

Public opinion surveys across New Zealand - trends, comparisons & messages

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In the past few years there have been several surveys of public opinion towards wind energy and wind farms, some national and some more localised in geographical coverage. One of these surveys was commissioned by EECA in 2004 and updates an earlier national survey carried out in 1994. In this paper, comparisons are made over time and also between different samples of respondents (different communities of interest). A review of all the surveys' results invites a range of questions which are relevant to the planning and consenting of future wind farms in this country: have attitudes to wind energy and wind farms changed over the past ten years? do different types of community display different attitudes? is the focus on visual and noise effects appropriate? how do attitudinal surveys relate to experience of actual effects? What other sorts of information do we need to complement public opinion survey data? Ultimately, what does public opinion tell us about siting wind farms in New Zealand?

Introduction

The first wind farm in New Zealand was not commissioned until the late 1990s. Since then, three have been brought into operation, several more have gained their resource consents or are currently going through the process, and hardly a month goes by without the announcement of a wind farm investigation in some part of the country. New Zealand is in the early stages of what the industry hopes will be a wind farm boom period, in response to what might be characterised as a looming electricity supply crisis.

The Energy Efficiency and Conservation Authority (EECA) has been championing wind energy development for some years. EECA reported a national survey of public opinion on the use of wind energy for electricity in 1994¹ and repeated the exercise ten years later², during which time the country's first two wind farms had come into existence. These two national surveys canvassed public attitudes to the concept and prospect of wind farms in general; they did not focus on any particular wind farm proposal. We do however have several small local surveys on public attitudes to and public experience of particular wind farms in New Zealand. I refer to surveys of Ashhurst residents by Shepherd in 2003 and again in 2005, a survey of Franklin District residents by Watts 2005, and a survey of Ashhurst residents by Taylor Baines & Associates in 2005. These local surveys may help to put the national survey results into perspective.

Wind farm development in Europe preceded New Zealand by some decades. By the 1990s, considerable experience of wind farms had accumulated in Denmark, the Netherlands, Germany, Britain, Canada and the USA, to name but some. A review of experience with wind farm developments across several countries provides some interesting reflections on what might be in prospect for New Zealanders as we set out along a similar path.

¹ EECA, 1994. Attitudes towards wind generation of electricity. Report on a survey conducted by MRL Research Group. June 1994

² EECA, 2004. Omnibus Results of a nation-wide survey conducted by UMR Research. May 2004.

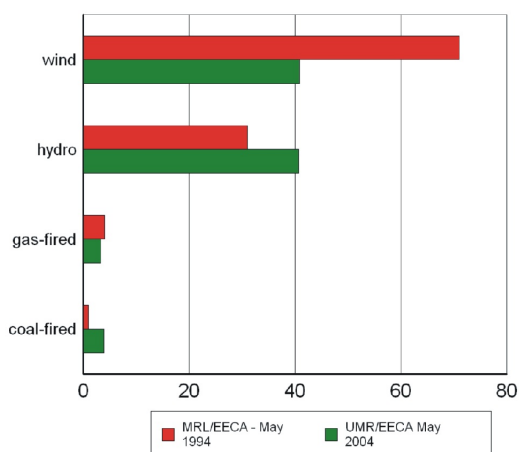
Trend over time?

In 1994, EECA asked which method of electricity generation was “most environmentally acceptable”³. In 2004, EECA asked which was the “most preferred type of electricity generation”. Responses are summarised in Table 1 and Figure 1.

Table 1: New Zealanders’ preference for types of electricity generation

Type of electricity generation	“most environmentally acceptable” MRL/EECA 1994	“most preferred type of electricity generation” UMR/EECA 2004
wind	71%	41%
hydro	31%	41%
gas-fired	4%	3%
coal-fired	1%	4%

Figure 1: New Zealanders’ preference for types of electricity generation



Renewable forms of electricity generation are consistently the most preferred or most acceptable forms of electricity generation. For comparison, a national opinion survey in the USA in 1995 (Breglio, 1995⁴ in Damborg, 1998) found that “42 % of the Americans believe that renewable energy sources like solar, wind, geothermal, biofuels, and hydroelectric should be the highest priority for continued federal funding of energy research and development. Fossil fuels and nuclear energy, which are the energy sources generating the most energy in the USA

come in last by 7 and 9 per cent.”

