

2024 Impact Assessment Symposium Proceedings



Environment Institute
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New Zealand Inc.

The 2024 EIANZ Impact Assessment Symposium was titled “Transitioning to a nature positive clean economy – what are the challenges for impact assessment?”

This theme allowed presenters to explore the transition to a clean, low-carbon environment whilst halting and reversing the loss of nature and addressing community concerns about the transition.

During the two days of the symposium 24 individual presentations were delivered and 4 workshops held covering social impact assessment and strategic environmental assessment. Symposium organisers decided that following the symposium, we would offer presenters the opportunity to write a short paper based on their presentations. In response, three presenters submitted papers.

In summary they are:

- **Smooth Sailing: How Lessons Learned from the UK Can Streamline Australia’s Offshore Wind Future.** Authors: Jessica Harvey, Dr. Kelly Macleod of HiDef Aerial Surveying, Australia;
- **The Ethics of Trade-Offs.** Author Alan Chenoweth PhD, HLMEIANZ, CEnvP; and
- **Energy transition in WA: Policy, constraints, relevant case studies and stories of ambivalence.** Author Garry Middle PhD of VisionEnvironment Consulting and Curtin University



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Smooth sailing: How lessons learned from the UK can streamline Australia's offshore wind future

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Abstract

As Australia transitions from coal to renewable energy, offshore wind presents a critical opportunity for achieving net zero emissions. However, the offshore wind sector faces significant environmental, regulatory, and technical challenges, including the assessment of environmental impacts, such as those on protected marine mammals and seabirds. Drawing lessons from the UK's established offshore wind industry, this paper emphasises the importance of robust baseline data collection, cumulative impact assessments, and strategic collaboration.

By implementing standardised approaches to baseline data collection and impact assessments, addressing cumulative impacts early in the planning process and creating a collaborative environment, Australia can streamline the environmental approval process. This proactive strategy will enable the Australian offshore wind industry to learn from UK experiences, ultimately fostering a more sustainable and efficient pathway toward renewable energy development.

1. Introduction

As the global energy transition accelerates, offshore wind is increasingly recognised as a key renewable energy source. With 90% of Australia's ageing coal-fired power stations slated to close by 2035, a timely shift to renewable energy is critical. Australia possesses significant offshore wind potential, which is expected to play a pivotal role in achieving the nation's net zero emissions targets and ensuring energy security during the transition to a clean energy future. However, the offshore wind sector in Australia is still in its infancy, facing a range of environmental, regulatory, and technical challenges. Central to these challenges is the need for robust monitoring and assessment of environmental impacts, particularly concerning protected marine mammal and seabird species.

The UK's offshore wind industry, by contrast, is well-established, with its first offshore wind farm installed 25 years ago. Today, there is approximately 14 GW of installed capacity, with more than 90 GW of projects in the pipeline. Over this time, the UK has built significant experience in assessing and managing the environmental impacts associated with offshore wind. However, this experience also highlights areas where improvements are needed. By examining both successes and shortcomings from mature markets like the UK, Australia could learn from previous experiences, adopting best practices to reduce environmental risks and improve the environmental approval process.

This paper explores these lessons in three key areas: the importance of robust baseline data

collection, early consideration of cumulative impact assessments and strategy and collaboration.

2. The importance of robust baseline surveys

A key lesson from the UK's experience is the importance of comprehensive baseline data for predicting and assessing the potential environmental impacts of offshore wind farms. While the UK has built a wealth of baseline data through years of offshore development and long-term survey data, Australia has a vaster and more complex environment and far less baseline data in areas of offshore wind interest to inform environmental impact assessments (EIA). Establishing robust data collection processes will be essential for accurately predicting impacts, which will be used in EIAs to determine whether there will be significant effects on protected matters, as required by the Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act). These data will also form a critical baseline, enabling ongoing monitoring to detect actual changes and impacts once wind farms become operational, ensuring that environmental impacts are well understood and managed effectively in the future.

Marine mammals and seabirds are two key species groups that can pose risks to approvals for offshore wind farm developments in the UK and Europe. For marine mammals, the primary concern is the impact of underwater noise generated during wind farm construction, while seabirds are most vulnerable to displacement and the risk of collision with wind turbine structures. This section will focus on the importance of baseline surveys and data collection for these species' groups, which are critical for assessing and mitigating potential risks.

2.1 Historical baseline survey methods in the UK

The predominant method of baseline data collection for seabirds and marine mammals in the UK was historically vessel-based surveys. However, this approach can suffer significant bias due to the attraction and disturbance effects of the survey vessels (Buckland et al., 2001; Camphuysen et al., 2004). For example, certain seabirds, such as diver species are repelled by the presence of boats, while others, such as scavenging species like gulls, are often attracted to them due to association with foraging from fishing vessels. Surveys are also often undertaken over longer periods which can increase the risk of double counting.

To overcome these biases, vessel-based surveys were largely replaced by visual aerial surveys, particularly for marine mammal monitoring. In this method, trained observers in aircraft count animals from above, but the speed of the aircraft limits the timeframe for accurate detection and identification, and with risk of observer fatigue and bias (Buckland et al., 2012; Zydels et al., 2019). Additionally, low-altitude flights (approximately 76m for seabirds and 183m for cetaceans) are required for these surveys, which may disturb sensitive seabird species and making this method unsuitable for long-term monitoring once turbines are constructed, due to the need for safety clearances.

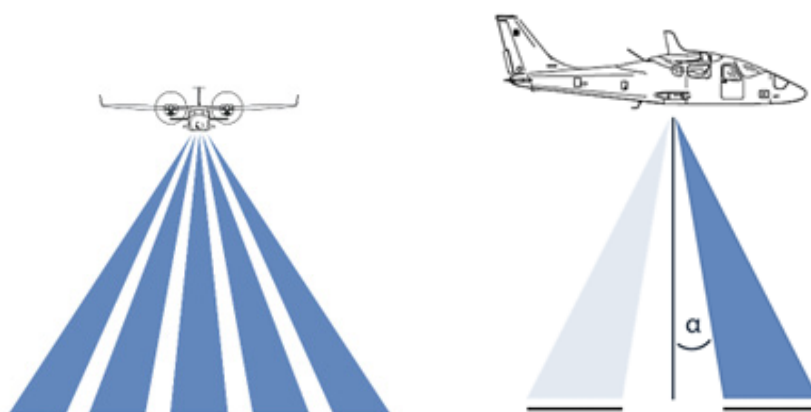
2.2 Digital aerial surveys in the UK

Digital Aerial Surveys (DAS) have become the standard for baseline data collection for offshore wind farms in the UK and Europe as the most efficient and effective way to survey large areas at sea. The standard baseline data requirement is collection of monthly of DAS surveys over 24 months across the proposed wind farm array and a surrounding buffer (up to 10km).

