A Policy Analysis of Voluntary Agreements for Energy Efficiency in Industry

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ABSTRACT

To a growing degree voluntary agreements are used as an energy policy instrument in industrial energy policy in Europe. This paper investigates voluntary agreements of Great Britain, Denmark, Finland, the Netherlands and Sweden. The paper analyses the design and effects of these agreements and on this background discusses general implications of using voluntary agreements as a policy instrument in industrial energy policy.

Introduction

To a growing degree society runs into environmental problems in relation to production that seem unsolvable, e.g. pollution of drinking water from agriculture production and increasing emission of CO_2 from all sectors in society. In the field of industrial energy policy, the authorities are often frustrated by the lack of appropriate actions within firms in relation to energy policy. Looking at it from the side of the authorities, the objective of industrial energy policy is to change the behaviour of the firm, typically by increasing energy efficiency. Discussions of changes in behaviour in the industrial sector often result in intensive debates of the balance between considerations of environmental problems and considerations of national competitiveness. It is in this field of tension that the regulation instrument of agreements is seeded. Agreements are seen as regulators' opportunity to address environmental issues without negative consequences to national competitiveness.

In recent years, an increasing number of agreements have been implemented in the environmental and energy areas. Thus, more than 300 agreements were concluded in the EU in 1996 (EEA 1997). This paper investigates agreements in the energy area as a measure for regulators to overcome the tension between environmental considerations and national competition. This paper only describes agreements with goals of increasing energy efficiency, lowering energy intensiveness or decreasing CO_2 emission in industry. The discussion is built upon case studies investigating the process of implementation and the effects of agreements between regulators and single industries or industrial organisations in Great Britain, Denmark, Finland, the Netherlands and Sweden.

Five Approaches to Agreements

The empirical study of energy agreements represents five different approaches in the five countries to this form of regulation. In order to provide a background for the reader a brief introduction of the empirical field is presented below.

In *Great Britain* the Energy Efficiency Office (1991) took the initiative to the implementation of an environmental and energy scheme called "Make a Corporate Commitment Campaign" (MCCC). MCCC is a standard agreement aimed at big firms with more than 1,500 employees. The standard describes procedures by which the participating firms commit themselves to publish an energy and environmental

policy, to implement energy management, to include the employees in the process, to report on the system and the progress to employees and shareholders etc. The main instrument is information. A mild form of control exists in the form of national surveys, but no possibility of subsequent sanctions exists.

In *Denmark* an energy agreement programme was implemented in 1996 after an intense debate in parliament. The programme is called "Agreements on Industrial Energy Efficiency". Energy-intensive firms may get reimbursement of their CO_2 tax if they enter an agreement with the regulator. The agreement determines, based on an estimation of cost-effectiveness, specific energy-conservation projects to be implemented by the firms. Yearly, the firms report their progress to the regulator. The reimbursement is annulled if the firm does not maintain its obligations. The main instruments used are partly free energy audits and reimbursement of CO_2 tax.

In *Finland* the Ministry of Trade and Industry in 1992 took the initiative to create an experimental programme for an energy-agreement scheme with inspiration from the Dutch LTA-programme (see below). "The Agreements on Industrial Energy Conservation Measures" lay down goals for specific levels of improvements in energy efficiency in industrial sectors and individual firms. The target is to improve energy intensiveness by 10-15% by year 2005 in relation to the level of 1990. It is done by information and grants. In practice the agreements are neither controlled nor sanctioned.

In *the Netherlands*, the Ministry of Economic Affairs in 1990 implemented an agreement scheme called "Long-Term Agreements" (LTA) in the energy area. The energy authorities and industrial sector associations enter a covenant endorsing the national target of 20% reduction of energy intensiveness in the sector during the next ten years. Today, the agreements cover 90% of Dutch industrial energy consumption, mainly through agreements with big firms. Subsequently, the energy authorities enter contracts with the individual enterprises. Also here, the targets are specific reductions of energy intensiveness. Annually, the enterprises report their progress to the authorities. No formal sanction structure exists at individual firm level, but the threat is that regulator exchange the agreements with other kinds of regulation.

