

## 2022 Global Change Youth Research Project Description

Please use this template to create a description of each research project, eligibility requirements and expected deliverables. Project details can then be uploaded to each faculty, school, institute, and centre webpage prior to the launch of the program.

<b>Project title:</b>	<i>Innovative Electricity Retail Tariffs</i>
<b>Project duration, hours of engagement &amp; delivery mode</b>	4 weeks during Winter Vacation and 1 day a week during semester 2, 2022. 20 hours per week during Winter Vacation, and 1 day a week during the semester. Initial briefing and weekly meetings via Zoom and/or in person. Work will be done remotely. Up to 3 scholarships.
<b>Description:</b>	The energy transition will entail a different type of consumer who engages more actively with their electricity load, either directly or through service providers. Electricity tariffs will need to provide the rights signals so that consumers can manage their load in a socially efficient manner. For example, social efficiency may require consumers to increase consumption during the day to take advantage of rooftop solar, and reduce consumption during peak time, towards the end of the day when solar generation comes to an end. Electric Vehicles and home batteries can be used during peak and throughout the night to reduce demand from the grid. The aim of this project is to undertake a desktop review of existing innovative retail tariffs – such as sun soaking, time-of-use, and EV tariffs – around Australia and the world.
<b>Expected outcomes and deliverables:</b>	Scholars will gain skills in data collection and analysis and will be involved in specific tasks. Expected outcomes include preliminary and final presentations, and a written report (due on December 9).
<b>Suitable for:</b>	This project is open to applications from students who have completed ECON2030 and ECON2300. Preference will be given to those with web-based programming skills (e.g. web scraping for information).
<b>Primary Supervisor:</b>	Professor Flavio Menezes
<b>Further info:</b>	Please feel free to contact Professor Menezes at <a href="mailto:f.menezes@uq.edu.au">f.menezes@uq.edu.au</a> prior to applying.

<b>Project title:</b>	<b><i>Assessing Retail Competition in the National Electricity Market</i></b>
<b>Project duration, hours of engagement &amp; delivery mode</b>	<p>4 weeks during Winter Vacation and 1 day a week during semester 2, 2022.</p> <p>20 hours per week during Winter Vacation, and 1 day a week during the semester. Initial briefing and weekly meetings via Zoom and/or in person. Work will be done remotely.</p> <p>Up to 3 scholarships.</p>
<b>Description:</b>	<p>The focus of the 1990s reform of Australia's electricity sector was on market integration and competition. We had a centralized, synchronous, electricity system based on variable cost technology (coal, gas) and an objective of optimising the existing network infrastructure. The NEM was designed for that context and based on the notion that a workably competitive market would yield prices equal to the short run marginal cost when there were no constraints combined with scarcity pricing during periods of high demand. Under such conditions, prices were expected to converge over time to the long run marginal cost, allowing investors to recover their costs. Retail competition was the mechanism chosen to ensure pass-through of workably competitive wholesale prices to final consumers who were passive in terms of their load. Financial (contract) markets worked in tandem with the physical wholesale market so that retailers could hedge their price risk. Importantly, revenues from hedging and ancillary services were priced by generators when bidding in the NEM</p> <p>This project aims at assessing the competitiveness of Australian electricity retail markets in the NEM jurisdictions. As it is not possible to measure competitiveness directly, indirect measures include market concentration, entry, price dispersion, innovation, cost reflectiveness, and the easiness of switching suppliers. While there are ongoing assessments of competition by various Australian regulators based on 'casual evidence', our analysis will use econometric techniques. Here are some useful references:</p> <ul style="list-style-type: none"> <li>• Goncalves, R. and F. Menezes, 'Market-Wide Impact of Renewables on Electricity Prices in Australia,' Economic Record, 98(320), pp. 1-21. (<a href="https://ideas.repec.org/a/bla/ecorec/v98y2022i320p1-21.html">https://ideas.repec.org/a/bla/ecorec/v98y2022i320p1-21.html</a>).</li> <li>• Goncalves, R. and F. Menezes, 'The price impacts of the exit of the Hazelwood coal power plant,' Discussion paper, April 2022.</li> </ul>
<b>Expected outcomes and deliverables:</b>	Scholars will gain skills in data collection and analysis and will be involved in specific tasks. Expected outcomes include preliminary and final presentations, and a written report (due on December 9).
<b>Suitable for:</b>	This project is open to applications from students who have completed ECON2030 and ECON2300. Preference will be given to those with web-based programming skills (e.g. web scraping for information).
<b>Primary Supervisor:</b>	Professor Flavio Menezes
<b>Further info:</b>	Please feel free to contact Professor Menezes at <a href="mailto:f.menezes@uq.edu.au">f.menezes@uq.edu.au</a> prior to applying.

