

Dr. Andrew Pascale

Overview:



Andrew Pascale is an experienced research and technical specialist in high resolution energy transitions. He was a key researcher on Princeton University's highly influential Net-Zero America study and subsequently on the multi-institution Net-Zero Australia study as part of the team from the University of Queensland. His contributions to these landmark studies focused on the acquisition and organization of datasets to run the suite of macroscale energy systems models; the interpretation and assessment of model results; the high resolution downscaling of transitions to individual asset siting across all sectors; the techno-economic analysis of industrial decarbonization technological solutions, and the analysis of key challenges such as impacts on environmental values such as biodiversity and vulnerable species.

In 2018 Andrew earned a PhD from the University of Queensland. His PhD refined standard presentations of energy use/carbon dioxide emissions and human welfare relationships to expose intra-country inequalities and allow compelling global challenges connected with the vision of a world characterized by universal high human development and minimal global warming to be framed for individuals rather than nations. The analysis of large household datasets from India formed a key portion of his PhD research.

In 2018 Andrew also led the technical design and installation of a 3.4 kW solar PV system powering a sewing workshop in a remote village in rural Thailand. Andrew's experiences in humanitarian engineering started in Alaska in 1998 and since then have included collaborations with a number of organizations in the execution of small-scale clean energy projects in Southeast Asia.

Contact Details:

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LinkedIn: <https://www.linkedin.com/in/acpascale/>

Education:

2014 – 2018 Doctor of Philosophy
School of Chemical Engineering
University of Queensland (UQ), Brisbane, Australia
Supervisors: Prof C. Greig, Dr. S. Smart, Prof P. Lant
Thesis: *The links between energy and human welfare*

2008 – 2010 Master of Science in Renewable Energy
Murdoch University, Perth, Australia
Supervisors: Dr. T. Urmee, A. D. Moore
Thesis: *Life cycle analysis of a community hydroelectric system in rural Thailand*

1993 – 1998 Bachelor of Science, Electrical Engineering and Bachelor of Arts, History
University of Notre Dame, Indiana, USA

Work Experience:

2022 – 23 Senior Research Consultant (project consultant)
Andlinger Center for Energy and the Environment

Princeton University, NJ

Net-Zero Thailand

- Document geospatially resolved resource assessments for Thailand
- Stakeholder engagement - Government agencies, local universities, industry
- Drafting report and editing Net-Zero Thailand proposal

2021 – 23

Senior Research Fellow

Dow Centre for Sustainable Engineering Innovation

School of Chemical Engineering

University of Queensland, Brisbane, Australia

Net Zero Australia - <https://www.netzeroaustralia.net.au/>

- Led data acquisition, scripted processing and GIS downscaling work to do with variable renewables, electricity transmission, CCUS industry and networks, hydrogen industry and networks
- Supported collaborating researchers at UQ, The University of Melbourne, Princeton and the Nous Group in data collection, scripted processing, and GIS downscaling of other modelled sectors
- Wrote [relevant report sections](#), prepared [public data](#) and [maps data](#)

2020 – 21

Technical Specialist (project consultant)

Montara Mountain Energy LLC, Pacifica, CA

Conduct variable renewable and transmission GIS modelling for:

- Princeton's ZeroLab (the [REPEAT project](#))
- The States of Oregon and California
- The Nature Conservancy ([Power of Place West](#))

2019 –21

Postdoctoral Research Associate

Andlinger Center for Energy and the Environment

Princeton University

Net-Zero America - <https://netzeroamerica.princeton.edu/>

- Data acquisition, scripted processing and GIS downscaling for variable renewables, electricity transmission, CCUS industry and networks, iron and steel and cement industries
- Supported collaborating researchers at Princeton in data collection, scripted processing, and GIS downscaling of other modelled sectors
- Wrote [relevant report sections](#), prepared [public data](#) and [maps data](#)

2018 – 19

Research Associate (casual researcher)