In *Sweden*, NUTEK (the Swedish energy agency) – on an administrative basis – implemented an agreement scheme in 1994 called "EKO-Energy". The regulator enters agreements with big enterprises. The long-term target is to observe the goals of Agenda 21 at the enterprise level. The means are standards for energy efficiency, environment and purchases. The agreements last as long as the enterprise and the authorities want them to. No formal control or sanction structures exist.

Table 1 sums up the elements of the five agreements.

Table 1. Characteristics of Energy Agreements in Industrial Areas in Great Britain, Denmark, Finland, the Netherlands and Sweden

	Great Britain	Denmark	Finland	The Netherlands	Sweden
Name	Make a Corporate Commitment Campaign (MCCC)	Agreements on Industrial Energy Efficiency	Agreements on Industrial Energy Conservation Measures	Long-Term Agreements (LTA)	EKO-Energy
Year of implementation	1991	1996	1992	1990	1994
Target group	Big firms (>1500 employees)	Energy-intensive firms	Industrial associations and individual firms	Covers 90% of today's industrial energy consumption	Big firms
Target	Implementation of procedures	Energy management & specific conservation projects	10-15% reduction in energy intensiveness in 2005*	20% reduction in energy intensiveness in 2000**	Reduction of industrial electricity consumption
Sanctions	None	Not refunding CO_2 reimbursement	None	Threat of other regulation	None

* Compared with the 1990 level.
** Compared with the 1989 level.

An Analytic Framework

The process of policy-making and implementation is usually very complex. Therefore, the outcome is often quite different from what is foreseen in the beginning of the process. The target of policy-making and implementation is to determine or modify the behaviour of a target group for the welfare of "society".[1] In this case the target group is industrial associations and individual industrial firms making agreements with regulators in the energy area.

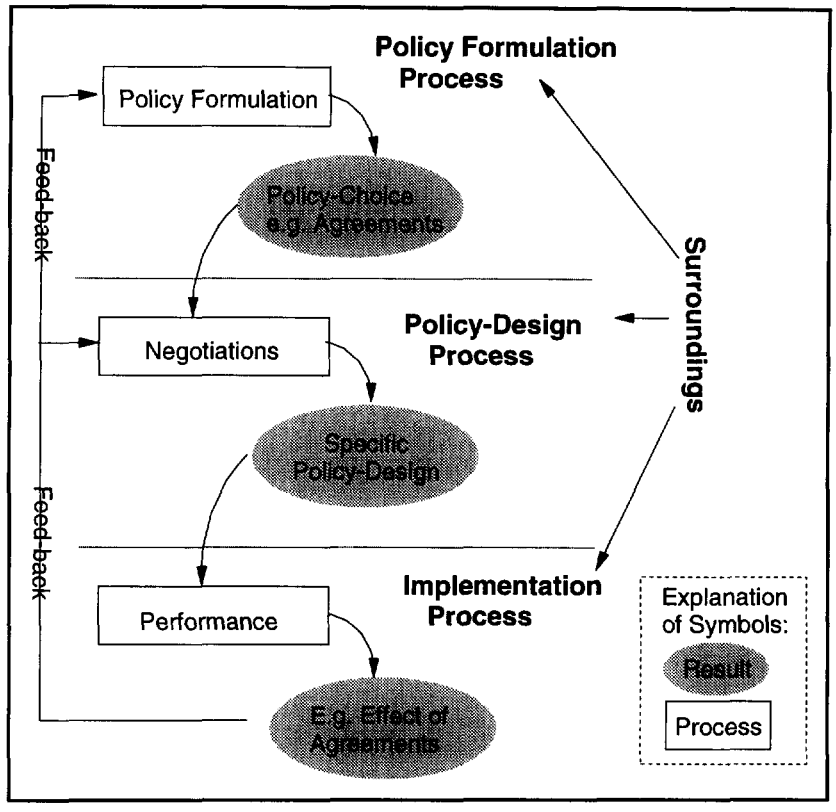
Policy making and implementation are processes where actors not only react to the process, but also influence it. In this study the policy making and implementation process will be described in three phases: policy formulation, policy design and implementation, which are connected by the feedback loop and the influence of the surroundings.[2] The process is illustrated in Figure 1. The model is a simplification of the real process, where different phases might overlap each other, be repeated more than once, etc. The

[1] The thinking behind traditional economic regulation is that the regulator, i.e. the government, has the target of maximising the welfare in society. The government performs as protector of public interest. This is the concept of the regulator in the economic welfare theory (see e.g. Baumol 1977).

