IEAGHG Information Paper; 2012-IP10: Public Acceptance of Wind Energy, Comparison to CCS

Background: IEA Wind Task 28 Final Report, May 2012.

Since the early developments, wind energy has become an important mainstream energy source in many countries, and the IEA Wind IA has been working to review and disseminate the developments in this important energy technology. In their recent report, *'Social Acceptance of Wind Energy Projects – Wining Hearts and Minds'*, the IA reviews the groups activities relating to social acceptance issues during the 3 year period 2008-11. As wind energy is more well-known in the public domain, there could be lessons to be learnt from their activities on social acceptance that could be applied to CCS.

The report summarises that energy policies that are implemented by governments aiming to slow the pace of climate change, improve air quality and increase their energy security are often ambitious, and each of these goals will often benefit from rapid deployment of renewable energy options. Incentive programs are often developed to encourage the rapid deployment, but despite this, the growth of wind energy varies greatly in countries and regions. Many reports and debates suggest that public and social opposition is a key factor in this variation.

Reports and debates have all helped to draw attention to the social barriers that are faced by operators wishing to develop and deploy renewable energy technologies, and while high-level public opinion surveys suggests widespread support of renewable energy, local opinion, environmental NGO's and communities often stand against installations. This suggests a major issue with public acceptance at the local scale that has been seen in some notable CCS proposals, such as Barendrecht in the Netherlands.

CCS shares some challenges with wind energy, and as wind energy is further down the line in terms of demonstrations and commercial applications, we in the CCS research and industry should try to learn from the progress and challenges overcome already by those in the wind energy sector. In 2008, wind energy was facing a dramatic slow-down in development, and media reports on the opposition to wind energy projects were having a heavy impact on the public image of wind.

Factors influencing public acceptance of wind energy include impacts such as bird strikes, disruption to nature, impacts on the landscape, safety, noise, vibration and low frequency impacts. Research has been directed to overcoming these objections, and an example of this is the tracking of migrating birds, which can now be used to shut down the wind turbines when the bird flocks are passing. This demonstrates a clear link with the opposition views being listened to and options being developed and implemented to minimise the risks involved.

While some areas have had these impacts to overcome, other well received projects have been accomplished, and through knowledge and good practice sharing, the numbers are rising. The wind industry has itself brought forward guidance on acceptance issues, most notable CanWEA's Best Practice for Community Engagement and Public Consultation (CanWEA 2011).

The main issues that have affected wind energy development in regard to social acceptance are:
- Complexity of issues and aspects involved,
- Variety of stakeholders and concerns relating to: geography, ecology, technology, communities, land ownership issues,
- Different levels / sub-groups within each stakeholder group; local, regional, national – sometimes this involves different agendas,

However these issues have in some cases been turned into positives; opposition to a project or a technology can be a showstopper; but if they are taken seriously from the outset, a relevant and well-pitched response can lead to an improvement in the social acceptance of a project, and opposition can be turned into support by taking into account local knowledge and wishes in regional or higher decision making processes. If communities feel they have a say, and are being listened to, support is more likely. There are no examples of 100% acceptance, but there are examples in literature of win-win situations, where 'hearts and minds' have been won over through explanation and education of the benefits at a local scale.

Knowledge management is vital to social acceptance, and if this is managed correctly, local administration and government decision makers will be better placed to make relevant decisions. This is a key area that CCS can learn from the wind industry. The role of a 'trusted messenger' is also vital here, and psychological studies have shown that the messenger can be as important as the message.

Conclusions and Salient Points for CCS

There are no energy generation methods without their own individual pitfalls, and in the case of wind energy, there is a perceived trade-off between clean energy generation, and the protection of the natural environment. It is unlikely that CCS projects will be located in as close a proximity to local populations as wind turbines, however the social acceptance aspects will come more into play in situations of on-shore storage, or pipeline routes. In these situations, there are significant lessons to be learnt from the experience of the wind sector:

- Communicate. Address the issues head on, and share knowledge.
- Acknowledge concerns, and keep all stakeholders involved.
- Ensure the decision making process is clear and open. If local groups feel they are being involved and listened to, they are more likely to listen to the information being shared and will have a more open view.
- Look at alternative methods to alleviate concerns; for example bird strikes were a concern raised relating to wind turbines, and tracking migrating birds and shutting down the turbines as they passed alleviated these concerns. Concerns over pipeline routing could be alleviated by describing the historic safety record of gas pipelines which may reduce fears over the placement of new CCS pipelines. Often a lack of knowledge feeds concerns, whereas education can reaffirm faith in technology
- Identify and use trusted messengers wherever possible, focus groups have shown that industry alone is rarely trusted, independent groups or bodies who can back up facts and data are more likely to be listened to.

Toby Aiken, 17/7/12