering, Policy Analysis and Management MSc curriculum*
- 2014 **Personal Development Programme**, *Programme for TU Delft Tenure Trackers*
- 2013 **Music Production Certificate**, *Statement of Accomplishment Berklee College of Music's MOOC: Introduction to Music Production*, Coursera
With distinction

- 2013 **Jazz Improvisation Certificate**, *Statement of Accomplishment Berklee College of Music's MOOC: Jazz Improvisation*, Coursera
- 2012–2013 **Special Interest Group leader**, *European Social Simulation Association*
Special Interest Group on societal transitions
- 2009–2013 **Founder and organizing chair**, *Musical Day*, Zoetermeer
A series of full-day musical-oriented events to promote the performing arts, see <http://musicalday.nl>.
- 2008–2012 **Pianist**, *Haagsch Ad Hoc*, The Hague
Accompanying singers with as specialty popular and jazz music
- 2012 **Keynote speech**, *KIVI NIRIA Symposium: Integrated Product Development Projects*, Eindhoven
The Energy Transition: Managing complex infrastructure systems
- 2011 **Teacher, musical leader, pianist**, *Centrum voor Kunst en Cultuur*, Zoetermeer
See <http://ckc-zoetermeer.nl>
- 2010–2011 **Columnist**, *Het Financieele Dagblad (Dutch Financial Times)*
Montly column FD (<http://fd.nl>, in Dutch)
- 2010 **Media training**, *Presentatiegroep*, Bloemendaal
Media and presentation training
- 2010 **Speech**, *Institute of Environmental Systems Research, University of Osnabrück*, Osnabrück, Germany
Speech, titled 'Simulations of energy transitions'
- 2010 **Academic hour**, *Ministry of Economic Affairs*, The Hague
Speech 'Energy transition – Towards a CO₂-extensive power generation system'
- 2004–2008 **Musical director and composer**, *Reflectie Theater Association*, Zoetermeer
- 2006 **Musical Director**, *Mavelle Corporation*, Zoetermeer
- 2001–2004 **Employee**, *Public Library*, Zoetermeer
Tasks at several departments, including the logistics department and the media department, processing several types of media, providing technical facilities and helping costumers.
- 2001–2003 **Chairman and Treasurer**, *Catholic Youth Association WESP*, Zoetermeer

Achievements

- 2021 Teacher of the year E&I 2020-2021 Faculty of Technology Policy and Management
- 2019 Maestro Zoetermeer 2019 Award
- 2019 Teacher of the year 2018-2019 Faculty of Technology Policy and Management, Domain E&I
- 2017 Best paper award, 48th International Simulation and Gaming Association's conference [81].
- 2016 Best student paper prize, 8th International Congress on Environmental Modelling and Software with PhD candidate Thorben Jensen [41].
- 2016 Domain teacher of the year for the Energy and Industry Domain (TPM/TU Delft)
- 2016 Nominated for Teacher of the Year of the faculty Technology, Policy, and Management (TU Delft)
- 2012–2014 First prize (2012), first prize (2013), second prize (2014) Alblasserdam Havenfestival Choir Concours, accompanying Musical- and Popkoor Delft
- 1996 First prize MCDonalds Music Concours, region Zoetermeer; second prize Talent of the Year Concours Zoetermeer, both with a composition *Rêverie* (<http://chappin.com/emile/docs/reverie.pdf>), piano together with Sterre Jongerius

Languages

- English Near native (C2)
- Dutch Native

Computer skills

Operating Systems MS Windows, Linux, MacOS

Tasks Server administration and maintenance

Software Office, Matlab, Maple, Cycle-Tempo, Arena, Powersim, Eclipse, Protégé, SPSS, L^AT_EX, AgentSpring, Netlogo, Visio, CMLCA

Languages Java, Visual Basic, PHP, HTML, JSP, Bash

Publications

Publications are sorted by publication type (theses, peer-reviewed journal articles, book chapters, conference papers, and others, primarily reports, columns and newspaper items). Per type, they are sorted per year of publication (starting with the newest).

