

Dr. Hannah E. Daly

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Professional summary

Lecturer (above the merit bar) in Sustainable Energy Systems at University College Cork. Leads active and high-profile research within the MaREI Centre which is at the “science-policy interface”, informing sustainable and least-cost climate mitigation pathways, nationally and globally. Member of the Irish Climate Change Advisory Council’s Carbon Budgets Committee and advisor on climate and energy policy to policymakers, industry, and the media. Writes “In a Time of Climate Crisis” column for the Irish Times. A passionate, engaged, and innovative educator, currently supervising five Ph.D. students, coordinating and delivering four modules, and winner of the 2021 UCC President’s Award for Excellence in Teaching.

Education

2009 – 2012	University College Cork	Doctor of Philosophy (Ph.D.), funded by the 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 2:1 result
2007 – 2008	University of California, Santa Cruz	University of California Scholarship

Professional Appointments

2019 – present	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. Lead developer of UK-TIMES Model

Periods of maternity leave:

November 2015 – April 2016

August 2018 – July 2019

Research

Research profile

I lead a team of postgraduate and post-doctorate researchers who focus on modelling sustainable energy transitions for Ireland. I lead the development and application of the [TIMES-Ireland Model \(TIM\)](#) which supports national policy and dialogue related to energy systems mitigation pathways. As part of this, I engage and collaborate with state and research bodies, including SEAI, ESRI, TII, Dept. of an Taoiseach, DECC, DAFM, and DTTAS, and a network of national and global climate mitigation modellers.

Active research projects

Project	Funder	Description	Funding	Role	Period
PhD award – Ankia Gaur	MaREI, SFI	Modelling sustainable energy transitions for Ireland: Capturing technological, economic and social realities.	€140k	PI	2020-24
Carbon Budget Research Fellowship	Climate Change Advisory Council/EPA & MaREI	Modelling Ireland's path to a net-zero energy system: Informing carbon budgets to 2050.	€215k	PI	2021-23
5YAR - Academic leader – chapter lead	EPA	5 Year Assessment Report on Climate Change - Volume 4: Realising the benefits of transition and transformation	€209k	PI	2021-23
CAPACITY (Climate Action Pathways & Absorptive Capacity)	Department of Communications, Climate Action and Environment	Energy modelling services to the Technical Research and Modelling (TRAM) group – scenario analyses using TIMES, PLEXOS and LEAP. Support in developing national policy and negotiating targets with EC.	€2.35m	Co-I	2018-22

Past funding

- National Economic and Social Council (NESC) research services agreement, Scoping Report outlining on 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.
- 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. Project coordinator: Mark Howells, KTH Royal Institute of Technology. I wrote the UCL contribution to WP3 on the role of behaviour in mitigation pathways, which forms a substantial basis for the current work of the consortium.
- Convened International BE4 Workshop on Behaviour within Energy/Engineering/Economics/Environmental Models, April 2015. Awarded €24k funding from IEA-ETSAP
- Awarded €7k funding from IEA-ETSAP for collaboration between UCC, UC Davis (USA) and E4sma (Italy): Introducing modal shifting in TIMES, January – June 2012 (lead author).
- Irish Research Council for Science, Engineering and Technology EMBARK PhD scholarship, 2009 – 2012, €72k.

Pedagogical profile

Research supervision

- PhD supervisor:
 - Xuebing Wang, UCL. *The Impacts to the International Aviation Industry by including it to the EU-ETS*. Graduated 2019.
 - 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 – 2023 (expected)
 - Daniel Padrone, UCC. 2020 – 24 (expected)
 - Vahid Aryanpur, UCC. 2019-22 (expected)
- Masters research supervision
 - Primary supervisor to MEngSc and MSc research dissertations of seven students to completion at UCL and UCC.
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Current undergraduate and postgraduate lecturing

- NE3003 (Sustainable Energy, UCC), and NE5003 module coordinator (since 2019)
 - Interdisciplinary module focussed on energy and sustainable climate mitigation, covering climate policy, air pollution, energy access and climate mitigation.
 - Delivered to >140 postgraduate and undergraduate students from mixture of programmes.
- NE1001 (Introduction to Energy Engineering, UCC), module coordinator (since 2019)
 - Cohort of 150 first year engineering students;
 - Introduced new group project in 2019, design and build desktop wind turbines from upcycled materials, funded by €10k donation from Statkraft (video [here](#));
 - Introduced new assessment – conduct a BER assessment on their own homes;
 - Contributed to increasing the number of first year students choosing the energy engineering pathway from 1 in 2018 to 15 in 2019.
- NE4001 (Energy Systems Modelling, UCC), module coordinator (since 2019)
 - Introduces energy systems modelling techniques.

