

Developing a Research Agenda through Pitching

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Abstract: This paper details my use of the pitching template framework (Faff, 2015) in the development of the research agenda for my PhD at the University of Queensland (UQ) Business School. The pitching template was used once for the research proposal submitted when applying for the PhD program and twice more during the early months of the program. Use of the pitching template framework appears to have helped progress my thinking about and communication of my research agenda. This may be seen as anecdotal evidence of the pitching template's benefits for researchers.

1. INTRODUCTION

The point of departure for the following paper is the pitching template framework developed in (Faff, 2015) and expanded upon in (Faff, 2016) and (Faff & Kastle, 2016). I was first introduced to the pitching template framework as part of the application process for the PhD program at the UQ Business School (I am currently enrolled in this program). I later gained a more thorough understanding of the pitching template framework during my participation in the course *Research Process in Business* offered to RHD students at UQ Business School. The pitching template framework will be discussed within the context of its practical application in the case of my own research conducted as part of a PhD program at the UQ School of Business. Specifically, the paper examines three pitching templates which I completed at different stages of the research process. This provides the basis for a qualitative assessment of how the complexity and organization of my thoughts has developed through the early stages of my PhD program.

To be sure, the intention of this paper is to illustrate the process of developing a research agenda, and how the pitching template framework may contribute to that process. Therefore, the particular research agenda discussed herein is not meant to represent a completed work but rather an ongoing process.

The paper is organized as follows. Section 2 gives an overview of the pitching template framework. This section is divided into two parts, the first dealing with the "scholarly" pitching research template and the second with the pitching research for engagement and impact template. Section 3 details how the framework was applied to my own research. This section is comprised of three parts, the first detailing my initial use of the pitching template framework during the time when I was applying for the UQ Business School PhD program, the second detailing my use of the "scholarly" template during my time in the *Research Process in Business* course, and the third detailing my use of the engagement and impact template towards the end of the course. Thus section three provides an overview of how the organization of my thoughts on and communication about my PhD research topic has evolved during this early part of the PhD program and what the pitching template's role has been in that. Section 4 provides some concluding remarks.

2. OVERVIEW OF PITCHING TEMPLATE FRAMEWORK

2.1 *Pitching Research*

The pitching template framework developed in (Faff, 2015) and (Faff, 2016) provides a methodical approach for researchers who are endeavoring to organize their thoughts around a new research idea and communicate this idea to others. Faff stresses that the two biggest obstacles faced by a researcher at this early stage are beginning and finishing the research. He rightly states that overcoming the latter obstacle is dependent on the success in overcoming the former but also points out that the initial success is itself dependent on having “a good grasp of where it is you are heading.” In other words, there is little benefit in starting a research project within a certain field when that project is based on an idea which will ultimately make a negligible contribution to that field. Of course one may never know the outcome of an endeavor whose results are consigned to posterity. Nevertheless, the pitching template framework seeks to help researchers avoid unproductive pursuits by encouraging them to provide essential information accessibly to collaborators and other peers who are able to provide feedback on whether or not the proposed research project is feasible. Furthermore, the template allows the researcher to organize their thoughts early on in a clear and concise manner.

Items 6.1 and 6.2 in the Appendix are completed pitching research templates. Note that the completed pitches fulfill the two main purposes of the pitching template framework: to be brief and to cover the essential points. In the first case, the completed pitches are each no more than two pages in length. In the second case, the completed pitches do well in populating all of the template’s fields (the first populates all but the last field).

2.2 *Pitching Research for Engagement and Impact*

Building on earlier work, (Faff & Kastle, 2016) focus on non-academic use of the pitching template framework. They propose that engagement and impact are two key components of successful dissemination of academic research to the broader public. Engagement refers to the mutually beneficial interaction between researchers and their larger communities. This includes the reciprocal exchange of knowledge and understanding. Impact is defined as the demonstrable socio-economic contributions from research. Because it is too often the case that the contribution of research is not immediately recognized by the broader community, the pitching research for engagement and impact template seeks to provide researchers with a tool by which they can more readily demonstrate the value of their research to key non-academic stakeholders.

Item 6.3 in the Appendix is a completed pitching research for engagement and impact template. Note the difference between the prompting questions in this template and the original “scholarly” template. For example, while item C in the original template prompts the user to list three key papers which inform their research, the same item in the engagement and impact template prompts the user to list three key industry or external triggers which motivate their research. This difference in prompting questions illustrates the deeper difference in approach between the two templates. While the one steers the user towards framing their research in language that is recognizable and appreciated in academic circles, the other encourages the user to engage the broader community from the start, even before they attempt to communicate their idea to the stakeholders of that community.

