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Comments on the Discussion Paper

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ECO-TAXES AND COMPETITIVENESS ISSUES: LESSONS LEARNED FROM THE CARBON-ENERGY TAX PROJECT IN FRANCE IN 1998-2000

This paper intends to give some practical elements as a discussion of Pr De KLAM's paper, especially on issues 3 and 4 on competitiveness. It will describe the project of energy tax prepared by the French government between 1999 and 2000, voted by the parliament in November 2000, and rejected by the constitutional court in December 2000. After a short description of the context of eco-taxes in France, it will describe the energy tax project itself, and make a few comments on how the issue of competitiveness was treated in the project and on the consultation process.

Following Pr De KLAM's presentation, this project can be described briefly as :
- an incentive tax on energy consumption by the industry ;
- with high concerns on competitveness addressed by tax rebates preserving the incentive of the tax;
- articulated with voluntary agreements ;
- with little distributive issues, since households were not affected directly ;
- in the general context of a tax reform that had, since 1999, moved from earmarked environmental taxes, to general budget funding, and finally, to re-use of taxes for social policies.

I. The context of ecological tax-reform in France

Eco-taxes have a rather long history in France, since the first water charges in the 60's, to air pollution taxes in the 80's and waste taxes in the 90's. A new step has been taken in 1999 through the concept of « Taxe Générale sur les Activités Polluantes » or TGAP. Its purpose was, in 1999, to unify and to simplify a set of five existing taxes:

- a tax on treatment and storage of special industrial waste,
- a tax on atmospheric pollution,
- a tax on oils,
- a tax on sound nuisances,
- a tax on domestic wastes.

The five taxes integrated in TGAP in 1999 were formerly managed in a decentralised way by a public agency called "Agence De l'Environnement et de la Maîtrise de l'Energie" (ADEME)

[1] This presentation doesn't reflect the position of the French Ministry for ecology and sustainable development.

whose purpose was to finance local authorities' projects. Now the funding of ADEME comes directly from the national budget and this funding is not anymore linked with the revenue of the taxes.

The revenue of the 1999 TGAP was 305 millions Euros.

In 2000, TGAP has been extended to new areas:

- detergents,
- extracted materials (graver),
- pesticides (used in agriculture),
- industrial classified facilities.

The law, dedicated to the funding of the national social security for year 2000, extended the TGAP : first of all, the rates of the existing taxes were increased ; in the second place, TGAP was extended to new sources of pollution; and in the third place, the all income of the TGAP was assigned to the reduction of social contributions paid by employers.

Extension to new products :

- a tax on detergents, every kinds of detergents but the rates depended on their phosphate content
- a tax on extracted materials (graver) ;
- a tax on pesticides used in agriculture. Pesticides are divided into 7 categories according to the toxicological danger they present.

The total revenue of the 2000 TGAP was 440 million Euros. The tax rates and revenues are detailed in Annex 1.

Besides the TGAP-group eco-taxes, one must bare in mind taxes on water pollution, that are collected since 1964. The national territory is divided into 6 watersheds. Each of these watersheds has his own administrative and political organisation. A public body (called « Agence de l'Eau ») decides the establishment and the rates of the fees whereas a representative body of every interested parties (the State administration, the local authorities and the « users ») must approve them.

Finally, the eco-tax system should be analysed within the broader energy-transport tax system, including the excise duties, which were the following at the time of the project (in Euros / Ton of Carbon):

Combustible / carburant	**Tax 01/2000 in € / TeC**
Supercarburant	973,84
Supercarburant sans plomb	897,16
Gazole	558,57
GPL carburant	118,15
Fioul domestique	114,79
Fioul lourd <2%	23,78
Fioul lourd >2%	29,42
Gaz naturel carburant	135,22
Gaz naturel industriel	21,19

II The 1998-2000 carbon-energy tax project

At the national level, the energy tax project was part of the previous ecological tax reform initiated in 1999. The government decided on the 20th of may 1999, after consultation with the different administrations, the principle of a new energy tax which was to be implemented in 2001. This decision was presented as the consequence of the French commitment in Kyoto's agreement. According to this agreement, France must reduce its emissions of green house gases to the level reached in 1990. This energy tax should have been on industrial consumptions and its revenue (as the one of the other taxes included in TGAP) affected to the social contributions' reduction.