Past lecturing:

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

Contribution & Outreach

Contribution to University and academic community

- Chair of UCC School of Engineering Outreach Committee.
- 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
- Member of editorial boards of *Renewable and Sustainable Energy Transition* and *Energies* journals.
- Peer reviewer for journals including *Nature Climate Change*, *Climate Policy*, *Applied Energy*, *Sustainability*; external reviewer from grant award bodies.
- PhD viva external examiner for KTH, Sweden
- Auditor of the UCC Mathsoc in 2005-06, running the Irish Mathematics Student Conference in 2006 and winning *Bene Merenti* and *Society of the Year* awards.

Science-policy interface and public outreach

- Member of Climate Change Advisory Council Carbon Budgets Committee.
- Member of National Economic & Social Council (NESC) working group on Agriculture and Climate
- Member Community Foundation for Ireland's Advisory Committee on Climate & Biodiversity
- Advisory board of Linte na Farraige (Creative Climate Action), National Land Use Evidence Review (GMIT, EPA), DIAMOND (H2020 proposal).
- Frequent engagement with policymakers (both politicians and senior civil servants) on climate mitigation policy across many Irish government departments,
- Invited to give expert testimony by Joint Oireachtas Committee on Climate Action three times in 2020 and 2021.
- Irish Times columnist and frequent [op-eds](#) in leading national newspapers and [media interviews](#).

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

Peer-reviewed articles in international journals

1. Balyk, O., ... **Daly, H.**: TIM: Modelling pathways to meet Ireland's long-term energy system challenges with the TIMES-Ireland Model (v1.0), *Geoscientific Model Development* [Accepted with minor edits], <https://doi.org/10.5194/gmd-2021-359>
2. Gaur, A., ..**Daly, H.**: Low energy demand scenario for feasible deep decarbonisation: Whole energy systems modelling for Ireland. *Energy Strategy Reviews* [Accepted with minor edits].
3. McGuire, J., ... **Daly, H.**: Developing decarbonisation pathways in changing TIMES for Irish homes. *Energy & Buildings* [Accepted for publication subject to edits]
4. Hollands, A., **Daly, H.**: Modelling the integrated achievement of clean cooking access and climate mitigation goals: An energy systems optimization approach. *Renewable & Sustainable Energy Reviews* [Accepted subject to edits]
5. Aryanpur, V., .. **Daly, H.**, ...: 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.**: Impact of an Emissions-based Car Tax Policy on CO2 Emissions and Tax Revenue of Private Cars in Ireland. *International Journal of Sustainable Transportation* [Accepted for publication subject to edits]
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.
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) ([link](#))
46. (Contributing author): Long Term Strategy – A Net Zero Energy System for Ireland in 2050, 2019. Submitted to DCCAE November 15th 2019.
47. Daly H, Deane JP (2020) Emissions and energy system implications of increasing the ambition on the 70% RES-E target – MaREI Policy Brief [[pdf download link](#)]
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. OECD/IEA, Paris.
53. (Principal author) World Energy Outlook, 2016. OECD/IEA, Paris.
54. (Principal author) Mexico Energy Outlook – World Energy Outlook Special Report, 2016. OECD/IEA, Paris.