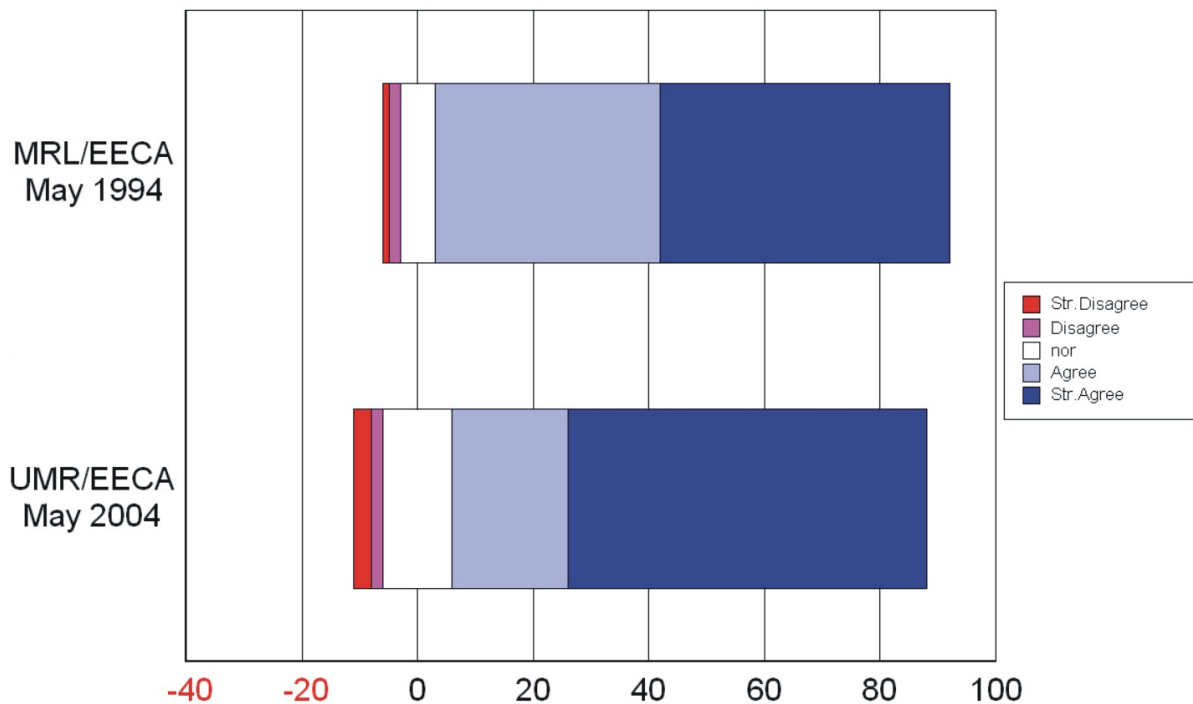
In the ten years between 1994 and 2004 wind energy has lost some ground at the expense of hydro-electricity in relative terms. However, in absolute terms, levels of support for greater use of wind power (1994) and approval for wind as a type of electricity generation (2004) have hardly changed - see Figure 2. If the responses are expressed as mean scores⁵, the mean scores for both 1994 and 2004 were 4.4.

³ Note that the question allowed several responses so that the sum is greater than 100%.

⁴ Breglio, V. 1997. Sustainable Energy Budget Coalition Survey, Washington, 1995.

⁵ Mean score based on a scale of 1-5, where 1 is “strongly disagree” and 5 is “strongly agree”.

Figure 2: Levels of public support/opposition for windpower



These levels of public support for wind energy development are similar to those reported in Europe and elsewhere ten years ago. Citing 13 research studies between 1990 and 1996 covering Canada, Denmark, the Netherlands and the UK, Damborg (1998)⁶ reported that “On an abstract level about 80 per cent of the population supports wind power in the surveys investigated in this paper.”

What can we infer from levels of support and opposition expressed on an abstract proposition?

The 2004 survey for EECA asked the question “how would you feel about a wind farm being built in your local area?” This question was then followed up with a series of questions which tested much more specific circumstances or conditions to gauge how public opinion varies under different assumptions -

- if you could not see or hear the windmills from your house;
- if you could not hear them, but could see them as distant windmills on the skyline from your house;
- if you could not hear the windmills, but could see them across the road from your house.

Mean scores are summarised in Table 2, while the spectrum of responses for various

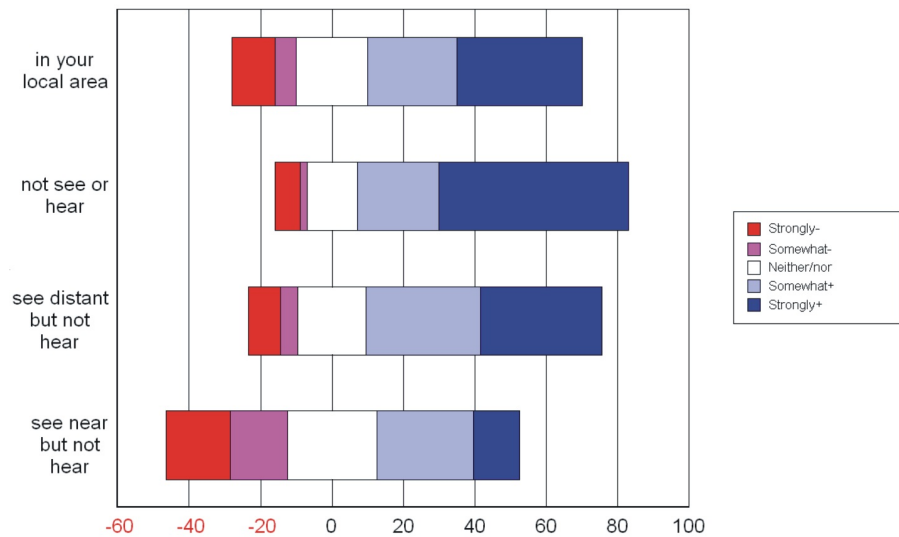
⁶ Damborg, S. 1998. Public Attitudes Towards Wind Power. Danish Wind Industry Association.

categories of New Zealanders are presented graphically in Figures 3 to 8⁷.

Table 2: Mean scores to condition-testing questions on support for wind farms

Category of respondent	Mean score (scale of 1-5)			
	“in your local area”	“not see or hear”	“see distant but not hear”	“see near but not hear”
All New Zealanders	3.7	4.1	3.8	3.0
Metropolitan Auckland residents	3.2	3.8	3.5	3.0
Metropolitan Wellington residents	4.0	4.3	4.0	3.1
Metropolitan Christchurch residents	3.8	4.4	3.9	3.0
Provincial urban centre residents	3.8	4.3	3.9	3.1
Rural New Zealanders	3.7	4.1	3.7	3.0

Figure 3: Responses for All New Zealanders



⁷

Note that data in Figures 4-8 are based on smaller sub-samples from the EECA survey which have considerably less statistical accuracy than data from the whole survey shown in Figure 3. Nevertheless, they serve to indicate comparative responses to the various conditions being tested.

