

Prof. Hannah E. Daly

Professor in Sustainable Energy Systems
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Google Scholar: <http://tiny.cc/21kwez>

Professional Appointments

| | | |
|----------------|------------------------------------|---|
| 2022 – present | University College Cork | Full Professor in Sustainable Energy |
| 2019 – 2022 | University College Cork | Lecturer in Sustainable Energy Systems Modelling (above the merit bar) |
| 2015 – 2019 | International Energy Agency, Paris | Agency lead on Energy Access and SDG7 collaboration; analyst for World Energy Outlook |
| 2012 – 2015 | UCL Energy Institute, London | Research Associate in Energy Systems Modelling. |

Periods of maternity leave:

November 2015 – April 2016

August 2018 – July 2019

Education

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|-------------|--------------------------|---|
| 2009 – 2012 | University College Cork | Doctor of Philosophy (Ph.D.), Irish Research Council EMBARK Scholarship. “Transport energy demand: techno-economic modelling and scenarios for Irish climate policy”. |
| 2004 – 2009 | University College Cork | BSc (Hons) Mathematical Sciences |
| 2007 – 2008 | University of California | University of California Scholarship |

Research

Active research projects

| Project | Funder | Description | Funding | Role | Period |
|--|--|---|---------|-------|---------|
| CAPACITY (Climate Action Pathways & Absorptive Capacity) Phase 2 | Department of Communications, Climate Action and Environment | Energy modelling services to the Climate Action Modelling Group (CAMG) | €3.5m | Co-PI | 2023-28 |
| SELS | Environmental Protection Agency (EPA) | Sustainable integrated pathways for carbon-negative energy, land and food systems | €440k | PI | 2023-27 |
| SFI/MaREI ERBE PhD award | Energy Resilience in the Built Environment | Jeanne Spillane: The integrated achievement of clean energy and climate goals | €140k | PI | 2023-27 |
| SFI/MaREI PhD award | MaREI, SFI | Ankia Gaur: Modelling sustainable energy transitions for Ireland | €140k | PI | 2020-24 |

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|---------------------------------------|---|---|-------|----|---------|
| SEAI Research Fellowship | Sustainable Energy Authority of Ireland | SEAI Senior researcher in energy systems modelling | €324k | PI | 2023-26 |
| 5YAR - Academic leader – chapter lead | EPA | Ireland's Climate Change Assessment (ICCA) - Volume 4 | €209k | PI | 2021-23 |

Past projects

- CCAC/EPA Carbon Budget Research Fellowship: Modelling Ireland's path to a net-zero energy system: Informing carbon budgets to 2050. €215k, PI. 2021-23.
- CAPACITY (Climate Action Pathways & Absorptive Capacity) - Energy modelling services to the Technical Research and Modelling (TRAM) group – scenario analyses using TIMES, PLEXOS and LEAP.Co-I. €2.35m, 2018-22
- An analysis of Irish electricity and gas demand drivers and obstacles in context of reaching a zero-carbon electricity system in line with 2030 & 2050 commitments: Report for Friends of the Earth
- National Economic and Social Council (NESC) research services agreement, 2021. Scoping Report: climate science in the area of agriculture, land use and land use change and forestry in Ireland
- Energy access & Africa modelling capacity project development at IEA.
- Collaborator, Horizon 2020 Grant No 691739 – “Role of technologies in an energy efficient economy – model based analysis policy measures and transformation pathways to a sustainable energy system”, total EU contribution €4 million.
- Convened International BE4 Workshop on Behaviour within Energy/Engineering/ Economics/Environmental Models, April 2015, funded by IEA-ETSAP
- Introducing modal shifting in TIMES, January – June 2012, funded by IEA-ETSAP
- Irish Research Council for Science, Engineering and Technology EMBARK PhD scholarship, 2009 – 2012.

