

POSITIVE ECONOMIC INCENTIVES: THE PROMOTION OF THE USE OF ENERGY FROM RENEWABLE SOURCES

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Abstract: This paper is focused on positive economic incentives for environmental protection, particularly on the promotion of the use of energy from renewable sources which should be in accordance with the concept of sustainable development. Firstly, functions and types of economic incentives for environmental protection are described. Next, legislation on the promotion of the use of energy from renewable sources (which follows the Directives of the European Union) is analyzed; approaches to its amendments in the Czech Republic and Germany are compared. Finally, relevant problems are discussed in addition to their possible solutions.

Keywords: economic incentives; environmental protection; renewable energy.

1 Introduction

According to § 32 of Environmental Protection Act No. 17/1992 Coll. as amended, the purpose of economic incentives is either to impose charges of economic exploitation of natural resources or to advantage the use of natural resources in accordance with the concept of sustainable development. Therefore economic incentives are divided into positively and negatively stimulating, depending on whether an environmentally friendly option is favoured, or vice versa.

The use of renewable energy sources is ranked among environmentally friendly use of natural resources for saving non-renewable natural resources as well as for promoting a sustainable development. Currently, the economic incentives supporting the use of energy from renewable sources are discussed not only in the Czech Republic.

All the Member States of the European Union are influenced by the Law of the European Union. The legislation on promotion of the use of energy from renewable sources follows especially Directive 2001/77/EC of the European Parliament and of the Council of 27 September 2001 on the promotion of electricity produced from renewable energy sources in the internal electricity market, Directive 2003/30/EC of the European Parliament and of the Council of 8 May 2003 on the promotion of the use of biofuels or other renewable fuels for transport, Council Directive 2003/96/EC of 27 October 2003 restructuring the Community framework for the taxation of energy products and electricity, and Directive 2009/28/EC of the European Parliament and of the Council of 23 April 2009 on the promotion of the use of energy from renewable sources and amending and subsequently repealing Directives 2001/77/EC and 2003/30/EC. There are several problems connected with relevant economic incentives; hence it is a quite controversial issue at present.

2 Economic incentives for environmental protection

2.1 Functions

Generally speaking, economic incentives are indicated as indirectly effecting instruments. However, there are exceptions. Economic incentives should economically stimulate an interest in protecting the environment, and balance shortcomings of administrative system. If compared to administrative instruments (such as licences, permits, statements, and deliverances), economic incentives are more effective.

Economic incentives cannot fulfil their function in centrally controlled economies. Therefore they became an important instrument in meeting environmental objectives after social changes in Europe at the end of last.

The state affects the behaviour of regulated entities through economic incentives which provide a choice whether to behave on behalf of environmental protection. Notwithstanding, it is impossible to opt in some cases (for instance if it is compulsory to use a certain economic instrument).

The behaviour should be environmentally friendly and also economically advantageous (*win-win solution*). However, a state intervention is necessary if environmentally friendly options are much more expensive due to market failure. More commonly, an ecologically inappropriate behaviour is penalized than an ecologically friendly behaviour is favoured.

By virtue of economic incentives, a decision-making should be consistent with the interests of individuals and society. In addition, they should:

- motivate polluters to reduce the environmental burden by harmful substances,
- internalize the external effect of environmentally inferior options,
- serve as resources for the implementation of measures to protect the environment,
- compensate a damage incurred due to harmful activity.¹

2.2 Types

Economic incentives are classified by the Organisation for Economic Co-operation and Development (OECD). Nevertheless, only several types of economic incentives are used in the Czech Republic where their use is either just beginning, or not sufficiently widespread.

The economic incentives of environmental protection include charges for pollution or other environmental burden, fees for the use of natural resources, user fees, taxes, tax benefits or disadvantages, grants, donations and other relief, soft loans and guarantees from the state budget or from the State Environmental Fund, relief in payment or fees, deposit refund systems, instruments to secure obligations or liability (compulsory insurance or securing funds), and tradable emission permits (allowances for greenhouse gas emissions in compliance with the obligations under the Kyoto Protocol provided for in Act No. 695/2004 Coll. as amended).²

It is not possible to cover everything related to finances among economic incentives; it is necessary to distinguish especially a matter of liability (fines, etc.).

3 The promotion of the use of energy from renewable sources

3.1 Background

There is an opinion that the main obstacle to the development of the use of energy from renewable sources is its relatively high cost compared with the cost of energy from non-renewable sources. There are two ways relating to the use of energy from renewable sources: either leaving the market forces in competition with other energy sources, or a government intervention in the energy market (in order to achieve the target of the amount of energy from renewable sources which will be used in a certain period). The current economic policy of the European Union leads to the second method since the prevailing belief is that the market alone is unable to ensure effectively the increasing importance of energy from renewable sources in energy balances of individual countries. The objectives of the activities in the energy sector are the security of supply, competitiveness, and environmental protection. In order to

¹ Damohorský, M. et al.: *Právo životního prostředí*. 2nd issue. Praha: C. H. Beck, 2007. p. 40 - 43

