

National Energy Research and Policy Conference

Societal Transformation

Questions & Answers Follow-up

Session 1

Connecting Research and Policy

Daire McCoy

Q: Does this research get shared beyond SEAI? e.g., with communications units across government?

A: Yes, we have regular dialogue with government, we present at conferences, our work is published on our website, and we plan to publish some of our current trials as academic papers.

Q: What can the unit tell us about the socio-demographic characteristics of early adopters of electric vehicles, retrofit technologies and renewable heating systems?

A: A lot of international literature and evidence from Ireland shows that early adopters have tended to be among the higher income groups, interested in technology and the environment. Grant schemes such as the Warmer Homes scheme helps to address these issues and rebalance uptake across society – but we definitely need to do more to make sure people don't get left behind.

Q: How can apartment owners, in particular investor-owners, be motivated to act on energy saving? Landlords don't live in the properties (obvs). Any energy upgrade savings accrue to tenants, who have no say in managing the apartment building.

A: This issue of "split-incentives" is a big problem. One solution could be to create tax incentives for landlords to upgrade their rental properties. We are proposing to bring in minimum performance standards in the next couple of years. Another would be to advertise "warm rents" where heating costs are added to the rental cost – but this might have minimal impact given the broader problems, such as shortage of supply, we face in the rental market.

Q: Just wanted to be clear on the early trial results. Are the uptake figures for each method fully independent of each other or is this a cumulative figure i.e., does the exclusivity approach include all the previous elements (comfort, cost etc.)? Thanks

A: Yes, fully independent.

Q: When might the results of this HLI study be available?

A: The trial has just started, and some results may be available in 2023.

Bríd Walsh

Q: Great to hear Bríd on citizen empowerment - can she see ownership opportunities (shares or other mechanisms) of off-shore wind developments being viable in Ireland?

A: Absolutely. Denmark has one of the most developed mandatory community benefit schemes that has been reformed several times since its introduction in 2008 (several other countries have developed voluntary schemes of community benefits). Denmark is an interesting case because it has a wind energy co-ownership scheme where citizens who live within a pre-defined distance from the wind farm can invest.

Q: Would the current energy crisis not drive the general population to be more receptive of the energy transformation effort rather than the opposite as just mentioned?

A: It could (and the hope is that it does), but it could also go the other direction as electricity bills climb higher and higher (this is happening even with a significant renewable contribution to the power system because the final price of electricity is set by the most expensive fuel to meet demand – which is most often a gas-fired plant with high marginal costs). It's really important that information is provided so that people understand why prices are so high and why we need to rapidly transform our energy system.

Q: Could you elaborate a little on the area-based approaches at retrofitting that you mentioned? Is that separate to the existing SEC model?

A: Currently retrofits are not being undertaken on an area-by-area basis, and instead rely on individuals to apply for grants themselves. It was suggested by interviewees who took part in the research project that grouping homes together based on area could bring down cost and also create a feeling of cohesion and peer-support throughout the process. The full research report is available here:

https://www.foe.ie/assets/files/pdf/blockages_to_retrofitting_and_heat-pump_installation_in_ireland.pdf

Sinead Dooley

Q: As part of your social engagement how are the local community representatives identified and what do they do? Is what they do effective and how is this evaluated?

How are the local community representatives identified?

Local representatives are sought through advertising the establishment of the community forum in local press and social media and through each local Public Participation Network/Local Authority. A community forum will then be established following an information evening. Local community groups are asked to identify a representative and then submit a request for expressions of interest to join the forum.

Members of the community forum will be made up of local stakeholders.

This may include representatives of:

- community councils,*
- local community groups, sporting groups, not-for-profit organisations.*
- sustainable energy communities,*
- local authorities,*
- chamber of commerce*
- local development companies,*
- other relevant state agencies, and*
- other relevant people depending on the project.*

What do the forum members do?

Represent the views of the community and facilitate a 'local voice'.

Provide guidance and feedback at key stages of the project.

Assist in resolution of local issues that arise during the project stages.

