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Dr. Andrew Pascale

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Dr. Andrew Pascale

Degrees

2014/4 - 2018/6	Doctorate, Doctor of Philosophy, School of Chemical Engineering, University of Queensland Degree Status: Completed Thesis Title: The links between energy and human welfare Supervisors: Professor Chris Greig, 2014/4 - 2018/6; Dr. Simon Smart, 2014/4 - 2018/6; Professor Paul Lant, 2014/4 - 2018/6 Research Disciplines: Water and Environment, Economics, Sociology Areas of Research: Energy Networks and Distribution, Climate Changes and Impacts, Biomass (Energy) Fields of Application: Energy, Environment, Natural Resources
2008/2 - 2010/9	Master's non-Thesis, Master of Science, Renewable Energy, Murdoch University Degree Status: Completed Thesis Title: Life cycle analysis of a community hydroelectric system in rural Thailand Supervisors: Dr. Tania Urmee, 2008/2 - 2010/9; Andrew D. Moore, 2008/2 - 2010/9 Research Disciplines: Water and Environment Areas of Research: Energy Networks and Distribution, Atmospheric Pollutants Fields of Application: Energy, Environment, Natural Resources
1993/8 - 1998/5	Bachelor's, Bachelor of Arts, History, University of Notre Dame Degree Status: Completed
1993/8 - 1998/5	Bachelor's, Bacheor of Science, Electrical Engineering, University of Notre Dame Degree Status: Completed

Employment

2019/1	Postdoctoral Research Associate Princeton University Full-time Research Disciplines: Water and Environment Areas of Research: Energy Networks and Distribution

2018/6 - 2019/1

Researcher
University of Queensland
Part-time
(Dow Centre for Sustainable Engineering Innovation - Rapid Switch Project) Preparation of an internal brief on the handling of energy data in multi-regional input output tables. Research support on a project comparing Integrated Assessment Model results in global low carbon energy transition scenarios. (School of Chemical Engineering - Building Australia's Energy Literacy) Thematic analysis (manual and Leximancer) of 23 semi-structured interviews on energy literacy, and author a portion of project report. (Energy and Poverty Research Group - Spectrum Sustainable Development Knowledge Network collaboration) Provide technical grant writing, modelling and engineering support for an NGO project aimed at supplying clean cooking technologies (LPG, e-cook) to internally displaced people living in camps in Myanmar.

Research Disciplines: Water and Environment, Sociology

Areas of Research: Economic Planning of Energy, Resources Management, Energy Networks and Distribution, Solar and Wind Energy

Fields of Application: Energy, Environment, Natural Resources

2016/8 - 2018/12

Project Consultant
Solbakken
Part-time
Lead engineer on design, installation and monitoring of two 3.4kW off-grid solar PV systems at a sewing workshop and school in rural Thailand, Solbakken, Mae Sot, Thailand, 2016-ongoing;

Areas of Research: Solar and Wind Energy, Energy Networks and Distribution, Sustainable Development

Fields of Application: Energy, Environment, Natural Resources

2013/7 - 2018/11

Renewable energy and sustainability consultant
Karen Environmental and Social Action Network (KESAN)
Part-time
o o Research Analyst for Alternative Energy Scoping Study (April 2017 – November 2018) o Analyze technical data collected at potential renewable energy project sites in Karen State, Myanmar o With input from head engineer and community representative, select most appropriate renewable energy systems to meet community needs and budget constraints o Design and specify all components for a low head (1kW) pico hydro mini grid serving a community in a remote village in Myanmar (2018) o Analyze and author two reports (confidential) based on community energy surveys collected in villages in Karen State, Myanmar o o Technical consultant on 2016 KESAN publication, Powering up Homes and Communities in Karen and Mon State (confidential) o o Design and source all components for a low head pico hydro mini grid (1kW) serving a remote community in Karen State, Myanmar in 2013

Research Disciplines: Water and Environment

Areas of Research: Solar and Wind Energy, Energy Networks and Distribution

Fields of Application: Energy, Environment, Natural Resources

2018/5 - 2018/6

Project consultant
The World Bank
Part-time
o Supported Dr. Chris Greacen in the rationalization, preparation and analysis of a database covering detailed costs of 53 global mini grids. Helped author a report on the database.

Research Disciplines: Water and Environment

Areas of Research: Energy Networks and Distribution

Fields of Application: Energy

1999/10 - 2012/12

Crew leader/Senior operator/Field engineer
Operations, PVI Virtual Media Services (bought by ESPN)
Part-time
o Managed on-site technical operations including interface with broadcasters, production crew, technical crew and stadium representatives. o Transported, troubleshot, and operated technology that inserted virtual advertisements and enhancements into nationally and globally televised broadcasts.