[2] The division is taken from Winter (1994) in his discussion of implementation analysis. The implementation process has been divided into different phases by other authors , e.g. Mitnick (1980) operates with five phases.

feedback loop will be treated sporadically in the following discussions.

Figure 1. Model of Implementation of Policy Instruments. Inspired by Winter (1994) and Vedung (1991)



The phase of *policy formulation* describes the process leading to a decision of policy. During the *policy-design process* the formulated policy is interpreted and negotiated among the involved stakeholders. Using agreements as a policy instrument, the policy-design phase will include discussion and negotiation among the stakeholders involved in the agreement. The result of this process is the specific design of the agreement. *The implementation process* describes the stakeholders' performance in relation to the policy, e.g. an agreement. This performance, hopefully, leads to some effects on the policy target. The effects influence the policy formulation and the policy-design processes through *the feedback loop. The surroundings* consisting of stakeholders and their interests influence all three processes through negotiation.

Policy Formulation

The policy-formulation phase could be considered in the light of different theories. The choice of voluntary agreements can also be seen in the context of the welfare economy's understanding of the regulator. Though, the approach gives problems in practice. It is not possible to be sure that the preferences of the population are elicited and aggregated and at the end of the day represented correctly by the regulator. The regulator under more realistic assumptions often chooses to put greater emphasis on the well-being of special interests in the society, e.g. farmers' interest, the interest of coalmine owners, the interest of some specific industrial branch (instead of the general welfare of society).

The choice of voluntary agreements can probably be better explained by the so-called "sociological realities" (Olsen 1993) created over many years on different policy fields in society. Looking at the choice of policy instruments from the perspective of sociological realities implies that previous policies within the energy and industrial sector will be decisive for the future policy. If economic instruments, e.g. energy taxes, have not been used they will be difficult to implement. The relevant interest groups (government agencies, industrial organisations) have an accepted role to play and expect consultations not dictates from the regulator. The industry is more committed to decisions made within this network than top-down decisions made by a traditional public interest regulator (Winter 1994, Linder & Peters 1989).

In general, in all analysed countries traditions exist for listening to the arguments of the industry in the policy-formulation process. However, concerning voluntary agreements it has been difficult to see through the process. It is not clear whether real negotiations have taken place among politicians, the administration, and industrial and environmental organisations. It seems as if industry has taken more part in the policy-formulation process than environmental organisations, but for both types of organisations it has been a limited involvement. In Denmark and the Netherlands it seems as if the industrial organisations have been more involved than in the other analysed countries. Industry, of course, is interested in a company-friendly policy that does not increase costs and damage international competitiveness. But at the same time the industrial organisations wish to accept their role in the so-called shared responsibility in relation to society goals, creating stable conditions for the industry, and avoiding stricter regulation.

There are shared opinions among the environmental organisations about the process. The typical environmental organisation does not consider it a major problem that they have not been very much part of the process leading to the choice of voluntary agreements as a policy instrument. The reason is probably that they consider agreements to be a supplement and not an alternative to other regulation, e.g., CO_2 taxes. Therefore, the environmental organisations (and the environment) have nothing to lose by introducing voluntary agreements. From country to country the legal basis for voluntary agreements is different. In some countries the voluntary agreement has a normal, legal background, i.e., a law issued by the parliament. In other countries the agreements are launched as an initiative only from the administrative level. The agreements in Sweden, Finland and Great Britain come from the administrative level, but of course related to national targets, whereas the agreements in the Netherlands and Denmark have a clear parliamentary basis.

All in all voluntary agreements in energy policy are often chosen because this is the only realistic political possibility. There is a political wish to do something in order to increase energy efficiency and reduce CO_2 emissions, but at the same time a wish to avoid stricter regulation of the industry. Also, the government has nothing to lose by introducing voluntary agreements as they have the possibility to introduce other policy instruments later. It has also been important that in some countries, e.g., the Netherlands, there is a tradition to use agreements within environmental policy. Other countries, e.g. Sweden, are inspired by the development in the United States, e.g. looking for industrial-friendly policy instruments to reduce industrial energy consumption.

