ANALYSING MARKET MECHANISMS OF THIRD PARTY ECO-LABELING – THE CASE OF GREEN POWER CERTIFICATION

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1 Introduction

Ecological or green products have to face particular challenges, since they have to compete against mostly cheaper conventional products. The target group for green products are customers prepared to pay a higher price for their additional benefit gained from the product's ecological character.

A crucial determinant for market success of a green product is the *credible* information supply with regard to its ecological advantages to create a market segmentation and fully activate the existing market demand for Green products.

Due to this situation, various eco-labels were established for the certification of Green products. One of these products is Green electricity. Based on the early 90's Green-Pricing approaches the liberalization of the energy markets induced the creation of various Green electricity products. Now, conventional electricity producers, Green electricity traders, producers and purchasing co-operatives compete with their individual Eco-power concepts.

Eco-labels for Green electricity reduce the asymmetric information between supplier and consumer and help therefore to transform the existing environmental awareness into consumption changes and demand for Green electricity.[1] The discussion about ‚What is *Green* electricity' indicates not only the information and assessment problems with regard to the ecological impact of electricity production. Moreover, the importance of strategic alliances and new approaches for co-operation in a market which faces major changes and insecurities can be identified quite clearly, since established structures and 'borderlines' are diminishing. Eco-labels therefore can support the development of environmental standards with major significance for the whole energy market.

Since, beside the information aspect an eco-label has other environmental impacts due to the standard-setting effect. Additionally, some secondary benefits can be identified: The development of ecological standards is, due to conflicting interests of the market players, sometimes comparable to a social dilemma situation, known from games theory. The underlying potential of eco-labels to overcome an inefficient situation will be shown at some examples of existing labels.

2 Particular issues at the market for ecological products

When purchasing an environmentally benign product, customers receive an ecological benefit additionally to the benefit in use. With Green electricity the customer is supplied first of all with energy for his daily demand (core benefit). Since this energy

[1] see Rothenberger/Markard in uwf, Heft 1/2000

stems from renewable resources the customer also receives an ecological benefit e.g. due to the improvement of his personal Eco-balance and the promotion of a sustainable energy supply system (global Eco-balance). Depending on the perception and assessment of this additional benefit customers will have a greater willingness to pay for the ecological product.

But, the environmental awareness differs quite often from the actual consumptive behavior.[2] Beside exogenous causes for this phenomenon one main reason for this are doubts and insecurity about the real environmental impact of so-called Green products.[3] The customer faces a two-level information problem: The relevant characteristics concerning the environmental performance of the product have to be identified and quantified and after that an assessment with regard to the individual preference function must take place.

The difficulty of this process increases with the differentiation of the product's total benefit to the customer, see Figure 1.

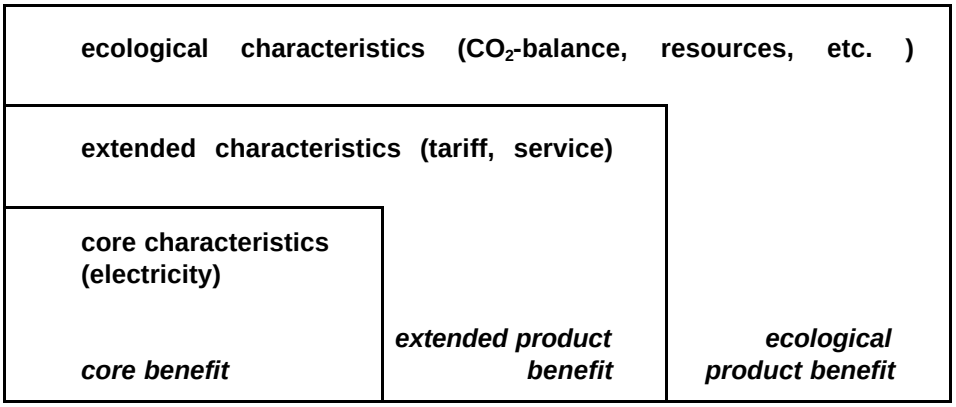

Figure 1: Information problems concerning product levels and benefit levels; adapted from Haberer 1996, p. 280.

In the case of electricity there is no direct link between the characteristics in use and ecological characteristics. The latter are, in contrast to the extended product characteristics like customer-oriented tariff setting, not identifiable for the customer. First of all, there are huge insecurities about the assessment of various technology and products (power plants, supply mix, financial impact). Besides, customers have great information problems concerning the impact of this particular Green electricity product on their personal Eco-balance and on the promotion for energy production

[2] See Kaas (1993, p. 30) or Morris (1997, p. 10).