Identify local sources of information that will assist the project team in choosing the most deliverable routes with the least impact on communities.

*Communicate information to a wider group of regional and local stakeholders.
Act in an advisory capacity on implementation of community benefit fund.*

Is what they do effective?

Yes, what they do is very effective and an extremely important element in EirGrid's Public Engagement Strategy. We have seen first-hand on some projects where forum members actively contributed to the decision on where the best route for that project would be. This particular forum also assisted in identifying local constraints.

On other projects, the forum representatives have played a role in the scoping study and mapping of the local area for the community benefit fund. Link for the Laois Kilkenny scoping study is here:

https://www.eirgridgroup.com/site-files/library/EirGrid/EIRLK-211012_Laois-Kilkenny-Scoping-Report_Final-version_05.11.21.pdf

How is it evaluated?

At the moment we can only evaluate the work based on the productivity of the forum and how we see first-hand how our work on the ground with communities is reaping rewards.

However, our Public Engagement team at EirGrid have recently commenced a partnership with MaREI research Centre for Energy, Climate and Marine, coordinated by the ERI at UCC and are looking forward to working with them as they analysis EirGrid's evolving public engagement processes. This research offers the potential to work alongside the community groups in receipt of the funding and to investigate the process using an engaged research approach. We will further be able to analysis and assess the potential impact of interventions around community benefit with a view to informing policy and practice in this area

Ruth Buggie

Q: Is there not a difference in the level of participation that energy communities can have in onshore projects and offshore wind projects? Can energy communities participate in offshore wind projects where they have access to at cost energy generated from the project at present?

A: There can be a difference in the participation and the structure of community engagement due to the scale and location of the projects. Some offshore projects may span multiple counties and are very significant which in turn will result in a much larger area of impact and larger community benefit fund. There is currently no process whereby an offshore wind project can provide access to at cost energy generated from the project. Electricity generated by projects of this scale are effectively sold to the State who in turn provides the electricity to the grid at an agreed rate which is then bought by electricity retailers and sold to customers. There is no direct transfer from generation to user due to the structure of our energy market and the need to sell into the grid and then buy out of the market pool.

Q: I have been involved in trying to start and SEC in my local area which largely comprises multi-unit developments. One of the obstacles identified was the need to fund certain aspects of the journey up front, with challenges accessing such funds. Are any changes envisaged that could address this?

A: An SEC doesn't oblige you to take action but is trying to support action. We have worked with 15 local authorities across Ireland to support the funding of local energy master plans and to remove this market barrier from the SEC side. They will pay for the EMP and then we can pay the LA directly and as such remove the need for the SEC to fund anything directly. There are also 2 social financing agencies who can support the project with bridging finance to cover the gap between paying an invoice and reimbursement of the grant. We built the programme with up to 4 milestones to limit the exposure of the SEC throughout the process and endeavour to process claims as quickly as possible. Please contact your mentor to see if any of the above can be of use to you.

Session 2 Research Sprint

Bernadette Power

Q: In Switzerland they have Referendums for some contentious infrastructure projects, is this something that could help speed up approvals here?

A: Not sure. Early, meaningful and ongoing engagement is what works (e.g. one-to-one, face-to-face, CLO)

Q: Would social acceptance be increased if jobs in local industry could be heavily decarbonised by their proximity to wind farms? Could we use excess wind generation to offset fossil fuels in the heat sector?

A: Possibly if there are strong positive attitudes to wind energy and climate change in that community and an active SEC. We did not ask specifically about that but we will keep it in mind for further fieldwork. Community projects in Portugal cooperate with an anchor (e.g., an energy intensive business to decarbonise such as a hospital). It is more successful for solar projects though. In rural communities there may be less opportunities to do that. Local amenities such as nature walks work well but not all developers own the surrounding lands to do this.

Gary Goggins

Q: How soon will the Wild Atlantic Nature Life research policy recommendations go forward to be implemented at both national and EU level? This is great research and needs to become vital for establishing ecological health indicators to ensure overall economic growth and intelligent energy use.