3. APPLICATION OF PITCHING TEMPLATE FRAMEWORK

3.1 *Initial Pitch*

My first experience with the pitching template framework came during the time when I first applied for the PhD program at the UQ Business School. I had met with my future supervisors who had encouraged me to use the pitching template in order to develop the research proposal which was a required component of the application process. My potential PhD was to be supported by a grant from the Australian Research Council (ARC) which had been awarded to my supervisors to fund the research project: “Australia’s climate strategy and positioning for the clean tech revolution.”¹ Knowing that this was the case, I wanted to write a research proposal which would contribute to this research project and also have its own distinct merit. The completed pitching template for this initial research proposal is included here in the Appendix (item 6.1).

It is instructive to look at the responses given in the Initial Research Pitch, and especially the underlying theme of the research presented therein. The research pitch attempts to define the notion of “clean tech revolution” which is used in the ARC grant proposal. Specifically, clean tech is defined as renewable energy in Section D (Motivation/Puzzle). Revolution refers to the transition from fossil fuel based to renewable energy based systems. Beginning with Section B (Basic research Question), the transition is spoken about as a “technological breakthrough” which could potentially impact the “current economic model.” Section C (Key Papers) attempts to contextualize the proposed research by listing relevant source material. The first two papers deal with technological change, and specifically how human society and the environment interact to bring about these changes. The third paper has to do with how the availability and transmission of information about new technology affects economic decision making. The proposed research seeks to build off of these key papers and accordingly section D speaks about how climate change is spurring the transition to renewable energy systems and how the availability of energy from these systems is tied to environmental factors which operate on a shorter time scale than those which affect the availability of fossil fuel energy. While this latter point is not explicitly stated, it is implied in the statements about intermittency, flexibility, and decentralization found in section D of the template. The motivation leads to the puzzle of how to assess the “clean tech revolution” within the frameworks of technological change and broader socio-economic paradigm shifts.

The Initial Research Pitch continues with the practical details of the research proposal, the so-called “three, two, one” sections of the pitching template framework. Section E (Idea) states that the research will seek to assess the optimal economic strategy for the transition to decentralized renewable energy systems. This statement presupposes that investors see decentralized renewable energy systems as the way forward but fails to mention who exactly these investors are. This question is answered, at least somewhat, later in section J (Contribution) by stating that the research seeks to inform policy makers. Section E does however make clear that the research is concerned with the intersection of energy and economy. Section F (Data) explains that the research intends to compare renewable energy transition with past technological breakthroughs by comparing the policy decisions and economic consequences

¹ More information about this project can be found here: <http://researchers.uq.edu.au/research-project/27178>

surrounding these. In Section G (Tools) I state that the proposed research intends to mix qualitative and quantitative methods.

In section H (What's New), the proposed research is presented as having some degree of novelty in that it seeks to frame the transition to decentralized renewable energy systems as a technological breakthrough but with the added dimension that the breakthrough is being driven by both anthropogenic (new man-made technology) and non-anthropogenic (environmental boundaries) dimensions. The interdisciplinary approach of the research is also regarded as something "new." However, the argument for novelty is somewhat invalidated in Section I (So What), by stating that the research merely fills gaps. Nevertheless, this is seen as important as it might allow for more informed decisions by policy makers.

The pitching template helped me to organize my thoughts and quickly and efficiently write a coherent research proposal. I believe that it played a part in my being successfully awarded the scholarship position. Following the application process, I did not think much about the pitching template framework until I enrolled in the *Research Process in Business* course during the 1st semester of my PhD program.

3.2 *Second Pitch*

Coming into the *Research Process in Business* course at UQ Business School, I had a general idea of what the research agenda for my PhD thesis would be. However, I had not made much progress beyond what is described in the Initial Research Pitch. The objectives of the course included the delivery of completed pitching research templates and the presentation thereof. This, along with the more thorough understanding of what the template is used for which I acquired from participating in the course, allowed me to move from a general idea to something more specific. This move took place in two stages: refining the "scholarly" pitch of the proposed research, and adapting the research for engagement and impact. My thinking at the end of the first stage is illustrated in the Second Research Pitch (item 6.2 in the Appendix).