In the "*Programme National de Lutte contre le Changement Climatique*" (National Programme Against Climate Change) issued in January 2000, the eco-tax contribution to the reduction of GHG emissions was expected to be about 30% of the necessary reduction (16 Million tons of carbon) to cope with the Kyoto agreement and burden sharing. The rate of the energy tax according to the program should have been progressive, from *23 to 30 € per ton of carbon in 2001 and the first following years to 76 € in 2008-2010*. The programme also included the possibility to introduce tax relieves or reduction for energy intensive industry. Those arrangements should have been adjusted with the implementation of tradable permits.

After the White Paper published in July 1999, two working groups with the industry issued proposals in the first semester of 2000, and a joint preparation by the ministries for finance and industry, and for environment, finally elaborated the project, that was submitted to the parliament in fall 2000.

The scheme was a tax on tonnes-equivalent-oil used as intermediate consumptions of energy of firms whose consumption exceed 100 tons equivalent oil per year. Households were not covered. 40000 firms were to be taxed (out of a total of 2,8 million except agriculture). Agriculture, fishing, forest industry, administrations and the transport sector were exempted. New firms were exempt also during their first year of activity. Energy production should have not been taxed, neither energy used for heat production.

Fossil energies were to be taxed according to their carbon contents, on the level of 40 Euros per ton of carbon equivalent. Electricity production was to be taxed according to a predetermined content of carbon. Energy intensive firms (more than 50 MTEP per 150 000 Euros of added value) were eligible to tax reductions providing they negociated voluntary agreements with the administration. The design of this tax reduction, which was central in the discussion in parliament, is described below. The tax rates were the following:

Table : TGAP energy rates (December 2000 project)

	Rates in Euros
HTS Fioul	33.54 / 1000 l.
BTS Fioul	33.54 / 1000 l.
Domestic Fioul	28.81 / 1000 l.
Coal	26.53 / t.
GPL (for heating)	31.71 / t.
Industrial natural gas	1.98 / MWh PCS
Industrial electricity	1.98 / MWh

The expected revenue of this tax was 0.6 milliard Euros.

III Competitiveness

III.1. A brief assessment of competitiveness issues

The preparation process has raised the issue of competitiveness, put forward by many sectors, as early as 1998. However, it appears that the situation of various sectors is quite different towards competitiveness issue, which can be broken in two parameters : energy intensity and openness to international markets. On this last point, one should distinguish however, the issue of competition on the European market, which is supposed to be addressed by the burden sharing, implicitely setting a uniform value of carbon throughout Europe, the annex 1 countries, whose commitment to Kyoto also sets a value for carbon, and annex 2 countries. The following table characterises the French branches according to their openness to competition :

Hardly opened	Little opened	Opened	Very opened
Printing, press	Wood, furnishing	Textile, clothing	Aviation and ship building
Agro-food industry	Paper	Mechanical constructions	Leather, shoes
Building materials	Rubber, plastic	Iron minerals and steel	Chemistry
Steel transformation	Glass	Non iron minerals and metals	
	Parachemistry and pharmacy	Electronic and electric devices	

Among sectors, industry shows a significantly higher energy intensity than other sectors.

Energy intensity (TeO / MEuros value added)	
Industrie	7,3
Tertiaire	0,8
Agriculture	2,4

Among industrial sectors, differences appear even larger :

Sector	**TeO/M EurosVA**
Minerals extraction	37,0
Steel	70,7
First transformation of steel	19,0
Non iron metals	36,2
Miscalaneaous minerals	24,5
Cement	36,7
Other building materials	8,3
Glass	15,8
Fertilizers	62,0
Other mineral chemistry	31,8
Plastic production	33,6
Organic chemistry	14,1
Synthetic fiber	22,8
Para-chemistry and pharmacy	1,2
Electric and electronic devices	4,7
Automobile and transport equipments	1,0
Shipping and aviation	1,6
Steel works	2,2
Mechanical construction	1,9
Textile, leather, clothing	3,8
Paper	20,1
Rubber	4,4
Plastic transformation	4,8
Miscalaneous	2,90
Agro-food industries	5,03
Total industry	**7,32**

III.2. Addressing competitiveness issues

Adressing competitiveness issues with differentiated tax schemes would have led, in theoretical terms, to a "first best" system where tax rates would have been linked to the elasticity of demand, on the basis of a "Ramsey" pricing.

However, more practical considerations have led to imagine a system in which the marginal tax rate would be preserved, and competitiveness issue would be addressed through a "lump-sum" system of tax base reduction. This tax base reduction couldn't, for practical reasons, be designed by sectors (sectoral statistical identifiants have hardly legal value for discriminatory treatments), and was computed after the individual firm's energy intensity, in order to limit the "revenue" effect of the tax to 0,3% of value added.

