

THE VISUAL IMPACT OF ENERGY SUPPLY SYSTEMS

WHAT IS THE PROBLEM ?

Increasing awareness of the impacts of energy use in terms of climate change and the reduction of oil, gas and coal reserves has resulted in the need for a new direction for energy provision in the form of renewables. The EU target is to derive 12% of the EU's total energy consumption and 22% of electricity from renewable sources by 2010 (EEA, 2003). In order to achieve these targets new sources of renewable energy are required from photovoltaic and solar panels to offshore and onshore wind farms. These will need to be incorporated into both newly constructed and existing urban infrastructure.

Historically energy supply services have been conspicuous in the physical environment but residents of surrounding areas have relied on employment associated with the facilities and therefore considered the proximity to be an economic benefit. The decline of labour intensive energy supply systems and the increased need for renewables has introduced the problem of a lack of acceptance of visual impact of energy supply systems due to the demand for preservation of natural landscapes. There is therefore a significant problem when identifying appropriate locations for renewable energy facilities in order to maximise energy captured but minimise visual impact.

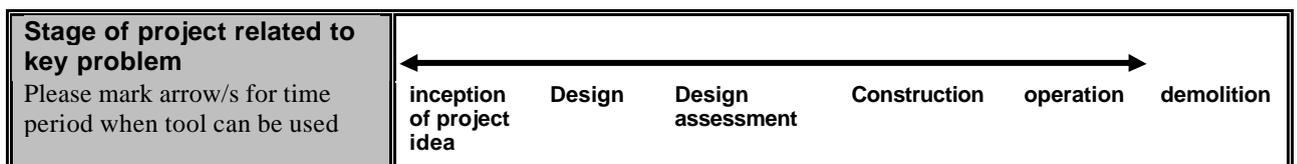


Figure 5.1 ***The location of wind turbines have a large visual impact on the surrounding area***

GEOGRAPHICAL AND TIMESCALE IMPACTS

The scale of impact will vary depending on the renewable energy source. For example, individual wind turbines and solar panels will be an issue at the neighbourhood scale while in contrast larger developments such as on and off shore wind farms will be an issue of regional and in some cases national concern.

Time scale consideration of the visual impact of energy supply systems should be made from inception to operation.



| Scale of project related to the key problem | Component | Building | Neighbourhood | City | Region |
|---|-----------|----------|---------------|------|--------|
| | | | X | X | X |

CONFLICTING PROBLEMS

The demand for energy means that energy generation from renewables such as wind farms or solar panels are required, however these can be considered a form of visual pollution that impacts on perceptions of the landscape. Therefore the major issues is between environmental/economic and social factors.

CASE STUDIE(S) LINKED TO THIS ISSUE

Three relevant PETUS case studies, are presented within PETUS

- Awel Aman Tawe Community Energy Project, UK;
- North Hoyle Offshore Wind farm, UK;
- Wind farms in Wallonia, Belgium.

WHAT WILL IMPROVE SUSTAINABILITY?

Firstly, support from the local community is essential for the success of renewable energy technologies. It is therefore necessary to utilise tools that ensure full stakeholder involvement throughout the entire project to guarantee clear and relevant information is provided and understood by all affected. The key impact of renewable energy sources is visual rather than physical and if the attitude of the population is changed acceptance will be greater.

Secondly, the investigation of less visually impacting renewable energy sources such as offshore wave energy converters would reduce objections on visual impact grounds. Although visible on the surface of the sea, the visual impact is significantly smaller than a wind turbine.

On a practical level, this issue could be improved by:

- tools such as photomontages or assessments like the Seascape assessment for offshore wind farms, guidelines, experience and best practice examples of alternative energy production methods, and the areas they are best suited to;
- encourage the monitoring of projects and sharing of information;
- provision of best practice guidance on public participation/consultation methods.