The Second Research Pitch continues with the themes introduced in the Initial Research Pitch. Phrased as questions, these are: what are the biophysical boundary conditions in which socio-economic systems may sustainably function and how can current energy and economic systems be transformed to account for these boundaries. Thus section C (Key Papers) includes sources which deal with explaining what these boundaries are, why they should be respected, and how we can assess where particular socio-economic systems (national level) sit with regards to them. It is interesting to note that none of the key papers from the initial pitch are included in the second pitch. While the key papers in each share common themes, the choice of papers in the second pitch firmly places the proposed research within the academic discipline of Ecological Economics.

Not only does the Second Research Pitch focus in on a particular and established research area, it also narrows the focus of the research from the general agenda proposed in the Initial Research Pitch. This is exemplified in the Basic Research Question of section B: How do producer-consumers in smart grid networks behave? So the new research proposal seeks to analyze the behavior of an economic agent, the producer-consumer, which has risen out of the transition to decentralized renewable energy

systems, smart grids, and compare this behavior to that of economic agents operating under centralized fossil fuel energy systems. As explained in section D (Motivation/Puzzle), this change in behavior might tell us something about how energy system (and larger socio-economic systems) can be adapted to best deal with the boundaries imposed by climate change and resource availability.

The “three” sections (E through G), outline how the research will be conducted, stressing that game theory will be essential in modeling the behavior of the producer-consumers. However, as stated in section G (Tools), although use of game theory makes sense intuitively, I am not very familiar with the details of the theory as of yet. The assumption is that I will learn game theory through the process of conducting the research. While this might be acceptable approach, it begs the question of whether or not I have a “good grasp” of where it is I am heading. Fortunately, or not, as explained in section K (Other Considerations), there has been a prior investigation of smart grid systems using game theory. This does not completely rule out the novelty of the proposed research however. As stated in the “two” sections (H and I) the proposed research seeks to understand how an economic agents’ decision making is affected by their awareness of biophysical boundary conditions and not just notions of maximizing economic utility.

In assessing the progress made in my thinking about and communicating of my research agenda, it is important to note what is said in the “one” section J (Contribution). As opposed to the Initial Research Pitch, where I sought merely to fill a gap in the body of research, the contribution of the proposed research in the Second Research pitch is that it adds usefully to a growing body of knowledge and thus helps to progress the field of Ecological Economics.

3.3 Third Pitch (Engagement and Impact)

Towards the end of the *Research Process in Business* course, students were introduced to the pitching research for engagement and impact template. Researchers in the business field, perhaps more so than those in other academic fields, should be mindful of the potential practical application of new research already at the point of commencement. Of course they should not become overzealous in their desire to conduct research with real world application as this may detract from the academic nature of their work and lead to bias. Combined use of the “scholarly” and engagement and impact pitching templates may provide a means of balancing researcher’s academic and pragmatic objectives.

The completed Third Pitch (Engagement and Impact) can be found in the Appendix (item 6.3). As with the Second Research Pitch, the overall theme of the Initial Research pitch is maintained. Also, as was the case with moving from the initial to the second pitch, the organization of thought around and communication of the research topic has become more focused. Whereas the Second Research Pitch deals with smart grids, a component of distributed renewable energy systems, the Third Pitch deals with the transfer of information, a function of the smart grid. However, the goal of increasing the adoption of distributed renewable energy systems remains the same.

As shown in section C (Key Industry/External Triggers), the last few years have seen an increased recognition of the biophysical boundaries which limit socio-economic activity (general consensus on anthropogenic climate change and push for increased use of renewable energy) while at the same time

there have been rapid technological advances (Internet of Things, Blockchain). Efforts to create a sustainable future for humanity requires that one acknowledge both of these trends. Thus, as explained in section D (Motivation/Problem), I am proposing to investigate how the transfer of information affects the volatility of renewable energy system and assets tied to these systems. It is interesting to note that the topic of how information transfer effects economic decision making was first brought up in the third key paper of the Initial Research Pitch.

The “three” sections (E through G) outline the practical details of who will benefit for the research, how they will benefit, and what I need to help realize this benefit. There is a general notion of inclusion running through these sections as the list of stakeholders is broad and care is taken to address how each of these will derive value from the research. Moreover, section G (Resources) shows how the success of the research depends on contributions from each of these stakeholders. This theme of inclusion is also present in section H (Communication Strategy) where it is made clear that I intend to make the results of the research transparent.