A: The Results-Based Payments Scheme (RBPS) approach piloted in LIFE IP Wild Atlantic Nature has informed the CAP Strategic Plan for Ireland for 2023-2027, and a similar model will be included for 20,000 farmers from 2023. This will be administered by 8 locally- led DAFM Cooperation Project teams. We see the RBPS model as a great mechanism to drive nature conservation and link landowners and local communities with complementary supports such as local food systems, tourism and energy. We are currently seeking funding to administer a pilot project which would link rural dwellers who rely on peat as a household heating fuel with existing (and possibly new) community energy and retrofitting schemes. Many of these households are in dispersed rural areas so coordination is a key issue. Other known barriers such as lack of awareness, trust, engagement, communication, bureaucracy, etc. can be overcome by working with agricultural advisory services, farmer organizations, DAFM, the new Cooperation Project teams and local community development groups on the ground. We would hope that if a pilot was successful, it could be upscaled quickly. Of course, once a farmer is engaged in energy issues, it could also lead to other opportunities such as PV panels on shed roofs, etc.

Q: How is the harvesting of peat audited to ensure that it has ceased? Turbary rights are often remote from the homestead farm. Also, how will the project affect the vast majority of domestic peat harvesting that takes place outside of Natura sites?

A: The ecological quality of the land is assessed using a scorecard on an annual basis, so each plot is walked once per year. There is an iterative scoring system for the question on peat-cutting with options ranging from harvesting of peat in current year/most recent harvesting last year/no harvesting for >2 years. Farmers scores can improve in the first year they stop cutting peat and improve again in year 2. They can then maintain a higher score by continuing to not cut peat. If a farmer joins our RBPS programme, all of the land they own/rent comes into the scheme, within the defined target area. Once the turbary plot is in the defined target area, it will be subject to a survey, a related score and a payment. The focus of LIFE IP Wild Atlantic Nature is on Natura lands and contiguous areas, but the results and lessons learned can be applied to other areas by some of our project partners, and others.

Jean-Pierre Roux

Q: How do you control for the actions or behaviour of developers in your research areas with host communities?

We do not control for this explicitly in the 1st wave (pre-treatment) survey. However, with the Difference in Difference study design, all unobserved treatment-specific elements are controlled for implicitly in the fixed effect of 'treatment' vs 'control'. In other words, there are no behavioural efforts of the developers in the control areas. In addition, we do also ask respondents three questions relating to their perception of project developers, the planning authorities, and the project planning process. We may use this to tease out some further findings on developer behaviour.

Q: County Kerry provides approximately 20% of all wind energy in Ireland and, in more recent times, there has been a big backlash by the communities in North Kerry against any further wind turbines. The County Council endeavoured to include a ban on future wind turbines in their Development Plan but the Planning Regulator has overridden them. Would it not be fair that the Just Transition should also include a provision for a 'just distribution' of renewable energy projects around the country?

From the evidence to date from this and other research, those who are very negatively disposed to renewable energy developments - a small minority among those surveyed, are much more likely to become involved in the planning process or to make representations to their elected representatives. It's therefore likely that the County Council is being influenced by a small but vociferous minority who do not represent the attitudes of their wider community. SEAI agrees that the obligation to meet national renewable energy targets should be shared among all counties based upon their capacity to support these and that Action 102 of the Climate Action Plan 2021 is concerned inter alia with developing the methods to make such allocations in spatial planning processes.

Noreen Brennan

Q: Our governance structure is a relic of a colonized country that is top-down command and control which needs to transform to a distributive democratic system which is compatible with a bottom-up process. Citizen and community decision making empowerment needs to be enabled. Economics therefore needs to become more modelled on energy and integrate people into this dynamic process rather than economic units to be managed.

