

## Creating Societal Acceptance by Negotiating Ideas

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### Abstract

*This paper has two aims. First, it addresses the role of ideas, visions and expectations in the societal acceptance of renewable energy projects in a meta-analysis of a large number of case studies. Based on a multi-level perspective on technological transitions, these projects are understood in relation to existing socio-technical infrastructures and broader social, cultural and political pressures for change in energy systems. The five-step analysis of the cases focuses on the social dynamics in the articulation and negotiation of ideas, visions and expectations. It is shown that both technological as contextual factors influence the ideas of stakeholders and that depending on the stage, manner and stakeholders involved, different actions need to be taken to align these ideas.*

*Secondly the paper reports on the development of a new instrument for intervening in new renewable energy projects by supporting project managers in creating more societal acceptance for their project. The instrument stimulates the process of negotiating expectations towards a shared vision and consists of six steps. The process is carried out by a consultant in cooperation with the project manager and stakeholders of the project. The new instrument is currently being tested and evaluated in five demonstration projects in Europe and will be freely assessable in 2008.*

### Introduction

The introduction of renewable energy technologies is part of the transition towards a sustainable energy system in Europe and the rest of the world. This transition is a large scale and long term change with impact on all levels of society. Many different kind of technologies exist in the field of renewable energy, ranging from off shore wind turbines to biomass plants and from hydrogen fuel cells to salinity power (energy gained from the diffusion of sweet and salt water). Most of these technologies are relatively new, still developing and not applied on a large scale yet. Therefore uncertainties still exist about their future applications, scale and consequences. A second characteristic of the transition to a sustainable energy system is its major impact on daily life. Private people have to adapt to the use and presence of new energy technologies in their house, car, neighbourhood and country. Industries and all other kind of organizations have to reorganize their energy policy and functioning to the new energy system.

Public opinion surveys show that a widespread support for renewable energy and energy efficiency exists<sup>1</sup>. Local, national and European governments have formulated challenging objectives to fight climate change and reduce the use of fossil fuels. Nevertheless past and current sustainable energy projects show that the described characteristics of the transition lead to resistance among stakeholders against these projects<sup>2</sup>. This resistance arises out of different ideas that stakeholders have on the (results of the) project, the impact and desired working of an innovation, the size, the location, the partners involved, or any other aspect of the project or used technology. Resistance may influence the projects and development of technology in many ways. In some cases the resistance is too little to have any influence, in other cases the resistance leads to adaptations of the project in size, location, timing, used technology, etc. and in some cases the resistance leads to a complete failure of the project. In general, resistance is considered as an aspect influencing the successful outcome of a project negatively and in order to increase the chance for a project to become successful, the resistance should be minimized (Rohracher 2005). In other words, the societal acceptance of a project should be increased.

In this paper we investigate the role of ideas, visions and expectations of different stakeholders in 27 sustainable energy projects in Europe and South Africa. In this meta-analysis the societal acceptance of these projects is considered in a multi-level perspective described in technological transition literature<sup>3</sup>. Based on these case studies a new instrument is developed which enables project managers to decrease resistance and increase the societal acceptance of the project by negotiating the ideas, visions and expectations of stakeholders towards a shared vision.

## Technological Transitions: a multi-level perspective

In technological transition literature a multi level perspective exists in which transitions are explained as the result of dynamics on three different levels: the micro-, meso- and macro-level. Niches on the micro-level, socio-technical regimes on the meso-level and socio-technical landscapes on the macro level influence each other. Developments concerning technological innovations can be understood as outcomes of multiple interactions and co-evolutionary processes between these levels (Geels 2002; Kemp, Schot & Hoogma 1998; Rip and Kemp 1998). Following this perspective, resistance from different stakeholders and the societal acceptance of new energy project raises from the societal transformation in general and the impact on these three levels in particular.

