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Optimising public engagement in energy transitions: Eight recommendations to strengthen impact evaluation

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ABSTRACT

As Europe transitions towards climate neutrality, public participation is recognised as central to achieving this ambition. Government bodies and energy infrastructure developers must implement effective public engagement strategies as Europe's energy system changes. However, there is an inherent tension between accelerating the low-carbon transition and the time needed to engage citizens in transition processes. Furthermore, what constitutes 'effective' in this context and how it is assessed presents a challenge given the multi-dimensional nature of impact. Our research investigated the implementation of Ireland's transmission system operator's evolving public engagement strategy as they redevelop their approach to support the expansion and upgrade of the network. The research highlights opportunities for various public engagement practices to support societal action and impact on the energy transition. However, across the range of engagement approaches taken in this field, a key challenge faced by organisations relates to impact evaluation. Public engagement strategies are designed to include community voices. Impact evaluation adds legitimacy and accountability to these goals, yet it is generally an underdeveloped aspect of public engagement and participation processes. Drawing on research in this space we present reflections on evaluation intended to inform wider practice and support actors in leveraging opportunities to enhance societal impact.

Specifications table

Subject area	1000 Multidisciplinary
Category/categories of societal impact	Cultural Economic Environmental Political Societal Technological
Sustainable Development Goals (SDGS) the research contributes to	*GOAL 7: Affordable and Clean Energy* *GOAL 9: Industry, Innovation and Infrastructure* *GOAL 10: Reduced Inequality* *GOAL 11: Sustainable Cities and Communities* *GOAL 12: Responsible Consumption and Production* *GOAL 13: Climate Action* *GOAL 17: Partnerships to achieve the Goal*
Subject area	1000 Multidisciplinary
Related published article	[1] Boyle, E., Revez A., Deane, A., Ó Gallachóir, B. (2024). Levers and obstacles for implementing public engagement practices in electricity grid development. *Heliyon,* 10 (15) https://doi.org/10.1016/j.heliyon.2024.e34955 [2] Boyle, E., Revez, A., Duffy, G., Farrell, A., Deane, A., Ó Gallachóir, B., Wittmayer, J., (2025a). Public participation in the development of electricity grid infrastructure: Early engagements and community forums. *Energy Research & Social Science,* Vol. 120, https://doi.org/10.1016/j.erss.2024.103878 [3] Revez A., Boyle E., Deane A., Walsh M, Wilson A., Ó Gallachóir B. (2025) Public engagement practice for electricity grid system change. *Journal of Environmental Policy & Planning*:1–19. https://doi.org/10.1080/1523908X.2025.2553020 [4] Boyle, E., Revez, A., Carr, D., Reid, C., Deane, A., Ó Gallachóir, (2025b). Community benefit funds for energy infrastructure: Paving the way for public engagement and sustainable development? *Energy Policy,* Vol. 208, https://doi.org/10.1016/j.enpol.2025.114873
Research Project	***STEPS for Public Engagement with Energy Transitions in an era of Climate Crisis*** The STEPS project investigated the Irish transmission system operator, EirGrid's

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Subject area	1000 Multidisciplinary
public engagement processes as they implemented their new strategy across several projects and approaches. The research explored evolving public engagement practices relating to interconnection projects and community benefit funding through empirical and qualitative research, mapping and benchmarking it against international examples of public engagement with energy grid infrastructure, as EirGrid seek to improve both engagement processes and outcomes.	
This research was supported by MaREI, The Research Ireland Centre for Energy, Climate and Marine, and EirGrid [Grant no. 12/RC/2302_P2] https://www.marei.ie/project/public-engagement-with-energy-transitions-in-an-era-of-climate-crisis/	
Stage of research	
Complete	

Societal impacts

The energy transition is a core objective across Europe to achieve greater energy independence and to meet decarbonisation targets and climate neutrality in line with the European Green Deal and the Sustainable Development Goals. As Europe's energy system changes, grid electricity network, wind, solar, and other related infrastructure developers - both public and private - must develop and implement effective public engagement strategies to meet the societal challenges presented by the transition. However, what constitutes 'effective' in this context and how it is assessed presents a challenge given the multi-dimensional nature of impact.