2010/9 - 2012/8

Renewable Energy and Sustainable Development Facilitator, Burma Environmental Working Group
Thailand/Myanmar, Voluntary Service Oversees (VSO)
Full-time
o Liaise with and facilitate interaction, agreement, and collaboration between ten diverse ethnic environmental organizations and various local, national and international donors and institutions. o Collaborate with local communities in Burma and Thailand to design, cost, fund, source and install small renewable energy systems. Manage projects within geographical constraints. o Build organizational capacity to research, write and publish advocacy pieces on Burma's environment, sustainable development and human rights. Included web design and computer network and system troubleshooting.

Research Disciplines: Water and Environment

Areas of Research: Sustainable Development, Energy Networks and Distribution

Fields of Application: Environment, Education, Energy

2011/5 - 2012/7

Life Cycle Analysis Consultant
PE Australasia
Part-time
Life cycle analyst on a hydrogen infrastructure project in Western Australia.

Research Disciplines: Water and Environment

Areas of Research: Energy Storage, Hydrogen Technologies

2008/11 - 2010/6

Research assistant and unit marker
Murdoch University
Part-time
o Assisted Dr. Jonathan Whale in collaborating with the WA Local Government Association(WALGA) and researching on urban wind policy and implementation in WA. o
o Marker for Energy Systems and Energy Management units

2005/8 - 2008/2	Project consultant/volunteer Border Green Energy Team (BGET) Part-time o Project management team for three rural community scale micro-hydro electrification systems. Included surveying, equipment sourcing and procurement and site installation. o Part of project management team for the annual equipping, maintaining and training of medics to outfit remote medical clinics in rural Burma with solar electrification systems. o Designed, wrote curriculum for and instructed at eight trainings Thai Solar Home System local government training Research Disciplines: Water and Environment Areas of Research: Solar and Wind Energy, Biomass (Energy), Sustainable Development Fields of Application: Energy
2002/8 - 2003/5	Graduate assistant to Professor Ron Johnson University of Alaska Full-time o Developed an automated data infrastructure based on LabVIEW/FieldPoint, HTML, C, Perl to be deployed remotely in remote Alaska(diesel) village mini grids, maintained from a central location (UAF), and accessed globally. Research Disciplines: Mechanical Engineering Areas of Research: Energy Networks and Distribution
1998/9 - 1999/8	Volunteer Americorps VISTA – Department of Energy and Housing University of Alaska Full-time o Liaised with and provided energy and conservation related program design, training and support for the Rural Alaska Community Action Program (RurAL CAP). Research Disciplines: Water and Environment Areas of Research: Buildings

Journal Review Activities

2019/1 - 2019/2	Reviewer,The International Journal of Life Cycle Assessment Number of Works Reviewed / Refereed: 1
2016/5 - 2016/5	Reviewer,IEEE Access,Scholarone Manuscripts Number of Works Reviewed / Refereed: 1
2012/5 - 2012/5	Reviewer,Journal of Ecology and the Natural Environment,Academic Journals Number of Works Reviewed / Refereed: 1

Publications

Journal Articles

1. Rekker, Saphira AC and O'Brien, Katherine R and 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.
Co-Author, Nature Publishing Group,
Refereed?: Yes
Number of Contributors: 4
Contribution Percentage: 11-20
Description / Contribution Value: Meeting global and national climate goals requires action and cooperation from a multitude of actors. Current methods to define greenhouse gas emission targets for companies fail to acknowledge the unique influence of fossil fuel producers: combustion of reported fossil fuel reserves has the potential to push global warming above 2 °C by 2050, regardless of other efforts to mitigate climate change3. Here, we introduce a method to compare the extraction rates of individual fossil fuel producers against global climate targets, using two different approaches to quantify a burnable fossil fuel allowance (BFFA). BFFAs are calculated and compared with cumulative extraction since 2010 for the world’s ten largest investor-owned companies and ten largest state-owned entities (SOEs), for oil and for gas, which together account for the majority of global oil and gas reserves and production. The results are strongly influenced by how BFFAs are quantified; allocating based on reserves...

2. 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.
First Listed Author, Pergamon,
Refereed?: Yes
Number of Contributors: 4
Contribution Percentage: 81-90
Description / Contribution Value: Access to electricity is limited in rural areas of Myanmar, where the majority of the population live. Myanmar#s rich solar resource and the recent price drop in solar PV modules indicate initial suitability for rural solar electrification systems to meet the electricity demand. In many parts of Myanmar, women are responsible for supporting the family financially. The ability of rural women in Myanmar to take advantage of solar PV powered services to improve their lives depends on concurrent progress towards addressing the many dimensions of gender equality – empowerment, health, education, opportunity, voice, representation, and livelihood-in rural locations. This paper examines the barriers of solar PV applications and the potential for women led solar PV enterprise development in rural Myanmar. Although the entrepreneurial process is the same for men and women in theory, in practice different factors e.g. social …

3. 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.
First Listed Author, Pergamon,
Refereed?: Yes
Number of Contributors: 3
Contribution Percentage: 81-90
Description / Contribution Value: This study iteratively applies life cycle assessment (LCA) to a three kilowatt community hydroelectric system located in Huai Kra Thing (HKT) village in rural Thailand. The cradle to grave analysis models the hydropower scheme's construction, operation and end of life phases over a period of twenty years and includes all relevant equipment, materials and transportation. This study asks whether the HKT hydroelectric power system has the fewest environmental negatives of equivalent electrification options for the village over its 20 year life span. The study results in the enumeration of the environmental credentials of the HKT hydropower system and highlights the need to place environmental performance, and LCA itself, in a proper context. Credentials are established though comparison with rural electrification alternatives and sensitivity analyses. In the broadest sense, LCA results for the HKT hydropower system are in line with a common trend reported in hydropower LCA literature, ...