[3] See Levien (1998, p. 27), where lack of alternatives or high prices are named as exogenous causes.

from renewables.[4] On the opposite, the supplier of this product can easily establish the ecological characteristics. This high level of asymmetric information implies that the purchase of ecological products is to a high level trust-based.[5]

3 Consequences of asymmetric information

The customer's information problem implies that for the transaction ‚purchase of Green electricity' the customer face additional costs for gathering the necessary information. These costs – transaction costs – reduce the customer's willingness to pay for the product. Either because the money and time spent to gather the information is taken into account by the customer, or if the costs seem to be too high, because of the insecurity about the real quality of the product. If it is assumed that higher ecological quality causes higher costs and therefore higher prices,[6] this could lead to an adverse selection process. Asymmetric information on the hand prevents the full demand for ecological product to become marketed. Besides, the market position of suppliers of products with low ecological quality is improved. This tendency can be seen e.g. on the market for Green electricity in Germany, where hydropower produced in old, already fully written down power plants is sold on a low price level. This kind of electricity is renewable and emission-free, but quite often heavy impacts on local aquatic ecosystems take place. Moreover, the simple redesignation of already existing production capacities in green production capacity is a clear case of opportunism. The plants would run anyway and since the purchase of the Green product induces no positive environmental impact. Therefore the approach for labeling Green electricity in Switzerland is to set ecological minimum requirements for Green hydropower and continuous improvements.[7]

4 Eco-labeling

One instrument to reduce the asymmetric information at the markets for ecological products is eco-labeling. Eco-labeling comprises generally two different levels: First of all is the information function, which reveals the ecological characteristics of the concerned product. For this task, assessment criteria have to be set up as the basis of the analysis. We call the result a "declaration of content" which in the case of Green Electricity may contain information about the origin of the product (electricity

[4] Various authors stress that a comprehensive assessment of the ecological quality even for experts means high level of efforts - and can sometimes not be satisfactorily done. See e.g. Morris (1997, pp. 49-50).

[5] See Fritsch et al. (1999, p. 269).

[6] For Green electricity this can be different. The high price for photovoltaic e.g. is not correlated with an environmental quality above average compared to other renewables.

[7] See Bratrich/Truffer/Jorde (1999).

mix, localization of the source etc.) and the impacts (greenhouse gases, air pollution, impact on natural landscape, radioactivity) of the production. Added to the information function is a sort of control function which ensures that the supplier's information holds true in reality – a verification of the contents.[8]

On the second level a valuation of the product characteristics takes place, which needs evaluation criteria in order to produce an ecological judgement. Concerning Green Power e.g. some technologies are excluded, a minimum share of certain renewables within the product's portfolio is required or a maximum amount of greenhouse gases has to be met.

In case of a positive outcome of the assessment procedure the product is earmarked and awarded the eco-label, implying a purchase recommendation from the customer's viewpoint, see Figure 2.

Eco-labels are therefore not only used to differentiate between conventional and green products in general, but also to distinguish "good and bad" or "dark and light" green products. The producer can use the label as a marketing instrument.

[8] Various suppliers have taken this step already and have the information concerning their Green product certified by independent institutes or auditors.

