

# Oreane Yasmin Edelenbosch

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## Work experience

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2021-present	<b>Environmental Science dpt. of the Copernicus Institute Utrecht University</b> <i>Assistant professor Global Environmental Change modeling</i>
2019-2021	<b>Climate, Energy and Air Department PBL Netherlands Environmental Assessment Agency</b> <i>Researcher EU H2020 NAVIGATE project, UK-ESRC 'CAST project</i>
2017 - 2019	<b>Polytechnic University of Milan</b> <i>Post-doc researcher on ERC grant Cobham</i>
2016 - 2017	<b>Environmental Science dpt. of the Copernicus Institute University of Utrecht</b> <i>PhD researcher</i>
2013 - 2017	<b>Climate, Energy and Air Department PBL Netherlands Environmental Assessment Agency</b> <i>Junior researcher "energy demand pathways", work package manager of EU-FP7 ADVANCE project</i>
2011	<b>Science, Technology and Society Department, University of Utrecht, Utrecht</b> <i>Student assistant master Energy Science</i>

## Academic Activities

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2020 - present	<b>Tyndall Centre for Climate Change Research</b> <i>Research associate</i>
2019 – present	<b>RFF-CMCC European Institute on Economics and the Environment</b> <i>Research associate</i>
2019 - present	<b>Horizon 2020 Locomotion project</b> <i>Member of scientific advisory board</i>
2020 - present	<b>Renewable and Sustainable Energy Transition</b> <i>Member of editorial board</i>
2016 -2017	<b>Special issue on model-based long-term transport scenarios</b> <i>Co-editor Transportation Research Part D</i>

## Education

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2013-2018	<b>Doctoral Study</b> <i>Copernicus institute, Utrecht University</i> Title: Energy demand futures by global models: Projections of a complex system
2012	<b>Research Internship</b> <i>PBL Netherlands Environmental Assessment Agency</i> Title: Interaction Climate and Air quality Policy
2011 - 2012	<b>Master Thesis</b> <i>Department of Physics, Imperial College London</i> Title: Luminescent Solar Concentrator with a Fibre Geometry
2010 - 2013	<b>Master Energy Science</b> <i>Science Department, University of Utrecht</i>
2008 - 2009	<b>Minor General History</b> <i>University of Amsterdam</i>
2006 - 2009	<b>Bachelor Bèta-Gamma with major Physics</b> <i>University of Amsterdam</i>

## Summer School

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2014	<b>Young Scientist Summer Programme (June-Aug),</b> <i>International Institute for Applied System Analysis, Vienna Austria</i>
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## Publications

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2022

1. Kermeli, Katerina, Oreane Y. Edelenbosch, Wina Crijns-Graus, Bas J. van Ruijven, Detlef P. van Vuuren, and Ernst Worrell. "Improving material projections in Integrated Assessment Models: The use of a stock-based versus a flow-based approach for the iron and steel industry." *Energy* 239 (2022): 122434.
2. Chen, Hsing-Hsuan, Andries F. Hof, Vassilis Daioglou, Harmen Sytze de Boer, Oreane Y. Edelenbosch, Maarten van den Berg, Kaj-Ivar van der Wijst, and Detlef P. van Vuuren. "Using Decomposition Analysis to Determine the Main Contributing Factors to Carbon Neutrality across Sectors." *Energies* 15, no. 1 (2022): 132.

2021

3. Sharmina, Maria, O. Y. Edelenbosch, C. Wilson, R. Freeman, D. E. H. J. Gernaat, Paul Gilbert, Alice Larkin et al. "Decarbonising the critical sectors of aviation, shipping, road

freight and industry to limit warming to 1.5–2 C." *Climate Policy* 21, no. 4 (2021): 455-474.

