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RESEARCH ARTICLE

Experts and evidence in deliberation: scrutinising the role of witnesses and evidence in mini-publics, a case study

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Abstract
Experts hold a prominent position in guiding and shaping policy-making; however, the nature of expert input to decision-making is a topic of public debate. A key aspect of deliberative processes such as citizens' juries is the provision of information to participants, usually from expert witnesses. However, there is currently little guidance on some of the challenges that organisers and advocates of citizens' juries must consider regarding expert involvement, including the role of the witness, issues around witness identification and selection, the format of evidence provision, the evidence itself, and how these factors affect the experience of the participants and the witnesses. Here, we explore these issues through detailed case study of three citizens' juries on onshore wind farm development in Scotland, including interviews with the witnesses involved. This is complemented by examining a cohort of mini-publics held on energy and the environment topics, and, where possible, discussion with the program organisers. We identify a series of issues and sensitivities that can compromise the effectiveness and fairness of the evidence-giving in mini-publics, for the participants, the witnesses and the organisers. We recommend approaches and areas for future work to address these challenges. This is the first time that the ways of involving witnesses in such processes have been so comprehensively examined, and is timely given the increasing interest in democratic innovations such as mini-publics and the current discourse concerning experts.

Keywords Experts · Evidence · Deliberative democracy · Citizens' jury · Mini-populous

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Introduction

As the complexity of decision-making increases, there is an increasing need for expertise in policy-making. However, this expertise requires democratic oversight to ensure legitimacy, which in turn requires dialogue between expert and lay citizens. Effective lay-expert interaction needs to be facilitated (Brown 2014), and mini-publics are considered to be an effective mechanism to promote a conducive lay-expert relationship for 'bringing public judgment to bear on expertise' (Moore 2016), and this was indeed the motivation behind Dahl's (1989) idea of the 'mini-populous'.

Deliberative mini-publics are now widely used in policy practice as a means of bringing citizens into processes of framing, advising on, or deciding about, public policy issues. They typically bring together a diverse, and sometimes representative, group of citizens, to discuss a pertinent policy issue. The primary justification of mini-publics is that the participants' opinions are thought to be more meaningful than in alternative public engagement processes. There are a number of reasons for this. Firstly, because the participants are recruited through sampling, they tend to have less of a stake in the topic than processes that are open to all. Consequently, open-mindedness is often more prevalent. Secondly, the discussions are facilitated, which encourages each participant to justify their views and to listen to those of others respectfully. The third reason, which is of most significance for our focus here, is that mini-public participants should become much more knowledgeable about the issue. This is because participants in mini-publics are given information and evidence, by a range of witnesses, to support their deliberations. This information is critical in illuminating the complexities and boundaries of knowledge in the issue at hand (Fung 2003). Indeed, research indicates that it is the information provided to the participants that has the greatest influence on their opinions (Goodin and Niemeyer 2003; Thompson et al. 2015). Consequently, the validity and veracity of mini-publics are highly dependent on how witnesses are selected and how evidence is provided to the participants.

Therefore, it is surprising that while mini-publics have been the subject of considerable research (see (Elstub 2014; Grönlund et al. 2014; Harris 2019) for useful overviews), the role of witnesses and evidence has been largely neglected, particularly with respect to empirical research. For example, whilst there is a high degree of scholarly agreement about the need for information-giving as part of deliberative processes (Brown 2014), there remains significant uncertainty around the type of evidence best suited to informing deliberation, the desirable qualities of any expert information-providers and the best means of presenting information. There is also very little research on the process of involving experts and their motivation for involvement. This is a significant gap, because mini-publics are becoming increasingly institutionalised and consequently having a greater influence over public policy (Bua and Escobar 2018). However, if the witnesses and evidence are not incorporated in an appropriate manner, mini-publics can be highly susceptible to manipulation (Böker and Elstub 2015).

This paper seeks to remedy these empirical lacunae by presenting evidence from a case study of three citizens' juries deliberating on the question of onshore wind farm development in Scotland.

We consider a particularly common mode of information provision: that of testimony by 'witnesses' in the citizens' jury model of a mini-public. We analyse a specific case study which relates to environmental governance: ClimateXChange's 'citizens' juries on wind farm development in Scotland' project (hereafter referred to as the wind farm juries) in

which three citizens' juries were held in three different locations in Scotland to address the topic of onshore wind farm development. We examine our conclusions by comparing them with experiences from a further nine citizens' jury case studies on environmental topics. The outcomes of this work will be of value to practitioners and organisers of such mini-publics seeking to manage the contributions of experts, to policy-makers and the public who are required to judge whether they can trust the outcomes of mini-publics. Moreover, it enhances our understanding of the role of evidence and expertise in deliberative democracy and contributes to the assessment of the theoretical claims about the potential advantages of mini-publics more generally.

In the following section, we review the theoretical work on the role of experts end evidence in deliberative democracy, and outline how experts are involved in mini-publics such as citizens' juries. We then outline our research approach before presenting our findings from a case study citizens' juries project on wind farm development in Scotland. These findings are examined in the context of the evidence-giving approaches adopted by a cohort of mini-publics held on environmental issues. We conclude with recommendations for the organisation of mini-publics and further research.

Expertise and deliberative democracy

Theoretical framing

Deliberative democrats have given insufficient attention to the issue of expertise (Fischer 2009; Brown 2014; Thompson 2008). This is surprising given its importance to this democratic theory. On the one hand, the existence of expertise, and its associated inequalities in knowledge, provide a fundamental challenge to democratic and deliberative equality and the idea that all should 'have an equal opportunity to contribute to deliberation on matters that affect them' (Moore 2016). Deliberative democracy has Habermasian foundations, whereby deeper democratisation is justified in opposition to elitist governance structures. The theory suggests that deliberative processes are required to enable citizens to give reflective assent (Böker and Elstub 2015). It is therefore an empowering and emancipatory critical theory (Knops 2006). On the other hand, one of the principle justifications of deliberative democracy is that informed, reasoned and inclusive public debate can enhance the epistemic qualities of public policy decisions (Elstub 2006). Given the increasingly technical and complex nature of many policy issues, the inclusion of expertise and evidence in public debates is considered essential (Goodin 2008).

Some deliberative democrats have though addressed the issue of expertise directly. Christiano (2012) advocates a division of labour, arguing that citizens should deliberate to determine the aims of policy but that experts should determine the means and consequences of achieving these aims. However, this seems to limit the role of citizens excessively, as Parkinson (2012) comments, citizens are rightly concerned about means as well as ends. In sum, Christiano's approach is incompatible with the emancipatory aims of deliberative democracy, as it affords experts extensive discretionary decision-making power, at the expense of citizen consent.

However, a more encouraging constructivist approach amongst deliberative democrats on expert-lay relationships is emerging (Brown 2014; Fischer 2009; Moore 2016). The argument is that expertise must be 'embedded in an institutional culture

of public scrutiny' (Brown 2014) which can enhance the legitimacy of the expertise which could otherwise remain indefinite and contentious, due to its political nature. For example, experts can cherry pick data and statistics or misrepresent the work of scientific opponents (Anderson 2011). Moreover, scientific and technical expertise is unable to resolve moral and political issues that are present in most policy decisions. In sum, 'the influence of experts on public deliberation ultimately depends on their power to persuade the public' (Brown 2014). Moreover, this public scrutiny should be active and positively influence deliberation within epistemic communities, as 'then we could be said to have moved from a technocratic to a critical mode of expert authority' (Moore 2016).

At the heart of this approach is a critique of the perspective that the general public has knowledge deficits that experts need to rectify (Brown 2014; Fischer 2009; Moore 2016). Instead, lay citizens are seen to have valuable experiential and contextual knowledge that they bring to public debate and so contribute to 'a dynamic process of critical scrutiny of expert authority' (Moore 2016). This oversight and scrutiny of expertise requires 'the generation of new information and alternative interpretations of existing information' (Moore 2016). On this view, even attempts to enable lay citizens to be able to assess competing expert claims such as 'interactional expertise', a situation whereby lay citizens can 'discuss technical matters with leading scientists in the field without being able to contribute to the science itself' (Brown 2014), underestimates the ability of citizens, assuming they have knowledge deficits. Such approaches are potentially appropriate where there is scientific consensus on an uncontroversial, low public salience issue. However, 'in fields such as genetic engineering or climate research…scientific uncertainty and political controversy render top-down models of science communication obsolete' (Brown 2014). In such situations, we need the public to have input in determining the appropriate values to guide policy and to assess the conflicting evidence which are inevitably intertwined, if democratic legitimacy is to be ensured.