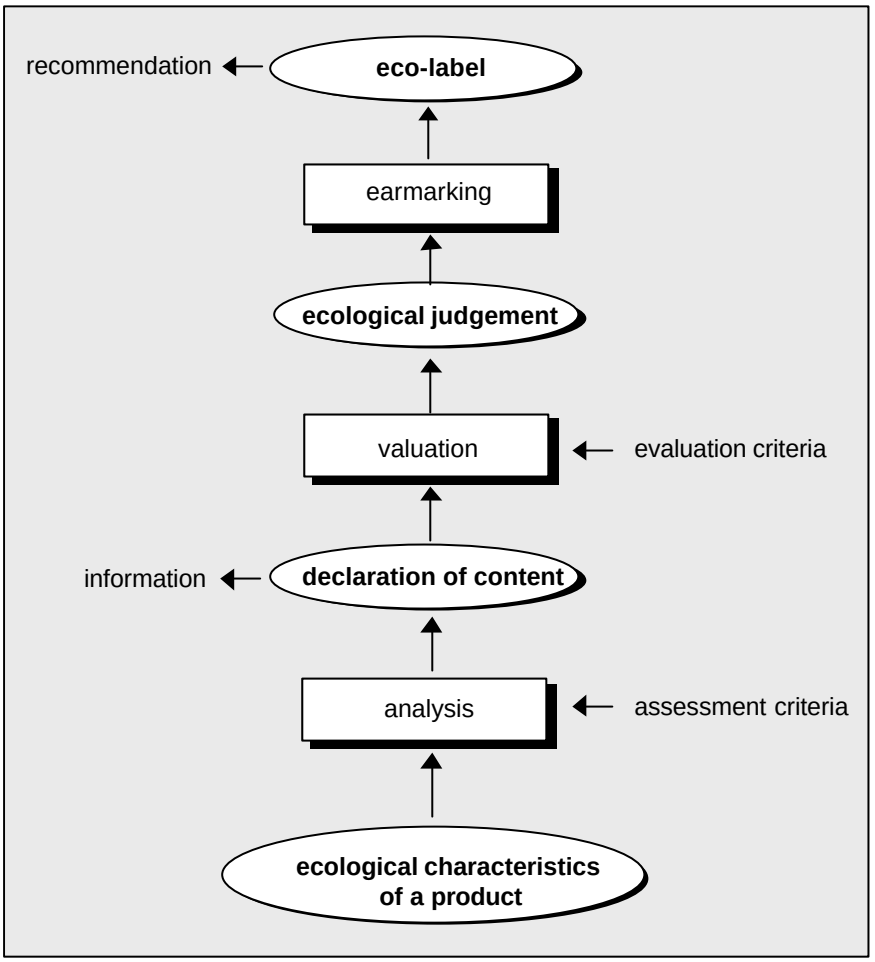

Figure 2: Eco-labeling - structure and process

The outlined process highlights the challenges set by the development and market introduction of a broadly accepted eco-label. In the case of third party labeling a neutral institution must fulfil the information requirements and must be accepted by all market participants at the same time. For Green electricity the market participants are customers, producers and traders, environmental groups and the public authorities. The influence of political and economic stakeholders quite often opposes the objectives of an environmental assessment and implies the need for balanced approaches.[9] The quality of existing eco-labels can be judged only in reality and requires empirical research.[10]

[9] Morris (1997, p. 52 and 97 ff.) concludes that due to the subjectivity of the assessment and the influence of the stakeholders eco-labels are generally not acceptable.

[10] See Harrison (1998, pp. 68)

5 Environmental policy implications of an eco-label

The environmental characteristics of a product are the key in a green consumer‘s buy decision. In the case of Green Power, customers not only want a „clean“ product but to contribute to a more sustainable energy supply system.[11] Existing eco-labels for Green Electricity set up environmental goals in order to assure the labeled product of being of ecological benefit. Apart from its information function, eco-labeling therefore, encompasses a role as an instrument for environmental policy. The label will interact with traditional, e.g. governmental environmental regulation policies and can complement them.[12]

Analyzing the environmental benefits therefore, is important for a comprehensive assessment of eco-labeling and, at the same time, provides insight to its conception limits. Furthermore, the environmental function underlines the different expectations of customers, marketers and environmentalists.

5.1 The ecological map

The environmental situation on the electricity market can be reflected in a chart, where the x-axis is subdivided according to the shares of electricity generation technologies in the market and the y-axis shows the corresponding ecological qualities, see Figure 3. The grey shaded background equals the total of environmental impacts, when the upper borderline is exogenously given by the eco-system.

The ecological map allows a comparison not only of different energy economic situations but also of ecologically sensitive markets in general. Furthermore, it serves for the analysis of different environmental policy instruments, where the overall goal is reduction of the grey shaded area.

In the electricity market three basis improvement strategies can be identified:

Strategy A: Decreasing the total consumption of electricity (reduction).

Strategy B: Replacing low-level generation technologies with technologies of higher ecological quality (substitution).

Strategy C: Increasing the eco-quality of generation technologies (improvement).

[11] In a more profound analysis of Green Power customers‘ purchasing motivations we can distinguish between customers who mainly want to reduce the environmental impacts of their own consumption (green supply) and others, who care about the impacts of the electricity system as a whole (green support).

[12] See Langniss/Markard (1999).