Dow Centre for Sustainable Engineering Innovation

School of Chemical Engineering

University of Queensland, Brisbane, Australia

- Prepare an internal brief on the handling of energy data in multi-regional input output tables (Rapid Switch)
- Research Integrated Assessment Model results in global low carbon energy transition scenarios (Rapid Switch)
- Thematic analysis of 23 semi-structured interviews on energy literacy, and author a portion of project report (Energy Literacy)

2018

Technical Specialist (project consultant)

Energy & Extractives – Sector

World Bank, Washington, DC

- Research and report on mini-grids in Australia's Northern Territory
 - Development and analysis of a database covering global mini grids
- 2017 – 18 Lead Technical Engineer (project consultant)
Solbakken – subcontractor to Électricité de France & Engineers w/o Borders
Mae Sot, Thailand
- Design and install two off-grid solar PV systems in rural Thailand
 - Build capacity of local staff to design/install/maintain/repair systems
- 2011 – 12 Technical Specialist (project consultant)
PE Australasia, PE International AG
Leinfelden-Echterdingen, Germany
- Techno-economic research and modelling for a hydrogen infrastructure project in Western Australia using GaBi Life cycle impact assessment software;
- 2010 – 12 Technical Specialist
VSO Thailand/Myanmar, VSO International
Kingston-Upon-Thames, United Kingdom
- Liaise with and facilitate interaction, agreement, and collaboration between ten diverse ethnic environmental organizations and various local, national and international donors and institutions
 - Collaborate with local communities in Burma and Thailand to design, cost, fund, source and install small renewable energy systems
 - Build organizational capacity to research, write and publish advocacy pieces on Burma's environment, sustainable development and human rights
- 2005 – 08 Project Manager/Engineer (project consultant)
Border Green Energy Team (BGET)
Mae Sot, Tak, Thailand
- Surveying, equipment sourcing and procurement and site installation for rural community scale micro-hydro electrification systems
 - The annual equipping, maintaining and training of medics to outfit remote medical clinics in rural Burma with solar electrification systems
 - The curriculum design and instruction of local government technicians tasked with maintaining and repairing solar PV home systems
 - Built capacity of local BGET staff to design/install/maintain/repair systems
- 2003 – 07 System Technician, Crew Leader (independent contractor)
PVI Virtual Media Services (formerly Princeton Video Image)
Lawrenceville, NJ
- Managed, troubleshoot and operated technology that inserted virtual advertisements and enhancements into nationally and globally televised broadcasts (US, Canada, Mexico, Japan, Singapore)
- 2002 – 03 Graduate Assistant (casual researcher)
Department of Mechanical Engineering
University of Alaska Fairbanks
- Developed an automated data infrastructure based on LabVIEW/FieldPoint, HTML, C, Perl to be deployed remotely in Alaska (diesel) village mini grids, maintained from a central location (UAF), and accessed remotely
- 1999 – 2002 System Technician/Operator; Software Engineer

Princeton Video Image

Lawrenceville, NJ

- Maintained and wrote code to ensure a reliable data stream from remote computers (interfaced with television broadcast cameras) to virtual advertisement insertion software
- Characterized television broadcast camera lenses for use with virtual advertisement insertion system
- Operated and troubleshoot technology that inserted virtual advertisements and enhancements into nationally and globally televised broadcasts (US, Canada, Mexico)

1998 – 99

Americorps VISTA

Department of Energy and Housing

Alaska Cooperative Extension

University of Alaska Fairbanks, Fairbanks AK

- Liaised with and delivered centralised and remote energy and building efficiency related program design, training and support for the Rural Alaska Community Action Program workers

Teaching and Other Academic Pursuits:

2023

Assistant Instructor

University of Queensland

Humanitarian Engineering

Course Level: Undergraduate

Instructors: Sharma, Vigya; Tran, Anh

2018

Project sandbox development and delivery

University of Queensland

Engineering Innovation and Leadership

Course Level: Graduate

Instructors: Heynen, Tony; Smart, Simon

Student/Postdoctoral Supervision:

