



**DANTES**

DEMONSTRATE AND ASSESS NEW TOOLS  
FOR ENVIRONMENTAL SUSTAINABILITY

# Customer interviews with Power Utilities and Grid Companies

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## **ABSTRACT**

The work has been financed by the DANTES project that is supported by the EU life Environment program. According to the declaration of the applicant one deliverable from task 6 is to get reactions from stakeholders. The reactions consider environmental communication issues.

In order to clarify the customers' willingness to pay for products with high environmental performance, including environmental communication, ABB has carried out interviews of some power utility and grid company customers.

The interviews were conducted mainly as telephone interviews, but one interview was conducted as a personal interview. The role of the interviewees was mostly technical specialists not dealing directly with environmental issues.

Within the last decade the focus of environmental aspects has increased considerably and environment is now a natural part of business. A "basic" level of environmental performance should today always be included in the offer without asking for this.

Suppliers that can offer environmentally sound solutions have a competitive advantage since these types of solutions in general give both lower costs and risks viewed from a long-term perspective and therefore often are the best solution from economic point of view as well. A supplier without positive environmental management work and attitude is in many cases not a potential supplier.

The use of SF6 is an issue of strategic importance for all interviewed customers and gives very clear signals to be used in building up ABB's competitive and development strategy in this area. The moment there is a viable and proven alternative for SF6 it is worth to take the possibility to change equipment.

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## 1. INTRODUCTION

The work has been financed by the DAN TES project that is supported by the EU Life Environment Program. According to the declaration of the applicant one deliverable from task 6 is to get reactions from stakeholders. The reactions consider environmental communication issues.

Environmental performance of products, systems and services could get competitive advantage and thus result in positive effects on sales.

High environmental performance of a product can mean a product with low losses, low maintenance costs, easy to recycle, contributing to a positive image and not using hazardous materials.

In order to clarify the customers' valuation and willingness to pay for products with high environmental performance (including also some relevant sustainability issues) ABB has carried out customer interviews.

## 2. METHODOLOGY

Six interviews were conducted as telephone interviews, two as a personal meetings and one by correspondence. However it was more in form of discussions and dialogues than strict interviews. A questionnaire was used as a checklist to focus each interview.

The questions were grouped under the following headings: general issues, driving forces, strategic issues, communication of environmental performance to customers, requirements to suppliers and product requirements. See appendix 1. The answers from the interviews were compiled by ABB and sent to the interviewees to check-up and confirm the minutes. The aim for this report is to give an overall perspective of all interviews and to draw some general conclusions as a complement to the interview reports.

### 2.1 Customers

Anne-Marie Imrell and Lennart Swanström interviewed nine customers during 2003 and 2004:

- Svenska Kraftnät
- Vattenfall
- Fortum Distribution AB
- Sydkraft Nät AB
- Statnett SF
- Fingrid
- National Grid UK
- Hydro Quebec
- Chilectra

### **3. RESULTS**

The result of the interviews is presented per heading of the questionnaire and reflects the opinion of the interviewees. The text under each heading is summarized from one interview or a number of interviews. The contribution from the authors is just to summarize the interviewees' answers and opinion.

#### **3.1 General issues**

The role of the interviewees is mostly technical specialists not dealing directly with environmental issues; however there are also examples of environmental coordinators among the interviewees.

The interviewees association with the words environment and sustainability is often concrete and related to the matters that are important and relevant in their own work.

Within the last decade the focus of environmental aspects in general and also in business has increased considerably and can now be seen as a natural part of business. A supplier without positive environmental management work and attitude is in many cases not a potential supplier. A "basic" level of environmental performance should be included in the offer without asking for this.

Additionally we have identified a clear willingness to pay more for environmentally sound products that minimizes risks and future costs. Suppliers that can offer environmentally sound solutions have a competitive advantage since these types of solutions in general give both lower costs and risks viewed over the products' lifetime.

In purchase situations it is important to consider the future handling of a product after end-of life, i.e. dismantling and scrapping. Today it is expensive with scrapping, and this could be one important aspect to evaluate more in future. Guidelines and instructions how to handle the product after end-of-life is therefore a request from some of the interviewees.