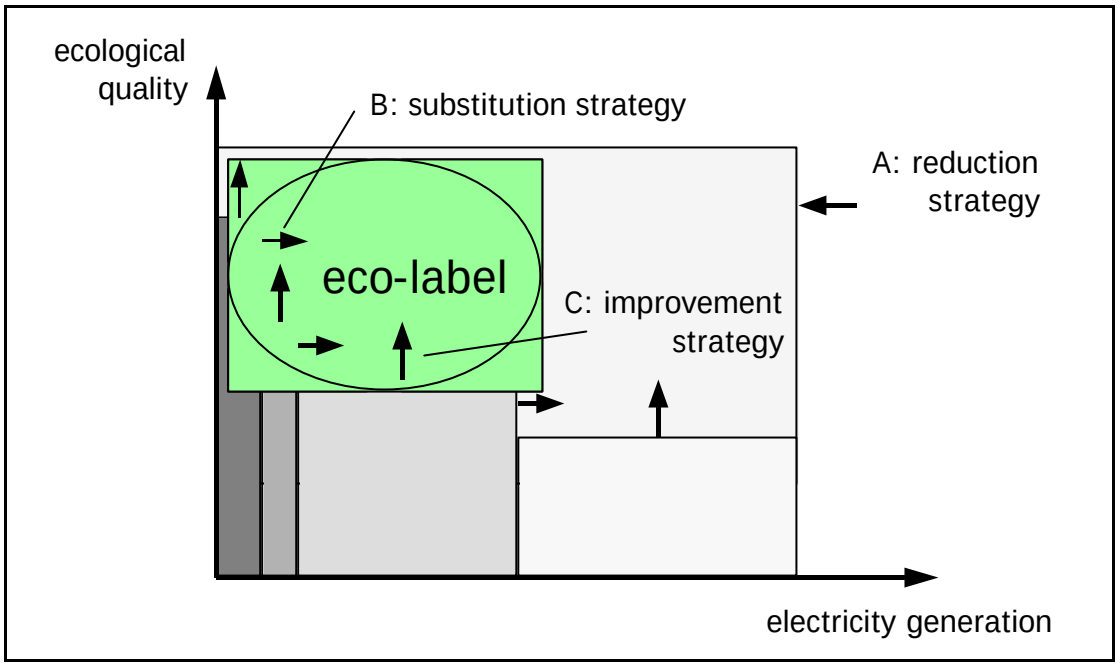

Figure 3: Environmental goals of eco-labeling on the ecological map of electricity generation

Eco-labeling aims at increasing the market share of high-quality products (enlarging the best) as well as the environmental quality of the average products (upgrading the middle).[13] Labeling therefore combines the substitution and the improvement strategy.[14]

For Green Power producers as well as marketers, both strategies are of direct economical importance. An growing demand for high-quality products will increase sales and profit. The quality upgrading, e.g. when implementing ecological improvement concepts for existing hydropower plants, may provide entrance to a new market segment with higher prices and – again – higher profits.

A major strength of eco-labeling therefore lies in the set up of a close relation between ecological and economic aims which can result in a win-win situation for customers, Green Power marketers and the environment.

[13] For the idea of the ecological map and the terminology see Wüstenhagen/Meyer/Villiger (1999).

[14] At this point an evaluation of the effectiveness of eco-labeling may start. In the case of Green Power, the products as well as the existing certification schemes are still too young to draw conclusions on the effectiveness of both, Green products and eco-labeling. Apart from that, there are methodological difficulties when trying to separately measure and evaluate its influence and effects.

5.2 The limitations of eco-labeling

For the evaluation and communication of environmentally preferable products, an eco-label evidently has to draw borderlines. Figure 3 shows a possible assessment scope of an eco-label, indicated elliptically.

The inclusion of some technologies necessarily excludes improvement strategies in other areas which may be of similar ecological relevance. Further efficiency improvement in the field of conventional electricity generation based on fossil fuels is for example a priori excluded in existing eco-labels, despite of its ecological benefits.

Fundamental criticism of eco-labeling may start at that point: The definition of environmental goals and the set-up of evaluation criteria presupposes value decisions which cannot be objective. Those decisions are not only limited by the recent scientific knowledge but also restricted because of conceptual reasons.[15] Furthermore, the label design will be influenced by different stakeholder interests. As a consequence, the real outcomes of eco-labeling may differ from the ecologically based optimum.[16]

6 Success factors of eco-labeling

The criticism emphasizes that eco-labeling has to focus on conflicting concerns. Ecological objectivity can be regarded as the most essential one. It is fundamental for product classification within a certification scheme and assures credibility from the customers perspective.

But – as already mentioned – objectivity is limited. Apart from conceptual borders, there are financial restrictions: A financial demand not only occurs for the certification as such, but may also results from fulfilling ecological quality criteria. The overall costs of labeling have to be smaller than the willingness to pay of the green customer. If not, the described win-win situation is endangered.

Also relevant for the success of labeling is the acceptance by market actors, expressed in a vivid customer participation, a high interest of the marketers and the support of environmental organizations. As soon as a label does not earn acceptance or is even opposed there are two possible developments: Either, there is no appropriate attention for the scheme or there is an rising opposition from interest groups who do not feel satisfied with the concept and for instance develop a

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[15] The communication of the label with regard to the customers may serve as example. Their expectations and perceptions do often not correspong to the ecological optimum: Whereas the limitation of Green Power labeling to renewable energies seems to be evident from the customer's perspective, there is no objective reason for that.