Consequently Brown (2014), Fischer (2009) and Moore (2016) want communication between expert and lay citizens to be a two-way, co-operative and participatory process that can foster joint policy enquiry. They also all consider different types of mini-public as useful ways to foster this type of two-way co-operative process, since they bring together expert witnesses and lay citizens in dialogue that can build mutual understanding and trust (Fischer 2009).

However, concerns have been raised that mini-publics could afford too much influence to experts to frame the topic or issue being considered by the participants, with respect to the type of experts the participants hear from, the type of evidence the experts choose to provide and the manner in which they present this. As Brown (2014) asserts, 'these framing effects do not invalidate lay deliberation, but they pose challenges for institutional design and deliberative practice'.

In summary, there is a belief that mini-publics have the potential to enable fruitful relationships between experts and lay citizens which would enable public scrutiny of expertise and evidence. However, it is recognised that this is dependent on the appropriate design of the mini-public, and in particular how witnesses are incorporated into the process. Despite

this, to date, little research has looked at the practice of witness inclusion in mini-publics (Fischer 2009). This paper seeks to contribute towards filling this important gap.

Evidence-giving in citizen's juries

In citizens' juries, witnesses provide evidence and/or advocate for particular positions and are then cross-examined by the jury (Fishkin and Luskin 2000). The witnesses might have specialist expertise on some aspect of the topic, hold a certain perspective on the issue, or have some personal experience that they can share (Lansdell 2011). Typically, the witnesses will present their evidence to the jurors in the earlier phases of the mini-public process, prior to the deliberations.

Design aspects around the evidence itself tend to be in the hands of the witnesses; by acting as witness, they use their expertise to select the information and perspectives that they think are most relevant, but the organisers may ask that this evidence be vetted by the project Oversight Panel or equivalent. Other aspects, such as the format of evidence-giving, and the evidence-givers involved, tend to be determined by the organisers (practitioners) with input from the Oversight Panel or the body commissioning the juries.

In addition to the evidence provided by witnesses, juries might be provided information by the organisers using a variety of formats: written briefing, video clips, newspaper articles and games (Iredale et al. 2006) or documentary DVDs to watch (Warburton 2008). Moreover, the jurors learn from each other through deliberation.

There are different approaches to how witnesses might be selected for involvement in mini-publics, but it is generally agreed that the greater the agency of the jurors in selecting the witnesses, the better (see Table 1). Allowing experts to determine the witnesses, and therefore the content of deliberations can recreate existing power relationships in how agendas are shaped (Manin 1987; Habermas 1996; Fischer 2009, 2000) as the process could be perceived as biased and overly manipulated (Carson and Schecter 2017). Greater autonomy on the part of participants to define the scope of the evidence they want to hear, and the people or organisation from which they wish to hear it, can go some way to mitigating this. However, at the beginning of a mini-public the participants might struggle to identify what they need to know about an issue, and therefore who they need to hear from, if they are not particularly familiar with the issue being addressed. Consequently, they might select witnesses that support their already held views (Carson and Schecter 2017). To reduce manipulation and bias in witness

Table 1 Options for selecting witnesses in mini-publics

1. Suitable witnesses are recommended by the body commissioning the deliberative process	*Least preferable*
2. Suitable witnesses are recommended by the Oversight Panel (or equivalent)	
3. The participants define how witnesses should be identified and selected	
4. The participants choose witnesses from a 'menu' of candidates. These individuals should have agreed to being put forward as a witness	
5. The participants identify the witnesses to approach	*Most preferable*

selection, (Böker and Elstub 2015) advocate opening-up mini-publics so that all who want to give evidence can.

However, a recent review of evidence-giving practices in citizens' juries and mini-publics finds little experimentation and variation with respect to evidence-giving (Elstub et al. 2018). There is then little knowledge about which techniques work most effectively in enabling participants to meaningfully weigh the evidence.

Research approach: our case study

The project that we examine as a case study ran three citizens' juries on onshore wind farm development in Scotland. Case studies are widely recognized as being useful for theory building by generating hypotheses (Flyvbjerg 2006; Crasnow 2012; Yin 2013; Toshkov 2016). Given the lack of research on the topic of expert witnesses in mini-publics, as highlighted above, we think that this is a suitable method. The wind farm juries represent an excellent case study for analysis because of the growing recognition that mini-publics can contribute to decision-making on environmental or energy topics (Smith 2003; Arias-Maldonado 2007; Elstub 2009), and because of the weight of evidence to suggest that energy-environment policy decisions require more than technical and scientific input (Cohen 1989; Dryzek 2001; Pidgeon et al. 2014) if they are to address the causes of public opposition to those decisions (see for example Bell et al. (2005) on the siting of onshore wind farms and Whitton et al. (2017) on unconventional gas).

The wind farms project held three citizens' juries of between 15 and 18 participants in three locations across Scotland (UK): Coldstream, Helensburgh and Aberfeldy, with 47 people participating in total. These are similarly sized towns in different locations in Scotland, each with a different relationship to onshore wind farms. Coldstream did not have a wind farm nearby, nor one proposed; Helensburgh had a proposed wind farm development nearby, and Aberfeldy had an existing wind farm. The juries were held in autumn–winter 2013/14 over two Saturdays, 2–3 weeks apart. This was a research project to trial the citizens' jury method and its applicability to a complex policy issue and to provide insight into what people feel about onshore wind farm development in Scotland. The topic of wind farm development was pertinent given the ambitious renewable energy targets in Scotland, and the rapid rate of onshore wind farm development. For more about the policy context, including planning policy in Scotland, see Roberts and Escobar (2015).

The first jury day was largely dedicated to evidence-giving. Five experts provided testimony at each citizens' jury: one 'neutral' witness, providing contextual and background information to jurors; two representing pro-wind farm positions; and, two presenting anti-wind farm perspectives. In total, due to substitutions, seven experts participated in the three juries.

The experts, referred to in the juries as 'expert witnesses', were identified and selected by the Stewarding Board and approached by the project organisers. Witnesses presented in three sessions on the first Saturday, giving short (10–15 min) presentations followed by a facilitated question-and-answer (Q&A) session lasting ~20 min. The witnesses and Stewarding Board members were invited to observe the evidence-giving sessions on the first day. In practice, however, the majority of the witnesses stayed for their session only, and only one Stewarding Board member opted to observe at one of the locations.

The witnesses then provided written responses by email (via the organisers) to jurors' outstanding questions before the second Saturday. Other information, taken from published

sources and references, was provided to jurors in a Handbook prepared by the organisers with oversight from the Stewarding Board. The Handbook was given to jurors to take away after the first Saturday.

The second jury day was focussed on deliberations and outcomes. There were no witnesses present in day two; however, two of the organisers acted as 'information officers' whereby they could refer back to information in the Handbook or in witnesses' presentations if the jurors requested, or if misunderstanding or misinformation was affecting the course of the deliberation.

To further examine the role of evidence and evidence-giving in the wind farm projects, we conducted two sets of semi-structured interviews with the witnesses involved: the first took place in summer 2014 (6 months following their experience as witness in the citizens' juries), the second in winter 2015 (once the outputs from the research project had been published, see Roberts and Escobar 2015). All seven of the witnesses were interviewed for the former, whereas only five agreed to the second interview.

Finally, to examine whether the outcomes from scrutinising the role of evidence and evidence-giving in the wind farms juries are case-specific, or might be applied to different citizens' juries or mini-publics more widely, we draw on to the evidence-giving format and experiences of other mini-publics with a focus on the citizens' jury format. We selected mini-publics that fulfilled two criteria: they addressed environmental or energy topics, and information about the process was publicly available. We examined the adopted process of witness selection, the number and type of witnesses, the format of information provision, and where information was available, any evaluation of the evidence-giving process. Where possible, we sought evaluation information for these projects through publicly available evaluation reports and through correspondence with the organisers.

