PRACTICAL RELEVANCE OF PRICE vs. NON-PRICE POLICIES FOR SUSTAINABILITY

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The assessment of the price and non-price instruments and mechanisms for achieving sustainable development supposes preliminary clarification of few key issues, including but not limited to: (a) working definition of sustainable development and sustainability; (b) selection of adequate criteria; (c) selection of relevant and reliable indicators; (d) arrangement of those indicators in correspondence with the country's specifics or regional specifics, including abundance or scarcity of natural and man-made capital; (e) balance of power between the political elite, the business and the society; (f) level of development of a given country and its position on the world market place.

We also must have in mind that *the division between "price" and "non-price" policies is very conditional.* Indirectly, non-price regulation always leads to price fluctuations. The scope, direction and intensity of these fluctuations depends on the kind of regulations, character of the particular non-price policy, the price elasticity of the given product or service.

For instance, environmental and safety standard meet the criterion for "non-price" policy instrument. Let's take an example from the car manufacturing industry. All developed and an increasing number of developing countries have tight standards on engines and safety, covering such indicators like volume and character of emitted pollutions, mileage per gallon (liter) of fuel, kind of used fuel (leaded gasoline, unleaded gasoline, diesel, bio-fuel, methane, propane-butane, electricity, car passengers' safety, etc.). These regulations forced the manufactures to take into account these requirements when constructing the new car models. It means: more investments in research and development, re-alignment of the production lines, improvement of the marketing activities in correspondence with the strengthening environmental standards.

No doubt, these changes lead to changes in the production and distribution of fuel supply, diversification of the car repairing services and so on. Therefore, the required compliance with various environmental and safety standards give rise to cost of production. In

other words, *there is no "non-price instruments" because at the end of the day the above mentioned standards modify the production cost and further modify the market price.*

I use deliberately the term "modified" instead of "increased" because in some cases the sale price could be decreased. As far as sustainability is a complex category, we should take into account not just the effects of regulation on the sole producer of the final product but also: (a) the use (or consumption) of the final product, and (b) the production of the complementary goods – in the case of car manufacturing: fuels, various services, etc. For instance, the installment of an injection system for propane-butane fuel costs approximately 750-850 euro. However, this additional expense allows the users to substantially lower their spending on fuel, because propane-butane is nearly as twice as cheaper as the regular unleaded gasoline.

The point here is that customers buy rather a service than a car. Therefore, the price comparative analysis must be based on the price of service. So, the installment of environmentally friendly fuel system causes in most cases an increase of the product's price but lowers the overall price on service, especially in the long run. There is another positive effect: "non-price" environmental standard not only combines cheaper service with less polluting emissions but also allows better utilization of the scarce crude oil. The overall positive effect on sustainability is even higher if the case with propane-butane fuel system is replaced with a system based on methane (natural gas). It is more environmentally friendly and there are more reserves of natural gas than in crude oil. Of course, the price of this equipment is higher and the payback period is longer but the relationship is the same.

The above analysis supports the argument that "non-price policies", like environmental standards, always have price effect, i.e. they cause impact on economic incentives. It will be absolutely inappropriate to conclude that "price policies" are more efficient than the "non-price policies" or vice-versa. Both of them have some advantages and disadvantages and every one of them is more appropriate for specific products, for concrete objectives or for different social groups. These two types of policies must be viewed as mutually supportive. Their ratio depends on such factors as the country's (regional, local) business and social conditions, political will, level of environmental degradation and respectively absorption capacity, etc.

It is well known that the efficiency of the price policies depends on the price elasticity of the given product or service. Let's take the case with the crude oil. In general, the wholesale price mirrors the cost of production plus the cost of supply. It does not include any monetary value on the used natural resource (the concession fee is of different nature). Value

added and excise taxes increase the price of gasoline, diesel and other crude oil derivates. Excise taxes vary substantially among EU member states and especially between US and some EU countries and it is a matter of differences in their economic policies. In both cases, environmental fees and taxes have too low effect on the crude oil demand. Statistical data shows that the consumption of crude oil continues to rise despite the dramatic price increase (below $10/barrel December 1998 and nearly $150/barrel in the summer of 2008). Clearly, excise tax on gasoline and other derivates has little to do with "environmental taxation" because in fact it is used as important budget revenue. Law price elasticity makes this instrument too weak for fulfillment of the achievement of sustainability. In this case, non-price policies (engine and fuel standards, ceiling on emissions of different pollutants, etc.) proved their higher efficiency.