In this method, high-resolution cameras installed in light aircraft record marine animals below (Figure 1). Surveys are typically conducted with a transect design which is highly effective for surveys of birds and marine mammals, even if species are in low densities or spatially clustered (e.g. Buckland et al., 2012; Williamson et al., 2016; Mendel et al., 2018; Zydels et al., 2019).

Experienced reviewers then analyse the data to detect objects, which are then sent to specialists for species identification. These data are ideal for design-based abundance estimation (e.g., Thomas et al., 2010) and provide a permanent dataset that can be reanalysed as needed, allowing for independent validation and robust quality control processes. This reduces the impact of observer bias and fatigue, common in traditional visual methods. Furthermore, DAS can be conducted at higher altitudes (e.g. HiDef Aerial Surveying fly at ~500m and above), reducing disturbance to marine animals (Thaxter et al., 2016), and reducing the likelihood of animals flushing or diving, all of which can impact their detection and bias subsequent abundance estimates.

Figure 1: HiDef AIR system is designed for offshore DAS, with 5 high-resolution video cameras to record footage of seabirds and marine mammals at 1.7cm Ground Sample Distance (GSD). Rotatable cameras are tilted 30° off vertical to capture lateral features of animals, improving species identification, and reducing data loss from glare.



Data collected from DAS in the UK are used to inform species density, abundance, and distribution, as well as seasonal and inter-annual variation, behavior, direction of travel, and, in some cases, age class and sex (for species with visually distinct life stages or sexual dimorphism). Additionally, in Europe, DAS can now capture bird flight height using low-cost photogrammetry techniques, which estimate size and altitude from standard recorded footage (Humphries et al., 2023; Forster et al., 2024), or through the incorporation of specialised LiDAR sensors. These methods provide more precise flight height estimates than boat-based approaches, which are subject to biases caused by vessel presence. For marine mammals, an additional benefit of DAS is its ability to detect submerged animals, which may be missed during vessel-based surveys. This capability is crucial for providing a more accurate representation of marine mammal presence and behavior.

These data can be directly integrated into ornithology displacement analysis and collision risk modelling and used to quantify underwater noise impacts on marine mammals. This, in turn, strengthens environmental assessments of wind farm by offering more robust evidence to support decision-making and mitigation strategies.

However, it is important to acknowledge that both vessel- and aerial-based survey methods have operational limitations. While DAS can be conducted in higher wind speeds and sea states than vessel-based surveys, both are restricted to periods of safe and suitable weather conditions, such as clear skies and moderate winds, and are disrupted by factors like low cloud cover or extreme wind conditions. Furthermore, both approaches rely on visual detections, meaning surveys must be conducted during daylight hours, limiting opportunities for data collection under poor lighting or night conditions.

In the UK, DAS are supplemented with other methods of data collection to help address the gaps left by operational constraints. For example, GPS tagging of seabirds provides a broader understanding of species' distribution, migration patterns, and habitat use (e.g. Deakin et al.,

2022; Pollock et al., 2021). Tags fitted to seabirds can also record flight altitude, offering valuable data for collision risk modelling regardless of wind or light conditions. For marine mammals, DAS can be complemented by methods like Passive Acoustic Monitoring (PAM), which records marine mammal vocalisations. PAM allows for the detection of species presence over wider temporal periods than is possible with vessel- or aerial- based surveys.

Another limitation of both vessel- and aerial-based survey methods is the potential for missing animals when they are submerged, such as pursuit-diving seabirds or diving marine mammals. This introduces what is known as ‘availability bias,’ where animals are unavailable for detection during the survey window. To correct for this, an ‘availability bias’ correction factor can be applied; however, its accuracy is dependent on the availability of sufficient data to inform a reliable correction (Barlow et al., 1988). Methods to account for animal availability are also being adapted for DAS by HiDef Aerial Surveying to enable the estimation of absolute abundance directly from the survey data (Macleod et al., 2024).

The UK offshore wind industry has benefited from the standardisation of baseline data collection methods, which has enabled greater consistency in environmental risk assessments and impact modelling. Clear and consistent expectations for data collection reduce pressure on resources for both applicants and decision-makers during pre-application consultations and determination processes by limiting variability, ultimately helping to streamline the approvals process.

2.3 Application of digital aerial surveys in Australia

Australia has an opportunity to apply these lessons by ensuring that baseline surveys are conducted at appropriate spatial and temporal scales, tailored to the behaviour and habitat use of key species in Australian waters. High-resolution DAS could be employed to gather robust, auditable data efficiently and with minimal disturbance to wildlife—a crucial advantage over traditional survey methods.

Challenges in applying DAS in Australia include limitations in data collection at night and in high wind speeds. Australia hosts a diverse array of bird species which utilise strong winds in gust soaring to fly at higher altitudes, such as some albatross and shearwater species (Ainley et al., 2015). Consequently, flight heights estimated from DAS may underestimate actual heights. Additionally, several species, including petrels, are predominantly active at night, which could further bias DAS data. Therefore, it is crucial that, similar to practices in Europe, DAS be supplemented by a variety of appropriate survey techniques, such as GPS tagging, which can capture data during these periods. By establishing guidelines for robust baseline data survey campaigns early, Australia can mitigate uncertainty and build a solid evidence base that supports evidence-based decision-making.

3. Early consideration of cumulative impact assessments

While the environmental impact of a single wind farm development may be relatively minor, the cumulative effects of multiple wind farms and other offshore industries can be significant. Assessing the cumulative impact of multiple offshore wind farms on marine ecosystems is among the most complex challenges in the environmental assessment process. Developers must establish how their projects contribute to the overall environmental impacts in a given area, considering appropriate temporal and spatial scales. It is essential to determine how impacts from multiple projects will be assessed cumulatively and to establish criteria for evaluating whether the cumulative impact is deemed ‘too great.’

3.1 Lessons from ScotWind

In Scotland, cumulative assessments have primarily been conducted on a project-by-project basis. This approach can compound uncertainty in baseline data and assessment processes

when impacts from different projects are combined. Additionally, the use of 'worst-case' Rochdale envelope approaches exacerbates this uncertainty, along with inconsistencies in methodologies used for project-specific and cumulative assessments across different projects. As a result, there is a tendency to overestimate mortality rates and perceive a greater impact on the environment. With the increasing number of offshore developments, particularly in large-scale leasing rounds such as ScotWind, this issue is becoming increasingly significant.