Results and analysis: involving witnesses in citizens' juries

From a deliberative perspective, the basis of witness recruitment for evidence-giving in a mini-public should be the level and relevance of expertise, and inclusion of a diversity of relevant perspectives. In the following sections, we present a series of findings identified from our case study of wind farms in Scotland around the selection and role of witnesses, the evidence provision itself and the witnesses' own experience. These findings are interweaved with information from our meta-analysis of nine other mini-publics which fitted our selection criteria. These mini-publics are summarised in Table 2, and the locations where they were held are shown in Fig. 1 (the table and figure include the wind farm case study for completeness and ease of comparison). Evaluation materials were available for only two of the projects: Gastil et al. (2015), who evaluate the learning from eight mini-publics and Warburton (2008), who evaluated the *Climate Change Citizens' Summit* mini-public, the only project in the meta-data that did not follow the citizens' jury format. Evaluative detail of the process and outcomes for four of the remaining projects (*Get to Know Nuclear juries, Fracking: A citizen deliberation*, and the *Electrical Energy Futures* project) was enriched by the information shared by the organisers.

Table 2 A summary of the mini-publics included in our meta-analysis, arranged chronologically following comparative information about the case study project on wind farms in Scotland

No.	Project	Location/date	Length	Purpose	No. citizens	No. witnesses
1	Case Study: Wind Farm development in Scotland	Three locations across Scotland (UK); Coldstream, Helensburgh and Aberfeldy. Autumn–Winter 2013/14	2 days (Saturdays, 2–3 weeks apart)	Research project to trial the method and to find out what people feel about wind farm development in Scotland.	47 (total)	5 in each (1 neutral, 2 pro, 2 anti) 7 in total across all juries.
2a	Get to Know Nuclear (Jury 1)	Adelaide, South Australia (Australia) June–July 2016	4 days (two weekends)	To identify key issues from the Nuclear Fuel Cycle Royal Commission* findings to set the agenda for the state-wide consultation.	50	23
2b	Get to Know Nuclear (Jury 2)	Adelaide, South Australia (Australia) Oct–Nov 2016	5.5 days (three weekends)	To evaluate the feedback from the state-wide consultation and weigh up the choices and options on the important issues raised by the Royal Commission*.	350 (including the 50 from the first jury)	31
3	Infrastructure Victoria 30-year plan	Melbourne (Metropolitan) and Shepparton (Regional), Victoria (Australia) April–July 2016	6 days (over 3 months)	To explore different ways to address infrastructure challenges facing the Victoria, and inform the state's 30-year plan.	43 (each)	17 (Melbourne) 8 (Shepparton)
4	Fracking: A citizen deliberation	Preston, Lancashire (UK) June 2016	5 evenings	Research project to understand how the public feel about fracking.	15	5 (2 set the context, 1 pro/against, 1 about the process)
5	Oregon Citizens' Initiative Review**	Jackson Country, Oregon (USA) April 2014	4 days (consecutive)	To provide information to the electorate to help them make informed choices on ballot measures (in this example, GMO)	20	5 (3 in favour, 2 against). [Some of the CIR processes included a neutral witness also]

Table 2 (continued)

No.	Project	Location/date	Length	Purpose	No. citizens	No. witnesses
6	Electrical Energy Futures	New Brunswick, (Canada) October 2015	2.5 days	Research project to develop a 25-year electrical energy vision for the province.	12	7
7	New South Wales Energy Enquiry	Sydney (urban) and Tamworth (rural) June–August 2012	4 days (+ debrief) each several weeks apart	To advise Energy Economics and Security in New South Wales.	54 (in each group)	6–9
8	Climate Change Citizens' Summit	Workshops in 6 locations around England. Summit in London. March/April 2007	1.5 days	Intended to feed into the future development of DEFRA's work on climate change, and part of the draft (2008) Climate Change Bill consultation.	28/29 in each workshop (174 total) 152 at summit	5
9	Air Quality in Edinburgh City	Edinburgh (Scotland) January 1999	3.5 days	To advise Edinburgh City Council about how to reduce air pollution in the city.	14	9
10	Southern Uplands Initiative	Scottish Borders (Scotland) December 1998	3.5 days	To advise environmental policy and planning in the region	11	10

No.	Project	Description of evidence-giving process	Other information provided	Key references
1	Case Study: Wind Farm development in Scotland	Witnesses were called 'expert witnesses'. They were identified and selected by the Oversight Panel. Witnesses presented in three sessions on the first day, giving 10–15 min presentations followed by 20-minute Q&A. They also provided written responses to left over questions before the second day	Other information provided in a Handbook prepared by the organisers	Roberts and Escobar (2015)

Table 2 (continued)

No.	Project	Description of evidence-giving process	Other information provided	Key references
2a	Get to Know Nuclear (Jury 1)	Witnesses were called 'experts'. They were selected by the jurors, from a list of 85 of the people who made a submission to the Royal Commission report (on the nuclear fuel cycle). Witnesses presented on Day 2 and 3. There were 2 sessions on Day 2, four witnesses in each, who gave 10-minute presentations before being questioned as a panel for 45 min. On Day 3, 12 witnesses contributed to themed sessions (one having pre-recorded a statement). Three witnesses were unable to attend and so gave written evidence	Baseline information was provided, and there was an online forum. All jurors had access to video recordings of the experts and the discussions	YourSayNuclear (2016) NewDemocracy (2016b)
2b	Get to Know Nuclear (Jury 2)	Witnesses were called 'experts'. They were selected by the jurors, from a list of 200 candidates. The Stakeholder Reference Group suggested 160, and the jurors added a further 40 to the list	Baseline information was provided, and there was an online forum. All jurors had access to video recordings of the experts and the discussions	YourSayNuclear (2016)
3	Infrastructure Victoria 30-year plan	The witnesses were called 'experts'. There were 3 evidence-giving days in total. The Oversight Panel chose witnesses on day 1, but the jurors decided future witnesses	Baseline information was provided, and there was an online forum. All jurors had access to audio recordings of the experts	NewDemocracy (2016a)
4	Fracking: A citizen deliberation	The witnesses were called 'commentators'. They were identified and selected by the Oversight Panel. The witnesses gave 15 min presentations, followed by 25 min Q&A		Bryant (2016)

Table 2 (continued)

No.	Project	Description of evidence-giving process	Other information provided	Key references
5	Oregon Citizens' Initiative Review	The witnesses were called 'advocates' (either in favour or against the measure). Proponents participated in their official campaign capacity. Opponents were identified by the organisers. In some of the CIRs, the advocates had chosen additional witnesses. The witnesses presented to the jury on the second and third day and answered questions as a panel		Healthy Democracy (2014)
6	Electrical Energy Futures	The witnesses were called 'experts'. They were identified and selected by the organisers to represent a range of stakeholders. They gave 20 min presentations (in-person or via Skype) followed by 20 min Q&A. There were some opposing views.		Energy Transitions Canada (2016)
7	New South Wales Energy Enquiry	The witnesses were called 'expert speakers'. The organisers identified and selected the witnesses for Day 1 (driven by the online discussions), whereas the jurors selected those on Day 2. The first jury day involved 2–3 witnesses, and the second day jurors involved 4–6 expert speakers (in-person or via Skype). Presentations were followed by an open Q&A	The juries also had their own online forum where they engaged in discussions and could download information	NewDemocracy (2013)
8	Climate Change Citizens' Summit	The witnesses were called 'expert speakers'. They were identified by the organisers and represented government (20 min), business, trade unions, a consumer body and academia (5 min). There was no opposing argument	After the workshop (and prior to the summit), the participants were given information packs, a DVD, and some activities. There was also an online blog	Warburton (2008)

Table 2 (continued)