[16] Morris expresses this criticism by the following: „…they [eco-labeling schemes] will not be able accurately to estimate the impacts of these effects... . […] So the claim that ecolabels may guide consumers to more environmentally sound purchases is untenable.“ Morris (1997, p. 49, 50)

competing certification. In every case, the core function of eco-labeling, to lower transaction costs and to create transparency, is decreased.

6.1 Different interests of market actors

The stakeholder influence is generally counter-productive to the aim of objectivity. The design of an eco-label therefore asks for an explicit, highly sensitive navigation in the field of different success factors. The results will obviously differ in every case and cannot be predicted in some way. For a deeper analysis of the stakeholder participation process we first have to distinguish their different interest positions.

Environmental organizations and policy makers

Numerous environmental organizations aim at supporting green consumerism by educational campaigns or explicit product recommendations. The public promotion of an eco-label therefore can be a complementary part in such strategy as soon as the certification criteria correspond to the institutions‘ own environmental goals.[17]

A main goal of governmental policy is an ecologically sound performance of energy supply. Policy makers therefore may express vivid interest in the environmental benefits of eco-labeling. Furthermore, as labeling initiatives may have their origin among private actors they are often recognized as voluntary strategies which complement governmental actions.

Green Power producers and marketers

The economic actors of the Green Power market, i.e. producers and marketers, are primarily interested in the economically relevant outcomes of eco-labeling. As a marketing instrument, the label shall communicate the environmental quality of their products. The aim is a market differentiation which opens up new market potential.

A major precondition for producers‘ and marketers‘ acceptance of eco-labeling is the chance of better profits with labeled products than without.

Customers and consumer organizations

Green Power customers want to cover their electricity demand in an ecologically sound way and aim at inducing environmental benefits in a broader sense. For private customers and consumer organizations therefore the information function as well as the environmental impacts of eco-labeling are important.

Business customers moreover, will estimate the reputation of certification which is meant to have positive effects on the companies‘ public image.

[17] The swedish ‘Society for Nature Conservation‘ even operates the nationally well known eco-label ‘Bra Miljöval‘, which – beyond Green Power – certifies a number of ecological products and services („multiple-product label“).

7 Eco-labeling as a mediation instrument

The analysis of interest positions shows that environmental organizations and electricity suppliers depend on each other when striving for the development of an efficient eco-label. Environmental organizations want Green Electricity products to be marketed successfully and the know how of electricity industry to be used for that market. Producers and marketers, traditionally have a deficit in credibility with regard to the environmental impacts of their business.[18] Environmentalist on the other hand have highly credible record in public as far as ecological standards are concerned.

This complementarity seem to be of good reason for both groups, to collaborate on a common standard for Green Power certification. Nevertheless, the success of such strategy cannot be guaranteed because both actors start at quite different interest positions which may even tend to deepen existing conflict lines.

This dilemma can be analyzed by using the game theory:[19] Let us assume that for the development of a Green Power eco-label the actions of environmental organizations and of economic actors are the most relevant. We further suppose both actors to behave rationally and to maximize their individual benefit – be it the ecological or the economical effects of labeling. Possible actions are either to „defend the hard line“ and to not co-operate or to behave co-operatively. Moreover, the actors have little intention to talk with one other.

Figure 4 shows the payoff every possible constellation depending on the decisions of each player.

When both actors do not co-operate, there is virtually no chance for a common standard and the status quo remains unchanged (0;0)[20].

		environmentalists	
		do not co-operate	co-operate
electricity industry	do not co-operate	**0;0**	**2;-2**
	co-operate	**-2;2**	**1;1**

Figure 4: Payoff-scheme when establishing an environmental standard in the electricity business

If the environmentalists co-operate, i.e. accept a standard which is below their original position, and the producers stay hard, this will result in an economical profit as well as a loss for the ecological situation (2;-2). The reverse situation will occur, if the environmental organizations act as hard-liners and the economic actors withdraw. In case of a bilateral co-operation there is a positive payoff for both players.[21]

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[18] See Bieri et al. (1997).

[19] See Rasmussen (1989) or Weimann (1991, p. 203 ff).

[20] This situation could be characterized also with (-1;-1), taking a possible loss of image on the suppliers‘ side and the remaining of costly environmental impacts into account.

[21] The character of compromise is reflected by a payoff that is smaller, than each individual return in the win-lose situation.