The ScotWind leasing round, which saw the allocation of over 25 GW of offshore wind capacity, cumulative impacts are presenting a risk to approvals of projects. Although a Cumulative Effects Framework is expected to be published (CEH, 2020), it was not completed in time to inform several ScotWind projects that have already submitted their planning applications. This has highlighted the necessity for timely consideration of how cumulative impacts will be assessed in advance of planning applications being submitted, or even in advance of lease areas being determined to ensure the number of proposed projects will be able to go ahead. This is especially important in regions where multiple wind farms are likely to seek approval concurrently, such as the Gippsland declared area.

3.2 Developing a Cumulative Effects Framework for Australia

As Australia develops its offshore wind industry, it has an opportunity to implement a standardised approach to cumulative impact assessment from the outset. Taking a proactive stance can help Australia avoid the piecemeal approach that has led to challenges in the UK, ensuring that cumulative impacts are assessed consistently across all projects.

There is also an opportunity to assess cumulative impacts across projects within declared areas, such as Gippsland, through either government or developer-led strategic assessments. Conducting a strategic assessment can help to reduce approval risks to projects which apply later than others. This approach can ensure that all wind farms with feasibility licenses can proceed without surpassing cumulative impact thresholds or allow regulators to proactively look ahead to strategic offsets and compensation measures where significant impacts are identified, ultimately leading to more favourable outcomes for the environment.

Cumulative impact assessment guidelines should provide clear guidance on data collection, modelling, the required scale of assessments, and criteria for determining significant effects. By adopting this comprehensive approach, Australia can more effectively manage the cumulative impacts of offshore wind development while facilitating the rapid expansion of the industry.

4. Strategic Research and Collaboration

Strategic-level initiatives and collaboration between industry, government, and academic researchers to address environmental impacts related to offshore wind development can help to accelerate our understanding of the marine environment, and potential offshore wind impacts.

4.1 Strategic Research and Collaboration in the UK

An example of successful government-led collaboration in the UK is the Collaborative Offshore Wind Research into the Environment (COWRIE) programme, which encompassed over 50 environmental research projects aimed at enhancing our understanding of offshore wind's impacts on the marine environment (COWRIE, 2010). More recently, research projects such as EcoWind (<https://ecowind.uk/projects/>) and PrePARED (<https://owecprepared.org>), and funding initiatives such as Offshore Renewables Joint Industry Programme (ORJIP - <http://www.orjip.org.uk>) have emerged, further contributing to this effort. Importantly, these projects were funded, at least in part, by developers' seabed license fees through the Crown Estate.

Collaboration can also be developer-led, such as the Forth and Tay Regional Advisory Group (<https://marine.gov.scot/ml/forth-tay-regional-advisory-group-fttag>). Multiple wind farm developers funded regional baseline and post-construction monitoring surveys across the Forth and Tay area, opting for a collective approach rather than having individual projects conduct separate surveys. This pooled data collection will result in more comprehensive and informative insights across the broader region, enhancing understanding of the environmental impacts associated with offshore wind development.

4.2. Strategic Collaboration in Australia

Australia can benefit from establishing similar strategic-level initiatives to address its unique environmental challenges. Collaborative research programs should be developed to focus on the key species found in Australian waters deemed to be at risk or sensitive to potential impacts of offshore wind farms, such as migrating whale populations or seabird species such as shearwater, petrels and albatross. In Australia, understanding how wind farms might intersect with migratory routes and key habitats will be important in understanding their impacts.

By pooling resources and expertise from industry, government, and research institutions, Australia can create a collective evidence base that encompasses data over a broader regional scale, which can better inform EIA processes. This collaboration contributes to efficient resource use, can reduce project-specific data requirements and accelerates the approvals process.

5. Adapting UK Lessons to the Australian Context

While the lessons learned from the UK's offshore wind industry are valuable, it is important to recognise that Australia's unique environmental, regulatory, and social contexts will require adaptations. However, Australia has the opportunity to develop a more streamlined and efficient EIA process by learning from the experience of mature markets such as the UK, that can help to balance environmental protection with industry growth.

Key to this will be the adoption of robust baseline surveys, early consideration of the approach to cumulative impact assessments and by collaborating on strategic-level research initiatives. By embracing these best practices, Australia can ensure that its offshore wind industry develops in a way that is both environmentally responsible and economically sustainable, helping to secure a cleaner and more resilient energy future.

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The Ethics of Trade-Offs

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Introduction

"A key challenge is to understand and deal with trade-offs, in which gains for one ecosystem service or group of people results in losses for others" (Daw et al 2015).

Given that development and human-caused change generally involve some detrimental environmental effects, trade-offs are relevant to impact assessment and to the mitigation hierarchy (avoid, reduce/mitigate, offset). Trade-offs do not result in win-win outcomes – they involve giving up one thing in return for another, when it is not possible to have both at the same time. This has analogies with many ethical dilemmas in which choices must be made between two or more courses of action, each of which is similarly 'good' or 'bad'.

Some environmental trade-offs are amenable to technical analysis and objective decision-making tools (for example conservation planning using Marxan analysis - <https://marxansolutions.org/understanding-trade-offs-and-trade-off-curves/>); but many others involve value-judgments and expert opinions. The ethical considerations in such trade-off decisions deserve closer examination.

The ethical basis for trade-off decisions

When considering what is an appropriate ethical basis for trade-offs, it is useful to recognise that ethics (the moral principles that affect what we do and think) may be those of an individual, shared by a group, or widely accepted within society; and may be drawn from various frameworks defined by moral philosophers through the ages. Rational people decide which moral laws (imperatives) are applicable in particular situations, then choose to act in accordance with those rules (Grayling 2019). The ethical framework of most relevance to environmental practice is that of prescriptive or normative ethics (What should I do? How ought I respond?) and especially applied ethics i.e. applicable to actions and decisions in particular situations. There are broadly two different approaches to deciding what is the right thing to do (Wogaman 2004):

- Deontological or duty-based ethics based on universal imperatives such as justice, promise-keeping, telling the truth or the 'golden rule' "... do unto others what you would have others do unto you ..." (Malik 2014); and
- Teleological or consequence-based ethics (What is a good outcome?), including the utilitarian approach of philosophers Jeremy Bentham and John Stuart Mill in the 19th Century (Grayling 2019).