Technology developers and project managers of sustainable energy projects often only focus on the techno-economic dimension of the project. They assume that this should be sufficient for the adoption and diffusion of an innovation and do not consider (enough) the broader societal transformation of which their project is part. In practice it is shown that resistance against a project often occurs from the impact

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<sup>1</sup> In 2006, for example, the European citizens expressed their willingness to pay more for renewable energy, ranging from 20-40% of all citizens in South and East Europe and even 40-50% in North and West Europe (European Commission, 2006)

<sup>2</sup> In this article the term stakeholders is used for all parties involved in the project formally or informally. These include the project partners, investors, the local, regional and national government, the suppliers, scientists, consultants, but also neighbours, NGOs, inhabitants, media and the public in general

<sup>3</sup> In this paper societal acceptance is understood as the acceptance of a project by all different stakeholders (individuals and groups) on all levels in society.

of the project on the different levels and conflicting ideas, visions and expectations about the consequences and the desirable path of the societal transformation (Verbong, Mourik & Raven 2006). In order to create more societal acceptance and thus to increase the changes for a successful project, these ideas, visions and expectations should therefore be identified and aligned in an early stage when the project can still be adapted.

## Ideas, visions and expectations in 27 cases

### Approaching the cases

Based on the multi-level perspective and the role of ideas, visions and expectations in the societal acceptance of a project, we analysed the relation between ideas among stakeholders and the existence of resistance in 27 sustainable energy projects in Europe and South Africa (Heiskanen et al. forthcoming). In order to represent a diversity of technologies in different parts of Europe, the selection of the 27 projects was made based on the used technology (biomass, wind, solar, hydrogen, CO<sub>2</sub> capture and storage, energy conservation and other) and region the project was performed (West Europe, North Europe, East & Central Europe, South Europe and South Africa). The analysis of the case studies consisted of a five step approach.

*Firstly* the possible futures in the cases were investigated. What ideas about the future, what vision was produced? Although visions may change over time, they are crucial in the mobilization and shaping of expectations and commitment. The key-point is to know whether the visions are initially articulated around narrow self-interests or in a broader sense of societal purpose. *Secondly* the various expectations of the case were identified. Investigated is what types of interests and actors became involved and what their expectations were of the new energy project. These expectations indicate the variety in which the vision is formed and communicated. In the *third step* the ‘participatory’ decision-making process is investigated. How (what mechanisms were used and who controlled them), when and on what basis were the different expectations negotiated? *Fourthly* we analysed how the visions were translated into actualities. What were the gaps between the expectations and how and when did this result in adapting the initial objective of the vision? The *finalizing fifth step* in approaching the case studies was an indication of the successful and unsuccessful features of the cases in terms of degrees and styles of success. Table 1 summarizes the aims and outcomes of the 27 cases analysed via the described approach.

Case project	Aims	Outcome
1. Hannover social marketing for energy efficiency, Germany	Promote energy modernization through social marketing, Reduce CO <sub>2</sub> emissions	CO <sub>2</sub> reduction targets achieved, wide awareness + new businesses
2. Low energy housing (LEH), Finland	Stimulate prefabricated LEH market by procurement competition and labeling	Awareness raised, but low market penetration
3. Podhale region geothermal project, Poland	Serve as large area as possible with geothermal heat, gain realistic view of demand	Geothermal network grew, but not all ambitions met
4. Trintat Nova Ecocity energy efficiency project, Spain	Improve building quality + energy efficiency	Some, not all, energy improvements reached
5. Crickdale Bioenergy Power Station, UK	Build wood-fuelled power station	Project aborted due to local resistance