Legal compliance is of course also a "basic" but very significant aspect in business.

The law of common procurement will in some cases delimit the room for taking own actions in the environmental area, i.e. to reward a supplier with any type of "additional" features in relation to the basic specifications, even if these features are beneficial from an economic perspective.

#### **3.2 Driving forces**

Legal requirements are the main "basic" driving force for working with environmental issues. The driving force 20 years ago was just legal requirements. Today society in general is involved and legal requirements are seen as a starting point.

Public opinion considering power lines (magnetic fields and visual impact) is also a strong driving force. Power cables are seen as an interesting alternative to overhead power lines. Power cables are however more expensive.

But also requirements from customers, management and society are important as well as a trademark that gives an association to confidence.

To be seen as an attractive employer concerning about environmental issues and employees that are aware of environmental issues are other driving forces. Many environmental improvements have been driven from a “bottom up perspective”.

Additionally different types of environmental fees and costs are foreseen that will make it beneficial also from economic point of view to select environmentally sound products.

### 3.3 Strategic issues

A general conclusion is that all interviewed customers considered environmental issues to be of high strategic importance.

All the interviewed customers have an environmental management system according to e.g. ISO 14001, either certified or not certified.

Someone has the foundation of an environmental management system, i.e. environmental investigation and significant environmental aspects and is working towards a complete environmental management system, but not with the aim to be certified.

Authority requirements or other requirements can be translated to an environmental strategy with goals and actions. Environmental concerns are taken care by e.g. a special environmental department or by environmental coordinators in different legal units.

Prioritized areas are:

- minimize use and emissions of SF<sub>6</sub>
- minimize energy use and power losses
- avoid and/or minimize the use of hazardous substances (e.g. mercury and PCB in oil).
- select environmentally sound products
- reduce the use of oil

The use of SF<sub>6</sub> has been identified as an issue of high strategic importance among all interviewed customers. There is a dialogue with the contractors considering use and handling of SF<sub>6</sub>. The amount of SF<sub>6</sub> is monitored and registered when filling-up in the equipment. Environmental programs with the goal to reduce the use of SF<sub>6</sub> are set up.

The whole power branch keeps up to date with the risk for the out-phasing of the green house gas SF<sub>6</sub>, which is on the Kyoto list.

The moment there is a viable alternative for SF<sub>6</sub> with no other negative environmental impact it is worth to take the possibility to change equipment.

The supplier that is first out with good alternatives will obtain great competitive advantages. High power circuit breakers are the only pieces of equipment where no viable alternative exists above 36 kV.

The power branch estimates that compared to the producers they have a much greater risk-taking and potential SF<sub>6</sub> handling costs depending on the fact that the life time of the products is 30 years or more and the power branch has to live with the old products also after an eventual ban of SF<sub>6</sub>.

Different types of technical activities have started as part of environmental programs, as example use of gas treatment equipment to recycle SF<sub>6</sub>-gas or mounting oil separators on power transformers or minimizing the electricity use at stations for services such as heating, lighting, cooling etc.

Methods for preventing oil leakage in substations to contaminate groundwater have been established. Secondly measures are taken to collect oil, in case of an accident, and prevent it from reaching the groundwater.

### **3.4 Communication of environmental performance**

Environmental performance is communicated by different means:

- Books and reports disseminated to specific stakeholders give more detailed information about specific issues, these are mostly developed to be used by specialists.
- More easy to use and overview information adapted to e.g. customers are presented in customer/corporate magazines and seminars
- Annual environmental and sustainability reports
- LCAs (Life Cycle Assessment studies) & EPDs (Environmental Product Declarations) are mostly only supplied on request.

A great deal of general environmental performance information may be found on web sites. Specific information is provided on request.

For employees there are educational programs.

The image conveyed by media is important.

### **3.5 Requirements to suppliers**

Requirements to suppliers/contractors consider both concrete things as permits/documentation for transports, handling and dismantling but also issues like environmental management systems.