To illustrate the argument, we bring the following quotes (Hansen, Holst & Krarup 1998): Employee at the Finnish Ministry of Industry: *At the present political situation, the politicians would not accept any stronger actions against industry.* Employee in a British industrial organisation: *I am not aware of any threat of stricter regulation, e.g. taxes, in case the voluntary approach does not work.... As far as I know, there is nothing along those lines at all.*

The Design of the Agreements

After voluntary agreements are chosen as a policy instrument to increase energy efficiency the specific design of the agreement has to be created. This distinction between the choice of the agreements as a policy instrument and the concrete agreement is not always useful. Our case studies show that the decision about the policy instrument and the specific design is often made at the same time. This is of course true for the British agreement, which is a standard agreement called a commitment. There is no negotiation between the signing parties about the commitment. On the other hand, the analytical distinction between the choice of agreement and the specific design is valid in countries like the Netherlands and Finland.

When there are negotiations, there are differences concerning the scope of the negotiations. In the Netherlands and Finland the negotiations are about long-term targets, whereas in Denmark, it is concrete projects, typically concerning increased energy efficiency in companies. Normally, company-specific situations are considered, but it happens differently in the two different systems. In the Dutch system negotiations are about long-term targets for an industrial sector and within each company. In the Danish system negotiations are about which projects should be part of the agreement. The negotiations are closed in the sense that third parties have no opportunity to influence the outcome. Relevant third parties could be environmental organisations. This also holds good for the agreements in the five selected countries.

The regulator could be at various political levels, but typically it is at the national government level (OECD/IEA 1997). The regulator is often represented by an energy or environmental authority, and will in the negotiations have the same interests as under policy formulation to create an agreement focussing on increased energy efficiency, but without harming the competitiveness of the industry.

The industry will in the negotiations be represented by a single company or an industrial organisation, e.g. the Union of Danish Dairies. The interest of the industry concerning the design of the agreement can be different depending on whether it is a single company that is the negotiation partner or it is an organisation negotiating on behalf of all firms within a specific industrial sector. Obviously, when it is a single company carrying out the negotiations, the company will argue for company-specific considerations. When it is an industrial organisation that makes the negotiations on behalf of the industry it will to a lesser extent be able to consider special circumstances for single firms, but instead focus on the sector level. By the conclusion of an agreement, the top-down perspective of the work of the organisation will be strengthened in relation to the companies. The organisations will get a new role as the extended arm of the government. Of course, this will also influence the negotiation carried out by the organisations, and over time the relation between the organisation and the specific firms.

A Dutch industrial organisation characterizes the negotiation climate like this: "*What changed in the government was that they understood the economic problems of companies in relation to environmental regulation. On the other hand, companies have become more aware that they have to take environmental measures. They have the responsibility and they know they can oppose for some years, but the demands will come again without consultation and cooperation, and as a result the attitude of the companies changed.*"

Both parties in the negotiations have transaction costs. They need to acquire information both concerning their own possibilities, e.g., company or sector specific costs of abatement and about the bargaining position of the opponents. The companies and the regulator also negotiate under uncertainty of future sales, production and regulation. It is in the interest of the firms to reduce this uncertainty about future regulation. Therefore, in the negotiation process industry will be interested in binding the regulator to a stable long-term agreement system, either by signing a long-term agreement or by continuous

renegotiation of an existing agreement (Raaschou-Nielsen and Foss 1997).

The outcome of the negotiations will also depend on how conflicts are solved. Here, the relation between the negotiating partners is of considerable interest. E.g. to what extent do the negotiations take place in the shadow of hierarchy, i.e. with an implicit threat from the government about stricter regulation if industry does not agree with the government position in the negotiations. The time span for the negotiations is different in the analysed countries. In Denmark it takes half a year from the signing of a letter of intent until the final agreement is signed. In the Netherlands the negotiation period is much longer, normally between 1 and 2 years. In Finland the negotiation period was short, only 2-3 months. In Denmark the negotiations are so structured that among some it is considered to be normal bureaucratic work within a specific frame and not a negotiation. The Danish "negotiations" can probably be viewed as an example of negotiations in the shadow of hierarchy (Scharpf 1989).