55. (Principal author) Energy and Air Pollution – World Energy Outlook Special Report, 2016. OECD/IEA, Paris.
56. (Contributing author) Energy and Climate Change - World Energy Outlook Special Briefing for COP 21.
57. 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
58. **Daly HE**, Doddle PE, Fais B (2014) The UK TIMES Documentation v1.0. UCL Energy Institute.
59. **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>
60. **Daly HE**, Ó Gallachóir, B.P., Chiodi, A., (2012) Meeting Ireland's Greenhouse Gas Targets – Options for Private Cars. Report to National Economic & Social Council Secretariat.
61. **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
62. Patrick, G., Dineen, D., **Daly, H.**, & Ó Gallachóir, B. P. (2012). Improved Modelling of Aviation Energy Use and CO2 Emissions. Working Paper.
63. **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

Conference presentations and keynotes (selected, since 2013)

1. Speaker – Irish Climate Summit, May 2022
2. Panelist – Irish Wind Energy Conference, April 2022
3. Keynote lecture to Society of Applied Maths Conference, University of Limerick, Jan 21st 2022
4. Invited presentations to Department of Taoiseach's Climate Research & Modelling Group, Feb-April 2022
5. Panelist on Friends of the Irish Environment webinar. Dec 13th 2021
6. International Assessment Modelling Consortium conference presentation, Dec 1st 2021
7. Modelling for Policy Support – EU Conference presentation – Nov 26th 2021
8. Invited speaker to IIEA webinar on COP26 ([link](#)), November 18th 2021
9. Webinar to Engineers Ireland ([link](#)) November 3rd 2021
10. Keynote speaker to An Taisce AGM, September 25th 2021
11. Panellist at EPA Climate Conference ([link](#)), July 9th 2021
12. Invited speaker, ESB Lunch and Learn
13. Invited colloquium, Maynooth Department of Geography, "Meeting Ireland's Climate Mitigation Challenge", 25/2/2021
14. Invited seminar, Trinity College School of Physics, "Energy systems Modelling to Inform National Mitigation Targets", 18/2/2021
15. "Multi-modelling approaches to energy systems analysis" – invited presentation to International Energy Agency, 24/1/2020
16. "Achieving Energy Access for All" - - presentation to UCC SDG lunchtime seminar, 5/11/2020
17. "Delivering on SDG7" – presentation to UCC Environmental Research Institute, 21/2/2020
18. Panellist in Samhain Podium discussion on climate change, Clonakilty. 2/11/2019
19. Invited panellist to UCC/MaREI "Listen to the Science" debate, 11/11/2019
20. Keynote address, Renewable Energy Microgrids for Sustainable Development Symposium, Northwestern University, April 2018.
21. High-level speaker, panellist and side event organiser, Global SDG7 Conference, United Nations Economic Commission for Asia and the Pacific, February 2018.
22. Invited address, Energy Modelling Platform for Africa (EMP-A) 2018 meeting, United Nations Economic Commission for Africa, January 2018.
23. Keynote address, UNESCAP Regional Preparatory Meeting on SDG7 for Asia-Pacific Forum on Sustainable Development. December 2017.
24. Keynote address, RES4MED&Africa Advanced Training Course, November 2017 - "Deployment of renewable energy solutions: challenges and opportunities"

25. Keynote address, 9th Annual Meeting of the LCS-RNet in Warwick, UK, September 2017
26. Panelist and panel chair, Sustainable Energy For All Forum, New York, April 2017
27. 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, 7th July 2015.
28. Invited speaker & workshop coordinator - How we treat behaviour in energy system optimisation models, in International BE4 Workshop, London, April 20th 2015.
29. 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, November 13th 2014.
30. 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 - Modelling Long-term UK Energy Futures: Challenges and Competing Objectives. July 8th 2014, London, UK.
31. Invited speaker - TIMES Energy Systems Models, in WholeSEM/DECC stakeholder workshop, Whitehall, London, UK, March 6th 2014
32. Invited speaker - Transport energy modeling. In Modelling on the Move 6: Cycling & Transport Modelling, Westminster University, UK, January 22nd 2014
33. Invited speaker - Transport infrastructure and travel demand in energy system models, in Enhancing the state of transport modelling in IAMS, Expert Workshop. IIASA Austria, November 19th 2013.
34. Invited speaker - Modelling indirect emissions within UK TIMES, in 63rd Semi-annual ETSAP meeting, International Energy Agency, Paris, June 18th 2013.