Deliberate observance of more severe environmental standards facilitate a credible marketing of Green energy as a ecologically valuable product and will be actively supported by environmental organizations.

Albeit the latter pay-off situation (1;1) being pareto-efficient it will not result for the individual maximization of benefits, since both sides will prefer the non-co-operative strategy. This existence of dominant strategies for both sides leads to a pareto-inefficient result and is known from the prisoners‘ dilemma.[22] This for both players unsatisfactory situation remains stable as long as the interests within each group are relatively homogenous and the players cannot communicate.

With the liberalization of the electricity markets some framework conditions for this example alter dramatically: the pay-offs for all players will change considerably without the players‘ being able to determine the exact level of change. Moreover, the interest within the groups become more inhomogeneous and the individual scope for action enlarges. This change can diminish the communication barriers to a level where a common process for the development of a label can begin – and the players can overcome the position of stalemate.

Ecolabeling is a suitable instrument to overcome this dilemma. Due to its deliberate approach there will be less resistance in the early stages compared to governmental bill. Moreover, the development of a label produces only minor initial costs. A stepwise learning and trust building process will thus be supported. Additionally, the two sides can refer to the market and the customers as ultimate referees to decide upon success and credibility of the developed standard.

As an example for a such social dilemma situation, the development of an environmental standard for hydropower plants in Switzerland can be analyzed. At the end of the 80‘s, the renewal of the Swiss water protection law - backed up by a public vote - set up higher requirements for the future use of hydropower. As this law was highly opposed by the electricity supply industry and existing power plants are only affected when their water use rights expire[23] the development came to a de facto standstill and the conflictive positions of industry and environmentalists hardened. Consequently, the public image of hydropower got worse over time and the ecological problems remained unsolved.

With upcoming market liberalization, now there is a significant cost pressure on electricity supply including hydropower and power producers consider any cost-effective environmental requirements as threatening.

Environmental organizations on the other side, did not achieve much ecological improvement up to now and, moreover, have to face the conflict of the environmental benefits of hydropower on a global scale (renewable, climate-friendly) and its local impacts on aquatic eco-systems.

[22] see e.g. Hohmann/Pies 1991, pp. 609.

[23] This expiry in many cases still lies about 40 years ahead.

In this situation, the eco-label offers the chance to improve the public image of electricity supply and, at the same time, to effect environmental upgrading for certified plants. The situation is described as a qualitative basis in Figure 5.

The process to overcome this dilemma was initiated by pioneers from both sides, the municipal utility of Zurich, ewz, and the World Wide Fund for Nature, WWF. Although the mediation process is still under way, it seems as if a broadly accepted standard for „green“ hydropower plants can be established successfully.

		environmentalists	
		do not co-operate	co-operate
electricity industry	do not co-operate	**deadlock**	**ecosystem degradation**
	co-operate	**closing down exist. plants**	**sustainable hydropower?**

Figure 5: Eco-standards for hydropower: The dilemma situation in Switzerland

The key for success is a co-operative approach from both parties which, in this case, got possible because of two reasons.

First, the exogenous change of market conditions created a dynamic environment which urgently underlined the need to overcome the standstill and, simultaneously, offered a chance of breaking-up of old conflict lines for some pioneers.

Second, the concept of eco-labeling not only promises economical as well as ecological benefits but also offers a significant potential for mediation strategies in order to overcome pareto-inefficient situations.

In the following, those strategies will therefore be analyzed with regard to existing eco-labels for Green Electricity.

8 The development process of eco-labeling

The preceding remarks turned out two essentials. As to the first, there is only little chance for a successful implementation of an environmental standard, if the support of some of the mentioned stakeholders is low. And second, the mediation function of eco-labeling has a promising potential for to achieve a broad consensus among the different interest groups, whenever it is explicitly used in the development process.

In the following, we will compare the development of existing eco-labels for Green Electricity in Germany and Switzerland where we will find implicit and explicit mediation strategies.[24]

8.1 Development steps of eco-labeling

The development of an eco-label can be divided into different steps[25], which may also serve for structuring the analysis as follows. The *basic design* includes the set up of fundamental goals for certification as well as the definition of an assessment scope. Furthermore, procedural principles and basic criteria for product analysis and evaluation have to be sketched. The final design process has to define the details of certification, which may particularly value-oriented. During the market introduction phase, an eco-label has to be established in the market. There is a need for intense public information, customer education and label promotion. Later on, a process and criteria review can take place once or periodically. The review serves at adapting and optimizing the certification procedure as well as the criteria.