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6. Bracknell Biomass CHP Energy Centre, UK	Redevelop town centre + build biomass CHP plant in new development	Project delayed due to local resistance
7. Bioenergy Village Jühnde, Germany	Shift entire village to renewable (mainly biogas), improve participation & quality of life	Wide support, 70% residents have contract
8. Västerås Biogas Plant, Sweden	Build co-digestion plant for biogas	Plant started operation 2005, wide support
9. Lund Biogas Plant, Sweden	Build co-digestion plant for biogas	Project aborted due to local resistance
10. Pannon Power biomass conversion, Hungary	Convert one unit of the plant to biomass fuel, later: start new unit with non-wood biomass	Unit opened successfully 2004 without resistance (some doubts about further plans)
11. Umbria local bioenergy projects, Italy	Start biomass plants making use of local resources	Early projects failed due to local resistance, current ones focus on acceptance
12. EOLE 2005 wind energy programme, France	Increase installed wind capacity, Improve competitiveness, Shape value chains	Targets met after reorientation, multi-local and national resistance radicalized
13. Cap Eole wind project, France	Install 5-turbine wind farm as part of local redevelopment project	On track until now, planning and other permits approved. Cases submitted to administrative court
14. Suwalki region wind project, Poland	Support local governments in attracting wind energy investments	Overall societal acceptance reached, investors active, stalled due to policy uncertainty
15. Szclero Vep wind project, Hungary	Build 20 turbines in 3 phases through experimental community-involvement business model	First phase successful, development stalled due to authorization and grid access problems
16. Pommerania region solar energy project, Poland	Raise overall awareness of solar energy + promote use at camping sites	On track with targets (until now)
17. Barcelona Solar Ordinance, Spain	Introduce solar thermal installations as mandatory in new buildings in Barcelona	Not quite met solar installment targets, but broad impacts beyond Barcelona
18. PV Accept solar project, Italy	Promote PV implementation through design + tourist attraction monuments	3 solar panels installed, learning & co-operation with designers
19. Solar home systems (SHS), South Africa	Supply PV solar home systems & services to poor rural households in order to increase electrification	Feasible business model developed after difficulties, targets only partially met yet
20. Solar water heaters (SWH) South Africa	Provide sustainable energy for Cape Town, reduce peak loads, promote SWH adoption	Project still ongoing, by-law in the process of being adopted mandating SWHs for certain constructions
21. London CUTE hydrogen fuelling station, UK	Test and demonstrate operation of hydrogen fuel cell buses + learn from it	Positive reaction to buses, fuelling station debate caused delays and reputation crisis
22. Berlin H2Accept hydrogen bus trials, Germany	Experiment with hydrogen-fuelled bus	Met unambitious expectations, gained little attention
23. ECTOS hydrogen project, Iceland	Demonstrate hydrogen and fuel cell based transportation system + learn from it	Demonstration successful, wide support, positive attention
24. CRUST CO <sub>2</sub> capture & storage project, Netherlands	Assess conditions for underground CO <sub>2</sub> storage "buffer"	Clarification of positions, societal acceptance did not grow
25. Snohvit CO <sub>2</sub> capture & storage project, Norway	Build LNG plant with CO <sub>2</sub> capture & storage (for excess CO <sub>2</sub> in gas)	Plan due to start 2007 after delays and cost overruns, local support
26. Schwarze Pumpe CO <sub>2</sub>	Build 30 MW pilot plant for CO <sub>2</sub> capture from	Project just started, support by most locals &

capture and storage project, Germany	brown coal combustion > gradually expand to 1000 MW	national government, NGOs oppose
27. Blue Energy (salinity power) in the Netherlands	Set up small pilot plant for demonstrating Blue Energy	Not yet achieved, research ongoing but funding difficulties due to lack of confidence

Table 1: overview case studies in terms of aims and outcomes (Heiskanen et al. forthcoming)

### Analysing the cases: indicators of failure or success

The analysis of the cases showed that both *technological features* of the project as well as *contextual factors* on micro, meso and macro level influence the ideas, visions and expectations of the stakeholders. Thirdly the cases also show *different actions* that were taken to negotiate and align these ideas in order to create societal acceptance for the project among stakeholders on all levels. Below these three aspects of societal acceptance in the cases are further described.

### Technological indicators influencing societal acceptance

All the sustainable energy projects analysed are based on a relatively new technology to produce renewable energy (biomass-, wind-, solar- and hydrogen technologies and other) and/or reduce emissions and the use of energy (energy conservation and CO<sub>2</sub> capture and storage technologies). All these technologies have different features that may *create resistance*. For example the resistance against wind turbines as they are ‘destroying the landscape and horizon’ and the resistance against energy conservation projects as house owners don’t want to do the necessary investments. On the other hand, all these technologies also have different features that may *create societal acceptance*. In the case of wind turbines for example they can be owned by a consortium of local people and pay back their investment costs in a relatively short period of time. This local ownership and financial benefit often helps in creating local acceptance for the wind turbines. The energy conservation projects may be accepted as the technology is implemented internal in existing houses and no new buildings or other external visible constructions are needed. This invisibility creates local acceptance when inhabitants are for example not in favour of new buildings or constructions in their neighbourhood. All critical features of the different technologies existing in the cases influencing the resistance and acceptance of the project analysed are pointed out in table 2. Note that these issues are based on recent experiences and that other features may emerge in the future or in other projects.