Pedagogical profile

Research supervision

- PhD supervisor (past):
 - Xuebing Wang, UCL. *The Impacts to the International Aviation Industry by including it to the EU-ETS*. Graduated 2019.
 - Vahid Aryanpur, UCC. *Improving the Ability of Energy Systems Optimisation Modelling to Inform National Energy Policymaking*. 2019-23 (graduated)
- PhD supervision (ongoing):
 - Jason McGuire, UCC. *Modelling residential sector in energy systems models*. 2019-23 (expected)
 - Ankita Gaur, UCC. *Modelling sustainable energy transitions for Ireland: Capturing technological, economic and social realities*. 2020–24 (expected)
 - Vera O'Riordan, UCC. *Passenger transport energy demand in the context of Ireland's Climate Action Plan*. 2019–23 (expected)
 - Jeanne Spillane, UCC. ERBE (Energy Resilience in the Built Environment) 2023-27 (expected)
- Masters research supervision: Primary supervisor to MEngSc and MSc research dissertations of 10 students to completion at UCL and UCC.

Current undergraduate and postgraduate lecturing

- NE3003, NE6013 and NE5003 module (Sustainable Energy, UCC) coordinator (since 2019)
- NE1001 (Introduction to Energy Engineering, UCC), module coordinator (since 2019)
- UWM Sustainability, guest lecturer (since 2019)
- NE4001 (Energy Systems Modelling, UCC), module coordinator (since 2019)

Past:

- BEGC15 (Modelling Methods and Scenarios, University College London), 2014-2015 (teaching assistant)

Contribution & Outreach

Science-policy interface and public outreach

- Monthly columnist – “At a Time of Climate Crisis” – for Irish Times newspaper since 2022; frequent [op-eds](#) in leading national newspapers and [media interviews](#) on TV, radio, podcasts and newspaper.
- Lead Author of Ireland’s Climate Change Assessment (ICCA) report (2021-23)
- Member of policy working groups:
 - Dept. Taoiseach Climate Action Unity Research and Modelling Group (2022-)
 - Climate Change Advisory Council Carbon Budgets Committee (2020-)
 - Climate Action Plan 2023 workshops convened by DECC (2022)
 - National Economic & Social Council (NESC) working group on Agriculture and Climate, 2022
- Member Community Foundation for Ireland’s Advisory Committee on Climate & Biodiversity (since 2022)
- Advisory board of Linte na Farraige (Creative Climate Action) (2021-22), National Land Use Evidence Review (EPA) (2022)
- Invited to give expert testimony by Joint Oireachtas Committee on Climate Action three times in 2020-21.

Outreach

- Chair of UCC School of Engineering Outreach Committee (2021-ongoing)
- Judge for Mary Mulvihill Award for Science Communications, 2023
- Supporter of Women in STEM:
 - Keynote speaker, J&J WiSTEM2D Awards Ceremony, Jan 2022
 - Ran “Inspiring Women in Climate and Energy” event in March 2020 in collaboration with UCC Women in STEM society with a panel of senior women
 - Mentor for undergraduate and postgraduate students

Professional service

- Member of editorial board of *Renewable and Sustainable Energy Transition* journal
- Peer reviewer for journals including *Nature Climate Change*, *Climate Policy*, *Applied Energy*, *Sustainability*, *Energy Strategy Reviews*.
- Grant review, Academy of Finland, Electric power and energy engineering review panel, 2023
- PhD grading committee, Alla Toktarovas, Chalmers University, 2023
- PhD external examiner, Diego Lopez, Universidad de Alcala, 2023
- Shortlisting panel, associate professor, University of Oslo, 2022
- Internal examiner PhD Viva, Laura Mehigan, 2022, UCC
- Viva chair, Aobha Hickey, UCC (Chemistry), 2022
- Chair selection committee, Sustainable Futures Senior Lecturer, UCC, 2022
- PhD viva opponent, Dennis Dreier, KTH, Sweden, 2020

Other

- Lead UCC delegation to COP27, Nov 2022
- Winner UCC President’s Award for Excellence in Teaching, 2021
- Invited guest lectures to Yale University: 2023, 2021, 2020
- Auditor of the UCC Mathsoc in 2005-06, convenor Irish Mathematics Student Conference in 2006, *Bene Merenti* and *Society of the Year* awards.