Figure 4: Responses for Metropolitan Auckland residents

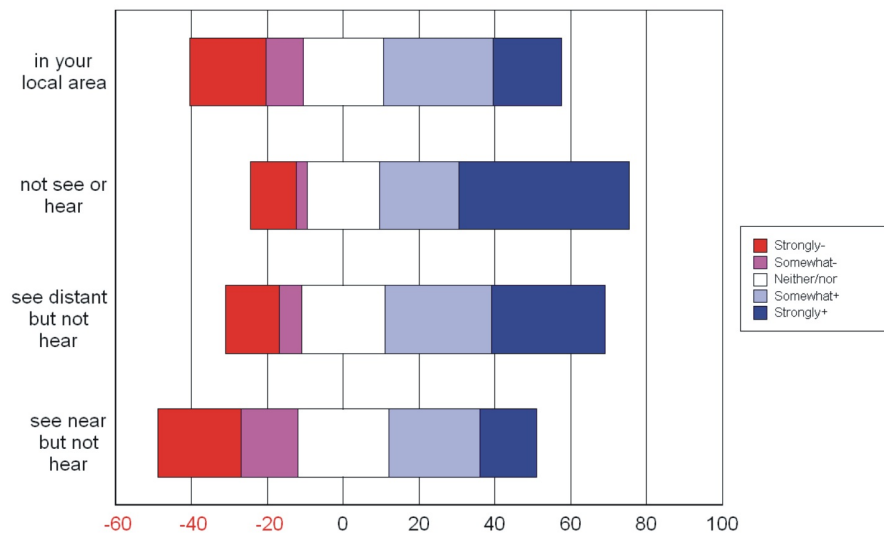


Figure 5: Responses for Metropolitan Wellington residents

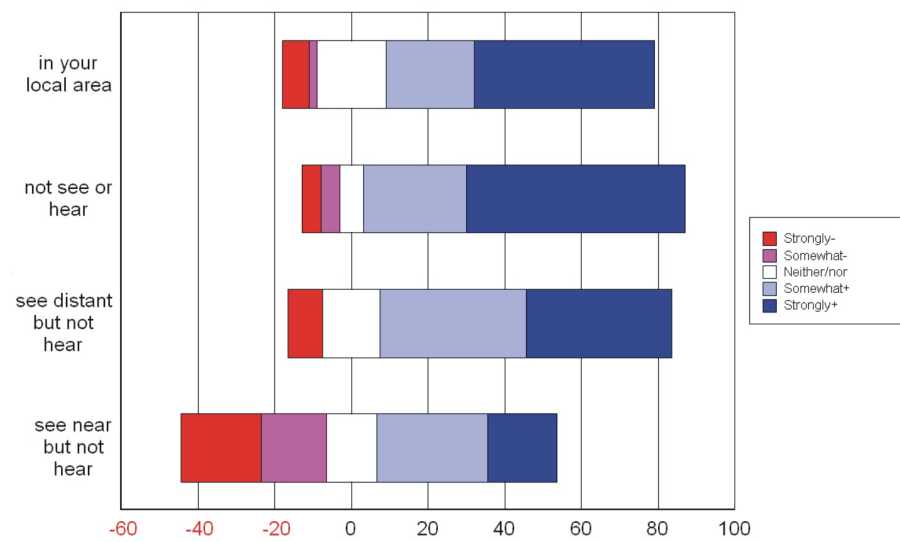


Figure 6: Responses for Metropolitan Christchurch residents

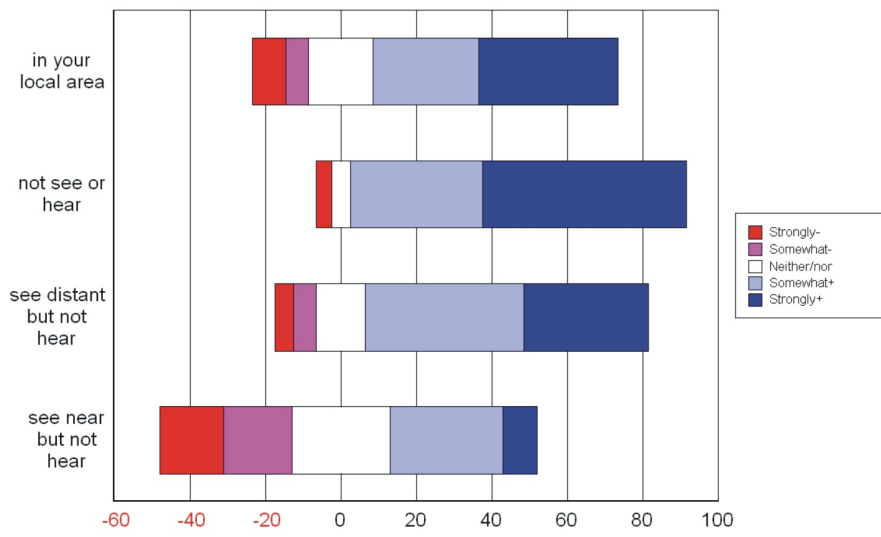


Figure 7: Responses for provincial urban centre residents

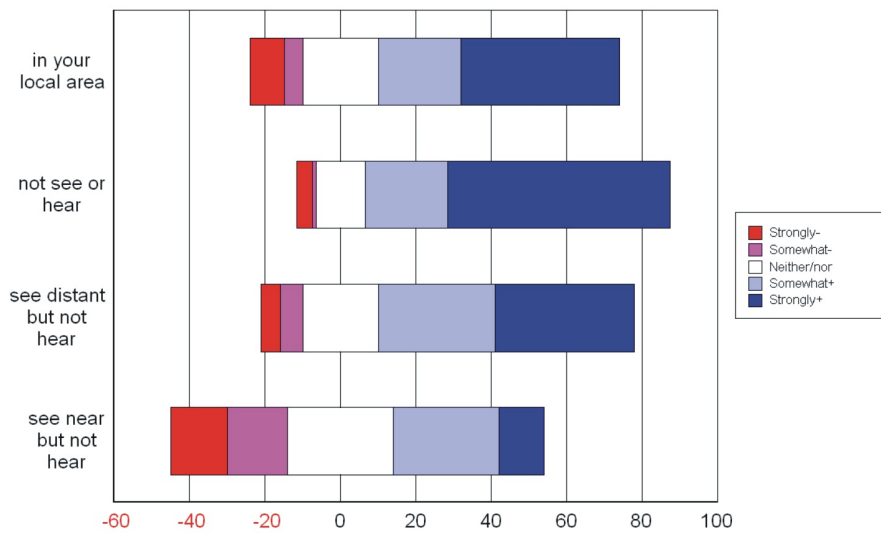
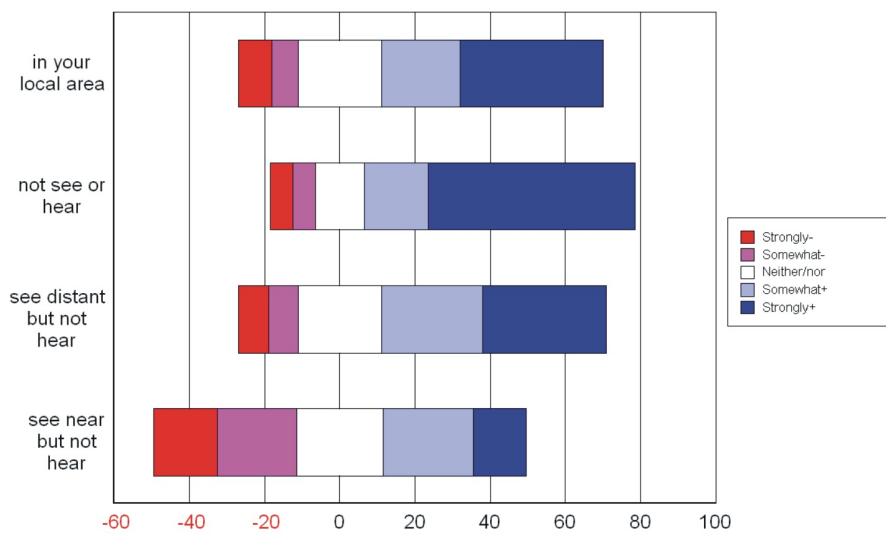


Figure 8: Responses for rural New Zealanders



In general, the level of support and opposition for the abstract proposition implies that people are responding as if a wind farm would not be heard but would be seen in the distance. The exception to this generalisation is the set of responses from metropolitan Auckland residents. While metropolitan Aucklanders tended to express lower levels of support for a wind farm in their local area than people in Wellington and Christchurch, their responses to the abstract proposition imply that they generally expected such a wind farm to be considerably closer than “distant windmills on the skyline” and indeed just as likely to be “across the road from your house” (i.e. midway between these two scenarios).

In 1994, EECA asked similar condition-testing questions to those listed above. In fact, the 1994 survey included an additional set of circumstances described as “see and hear less than living on main road” (emphasis added). This question was not repeated in 2004. The combined “Strongly/Somewhat in Favour” responses for 1994 and 2004 are compared in Figures 9 to 11⁸.

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See comment in footnote 7 which applies to the data shown in Figures 10 and 11.