In the Irish context, EirGrid, the national transmission system operator (TSO), has over recent years redeveloped their approach to public engagement in light of challenges related to public opposition and the need to vastly expand and upgrade the network. As part of a 3-year research programme,[1] we investigated the implementation of their new strategy across several projects. The research explored evolving public engagement practices relating to cross border interconnections, transmission upgrade projects, and community benefit funding through empirical and qualitative research, mapping and benchmarking it against relevant international examples.

The key findings from the research demonstrate that effective strategies require a unified effort throughout the organisation, aligning operational goals with local engagement initiatives [1]. Leadership and organisational support are signalled as essential for establishing the strategic value of engagement practices. Specifically, the findings stress that cultivating a supportive culture for public engagement is crucial. Findings also reveal that innovative engagement spaces foster opportunities that go beyond simply accepting or rejecting local projects, promoting broader community development goals [2]. The challenges of scaling effective practices while considering socio-cultural differences and of incorporating valuable reflective learning among practitioners to inform practice and policy are also highlighted [3]. Insights on the delivery of community benefit funding reveal that community benefit funds encourage and present considerable potential in the future for deepening sustainable community initiatives and grassroots climate action [4]. The opportunities for such community engagement practices to help enable societal impact on climate action were threaded throughout the research work; however, the challenge of tracking, evaluating and assessing the impact of such initiatives warrants further consideration. Drawing on our research insights, we present reflections on evaluation of public engagement intended to inform wider practice and support actors in leveraging opportunities to articulate and enhance societal impact.

[1] Full details on the research programme and outputs can be found here https://www.marei.ie/project/public-engagement-with-energy-transitions-in-an-era-of-climate-crisis/

Methodology

Over the 3-year project, the research explored EirGrid's evolving public engagement practices relating to grid infrastructure including cross border interconnection projects, local community forums and community benefit funding. The transdisciplinary research team applied a multi method approach employing qualitative interviews, participant observations, qualitative surveys, focus groups and workshops, engaging with a range of actors including community groups, EirGrid community liaison officers, public and private developers, and academic experts, which have been detailed across a number of peer-reviewed publications [1], [2], [3], [4]. While broadly investigating approaches to public engagement in relation to infrastructure development, some core overarching findings and insights were developed which are summarised in this paper. As the investigation highlighted a challenge faced by both practitioners and researchers in relation impact evaluation, we drew on these research insights to generate recommendations for developing, evaluating and evidencing impact pathways in this space.

Results and implications

Facilitating societal engagement and the challenge of evaluating impact

The research highlighted that EirGrid's new public engagement strategy is supporting societal engagement in the energy transition and climate action, while also pointing to challenges facing organisations when it comes to monitoring and evaluating public participation and engagement processes and the impact they have. The scale and speed of change required in relation to the energy transition means there is a danger that external pressures will seek to condense, minimise, or streamline engagement. This speaks to the inherent tension between speeding up the low-carbon transition and meaningfully engaging citizens in transition processes [1]. For such practices to be mainstreamed, deeper consideration is needed regarding the evaluation of impact. Here, we present some reflections on impact evaluation for wider consideration in relation to societal impact as represented across this journal.