Utilitarianism prioritises the greatest good or happiness for the greatest number of people. However, in our pluralistic society it is difficult to objectively assess happiness and the number of beneficiaries. Also, utilitarianism does not address short-term -vs- long-term benefits nor social justice (individual -vs- community-wide benefits and the well-being of minority groups) (Wogaman, 2004). For example, when assessing a motorway widening project, does the saving of 10 minutes of daily travel time for many thousands of drivers 'outweigh' significant disruption to a relatively few homeowners and businesses?

The above distinction between consequentialism (ethical decisions based on outcomes) and non-consequentialism (decisions based on ethical principles and obligations) are of particular relevance to the professional ethics of environmental practitioners and the emerging principles of environmental ethics.

The 18th Century philosopher Immanuel Kant (1724-1804) expanded the concept of the 'golden rule' to put forward a categorical imperative, paraphrased as "Act according to the maxim that you would wish all other rational people to follow, as if it were a universal law" often referred to as a 'universalising principle' (Preston 2014). Kant's imperative was also an extension of several other 17th Century ideas of equality and impartiality (such as ...all persons are equal, and one's personal interests should not be prioritised over anyone else's) (Pinker 2019). The duty-based approach of Kant may be characterised as the simple adage 'What would happen if everybody did this?' (Mackay 2013, Sack 2005) and is in marked contrast to utilitarianism and other strands of consequentialism.

Several authors have tried to interpret or re-phrase Kant's categorical imperative to include ethical responsibilities for the natural environment (Svoboda 2012, Schonfeld 2017) but the most satisfying approach to reconciling Kantian and environmental ethics has been through a sustainability lens (Mulia, Behura & Kar 2018). For example, a 'categorical sustainability imperative' would require that a rational ethical person should '.... act only according to that maxim that your actions, if adopted universally, would sustain human society and all forms of life indefinitely' (Chenoweth 2020).

Similarly, the moral test of utilitarianism could be updated (Varner 2008). For example, by incorporating a long-term sustainability element for intergenerational equity ('the greatest good for the greatest number over the longest period of time'). However, even if updated, utilitarian ethics still emphasises the primacy of human welfare, comfort, consumerism and economic growth over the needs of nature and long-term sustainability; and cannot deal adequately with why we 'should' protect species which have no apparent use or aesthetic value to humans.

Another important ethical dimension is the question of participation in trade-off decisions – who decides what can be traded-off, and over what time period? Inclusive planning and impact assessment can ensure that development-affected communities establish priorities, with a result that they have greater trust in the outcomes. However, when setting priorities, environmental professionals may be the only advocates for future generations and for non-charismatic threatened species, so have a moral responsibility for speak for the voiceless.

Ethics in professional environmental practice

It should be noted that not all ethical issues which arise in professional environmental practice can be resolved by inclusive decision-making nor by applying utilitarian approaches or universal moral rules. Applied ethics also calls for consideration of legal requirements, social ethics and distributive justice, personal ethics and values, environmental ethics and professional ethics (those duties & obligations which are associated with professional roles). Preston's 2007 "ethic of response" recognises that people, as moral agents, deal with ethical issues by a 'best fit' appropriate response to the situation, taking into account the likely outcomes (consequentialism), as well as duties and responsibilities.

An ethic of response also recognises the obligations associated with roles, so is particularly helpful in professional and public ethics – satisfying one's personal conscience or responding to community preferences may not be as important as acting consistently with the duties entrusted to one in a public or professional role.

Research interviews with senior environmental professionals (Chenoweth 2020) indicate that they generally agree that their professional role and 'bottom line' ethical responsibilities are to reduce environmental harm, and as an additional obligation to also advocate for a better environment. However, their approaches to ethics-in-practice reflect tensions between:

- Professional ethics (... 'my expertise is available to all who engage me, I serve the interests of my client for a fee, I don't impose my values'...);
- Personal values (... 'I am an environment professional because I love nature and can't bear to see it destroyed' ...); and
- Environmental ethics (... 'my expertise allows me to understand ecological risks, it is my responsibility to advise and warn others, in order to protect the environment; I cannot contribute to habitat destruction' ...).

These three strands also affect attitudes and decisions regarding environmental trade-off decisions, especially those likely to involve value-judgments and opinions (such as decisions based on assessing risks of environmental harm and the likely effectiveness of mitigation measures). Utilitarian ethics may not be an appropriate framework for environmental trade-offs because it is fundamentally anthropocentric, hence offers little assistance when a new hospital, for example, might involve loss of frog habitat. The human-utilitarian rationale for avoiding species extinctions, e.g. they attract tourists, they are photogenically attractive, we might need them for future useful drugs etc., has limitations, in that there are many species unlikely to be demonstrably 'useful' to people.

In general, ethical frameworks which are entirely anthropocentric do not account for our moral responsibility for other species, for example many people share misgivings over animal mistreatment and live exports of sheep and cattle.

Environmental ethics, with its eco-centric emphasis, offers a more balanced and longer-term perspective but does not per se resolve so-called 'green on green' conflicts, such as degrading wildlife habitat in order to achieve a sustainability or emissions-reduction benefit. Efforts to integrate development benefits and conservation outcomes (the 'new conservation debate' – Miller et al 2010) present difficult ethical issues because "it conflates two potentially irreconcilable and opposing truths" regarding human use of natural systems (Salafsky 2010).

Irrespective of the philosophical basis of ethical decision-making regarding trade-offs, the community needs to have trust in the outcomes i.e. the environmental professionals and regulatory agencies involved in trade-off recommendations need to demonstrate ethical practice. For example, professional ethics require that opinions are based on evidence as far as possible, that facts and opinions are clearly distinguished, and that opinions are explicit, honest and consistent (rather than 'tailored' for the benefit of a particular client or project).

Professional codes of ethics e.g. the EIANZ Code of Ethics and Professional Conduct (<https://www.eianz.org/membership-information/eianz-code-of-ethics-and-professional-conduct>) have some relevance to trade-off decisions, in that they address conflicts of interest, honest reporting, advocating for the environment and technical competency. The Precautionary Principle (paraphrased as 'uncertainty should not postpone protective measures') is also applicable when considering environmental trade-offs. But these do not address the central questions of what environmental values can or should be traded-off, over what time period, and who decides?

Typical trade-off decisions are the sacrifice of community-owned environmental or cultural values for economic development, growth, employment and associated benefits, which may be public or private. For example, a proposed upgrade of a sewage treatment plant to protect water quality may require, as a trade-off, the removal of some existing wetland habitat. Sometimes a trade-off may be between immediate local detrimental impacts and longer-term economic benefits; or conversely the short-term benefits may be obvious while the associated environmental degradation may be gradual and long-term.