8.2 Different approaches

In Germany, the TÜV (Technischer Überwachungsverein) was the first to set up a certification scheme for Green Electricity by the end of 1998. Now, one year later, the TÜV guideline had been expanded with another four different criteria sets, serving for a total of more than 20 certified products. And apart from that, there are two more label brands available on the market, all of them having different intentions and criteria.[26]

Environmental and consumer organizations as well as renewable energy advocates founded an association called “Grüner Strom Label e.V.” (‘Green Power Label), which up to now has certified two Green Electricity marketers. The third label had been developed by the Öko-Institut, which is an independent research institute and today, has awarded the label to three products in a pilot program. The aim is to set up an association which as well gets support by environmentalists and consumers.

In Switzerland, a private organization called „Verein für umweltgerechte Elektrizität“ which will own and operate the label, had been founded by the end of 1999.[27] The board of directors comprises representatives of electricity producers, marketers, environmentalists and consumers. Till today, the principles of labeling had been defined and published. Until summer 2000 the final design is planned to be completed with the introduction of a pilot certification program.

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[24] For a more criteria and value oriented comparison of the different certification schemes see Markard/Truffer (1999).

[25] Morris proposed a somehow different classification, focusing on the certification process as such. He distinguished ‘category selection‘, ‘criteria selection‘, ‘product evaluation‘ and ‘criteria review‘, see Morris (1997, p. 32).

[26] See TÜV (1998), Eurosolar (1999) and Öko-Institut (1999).

[27] See Kiefer (2000).

Development paths of eco-labeling in Germany

The TÜV certification concept had been developed by an internal working group, deciding to implement a product declaration rather than a label. As a consequence, the TÜV scheme checks and finally guarantees the product characteristics and promises made by the supplier, but does not evaluate the environmental benefits of the certified product. As to the various sub-guidelines, the ecological qualities of TÜV-labeled goods are quite different.[28]

Numerous electricity suppliers seem to appreciate the declaration concept, but environmental organizations do not support it. Developing the 'Green Power Label' they, together with consumer associations, opt for a more rigid evaluation which includes the environmental characteristics of the product as well as the marketers' corporate policy: Companies selling Green Electricity are not meant to be involved in the nuclear power business or to build new, conventional power plants without co-generation technology.[29] Such labeling profile a priori excludes many German electricity companies regardless of the green product they offer. From the economic actors' perspective, not surprisingly, the acceptance of the label is rather limited. And even some environmentalists like the World Wild Fund (WWF) and Greenpeace withdrew their support seeking alternative development paths.

Having the characteristics of both existing certifications schemes in mind, the Öko-Institut tried to set up an eco-label in between, neither being only a declaration nor evaluating the marketer's corporate policy. The basic design of the label followed some ecologically based principles and kept any particular stakeholder interests outside. During the final design phase the institute organized several hearings of experts and interest groups in order to adapt the certification scheme. Apart from that there were bilateral contacts with Green Power marketers. Later on, some further change in criteria took place in order to get direct support from the WWF for the promotion of the label.[30]

The stage of market introduction cannot be sufficiently assessed or finally evaluated in the German certification schemes today. But some doubts, whether the co-existence of three labels - with even a fourth one under the umbrella mark of the Blue Angel under discussion[31] - has improved market transparency up to now, may be expressed.

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[28] For the non-expert there is no possibility to distinguish such different qualities with the help of the label. For that reason, the information function as well as the environmental effect of the scheme are seriously put into question.

[29] See Eurosolar (1999, p. 77).

[30] In that negotiating step, the Öko-Institut set up a minimum of 1% photovoltaics for each product which did not comply to the original eco-principles but was of major interests in the solar power promotion campaigns of some environmental groups.

[31] Here the German 'Umweltbundesamt', the owner and operator of the Blue Angel, basically strives for an 'as simple as possible' set of criteria gathered in consensus with the different stakeholder interests. Furthermore, there is not much time for the Umweltbundesamt to come

The Swiss approach

In Switzerland, the development of an eco-label for Green Power started in 1996. Positive experiences with some Green-Pricing programs based on solar power („Solarstrombörse“) on one hand and reports in media expressing doubts in the programs‘ credibility on the other, resulted in a working group for Green Power eco-labeling which was set up within the governmental support program ‘Energie 2000‘. The aim was nevertheless to achieve a non-governmental, voluntary solution involving all relevant stakeholder interests in order to avoid a mixture of different labels as it was known from the food sector.

Looking for a broad support early in the basic design phase finally turned out not to be effective: Especially the most conflictive issues, being ecological guidelines for hydropower use and the support for ‘new‘ renewable technologies (solar, bio-mass, wind), could not be solved in common. As a consequence, criteria development on these subjects was carried out mainly by independent, external institutions[32] with some mid-term results frequently reflected by the stakeholders.