No.	Project	Description of evidence-giving process	Other information provided	Key references
9	Air Quality in Edinburgh City	Witnesses were called 'expert witnesses'. They represented a mix of specialists. On the first day, witnesses gave 10–15 min presentations, presenting evidence on the five measures of the Council's strategy to enhance air quality in the city and responded to questions and comments from jurors. Four of the witnesses returned to take part in a panel discussion at the start of the final day of the jury		Kenyon et al. (2001)
10	Southern Uplands Initiative	Witnesses were called 'expert witnesses'. They represented a range of stakeholders including a member of the affected community. On the first day, the witnesses gave 10–15 min presentations to the jury, followed by a discussion session lasting 30–40 min		Kenyon et al. (2001)

*The Citizens' Initiative Review (CIR) is an adaptation of the Citizen Jury process, and is an official part of the state of Oregon's initiative process, where citizens are engaged in citizens' jury like process to prepare information to inform voters before an election. There have been a suite of CIRs, and the one considered here informed the vote on Measure 15119 "Ordinance to Ban Growing of Some 'Genetically—Engineered' Plants". For more about the CIR programme see: https://healthydemocracy.org/cir/

Fig. 1 Location map of the mini-publics held on environmental topics that were included in our meta-analysis. Some projects held mini-publics in different locations. The locations of our case study juries are marked in yellow. Other projects included in the meta-analysis (see Table 2 for details) are in orange. (Color figure online)

Selection and role of experts

Witness selection and recruitment

While it may be theoretically preferable for jurors to identify and select the witnesses, we find that 'real-world' time and resource restrictions often limit the capacity to support this model of witness recruitment for mini-publics. In the wind farms project, the Stewarding Board (often referred to as an Oversight Panel or steering group in other examples of mini-publics) identified and agreed candidate witnesses, thereby determining the information scope. The organisers were then tasked with recruiting witnesses from these candidates. The organisers reported that the identification, selection and recruitment of witnesses were time consuming and challenging. Although the Stewarding Board provided access to expertise through their networks, the burden was on the organisers to secure the participation of witnesses. This was the approach adopted by all meta-analysis projects, at least for the initial evidence-giving sessions. However, for longer processes, jurors were granted some autonomy, for example after hearing from predetermined witnesses on the first day, jurors in the *Get to Know Nuclear* project could select subsequent witnesses from a 'menu' of candidate witnesses (derived from the list of contributors to a public enquiry on the topic at hand).

It was intended that the same witnesses would be in all three of the wind farm juries. This made witness recruitment all the more challenging because witnesses were being asked to commit to three separate dates in different parts of the country. In practice, few witnesses could attend all three juries, and the anticipated time commitment to attend three juries on weekend days clearly made recruitment challenging. In total, the

organisers approached 25 people to secure seven witnesses, one of which was a member of the Stewarding Board because simply no one else could be found. Two-thirds of the candidate witnesses declined on the grounds of existing time commitments, of which half explicitly stated family or caring responsibilities. Securing participation might have been particularly difficult in this case because it was a research project, with jury outcomes not feeding into decision-making. It is unclear whether a higher stakes outcome from the deliberative process constitutes a better incentive for prospective witnesses. Several of the organisers for projects in the meta-analysis reported that the identification, selection and recruitment of witnesses were time consuming and challenging, particularly, where the topic was sensitive or controversial. Organisers of the *Electrical Futures* project approached 34 candidates in order to recruit seven witnesses (Beckley 2016). The *Oregon Citizens Initiative Review* (CIR) projects found identifying non-advocate ('neutral') witnesses particularly problematic (Gastil et al. 2015).

What was also notable was that no female witnesses were involved in the wind farm juries. Although the organisers invited several women to participate as a witness, in practice none were able to attend. In this case, the lack of gender diversity in the witnesses could reflect poor representation of women in the energy and environment sectors more generally (IUCN-GGO 2018; UKCES 2015). Alternatively, it is possible that the process of witness recruitment does not facilitate diversity. Since female witnesses are underrepresented in nearly all of the meta-analysis projects, with three having no female witnesses at all, we suggest this is an area deserving of further research.

In the wind farms project, the witnesses' expenses were covered, but they were otherwise not remunerated for their time. This is the case for all meta-analysis projects, too. The witnesses must therefore have had a strong motivation to participate, stemming from; for example, their work or community role, their personal interest in the topic, or their support for deliberative processes. Motivation is more likely to be stronger for individuals with strong views or interest in the matter, which might be in part why it can be particularly difficult to recruit 'neutral' witnesses, especially when 'the issue involves extensive political controversy and scientific uncertainty' as expert neutrality is compromised in these situations anyway (Elstub 2014). In these circumstances, the imperative to have witnesses with a diversity of political views is enhanced. The deliberative ideal is then for all views to be included on an issue and mini-publics attempt to at least achieve the values of diversity and balance. Our findings show, however, the 'real world' challenges in achieving this, which could then compromise the deliberative credentials of mini-publics.

The role of the witnesses

In citizens' juries, witnesses are included to ensure the participants have access to a range of relevant opinions and evidence, which they can then scrutinise and synthesise with their own views to form collective recommendations. For the wind farm project, the witnesses were drawn on to provide background information, impart knowledge from their experience in a specific area or field of work, to represent a certain stakeholder or standpoint on the issue.

Prior to the juries, in some cases as part of the recruitment process, the organisers briefed the witnesses on the purpose of the project, their role as witnesses, the rationale for including witnesses and guidelines on what to expect and level to pitch information at. The recruited witnesses were collectively advised by the organisers that their role was to "assist

jurors in getting to grips with key aspects of the topic, and equip and empower them to deliberate and respond to the [jurors] task" (Roberts and Escobar 2015).

The 'neutral' witness was invited to "explain the wider context and cover the range of issues that are relevant to the topic, rather as a teacher might", whereas the other witnesses were asked to "present evidence, stories and arguments that dig deeper into the topic and raise more specific issues and perspectives" relevant to their own stance on wind energy and onshore wind farm development (quotes from the Witnesses Brief). However, the witnesses' interviews reveal that at least three of the witnesses felt their role was to 'educate' the jurors. As one expert commented, 'We are custodians of knowledge, have we not got a right and a responsibility to actually pass that knowledge on to others, in a way that they will understand, which will help them to enhance their own lives, to inspire people to do something more'. Four of the witnesses doubted how much the jurors were actually able to learn during the process: 'We are taking ordinary people, literally off the street…and expecting them, in a day, to take [in] pretty advanced material…I suspect that is unlikely' and 'People are not that interested in being engaged in these sorts of things and I doubt that you would get a hall full of people to take part or show interest in such a thing'. Two of the witnesses felt the format ought to have allowed them to engage in more teaching-style activities; to 'try to explain issues to them that they may not understand or have difficulty understanding' and 'create an environment more like a classroom, the way you would teach at a university'. One of the witnesses 'didn't think the citizens were able to take anything in at all' owing to the format (it is worth noting that evidence to the contrary is presented in Roberts and Escobar 2015).

Such remarks reiterate that these witnesses clearly felt their role was to stimulate learning rather than to "raise…issues and perspectives" relevant to the topic and the jurors' task. Moreover, it is clear that the witnesses tend to see mini-public participants as having knowledge deficits that need to be corrected rather than being active scrutinisers of their own knowledge and evidence: 'We can't leave people to just look at newspapers…','I think that [the process] needs rethinking through as to what you can expect you can get over to these people' and 'I don't think people exercise a huge amount of thought'.

It may also be worth noting that in their brief the witnesses were asked to keep the information that they planned to present to a manageable level for the jurors. One could argue that it was the witnesses' responsibility to ensure that their content was accessible and appropriate to their audience. Yet, one witness expressed that he 'felt like I had to simplify, or even dumb down, the information for this process rather than really get into the subject'.

The witnesses, therefore, did not see the jurors as equal participants that they could learn from, nor appreciate the jurors experiential and contextual knowledge. Again, we see how the involvement of witnesses might approximate important deliberative norms, thereby compromising the mini-public.