Sections I (Metrics) and J (Impact) illustrate the ultimate social and environmental justice goals of the research proposal, namely the reduction of CO₂ in the atmosphere and the more egalitarian distribution of wealth. Again these themes run through all three research pitches. In the third pitch however, the themes are put to practical use as a way of assessing the success of the research and framing the impact on stakeholders. As explained in section K (Other Considerations) the ideals of my academic pursuits and the practicality of delivering a beneficial product to stakeholders do not seem to be in conflict.

4. CONCLUSION

The preceding paper has examined my use of the pitching template framework in developing my thoughts on and communication around the research agenda which I will pursue during my PhD at the UQ Business School. There is evidence to suggest that use of the pitching template framework was indeed beneficial to this development. There is a clear line of progression evident in the three completed pitch templates examined here. Whether or not the same results would have been obtained without the use of the pitching template framework we may not know. Nevertheless, I feel that use of the framework has helped me focus in on a feasible research agenda within a relatively short period of time.

As mentioned in the Introduction, the research agenda which was presented here is in the midst of an ongoing process. Moving forward, I may choose to combine aspects of the three pitches. For example, looking at how the availability and transfer of information affects volatility, as per the third pitch, does not necessarily exclude a behavioral economic analysis of the type I had intended to pursue in the second pitch. Similarly, attempting to engage with industry partners and other stakeholders does not necessarily exclude situating my research within the field of Ecological Economics. Finally, the notions of technological breakthrough explored in the first pitch may still inform the theoretical framework of my research regardless of how I choose to move forward empirically.

Using the pitching templates has not only been an interesting and thought provoking academic exercise, but also delivered some tangible benefits for my development as a researcher. Therefore, I would strongly encourage other researchers to consider using the pitching template framework.

5. REFERENCES

Faff, R., 2015. A Simple Template for Pitching Research. *Accounting and Finance*, Issue 55, pp. 311-336.

Faff, R., 2016. *Pitching Research*. [Online]

Available at: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2462059

Faff, R. & Kastle, T., 2016. *Pitching Research for Engagement and Impact*. [Online]

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6. APPENDIX

6.1 Initial Research Pitch

Pitcher's Name	Victor Maxwell	FoR category	Environmental Finance	Date Completed	29 Feb 2016
(A) Working Title	Clean Tech: Economic Adaptation or Appropriation				
(B) Basic Research Question	How is clean tech distinct from previous technological breakthroughs? What does this mean for current economic models?				
(C) Key paper(s)	<p>Gunderson, L. H., & Holling C. S. (Eds.) (2002). <i>Panarchy: Understanding Transformations in Human and Natural Systems</i>. Island Press: Washington, DC.</p> <p>Linnenluecke M., & Smith, T. (2015). <i>Climate (In)Action: A Real Options approach to investigate the impact of climate change policy on new technology uptake</i>. Paper accepted for presentation at the European Group for Organization Studies (EGOS) Conference, Athens.</p> <p>Hong, H., Scheinkman, J., & Xiong, W. (2008). <i>Advisors and asset prices: A model of the origins of bubbles</i>. <i>Journal of Financial Economics</i>, 89(2), 268-287.</p>				
(D) Motivation/Puzzle	<p>The transgression of planetary boundaries, climate change amongst them, is an issue which must be addressed by policy makers and investors. Investment in and subsequent development of clean tech (renewable energy) is one method of mitigating the negative effects of climate change. What generally distinguishes renewable energy from fossil fuels, apart from environmental impact, is availability. So we see that while fossil fuels can easily be stored to release energy when needed, renewable energy is often of an intermittent nature, as is the case with wind and solar. Therefore in transitioning to a renewable energy system, the burden of flexibility changes from production to consumption. Also in terms of availability, and specifically distribution, fossil fuel extraction and delivery is adapted to a centralized structure as opposed to renewable energy which may be better suited to a decentralized approach.</p> <p>Key questions arise: Does the process of converting power grids to suit both decentralized and flexible consumption require new and distinct economic models for investment, development, and operation? If so, how will these new models look and how will they differ from the models currently in place? Also, have previous technological breakthroughs been associated with changes in economic models? Put another way, what is the role of technological regime change in broader socio-economic paradigm shift and how can understanding this relationship provide us with</p>				