2023

Master of Sustainable Energy

University of Queensland

Graduate Examination Activities:

2022

Candidacy Committee Member

University of Queensland

Journal Review Activities:

2012 – 2023

Energy Research & Social Science, Elsevier

Carbon Management, Taylor & Francis

Renewable Energy, Elsevier

The International Journal of Life Cycle Assessment, Springer

IEEE Access, IEEE

Journal of Ecology & the Natural Environment, Academic Journals

Entrepreneurship:

2021 Co-founder
FutureCook
2022 iLab Accelerator Program at The University of Queensland

International Collaboration Activities:

2022 – 2023 Energy Sector Lead, MAPSTA, Australia
UQ International Development, University of Queensland
Department of Foreign Affairs and Trade, Australian Government

2015 Endeavour Fellowship
Energy and Poverty Research Group, University of Queensland
The Border Consortium, Bangkok Thailand
Department of Education, Australian Government

Presentations:

2020 - 2023 Annual Guest Lecture:
Reflections on the technical aspects of energy focused fieldwork.
Humanitarian Engineering (ENGG2000)
The University of Queensland, Australia

2022 – 2023 Guest Lecture:
Energy use / CO2 emissions and human development
Energy and Development (ENGY7002)
University of Queensland, Australia

2023 Guest Presentation:
Net-zero and the climate change challenge
Mekong Australia Partnership (MAPSTA) Short Course #1,
Responding to the Climate Change Challenge
University of Queensland, Australia

2022 Guest Presentation:
Getting to Net Zero – Case Studies from the US and Australia
ENTEC, Thailand

2019 Poster Presentation:
Decoupling human development and emissions.
Rapid Switch Workshop, Princeton University, NJ, USA

2014 Poster Presentation:
Conceptualising Complexity: The energy access, climate and population challenge
5th international symposium
The role of research universities in addressing global challenges
Washington University, St Louis, MO, USA

Publications:

Peer Reviewed Journal Articles:

1. Grace C Wu, Ryan A Jones, Emily Leslie, James H Williams, **Andrew Pascale**, Erica Brand, Sophie S Parker, Brian S Cohen, Joseph E Fargione, Julia Souder, Maya Batres, Mary G Gleason, Michael H Schindel, Charlotte K Stanley. (2023). Minimizing habitat conflicts in meeting net-zero energy targets in

the western United States. Proceedings of the National Academy of Sciences. 120(4).

<http://dx.doi.org/10.1073/pnas.2204098120>

2. **Pascale, A.**, Chakravarty, S., Lant, P., Smart, S., Greig, C. (2022). Can transitioning to non-renewable modern energy decrease carbon dioxide emissions in India? Energy Research & Social Science. 91(September). <http://dx.doi.org/10.1016/j.erss.2022.102733>
3. **Pascale, A.**, Chakravarty, S., Lant, P., Smart, S., Greig, C. (2020). The rise of (sub)nations? Sub-national human development, climate targets, and carbon dioxide emissions in 163 countries. Energy Research & Social Science. 68. <http://dx.doi.org/10.1016/j.erss.2020.101546>
4. Rekker, Saphira AC, O'Brien, Katherine R, Humphrey, Jacquelyn E, and **Pascale, Andrew C.** (2018). Comparing extraction rates of fossil fuel producers against global climate goals. Nature Climate Change. 8(6): 489. <http://dx.doi.org/10.1038/s41558-018-0158-1>
5. **Pascale, Andrew** and Urmee, Tania and Whale, Jonathan and Kumar, S. (2016). Examining the potential for developing women-led solar PV enterprises in rural Myanmar. Renewable and Sustainable Energy Reviews. 57: 576–583. <http://dx.doi.org/10.1016/j.rser.2015.12.077>
6. **Pascale, Andrew** and Urmee, Tania and Moore, Andrew. (2011). Life cycle assessment of a community hydroelectric power system in rural Thailand. Renewable Energy. 36(11): 2799–2808. <http://dx.doi.org/10.1016/j.renene.2011.04.023>

Book Chapters:

Pascale, A.; Urmee, T.; Moore, A. (2015). Case study: Life cycle analysis of a community hydroelectric power system in rural Thailand. J. Bull. Life Cycle Costing for the Analysis, Management and Maintenance of Civil Engineering Infrastructure. Whittles Publishing.