At global scale, our society has been engaged since the Industrial Revolution in trading-off natural capital to achieve increases in human population and prosperity (with all the associated benefits in health, welfare, consumption and happiness), such that all indicators of global biodiversity have declined as those of economic progress (such as life expectancy) have soared (Figures 1A & 1B). This incremental global trade-off is an expression of our society's values & priorities, with clear ethical dimensions.

Figure 1A: Human wellbeing has improved

Indicators of human health
Consumption of meat
Biomass of cattle and chickens

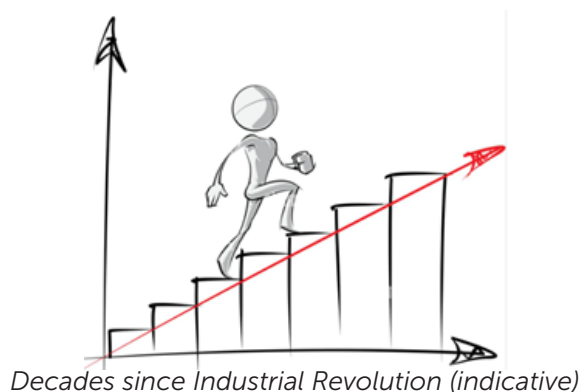
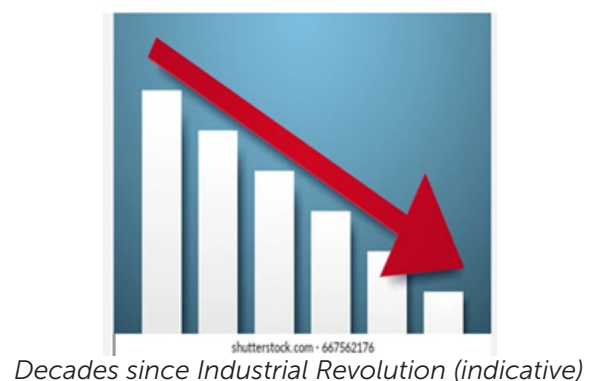


Figure 1B: Wildlife has paid the price

Indicators of Biodiversity
Monitored wildlife populations
Biomass of wild animals



Non-anthropocentric Ethics

The responsibility of environmental practitioners to represent the interest of ('speak on behalf of') the natural and non-human environment is distinctive to our profession. While many utilitarian reasons can be advanced for the protection of nature, our ethical obligations for species are challenged by non-charismatic animals of limited distribution and dubious usefulness to humans, such as the Boggomoss Snail *Adclarkia dawsonensis* (Figure 2) listed as 'Critically Endangered' under the Commonwealth Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act). Living populations are currently known from two locations near Taroom in Queensland - one adjacent to a boggomoss (artesian spring) and another on a small reserve (Figure 3).

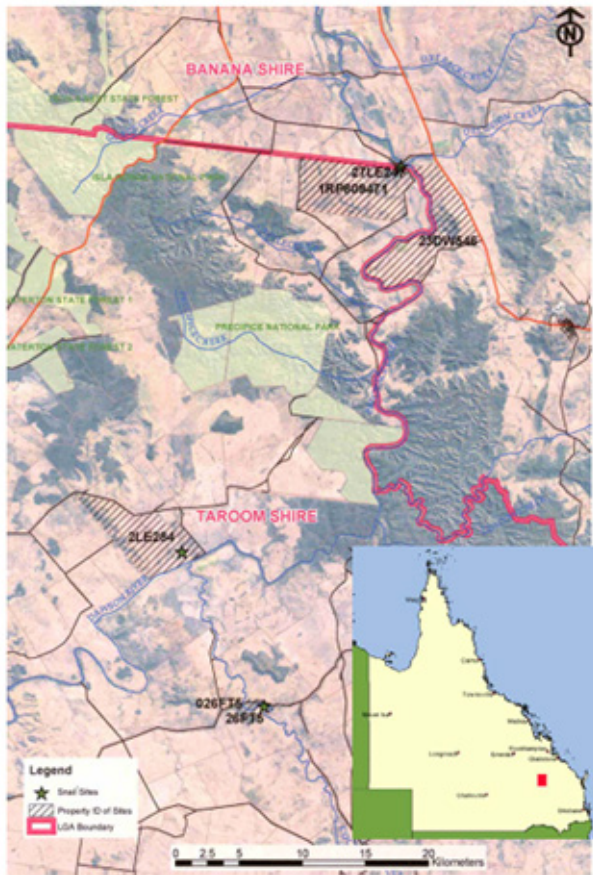
Figure 2: Boggomoss Snail



Source: Boggomoss Snail National Recovery Plan (DCCEEW)

The ethical issues associated with this species and its location (on the edge of the Surat Basin coal field) involve professional and environmental ethics as well as utilitarianism and the precautionary principle. Similar issues arise with respect to stygofauna and troglafauna, which are little known but each new species discovered is likely to have limited distribution, and is unlikely to be critical for any above-ground ecosystems of interest or utilitarian value to human society. How should we assess the trade-off between the benefits of resource extraction development (or renewable energy projects) and the risks of extinction of one of these species, given scientific

Figure 3: Boggmoss snail distribution



uncertainty regarding their population sizes and distribution?

Environmental legislation requires development proponents to avoid extinction of any species, and the moral obligations of environmental ethics (and some religions) indicate that it is both immoral and arrogant for humans to knowingly cause species extinction. Causing or supporting the extinction of any species may also be considered contrary to ethical environmental practice, irrespective of legislative requirements, and the EIANZ Code requires that members and CEnvPs must advocate no net loss of environmental values.

When dealing with complex trade-offs, especially where expert opinions are involved, ethical practitioners may need to define their bottom-line (non-negotiable) acceptability limits, beyond the basic 'reducing environment harm' principle. Training in ethical decision-making, and regular workplace discussions and scenario workshops, are particularly useful in anticipating and preparing

for 'what-if' ethical dilemmas. Examples of environmental trade-offs which ethical practitioners consider to be unacceptable may be extinctions at regional or national scale, and irreversible degradation at natural systems level.

Conclusions

Increased reliance on trade-offs in assessing environmental and social sustainability will put the profession under greater scrutiny by the community, and our practitioners will benefit from additional training, EIANZ support and regular workplace workshops in ethical decision-making and scenarios involving trade-offs.