<b>Project title:</b>	<i><b>The Economics of Recycling in Queensland: Challenges and Opportunities</b></i>
<b>Project duration, hours of engagement &amp; delivery mode</b>	<p>4 weeks during Winter Vacation and 1 day a week during semester 2, 2022.</p> <p>20 hours per week during Winter Vacation, and 1 day a week during the semester. Initial briefing and weekly meetings via Zoom and/or in person. Work will be done remotely.</p> <p>Up to 3 scholarships.</p>
<b>Description:</b>	<p>Recycling reduces the pressure on natural resources, decreases emissions and mitigates the burden of solid waste. The aim of this project is to review the regulatory framework that underpins recycling in Queensland with a view to better understand embedded incentives, and to identify any opportunities for greater use of economic instruments.</p> <p>Here are some useful references:</p> <ul style="list-style-type: none"> <li>• The Queensland's Waste Management and Resource Recovery Strategy can be found at <a href="http://www.qld.gov.au">www.qld.gov.au</a>.</li> <li>• The Queensland's Waste Reduction and Recycling Plan 2021–2024 can be found at <a href="http://www.premiers.qld.gov.au">www.premiers.qld.gov.au</a>.</li> <li>• The House of Representatives conducted an inquiry on innovative solutions to waste management and recycling in Australia. Its report 'From Rubbish to Resources: Building a Circular Economy', published on 20 December 2020, can be found at <a href="http://www.aph.gov.au">www.aph.gov.au</a>. The Australian Government's response can be found at <a href="http://www.industry.gov.au">www.industry.gov.au</a>.</li> </ul>
<b>Expected outcomes and deliverables:</b>	Scholars will gain skills in data collection and analysis and will be involved in specific tasks. Expected outcomes include preliminary and final presentations, and a written report (due on December 9).
<b>Suitable for:</b>	This project is open to applications from students who have completed ECON2030 and ECON2300. Preference will be given to those with web-based programming skills (e.g. web scraping for information).
<b>Primary Supervisor:</b>	Professor Flavio Menezes
<b>Further info:</b>	Please feel free to contact Professor Menezes at <a href="mailto:f.menezes@uq.edu.au">f.menezes@uq.edu.au</a> prior to applying.

<b>Project title:</b>	<b><i>Peer gender composition and selection into STEM in Queensland high school</i></b>
<b>Project duration, hours of engagement &amp; delivery mode</b>	<p>4 weeks during Winter Vacation and 1 day a week during semester 2, 2022.</p> <p>20 hours per week during Winter Vacation, and 1 day a week during the semester. Initial briefing and weekly meetings via Zoom and/or in person. Work will be done remotely.</p> <p>Up to 3 scholarships.</p>
<b>Description:</b>	<p>In Australia and other western countries, females are underrepresented in Science, Technology, Engineering and Mathematical (STEM) vocations. This misallocation of valuable labour resources occurs even though there is strong evidence that female students, on average, do better at English, math, and science; and in Queensland state schools this occurs for Year 1 to Year 10. One would expect that higher-skilled female Year 10 students would choose the STEM subjects they excel at for Year 11 and Year 12. It is these subject choices that lay the foundation for access to a STEM-based university education and higher-paid STEM careers (Office of Chief Scientist, 2016). This research will analyse state school administration data to reveal the enablers and inhibitors of STEM subject selection by female senior students. This new knowledge is expected to contribute to STEM policy improvements that enable increased STEM subject uptake by female state high school students.</p> <p>The aim of this project is to undertake a review of the literature on peer gender composition effects on selection into STEM at school.</p>
<b>Expected outcomes and deliverables:</b>	Scholars will gain in depth knowledge of the gender equity issues that start early on in education and persist on the labour market. They will become acquainted with the forefront estimation techniques in the peer effect literature and the plethora of data used to obtain these policy relevant findings. Expected outcomes include preliminary draft of the literature review on peer gender composition effects in education (due on December 9).
<b>Suitable for:</b>	This project is open to applications from students who have completed ECON3360 and ECON7360. Preference will be given to students who have a genuine interest in gender equity issues and their implications in society.
<b>Primary Supervisor:</b>	Dr Tina Rampino and Dr Rigissa Megalokonomou
<b>Further info:</b>	Please feel free to contact Tina Rampino at <a href="mailto:t.rampino@uq.edu.au">t.rampino@uq.edu.au</a> prior to applying.