Thesis/Dissertation:

1. **Pascale, A.** (2018). The links between energy and human welfare. The University of Queensland. Doctorate. <https://doi.org/10.14264/uql.2018.471>
2. **Pascale, A.** (2010). Life cycle analysis of a community hydroelectric system in rural Thailand. (2010). Murdoch University. Master's. <https://researchportal.murdoch.edu.au/esploro/outputs/991005543178707891>

Reports:

1. Davis, D, **Pascale, A.**, Vecchi, A, Bharadwaj, B, Jones, R, Strawhorn, T, Tabatabaei, M, Lopez Peralta, M, Zhang, Y, Beiraghi, J, Kiri, U, Vossage, Finch, B, Batterham, R, Bolt, R, Brear, M, Cullen, B, Domansky, K, Eckard, R, Greig, C, Keenan, R, Smart, S (2023), 'Modelling Summary Report', Net Zero Australia, ISBN 978 0 7340 5704 4, <https://www.netzeroaustralia.net.au/>
2. E. Larson, C. Greig, J. Jenkins, E. Mayfield, **A. Pascale**, C. Zhang, J. Drossman, R. Williams, S. Pacala, R. Socolow, EJ Baik, R. Birdsey, R. Duke, R. Jones, B. Haley, E. Leslie, K. Paustian, and A. Swan. (2021). Net-Zero America: Potential Pathways, Infrastructure, and Impacts, Final Report. Princeton University, <https://netzeroamerica.princeton.edu/the-report>
3. Sue Hogan, **Andrew Pascale**, Audrey Cetois & Peta Ashworth. (2019). Building Australia's Energy Literacy. University of Queensland, <https://energy.uq.edu.au/files/4663/NERA%20Energy%20Literacy%20Report%20Final.pdf>

Working Papers:

1. **Pascale, A.**, Chakravarty, S., Lant, P., Smart, S., Greig, C. (2017). Surprises Up the Energy Ladder. <http://dx.doi.org/10.2139/ssrn.2943850>

Conference Publications:

1. Ruth Devadoss, **Andrew Pascale**, Su Hlaing Chein, Zam Deih Khual Pi, Ja Bauk, Mary Kaw Lum and David Allan. (2021, August). Fuel transitioning in crises: A study of an LPG cooking-system pilot project conducted in Kachin IDP camps, Myanmar. Mastering Energy Supply focusing on Isolated Areas (MESFIA 2021), p20-29. Asian Institute of Technology (AIT), Thailand. [Conference Proceedings](#).
2. Pascale, A.; Chakravarty, S.; Lant, P.; Smart, S.; and Greig, C. (2017, July) Surprises up the energy ladder. International Energy Workshop 2017, University of Maryland, College Park, MD, USA. [ResearchGate](#).
3. Pascale, A and Whale, J and Doepel, D. (2009, October). A review of the current status of Small Wind Western Australia and effectiveness of relevant State and Federal policy. Solar09, the 47th ANZSES Annual Conference, Townsville, QLD, Australia. [Murdoch University Research Portal](#).

Community Engagement:

2021 – 22	Patrol member (Bronze Medallion), Surf Life Saving , North Burleigh SLSC, QLD Australia
2020 – 21	Puppy Raiser (Guide Dog Trey), Guide Dogs Queensland , Bald Hills, QLD Australia
2017 – 18	Volunteer, Multicultural Australia , Woolloongabba, QLD, Australia
2014 – 16	Rural Fire Service Volunteer Fire Fighter, Samsonvale Rural Fire Brigade, QLD Australia