In some of the agreements the problem of asymmetric information between regulator and industry has been considered, i.e., the regulator learns about the situation within industry (e.g., abatement cost and competition) which is useful for developing future regulation. Based on our experience, we are sceptical of the success of this strategy, which – by the way – is rarely admitted by government employees. The asymmetric information could be reduced by introducing consultants and energy audits. Energy audits are in one way or another used in many agreements, but normally consultants are loyal to the company that pays their fees in the future so the information asymmetry between the regulator and the regulated does not necessarily diminish. It might even increase because the consultants in cooperation with one or more companies acquire new information which is not given to the regulator. Often, the employees at the regulator do not consider it as important to know very much about the abatement costs in the companies.

The Implementation of the Agreements

From a theoretical point of view the companies carry out activities that are profitable for companies, or reduce costs of violating the agreement (Harrington 1988). A Dutch industrial organisation phrases it in this simple way: *Energy costs money. If you save energy, you save money. So if investments have a payback period of two or three years why shouldn't we do it?*

The violation issue brings the possibilities for the government to enforce the agreement into focus. The government has considerable problems to control whether or not the agreements are respected (Russel, Harrington & Vaughan 1986). The government needs access to the company and, if needed, the necessary equipment to measure compliance. To avoid this problem the authorities can choose to let the companies report themselves to which extent they observe the agreement, i.e. whether they have carried out various projects. However, this does not solve all the problems of the regulator because the firms will typically have an incentive to misinform the regulator.

Among the analysed agreements there are big differences concerning the control of the agreements. In the Danish and the Dutch agreements the companies control themselves by reporting; in Denmark investments or projects carried out, and in the Netherlands the physical production and energy consumption. In the Danish case the government can sanction the companies by imposing taxes if the companies report that they do not observe the agreement. This has not happened yet.

In the Netherlands the possible sanction is that the Dutch energy agency can demand what is considered to be stricter regulation of the companies' energy consumption by the Dutch provinces (counties). This has not happened yet either.

Originally, control was included in the Finnish agreements. However, the independent controlling body has never been in force and is now abolished. In the Swedish and British agreements neither control

nor sanctions are included in relation to specific firms.

The threat of control and sanctions is therefore normally not the reason for firms to carry out activities promised in the agreement. It is probably more likely to be the possibilities that firms see in the agreements.

When agreements are signed by industry or at industrial sector level the implementation can be more difficult as it depends on the possibility and willingness of the organisation to convey the agreement to single firms.

The relation between industry and government before and after the agreement is concluded is also important concerning the outcome. If the negotiation that took place before concluding the agreement was positive this could affect the implementation by companies.

Various social or economic conditions will also affect the capability of the government and the firms to comply with the agreement. For the government part promised subsidies can "disappear" in later budget negotiations, e.g. due to a large government budget deficit (this happened in the Finnish case). If a firm or an industry is exposed to severe competition from foreign companies or if prices change rapidly it can reduce or increase the possibility of the companies to observe the agreement. Increased environmental consciousness in the population can also influence the perspective of firms and thereby influence the implementation of the agreements.

In all five analysed countries representatives from the industrial organisations and single firms considered the agreements to have caused activities in the firms that might not otherwise have taken place or at least the agreements have hastened planned energy-efficiency projects. In Finland this primary holds for the firm that has concluded an individual agreement.

For the government it is hard to know whether or not the firms would have carried out the promised activities anyhow. In the Danish agreements there is a condition that all energy-efficiency investments with a pay-back period of less than 4 years have to be carried out. Investments with a shorter pay-back period (0-2 years) are by the government considered to be carried out anyway. The demand for a longer pay-back period than companies normally use in their investment decisions indicates that investments are carried out that would not otherwise have been.

All in all we conclude that the agreements have created new investments in companies and industry. However, many of the activities – now generally described as part of the agreement – would have been carried out anyway. The difference is often that the investments are carried out before they would have been "anyway" because energy is a priority now. Furthermore, some activities or projects were not known by companies and sometimes companies found out that the savings potential was larger and less expensive than previously believed.

The plant manager at a British chemical industry: *We got the shock of our life because we found we were so wasteful.*

If the voluntary agreements are to be a significant part of a national attempt to comply with international obligations concerning CO_2 emissions and increased energy savings it is essential that the companies signing agreements are the bigger and more energy-intensive firms in the countries. Their contribution to national and international targets will be greater, and non-participating free rider companies will not create as big a threat.