4. Keppo, Ilkka, Isabela Butnar, Nicolas Bauer, Matteo Caspani, Oreane Edelenbosch, Johannes Emmerling, Panagiotis Fragkos et al. "Exploring the possibility space: Taking stock of the diverse capabilities and gaps in integrated assessment models." *Environmental Research Letters* 16, no. 5 (2021): 053006.
5. van den Berg, Nicole J., Andries F. Hof, Kaj-Ivar van der Wijst, Lewis Akenji, Vassilis Daioglou, Oreane Y. Edelenbosch, Mariësse AE van Sluisveld, Vanessa J. Timmer, and Detlef P. van Vuuren. "Decomposition analysis of per capita emissions: a tool for assessing consumption changes and technology changes within scenarios." *Environmental Research Communications* 3, no. 1 (2021): 015004.
6. Edelenbosch, O. Y., D. Rovelli, A. Levesque, G. Marangoni, and M. Tavoni. "Long term, cross-country effects of buildings insulation policies." *Technological Forecasting and Social Change* 170 (2021): 120887.
7. Müller-Casseres, Eduardo, Oreane Y. Edelenbosch, Alexandre Szklo, Roberto Schaeffer, and Detlef P. van Vuuren. "Global futures of trade impacting the challenge to decarbonize the international shipping sector." *Energy* 237 (2021): 121547.

2020

8. Blok, Kornelis, et al. "Assessment of sectoral greenhouse gas emission reduction potentials for 2030." *Energies* 13.4 (2020): 943.
9. Edelenbosch, Oreane Y., et al. "Mitigating energy demand sector emissions: The integrated modelling perspective." *Applied Energy* 261 (2020): 114347.
10. Pastor, A. V., Vieira, D. C. S., Soudijn, F. H., & Edelenbosch, O. Y. (2020). How uncertainties are tackled in multi-disciplinary science? A review of integrated assessments under global change. *Catena*, 186, 104305.
11. van den Berg, Nicole J., et al. "Improved modelling of lifestyle changes in Integrated Assessment Models: Cross-disciplinary insights from methodologies and theories." *Energy Strategy Reviews* 26 (2019): 100420.
12. Mendoza Beltran, Angelica, Brian Cox, Chris Mutel, Detlef P. van Vuuren, David Font Vivanco, Sebastiaan Deetman, Oreane Y. Edelenbosch, Jeroen Guinée, and Arnold Tukker. "When the background matters: using scenarios from integrated assessment models in prospective life cycle assessment." *Journal of Industrial Ecology* 24, no. 1 (2020): 64-79.

2019

13. Deetman, Sebastiaan, et al. "Modelling global material stocks and flows for residential and service sector buildings towards 2050." *Journal of Cleaner Production* (2019): 118658.
14. Kermeli, Katerina, et al. "The scope for better industry representation in long-term energy models: Modeling the cement industry." *Applied Energy* 240 (2019): 964-985.

2018

15. Creutzig, F., Roy, J., Lamb, W. F., Azevedo, I. M. L., Bruine De Bruin, W., Dalkmann, H., ...

Weber, E. U. (2018). Towards demand-side solutions for mitigating climate change. *Nature Climate Change*, 8(4).

16. Edelenbosch, O. Y., Hof, A. F., Nykvist, B., Girod, G., & van Vuuren, D. P. (2018). Transport electrification: the effect of recent battery cost reduction on future emission scenarios. *Climatic Change*.
17. Edelenbosch, O. Y., McCollum, D. L., Pettifor, H., Wilson, C., & van Vuuren, D. P. (2018). Transitioning to electric cars: Interactions between social learning and technological learning. *Environmental Research Letters*.
18. Luderer, G., Vrontisi, Z., Bertram, C., Edelenbosch, O. Y., Pietzcker, R. C., Rogelj, J., ... Kriegler, E. (2018). Residual fossil CO<sub>2</sub> emissions in 1.5-2 °C pathways. *Nature Climate Change*, 8(7).
19. McCollum, D. L., Wilson, C., Bevione, M., Carrara, S., Edelenbosch, O. Y., Emmerling, J., ... van Vuuren, D. P. (2018). Interaction of consumer preferences and climate policies in the global transition to low-carbon vehicles. *Nature Energy*, 1–10.
20. Van Vuuren, D. P., Stehfest, E., Gernaat, D. E. H. J., Van Den Berg, M., Bijl, D. L., De Boer, H. S., ... Van Sluisveld, M. A. E. (2018). Alternative pathways to the 1.5 °C target reduce the need for negative emission technologies. *Nature Climate Change*, 8(5).