	insight as to the most effective ways to approach the clean tech revolution? Also, how does the coming clean tech technological breakthrough differ from those which have come before and what is the influence of climate disaster (real or perceived)?
THREE	
(E) Idea?	In anticipating the coming clean tech revolution, what is the optimal economic strategy? Should clean tech be appropriated into existing economic models (and socio-economic structures) or should these be adapted to better suit clean tech (renewable energy)?
(F) Data?	Existing theory concerning technological breakthroughs and their economic effects will be reviewed. Historical data on previous technological breakthroughs will be used to examine and contextualize existing theory. Data on policy measures concerning and level of engagement in renewable energy transition for various countries will be used to compare clean tech with previous technological breakthroughs.
(G) Tools?	The research aims to bridge qualitative research in social theory with quantitative econometrics. The adaptive cycle framework will be used to model technological breakthrough. Appropriate software will be used to build statistical models.
TWO	
(H) What's New?	The research aims to determine the uniqueness of clean tech as a technological breakthrough (and its economic consequences) given that: <ul style="list-style-type: none"> a) There is a strong likelihood that energy production and transmission systems will have to significantly change to accommodate a transition to renewable energy and b) Climate change may impose a disaster scenario in which this transition would take place. With regards to this the research will take an interdisciplinary approach in determining optimal socio-economic strategies for bringing forth the clean tech revolution
(I) So What?	The impacts of climate change are already being felt and much has already been done in developing and implementing clean tech. This research will focus on filling in knowledge gaps in policy and economy so as to inform government and private stakeholders.
ONE	
(J) Contribution?	The aim of the research is to inform policy makers on how to optimally transition to a renewable energy systems and a clean tech economy.
(K) Other Considerations	

6.2 Second Research Pitch

Pitcher's Name	Victor Maxwell	Purpose		Personal Pitch		Date Completed	9 Sep 2016
(A) Working Title	Smart Grid Games						
(B) Basic Research Question	How do producer-consumers in smart grid networks behave?						
(C) Key paper(s)	<p>Georgescu-Roegen, Nicholas (1971). <i>The Entropy Law and the Economic Process</i>. Cambridge, Massachusetts: Harvard University Press.</p> <p>M. Faber, R. Manstetten and J. Proops (1996) <i>Ecological Economics: Concepts and Methods</i>. Edward Elgar, Cheltenham</p> <p>O'Neill, D.W., 2015. 'The proximity of nations to a socially sustainable steady-state economy'. <i>J. Clean. Prod.</i> 108, 1213-1231.</p>						
(D) Motivation/Puzzle	<p>Climate change, volatile financial markets, and the rapid evolution of information and energy networks all raise concerns about the appropriateness of current economic systems. Of key interest is the question of whether or not these systems truly account for the planetary boundaries under which they operate and the social well-being which is their ultimate end. Distributed low carbon energy based smart grid networks may present a case where economic agent behave differently from their counterparts in traditional centralized energy networks. This is especially the case as the line between producer and consumer in these networks is blurred. Could a new method of valuation arise from these networks which more truly accounts for planetary boundaries and social well-being?</p>						
THREE							
(E) Idea?	<p>The behavior of producer-consumers operating under a smart grid network may be modeled using game theory. The behavior may be modeled as cooperative, non-cooperative, or possibly Bayesian. Although consumption side information may be shared, due to the intermittent nature of renewable energies which supply smart grids, full information may not always be available. Not only are agents aware of this intermittent aspect of the energy system, this awareness may inform further realization of the biophysical boundaries under which the economic system operates. It is therefore assumed that, to their role as producer-consumers, agents on the distributed smart grid are more aware of biophysical constraints than consumers in a centralized energy system.</p>						
(F) Data?	<p>As data on behavior of smart grid users may be limited, other similar networks in informatics and telecommunication may be used as proxies. In looking into this topic I have come across the following research which uses simulation platforms to model agents who "act as retail brokers in a local power distribution region." (http://www.powertac.org/). This might be useful input into the proposed research.</p>						