	Key problems and uncertainties	Factors likely to promote success
Household energy efficiency	High public awareness and participation needed Existing public acceptance high but understanding low Individual investments; high transition and transaction costs Competing technologies	Financial incentives Information campaigns Support through social networks Potential to promise users autonomy from suppliers
Bioenergy	Siting issues Input logistics: managing economics and social and environmental impacts Variable level of public awareness and understanding in	Respecting existing (regional) networks Integrating local information into project design Management of local benefits and drawbacks

	different regions	Potential to enhance local energy independence
Wind power	Siting issues Land-use intensity Local costs and benefits and their equitable distribution Diverging views of landscape preservation Concerns about health and environmental impacts System operation concerns (intermittency)	Adaptation to local context Management of local benefits and drawbacks Involving local residents in the process
Solar energy	Costs Difficulty of developing economies of scale Small-scale applications require significant user involvement Mistrust in technology as a reliable energy source Small-scale PV: gaps in grid connection rules and bureaucratic procedures Installation firms have difficulty understanding the local context	Possibility to link decision making to other (construction) decisions and specify or mandate simple technologies Investment relevant to scale Demonstration investments at public institutions Potential to enhance local/personal energy independence Prosperous and fresh image
Hydrogen	Siting of distribution infrastructure Reputation of the operator or initiator Relations between expectations and current implementation scale Management of risks	Roots in fresh /clean technology Risk tolerance in context Shared investment Sense of shared benefits
CO <sub>2</sub> capture and storage	Low public awareness and understanding NGO resistance on issues of principle Potential exposure to legislative requirements Immature technology High investment, low income Perception that large companies are involved in order to improve image Storage and safety issues emerging?	High interest in the research community Possibilities for shared investment and common ownership?
Other: geothermal energy	Risk and environmental impacts depend on local conditions and technology applied In space heating applications, investment competes with other energy sources and other investments	High public awareness Trust in companies and partners involved Positive impact on local air quality

*Table 2: Critical issues and success factors for different new energy technologies (Heiskanen et al. forthcoming)*

### Contextual indicators influencing societal acceptance

Apart from the technological indicators also contextual factors influence the acceptance of the project positively or negatively, for example existing subsidies, heat-demand, available land to produce biomass, a trustful mayor, tourist areas, population density, good experiences with project partner, etc. The context

of each project is unique at a specific time and place and consists of a mixture of governmental policies, socio-economic factors, cultural factors and geographical factors. Examples of these contextual factors existing in the case studies are:

- *Governmental policies*: types of government policies on new energy technologies and related topics; stability of national policy; policy culture (consensus, negotiation, confrontation) and centralization of national government
- *Socio-economic factors*: availability and perception of natural resources; energy prices; technology and other input prices, costs; perception of foreign investment; importance of energy independence; national competing technologies and industries and interest in employment opportunities and regional economic development
- *Cultural factors*: trust in institutions; tradition of top-down vs. bottom-up initiatives; environmental awareness; historical experiences and attitudes to new technology
- *Geographic factors*: climate and availability of suitable locations

All these factors exist on different levels: on the local level (village, town, neighbourhood), on the national level, on the regional (European regions), on the European level, etc. Apart from these levels, also formal and informal networks exist in the context that cross the borders of the levels (Heiskanen et al. forthcoming).

## Negotiating ideas: when, how and with who

The ideas, visions and expectations of all stakeholders about the sustainable energy project are based on the technological and contextual features of the project. The case studies show that different actions are taken by project managers and other stakeholders to align these ideas in order to create more societal acceptance. These actions are taken at a certain stage in the project, in a certain manner with certain stakeholders involved. The key point is to choose the right point in these three dimensions in order to increase the chances for a successful project.

