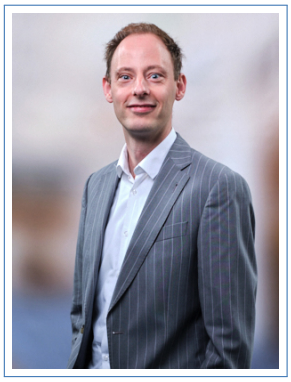

Émile Chappin

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 3000 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 13 PhDs (of which 8 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.

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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 Transision**, *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 CO_2 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 13 PhD candidates (9 ongoing: Jonathan Schmidt, Lynn de Jager, Lukas Schubotz, Mariëlle Rietker, Kevin Goes, Jerico Bakhuis, Sabine Pelka, Aashis Joshi, Myléne van der Koogh, 4 finished: Thorben (2013-2017), Jonas (2013-2017), Tristan (2015-2020), Marc Melliger (2019-2023)

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**, *TU Delft AgTech Congress The Energy Transition in Agriculture*, Delft
Simulating the energy transition in the horticulture sector – supporting decision making under deep uncertainty

2023 **Invited talk**, *Leading the Energy Transition Programme*, Rotterdam
How to lead the energy transition

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)*

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

2014–2023 **Member Advisory Board**, *Catholic Youth Association WESP*, Zoetermeer

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 CO_2-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

2013 Best student poster award, Social Simulation 2023 conference, with PhD candidate Lukas Schubotz.

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, LaTeX, 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 beinvloeden*. 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 EnergiewendePotentials 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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Updated on **January 8, 2024**