When agreements are concluded between governments and industrial organisations there is an obvious threat of free riders within the industrial organisation. Here the contact between industrial organisations and member firms is essential. In one of the cases we found that a firm did not know that its organisation on behalf of the firm had signed an agreement.

The Effect of the Agreements

It is difficult to measure the effect of the agreements in kWh, GJ or reduced CO_2 emission. One question is what we should compare an agreement to: the effect of another policy instrument or the energy use trend (EEA 1997). The first comparison is often considered to be the best. But in that case one needs to know what could have happened compared to what would happen with agreements which is normally far too ambitious. Measuring the outcome compared with a trend is therefore more realistic, but also complicated. One way or another you have to use historic experience to say what might happen in the future, i.e. the trend. Not only the trend, but also what actually happens is difficult to measure in a meaningful way, at a sector level as well as at a specific firm. This is partly because data are only collected to a limited extent, but it is also because it is difficult even with the best of intentions to measure the effect of a specific, but minor investment in a big industrial plant.

Evaluations at the macro level for industries or total countries are a problem since the agreements have not existed very long. In the Netherlands and Finland, where most agreements are either concluded or negotiated since 1990, it is possible to look at some quantitative effects. Apart from these countries, one normally has to base assessments of the effects on the expectations of the various agents.

For the EU countries as a whole the average increase in energy efficiency from 1973 to 1990 (when the agreements started) was between 1.5 and about 2 per cent per year (IEA 1996).[3] During the last 10 years the average improvement in efficiency has been at the same level.

Now the great question obviously is how this historic trend in energy efficiency can be used in the future. However, we assume the following: it can be used to say something about the trend, i.e., what would have happened anyway. We further assume that what would have happened anyway can be estimated to be an increase in energy efficiency between 1 per cent (which we assume to be the minimum expectation for the trend) and about 2 per cent. Over a period of 10 years this gives an energy-efficiency improvement in the trend between 10 and 20 per cent.[4] The target in the Finnish agreement is a 10 per cent improvement in energy efficiency over a period of 15 years. Based on the above rough calculation the trend itself would realise between 15 and 30 per cent. For the Finnish agreement we can thus see that the target lies below the efficiency improvement that would have taken place anyhow during the period 1990 to 2005 provided that the development during the years 1973 to 1990 was unchanged.

For the Dutch agreement the target of a 20 per cent improved energy efficiency over a period of 10 years is in the upper edge concerning reasonable expectations about what would have happened anyway during this period. Based on available data (e.g., Ministry of Economic Affairs 1997) the Dutch industry will probably reach this goal.

In Denmark and Sweden the government and industry assume that the targets will be reached, i.e., the companies will actually carry out the projects promised in the agreement.

Concerning the British agreement (MCCC) the outcome is first and foremost various procedures and neither specific investments nor targets concerning energy efficiency. A survey is made of the signing British companies in relation to their commitment (BMRB International Ltd. 1995). There are different fulfilment ratios concerning the different targets, between 90 and 50 per cent. But a major problem with

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[3] 1973 is the first year in the IEA statistics.

[4] Please observe that we have calculated the increased efficiency in the trend as an average per year not a normal interest calculation because this is the way the targets in the Dutch and Finnish agreements are defined: an energy-efficiency improvement of e.g. 20 per cent over 10 years.

the British agreement is probably the low rate of participation – 15 per cent of the target group and the weak link between the commitment and action (Friends of The Earth 1995).

Apart from the direct effect of the agreements in relation to the efficiency improvement targets, the agreements also have other effects. Energy is now on the agenda. Within firms there is more focus on energy now. The energy-responsible person has a tool to use when arguing why investments in energy efficiency are necessary. It is often mentioned by participating firms that through energy audits and working in a network with other companies they get more information about their own situation. Therefore, an essential effect of the agreements is increased information about the possibilities for firms to carry out energy savings.