Environment Institute
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Energy transition in WA: Policy, constraints, relevant case studies and stories of ambivalence

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Introduction

This paper is in two parts. The first part discusses the policy framework within which renewable energy and critical mineral projects are given priority in decision making in Western Australia (WA). To date, with one exception, these projects have yet to receive any significant community opposition. As noted in many presentations at the EIANZ 2024 IA Symposium, which is not the case in other parts of Australia. The second part of this paper explores ideas around attitude strength, persuasion and individual ambivalence and whether understanding these ideas and applying them in community engagement can help reduce community opposition.

Energy transition in WA – policy and constraints

There are three elements to the WA Government's energy transition: renewable electricity generation, renewable hydrogen and critical minerals and battery production. There are two key strategies aimed at facilitating the transition of the State's electricity generation to renewables.

The first is a distributed energy resources strategy (Energy Transformation Taskforce 2019) aimed at facilitating smaller-scale devices that can either generate or store electricity, and to then feed the local distribution system. These devices are mainly home and community based renewable electricity generation sources (roof top solar and wind) and batteries used to store and then discharge to the network.

The second is a South West Interconnected System (SWIS) demand assessment (Energy Policy WA 2023), which is an assessment of potential future electricity demand for the next 20 years and the likely renewable sources of electricity to be integrated into the SWIS. It is anticipated that most of these new sources will be outside the existing SWIS so new transmission lines will be needed.

The Government is keen to develop a local renewable hydrogen industry, both as an export product as well as for local use, and has released a strategy to support the industry (Renewable Hydrogen Unit 2024). Additionally, the Government has a strategy to promote local battery production and streamline the approval for extraction of critical minerals (Department of Jobs Tourism Science and Innovation 2019).

Whilst these strategies can encourage renewable projects, certain barriers had to be addressed requiring Government action. A key barrier to the development of the renewable hydrogen industry and some solar farm projects is land access, particularly on Crown land used for pastoral

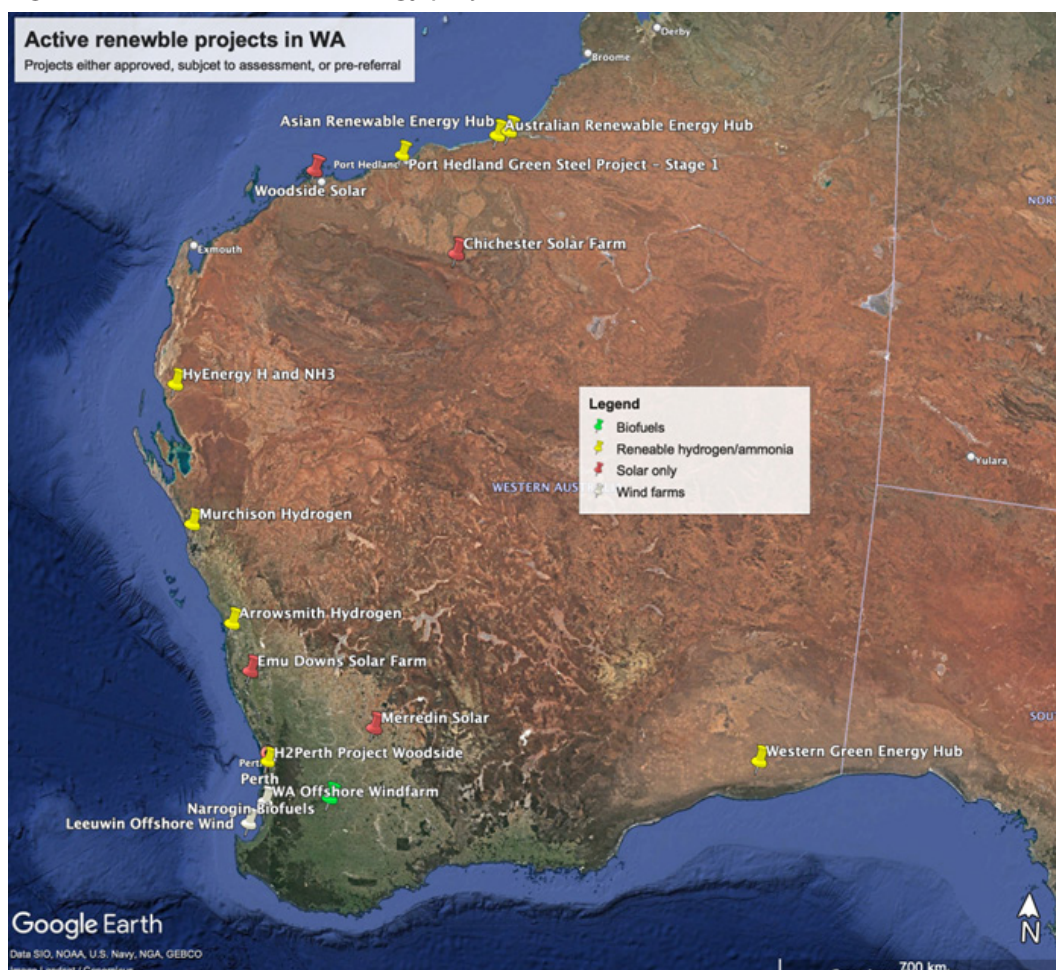
purposes. This land is particularly attractive for these industries as they have excellent solar and wind resources and each holding is large meaning proponents only have to deal with one lessee. These lands may also contain good supplies of critical minerals and this potential use competes with the renewable energy projects. As well, proponents need to get agreement from the lessees to gain access to the land.

The Land Administration Act 1997 (LAA) provides the legal basis for the use of pastoral land through granting of leases and licences, and prior to 2023 leases could only be for a single purpose, which meant that a lessee would have to give up their lease to allow renewable energy projects. Amendments were made to the LAA to allow lessees to apply for a diversification lease rather than a standard lease which enables proponents to conduct multiple land uses on Crown land, where the proposed uses can coexist with other land uses. Other land uses include carbon farming and traditional practices allowed under land use agreements with traditional owners.

Another barrier was assessment and approval times. Most of the renewable projects will require environmental assessments, and the key agency, the WA Environmental Protection Authority (EPA) had limited resources to assess the influx of proposals. The EPA is an independent board made up of five members and is supported by staff from the Department of Water and Environmental Regulation. In response, the Government provide \$14 million for additional staffing to support the EPA and the Office of the Appeals Convenor. As well, changes were made to the Environmental Protection Act 1986 (EP Act) meant to speed up assessments. One change was to allow for parallel decision making to occur for projects subject to assessment by the EPA. Previously, other decision makers could not approve a proposal until the environmental assessment and approvals process was complete. The size of the EPA was increased from 5 to 9.