Figures 9: Comparing 1994 and 2004 responses - All New Zealanders

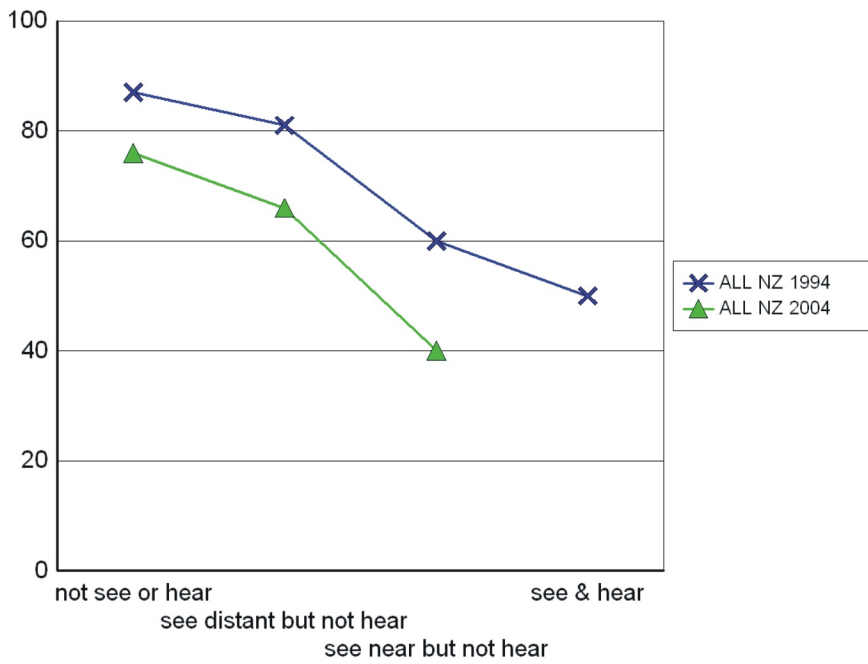


Figure 10: Comparing 1994 and 2004 responses - metropolitan residents

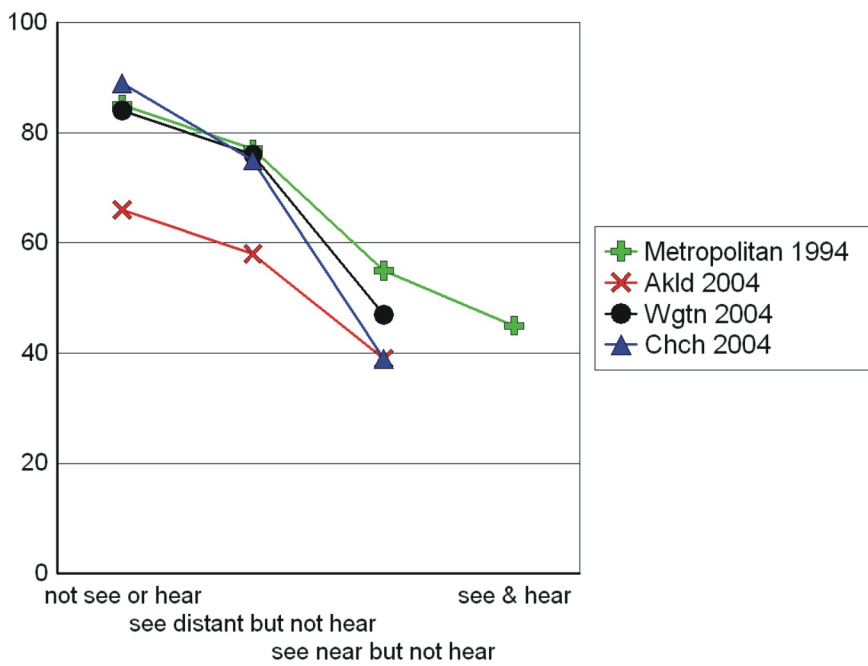
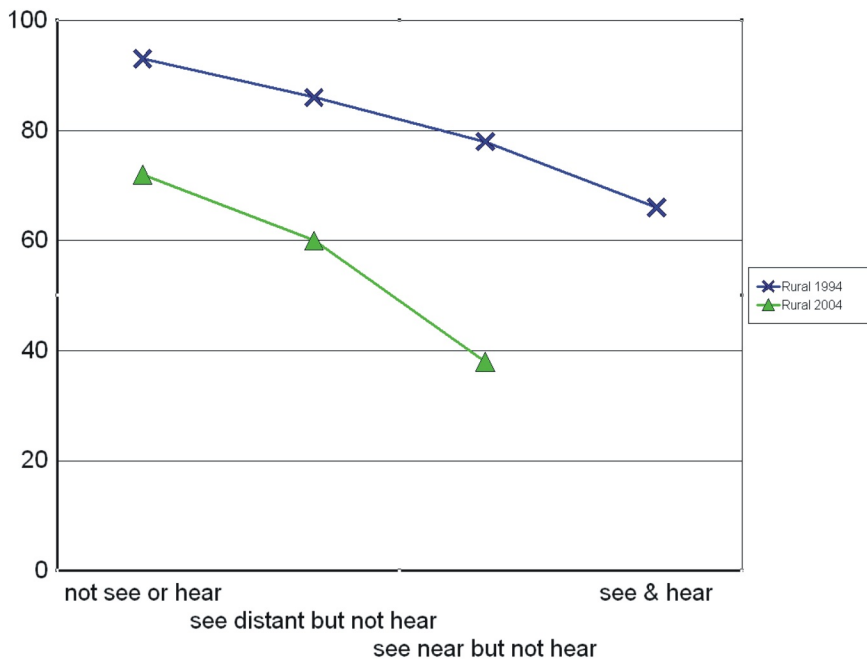


Figure 11: Comparing 1994 and 2004 responses - rural New Zealanders



How do levels of support and opposition change with proximity?

Both the 1994 responses and the 2004 responses show a clear trend of declining levels of public support as the prospect of a wind farm in their area is envisaged as being physically closer - although in all cases, overall levels of approval are never less than levels of disapproval.

In looking at trends over time, some interesting differences emerge. Firstly, in 1994, rural New Zealanders tended to express higher levels of support for wind farming than their metropolitan counterparts. This applied under all sets of circumstances that were tested. However, by 2004 this had reversed and rural New Zealanders were tending to express slightly lower levels of support than their metropolitan counterparts.

Secondly, when one compares 1994 and 2004 responses for Wellington and Christchurch respondents, there is no change in the high level of public support (84%-89%) under circumstances where a wind farm could not be seen or heard, or to the high level of public support (75%-76%) under circumstances where a wind farm might be seen as distant windmills on a skyline. However, public support in metropolitan areas appears to have declined somewhat (from 55% to 43%) over the past ten years under circumstances where “the windmills could be seen across the road from your house”.