Tons oil equivalent per million francs of added value (A)	**Tax reduction (coefficient to 1)**
From 25 to 50 tons oil equivalent per million francs of added value	0,02 X (A – 25)
From 50 to 100 tons oil equivalent per million francs of added value	0,5 + 0,006 X (A – 50)
From 100 to 200 tons oil equivalent per million francs of added value	0,8 + 0,001 X (A – 100)
From 200 to 400 tons oil equivalent per million francs of added value	0,9 + 0,00025 X (A – 200)
From 400 tons oil equivalent per million francs of added value	0,95

1 Euro = 6,55957 Francs

This system led to a more homogenous "revenue" effect on sectors:

Sector	**Tax reduction**	**Tax / Value added**	**Tax / costs**
Minerals extraction	0,9109	**0,21%**	0,17%
Steel	0,9500	**0,41%**	0,12%
First transformation of steel	0,8249	**0,27%**	0,10%
Non iron metals	0,9096	**0,16%**	0,03%
Miscalaneaous minerals	0,8612	**0,27%**	0,16%
Cement	0,9103	**0,39%**	0,32%
Other building materials	0,5326	**0,35%**	0,17%
Glass	0,8043	**0,30%**	0,21%
Fertilizers	0,9500	**0,53%**	0,12%
Other mineral chemistry	0,9272	**0,17%**	0,09%
Plastic production	0,9052	**0,27%**	0,06%
Organic chemistry	0,7580	**0,33%**	0,13%
Synthetic fiber	0,8496	**0,22%**	0,06%
Para-chemistry and pharmacy	0,0000	**0,09%**	0,04%
Electric and electronic devices	0,1219	**0,28%**	0,22%
Automobile and transport equipments	0,0000	**0,07%**	0,06%
Shipping and aviation	0,0000	**0,10%**	0,04%
Steel works	0,0000	**0,15%**	0,04%
Mechanical construction	0,0000	**0,13%**	0,08%
Textile, leather, clothing	0,0087	**0,30%**	0,13%
Paper	0,8324	**0,25%**	0,10%
Rubber	0,0889	**0,29%**	0,18%
Plastic transformation	0,1450	**0,22%**	0,11%
Miscalaneous	0,0000	**0,18%**	0,07%
Agro-food industries	0,1620	**0,35%**	
Total industry		**0,22%**	
Services	0,0000	**0,05%**	

This tax rebates for energy intensive industries (more than 50 ToE for 150 000 Euros of added value) was linked to the obligation to negotiate voluntary agreements with the administration. However, negociated agreements were not merely the counterpart of tax base reduction, they were also rewarded by additional tax reductions, according to the amount of carbon emissions reduced within the voluntary agreement. The price of carbon within the negociated agreement was proposed to be twice the one in the tax system (80 Euros), and the parliament raised it to 3 times the carbon tax.

Voluntary agreements were designed in order to cope with the “traditional” information asymmetry between the firm and the administration. A reference situation should first be approved by the administration, as a “business as usual” scenario for 5 years, taking into account individual situations and references in the sector. The reference situation was to be certified, to the expenses of the firm, by an independent expert under the conditions fixed by decree. Then, any annual carbon emission reduction from the reference scenario would be rewarded, ex post, through an annual reimbursement of tax, to the firm.

All carbon emissions, i.e. energy consumptions, were, within the tax system and the voluntary agreement system, were to be declared by the firm, as an annex to their value added tax declaration, and could be controlled by fiscal authorities.

IV. Consultation process

The Prime Minister had fixed very early the framework of the discussion (an energy tax on industries excluding households). Then, the consultation process logically concentrated on a administration – industry relationship.

A first consultation was organised by the fiscal and the environmental administrations during summer 1999 in order to precise the design of this energy tax. The first part of this consultation, from July to October 1999, was a "public consultation" with 22 questions, organised on the basis of a *White Book, to* which every concerned actor was invited to answer :

- on the taxation method : according to the White Book, a classical system (a system of excises) as for tobacco and petrol was preferable; producers and importers should have been taxed;
- on the basis of the tax : the white book recommended that households energy consumption's should have been excluded. But some questions were left open like whether to tax or not the energy used in the energy production processes, the administration consumption, the question of renewable energies
- on the tax rates : the rates had to be sufficient to favour the reduction, but first of all, the substitution of energies
- on the treatment of energy intensive industries. Three solutions were submitted to discussion: tax relieves, tax reduction or tradable permits.