The affiliations of the witnesses

Mini-publics routinely include independent epistemic experts. However, on contested issues advocates are also thought to be important to ensure participants are exposed to all salient views and information. The witnesses which advocated for a certain position for or against wind farms had—or could be perceived to have had—a vested interest in the matter at hand. The 'pro-' witnesses (of which there were three in total involved) all worked for a

renewable energy company or trade body, both of which could be perceived to profit from wind energy development. In our interviews, the witnesses had conflicting ideas about whether having an allegiance ensured valuable expertise or biased perspectives. Interestingly, two of the witnesses felt that 'an obvious vested interest… cheapens the value of the evidence'.

Perhaps for similar reasons of integrity, five of the seven witnesses we interviewed felt that remuneration was not appropriate or necessary, with one witness stating 'if you're paid by someone, it compromises your position'.

Several witnesses reflected in interview that it is difficult for any knowledgeable expert to be truly disinterested or impartial on their topic of interest. Most interviewees felt that the affiliations of other witnesses (industry or otherwise) affected the credibility of the evidence that those witnesses presented and the fairness of the overall evidence-giving process. They suggested that the 'trustworthiness' of the witness is more important than the evidence she/he provides.

While all witnesses expressed concern about bias in their fellow witnesses' perspectives, several did not indicate that they recognise the potential for their own bias. The renewable energy lobbyists were accused of being the 'industry mouthpiece' who 'would not deviate from the [industry] line'; whilst those witnesses in turn saw themselves as accountable to stakeholders/investors. Public trust in academics over industry representatives tends to be higher (Aitken et al. 2016), and yet academics were perceived by some other (non-academic) witnesses to be 'loose cannons'. It was felt that academics were not accountable for the information that they presented in the way that industry representatives felt they were, and so the academics were freer to deviate from credible information sources. It is perhaps also worth noting that in their brief from the organisers, the witnesses were asked to provide evidence, stories and insights: they were not explicitly asked to provide references to their information, though they were encouraged to consider providing jurors with links to other materials such as briefs, blogs, websites, or videos which could act as such. Few of the witnesses opted to provide links to these materials.

While the jurors reported that the information provided by the 'neutral' introductory witness to be helpful, the jurors—and other witnesses—questioned his neutrality (Roberts and Escobar 2015). They perceived that the witness presented 'quite a slanted bias', and commented 'there's nobody to cross-examine him'; again highlighting the expert's propensity to assume that the jurors were incapable of effectively scrutinising evidence. This was common for other projects; the neutrality of 'neutral' witnesses in the CIR process was queried by advocacy group representatives (Gastil et al. 2015).

The witnesses identified by the wind farm project Stewarding Board were from industry, academia and advocacy communities; they chose not to include experiential witnesses. Indeed, our meta-analysis shows that including experiential public witnesses is rare. This could be a weakness to the process; in our interviews, at least half of the witnesses in the wind farm juries felt that the information-giving sessions would have been strengthened had the jurors also heard testimonies from public 'eyewitnesses' or 'everyday citizens' about their personal experiences, in this case, around local wind farm development. It was felt that experiential witnesses may be perceived to be unaffiliated, and thus having a vested interest or bias. As one witness said: involving a member of the public would 'greatly increase audience participation and outtake, … they tend to speak similar languages, you know, they recognise where he or she [the speaker] is coming from and are likely to pay much more attention. So, if I want to convince someone that community renewables is a good idea, I don't send someone in a suit that knows everything about wind turbines. I send in someone that up until recently didn't know anything about it and then was able to develop a successful project. That's the kind of

person who carries the needed credibility'. However, other witnesses claimed that experiential witnesses, pressure group speakers and community representatives were unqualified to be witnesses, since they would merely regurgitate the academic literature without the scientific judgement that 'experts' offer. The role of experiential witnesses as providers of evidence in citizens' juries is a topic worthy of further investigation. Again, our evidence indicates that witnesses question the ability of mini-public participants to effectively evaluate and scrutinise evidence. This inhibits the ability of mini-publics to meet the deliberative ideal of joint policy enquiry.

Issues around evidence provision

The evidence-giving format

As outlined in "Research approach: our case study" section, the wind farm juries involved three witness sessions, two of which were structured as a pro- and con-debate between two witnesses with 'opposing' perspectives. Each jury heard from five witnesses who attended in-person and gave oral presentations followed by a facilitated Q&A, all of which was in plenary.

Our meta-analysis finds five witnesses as the minimum and most common number. Further, similar to the wind farm case study, the most common format for evidence provision is 2–3 themed witness sessions, where each witness has 15–20 min to verbally present their perspective, perhaps with the assistance of slides, followed by longer Q&A with the jurors, sometimes as a panel of experts. Our meta-analysis indicates that the number of witnesses is to some extent controlled by the length of the process (Fig. 2a), and also the number of participants involved in the juries (Fig. 2b), which may both reflect the time available and the size of the project budget and scope. Regardless, we can infer that fewer than two sessions and five perspectives is generally thought to be insufficient for participants to gain a full understanding of the issue at hand.

All of the wind farm witnesses we interviewed felt the 'pro and con' debate format was problematic. Most felt it was too simplistic because there are more than two sides to complex issues, and three witnesses specifically expressed that they felt the debate style format was not conducive to learning. They would have preferred a more conversational session with the jurors (rather than one-way information provision) or learning activities over a longer time: 'it has to be a conversation, people shouldn't just listen'. There is some virtue of this approach, although according to research on deliberative polls 'once participants learn that the experts disagree they feel freer to examine the issue for themselves' (Fishkin 2009: 120), and thus the desire for continued expert interaction diminishes.

The wind farm project organisers felt that the third evidence-giving session was perhaps unnecessary (Roberts and Escobar 2015). Similarly, the *CIR* process evaluation concluded that having three evidence-giving sessions was superfluous, and that time would be better spent hearing from more 'background' or 'neutral' witnesses (Gastil et al. 2015).

Information-giving in the wind farm jury was all in plenary, and witnesses had to be physically present. This model of giving evidence is based upon 'traditional—largely outdated—conceptions of knowledge and expertise' (Fischer 2009) and knowledge transfer and there is scope to enhance and broaden this. Other projects have allowed for alternative modes of participation. For example, in the *New South Wales Energy Enquiry* witnesses could join via teleconference facilities, and witnesses who were unavailable for the *Get to Know Nuclear* juries could provide a pre-recorded statement or a written testimony.

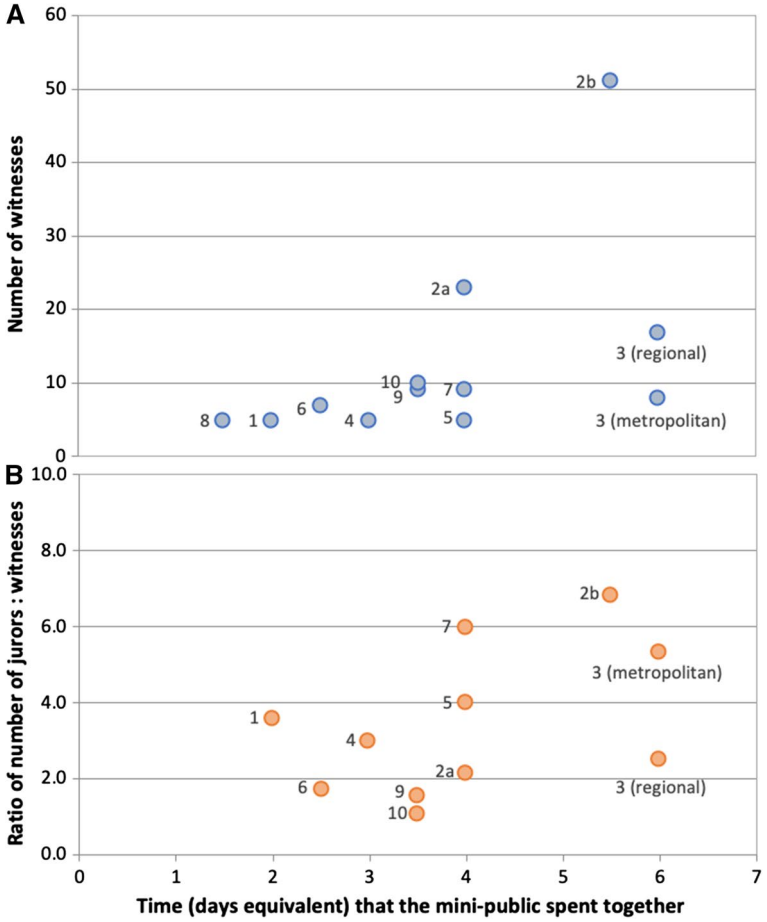

Fig. 2 **a** The number of witnesses involved in a mini-public and the total time that participant spent together (in terms of a normal 8 h working day). To some extent, the more time that the participants spent together, the greater number of witnesses involved. **b** The ratio of the number of witnesses to the number of jurors is weakly related to the length (and so budget) of the process. In both **a** and **b**, the number next to each data point indicates the project number assigned in Table 2

Further, in these juries, sometimes the interaction with witnesses took place as carousel style discussions in groups with the expert, rather than plenary talks. There could be merit in adopting non-traditional information-giving formats, particularly those which enhance how witness perspectives are communicated to jurors and receive information in return from the participants, to facilitate joint policy enquiry. For the first time, we see evidence that there was a desire from the witnesses to engage in interactive dialogue with the participants, but the evidence-giving format hindered this. Other evidence-giving formats show more promise, indicating that mini-publics can promote deliberative ideals on evidence scrutiny if appropriately organised.