(G) Tools?	Game theory will be the framework under which the smart grid producer-consumers are modeled. Intuitively this makes sense, and there is indication that this method has been applied to study smart grids previously (see section K below). However, only having a basic understating of game theory, I cannot at present fully elaborate on the details of applying this method.
TWO	
(H) What's New?	The study seeks to employ game theory to model producer-consumers operating in distributed low carbon energy based smart grid networks. This is relatively novel given the theoretical framework used, which assumes that agents are aware of biophysical constraints and act accordingly.
(I) So What?	As concern over biophysical constraints grows, and the emergence of new technologies presents alternative pathways in the functioning of energy and economic networks, it is important to understand how agents who are aware of both of these aspects behave.
ONE	
(J) Contribution?	The study seeks to add to the growing body of knowledge on smart grids and its users. In addition it seeks to study how agent who are aware of biophysical constraints behave economically, therefore making a contribution to the ecological economics literature.
(K) Other Considerations	In researching this I have come across a recent PhD thesis (Wang Yunpeng, Behavioral Game Theory for Smart Grid Energy Management. University of Miami Repository 2015) which explores the same topic. While the motivations for this study and the proposed study are different, there nevertheless may be overlaps in the methodology. This could be seen as competitor risk and may also bring up ethics considerations.

6.3 Third Research Pitch (Engagement and Impact)

Pitcher's Name	Victor Maxwell	Area of Impact	Energy and economy	Date Completed	17 Nov 2016
(A) Working Title	Blockchain in Energy Systems: How Information Influences Volatility				
(B) Basic Impact Goal	The research seeks to provide a path for increased adoption of distributed renewable energy systems by understanding how the transfer of information affects the stability of these systems.				
(C) Key industry/External Triggers	<p>The general consensus, i.e. the Paris Agreement of the UNFCCC, on the need to address anthropogenic climate change and the crucial role renewable energy systems play in mitigating climate change's worst effects.</p> <p>The increase in the Internet of Things and the recognition of Blockchain technology's potential use in renewable energy systems.</p> <p>The increased focus in the clean tech industry on the above.</p>				
(D) Motivation/Problem	<p>Given the general consensus that concrete actions must be taken to avoid the worst effects of anthropogenic climate change, there has been a push by governments and in industry to increase the use of renewable energy and decrease the use of fossil fuels. At the same time, there have been rapid technological advances with regards to how information is processed and shared. This has given rise to the Internet of Things. The novel distributed database software, Blockchain, may provide a means to harness the capacity of the Internet of Things in addressing the issue of volatility in renewable energy based systems. This may further open up the possibility for a highly liquid and stable asset tied to the production of renewable electricity to be traded as currency.</p>				
THREE					
(E) Stakeholders?	<p>Community members who may want more control over how and when they get their electricity.</p> <p>Industry and enterprises that are involved in renewable energy and clean tech.</p> <p>Grid operators who want to maintain their relevance in transition to distributed renewable energy systems.</p> <p>Governments who might view decentralized renewable energy systems as boosting economy and increasing social stability and resilience.</p>				
(F) Value Proposition?	<p>The research can help community members understand how their consumption data is used in the operation of distributed renewable energy systems. The research may also lead to broader stakeholder inclusion in the development of these systems.</p>				

	<p>The research may help industry, enterprise, and grid operators to strengthen the service component of distributed renewable energy systems thus creating new value streams for themselves and customers.</p> <p>The research may reveal macroeconomic effects which will appeal to governments along with providing a means for reaching policy goals.</p>
(G) Resources?	<p>Data on Blockchain performance. A proxy for this might be data on the increased use of bitcoin (which uses Blockchain software for its public ledger), and the volatility of this currency. Data on bitcoin is readily available through open access platforms.</p> <p>Data from companies who are using blockchain software for renewable energy applications. This may be more difficult to access than the bitcoin data.</p> <p>Qualitative data from stakeholders concerning their views on distributed renewable energy systems and the role of information therein. The case may be made that user preference may affect the volatility of assets associated with renewable energy.</p>
TWO	
(H) Communication Strategy?	Use of open access platforms for publishing the results of this research.
(I) Metrics?	In the short term, uptake of renewable energy such as solar panels, grid stability, and volatility reduction in assets tied to renewable energy. In the long term, reduction of CO ₂ in atmosphere and more egalitarian distribution of wealth.
ONE	
(J) Impact?	In broad terms, the research helps the transition to more socially and environmentally just energy and economic systems. More specifically, the research helps stakeholders involved in the development of distributed renewable energy systems understand the role played by information in the stability of these systems, both in terms of the electric grid and the value of assets associated with these renewable energy generation.
(K) Other Considerations	The engagement and impact aspects of this research do not appear to detract from the academic contribution. In fact there seems to be some level of symbiosis between the two.