There are number of projects either within the EPA assessment process or in the early planning and design stages, as shown in Figure 1.

Figure 1: Active renewable energy project in WA



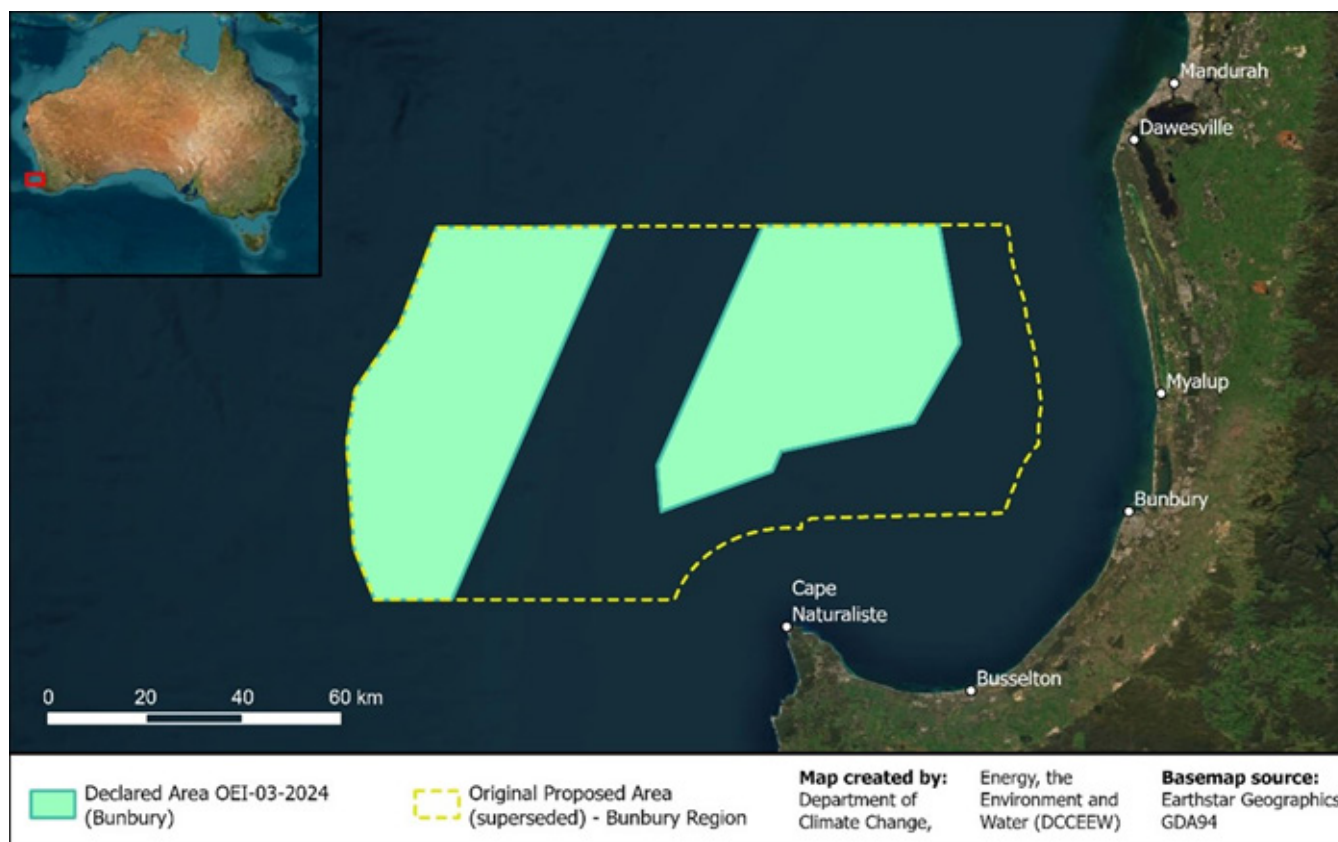
The two WA offshore windfarms in the SW of WA are within one of the Commonwealth Government's declared offshore areas, and they have attracted considerable attention, in a large part driven by one local member of the Commonwealth parliament.

A case study of community opposition

The Commonwealth Government has declared a large area of the ocean off Bunbury as an area for windfarms, as shown in Figure 2 (below).

Figure 2: Bunbury declared offshore wind area

Source: https://www.dcceew.gov.au/energy/renewable/offshore-wind/areas/bunbury#toc_1



The Federal member for Canning, Andrew Hastie, whose electorate extends slightly into the coastal area adjacent to the zone, started a petition to oppose any wind farms here. To date, the petition has been signed by 14,933 people.

One proposal for between 20-37 turbines in this zone was being assessed by the EPA, but in December last year on the request of the proponent, the WA Offshore Windfarm Pty Ltd, the project was withdrawn from assessment. There is no information as to the reason why the project was withdrawn and whether the proponent will submit a revised proposal or abandon it altogether.

I wanted to understand why so many people opposed this project. A screenshot from Mr Hastie's website and provides some hint as to the reason as seen in Figure 3. A recent Guardian Essentials new poll also provides some clues. The table in Figure 4 is from the August 2024 poll. The clear perception of respondents is that governments aren't listening to everyday Australians although big business is getting special treatment.

Peter Lewis who wrote the article containing the poll results commented as follows:

Think about that: we have lost so much faith in government to listen to us (rather than impose its will from on high) that simply being heard is perceived as a form of "special treatment".

This sentiment is consistent with some of the comments in Mr Hastie's website –

Figure 3: Screen shot from Mr Hastie’s website calling for people to sign the petition
Source: https://www.andrewhastie.com.au/stop_labors_reckless_renewables

Andrew
HASTIE

PETITION: STOP LABOR'S MASSIVE MANDURAH OFFSHORE WIND FARM

UPDATE: DESPITE STRONG LOCAL OPPOSITION, LABOR HAS RAMMED THROUGH ITS MANDURAH WIND FARM.

PLEASE SIGN OUR PETITION - WE WILL FIGHT THIS!

Anthony Albanese is obsessed with renewables.

The Government is failing to meet their 82% renewables plan, so they're proposing reckless renewable projects to bolster their climate change credentials.

Labor is planning to lock up thousands of square kilometres of coast for an offshore wind farm 20 kilometres off the coast of Mandurah, all the way down to Dunsborough.

What will this do to our coastal lifestyle? What will this do to recreational and commercial fishing?

You'll never see a 280-metre-tall wind turbine in Cottesloe.

Labor is coming for our community and our coastal lifestyle.