A: This is a topical and interesting comment and one that is well reflected in many recent socio-economic studies which emphasise the importance of real meaningful community engagement that gives citizens greater decision-making control. Our recent work has found, using econometric techniques, that the general public value the provision of real empowerment and engagement with local residents in wind farm development areas as well as the provision of local benefits. Many environmental economic studies on the topic of community ownership, engagement and information provision with regards to wind energy utilise the framework of economics to provide greater information on reasons behind public and local preferences and what they might mean for wider public acceptance. If you would like to read more recent socio-economic studies on the public acceptance of renewables, I would recommend [1-4] and our own work on the area of community engagement in wind energy [5].

Q: Is the longevity of renewable technology solutions being considered from a social perspective? Social transformation is definitely required which was supercharged over the last century resulting in our current common concerning state. Is this experience influencing technology and social transition decisions?

A: Thanks for this very interesting question. There are barriers when it comes to the societal acceptance of new and emerging technology. During our own recent focus group discussions and surveys on storage and demand side management technology, it became clear that there is a gap in public knowledge in this area. Public acceptability issues can emerge where there are limitations in knowledge, and the public may be concerned about potential health and safety issues and visual impact. If you are interested in further reading on issues related to societal acceptance of emerging technologies in energy, Emodi et al. [6] provide an interesting study on hydrogen technologies, and Emmerich et al. [7] provide a comprehensive analysis of public acceptance issues regarding a range of technologies including hydrogen fuel, battery storage and biofuel production. While I don't know for definite if prior experience in the development of, for example, the wind energy industry, is directly influencing technological and social transition decisions, I would imagine that the industries experience (both positive and negative) in engagement and public acceptance could provide some useful learnings for policy development.

Q: Not a question just a comment to say some very interesting stats from the presenters varying surveys/engagements and how that could/will assist with the approaches moving forward with the communities

A: Bernadette Power - Thank you. We are disseminating the results of the research to the relevant stakeholders so hopefully it will effect change in that way.

A: Noreen Brennan - Thank you for your comment, we do hope that our work can provide some useful information on how to develop renewable energy infrastructure in a way that ensures local residents are fully engaged and receive fair benefits.

Q: Citizens have limited time in their lives due to other economic pressures, mostly earning an income to meet a lot of financial out-goings, and consequently cannot find the time to be engaged in these important decisions which as a consequence are mainly directed and guided by vested interests and those directly involved in the energy sector. Governments also bring such pressures via taxation. How can citizens be given more space and time to be engaged participants in these decisions?

A: Bernadette Power - Good question and one that requires more research. Communities need to be educated on how to engage effectively. Hired intermediaries with the knowledge, skills, motivation and time is a potential way forward so that the process is less reliant on volunteers similar to the Scottish case.

A: Róisín Moriarty - In answering this question I would strongly echo what the excellent Dr Michael Ryan said during the opening discussion. For many in Ireland the day-to-day struggles and stresses--having a home, paying for food and bills, getting medical attention, working, looking after kids and other caring responsibilities, trying to make ends meet--take up all their bandwidth.

I spoke about transformational change in Irish society to achieve the energy revolution we need to combat climate change, but with limited time I didn't fully explain what I meant. There needs to be fundamental changes in Irish society to enable us to combat climate change, not just in how we engage with people on issues around energy and planning. The latest IPCC report explores how we achieve our climate goals. A key element of this is creating a fairer society where everyone's needs are met (again echoing what Dr Ryan said)...if everyone has what they need, some of the major stresses and strains melt away and free up time to participate and engage (bringing their energy, skills, talents, know-how and knowledge) in

climate action and I think this, and making sure that people and communities have a place in the decision making process is an excellent way to rebalance how important decisions are made.

A: Noreen Brennan - Thank you for this very important comment. I agree that it is difficult for even the most motivated citizens to take part in energy policy decisions or local scale energy developments due to time and finance constraints. Ensuring that local residents are fairly treated at the outset by a wind farm developer in terms of non-biased information provision, engagement and the opportunity to benefit could prevent the need for citizens to use their precious time and resources to negotiate and seek out information that should be provided from the start. Maleki-Dizaji [8] provides an interesting analysis of best practice case studies for community engagement in wind farm developments. This includes creative engagement methods, such as the regulator taking a mediation role between developers and communities and facilitating public forums to ensure the optimal wind farm was selected in a local community and the development of energy cooperatives.