The qualities of the witnesses

Involving a range of witnesses in a citizens' jury brings the added benefit—or confounding factor—of exposing the jurors to a variety of communication styles. It is common that the expert is more trusted than the evidence they provide (Aitken et al. 2016; Howell et al. 2014). The qualities of the witnesses (including their affiliation, discussed previously) and their communication style influence how witnesses will be received by jurors (Lansdell 2011).

The seven witnesses involved in the wind farm juries varied in terms of their presence, presentations, storytelling, delivery, interaction with the jurors, and interaction with each other (Roberts and Escobar 2015). These differences affected how the information was received by the jurors and—importantly—their perceptions of its veracity. In their interviews, the witnesses expressed concern that charisma would influence how the jurors take the information on board. It is perhaps to be expected that some witnesses might use emotion and persuasion to present their argument. These techniques are a key part of communication processes, and it is common for jurors to be exposed to them (Johnson et al. 2016). However, some approaches are not constructive for dialogue—phrases such as 'you can't argue with the facts', 'the science says', or '*the evidence is incontrovertible*' discourage reflection and dialogue, but are commonly used by witnesses, particularly when presenting technical evidence (Lansdell 2011).

For effective deliberation, it is therefore crucial that the jurors look beyond the performance and communication style to the argument beneath. There is good evidence that deliberations facilitated this in the wind farms project. The project researchers observe that, in their questions and discussions (during reflection on the first day and during deliberations on the second day), the jurors tended to focus on expanding their factual knowledge and clarifying understanding rather than on emotional reactions (Roberts and Escobar 2015).

The ability of a witness to answer questions appropriately also affected participants' perceptions of witness veracity, especially when conflicting answers are given and there is a lack of certainty. Reflecting on this evidence, we suggest that active mediation by the facilitators can help ensure that Q&A exchanges are of maximum value for the participants' deliberations. Further, the ability to answer questions is partly a product of how well prepared the witnesses are. In interview, several witnesses observed that, despite their briefing, they were not expecting such a demanding and adversarial experience. Therefore, the organisers may need to consider better ways to support witnesses to prepare, for example, via pre-event communication with someone with experience of giving testimonies to a mini-public audience.

Our interview witnesses raised concerns about differences in time and resources available to witnesses for preparation. One witness felt that it was unfair to put industry representatives alongside representatives from voluntary or interest groups, with industry groups able to create 'slick presentations' that interest groups cannot parallel. While all witnesses were invited to provide resources to supplement their presentation, few opted to do so, indicating differences in time resource or commitment. This is perhaps inevitable where any number of witnesses are involved in any event, and particularly so for contested topics. However, these differences can affect the perceived fairness of the overall evidence-giving process and can bring out other feelings, too. For example, in interview some wind farm witnesses called the skills of others into question, for example claiming 'there aren't really incentives for most academics to be good at communicating to non-academics', adding, 'it is not necessarily the case that academics know about issues that are critical in the 'real world''. This links to the witness's critiques of each other's' biases and each other's' evidence presented in "The affiliations of the witnesses" and "Evidence quality" sections, emphasising that they doubted the

jurors' ability to scrutinise evidence. It is worth noting that these feelings were not necessarily observable during the juries themselves. The level of questioning the witnesses was subject to does though indicate that the jurors felt empowered and were actively scrutinising the evidence and consequently that mini-publics help promote this important deliberative norm.

The content and pitch of the evidence

As previously noted, during witness recruitment the organisers gave the witnesses a briefing note about their role, topics that the witness may choose to touch on, and some communication guidelines. Ultimately, however, the witnesses had freedom to present whatever information they felt was appropriate to inform the participants' deliberations. The time restrictions of the evidence-giving format make this a particular challenge: to make effective use of the allotted time, witnesses must think quickly, articulate their arguments concisely, and avoid superfluous or distracting information.

The witnesses also had to consider the pitch of their information. In their brief, the witnesses were encouraged to prepare well, speak clearly and relatively slowly and should they opt to use slides, to pare back the text and use a large font. They were also advised that any graphs and diagrams that they opt to use should be very simple and that they should not assume any prior knowledge or familiarity with concepts or terms that are specific to the topic. Despite this, the project's evaluators noted that some witness presentations nevertheless contained overly complex information, and their arguments were at times inaccessible, particularly in the Q&A. Further, most of the witnesses did not revise their presentation slides between juries (Roberts and Escobar 2015).

The majority of the witnesses had a great deal of experience addressing an expert audience, or a relatively uninformed audience of the general public. These skills and qualities were evidenced by all jurors, and yet at times the witnesses found it difficult to speak to the jurors' level of expertise. This could be because the jurors are neither experts nor novices; some of the participants started the process with limited appreciation of the arguments around a topic, however, they were supported to rapidly elevate their technical and normative understanding (Bohman 1996). As such, the jurors became much more informed than the average citizen, but still lacked the issue-specific information held by experts. Citizens' juries are therefore an unusual audience, and it seemed that the witnesses found it difficult to navigate the middle ground of the quasi-expert. Once again, this compromises the capacity of mini-publics to facilitate a conducive interactive dialogue between citizens and epistemic communities.

Evidence quality

In interviews, the witnesses involved in the wind farm juries expressed concern about the quality of the evidence and the arguments put forward by their fellow witnesses, and for those advocating a position, their opponents in particular. The witnesses all felt similarly: that their own evidence was reputable and robust, and that they felt the other witness's evidence was not: 'Facts that were inaccurate presented on the other side and also a general dismissiveness about what I was presenting', other witnesses 'used assertions or misrepresented facts' and presented findings that were 'misleading [and] unsubstantiated'. There is a clear link here between these issues of reputability and those around affiliation presented earlier in the paper ("The affiliations of the witnesses" section).

Although interviewees expressed different perspectives about the reputability of various information sources, none mentioned which information sources and bodies citizens might trust the most. The witnesses were concerned that there were no repercussions for providing 'bad evidence' and felt that this was a limitation of the process. When asked what characteristics they felt constituted 'good' evidence, the witnesses we interviewed referred mostly to good communication rather than content, they also felt that sources should be 'neutral', 'non-biased' and '*independently peer reviewed*'. They felt that arguments should not be highly politicised, should highlight complexities and nuances of a given topic and should stand up to interrogation, and that the information presented should be clear and simple, or '*boiled down*' to the necessary. These are all characteristics that are in line with the qualities that the jurors also desire in the evidence that they receive (Roberts and Escobar 2015), but ultimately these qualities are almost unattainable on a complex and nuanced issue such as onshore wind farm development (and topics suited to mini-publics more generally).

There were occasions in where poor-quality evidence was presented or unsupported claims were made during the wind farm jury witness testimonies. Three suggested in interview that the organisers should have screened the evidence prior to the juries. Our evidence does again indicate that the witnesses doubted the jurors' ability to critically engage with evidence, particularly with contentious topics. This perceived gap is important because they also doubt the independence and quality of other witnesses.