All projects consist of different stages. These can roughly be divided into: an initial idea, a planning or design stage, a building or implementation stage, an execution or working stage and in some cases an extension stage. At all of these stages stakeholders have ideas, visions and expectations of the project. The earlier the stage of the project, the more possibilities there are to align these ideas and adapt the project to the visions of the stakeholders to create societal acceptance. To do this, the cases show that at the different stages different aspects of the project should be considered. In the design stage for example it is more relevant to focus on the impact of the project on the local context (and alternative contexts considered), on the potential local, national and international partners and other stakeholders, on the concerns of the stakeholders involved and the communication with them, etc. When the project is already in the implementation stage it is more relevant to evaluate the current aspects of the project and see if improvements are possible. For example what competences have been developed during the project, how is the communication between stakeholders managed, how did the project treat and overcome barriers, when and how should the project reflect on achievement and remaining problems, etc.

In every case the way in which societal acceptance is created (or not) is different as other stakeholders are involved. Still general aspects of the actions that help to create societal acceptance can be indicated: starting early and do it continuously, the importance of articulating concerns, mutual learning, the need to

ensure clarity of purpose and division of power and responsibilities. Formal structures that facilitate the process make it more transparent, empowering and credible, but often do not oblige the project managers to listen and learn continuously. Therefore active involvement of the project manager is needed by for example face-to-face interaction. He or she should not only involve the stakeholders but also involve him- or herself (Raven et al. 2007).

The case studies show that there are no a priori reasons for any stakeholder (group) to represent another stakeholder (group). Also no strict ranking between more and less powerful stakeholders is possible as the power of the stakeholders may change over time. For example the power of an individual inhabitant may be little but when groups of inhabitants are organised, they may become more powerful. The project manager therefore should always try to identify all relevant stakeholders, issues and concerns on the local, national and international level.

## A new tool: 6 steps to facilitate societal acceptance

Based on the multi-level perspective, the analysis of the 27 case studies and the existing Socrobust tool, a new instrument to support project managers in creating more societal acceptance for their new energy projects is developed by a consortium of 10 research institutes in Europe and South Africa<sup>4</sup>. The Socrobust tool was developed a few years ago to help technology developers and project managers to make more explicit the implicit assumptions of (future) stakeholders about the innovation (Laredo et al. 2002). During the evaluation of the tool to identify its utility for increasing societal acceptance, three shortcomings are identified. Firstly Socrobust is a learning and evaluation tool and can not actively promote societal acceptance or intervene. Secondly the tool is developed with a single stakeholder perspective: the innovator / project manager, and could not be used by multiple or varied stakeholders that are involved in the project. And thirdly the tool is not targeted at the actual market entry phase of innovations (Poti et al. 2007).

The new instrument resolves these shortcomings of the Socrobust tool. It consists of six steps which contain different tools, represented in figure 1 and described in more detail below. The instrument is a practical consultancy tool performed by a consultant in close cooperation with the project manager. The project manager is the person (or group) responsible for the management of the project with power to make decisions concerning the project. The consultant should be a 'neutral' person (or group) with no direct interests in the project. At certain stages of the instrument also other stakeholders are involved.

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<sup>4</sup> More information about the partners and the project of Create Acceptance can be found at [www.createacceptance.net](http://www.createacceptance.net).