A: Katie Harrington - Although there's no silver bullet to citizen participation, I think the answer lies in 1) identifying and appointing trusted intermediaries at local and regional level to support and communicate the energy transition at a local-level and 2) resourcing local democracy and deliberative practices such as local mini-publics to give a representative sample of the population an opportunity to participate, part-take in the decision-making process and inform local and national policy.

We're living in an unprecedented time with the decisions made in the next eight years impacting the lives of the people living, working and studying in Dublin for decades to come. Codema has provided ground-breaking research to support these crucial decisions but as research shows the rapid and urgent change that is needed will not succeed unless we effectively engage the public in the decision-making process. In Codema, we propose moving beyond traditional means of engagement and investing in best-practice to ensure effective and meaningful engagement such as local mini-publics, otherwise known as Citizens' Assemblies or Citizens' Juries.

Katie Harrington

Q: Could you please put the link to the Zero Together report when the presentation is uploaded to the SEAI website?

A: Further details can be found here - <https://www.codema.ie/projects/local-projects/dublin-energy-transition-roadmap?adlt=strict>

A draft strategy will be published at the beginning of December this year. Please follow us on social media @zero_together or sign up to [our newsletter](#) to keep up to date with our progress.

Q: It seems a pity that much of what Katie is talking about in Dublin is not known widely in Dublin itself - there seems little public engagement, conversation and profiling of these projects, which seems a shame and a weakness.

A: We are still at the very early stages of this initiative. Our public engagement began last year when we launched a public survey receiving over 1,000 respondents. Over the last 12 months we have been working closely with our [Zero Together Transition Team](#) to build out a vision and strategy for Dublin to meet our emission-reduction targets. Presenting at the SEAI's National Research & Policy conference was a first step in profiling Zero Together to a wider audience. We have also just launched a public engagement campaign to build a shared vision of a fossil-fuel-free Dublin in 2050, created by the people of Dublin. To participate you can click the link [here](#). We hope to increase awareness of the Zero Together initiative over the coming months.

Q: District heating has great potential to help decommission thousands of fossil fuel home heating systems and significantly reduce our need for volatile foreign fossil fuel imports, using waste heat currently being wasted from the incinerator and the highest concentration of Data Centres in the world. Why is the target so low at only 10% of Dublin households by 2030? Is there not more of an urgency now with global events? Will the install targets get the same sort of priority as water meters?

A: Delivering 10% district heating by 2030 will mean the connection of approximately 200,000 homes and 2,500 public/commercial buildings with low-cost, low-carbon heat. The total investment required has been estimated at ~€1.2 billion (€650 million in public pipe network and €600 million in homes) for the deployment of the heat networks and associated heat production plants (mostly surplus heat recovery systems). Although the 10% target may not seem very high, Ireland's current percentage of District Heating is less than 1%, one of the lowest in Europe. Therefore, to meet this target will involve significant investment and resources over the next eight years. To achieve the 10% target there is a need for urgent policy intervention and funding details of which are outlined here: <https://www.districtenergy.ie/images/files/irdea-senior-government-policy-requests-may-2022.pdf>. It also requires intensive awareness and capacity building in order to create the indigenous workforce that will design, build, operate and maintain these local heat networks. This 10% target is in line with the increase of the share of DH in the heat market experienced in other countries (Denmark, Sweden and Finland) in response to the oil crisis in the 1970's so represents a real world roll out rate.

Session 3

Societal Insights towards Ireland's Clean Energy Future

Christina Demski

Q: Discourse in the public sphere regarding renewable energy is without doubt under pressure and this extends to monitoring on digital social media platforms where citizens can also feel restricted from engaging in this important discourse. Such discourse is monitored by employers via groups employees share and this can lead to separation and avoidance and someone to watch by the employer. Employers have CSR departments but how effective are they in contributing to the need for this transformation?