Lansdell (2011) notes that slide-vetting could be a mechanism for increasing fairness for the witnesses, particularly for those with little experience of communicating in these sorts of forums, as well as for ensuring the witnesses fulfil their brief. Thus, not vetting the evidence beforehand might have advantaged some of the witnesses. That said, attempted controls on the witnesses' evidence were not always well received, nor heeded (Roberts and Escobar 2015); the witnesses were requested to provide their slides in advance of the event, and none of them opted to do so. Notwithstanding this, organisers should be clear that part of the witnesses' task is to present evidence that stands up to scrutiny. This is also important to support the validity of the citizen jury process itself, and its outcomes. The selection of quality evidence might be incentivised should the process be open for public scrutiny. For example, two projects in the meta-analysis were live-streamed, and the audio or video recordings of the witnesses' testimonies were made publicly available after the events (see Table 2).

Supporting the participants to make sense of evidence

In the wind farm project, the jurors learnt a great deal from the witnesses. During the evidence-giving process, witnesses could engage with the jurors several times, and through different means (including by email, managed by the organisers), so the jurors could clarify points or pick-up on previously unexamined issues. The jurors unpacked the witnesses claims in the Q&A and referred to the witnesses evidence in their deliberations, where they also grappled to understand the underlying reasons for (differences in) witness arguments (Roberts and Escobar 2015). This conclusion aligns with deliberative theory—not only do lay participants learn from the experts, they are able to challenge them too (Brown 2014).

Deliberation in citizens' juries provides the opportunity for both real and perceived bias to be considered and balanced by the diversity of the jury (NewDemocracy 2016b). However, jurors frequently suggest they would like more time to weigh up considerations and

alternatives, and allowing sufficient time for discussion and debate is deemed to be important for quality deliberation (Flynn 2009). Indeed, though the jurors involved in the wind farm project were largely satisfied by the process, several felt that more time would have been useful.

The jury process that the wind farm project designed aimed to create conditions where emotional expressions could be combined with more reasoned deliberation and space for critical thinking. However, prior to hearing the witnesses' testimonies, the participants did not have the opportunity to think together about how to critically unpack and interpret evidence. The research report recognised this as a limitation and recommended that an introductory session to support participants to critically interpret evidence (Fischer 2009; Roberts and Escobar 2015) in line with the format in (Fischer 2009). Further, (Fischer 2009; Roberts and Escobar 2015), also recommend that, at the end of each information session, jurors should be encouraged to share reflections on the evidence heard, acknowledge their reactions and further digest and rationalise the information.

A number of the deliberative processes reviewed included processes to support jurors to critically interpret evidence. For example, the New Democracy foundation (who organised the *New South Wales Energy Enquiry, Infrastructure Victoria, and Get to Know Nuclear* projects, Table 2) includes activities to improve the critical thinking skills of their participants (Carson 2017). Similarly, the first day of the CIR process included an exercise to help participants weigh up competing arguments and consider factual and values-based disagreements. Lansdell (2011) recommends the involvement of a 'technical friend', to enhance communication between the experts and participants, where the facilitator might lack the expertise to identify where language needs translating, or where technical issues are unclear. In these juries, during the deliberations, two 'information officers' (two of the organisers) answered questions on-demand (referring only to information in the Handbook or presented by the witnesses), and occasionally challenged 'uncritical consensus' to help the jurors articulate and justify arguments. It was felt that the information officers played a useful role in helping to deepen the jurors' understanding and ability to tackle complexity (Roberts and Escobar 2015); however, this role carried risk, considering the potential power and influence they could have on the deliberations. These techniques combined can give additional resources to mini-public participants to help them scrutinise the evidence and opinions provided by the witnesses and each other.

Issues around the witnesses' expectations and experiences

The involvement of witnesses is a crucial component of deliberative processes, and their efforts were greatly appreciated by the jurors, as well as the organisers. However, the witnesses' task is challenging, requiring significant time input and preparation for sustained deliberation, involves commitment outside of traditional working hours and can have limited rewards (Gastil et al. 2015; Roberts and Escobar 2015). As one witness reflected, 'it was a good exercise…crystallising my thoughts, and putting them down a compact and comprehensible manner, but it is very difficult to do—and I've been doing this for a lifetime'. Recruiting witnesses was difficult, and we would note that the mechanisms to reduce the barriers to participation in mini-publics focus on citizens and not on the witnesses who advise them. The jurors found the process challenging and different to their expectations, but an overall positive experience, leading 97% to anonymously report that they would be willing to participate in future processes (Roberts and Escobar 2015). In contrast, most of

the witnesses reflected that they would probably not participate in similar processes in the future, even if they enjoyed the experience.

As noted in "The evidence-giving format" section, several of our interviewees felt that their role as witnesses was to educate the jurors but were sceptical about how much evidence the jurors were actually able to take on board. If witnesses are motivated to educate, then they are perhaps likely to feel disappointed given the limited time and interaction with the jurors in the traditional citizen jury format. The same holds if the witnesses are motivated to participate by a desire to persuade the public of their viewpoint, or to listen to their concerns in order to understand the public viewpoint more fully. Being a witness does not offer these experiences, but it can allow knowledgeable individuals the opportunity to potentially influence decision-making on an issue of interest or relevance to them. However, only two of the wind farm witnesses had faith that future applications of the citizens' jury processes might influence political decision-making.

Most of the (5) interviewees felt that it would be useful to have been present during the deliberative phase. With only a brief window of involvement, the witnesses have limited opportunity to appreciate the deliberative effort involved, and therefore of the value of the evidence they provide in the process that they are informing. There is clearly a complex balance between a witness's expectations, time investment throughout the process, how rewarding the witnesses find the experience and how supportive they are of the processes they are informing.

Few of the projects in our meta-analysis allowed the witnesses to observe the deliberations, which is standard practice, as the presence of witnesses is thought to undermine the creation of a comfortable environment for deliberation. The organisers of the *Electrical Futures* juries allowed one of the witnesses to observe the deliberations. That witness reported being impressed with the process and having learned a lot from the jurors and from the other witnesses (Beckley 2016). There may therefore be value in allowing witnesses insight into the full process. The witnesses need not be physically present to achieve this; much of the *Get to Know Nuclear* juries were live-streamed or videoed so that the discussions could be observed by anyone interested in the process, including the other witnesses if they wished. However, observing the jury process demands further time investment, when the workload of the witnesses is already high. There is clearly a complex balance between a witness's expectations, time investment throughout the process, how rewarding the witnesses find the experience and how supportive they are of the processes they are informing.

However, as it stands, our analysis of the Scottish wind farms case aligns with previous work that suggests that witnesses may feel they are 'wheeled in and wheeled out' of the deliberative processes, and that their involvement is short-lived or indirect (Hendriks et al. 2007; Lansdell 2011). Since this is far from the truth, the witnesses' experience should be evaluated, giving opportunity for their views to be listened to. The witnesses should also be kept up to date with the outcomes and developments around the deliberative process, should they wish.

Discussion and recommendations

Mini-publics have frequently been advocated as a suitable mechanism to foster conducive relationships between expert and lay citizens. However, there has been little research on the various design choices involved in witness selection, the type of evidence best suited

to informing deliberation, the desirable qualities of expert witnesses and the best means of enabling lay participants to engage with this information. To contribute to fulfilling this significant gap, we analysed interview data, along with the project research data for a rich case study. Here, we first link our findings to deliberative theory. We then summarise the key issues raised by our research here and suggest solutions to manage these that we believe will ultimately enhance the deliberative process for all participants.

Theoretical framing

Deliberative theory attempts us to move beyond a realistic approach to knowledge to a constructivist one whereby lay and epistemic communities deliberate to collectively learn and scrutinise evidence in joint policy enquiry. Our case study analysis indicates that there are distinct limitations in current mini-public approaches in achieving this ideal. Often 'real world' limitations that make witness recruitment challenging and rarely juror-led. The evidence-giving and scrutinising formats are largely based on traditional and outdated models of information provision. Further, in the wind farm juries the expert witnesses did not see the participants as equals who they can learn from, and doubted that the jurors could critically scrutinise and evaluate evidence. Most of the wind farm witnesses also found the experience demanding and lacked faith in the mini-public outcomes and policy influence of outcomes. However, we argue that through good mini-public design a suitable participant/witness relationship can be fostered. We now move to design recommendations to help achieve this.