Scientific publications (see [Google Scholar](#) for up-to-date list)

Peer-reviewed articles in international journals

1. Hollands, A., **Daly, H** (2023): Modelling the integrated achievement of clean cooking access and climate mitigation goals: An energy systems optimization approach. *Renewable & Sustainable Energy Reviews*, 173, 113054 <https://doi.org/10.1016/j.rser.2022.113054>
2. McGuire, J., ... **Daly, H** (2023) Developing decarbonisation pathways in changing TIMES for Irish homes. *Energy Strategy Reviews* <https://doi.org/10.1016/j.esr.2023.101086>
3. Balyk, O., ... **Daly, H.** (2022): TIM: Modelling pathways to meet Ireland's long-term energy system challenges with the TIMES-Ireland Model (v1.0), *Geoscientific Model Development*, <https://doi.org/10.5194/gmd-2021-359>
4. Gaur, A., ...**Daly, H** (2022) Low energy demand scenario for feasible deep decarbonisation: Whole energy systems modelling for Ireland. *Renewable and Sustainable Energy Transition* <https://doi.org/10.1016/j.rset.2022.100024>
5. Aryanpur, V., .. **Daly, H.**, . (2022): Decarbonisation of passenger light-duty vehicles using spatially resolved TIMES-Ireland Model. *Applied Energy*. <https://doi.org/10.1016/j.apenergy.2022.119078>
6. O'Riordan, V., ... **Daly, H.** (2022): Impact of an Emissions-based Car Tax Policy on CO2 Emissions and Tax Revenue of Private Cars in Ireland. *International Journal of Sustainable Transportation* <https://doi.org/10.1080/15568318.2022.2132562>
7. O'Riordan, V., ... **Daly, H** (2022). How and why we travel – Mobility demand and emissions from passenger transport. *Transportation Research Part D: Transport and Environment*. <https://doi.org/10.1016/j.trd.2022.103195>
8. Long, Aoife et al. (2021). "Infant Feeding and the Energy Transition: A Comparison between Decarbonising Breastmilk Substitutes with Renewable Gas and Achieving the Global Nutrition Target for Breastfeeding." *Journal of Cleaner Production* 324: 129280. <https://doi.org/10.1016/j.jclepro.2021.129280>
9. Crowley, Frank et al (2021). "The Impact of Labour Market Disruptions and Transport Choice on the Environment during COVID-19." *Transport Policy* 106: 185–95. <https://linkinghub.elsevier.com/retrieve/pii/S0967070X21001037>
10. S Pye, O Broad, C Bataille, P Brockway, **HE Daly**, R Freeman, A Gambhir... (2020). Modelling net-zero emissions energy systems requires a change in approach. *Climate Policy* <https://doi.org/10.1080/14693062.2020.1824891>
11. Jewell J., ... **Daly H.**, ..., van Vuuren D. (2020) Reply to: Why fossil fuel producer subsidies matter. *Nature*. doi: 10.1038/s41586-019-1921-9
12. DeCarolis J, **Daly H.**, Dodds P, Keppo I, Li F, McDowall W, Pye S, Strachan N, Trutnevyte E, Usher W, Winning M, Yeh S, Zeyringer M. (2017) Formalizing best practice for energy system optimization modelling. *Applied Energy*, 194 184-198
13. OY Edelenbosch, DP van Vuuren, C Bertram, S Carrara, J Emmerling, **H Daly**, A Kitous, DL McCollum, N Saadi Failali (2017) Transport fuel demand responses to fuel price and income projections: Comparison of integrated assessment models. *Transportation Research Part D: Transport and Environment*. 55, 310-321.
14. Edelenbosch, O. Y., McCollum, D. L., van Vuuren, D. P., Bertram, C., Carrara, S., **Daly, HE**, ... & Karkatsoulis, P. (2017). Decomposing passenger transport futures: Comparing results of global integrated assessment models. *Transportation Research Part D: Transport and Environment*.
15. Strachan N, Fais B, **Daly HE** (2016) Reinventing the energy modelling-policy interface. *Nature Energy*. Feb 29;1:16012.
16. Fais B, Keppo I, Zeyringer M, Usher W, **Daly HE**. (2016) Impact of technology uncertainty on future low-carbon pathways in the UK. *Energy Strategy Reviews*. 230;13:154-68.
17. Scott, K., **Daly, HE**, Barrett, J., & Strachan, N. (2016). National climate policy implications of mitigating embodied energy system emissions. *Climatic Change*, 136(2), 325-338.
18. Pye, S., & **Daly, HE** (2015). Modelling sustainable urban travel in a whole systems energy model. *Applied Energy*, 159, 97-107.
19. **Daly HE**, Scott K, Barrett J, Strachan N (2015) Indirect CO2 emission implications of energy system pathways: Linking IO and TIMES models for the UK. *Environmental Science and Technology*. 49 (17), 10701-10709

