

## **THE IMPLEMENTATION OF RENEWABLE ENERGY POLICIES: THEORETICAL CONSIDERATIONS AND EXPERIENCES FROM SPAIN, NETHERLANDS AND UNITED KINGDOM**

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### **Abstract**

The paper makes theoretical considerations and presents some empirical findings on the implementation of renewable energy policies from the perspective of Contextual Interaction Theory developed at the University of Twente. The aim is to show that: a) policies designed to encourage renewable energy diffusion too often have crucial implementation problems to address, and b) Contextual Interaction Theory provides a helpful framework to analyse the structure of implementation processes.

**Keywords:** policy implementation; diffusion experiences.

### **1. Introduction**

The implementation of renewable energy policies is a highly challenging task as it requires the congruent involvement of many types of public authorities, economic actors and financing agents. The attitude of public agencies with respect to renewables' role in the energy system and to the choice of policy instruments for their support underlies the likelihood of inter-agency cooperation towards policy specification and adequate implementation. The crucial aspects of the extent of financial support and sitting permit policy depend on their motivation to implement the policy instrument adequately, as envisaged in established programs. The attitude of potential investors towards the renewable technologies (RT) and choice of policy instruments shapes their risk perception. Together with the feasible profitability enabled for RT projects, this underlies their investment interest and diffusion prospects. Apart from these aspects, experience in many countries shows that the availability of information necessary to develop and approve renewable power plants plays a crucial role in the rate of market growth. More importantly, the flow of information with regard to the interpretation of the regulatory framework for renewables support is essential in the shaping of investors' risk perception. Besides, the balance of power between public agencies and investors with regard to the implementation of investment decisions is a decisive aspect in implementation success.

This paper proposes an analytical bridge between policy design, policy implementation and prospects for diffusion potential. Contextual Interaction Theory (CIT) considers that actors' motivation, the flow and quality of information, and the balance of power/resources among involved actors are able to explain the structure and outcomes of implementation processes. In

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Section 2 of the paper, we shortly briefly explain the main ideas, concepts and relationship assumed by CIT. In Section 3 empirical evidence is provided, supporting the theory. The diffusion of wind energy in United Kingdom proves the case for the importance of implementer's attitude regarding the usefulness of renewable energy. The diffusion of wind energy in Spain illustrates the role of information flow on the implementation strategy and success. The diffusion of wind energy in the Netherlands demonstrates the negative effects of institutional power imbalance on diffusion results. Section 3 presents our main conclusions.

## 2. A Contextual Interaction Theory for understanding implementation outcomes

That politically selected policy measures are actually employed in practice is by no means a self-evident next step, which can be taken for granted. In fact, many of the bottlenecks for effective policies have proven to be rooted in implementation failure, rather than in the policy design errors that concern most policy analysts. We think it would be naïve to refer to this situation as that 'good policy designs' are being corrupted in the implementation process. Rather, the robustness of the measures in the implementation process should be an important concern of 'good policy design'.

In order to be able to foresee how measures will fare in implementation processes it is important to pass the stage of ad hoc case studies and 'store' the available knowledge from the field of implementation studies in a broad and widely applicable, yet concise theory. That is precisely what the *Contextual Interaction Theory* aims to do. In this section we will provide some fundamentals of this theory.

We define a policy implementation process as '*the whole of all activities and interactions that are connected to the employment of a preconceived set of policy measures*'. This implies that the process has a policy, including suggested or specified instruments and other measures, as an input. Of course the initial degree of specification can vary considerably. Nevertheless, this input is in all cases at least an important part of the frame of reference when analyzing the course and outputs of the process.

The relevant activities and interactions are pursued for one part by actors -- organizations and people -- that are officially commissioned with promoting the envisaged measures (the 'implementers'), and for another part by actors that are necessary to realize them (often so-called 'target groups'). The latter can actually also be other authorities with different main responsibilities. Obviously, it cannot be taken for granted that these other actors will have a positive attitude towards the employment of the envisaged policy measures. Less obvious, but still true, is that the same holds for the 'implementers'. Their motivation can be lukewarm, even negative. In this way, it is quite possible to get 'obstructive cooperation' between implementers and target groups, halting all employment of the measures.