Theses

- [1] Chappin, E. J. L. *Simulating Energy Transitions*. PhD thesis, Delft University of Technology, Delft, the Netherlands, 2011. URL <http://chappin.com/ChappinEJL-PhDthesis.pdf>. ISBN: 978-90-79787-30-2.
- [2] Chappin, E. J. L. Carbon Dioxide Emission Trade Impact on Power Generation Portfolio – Agent-based Modelling to Elucidate Influences of Emission Trading on Investments in Dutch Electricity Generation. Master’s thesis, Delft University of Technology, Delft, the Netherlands, 2006.
- [3] Chappin, E. J. L. *Een model voor waterstofacceptatie – Een causale analyse van de factoren die de maatschappelijke acceptatie van waterstof beïnvloeden*. Delft University of Technology, Delft, 2004. URL http://chappin.com/emile/docs/spm3911.kwantitatief_definitief.pdf.

Peer-reviewed journal articles

- [4] Scholz, G., N. Wijermans, R. Paolillo, M. Neumann, T. Masson, E. Chappin, A. Templeton, and G. Kocheril. Social agents? a systematic review of social identity formalizations. *Journal of Artificial Societies and Social Simulation*, 26(2):6, 2023. ISSN 1460-7425. doi: 10.18564/jasss.5066. URL <http://jasss.soc.surrey.ac.uk/26/2/6.html>.
- [5] Ale Ebrahim Dehkordi, M., J. Lechner, A. Ghorbani, I. Nikolic, E. Chappin, and P. Herder. Using machine learning for agent specifications in agent-based models and simulations: A critical review and guidelines. *Journal of Artificial Societies and Social Simulation*, 26(1):9, 2023. ISSN 1460-7425. doi: 10.18564/jasss.5016. URL <http://jasss.soc.surrey.ac.uk/26/1/9.html>.
- [6] Hoogerbrugge, C., G. van de Kaa, and E. Chappin. Adoption of quality standards for corporate greenhouse gas inventories: The importance of other stakeholders. *International Journal of Production Economics*, page 108857, 3 2023. ISSN 0925-5273. doi: 10.1016/J.IJPE.2023.108857. URL <https://linkinghub.elsevier.com/retrieve/pii/S0925527323000890>.
- [7] Biely, K., E. Chappin, G. de Vries, S. Sareen, and T. Bauwens. Understanding the embeddedness of individuals within the larger system to support the energy transition. *Sustainability Science*, pages s11625–022–01230–y, September 2022. ISSN 1862-4065, 1862-4057. doi: 10.1007/s11625-022-01230-y. URL <https://link.springer.com/10.1007/s11625-022-01230-y>.
- [8] Chappin, E. J., J. Schleich, M.-C. Guetlein, C. Faure, and I. Bouwmans. Linking of a multi-country discrete choice experiment and an agent-based model to simulate the diffusion of smart thermostats. *Technological Forecasting and Social Change*, 180:121682, 2022. ISSN 0040-1625. doi: <https://doi.org/10.1016/j.techfore.2022.121682>. URL <https://www.sciencedirect.com/science/article/pii/S0040162522001871>.
- [9] Melliger, M. and E. Chappin. Phasing out support schemes for renewables in neighbouring countries: An agent-based model with investment preferences. *Applied Energy*, 305:117959, 2022. ISSN 0306-2619. doi:

<https://doi.org/10.1016/j.apenergy.2021.117959>. URL <https://www.sciencedirect.com/science/article/pii/S0306261921012666>.