20. Lott, M., & **Daly, H.** (2015). The Impacts of Transport Sector Decarbonisation Pathways on Air Quality and Public Health in the United Kingdom. *Journal of Transport & Health*, 2(2), S37.
21. **Daly HE**, Ramea K, Chiodi A, Yeh S, Gargiulo M, Ó Gallachóir B (2014) Incorporating travel behaviour and travel time into TIMES energy system models. *Applied Energy* 135 (0):429-439. doi:<http://dx.doi.org/10.1016/j.apenergy.2014.08.051>
22. Whyte K, **Daly HE**, Ó Gallachóir BP (2013) Modelling HGV freight transport energy demand in Ireland and the impacts of the property construction bubble. *Energy* 50 (0):245-251. doi:<http://dx.doi.org/10.1016/j.energy.2012.12.030>
23. Leinert S, **Daly HE**, Hyde B, Gallachóir BÓ (2013) Co-benefits? Not always: Quantifying the negative effect of a CO2-reducing car taxation policy on NOx emissions. *Energy Policy* 63 (0):1151-1159. doi:<http://dx.doi.org/10.1016/j.enpol.2013.09.063>
24. Rogan F, Cahill C, **Daly HE**, Dineen D, Deane JP, Heaps C, Welsch M, Howells M, Bazilian M, Ó Gallachóir B (2013) LEAPs and Bounds—an Energy Demand and Constraint Optimised Model of the Irish Energy System. *Energy Efficiency*:1-26. doi:10.1007/s12053-013-9231-9
25. **Daly HE**, Ó Gallachóir BP (2012) Future energy and emissions policy scenarios in Ireland for private car transport. *Energy Policy* 51 (0):172-183. doi:<http://dx.doi.org/10.1016/j.enpol.2012.08.066>
26. **Daly HE**, Ó Gallachóir BP (2011) Modelling private car energy demand using a technological car stock model. *Transportation Research Part D: Transport and Environment* 16 (2):93-101
27. **Daly HE**, Ó Gallachóir BP (2011) Modelling future private car energy demand in Ireland. *Energy Policy* 39 (12):7815-7824. doi:<http://dx.doi.org/10.1016/j.enpol.2011.09.027>
28. Rogan F, Dennehy E, **Daly HE**, Howley M, Ó Gallachóir BP (2011) Impacts of an emission based private car taxation policy – First year ex-post analysis. *Transportation Research Part A: Policy and Practice* 45 (7):583-597. doi:<http://dx.doi.org/10.1016/j.tra.2011.03.007>