A: Business and industry are critical partners in the transformations required to reach climate targets, and there are some examples of where businesses have taken great steps to create change within their own workforce, but also to effect wider change in their industry. For example, in CAST we are working with the construction company WATES to think about ways the construction industry can encourage social transformations as well as changes to construction more widely. Having said that, business and industry require leadership and vision from government, and most importantly, direction and policy consistency. In the UK, I know business is calling for more policy certainty on climate change, which they feel is lacking.

Q: In my own experience with corporate/business engagement via employment there very little importance given to the climate issue and my general impression is that business organizational processes are sociopathic with the objective to achieve value without valuing our common environment which we all critically rely on. How can this mindset or paradigm be transformed?

A: I am not a business engagement expert and there will be people better equipped to answer this question, but businesses are also led by people so we might want to approach this problem like we are approaching other behaviour change issues. Different people are motivated more or less by environmental values and different approaches and interventions will be required. In some cases, only regulation and financial incentives/subsidies may move them. In other cases, it will be social norms or communication efforts to clarify the importance and relevance of making certain transformations.

Claire Haggett

Q: Is it possible to visualize offshore wind farms being operational and functioning in 100-200 years in the context of sea level rise and increasing variable weather? Can they continue to be maintained and serviced over that duration? Will they become the future oil rigs?

A: The challenges we face from climate change mean that we need to be thinking about solutions which can provide immediate help, such as the deployment of clean energy where possible. Most wind farms are planned with a relatively limited and specific timeframe in mind, and with decommissioning built into that – no one is intending that they should be functioning in 100- or 200-years' time, and I don't think that imagining what might happen so far into the future should affect how we best try and deploy this technology today.

Q: Communities in the Midlands are concerned about windfarms being developed on industrial harvested bogs in their locality. Some would rather that rehabilitation or restoration works take place on these bogs rather than windfarm development - both of which have benefits for the environment and community. How can we strike a balance here?

A: This is a really good point, and it speaks to the number of challenges to wind farms that been made on environmental grounds – what Charles Warren at St Andrew's University calls a 'green on green' debate. Striking a balance can be very difficult indeed, when faced with the huge challenges that climate change brings, and the need to protect and preserve local environments. It's certainly also true that not all locations are suitable for wind farms. What

matters is to try and find those places that are best suited wherever possible. I don't know about this particular case(s) in the Midlands but trying to work alongside communities provides the opportunity to understand and harness valuable local knowledge and expertise about those local places. There have been examples where, for example, on the basis of local knowledge, more appropriate locations/siting arrangements/layouts have been found (this has included making very small but significant changes to locations of turbines, and of the associated infrastructure). So, I'd suggest that a starting point for trying to strike any kind of balance would be to try and meaningfully engage with local communities.

Q: Nuclear power and use of plastic received enormous community support via media campaigns and political/expert advice at the time, but we're left with a horrible difficult legacy now. Can current community support be a reliable source of consent for the community in that same location in the future?

A: This is a really interesting question; and a key part of 'energy justice' is trying to think about inter-generational justice and ensuring that the costs and benefits of energy projects are distributed equally with future generations – so, trying to ensure that we don't just take all the benefit and leave the consequences for those to come. This is perhaps something which is quite resonant of course when planning renewable energy projects, compared to, for example, the use of fossil fuels. Also, most windfarms are planned with decommissioning in mind; so, it's not necessarily the case that a future community would have to also agree to a wind farm as it might have already reached the end of the operational life. Finally, I think it's also the case that a project done 'well' makes it more likely to be well received in the future too. For example, a project for which there is effective engagement to make it as locally appropriate as possible, and one which brings benefits to a local community (could be via the supply chain, investment locally, community funds, or training schemes and so on) and which can become a positive part of the local community is much more likely to continue to be well received into the future.

Q: Any evidence or thoughts on cross sectoral dividends from community buy in for example generation (getting locals bought into a wind farm increasing interest in other aspects of energy transition - transport, heating, etc)?