2017

21. Edelenbosch, O. Y., Kermeli, K., Crijns-Graus, W., Worrell, E., Bibas, R., Fais, B., ... van Vuuren, D. P. (2017). Comparing projections of industrial energy demand and greenhouse gas emissions in long-term energy models. *Energy*, 122, 701–710
22. Edelenbosch, O. Y., McCollum, D. L., van Vuuren, D. P., Bertram, C., Carrara, S., Daly, H., ... Sano, F. (2017). Decomposing passenger transport futures: Comparing results of global integrated assessment models. *Transportation Research Part D: Transport and Environment*, 55.
23. Edelenbosch, O. Y., van Vuuren, D. P., Bertram, C., Carrara, S., Emmerling, J., Daly, H., ... Saadi Failali, N. (2017). Transport fuel demand responses to fuel price and income projections: Comparison of integrated assessment models. *Transportation Research Part D: Transport and Environment*, 55.
24. McCollum, D. L., Wilson, C., Pettifor, H., Ramea, K., Krey, V., Riahi, K., ... Fujisawa, S. (2017). Improving the behavioral realism of global integrated assessment models: An application to consumers? vehicle choices. *Transportation Research Part D: Transport and Environment*, 55, 322–342.
25. Pettifor, H., Wilson, C., McCollum, D., & Edelenbosch, O. Y. (2017). Modelling social influence and cultural variation in global low-carbon vehicle transitions. *Global Environmental Change*, 47.
26. van Vuuren, D. P., Edelenbosch, O. Y., McCollum, D. L., & Riahi, K. (2017). A special issue on model-based long-term transport scenarios: Model comparison and new methodological developments to improve energy and climate policy analysis. *Transportation Research Part D: Transport and Environment*, 55.
27. van Vuuren, D. P., Stehfest, E., Gernaat, D. E. H. J., Doelman, J. C., van den Berg, M.,

Harmsen, M., ... Tabeau, A. (2017). Energy, land-use and greenhouse gas emissions trajectories under a green growth paradigm. *Global Environmental Change*, 42.

2015

28. Creutzig, F., Jochem, P., Edelenbosch, O. Y., Mattauch, L., Van Vuuren, D. P., McCollum, D., & Minx, J. (2015). Transport: A roadblock to climate change mitigation? *Science*, 350(6263).

2013

29. Edelenbosch, O. Y., Fisher, M., Patrignani, L., Van Sark, W. G. J. H. M., & Chatten, A. J. (2013b). Luminescent solar concentrators with fiber geometry. *Optics Express*, 21(103).

## Book chapters and reports

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Blok, Kornelis, Angélica Afanador, and Detlef van Vuuren. "Bridging the Gap: Sectoral Greenhouse Gas Emission Reduction Potentials in 2030-The Emissions Gap Report 2017 Chapter 4." *The Emissions Gap Report 2017: A UN Environment Synthesis Report* (2017).

Louwen, A., Edelenbosch, O. Y., Van Vuuren, D. P., McCollum, D. L., Pettifor, H., Wilson, C., & Junginger, M. (2020). Application of experience curves and learning to other fields. In *Technological Learning in the Transition to a Low-Carbon Energy System* (pp. 49-62). Academic Press.