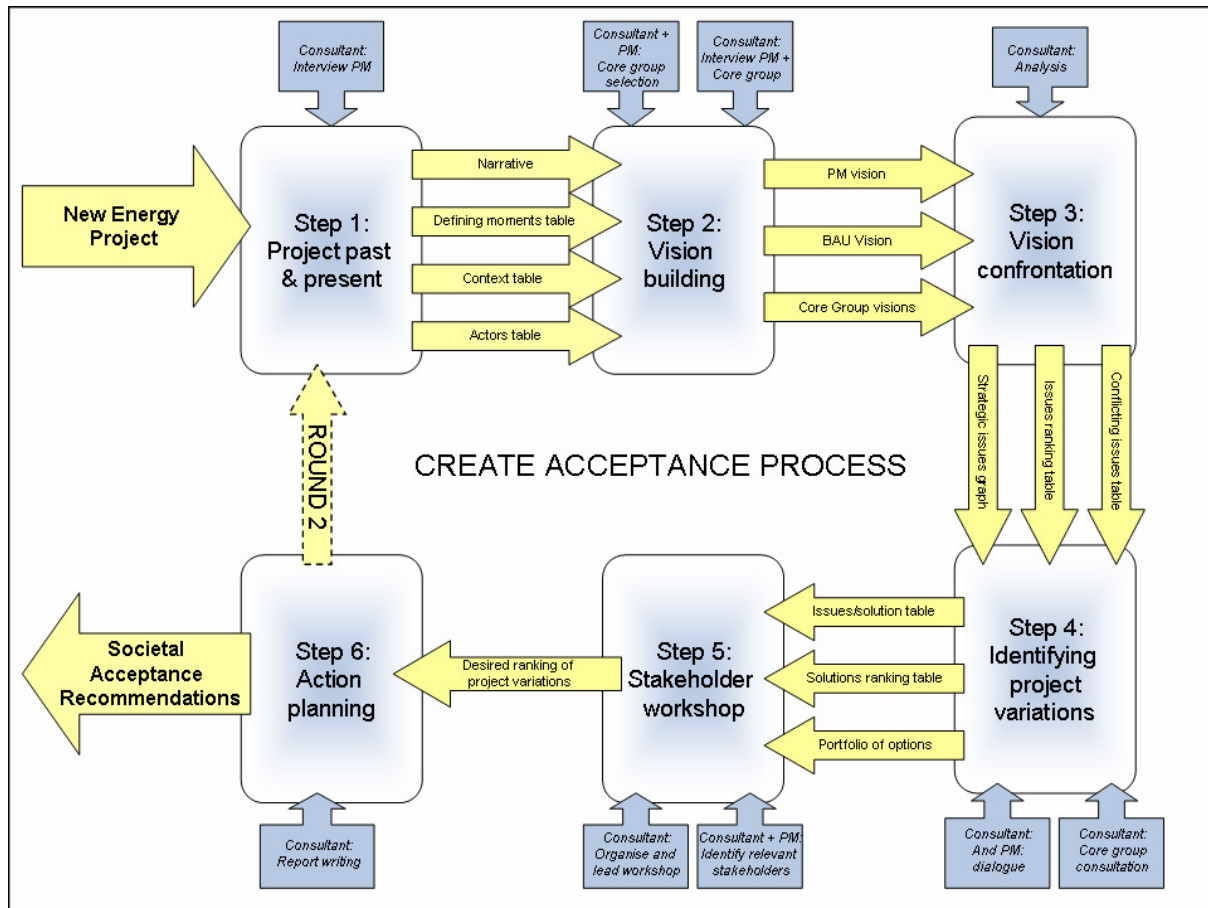


Figure 1: visual representation of the create acceptance process

### Step 1: project past and present

The aim of the first step is to let project managers reflect on their project: the history, the stakeholders involved, the important moments and context of the project. To do this, four tools are developed which the consultant performs in close cooperation (by interviewing) with the project manager. Step 1 is therefore also an important step for the consultant to get to know the project. The first tool of step 1 is the *narrative*. This chronological, story like text of a few pages describes the history and present situation of the project. Based on the narrative the important moments in the past which have defined the project as it currently exists are indicated and further described in the *defining moments table*. Also based on the narrative, a list of all actors involved in the project is compiled and their features are written down in the *actors table*. The current local, national and international context of the project is described in the *opportunities and barriers tables* in which the project manager indicates the aspects of the context that may influence the project in the (near) future.

### Step 2: future visions

Step 2 of the new tool focuses on the future of the project. It assists the project manager and other stakeholders to make explicit his or her expectations about the project and develop a vision. Firstly the

*future vision of the project manager* on its project is described in a synthesis writing (a story like text) with a title (a newspaper style summary of the text) and a sociogram (a visual representation of the future network of stakeholders of the project). Based on the actors table from step 1 a core group of 6 to 10 relevant stakeholders is selected including representatives from national and/or local financial partners, technology developers, policy makers, NGO's, neighbours, etc. By face-to-face interviews and the future vision of the project manager as a starting point, the consultant compiles the *future visions of these stakeholders* in the same manner (synthesis writing, title and sociogram). Next to the future vision of the project manager and the stakeholders, the consultant also constructs a *business as usual vision* which describes the situation when the project is not realized.