Selected peer-reviewed conference papers, working papers, and in-review papers

29. **Daly HE** (2020). The implications of alternative warming metrics for national climate targets; (preprint: <https://bit.ly/367Yuol>)
30. F Crowley, **H Daly**, J Doran, G Ryan (2020) COVID-19, social distancing, remote work and transport choice. SRERC Working Paper Series: <https://www.econstor.eu/handle/10419/221739>
31. Stephen J Lee, Eduardo Sánchez Jacob, Andrés González García, Pedro Ciller Cutillas, Pablo Dueñas Martínez, Jay Taneja, Fernando Cuadra García, Julio Lumbreras Martín, **H Daly**, Robert J Stoner, José Ignacio Pérez Arriaga (2019) Investigating the necessity of demand characterization and stimulation for geospatial electrification planning in developing countries. Comillas repository <http://hdl.handle.net/11531/42497>
32. **Daly HE**, Scott K, Barrett J, Strachan N (2014) Counting Consumption-Based Energy System Emissions: Linking an Energy System and EEIO Model. Paper presented at the 37th IAEE International Conference, New York, USA, June 2014
33. Wang X, **Daly, HE** (2014) The economic impact on GDP growth in selected areas of building a global emissions trading scheme. Paper presented at the 4th International Association of Energy Economics Asian Conference, Beijing, China, 19–21 September 2014.
34. **Daly HE**, Scott K, Barrett J, Strachan N (2013) Does accounting for indirect emissions affect energy system decarbonisation pathways? Paper presented at the 13th European IAEE Conference, Dusseldorf, Germany, August 2013
35. Wang X, **Daly, HE** (2013) A comparison of the impacts of environmental taxation and emissions trading on Chinese Airlines. Paper presented in 14th Global Conference on Environmental Taxation, Kyoto, Japan. 17–19 October, 2013.
36. **Daly HE**, Ramea K, Chiodi A, Yeh S, Gargiulo M, Ó Gallachóir BP (2012) Modelling Transport Modal Choice and Its Impacts on Climate Mitigation. Paper presented at the 31st International Energy Workshop, Cape Town, South Africa, June 19th-21st, 2012
37. **Daly HE**, Ó Gallachóir B.P., 2011. Two technological approaches for long-term private car energy policy modelling in Ireland. in Irish Transport Research Network, August 31st – September 1st. University College Cork, Ireland. Best paper in session award.

38. **Daly HE, Ó Gallachóir B** (2010) Private Car Transport and the 10% RES-T Target - Quantifying the Contribution of EVs and Biofuels. In: Irish Transport Research Network, 2010, University College Dublin, Ireland, 31st August to 1st September 2010 .
39. **Daly HE, Ó Gallachóir B** (2010) Evaluating the Impact of Energy Efficiency and CO2 Emissions Measures on Private Car Transport Using a Stock Model. Paper presented at the International Energy Program Evaluation Conference, Paris, France, June 9th - 10th 2010.
40. **Daly HE, Ó Gallachóir, B.P.**, (2010). Forecasting Private Car Energy Demand Using Bottom-Up Car Stock Modelling. in Young Energy Economy Engineer Seminar. November 26th – 27th 2010, Dublin, Ireland
41. **Foley A.M., Daly, H.E., McKeogh E.J., Ó.Gallachoir, B.P.**, (2010) Quantifying the energy & carbon emission implications of a 10% electric vehicle target, International Energy Workshop, June 21st – 23rd, Stockholm, Sweden

Book chapters

42. **Daly HE, Dodds P, McDowall W** (2015) The Demand Side: Challenges and options for sustainable travel: Mobility, motorisation and vehicle technologies. In Ekins P, ed. Global Energy: Issues, Potentials and Policy Implications. Oxford University Press.
43. **Daly HE, Ramea K, Chiodi A, Yeh S, Gargiulo M, Ó Gallachóir BP** (2015) Transport behaviour in TIMES: Modelling mode shift and travel time budgets for Ireland and California. In Labriet M. ed. Informing energy and climate policies using energy systems models. Springer.