- [10] Pelka, S., E. Chappin, M. Klobasa, and L. de Vries. Participation of active consumers in the electricity system: Design choices for consumer governance. *Energy Strategy Reviews*, 44:100992, 11 2022. ISSN 2211-467X. doi: 10.1016/J.ESR.2022.100992. URL <https://linkinghub.elsevier.com/retrieve/pii/S2211467X22001869>.
- [11] Joshi, A., E. Chappin, and N. Doorn. Does Distributive Justice Improve Welfare Outcomes in Climate Adaptation? An Exploration Using an Agent-Based Model of a Stylized Social–Environmental System. *Sustainability*, 13(22):12648, November 2021. ISSN 2071-1050. doi: 10.3390/su132212648. URL <https://www.mdpi.com/2071-1050/13/22/12648>.
- [12] van der Koogh, M., E. Chappin, R. Heller, and Z. Lukszo. Are We Satisfying the Right Conditions for the Mobility Transition? A Review and Evaluation of the Dutch Urban Mobility Policies. *Sustainability*, 13(22):12736, November 2021. ISSN 2071-1050. doi: 10.3390/su132212736. URL <https://www.mdpi.com/2071-1050/13/22/12736>.
- [13] de Vries, G., K. Biely, and E. Chappin. Psychology: The missing link in transitions research. *Environmental Innovation and Societal Transitions*, 2021. ISSN 2210-4224. doi: <https://doi.org/10.1016/j.eist.2021.09.015>. URL <https://www.sciencedirect.com/science/article/pii/S2210422421000757>.
- [14] de Wildt, T. E., A. R. Boijmans, E. J. L. Chappin, and P. M. Herder. An ex ante assessment of value conflicts and social acceptance of sustainable heating systems. *Energy Policy*, 153:112265, June 2021. ISSN 03014215. doi: 10.1016/j.enpol.2021.112265. URL <https://linkinghub.elsevier.com/retrieve/pii/S0301421521001348>.
- [15] de Wildt, T. E., I. R. van de Poel, and E. J. L. Chappin. Tracing Long-term Value Change in (Energy) Technologies: Opportunities of Probabilistic Topic Models Using Large Data Sets. *Science, Technology, & Human Values*, page 016224392110544, November 2021. ISSN 0162-2439, 1552-8251. doi: 10.1177/01622439211054439. URL <http://journals.sagepub.com/doi/10.1177/01622439211054439>.
- [16] Holtz, G., C. Schnülle, M. Yadack, J. Friege, T. Jensen, P. Thier, P. Viebahn, and E. J. L. Chappin. Using Agent-Based Models to Generate Transformation Knowledge for the German Energiewende Potentials and Challenges Derived from Four Case Studies. *Energies*, 13(22):6133, November 2020. ISSN 1996-1073. doi: 10.3390/en13226133. URL <https://www.mdpi.com/1996-1073/13/22/6133>.
- [17] Chappin, E. J. L., M. Soana, C. E. C. Arensman, and F. Swart. The Y factor for Climate Change abatement A method to rank options beyond abatement costs. *Energy Policy*, 147:111894, December 2020. ISSN 03014215. doi: 10.1016/j.enpol.2020.111894. URL <https://linkinghub.elsevier.com/retrieve/pii/S0301421520306091>.
- [18] Squazzoni, F., J. G. Polhill, B. Edmonds, P. Ahrweiler, P. Antosz, G. Scholz, E. Chappin, M. Borit, H. Verhagen, F. Giardini, and N. Gilbert. Computational models that matter during a global pandemic outbreak: A call to action. *Journal of Artificial Societies and Social Simulation*, 23(2):10, 2020. ISSN 1460-7425. doi: 10.18564/jasss.4298. URL <http://jasss.soc.surrey.ac.uk/23/2/10.html>.
- [19] Yang, L., L. Zhang, A. Philippopoulos-Mihalopoulos, E. J. L. Chappin, and K. H. van Dam. Integrating agent-based modeling, serious gaming, and co-design for planning transport infrastructure and public spaces. *URBAN DESIGN International*, 2020. doi: 10.1057/s41289-020-00117-7.
- [20] de Wildt, T. E., E. Chappin, G. van de Kaa, P. Herder, and I. van de Poel. Conflicted by decarbonisation: Five types of conflict at the nexus of capabilities and decentralised energy systems identified with an agent-based model. *Energy Research & Social Science*, 64:101451, 2020. ISSN 2214-6296. doi: <https://doi.org/10.1016/j.erss.2020.101451>. URL <http://www.sciencedirect.com/science/article/pii/S2214629620300281>.
- [21] Heijnen, P., E. J. L. Chappin, and P. Herder. A method for designing minimum-cost multi-source multi-sink network layouts. *Systems Engineering*, 2019:1–22, 2019. doi: 10.1002/sys.21492. URL <https://onlinelibrary.wiley.com/doi/full/10.1002/sys.21492>.
- [22] Kraan, O., I. Nikolic, V. Koning, E. Chappin, and G.-J. Kramer. Why fully liberalised electricity markets will fail to meet deep decarbonisation targets even with strong carbon pricing. *Energy Policy*, 131:99–110, 2019. URL <https://www.sciencedirect.com/science/article/pii/S0301421519302551>.