When multiple organizations are involved in the implementation process, it is likely that in the course of the process they form *coalitions* on the basis of similar policy beliefs (values, cognitions) and mutual dependencies (resources). So, even if there are multiple organizations involved, in many cases a two-actor model (two-coalition model) will be adequate. Note that the split between the coalitions need not coincide with the public authority – private sector division. For instance in environmental policy some NGOs might line up with the environment agency, while the economic department may line up with the business interests.

To analyze the implementation process, knowing the positions of the main actors / coalitions towards the employment of the measures (*motivation*) is not enough. It is not only what they want to do, but also what they are able to do. This partially depends on what information they have access to and their ability is to process the *information* necessary for the (inter)actions

they want to pursue. Its prominence rests on the fact that almost all of the interaction process consists of communication. The factor of 'information' is not only about the factual availability of the information and the uncertainties surrounding it, but also the capacity of the actors to gather and process this information. Information is not just an objective resource. Ultimately it is rooted in interpretations of reality, which give meaning to observations of so-called 'facts'. Large bodies of modern policy science literature emphasize the importance of this cognitive side of the explanation of behavior (e.g. discourses, frames, cognitive maps etceteras). Sufficient information is a necessary condition for activities and interactions that are really productive to employ the envisaged policy measures, even when all parties share enough motivation to do so. When one or both of the parties actively wants to pursue implementation, a lack of necessary information will halt them. In any case this will be temporarily so, until they have learned enough to proceed.

In many cases the motivations of the actors involved will not be congruent. When the active party that pursues the employment of the policy measures also has sufficient information to proceed, the main actors / coalitions will confront each other. In those cases the *balance of power* between them will determine the fate of the policy that is to be implemented. Often the policies to be implemented provide themselves some authority to the implementers (likewise they also influence motivation and the kind of information that is needed for their implementation). The sources of these powers encompass much more than formal rules, though legal rights and other institutional rules can be an important part of it. Not only the resources of the actors themselves, but moreover the dependency of an actor on the resources of another actor shapes the balance of power. A classical example is the dependency of authorities on the jobs created by industry, which industry can use as a source of negotiation power.

In Contextual Interaction Theory all these factors - motivation of actors, the information held by the active actor(s) and the balance of power - are simultaneously drawn into the analysis. The values on these factors together form the direct context of the implementation situation and predict the type of interaction and the predicted output of the process. The theory works with two outputs, whether there is a good chance that any implementation process gets underway at all ('likelihood of implementation') and if so, the 'degree of adequate implementation'. The hypotheses scheme for the latter outputs is shown below<sup>2</sup>.

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<sup>2</sup> At our institute a research program has been started focusing on the policy implementation challenges under new modes of governance. This work aims (among others) to refine the predictive power for implementation outcomes for the cases when information is either unavailable or contested (see situations 2, 6, 8, 12 in Figure 1). The authors would greatly appreciate feedback from conference participants on the Contextual Interaction Theory. For an extensive version of the theory, including expectations on the 'implementation likelihood' variable, please contact the authors.

Mi	Mt	I+/0	Pi	Sit.	Outcome	Type of Process
+	+/0	+	—	1	++	Constructive cooperation
				2	--?	Learning towards 1
	-	+	+	3	++	Constructive cooperation
				4	+ / ++	Negotiation / Conflict
		-	-	5	+ / -	Negotiation
				6	--?	Symbolic / Learning → 3/4
0	+	+	7	++	Constructive cooperation	
			8	--?	Symbolic / Learning → 7	
	-	0	—	9	--	Symbolic
				10	--	Obstructive cooperation
		+	+	11	+ / -	Negotiation
				12	+ / ++	Negotiation / Conflict
-	-	-	13	++	Constructive cooperation	
			14	--?	Symbolic / Learning → 12/13	
	0 / -	15	--	Obstructive cooperation		

Key: Mi = motivation implementer; Mt = motivation target group, I+/0 = information active actor(s), Pi = balance of power viewed from position implementer.