The challenges relating to impact evaluation are multifaceted. The social domain is particularly difficult to evaluate due to the complexity of different interacting factors that influence social change. Public engagement impacts can be direct and instrumental (e.g., changes in infrastructure delivery, changes in policy), or indirect (e.g., increased capacity within communities and organisations, increased public trust, and other conceptual and relational impacts) with the latter being more difficult to track, evaluate and evidence. Furthermore, part of the difficulty lies in the fact that "effectiveness" in this domain is not an obvious, uni-dimensional and objective quality that can be easily identified, described and then measured [5]. Success is contingent on the engagement's objectives, which may include increased public participation in decision making, social acceptance, conflict resolution, empowerment, policy influence or a combination of these. As such, different actors (government, industry, researchers, civil society) may define success and impact differently, with power dynamics and biases often at play [6]. Chilvers and Kearnes' assertion that participation is co-productive, relational and emergent is also worth noting here [7]. Evaluating a single event in isolation can miss these wider dynamics and so a reflexive approach is required which is cognisant of the broader context of participation and what else is at play or has come before i.e. considering participation as part of broader science–democracy systems. Time lags and attribution are also an issue, with the effects of public engagement and participation processes potentially taking years to materialise, making short-term evaluations insufficient and making it difficult to trace direct causality. Additionally, lack of capacity means that evaluation is too often an after-thought and the process it aims to evaluate may already be under way before the issue is even raised, limiting its scope. This challenge is compounded by the absence of clear

means and resources to evaluate public engagement practices coupled with a lack of commonality in evaluation frameworks and methods. Süsser et al. [8] found that while public engagement can positively impact energy infrastructure project development processes and outcomes, research has often focused on single case studies in specific regions, noting that engagement efforts across cases have not yet been sufficiently studied. Radtke [9] discussing the literature on energy transitions, notes that a more comprehensive evaluation of public participation initiatives is warranted. Existing evaluation methods are often case-specific and the absence of universally accepted indicators makes cross-case comparisons difficult. This returns us to the previous point that effectiveness in this domain is contingent on the stated objectives, and there are differing motivations for undertaking evaluation, meaning that universal indicators may not be feasible or desirable, particularly if we seek to capture subtle shifts in culture, capacity and empowerment [6]. The tension between process and outcome evaluation is also at play here, whereby a process-centric focus (see Rowe & Frewer [10]) can limit attention on outcomes and impacts, calling for frameworks which combine process and outcome criteria and draw on mixed methods and triangulation. This all calls for a broader and deeper comprehension of how evaluation and impact are considered and underscores the need for a multidimensional understanding and analysis of impact.

Addressing the challenge of evaluating the impacts of public engagement

Addressing these challenges requires a flexible evaluation framework that employs multi-method and participatory approaches, incorporates longitudinal data collection and long-term impact tracking. Such an approach must be underpinned by institutional commitments to embedding public engagement and to integrating public input into decision-making. A systematic process for monitoring, evaluation and impact assessment is required to articulate the value and impact of engagement activities, feedback to publics, and to refine engagement methods and document lessons learned to inform policy and practice.

Impact pathways can be a useful way to think about the sequence of activities, processes, and interactions through which interventions lead to intended and unintended outcomes. The development of impact pathways enables a deeper understanding of the relationship between a project's inputs and outputs, and the desired outcomes and impacts, with insights on how they might be evaluated and evidenced. Many outcomes of engagement are difficult to quantify and impact pathways can help in mapping the causal links between activities and their broader social, economic, political or environmental impacts, and across conceptual, capacity and instrumental forms of impact. Embedding evaluation, tracking and reflection into engagement processes supports robust impact evaluation but most organisations do not currently have the capacity or resources to systematically monitor and evaluate their public engagement programmes. The resource and capacity limitations also deny an opportunity for employing participatory approaches to evaluation, working with community partners and citizens to plan for and evaluate impact in all its forms, improving both the processes and outcomes whilst ensuring representation and legitimisation of diverse voices. Drawing on a diversity of perspectives whilst accounting for broader context sensitivity enables more robust evaluation and consideration of a more expansive range of outcomes.

Our research insights point to eight recommendations for developing, evaluating and evidencing impact pathways in this space (Fig. 1):