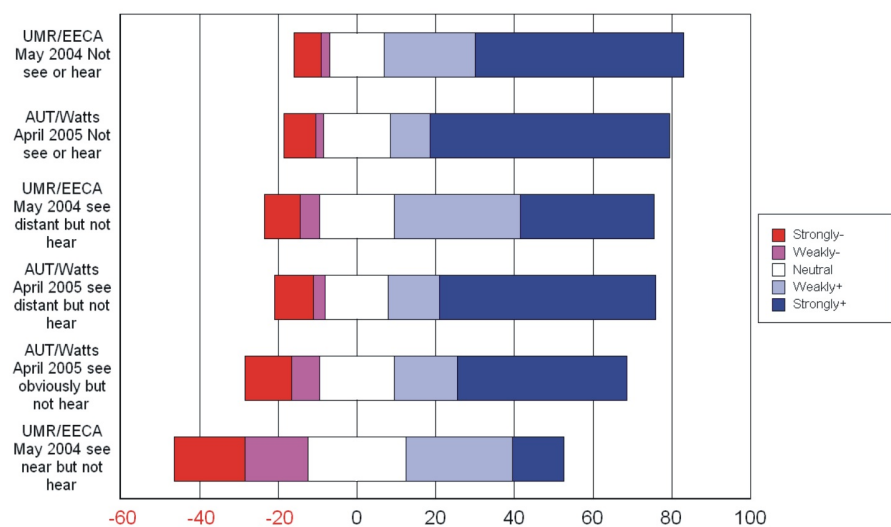
While the survey report provides no possible explanations for these trends over time, we might postulate some possibilities in light of experience with several New Zealand wind farm proposals. The decline in levels of public support might be related to the fact that wind farms are a new technology that has arrived, but is as yet not widely experienced or understood; in other words, the prospect of a wind farm nearby is now more real for New Zealanders than it was in 1994, but most New Zealanders are still relatively ignorant and uncertain about their effects. The changing levels of support for wind farms between 1994 and 2004 might be related to the changing demographics of peri-urban populations; several wind farms have been

developed or proposed quite close to urban settlements in areas that have experienced considerable land-use change from historical farming to contemporary lifestyle occupation. The reduced support might therefore reflect the associated tensions 'in Arcadia' between traditional rural people and more recent arrivals. Closely related to this possibility is the fact that wind farm developments have a tendency to create 'winners' and 'losers' in their locality; those who benefit in a direct financial sense because they receive lease payments in return for accepting the siting of turbines on their land, and those who receive no financial return, even though they have to live with the turbines in relatively close proximity. Another possible explanation for the declining levels of public support may be associated with the perception of a rapidly growing industry whose demands for land - as reflected in the number of proposals - is causing some degree of concern about cumulative effects. These possible explanations must all be treated as speculative at this stage. However, they suggest some useful ideas for additional questions in any future national survey of public opinions.

The particular circumstances described in the condition-testing questions leave some big gaps in the data on public opinion. The difference between "distant windmills on the skyline" and "see them across the road from your house" is a very dramatic difference.

The 1995 survey of Franklin District residents carried out by Charmaine Watts used different wording to test the conditionality of support or opposition for the closest case - "cannot hear but see as an obvious feature wind turbines from your property". This is a somewhat intermediate scenario between "distant windmills on the skyline" and "see them across the road from your house". It is probably a fair reflection of the reality of the operating wind farms that New Zealand currently has. Not surprisingly, Watts reported levels of support for such a proposition that are intermediate between EECA's findings of support for the scenarios of "distant windmills on the skyline" and "see them across the road from your house". Indeed, levels of approval contained in Watts results for the "see obviously scenario" are much closer to the levels of approval contained in EECA's "see distant" scenario than to EECA's "see across the road" scenario.

Figure 12: Comparing responses to 'distant', 'obvious' and 'across the road'



Being 'distant' could still be 'obvious', and vice versa. What this suggests is that the differentiation between "distant windmills" and "see them across the road" is too blunt. There are quite possibly - and in my view, quite likely - some scenarios intermediate between these

two which would still enjoy relatively high levels of public support.

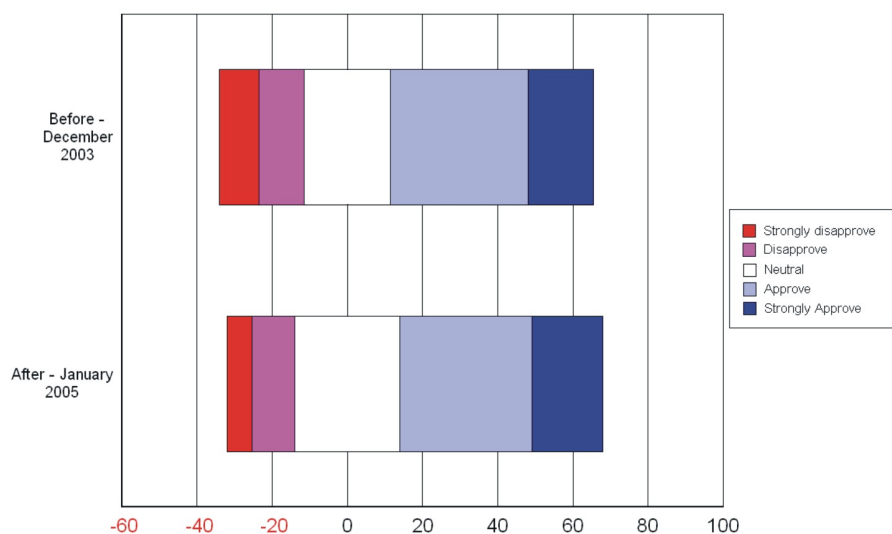
Nevertheless, the public opinion surveys do reflect the perception that visual and noise effects are amongst the most important effects; that noise effects tend to be of greater concern than visual effects; and that visual effects still meet with public acceptance somewhere between “distant windmills on the skyline” and “see them across the road from your house”. The question remains how close is acceptable? Future public opinion surveys of this kind will need to be more discriminating on this issue in order to be helpful.