When purchasing new equipment, environmental requirements are defined in relation to the main contractor. The requirements involve the whole chain of suppliers and contractors and it is expected that the supplier consider the requirements up streams.

Depending on type of equipment purchased the requirements could be different, e.g. for “smaller” components and products it could be about quality management system. For “larger” products and systems, like power transformers and switchgear, usually the requirements are that the suppliers

should be certified according to an environmental management system, e.g. ISO 14001.

Revisions or supervising visits are made on a continual basis on contractor work, building projects and station projects in order to follow up the environmental work.

Together with the offer of the equipment a list of material content should be presented, especially if there are hazardous materials in the products.

Requirements are also put on scrapping and then especially related to separation of the materials in the components.

Requirements of documentation consider information about oil amount in transformers and other equipment, information about SF<sub>6</sub>-amount and leakage rates and handling instructions of oil and SF<sub>6</sub>. But also information about noise and electromagnetic fields is wanted.

The environmental information is mostly not received automatically without demand. When suppliers are sending insufficient or irrelevant environmental information you have to take the action to see that all required information will be obtained and that the supplier makes a complementary addition. The environmental requirements and demand for information on the suppliers will certainly increase in the future.

### **3.6 Product requirements**

There are many environmental performance factors that are important for a product. The most important environmental performance factors for a product are low maintenance cost, low power losses, increased lifetime, low content of SF<sub>6</sub> gas and that the material could be recycled.

Environmental performance is one criteria, however not the conclusive criteria, when a supplier has to be chosen. The supplier's experience of building power plants and the price are valued as more important.

The willingness to pay extra for environmental performance of products is discussed below. In general the willingness to pay for environmental performance is related to an economic calculation and if this gives a positive result the environmentally sound alternatives are of course of interest.

#### High energy efficiency

One of the most important environmental performance requirements is high energy efficiency. There is a willingness to pay extra for this since it is also of economic interest.

#### Increased lifetime

Increased lifetime also belongs to the most important environmental performance requirements for, which there often is a willingness to pay extra. Increased lifetime will reduce the costs for new investments and revisions and the lifetime of the equipment is of course also closely related to the product quality

But another point of view is that it is not obvious whether increased lifetime is a benefit or not as you have to consider the overall life cycle cost which is more critical.

#### Low environmental life cycle impact

There is a willingness to pay for this if it minimizes risks and future costs, but at the same time there is an uncertainty if there is a willingness to pay extra, especially if you are not convinced to get benefits out of it. This issue is mostly related to the absence of hazardous materials and SF<sub>6</sub>. A reason is that SF<sub>6</sub> free products would be less expensive to handle, maintain and scrap. Also the absence of oil and other hazardous materials could be paid extra for.

#### Environmental product declarations and other environmental information

There is an interest in environmental information like product declarations but also a hesitation to pay extra. In general it is more important to provide environmental information for new products than for already established products. Environmental information should be received automatically.

#### Information on how to dismantle and recycle materials and substances in the product

Information about dismantling and recycling is valued but will not be paid extra for. These other types of environmental performance are expected to be “included” in the offer and the price.

#### Absence of hazardous materials and SF<sub>6</sub>

The content of hazardous materials and SF<sub>6</sub> is a matter of great importance. There might be a willingness to pay extra for the absence of these.

#### Environmentally sound manufacturing

There is no willingness to pay extra for environmentally sound manufacturing since this is a “basic” requirement. This should be normal practice with manufacturers and handled through the suppliers ISO 14001 systems, and is a prerequisite for “large” products and systems. One point of view is that environmentally sound manufacturing could not be prioritized since the law of common procurement prevents this.

#### Environmentally sound logistics and packaging

There is mostly no willingness to pay extra for environmentally sound logistics and packaging. This should be normal practice with manufacturers. Environmentally sound logistics and packaging could however be valued positive in some cases.

One point of view is that environmentally sound manufacturing could not be prioritized since the law of common procurement prevents this.