Book Chapters

1. 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.
Published, Whittles Publishing,
Contribution Percentage: 91-100

Thesis/Dissertation

1. The links between energy and human welfare. (2018). University of Queensland. Doctorate.
Number of Pages: 338 Supervisor: Professor Paul Lant, Professor Chris Greig, Dr. Simon Smart
Contribution Percentage: 91-100
Description / Contribution Value: This PhD thesis explores the connections between income inequality, energy use and humanwelfare. My primary research motivation arises from a desire to improve human welfare throughmore sustainable and healthier use of energy. The goal is to achieve greater human benefits byreducing the use of fossil fuel and non-renewable biomass resources, which would also reducethe associated emission of greenhouse gases (GHG) and pollutants. This work seeks to developan improved framework for understanding the links between energy use and human welfare, inorder to identify energy development pathways to significantly and equitably improve humanwelfare - especially for people living in poverty.Three approaches to the research support a refinement of standard presentations of energyuse/GHG emissions and human welfare relationships. First, the thesis adopts a global approachwhich pushes beyond traditional inter-country comparisons of the relationships between energyuse, GHG emissions ...

2. Life cycle analysis of a community hydroelectric system in rural Thailand. (2010). Murdoch University. Master's Thesis.
Number of Pages: 164 Supervisor: Andrew D. Moore and Dr. Tania Urmee
Contribution Percentage: 91-100
Description / Contribution Value: This study iteratively applies life cycle assessment (LCA) to a three kilowatt community hydroelectric system located in Huai Kra Thing (HKT) village in rural Thailand. The cradle to grave analysis models the hydropower scheme's construction, operation and end of life phases over a period of twenty years and includes all relevant equipment, materials and transportation. This study asks whether the HKT hydroelectric power system has the fewest environmental negatives of equivalent electrification options for the village over its 20 year life span. The study results in the enumeration of the environmental credentials of the HKT hydropower system and highlights the need to place environmental performance, and LCA itself, in a proper context. Credentials are established though comparison with rural electrification alternatives and sensitivity analyses. In the broadest sense, LCA results for the HKT hydropower system are in line with a common trend reported in hydropower LCA literature...

Working Papers

1. First Listed Author. (Pascale, A., Chakravarty, S., Lant, P., Smart, S., Greig, C.). (2017). Surprises Up the Energy Ladder. : 80.
Number of Contributors: 5
Contribution Percentage: 81-90
Description / Contribution Value: Traditional discussions of the relationships between energy, CO2 emissions and human development capture between-country differences, but fail to expose within-country energy and CO2 emissions inequality. Household survey data offers researchers a window through which to better understand the unequal distribution of energy use and the Human Development Index (HDI) at a sub-national level. This study uses India Human Development Survey (IHDS) data to generate household consumption and emissions distributions for India in both 2005 and 2012, and consults the EORA global multi-regional input output database for sectoral intensities of India's economy. The analysis uses HDI 2015 methodology. Results indicate that non-solid fuel use patterns have changed little across India's income deciles between 2005 and 2012; that total direct household energy use emissions (including non-commercial biomass but not including direct transport emissions)...

Conference Publications

1. Pascale, A.; Chakravarty, S.; Lant, P.; Smart, S.; and Greig, C. Surprises up the energy ladder. International Energy Workshop 2017, University of Maryland, College Park, MD, United States, Conference Date: 2017/7
Paper
Contribution Percentage: 81-90

2. Pascale, A and Whale, J and Doepel, D. (2009). 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, ,
Conference Date: 2009/10
Paper
Refereed?: Yes
Number of Contributors: 3
Contribution Percentage: 71-80
Description / Contribution Value: This paper reviews results from recent surveys on small wind electricity generating systems facilitated by the Western Australian Local Government Association (WALGA) together with outcomes from a WALGA/Murdoch University Small Scale Wind Workshop and results from an internet search of materials related to Federal, State and International small wind power system policy. The results point to an increase in interest in small wind electricity generation systems in Western Australia (WA) that is reflected in estimates of installed small wind power system capacity based on Renewable Energy Certificates (RECs) created since 2007. However, even with this growth, installed small wind power system capacity pales in comparison to installed small solar PV capacity despite the State of WA having both a strong wind and a strong solar resource. At a Federal level, there is a disparity between incentives given to wind and solar systems and the authors raise concerns with the current calculation of...