- [23] Kraan, O., I. Nikolic, E. Chappin, and G.-J. Kramer. The influence of the energy transition on the significance of key energy metrics. *Renewable & Sustainable Energy Reviews*, 111:215–223, 2019. doi: 10.1016/j.rser.2019.04.032. URL <https://www.sciencedirect.com/science/article/pii/S1364032119302448>.
- [24] Hesselink, L. and E. J. L. Chappin. Adoption of energy efficient technologies by households - barriers, policies and agent-based modelling studies. *Renewable & Sustainable Energy Reviews*, 99:29–41, 2019. doi: 10.1016/j.rser.2018.09.031. URL <https://www.sciencedirect.com/science/article/pii/S1364032118306737>.
- [25] de Wildt, T., E. Chappin, G. van de Kaa, P. Herder, and I. van de Poel. Conflicting values in the smart electricity grid; a comprehensive overview. *Renewable and Sustainable Energy Reviews*, 111:184–196, 2019. doi: 10.1016/j.rser.2019.05.005. URL <https://www.sciencedirect.com/science/article/pii/S1364032119303119?via%3Dihub>.
- [26] De Wildt, T., E. J. L. Chappin, G. Van der Kaa, and P. M. Herder. A comprehensive approach to reviewing latent topics addressed by literature across multiple disciplines. *Applied Energy*, 228:2111–2128, 2018. doi: 10.1016/j.apenergy.2018.06.082. URL <https://www.sciencedirect.com/science/article/pii/S030626191830953X>.
- [27] Bollinger, A., C. Davis, R. Evins, E. Chappin, and I. Nikolic. Multi-model ecologies for shaping future energy systems: design patterns and development paths. *Renewable and Sustainable Energy Reviews*, 2018. doi: 10.1016/j.rser.2017.10.047. URL <http://www.sciencedirect.com/science/article/pii/S1364032117314259>.
- [28] Köhler, J., F. de Haan, G. Holtz, K. Kubeczko, E. Moallemi, G. Papachristos, and E. Chappin. Modelling sustainability transitions: An assessment of approaches and challenges. *Journal of Artificial Societies and Social Simulation*, 21(1):8, 2018. ISSN 1460-7425. doi: 10.18564/jasss.3629. URL <http://jasss.soc.surrey.ac.uk/21/1/8.html>.
- [29] Viebahn, P. and E. J. L. Chappin. Scrutinising the gap between the expected and actual deployment of carbon capture and storage - a bibliometric analysis. *Energies*, 11(2319), 2018. doi: doi:10.3390/en11092319.
- [30] Voulis, N., M. J. J. van Etten, E. J. L. Chappin, M. Warnier, and F. M. T. Brazier. Rethinking european energy taxation to incentivise consumer demand response participation energy policy. *Energy Policy*, 124: 156–168, 2019. doi: 10.1016/j.enpol.2018.09.018. URL <https://www.sciencedirect.com/science/article/pii/S0301421518306244>.
- [31] Bhagwat, P. C., J. C. Richstein, E. J. L. Chappin, K. K. Iychettira, and L. J. de Vries. Cross-border effects of capacity mechanisms in interconnected power systems. *Utilities Policy*, 46:33–47, 2017. ISSN 0957-1787. doi: <http://dx.doi.org/10.1016/j.jup.2017.03.005>. URL <http://www.sciencedirect.com/science/article/pii/S0957178716300832>.
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