Rogelj, J., D. Shindell, K. Jiang, S. Fifita, P. Forster, V. Ginzburg, C. Handa, H. Kheshgi, S. Kobayashi, E. Kriegler, L. Mundaca, R. Séférian, and M.V. Vilariño, 2018: Mitigation Pathways Compatible with 1.5°C in the Context of Sustainable Development. In: *Global Warming of 1.5°C. An IPCC Special Report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty* [Masson-Delmotte, V., P. Zhai, H.-O. Pörtner, D. Roberts, J. Skea, P.R. Shukla, A. Pirani, W. Moufouma-Okia, C. Péan, R. Pidcock, S. Connors, J.B.R. Matthews, Y. Chen, X. Zhou, M.I. Gomis, E. Lonnoy, T. Maycock, M. Tignor, and T. Waterfield (eds.)]. In Press. (*role: contributing author*)

## Conferences

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O.Y. Edelenbosch, Davide Rovelli, "Long term effects of buildings infrastructure policies" in International Energy Workshop, Paris, France (2019).

O.Y. Edelenbosch, Luciana Miu, Julia Sachs, Massimo Tavoni, Adam Hawkes, "Heterogeneous electricity consumption in the residential sector" in IAMC conference, Seville, Spain (2018).

O.Y. Edelenbosch, Detlef van Vuuren, "Mitigating energy demand emissions: The integrated modelling perspective" in International Energy Workshop, Gothenburg, Sweden (2018).

O.Y. Edelenbosch, "Low-carbon pathways for the transportation sector" in Final ADVANCE

Conference, Brussels Belgium (2016).

O.Y. Edelenbosch, D. McCollum, C. Wilson, H Pettifor, D.P. van Vuuren "*Transitioning to electric cars: Interactions between social learning and technological learning*" in iTEM2 Conference, Gothenburg, Sweden (2016).

O.Y. Edelenbosch, D. McCollum, "*Representation of heterogeneity and consumer behavior in the transport sector*" in International BE4 workshop, London United Kingdom (2015).

O.Y. Edelenbosch, D. McCollum, "*Representation of heterogeneity and consumer behavior in the transport sector*" in IAMC conference, Washington D.C., USA (2014).

O. Y. Edelenbosch, M. Fisher, L. Patrignani, W. van Sark, and A. Chatten, "*Luminescent Solar Concentrators with a Fibre Geometry*," in Renewable Energy and the Environment Optics and Photonics Congress, OSA Technical Digest (online) (Optical Society of America, 2012), paper ST2A.3.

## Organised meetings & workshops

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Workshop "Best practices for modeling human behaviour in IAMs" (20 participants, 22-23 November 2018, Milan, Italy). As part of the ERC Cobham project. Discussion to be published as a commentary in Nature Energy.

Workshop "Expert Workshop "INNOVATION IN RELATION TO BUILDING ENERGY DEMAND IN IAMs" (60 participants, 20-21 January 2015, Utrecht, The Netherlands). Support staff for the FP-7 project ADVANCE.

Project meeting "ADVANCE 4th project meeting" (50 participants. 21-23 January 2015, Utrecht, The Netherlands). On behalf of the FP-7 project ADVANCE. Report online available

Workshop "Expert Workshop " ENHANCING THE STATE OF TRANSPORT MODELING IN IAMs" (60 participants, 19 November 2013, Vienna, Austria). Support staff for the FP-7 project ADVANCE.

## Languages

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Dutch	Native
English	Fluent
Italian	Moderate
German	Moderate
French	Moderate

## Other Experience

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2016	Volunteer at Refugee Crisis Response NGO, Lighthouse Relief, Katsikas, Greece.
2015	Volunteer at ABC Amsterdam providing language course for refugees in emergency shelter, Amsterdam.

2007 - 2010

Social worker at foundation for streetkids and young mothers, Don Bosco Jonathan, Amsterdam

## Travel Experience

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2010

Silk Road overland

*(Turkey, Iran, Turkmenistan, Uzbekistan, Kyrgyzstan, China, Mongolia, Russia, Baltic States)*

2005-2006

Around the world

*(India, Australia, Thailand, Cambodia, Vietnam)*

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