The point under discussion was still at the time the way to tax industrial energy consumption and especially *energy intensive industries*. After the consultation (organised on the basis of the White Book) two committees, composed of civil servants and industry representatives, went on working on the issue.

The first group looked into conditions of implementation of an energy tax on industrial consumption with regard to impact on competitiveness; environmental efficiency; judicial security; administrative management complexity.

The second group assessed the mechanisms of providing incentives to green house gas reduction (voluntary agreements or tradable permits) in energy intensive industries.

Each of those groups had to formulate and to assess various scenarios.

The first group formulated 11 scenarios, from taxation without any exoneration to taxation with total exoneration. According to the four criterions, two scenarios were considered as particularly relevant: taxes on non-process uses of energy (e.g. lighting, cooking, hot-water production, heating, low-voltage electricity), coupled with voluntary agreements and tradable permits to deal with high energy intensive processes.

The second group concluded that tradable permits (rather than voluntary agreements) would be suitable to complement taxation. Voluntary agreements generated, according to the report, too many problems of implementation (information unequally shared between public authorities and firms; modes of negotiation with small size companies, etc.). On the contrary, a tradable permits market allowed to reduce the economic and administrative costs. The group of experts formulated 6 scenarios taking into account the different possibilities to link exemption and/or reduction of a CO_2 tax with the two system of flexibility.

During the consultation process, representatives from the industry have played a major role, namely *Entreprises pour l'Environnement*, which is a group of 41 major firms. Industry representatives have, in short, mainly put forward voluntary agreements and argued that they should be linked to tradable permits. This raised the issue of initial allocations of tradable permits and the link between a "negociated" phase of allocation on one hand, and the environmental effectiveness and cost-efficiency of a tradable permit market on energy intensive industry on the other hand.

As a conclusion, the consultation process mainly concentrated on a administration – industry relationship, whereas "experts" (economists, lawyers), consumers and tax payers, and NGO's were mainly out of the technical debate. Besides, technical constrains on the tax design (limited effect on value-added on sectors, equity towards taxation, exclusion of households, need for efficient negociated agreements), led to a quite complex system. This consultation features and technical complexity might have led to some lack of shared expertise and consensus about the final project, and underline the need for proper consultation forum, probably based on the experience of green tax commissions.

I) - ASSIETTES ET RECETTES DE LA TGAP EN 2000.

Assiette	Tax rate (€/t)	Revenues 2000 (M€)
AIR		**26,68**
Oxydes de soufre	*38,11*	
Acide chlorhydrique	*27,44*	
Protoxyde d'azote	*57,17*	
Oxydes d'azote	*45,73*	
Composés organiques volatiles	*38,11*	
HUILES et PREPARATIONS LUBRIFIANTES	*38,11*	**25,46**
DECOLLAGES D'AERONEFS		**10,37**
Aérodromes du groupe 1	*10,37*	
Aérodromes du groupe 2	*3,81*	
Aérodromes du groupe 3	*0,76*	
DECHETS MENAGERS ET ASSIMILES		**226,39**
Décharges de déchets ménagers	*9,15*	
Décharges de déchets ménagers (hors périmètre du plan d'élimination)	*13,72*	
DECHETS INDUSTRIELS ET SPECIAUX		**25,76**
Déchets industriels spéciaux en centre d'élimination	*9,15*	
Déchets industriels spéciaux en centre de stockage	*18,29*	

Assiette	Tax rate (€/t)	Revenues 2000 (M€)
PREPARATIONS POUR LESSIVES		**75,27**
teneur en phosphates < 5% du poids	*71,65*	
teneur en phosphates comprise entre 5 et 30% du poids	*79,27*	
teneur en phosphates >30% du poids	*86,90*	
PESTICIDES*		**18,29**
Catgéorie 1	*0*	
Catégorie 2	*381,12*	
Catégorie 3	*609,80*	
Catégorie 4	*838,47*	
Catégorie 5	*1067,14*	
Catégorie 6	*1372,04*	
Catégorie 7	*1676,94*	
GRAINS MINERAUX NATURELS	*0,09*	**16,62**
INSTALLATIONS CLASSEES		***19,82***
Artisan n'employant pas plus de deux salariés	*442,10 €*	
autres entreprises inscrites au répertoire des métiers	*1067,14 €*	
autres entreprises	*2225,76 €*	
Tarif de base d'exploitation	*335,39 €*	
TOTAL RECETTES		**441,95**