A: This is another really interesting question. There is indeed research that suggests a 'spill-over' effect – that if people can be effectively engaged and encouraged to engage in and understand the necessity of sustainability in one aspect of their lives (such as generating clean energy), then this may encourage them to think about this in relation to other aspects too. We've also conducted research on the multiple benefits that involvement with a local renewable energy project can bring; for example, a guaranteed revenue to be spent in the local community can make it possible to plan for and fund local activities or facilities, which can support and develop community capacity, resilience, social capital, and so on. So, there is definitely potential for cross sectoral dividends, and multiple positive impacts, if a project is developed well.

Ruth Buggie

Q: Are there any community projects looking at med-larger scale geothermal heat projects (e.g., for sports centre, community facilities, small businesses, town centres etc.) We haven't heard geothermal mentioned geothermal all today and there are a lot more opportunities, not just individual residential houses.

A: The Claremorris SEC is looking actively at the options for District heating for the town. Information on this can be found here: <https://claremorris-energy-coop.com/district-heating/> Ringsend SEC has looked at in the context of the Dublin City District Heating as part of their energy master plan.

This EU funded research project has 2 SEC partners with the Aran Islands and NUI Galway on geothermal: <https://geofit-project.eu/>

Camphill community also looked at a number of geothermal heat projects including: <https://glas.ie/2018/01/25/community-energy-case-study/>

<https://beofs.ie/camphill-community/>

Q: Could low levels of engagement be combatted through increased consultation with non-profits, working groups and support centres who directly work with vulnerable and marginalised communities? (for example, working with approved housing bodies to catalyse energy efficiency upgrades/retrofits/heat pumps etc)

A: We have and continue to work with approved housing bodies across a range of our retrofit programmes and they have been an excellent partner in the delivery of upgrades to groups of homes. Some of the models of housing have changed from the higher concentration of homes in the same area to a more distributed model of one of homes across the community and this can create more of a challenge.

However, we still view this group as an excellent opportunity for retrofit and engagement. However, they have a higher funding requirement, and this can create a challenge. Their priority is the provision of housing.

Geertje Schuitema

Q: My overwhelming take-away from today is how important it is to paint a positive pathway and destination rather than relying on fear to push us into action. Where should this vision and leadership come from?

A: Such vision and leadership should come for all involved. In reality it's often seen that responsibility is avoided and responsibility allocated away from oneself. I'd say that we all – consumers, industry, government – have a role to play and should take responsibly for the parts that we can.

General answer

The multi-solving institute <https://www.multisolving.org/> has tools to help identify the co-benefits of approaches.

References:

1. Kim, H.-J., J.-H. Kim, and S.-H. Yoo, Social acceptance of offshore wind energy development in South Korea: Results from a choice experiment survey. *Renewable and Sustainable Energy Reviews*, 2019. 113.
2. Ek, K. and L. Persson, Wind farms — Where and how to place them? A choice experiment approach to measure consumer preferences for characteristics of wind farm establishments in Sweden. *Ecological Economics*, 2014. 105: p. 193-203.
3. Boyle, K.J., et al., NIMBY, not, in siting community wind farms. *Resource and Energy Economics*, 2019. 57: p. 85-100.
4. Azarova, V., et al., Designing local renewable energy communities to increase social acceptance: Evidence from a choice experiment in Austria, Germany, Italy, and Switzerland. *Energy Policy*, 2019. 132: p. 1176-1183.
5. Brennan, N. and T.M. Van Rensburg, Wind farm externalities and public preferences for community consultation in Ireland: A discrete choice experiments approach. *Energy Policy*, 2016. 94: p. 355-365.
6. Emodi, N.V., et al., A systematic literature review of societal acceptance and stakeholders' perception of hydrogen technologies. *International Journal of Hydrogen Energy*, 2021. 46(60): p. 30669-30697.
7. Emmerich, P., et al., Public acceptance of emerging energy technologies in context of the German energy transition. *Energy Policy*, 2020. 142: p. 111516.
8. Maleki-Dizaji, P., et al., Overcoming Barriers to the Community Acceptance of Wind Energy: Lessons Learnt from a Comparative Analysis of Best Practice Cases across Europe. *Sustainability*, 2020. 12(9).