At the moment the final design of the Swiss eco-label is under way. All major interests are involved in that process as parts of the board of the association which will held the label. Furthermore, hearings of external experts contribute to the adaptation of the labeling scheme as a whole. The market introduction is planned to be started in the summer of 2000.

8.3 Potentials and problems

The four different labels and development strategies are summarized in the table below underlining the relevance of the mediation function of eco-labeling which was theoretically analyzed at the beginning. As all existing labels for Green Electricity are still young there is no final judgement about success or failure to be made today. But advantages and disadvantages of the different strategies can be identified nevertheless.

The development processes of the TÜV certificate and the Green Power Label in Germany are quite similar. Both initiatives focus on concepts which rather reflect the expectations of certain stakeholders while less regarding opposite interests at the same the time. In this case, criteria set up may be relatively quick and straight forward. On the other side, a broad acceptance will be missing and there is a danger of a loss of credibility. For the customers such outcomes may be less useful as soon

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along with the label because of the already established competitive schemes. Regarding the complexity of Green Power evaluation as such and the highly political environment it is not quite sure, whether the situation on the market for Green Power can be substantially improved by the reputation of the Blue Angel.

[32] The ‘Swiss Federal Institute for Environmental Science and Technology‘, EAWAG, is responsible for the development of an evalutation procedure concerning green hydropower whereas the private company ‘Kiefer & Partners‘ has to deal with the question of new renewables‘ support. Kiefer & Partners is financed by the municipal utility of Zurich, ewz, and the WWF Switzerland. See Truffer (2000) and Kiefer (2000).

as there are contradicting signals and a public dispute about the quality of the concepts. As a consequence, the information function of eco-labeling will be weakened.

Label development strategies which aim at a broad consensus, on the other side, have to take high efforts for mediation into account. Especially the final design phase and market introduction may take a lot of time. In Switzerland, this demand of time had been underestimated. Moreover, the evaluation criteria as well as the certification procedure will become more complex which may be of negative influence with regard to the public perception and understanding of the label.

Apart from that, preceding intense discussions among stakeholders may solve existing conflicts and finally prepare a common support of a new and credible market standard. An successful mediation which overcomes former conflictive interests may even improve the original pay-offs of the involved parties.

	TÜV –Guidelines	**Green Power Label association**	**Institute for Applied Ecology**	**Association for environmentally friendly electricity**
fundamentals of certification				
type	declaration	eco-label	eco-label	eco-label
criteria maker	umbrella organization of regional TÜV-companies	certification committee with stakeholders	institute itself, advisory board with stakeholders	managing board with stakeholders
holder of the label	four regional TÜV-companies	association, founded by Eurosolar, BUND, Nabu, and others	association (foreseen)	association
auditor	four regional TÜV-companies	ZSW, Center for Solar energy- and Hydrogen-Research	auditor according to guideline EN 45.012	independent auditors
basic design				
initiative and basics	working group with external consultants	environmentalists, consumer organ. & associations for renewables	principal, internal development	dialogue group in the „Energie 2000“ program, research institute (EAWAG), external consultant
principal	not applicable	not applicable	Bremer Energie-Konsens GmbH	Swiss WWF, municipal utility of Zurich (ewz)
final design				
stakeholder relationship	not applicable	WWF und Greenpeace withdraw their support	support of WWF Germany is foreseen	consensus finding in the board and by ext. commission; further participants foreseen
acceptance by producers	potentially high.	limited due to crite-ria, advantage for small companies	still unclear	still unclear
market introduction				
start of certification	beginning of 1999	beginning of 2000	end of 1999	mid 2000
certified products	about 20	2, umbrella org. of	3 (pilot phase)	ca. 12 (pilot

		18 municipal. utilities		phase)
acceptance by customers	TÜV well known, objectivity appre-ciated, ecological credit unclear	high credibility in ecological terms, niche strategy	potentially high	potentially high
Review				
recent changes	enlarging the scope to include co-generation and 100% large hydro	not applicable	not applicable	not applicable

9 Summary and Outlook

The presented analysis shows that beside the primary informational function of eco-labels, additional effects on environmental factors and on mediation issues must be considered for a thorough evaluation. The mediation effects of a broadly accepted label are not only useful to reach consensus in this particular issue. Moreover, as the various interest groups realize the benefit of a common action and discussions, positive perception for future co-operation will be the consequence. Therefore, spill-over effects far beyond the label development process are possible.

The success of an eco-label will eventually be seen at the market, depending on the number of Green electricity products successfully marketed and the higher their share for the achievement of environmental objectives.

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