1. Establish senior management support for public engagement and evaluation, enhancing internal organisational understanding and capacity to ensure engagement personnel are sufficiently resourced and supported i.e. embedding public engagement and evaluation into the culture of the organisation requires top-down leadership and buy-in.
2. Identify who will be responsible for impact planning, evaluation and tracking of public engagement activities and facilitate capacity building via training and support i.e. dedicated resources assigned to work with public engagement practitioners to collectively assess processes, and plan, track and evidence outcomes and impacts.
3. Understand and document motivations and public engagement objectives, desired outcomes and impacts (i.e. utilising a logic model, theory of change, or impact pathway). A participatory approach should be employed here, working with practitioners and community representatives to ensure diverse perspectives inform the impact pathways.
4. Identify the public engagement activities and associated evaluation methods, considering opportunities for monitoring and evaluation throughout the process (including reflective practice and participatory evaluation).
5. Identify impact indicators, evidence sources and data (qualitative and quantitative) to be collected and how (and when) this will be done i.e. establish tracking mechanisms.
6. Reflect on data collected and present all aspects of the findings including challenges and learnings. Drawing on community and practitioner reflections, demonstrate where feedback and learnings have been incorporated or have resulted in changes in the process or outcome.
7. Draw on the data analysis to inform impact narratives[2] reporting on successes, challenges and learnings from a variety of viewpoints. This process should also include input from practitioners and community representatives. Longitudinal data collection and evaluation can support demonstration of impact over a longer time frame.
8. Engage with other institutions and networks to share knowledge and learnings for good practice in public engagement and impact evaluation in sustainability transitions.

Implications

Research and standardised practice on impact evaluation in public engagement with transitions remains limited and without a more in-depth investigation of processes and impacts (and the pathways to achieving them), there is a risk that the growth in public engagement with and participation in sustainability transitions could be limited by repeating initiatives which only consider change in rather narrow terms. This risks overlooking the broader transformative potential of these processes in fostering longer-term citizen participation in a just transition. Learnings from more systematic process and impact evaluation of public participation in sustainability transitions can enable actors to leverage opportunities for greater societal involvement and impact. Furthermore, incorporating participatory impact planning and evaluation with community actors will enable more legitimate and robust tracking and evaluation. Public engagement strategies are designed to incorporate community voices and to include participatory opportunities within sustainability transitions with a view to increasing acceptability and enabling action. Impact evaluation adds legitimacy and accountability to these goals, whilst also highlighting potential socio-economic co-benefits. Building in opportunities for reflective practice with actors, and adaptive and responsive action based on continuous learning, can further enhance processes and outcomes [9]. Systematic and participatory evaluation allows for better assessment of the effectiveness of public engagement processes, and the learnings can inform research, policy and practice in this space facilitating an accelerated transition. Ultimately this all requires support and dedicated

[2] An impact narrative is a structured, evidence-based story that articulates how research, projects, policy, or actions contribute to significant, positive changes in society, the economy, environment, or culture. They help communicate the outcomes in ways that are meaningful, engaging, and evidence-informed.

Fig. 1. Recommendations to strengthen impact evaluation of public engagement with transitions.

resources within organisations, expertise within the public engagement team to build capacity to effectively plan for evaluation, track and assess public engagement activities, inform approach and provide evidence of outcomes and impacts. Such systematic evaluation serves to highlight the potential of public engagement and participation processes to empower communities as active agents of change, and to evidence broader societal impact relating to sustainability, community development and climate action. We present these recommendations to support actors working in this space including practitioners, engagement professionals and community liaison staff, engaged researchers and policy makers. Furthermore, we assert that a greater focus on impact evaluation in this space is a fruitful avenue for further investigation and resourcing to support its implementation.

Ethics statement

The research team obtained ethics approval from University College Cork's Social Research and Ethics Committee (Log 2022–051).

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CRediT authorship contribution statement

Aoife Deane: Writing – review & editing, Writing – original draft, Project administration, Methodology, Investigation, Conceptualization. **Brian Ó Gallachóir:** Writing – review & editing, Supervision, Project administration, Funding acquisition. **Alexandra Revez:** Writing – review & editing, Project administration, Methodology, Investigation, Formal analysis. **Clodagh Harris:** Writing – review & editing, Supervision. **Evan Boyle:** Writing – review & editing, Writing – original draft, Methodology, Investigation, Formal analysis, Conceptualization.

Declaration of Competing Interest

The authors declared no known conflicts of interest with respect to the research, authorship, and/or publication of this article.

Data availability statement

Anonymised data available from the authors upon request.

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