Figure 1. The degree of ‘adequate application’ under Contextual Interaction Theory

### 3. Implementation experiences from Spain, Netherlands and United Kingdom

#### 3.1 The role of public agencies motivation in the implementation of British wind policy

In 1990 the British government put in place a highly attractive economic support scheme for wind energy projects. It offered investors legal guarantees for the purchase of wind electricity - for 8 years, and later 15 years - at an above market price that enabled attractive levels of profitability. The support scheme raised a spectacular investment interest but only limited amounts of wind capacity were eligible for these guarantees by means of calls for tenders. Five tenders were organised during the 1990s, but ministry data are only available for the last three rounds. Out of more than around 5200 MW with firm bids from investors, the government approved 2236 MW for legal guarantees - only during the last three tenders. At the end of 2001 when a new support scheme entered into operation, there were only around 300 MW installed. The spectacular failure of the policy to deliver installed power is mainly due to factors pertaining to public authorities’ motivation to further elaborate the support system and address the administrative and social obstacles to building permits for wind plants.

Firstly, the ministerial authorities believed that it was not their task to put in place a planning and permit policy for wind projects guiding regional and local authorities, or to raise the permit competences at the level of central authorities. They considered that the building approval for wind plants should be best done at regional/local level where people know better the particularities and interests of the region. However, the incumbent planning regulations were based on the principle of local value. Regional authorities, municipalities and local population failed to understand the benefits of wind energy for them, such as security of supply, lower and more stable electricity prices due to embedded generation, employment creation and local social-economic benefits.

There was a dominant perception that wind energy benefits only at national and international levels through CO<sub>2</sub> and other emission reduction, and fossil fuels saving. Central authorities also did not believe they should take the initiative to carry out information campaigns, when asked to do so, creating a vicious circle.

Secondly, at regional/local level there was opposition towards wind projects based mainly on visual impact considerations. Due to the price pressure embedded in the support scheme design investors proposed many wind plants on hill tops that are often areas of outstanding beauty. Even when the sitting obstacle became obvious, central authorities did not consider it necessary to implement a location flexibility policy and allow successful projects to be built elsewhere. This only happened in 2001 under increasing pressure from the wind industry.

More fundamentally, the government did not believe for most of the 1990s that RT form a serious energy alternative. The 1990 support scheme was initiated by a blunder in formulating the request for European Commission to approve the subsidisation of nuclear energy under the liberalised energy industry. The term used was that of 'non-fossil fuels'. As this includes RT and lobby pressure was high, there was no choice but to accept RT too for guaranteed purchase and price support. However, the belief was that gas, clean coal and nuclear power are the true energy options of the UK. Only when the new international and domestic climate policy set ambitious reduction targets for CO<sub>2</sub> did the interest in a proper and complete support system emerge. The motivation for policy implementation success increased with the setting of the target of 10 % for renewable electricity by 2010 in the 77/2001 EU Directive. Hence in the UK, the absence of a real motivation during the 1990s support for RT led to an inadequate policy implementation.

### *3.2 The role of information flow in the implementation of Spanish wind energy policy*

Due to its very large dependency on imported fossil fuels (more than 70 %), Spain was heavily hit by the two oil crises of the 1970s. In 1980 the government embarked on a policy to support RE development and diffusion. The political belief - backed by all governments that held power up to the present - was that it is better to finance domestic renewable energy resources, no matter how expensive, than to finance unreliable foreign fossil fuels import. A legal instrument for guaranteed purchase was put in place in 1980. During following years this was accompanied by investment subsidies. However the instrument failed to generate the expected investment interest, mainly because there was no legal guarantee on a minimum contract length and a minimum price. Implementation was proceeding at a very slow pace.

In 1994/5, the adoption of the new electricity law for industry reorganisation enabled the introduction of a 5year guarantee on purchase for a ministry-approved tariff. However, the rate of market growth was still not satisfactory to the government who wished to reach a much larger role of wind power in the energy system. Shortly after the new frame entered into operation, the government organised a series of seminars and workshop with potential investors to inquire about their reasons not to invest (more seriously) in RT. Many participants argued that there was no reliable legal framework, because two important economic aspects of RT plants were left to the decision discretion of the Ministry of Industry and Energy – contract renewal (seen as too short) and tariff levels. Becoming aware of the problem, the energy agency (IDAE) assured investors of strong and long-term commitment of the government for RT support. It was argued that the reasons for unattractive legal frame were a lack of policy making experience in this area combined with a lobby of energy utilities which were not yet in favour of RT public support and did not want to see to many legal guarantees. Hence, it was more politically feasible to design a law with partial / incomplete

guarantees, while there was a genuine motivation of the government to maintain RT financial support in the long term.