Non-price policies, like environmental standards, have serious advantages from the point of view of the economic competitiveness. Different governments apply different eco-fiscal policies (taxes, fees, direct or indirect subsidies). This supposes different price impact and different price competitiveness. Full harmonization of the eco-fiscal policies is not visible in the near future. Differences remain substantial even within the EU. Therefore, it is much easier to apply national (regional) environmental standards.

The universal environmental, safety and health standards for products and technologies would benefit all stakeholders. Unfortunately, there are still huge standard differences among the different countries and/or group of countries. The main challenge is in the filed of production of goods and services. T*he implementation of non-price policy towards sustainability in one country may strengthen the price competitiveness of the export of another country*. It is true especially for the standardized products like different metals, extraction of raw materials, energy, cement, fertilizers, machinery, etc.

For example, the metallurgy plants in Germany must obey high environmental standards because contingent fines and other penalties will exceed the investment necessary to meet those standards. Other things remaining the same, this increases the cost of production and inflates sale prices. On the contrary, metallurgy plants in most developing countries produce in far more weak environmental legislation which allows them to "save" money by not installing new environmentally friendly technologies or not installing purifying equipment. It gives them comparative price advantage on the world market. Thus, the highly sophisticated non-price policy towards sustainable development in the developed countries may give one-sided price advantages to exporters with low environmental standards.

Having in mind that the gap in environmental protection among different kind of countries is increasing, I suggest that the "new economic order" better sooner than later must include principles of "export price tuning" by means of an additional import tax. The utilization of the generated revenues is a problem of a different matter which can not be clarified in this short paper. However, it is understandable that the revenues from this additional environmental import tax (minus administrative expenses of the importing country) must be transferred to an international body (UNEP for instance). Further, this international body may use this money for environmentally friendly investment projects (public-private partnership). If we agree that the "producer pay" and "consumer pay" principles are mutually supportive, than the developed countries (the main user of the world's natural resources) must pay the full cost of the production of these resources both in the developing and the developed countries. This will allow the less developed countries to downsize the technological gap and to strengthen their price and non-price policies for sustainable development.

Better utilization of non-price instruments do not mean underestimation of the price instruments based on the market principles. At the same time, we have to take into account the fact that the same additional "price burden", resulting from the internalization of the external costs, has very different economic and social impact on countries with different level of development. I would like to illustrate this assumption with the recently completed research program NEEDS (EU FP6)[1]. We have applied the EcoSense Model for calculating the external and respectively the full cost of electricity produced by the all 34 thermal (coal fired) power plants in Bulgaria. Table 1 below shows the concrete results:

Table 1. EcoSenseWeb calculations, based on all 34 TPPs in 2007*
(coal fired, both hard coal and lignite coal)

Capacity:	3075 MW
Electricity production per year:	18450 GWh/a
SO2 Emissions:	3710.37 mg/Nm3
NOx Emissions:	268.12 mg/Nm3
PM10 Emissions:	216.427 mg/Nm3
PM25 Emissions:	0 mg/Nm3
Stack height:	154 m

[1] NEEDS (New Energy Externalities Development for Sustainability), see in more details http://www.needs-project.org/