#### 4. DISCUSSION AND CONCLUSIONS

Within the last decade the focus of environmental issues has increased considerably and environment is now a natural part of business. A supplier without positive environmental management work and attitude is in many cases not a potential supplier. A “basic” level of environmental performance should be included in the offer without asking for this.

The answers from the interviewees show that there is a high level of environmental awareness among the customers. Certainly this group of customers gives a rather representative picture of how environmental issues are regarded and handled in business relations.

Examples of environmental awareness are the clear association of the words environment and sustainability and strategic actions taken for a more environmental performance. Also that you are aware of the public opinion and try to act in order to meet the problems as well as possible, put environmental requirements on suppliers and communicate environmental performance both to customer and to the public in a comprehensive way demonstrate the high level of environmental awareness.

Suppliers that can offer environmentally sound solutions have a competitive advantage since these types of solutions in general give both lower costs and risks viewed from a long-term perspective and therefore often are the best solution from economic point of view as well. A supplier without positive environmental management work and attitude is in many cases not a potential supplier. Developing environmentally sound products and supplying relevant environmental information about the products (as e.g. LCA and EPD) should therefore be of strategic importance.

When purchasing new equipment, environmental requirements are set for the main contractor. The requirements involve the whole chain of suppliers and contractors. Revisions or supervising visits are made on a continual basis on contractor work, building projects and station projects in order to follow up the environmental work.

The most important environmental performance factors for a product are low maintenance cost, low losses, increased lifetime, the amount of SF<sub>6</sub> gas and hazardous materials and that the material could be recycled. In general the willingness to pay for environmental performance is related to an economic calculation and if this gives a positive result the environmentally sound alternatives are of course of interest. It is of great importance to eliminate future risks and costs related to restricted materials. The content of hazardous substances should be declared freely.

The use of SF<sub>6</sub> is an issue of strategic importance. There is a dialogue with the contractors considering use and handling of SF<sub>6</sub>. The whole power branch keeps up to date with the risk for the out-phasing of SF<sub>6</sub>.

## APPENDIX 1.

### Interview with ABB customer

#### Background information

The purpose of the interview is to get an understanding of how customers value and are willing to pay for high environmental performance (including also relevant sustainability issues). High environmental performance can mean a product with low losses, low maintenance costs, easy to recycle, contributing to a positive image, not using dangerous substances, fulfilling the requirements of customer and society.

#### Questionnaire

##### General issues

- Explain *your* role and responsibility at the company.
- What do *you* associate with the words ‘environment’ and ‘sustainability’?
- What is your consideration about environmental aspects in relation to business?

##### Driving forces

- What are the main driving forces for working with environmental issues (e.g. legal, customers, management, public opinion, society etc)?

##### Strategic issues

- Does the company have an environmental management system?
- What is your company’s environmental policy and strategy?
- Which are the environmental actions taken as a consequence of the strategy? (E.g. minimize transports, energy use, waste etc.)
- What results have been achieved from these actions?

##### Your communication of environmental performance to customers

- How do you communicate environmental issues to
  - The market in general?
  - Specific customers?

##### Your requirements to suppliers

- What environmental information do you require from suppliers?
- Do you achieve requested information from suppliers?
- Is it easy to understand the environmental information given from suppliers?

- Do you require that suppliers shall have implemented ISO 14001?
- Do you require evidence of legal compliance

**Product requirements**

- Which environmental performance factors for a product are the most important? (Low maintenance costs, increased lifetime, low losses, content of hazardous material and substances etc).
- Does the environmental performance of the suppliers have an impact on your choice of supplier?
- Try to estimate your company’s willingness to pay for the following environmental performance features of products, i.e. are you prepared to pay extra for:

<b>Environmental performance</b>	No	Yes
High energy efficiency		
Increased lifetime		
Low environmental life cycle impact		
Environmental product declarations and other environmental information to show the environmental impact of the products during its entire life cycle		
Information on how to dismantle and recycle materials and substances in the product		
Absence of hazardous materials		
Environmentally sound manufacturing		
Environmentally sound logistics and packaging		