Reports (selected)

44. (Lead author) Agriculture and Climate Action – Overview of the Science. Literature review commissioned by NESC, 2021.
45. (Contributing author): The role of carbon budgets in translating the Paris Agreement into national climate policy – MaREI Discussion paper, 2020
46. **Daly H, Deane JP**, Emissions and energy system implications of increasing the ambition on the 70% RES-E target – MaREI Policy Brief, 2020
47. (Contributing author): Long Term Strategy – A Net Zero Energy System for Ireland in 2050, 2019. Submitted to DCCAE Nov 2019.
48. (Lead author) IEA, IRENA, UNSD, World Bank, WHO, 2018. Tracking SDG7: The Energy Progress Report.
49. (Lead author) IEA, UNDP, IRENA. Policy Brief 1: Achieving Universal Access to Electricity, ADVANCING SDG7 IMPLEMENTATION IN SUPPORT OF THE 2030 AGENDA. Policy Briefs in Support of the first SDG7 Review at the UN High-Level Political Forum 2018. UNDESA, 2018.
50. (Lead author) IEA, 2017. Energy Access Outlook 2017: from Poverty to Prosperity. World Energy Outlook 2017 special report. OECD/IEA, Paris
51. (Lead author) IEA and World Bank, 2017. Global Tracking Framework 2017: Progress Towards Sustainable Energy for All. World Bank, April 2017.
52. (Principal author) World Energy Outlook, 2017 & 2016 OECD/IEA, Paris.
53. (Principal author) Mexico Energy Outlook – World Energy Outlook Special Report, 2016. OECD/IEA, Paris.
54. (Principal author) Energy and Air Pollution – World Energy Outlook Special Report, 2016. OECD/IEA, Paris.
55. (Contributing author) Energy and Climate Change - World Energy Outlook Special Briefing for COP 21.
56. **Jewell, J., McCollum, D., Krey, V., Riahi, K., Berger, L., Bertram, C., Daly, H., Fais, B., Gernaat, D., Emmerling, J., Paroussos, L., Saveyn, B., van Vuuren, D.** (2016) Improving the representation of existing energy policies (taxes and subsidies) in IAMs. FP7-Cooperation-ENV Collaborative Project No 308329
57. **Daly HE, Duddle PE, Fais B** (2014) The UK TIMES Documentation v1.0. UCL Energy Institute.
58. **Daly HE** (2012) Transport energy demand: Techno-economic modelling and scenarios for Irish climate policy. PhD thesis, University College Cork. Available from <https://cora.ucc.ie/bitstream/handle/10468/1552/Thesis-HD-final-01022013.pdf?sequence=1>
59. **Daly HE, Ó Gallachoir, B.P., Chiodi, A.**, (2012) Meeting Ireland's Greenhouse Gas Targets – Options for Private Cars. Report to National Economic & Social Council Secretariat.

60. **Daly HE**, Ramea K, Chiodi A, Yeh S, Gargiulo M, Ó Gallachóir BP (2012) Modal choice in a TIMES model. Report submitted to IEA-ETSAP, May 2012
61. Patrick, G., Dineen, D., **Daly, H.**, & Ó Gallachóir, B. P. (2012). Improved Modelling of Aviation Energy Use and CO2 Emissions. Working Paper.
62. **Daly, H.**, Dineen, D., Rogan, F., Cahill, C. (2010) Bottom-Up Energy Demand Modelling - LEAP Ireland. In Energy Forecasts for Ireland to 2020, 2010 Report, Sustainable Energy Authority of Ireland, Dublin

Conferences, presentations and keynotes (selected, since 2013)