They don't care that wind turbines fuelling their green dreams are built in countries like China.

And they don't care that you're paying higher power bills because of their pursuit of renewables.

Anthony Albanese thinks our community should carry the burden of his radical energy policies.

Sign the petition below to help show Labor that the people of Mandurah and the Peel Region shouldn't be their collateral damage.




Figure 4: Results of a question about being listened to in the August 2024 Guardian Essentials
Source: <https://www.theguardian.com/australia-news/commentisfree/article/2024/aug/13/australians-have-lost-so-much-faith-in-government-that-just-being-heard-feels-like-special-treatment>

In your opinion, how well does government listen to the following groups of people when making decisions?							
	TOTAL GOOD	TOTAL POOR	Very good	Quite good	Neither good, nor bad	Quite poor	Very poor
Big businesses	60%	13%	24%	36%	27%	8%	5%
Indigenous Australians	33%	36%	12%	22%	31%	21%	14%
People with disabilities	27%	45%	6%	20%	29%	27%	18%
Older Australians	26%	47%	8%	19%	26%	25%	22%
Small business	25%	42%	5%	20%	33%	28%	14%
Local communities	25%	41%	5%	20%	35%	27%	13%
Ordinary Australians	24%	46%	6%	18%	30%	25%	21%
Regional communities	22%	47%	5%	17%	31%	29%	17%

Guardian Graphic

*You'll never see a 280-metre-tall wind turbine in Cottesloe.
Labor is coming for our community and our coastal lifestyle.
Anthony Albanese thinks our community should carry the burden of his radical energy policies*

A key task for proponents of renewable projects facing opposition, and for governments facing opposition to renewable policies, is to persuade those opposed to change their minds – I don't think a crash or crash through approach would be helpful here.

I think the work by Richard E Petty provides some useful insight.

In a 2023 article (Petty, Siev et al. 2023) they discussed the idea of attitude strength and persuasion. Attitude strength has two key variables – durability and impact. They noted that:

In this definition, durability referred to the extent to which an attitude persisted over time and resisted change. Impact referred to whether an attitude influenced other judgments, information processing, and behavior. (p1)

They noted that there is a view in the research:

That virtually all persuasion techniques would work better in changing weak rather than strong attitudes because the latter attitudes were generally more resistant to change. For example, the greater knowledge that accompanies strong attitudes would give people the ability to resist (e.g., counterargue) better and the higher certainty that accompanies these attitudes would provide higher motivation to resist. (p4)

They noted that this may not be always the case and requires a deeper understanding of attitude strength. They argued that there are two types of attitudes – those based on emotion and those based on cognition (i.e. reasoning based on knowledge). They noted that there is some research to suggest that matching the persuasive message with the type of attitude can work. Of course, this would be resource intensive requiring the messenger to first identify the type of attitude and then deliver the matched message.

They also argued that it is possible to persuade those with strong attitudes to change their mind using two sided messaging. Two-sided messaging involves acknowledging that there are some good points on the opposite side when presenting arguments for the preferred side. It was argued that this works because those who cared deeply about their attitudes (i.e. people with strong attitudes) are appreciative of a message that recognises their side of the argument has some validity and is understood by the messenger. The message receiver then reciprocates by being more willing to acknowledge the validity of the messenger's side of the argument. At best they could change their minds, but they would at least be more respectful of the other side.

Another matter they discuss is that of certainty, which is not the same as strength as someone can have a strong attitude about an issue but have low certainty about their feelings about this attitude. People who have low certainty about their feelings will often carry out restorative measures to increase their certainty when they feel threatened in that attitude, for example, when people they know and admire hold a different view. Restorative actions can include strongly advocating for their attitude, adopting more extreme beliefs or actions and joining extreme groups. The research talks about discordant knowing, where people feel certain of something but then learn that their position is opposed by other people.

Learning that others disagree with you, especially liked or important others, can presumably

shake one's confidence and produce feelings of conflict regarding the attitude (i.e., subjective ambivalence) (p7)

They argue that these people who are put in situations where they feel uncomfortable, and their certainty is challenged feel threatened and

... can react by becoming more willing to engage in extreme and even violent behaviours in an attempt to compensate for that weakness by demonstrating strength. (p8)

I think this framework is useful in dealing with opposition to renewable projects and policies and how engagement with the affected communities could be significantly improved.

Conclusion

If governments and proponents of renewable energy projects are wanting to increase support for these policies and projects in affected communities, they will need to persuade most, if not all, of those who are in opposition. What is clear from the data and discussion above is that people feel governments are not listening to them, meaning trust in governments is low. There is a general feeling that renewable projects are not in the interests of local communities. A broad community engagement program is needed to persuade as many opponents as possible that these projects are in their interest and that they are being listened to.

Because the broad benefits of renewable energy projects are community wide, the community engagement program cannot be left to proponents – they will be perceived as having commercial self-interest. It has to be done by governments.

I think what the Petty et al work shows is that the community engagement has to be tailored and not generic. Face to face engagement, and not publicity campaigns, is needed, and it will be more resource intensive. Two-sided messaging is essential, particularly with those with strong attitudes based on cognitive values. Some could change their mind, but others will at least appreciate the effort made and will have a greater understanding of the other side. They may then be less likely to be strong advocates for the opposition. The weaker the strength of attitude, the more likely they will be persuaded.

Those who have strong attitudes based on emotion likely need to have two-sided messaging that works on the emotional level too.

It is likely that some of those with the strongest opposition are doing so to increase their certainty about their attitude. For these people, it is important that the messaging is not seen as threatening as this will only increase the likelihood that they would carry out restorative measures to increase their certainty – i.e. increase their opposition.

Final word

A story from the 2024 UK election campaign is a useful reminder as to why face to face engagement by the right person can work in changing minds.

A local Labour MP was door knocking seeking re-election and on one occasion was greeted by an elderly retired man who happy to engage with the MP. The man advised that he was a long time Labour voter, but this time was going to vote Lib Dems because Labour was going to impose a tax on condoms. He felt that the population needed to be kept under control and that a tax on condoms would discourage their use. The MP was somewhat confused as there was no such tax planned. Suddenly the penny dropped. The MP advised the man that his government

was going to impose a tax on non-doms (these are people living in the UK but under British law are domiciled (i.e. with their permanent home in another country)).

The man considered this for a few moments and turned around and told his wife that it's OK, Labour won't be taxing condoms and it's OK to vote for Labour.

Two people persuaded because their misunderstanding was straightened out – the power of face-to-face engagement.

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