Swedish company about the energy audit: *We knew most beforehand; but presented in good way we found out how easy it is.*

Conclusion and Discussion

Often, the choice of voluntary agreements as policy instruments does not mean that other options, e.g., taxes, are excluded. In our five case studies, it is only in the Danish case it is reasonable to think about voluntary agreements in this way. It seems that voluntary agreements can be more considered as a first political step in a new policy area. The agreements can be regarded as a policy instrument with a bridging function, i.e., to work until other regulations can come into force. Or, as it is described by Dorn and Phidd (1983), as a first step on a ladder from so-called weak to strong instruments. They argue that there is a tendency for a regulator on a new policy field to start soft, e.g. with an information campaign or voluntary agreements, to fertilize the soil for future use of other perhaps stronger policy instruments.

Apart from this bridging function voluntary agreements have a unique quality in relation to other policy instruments. By the agreement governments often try to change firm preferences in a "vision of shared responsibility". I.e., the idea behind voluntary agreements to some extent is to change company preferences and thereby change company behaviour. With traditional policy instruments, e.g. taxes or standards, the idea is to change firm behaviour by changing business conditions within which companies are supposed to profit maximise without changing the preferences of the firm.

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References

Baumol, William J. 1977. *Economic Theory and Operations Analysis.* London: Prentice/Hall International Editions.

BMRB International Ltd. 1995. *Top Management Attitudes to Energy and the Environment.* Hadley House 79-81. Uxbridge Road. Ealing. London W5 5SU.

Dorn, G. Bruce, and Richard W. Phidd. 1983. *Canadian Public Policy: Ideas, Structure, Process.* Toronto, New York, Methuen.

European Environmental Agency, EEA. 1997. "Environmental Agreements - Environmental Effectiveness." *Environmental Issues Series* 1 (3).

Friends of the Earth. 1995. *A Superficial Attraction. The Voluntary Approach and Sustainable Development.*

Hansen, Kirsten, Anne Katrine Kehler Holst, and Signe Krarup. 1998. Frivillige aftaler om energieffektivisering i England, Finland, Holland og Sverige. Copenhagen: AKF Forlaget.

Harrington, Winston. 1988. "Enforcement Leverage when Penalties are Restricted." *Journal of Public Economics* 37: 29-53.

International Energy Agency. 1996. *Energy Balances of OECD Countries 1993-1994.* Paris.

Krarup, Signe, and Trine Pipi Kræmer. 1996. Agreements as a Policy Instrument. Paper presented at the 17th Annual North American Conference of the USAEE/IAEE, Boston, October 27-30.

Krarup, Signe, and Anders Larsen. 1998. *Energieffektivitet gennem aftaler.* Copenhagen: AKF Forlaget.

Krarup, Signe, Mikael Togeby, and Katja Johannsen. 1997. De første aftaler om energieffektivisering. Working paper. Copenhagen: AKF Forlaget.

Linder, Stephen H., and B. Guy Peters. 1989. "Instruments of Government: Perceptions and Contexts." *International Public Politic* 9: 35-58.

Ministry of Economic Affairs (the Dutch). 1997. *Long Term Agreements on Energy Efficiency. Progress in 1995.*

Mitnick, Barry M. 1980. *The Political Economy of Regulation.* New York: Columbia University Press.

Musgrave, Richard A., and Peggy B. Musgrave. 1989. *Public Finance in Theory and Practice.* McGraw-Hill, Inc.

OECD/IEA. 1997. "Voluntary Actions for Energy-Related CO_2 Abatement. Energy and Environment." *Policy Analysis Series.*

Olsen, Ole Jess. 1993. *Regulering af offentlige forsyningsvirksomheder i Danmark.* Copenhagen: Jurist- og Økonomforbundets Forlag.

Raaschou-Nielsen, Agnete, and Nicolai Juul Foss. 1997. *Indledning til rets- og kontraktsøkonomi.* Copenhagen: GadJura.

Russell, Clifford S., Winston Harrington, and William J. Vaughan. 1986. *Enforcing Pollution Control Laws.* Resources for the Future, Washington, D.C.

Scharpf, Fritz. 1989. "Decision Rules, Decision Styles and Policy Choices." *Journal of Theoretical Policies* 1 (2): 149-176. SAGE Publications.

Vedung, Evert. 1991. *Utvärdering i politik och förvaltning*. Lund: Studentlitteratur.

Winter, Søren. 1994. *Implementering og effektivitet*. Forlaget Systime a/s. Denmark.

Wright, Maurice. 1988. "Policy Community, Policy Network and Comparative Industrial Policies". *Political Studies*, XXXXVI: 593-61.