How does expressed public opinion on approval or disapproval compare with experienced effects?

A couple of other small, local surveys help us to make progress on this question. However, it would be expecting too much to think that there is a simple, definitive and universal answer.

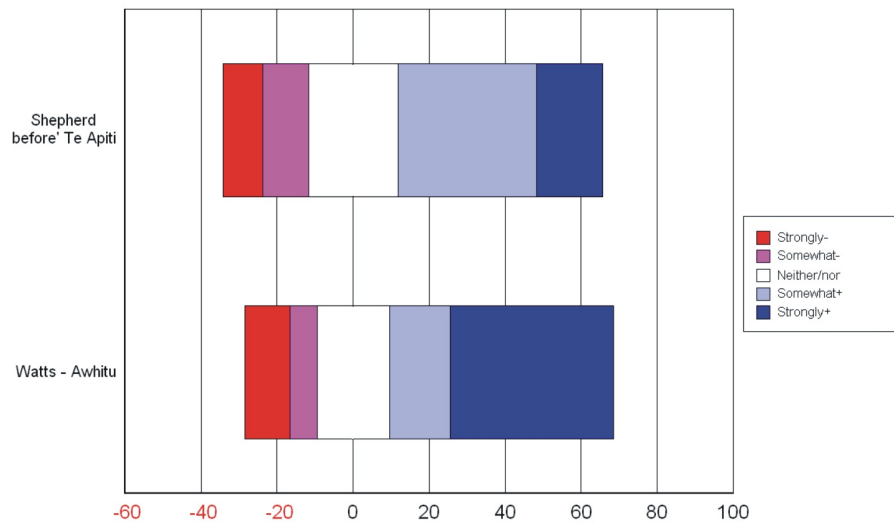
Shepherd’s local surveys of Ashhurst residents in 2003 and 2005 provide several points of interest. Firstly they provide a comparison of public opinion ‘before’ and ‘after’ the construction of the Te Apiti wind farm north of the Manawatu Gorge. Secondly, they show comparability with Watts’ results. Thirdly, they provide a comparison of levels of support versus proximity for two separation distances (2km to Te Apiti wind farm and 5km to Tararua wind farm). Fourthly, they provide a link between public expressions of support or opposition for a wind farm and reports of experienced effects.

Figure 13: Comparing public approval ‘before’ and ‘after’ construction of Te Apiti



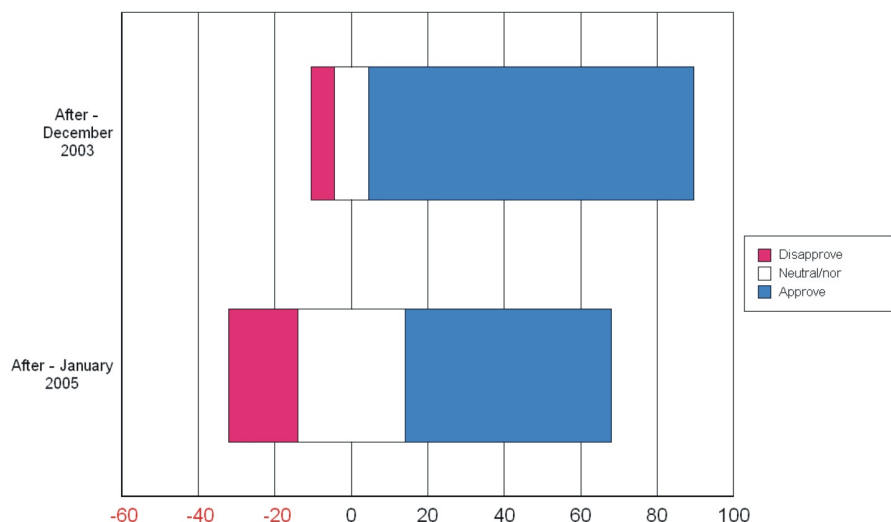
Shepherd’s results show that while overall approval levels were unchanged between ‘before’ and ‘after’ surveys, the levels of disapproval declined after the wind farm began operating. Referring to the results displayed in Figure 13, the increased certainty that comes with being able to experience (January 2005) what was previously simply a proposal (December 2003) resulted in a progressive shift of responses from strong disapproval through to strong approval; what might be described as a cascade effect.

Figure 14: Comparing public approval responses for Shepherd ‘before’ Te Apiti and for Watts Awhitu survey



The fact that the two sets of responses in Figure 14 show such similar overall levels of public approval is worthy of comment. In the case of Te Apiti, the respondents were selected (all residents of Ashhurst) because they lived in a broadly similar geographic relationship to the wind farm site, a geographical relationship where it is reasonable to describe - as a generalisation - that for the majority of Ashhurst residents, the Te Apiti wind farm is one which they “cannot hear but see as an obvious feature”. However, in Shepherd’s survey it was not described in such terms. On the other hand, when Watts conducted her survey, she invited people selected at random from throughout the Franklin District to respond to a hypothetical scenario. I believe that the comparability between the results of Shepherd and Watts adds a measure of validity to the condition-testing scenario used by Watts.