This flow of information enabled investments to take off the ground noticeably. The rate of wind projects implementation increased even further when a target of 12 % renewable energy by 2010 was introduced in the 1997 electricity law. In the new (1999) policy program, the target for wind energy was set at 9000 MW and later (2003) raised to 13.000 MW. In addition, the 1998 Royal Decree for RT support placed price revision under governmental authority and specifically mentioned the long-term commitment for RT price support in the view of their environmental benefits and the envisaged increases in targets. These regulatory developments were induced by the intense flow of information between interested investors and public authorities about each others' interests and difficulties on the implementation of wind energy. This proves the case that when motivation of both implementers and target groups is high but information is missing - on the background of balance of power - learning processes may occur leading to adequate policy implementation.

### *3.3 The role of power balance in the implementation of Dutch wind energy policy*

The Dutch government started to support the production of wind electricity in 1989, with the adoption of an electricity law that guaranteed its purchase by distribution companies. But the same companies were regarded by the government as main wind energy investors. They were put in charge with specification of financial aspects of a series of policy instruments including the price support for guaranteed purchase. The institutional frame was highly unfavourable for new entrants, especially small developers. The regulatory power transferred to distribution companies (and their joint ventures with other firms) resulted in an investment framework of low economic risks and modest profitability for them (due to legal ceilings on profits), while for independent producers economic risks were high and profitability was most often lower.

The central authorities were rather neutral with regard to wind energy support. The support in the electricity law was mostly motivated by the interest to see more decentralised capacity in general, for more industry competition, rather than more renewable capacity. In regard to the other instruments of financial support, they were part of a policy program to reduce CO<sub>2</sub> emissions. Wind was only one of the measures available, and not even a cheap one.

By placing almost the entire implementation power on distribution companies, the government transformed a segment of the target group - wind energy investors - into de-facto implementing authorities. The independent power producers (IPPs) were left to represent the 'target group', as understood by CIT. The motivation of distributors to implement the set support schemes was high as they were also benefiting from them. But they were not interested in implementing them adequately, since competitors should be discouraged. This resulted in investment behaviour by IPPs that favoured very small plants.

Between 1990-1997 almost 90 % of the projects were smaller than 1 MW (Dinica 2003). They aimed so to reduce the high risks on project cash flow. At the same time, distribution companies planned to invest in larger plants, however they encountered more local opposition than IPPs. The resulting rate of market growth was very slow, yielding only 347 MW installed by 1997, in spite of many wind energy support schemes.

If the balance of power between the two types of investors had been positive, higher rates of wind projects' implementation would have been achieved. This happened only in the last years of the 1990s. Changes in some (financial) power instruments of distributors, together with the strong incentive to alleviate the local approval obstacles, stimulated them to initiate more projects in joint ventures with IPPs. In the same time a targeted policy from central and regional/local planning authorities was implemented, helping to speed up market growth. This case illustrates the role that the balance of power can play in the implementation of renewable energy policies, when the institutional frame places too much emphasis on self-regulation.

#### **4. Conclusion**

The Contextual Interaction Theory develops expectations with regard to the likelihood of policy implementation and the degree of adequate implementation - seen from the perspective of prospects for policy goals achievement. For RT diffusion policies, these depend largely on the attitude of implementing agents towards RT, the perception of investors regarding the support system and their motivation to invest, the availability and contestability of information on RT and the support system, as well as the balance of power/resources between implementers - or empowered representatives - and potential investors. The implementation of RT policy in the UK during the 1990s resembles Situation 14 in Figure 1, whereby policy was symbolic, followed by slow learning. The lack of motivation of public authorities and of information on RT benefits lead to inadequate implementation of wind energy. The support of wind energy in Spain indicates Situation 2 in Figure 1 whereby wind diffusion stumbled on information and communication obstacles. But having in view the high motivation of all relevant actors for adequate implementation, learning processes were initiated leading to constructive cooperation towards the second part of the 1990s. Wind diffusion in Netherlands was accompanied by conflicts and negotiation within the target group (resembling situation 5) which led to inadequate implementation. Consequently, the implementation of wind energy in three European countries supports the theoretical consideration of CIT, suggesting it as a useful frame for the analysis of implementation in other cases, and effective policy design.

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