### Step 3: vision confrontation

Step 3 is a consultancy step in which the consultant analyses the different visions developed in step 2. The visions are compared and conflicts between the visions, opportunities for the project mentioned in the visions and overlaps between the visions are identified. This analysis is supported by three tools. In the *conflicting issues table* both the conflicting issues as well as the opportunities of mentioned in the visions are written down systematically in terms of different categories: technology, finance, infrastructure, environment, regulation, etc. In the *issues ranking table* the issues and opportunities are ranked according to their urgency and importance to the project. This ranking is made visible in the *strategic issues graph*.

### Step 4: identifying project variations

Based on the tools of step 3 a dialogue about the conflicts and opportunities mentioned in the visions is started between the consultant and the project manager in step 4 in order to identify possibly project variations. Possibilities for changing the project in the direction of the visions of the stakeholders or exploiting the opportunities are described. All issues are discussed and possible solutions or strategic actions are suggested and summarized in the *issues solution table*. These solutions are shortly evaluated and ranked by the project manager in the *solutions ranking table* according to the strategic impact, the costs and benefits and the desired process of negotiation of the solution. The *portfolio of options* of project variations indicated by the project manager will be discussed with the stakeholders in step 5.

### Step 5: stakeholder workshop

In step 5 a large group of stakeholders (15-25) are brought together in a workshop. Here they discuss the conflicting issues and opportunities identified in step 3 together with the possible project variations indicated by the project manager in step 4. The style of the workshop is adapted to the existing conflicts and overlaps in the visions of the stakeholders and may consists of several smaller workshops, working groups, a plenary session, etc. During this workshop the stakeholders negotiate their visions and expectations about the project and try to align their ideas with each other and the project manager and work out possible project variations. These project variations will be ranked by the stakeholders in another *portfolio of options*.

### Step 6: Action planning

Based on the outcome of the stakeholder workshop in step 5, the consultant formulates recommendations for the project manager in step 6. These recommendations consist of concrete actions to be taken by the project manager to increase the societal acceptance of his or her project and are written down in a final

report. Depending on the results of the negotiating process in step 5, the recommendations may vary from simple and easy actions for the project manager to not or slightly adapts his plans to a repetitions of certain steps of the instrument to explore new project variations that may be aligned with the visions of the stakeholders.

## Concluding remarks

Based on the multi-level perspective, 27 case studies and the existing Socrobust tool a 6 step instrument is being developed that supports project managers in creating more societal acceptance for their sustainable energy projects by aligning and negotiating ideas, visions and expectations on all levels in an early stage. Still this instrument is not the Holy Grail for successful projects. Against every project some resistance will always exist from individuals or groups as long as the project exists (for example NGO's that are in principle against a used technology, local inhabitants that are against any new construction in their community, etc). The new tool can not overcome this resistant resistance. However it does help the project manager in identifying this resistance.

Currently the 6 steps of the new instrument are being tested and evaluated within five demonstration projects in Europe: a solar project in Italy, a biomass project in Germany, a wind project in Hungary, a hydrogen project in Iceland and a carbon capture and storage project in the Netherlands. Based on the experiences in these demonstration projects this year, the tool is further improved and defined. One of the experiences which will result in an adaptation of the tool is the amount a time needed to perform al the tools in all the steps and the relevance of these tools in each case. Therefore a selection methodology will be added to the tool that indicates before the start of the tool to what degree the current project manager and current project will benefit from the create acceptance process.

Apart from the demonstration projects the create acceptance process is currently presented to different external experts in the field of transition management, renewable energy, technology innovation, public participation and future studies during international conferences, workshops and seminars. Their critical view on the instrument may also lead to further improvements. After the testing and evaluation phase, the instrument will be finalized and made freely assessable in digital format in the beginning of 2008.

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