Recommendations for evidence provision in mini-publics

Given the growing interest in mini-publics such as citizens' juries, there will be an increased need for witnesses to engage in these processes in future. It is important that these processes consider how best to manage some of the issues around evidence provision, in order to enhance the experience for the witnesses, to support the witnesses in their important task, and increase the legitimacy of the recommendations that result from the mini-public process. It is also pertinent that the processes are evaluated and the learnings shared.

Here, we suggest solutions or next steps for the key issues raised by our analysis of the wind farm citizens jury and complemented by meta-analysis of nine mini-publics held on environmental issues. Tackling these issues is important if we are to enhance the deliberative process for all participants, witnesses and jurors included.

- *The Oversight Panel (or equivalent) plays a crucial role* in setting the evidence scope and providing sufficient diversity of witnesses. The composition of the Panel is therefore critical and must include representatives of a range of positions.
- *Witness recruitment can be challenging*, leading to organisational problems and reducing representation. It is deeply problematic if the jurors, selected to be diverse, hear from a group of witnesses who are not diverse. Allowing jurors to select candidate witnesses may enhance witness uptake, as might allowing witnesses to participate remotely (via pre-recorded video and/or telecommunications), but reducing barriers to witness participation is an area where further work is needed.

- *There are multiple options for how evidence provision can be organised* (e.g. the number of witnesses, number of witness sessions, means of selecting the witnesses, time allowed for presentation and discussion, whether this is in plenary or carousel, whether a debate style is adopted, and the degree of interaction between the witnesses). While there is no 'correct' format, we identify two key elements that promote a fairer process: allowing jurors to have some choice about witness selection and the range of evidence to be heard and, giving sufficient time for Q&A, with several witnesses answering questions as a panel to help to tease apart some of the complexities or apparent conflicts in the evidence. However, as Brown (2014: 64) comments 'there is something ironic about deliberative forums that aim to challenge the political dominance of experts but then provide experts with a privileged spot in the programme and reduce lay-expert communication to a staged question-and-answer format.' Perhaps traditional styles of information-giving are outdated and inappropriate for deliberative processes. Overall, our evidence suggests that there is a lack experimentation in mini-publics in terms of how participants get to engage with the evidence.
- A *range of witness perspectives* is important to represent the diversity of views on the issue at hand and a range of stakeholders. The integrity of the jury's decision could be undermined by a lack of witness diversity. 'Undecided' or 'neutral' witnesses (those who are well-informed but do not advocate a particular position) can have valuable a role in exploring relationships between values, priorities and evidence and examples of trade-offs when making decisions. Non-technical experts can help to articulate or bring out normative aspects of an issue. Ideally, the jury should allow for some flexibility; if jurors identify further issues that they would like information on to inform their task, suitable witnesses can be recruited for future jury days.
- To be most effective, *witnesses must be well briefed to understand their role*, prepare for sustained involvement and consider the pitch of their information. At a minimum, the witnesses' brief should make clear the context of the deliberative process, what is expected of the witnesses, what role that witness is expected to play (e.g. to impart knowledge, present a certain position, discuss, challenge or critique information, other witnesses or the jurors), how witnesses have been identified or selected, and how the experience might differ from their previous experiences of public engagement. The organisers should seek to manage the expectations of the witnesses and also make clear how the witnesses should interact during the deliberations (e.g. during the Q&A and more informal refreshment breaks). One approach might be to invite individuals with experience of being a witness in mini-publics to share their reflections with prospective witnesses, or to act as a mentor. Otherwise, a witness-briefing workshop or orientation programme before the jury commences may be time well spent, providing opportunity to familiarize the witnesses with the process and their role, and their ethical responsibilities. The event could also allow the organisers and the witnesses to explore the nature of good evidence and the bounds of that, what the witnesses wish to gain from the experience and ensure that their aspirations are realistic and manage any feelings of unfairness or competitiveness between witnesses. These approaches will need appropriate resourcing.
- Witness *affiliation and communication style* can affect how participants receive the witnesses' evidence, but deliberation and support from facilitators should allow participants to see beyond these qualities to the information beneath. This might be aided by designing the format and facilitation style to encourage rapport between the witnesses and the participants to be rapidly developed. The content of the presented infor-

mation could be managed also, in terms of the claims made and information sources used. However, the independence and agency of the witnesses cannot be undermined; ultimately it is up to them to determine what information to present. Rather than vetting slides and so forth, approaches to opening to evidence to public scrutiny could be adopted (e.g. live-streaming, video-recording, making transcriptions of evidence available to public and wider expert groups).

- *The jurors should be supported to critique evidence* Participants tend to find the nature of conflicting information puzzling and comforting. The format and facilitation style can be designed to support jurors to make sense of these conflicts—for example by including activities towards the start of the jury process that encourage thinking about how to critically interpret and scrutinise evidence, place it in its (political) context and assess what makes evidence robust and persuasive. Group discussion following witness testimonies might also allow the jurors to share reflections and feelings. Appropriate Q&A discussions with the witnesses and the involvement of 'neutral' witnesses or 'technical friends' can help to pull apart conflicting claims, translate complexities and offer new information, which is particularly valuable given the time limitations of the process.
- The nature of conflicting positions, and the motivation for agreeing to be a witness, can encourage *emotional expression in witness testimonies*—particularly where the witness holds a strong view on the issue. Emotion is a natural form of communication and can be important in stimulating discussion. Juror diversity and the deliberation process can help unpack underlying tensions, and jurors can be supported in this by critical thinking skills development and skilled facilitation. However, in their brief, the witnesses should be made aware of the sorts of approaches and language that best encourage rational discourse and reflection, so as to encourage high-quality deliberation.
- *The witnesses may be highly sceptical of one another* and may question one another's' evidence, qualifications, affiliations and motivation for taking part—particularly if the topic is highly contested. Explaining the process of identifying and selecting witnesses, ensuring that the witnesses' expectations and aspirations are realistic, and vetting the witnesses' information (by the Oversight Panel or equivalent) may help to manage some of these issues. It could also be valuable to encourage and support the witnesses to consider the uncertainty in their own evidence and perspectives.
- *Witnesses needs must be managed*, as the role is highly demanding. Witnesses are likely only to participate in a short section of the jury and may therefore get little satisfaction from the experience. Witnesses' needs must be attended to and effort should be made to keep the environment lively and enjoyable for them. A witness-briefing workshop pre-event may, amongst other things, manage expectations. Witnesses could also be offered training with professional communicator, to improve their confidence and skills, and to distil and enhance the 'message' or story of the witness and means of managing questions. Projects should build in an evaluation of the impact of participation on witnesses from the start. Continued engagement with the witnesses should be offered after the jury, allowing the witnesses to reflect on their experience, and informing them of the outcomes and policy impact of the process. This will need appropriate resourcing.

Conclusions

Deliberative theorists suggest knowledge should be collectively and inclusively constructed through an exchange of reasons and information between epistemic and lay communities. Deliberative processes such as mini-publics are being increasingly used in policy practice as a means of bringing citizens into processes of framing, advising on, or deciding about, public policy issues. A key aspect of deliberative processes such as citizens' juries is the provision of information to participants, usually from expert witnesses. However, there is little empirical data regarding evidence-giving processes including the involvement of witnesses in mini-publics. This paper seeks to address this gap. We present evidence from a case study of three citizens' juries held on onshore wind farm development in Scotland, drawing on the research data, project evaluation, and interviews with the witnesses involved. The insights and issues we identify are complimented by examining experiences from a further nine citizens' jury case studies on environmental topics. Our outcomes include a series of recommendations for researchers and practitioners regarding how to manage some of the key sensitivities around evidence, evidence-giving and evidence-givers, and issues for future work to tackle. Our work represents a useful step forward in understanding and managing practicable challenges, as well as the processes or approaches that might encourage a productive, enjoyable and fair environment for all involved in citizens' juries and similar deliberative forums.

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