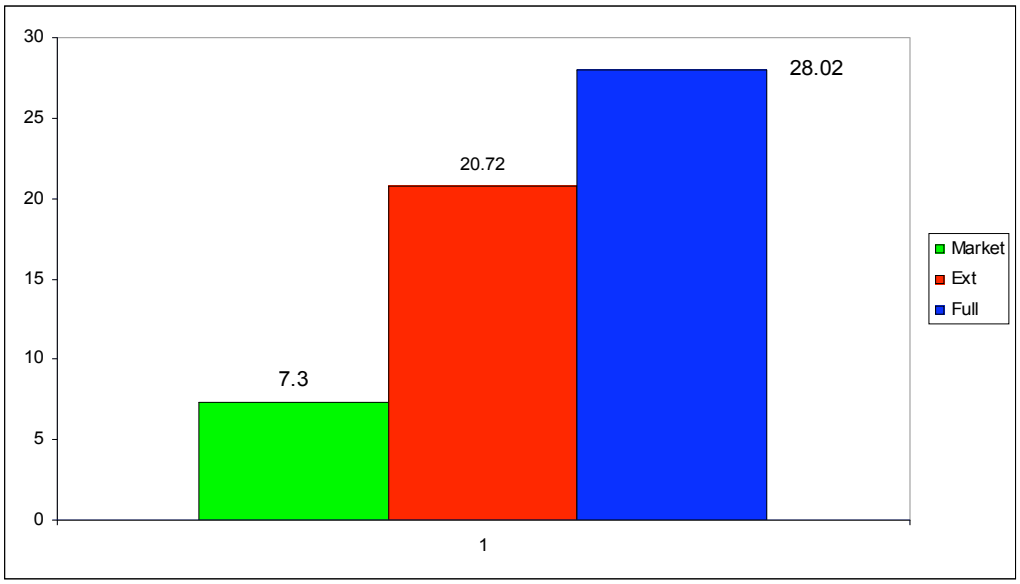
Stack diameter:	32.49 m	
	32160063	
Flue gas volume stream:	Nm3/h	
Flue gas temperature:	443.1 K	
Damages	(Mio. €2000 per	
Year);Cent2000/kWh)		
Local/Regional/Hemispheric Scale (human health, material and crops)		
Local Scale	0.0008	0
Regional Scale	3615.3338	19.5953
Local/Regional Scale	3615.3338	19.5953
Hemispheric Scale	3926.205	21.2802
Local/Regional/Hemispheric Scale	3821.5172	20.7128
Biodiversity Losses		
Due To Landuse Change	0	0
Due To Acidification Eutrophication	35.5307	0.1926
Costs of Greenhouse Gas Emissions: Default &euro/t		
Operation	0.039	0.0002
Upstream	0	0
Downstream	0	0
Micropollutants		
Operation	13.7266	0.0744

Remark: 2007* - before the rehabilitation of the first four units of TPP Maritca-East II (the dominant TPP producer of electricity in the country)

Data from the above Table 1, is based on calculations reflecting the Total externalities caused by the whole production of electricity based on coal-firing. We have positioned the stack (weighted average parameters – stack height 154m, stack diameter 32.49 m, flue gas temperature 443.1 K, respective volumes of emissions of Nox, SO2, PM25 and PM10, volume of production – 18450 GWh/a, overall capacity 3075MW) in the geographical center of the country.

The outcome from the model calculations showed very high level of monetized externalities, equal to €cents 20.72 . *It is nearly three fold higher than the current average market price* (without VAT). As shown on Figure 1, the actual (full) price is nearly four times higher than the market price.

Fig. 1. Monetary comparison of the full cost structure of the Total electricity Production based on coal-fired TPPS in Bulgaria (in euro cents, current prices)*



Legend: Market – average market price, low voltage elctricity, without VAT (20%); Ext – monetary value of externalities, local+ regional + hemispheric scale; Full – full cost/KWh – market price + externalities;
Remark: have in mind that there is a Currency Board in Bulgaria (fixed exchange rate Lev: Euro, i.e. current prices and prices shown in the model are consistent;

Is the internalization of externalities appropriate for the Bulgarian energy sector? Definitely not. In this case, price policies for sustainable development of the energy sector would cause total economi collapse. First of all, the energy intensity of the national economy is too high – nearly seven folds higher input of electricity per unit of GDP, compared to the EU-15 countries. Thus, such dramatic price increase from 7.3 cents to 28.02 cents will cause inevetable collapse of the national economy. In addition, households can not handle such prices because the average income is too low and covers with difficulties even the current, underestimated prices on electricity.

The solution is in the following directions:

(a) gradual increase of prices on electricity in such away that price competitiveness of the Bulgarian producers is high enough;

(b) attraction of additional foreign investments and transfer of technoly in this crucial economic sector;

(c) further development and modernization of the nuclear energy production, based on the highest safety standards – our comparative analysis shows clearly that atomic energy is the cheapest and the cleanest energy;

(d) an agressive public investment in renewable energy production with the decisive financial support through the EU structural funds;

(e) better energy efficiency in the GDP production;

(f) restructuring of the GDP structure in favor of high tech industries and services on expense of the heavy industry. This will not only reduce the energy consumption per unit of GDP but at the same time will dcrease the country's energy dependance on import, i.e. will minimize the risk of transfer of inflation caused by the higher prices on imported energy sources;

Obviously, both price and non-price policies could be practically relevant if this policies are consistent with the national economy specifics and if they balace well environmental, social and economic interests. The sustainable development is multidimensional at it supposes the use of all possible instruments which make possible the fulfillment of its criteria and indicators.