1. Professorial Inaugural Lecture: "Mapping the Energy Transition: Using energy systems modelling to inform rapid decarbonisation". UCC, Apr 2023
2. IEA-ETSAP workshop speaker, Columbia University, Dec 2022
3. Panellist – Science Foundation Ireland Summit, Nov 2022
4. Invited speaker, Irish Planning Institute webinar, Nov 2022
5. Invited speaker, Irish Society of Actuaries Webinar, Oct 2022
6. Invited speaker, Cork City Council workshop on climate action, Oct 2022
7. Keynote speaker as external expert, Labour Party Conference, Sept 2022
8. Speaker, Irish Climate Summit, May 2022
9. Panellist, Irish Wind Energy Conference, April 2022
10. Keynote lecture, Society of Applied Maths Conference, University of Limerick, Jan 2022
11. Invited presentations, Department of Taoiseach's Climate Research & Modelling Group, Feb-April 2022
12. Panellist, Friends of the Irish Environment webinar. Dec 2021
13. Conference presentation, Integrated Assessment Modelling Consortium, 2021
14. Conference presentation, Modelling for Policy Support – EU Conference presentation – Nov 26th 2021
15. Invited speaker, IIEA webinar on COP26 ([link](#)), Nov 2021
16. Webinar, Engineers Ireland ([link](#)) Nov 2021
17. Keynote speaker to An Taisce AGM, Sept 2021
18. Panellist, EPA Climate Conference ([link](#)), July 2021
19. Invited speaker, ESB Lunch and Learn, 2021
20. Invited colloquium speaker, Maynooth Department of Geography, Feb 2021
21. Invited seminar, Trinity College School of Physics, Feb 2021
22. Invited presentation to International Energy Agency (IEA), Jan 2020
23. Presentation, UCC SDG lunchtime seminar, Nov 2020
24. Panellist in Samhain Podium discussion on climate change, Clonakilty. Nov 2019
25. Panellist to UCC/MaREI "Listen to the Science" debate, Nov 2019
26. Keynote address, Renewable Energy Microgrids for Sustainable Development Symposium, Northwestern University, Apr 2018.
27. High-level speaker, panellist and side event organiser, Global SDG7 Conference, United Nations Economic Commission for Asia and the Pacific, Feb 2018.
28. Invited address, Energy Modelling Platform for Africa (EMP-A) 2018 meeting, United Nations Economic Commission for Africa, Jan 2018.
29. Keynote address, UNESCAP Regional Preparatory Meeting on SDG7 for Asia-Pacific Forum on Sustainable Development. Dec 2017.
30. Keynote address, RES4MED&Africa Advanced Training Course - "Deployment of renewable energy solutions: challenges and opportunities", Nov 2017
31. Keynote address, 9th Annual Meeting of the LCS-RNet in Warwick, UK, September 2017
32. Panellist and panel chair, Sustainable Energy For All Forum, New York, April 2017
33. Invited speaker - Addressing the behavioural gap in energy/economy models: Outcomes of the BE4 Workshop and outlook for the state-of-the-art. In Our Common Future Under Climate Change Conference, Paris, July 2015.
34. Invited speaker & workshop coordinator - How we treat behaviour in energy system optimisation models, in International BE4 Workshop, London, Apr 2015.

35. Invited speaker - Incorporating indirect emissions into a bottom-up partial equilibrium UK TIMES energy system model, in EMInn Workshop: Accounting for life-cycle emissions in analysis of future energy systems, London, Nov 2014.
36. Invited speaker - Low carbon scenario critical issues: Technology pathways for a low-carbon energy transition - critical insights from the energy system model UKTM In WholeSEM Annual Conference 2014. July 2014,
37. Invited speaker, WholeSEM/DECC stakeholder workshop, Whitehall, London, UK, March 2014
38. Workshop presentation - Transport energy modelling. In Modelling on the Move 6: Cycling & Transport Modelling, Westminster University, UK, Jan 2014
39. Workshop presentation - Transport infrastructure and travel demand in energy system models, in Enhancing the state of transport modelling in IAMS, Expert Workshop. IIASA Austria, Nov 2013.
40. Workshop presentation - Modelling indirect emissions within UK TIMES, in 63rd Semi-annual ETSAP meeting, International Energy Agency, Paris, June 2013.