Figure 15: Comparison of Ashhurst resident’s levels of approval/disapproval for Te Apiti and Tararua wind farms, after construction



These results demonstrate graphically the influence of separation distance on expressions of support or opposition for two cases which fall somewhere along the spectrum from “distant

windmills on the skyline” to “see them across the road from your house”. It seems reasonable to conclude that proximity or separation distance does make a difference to perceptions, and also, in all likelihood, to actual experiences.

Shepherd also reported from his survey the experience of Ashhurst residents of noise effects from the Te Apiti wind farm. While 18% of Shepherd’s Ashhurst respondents expressed disapproval for the Te Apiti wind farm, only 5% indicated that they found turbine noise intrusive at times and considered it impacted upon their quality of life. These two results are not necessarily contradictory; residents of Ashhurst may well have other grounds for expressing disapproval of a nearby windfarm. However, public submissions on wind farm consent applications tend to indicate that the risk of experiencing intrusive noise is indeed the most widespread concern. At the very least, Shepherd’s data suggest that levels of negative effect experienced are considerably lower than levels of public disapproval expressed; alternatively, that levels of public disapproval or approval or not necessarily a good indicator of likely levels of effects.

To round out this analysis, I refer to another small, local survey of Ashhurst residents carried out by Taylor Baines & Associates in 2005. This was a small survey which focused on effects actually experienced; it asked no questions about support or opposition to the wind farm. This survey produced virtually identical results to Shepherd’s on the experience of noise - see Table 3 below. It also indicated that Ashhurst residents’ experience of the visual effects of Te Apiti was predominantly favourable - see Table 4 below.

Table 3: Comparing Shepherd and Taylor Baines results on experience of noise effects

Dr Shepherd’s results n=77		Taylor Baines’ results n=49	
% respondents who found turbine noise intrusive at times and considered it impacted upon their quality of life	5%	% respondents who experienced moderately or highly negative impacts from turbine noise	4%
% respondents who noticed turbine noise occasionally but were not bothered by it	28.5%	% respondents who noticed turbine noise occasionally but experienced no impacts from this	28.5%
% respondents who had not noticed any turbine noise at all	66.5%	% respondents who had not noticed any turbine noise at all	61.5%
		% respondents who noticed turbine noise and experienced pleasant impacts	4%
		% respondents who noticed turbine noise and experienced mixed impacts	2%

Table 4: Responses to Taylor Baines survey questions on visual effects

	Contiguous Ashhurst Eastern fringe	%
Total number interviewed	49	
Number interviewed who could see turbines	48	100
Pleasant visual impact	30	62.5
no visual impact	6	12.5
mixed visual impact	6	12.5
negative visual impact	6	12.5

Comparing the results in Tables 3 and 4 appears to confirm that noise effects tend to be of greater concern than visual effects; indeed, that far more respondents experienced the visual effect as positive rather than negative.

Comparisons with Europe and lessons from the European experience

I have already referred to the paper by Damborg (1998) when noting that public support for wind power in abstract - at about 80% - is at similar levels in New Zealand to that shown almost a decade ago in Europe. "The conclusions so far are that public acceptance of wind energy in general is very high. Public acceptance, however, falls when it comes to your own backyard. But public acceptance seems to increase in the local area after the installation of the wind turbines."

Damborg concluded from his review that, apart from proximity, several other factors influenced the level of public support - previous experience of wind farms, attitudes to the developer and the nature of host community involvement in the planning process. He cites Simon's 1996 summary of British Wind Energy Association surveys which highlighted a comparison of public attitudes in areas with wind farms and control areas without any wind turbines, to suggest that "attitudes towards concrete wind farm developments are more accepted in areas with prior experiences with wind farms than in areas with no experiences." The strength of NIMBY response, Damborg concludes, may be related to the level of knowledge and understanding about wind power and its effects.

Damborg also cites several studies which point to non-technical matters as being critical to the balance of approval and disapproval for wind power proposals. A 1996 study by Wolsink found "that people in areas with significant public resistance to wind projects are not against the turbines themselves, they are primarily against the people who want to build the turbines. Often the local people are kept out of the decision making process. Some have hostile attitudes against the developers, the bureaucracy or the politicians beforehand. Those factors have a significant effect on public attitudes in a specific area. Attitudes towards concrete projects are site specific. They are primarily formed by the interaction with central actors and the extent of involvement of local interests are a major explanatory factor." Another European study by Erps in 1997 reinforced the significance of such process-related issues. Erps concluded that "the attitudes towards the developer, local decision makers, and the decision process have significant influence on the public attitude towards the project. At the same time the study suggests that a participative approach in the siting procedure has a positive effect on the public attitude towards the project, and thus leads to a decrease in public resistance. What matters

is involvement of the local population in the siting procedure, transparent planning processes, and a high information level.”

Conclusions

Can we assume that high national levels of public approval implies local acceptability? The European experience appears to have been that high levels of expressed public support do not mean that strong objections will not arise to specific local proposals. This has certainly been the experience recently in New Zealand. However, high levels of public approval do suggest that there is substantial potential to win or lose support among local residents; the nature of the planning process possibly being the critical determining factor.

Public attitudes of approval or disapproval for wind energy are influenced as much by attitudes towards the process of planning and consenting wind farms as they are by values associated with renewable energy sources or environmental issues.

A pro-active approach to communications between developer and host community, based on relevant information and open dialogue is more likely to overcome negative attitudes so long as technical issues are adequately addressed. This participatory approach is also more likely to produce positive outcomes if it is supported by good information on the actual effects of existing wind farms than if it relies simply on re-iterating how many people think that wind energy is a good idea.