² *Ibidem*. p. 44 - 45

promote energy from renewable sources, different ways are used: system of credits for renewable sources, fiscal harmonization, state support, standardization, specific financial support, research and development programs, regional policy promoting renewable energy sources in rural areas, agricultural policy supporting the production of renewable energy sources, etc. A non-discriminatory access to energy market is supported; fiscal and financial measures are taken as well as specific measures to increase the share of biofuels in the market, encouraging the use of biogas and biomass market development. The promotion of the use of energy from renewable sources at renovating and constructing new buildings is indispensable.³

3.2 Economic incentives for the promotion of the use of energy from renewable sources

It is possible to support the production and consumption of electricity, heat, fuel, etc. within the framework of the promotion of the use of energy from renewable sources.

At the present time, grants from the state budget for the use of renewable energy sources, and tax exemptions are provided. Most significant positive incentives are governed by Act No. 180/2005 Coll. on the promotion of electricity from renewable energy sources (Act on Promotion of the Renewable Sources). This Act has transposed Directive 2001/77/EC of the European Parliament and of the Council of 27 September 2001 on the promotion of electricity produced from renewable energy sources in the internal electricity market. The Czech Republic was free how to reach the target for the contribution of electricity produced from renewable energy sources to gross electricity consumption by 2010 as the Directive does not state a promotion system which should be adopted.

Act No. 180/2005 Coll. focuses solely on promoting the use of renewable sources to producing electricity, not to renewable sources as a whole (this Act does not support the production of thermal energy from renewable sources). The promotion of the use of electricity is needed to balance the cost of electricity produced from fossil fuels or nuclear power which does not include the economic evaluation of the negative effects of electricity production from non-renewable sources. Two incentives for the production of electricity from renewable sources are governed by this Act: feed-in tariff and green bonus.

When using feed-in tariffs, a producer of electricity from renewable sources offers to purchase its electricity to an operator of distribution or transmission system which has an obligation to redeem all the production of electricity from renewable sources for fixed feed-in tariffs. The tariffs vary depending on the cost of electricity production in different types of equipment. The producer has guarantee sales of electricity and does not have to find customers. However, the operator can use the redeemed electricity from renewable sources only to cover its own consumption and losses. *'The feed-in tariff systems ... have the advantage of investment security, the possibility of fine tuning and the promotion of mid- and long-term technologies. On the other hand, they ... may be challenged under internal market principles, and involve a risk of over-funding'*.⁴ This risk is of fundamental importance in considerations over the concept of positive economic incentives.

An alternative support system of production of electricity from renewable sources is the system of green certificates. The green certificate is a supplement to the market price of electricity, depending on its quality (the lower the quality of electricity, the higher the green bonus). The quality of electricity, i.e. its reliability, predictability and controllability, depends on the climatic conditions and vary at different types of renewable sources. Energy Regulatory Office sets the rate of green certificate. The beneficiary is a producer of electricity from

renewable sources. Green certificate is a premium for the production of an environmentally friendly product in addition to a compensation for risks assumed by the producer of electricity from renewable sources.⁵

3.3 White and brown certificates

Green certificate is one of the schemes to transition to a low-carbon economy; there are other schemes of white and brown certificates. White certificates aim at promoting an efficient end use of energy and thus stimulate more sustainable energy consumption. Similarly to green certificates, white certificates guarantee that the electricity has been efficiently consumed. Both can be integrated into a trading scheme. Brown certificates form part of an emissions trading scheme; they should stimulate primarily industrial consumers to stabilize and reduce their greenhouse gases emissions. These market-based instruments require the design of a specific marketplace for the trading of the certificates. It is connected with the need of creating rules, instruments, and bodies to ensure an operation and transparency of this market.⁶

3.4 Amendments to relevant legislation in the Czech Republic

Although possible negative impacts on the state budget, business entities, social area, and the environment were analyzed before the adoption of Act No. 180/2005 Coll., investments in power plants using renewable sources of energy increased especially in 2009 and 2010. The biggest problem is the support of large solar power plants using the scheme of feed-in tariffs. The legislation does not permit to decrease feed-in tariffs as it would be needed. Therefore the promotion of the use of energy from renewable sources is unbalanced with regard to other types of renewable energy sources.

To avoid an increase in electricity prices for customers, the scale of electricity production from renewable sources was the impetus for a review of the existing system of purchase of electricity from renewable sources.

Act No. 180/2005 Coll. has been amended by Act No. 137/2010 Coll. in order to allow to decrease feed-in tariffs by Energy Regulatory Office (since 2011). Several by-laws (for example Decree on conditions for access to the electricity grid No. 51/2006 Coll.) has been amended primarily for the purpose of phasing the development of solar power plants.

Next, Act No. 330/2010 Coll. and Act No. 402/2010 Coll. have amended Act No. 180/2005 Coll. for the same purpose, an impact of revenues from photovoltaic systems: in the next three years, PV plants larger than 30 kWp set up in 2009 and 2010 will have to pay a tax of 26% on the revenues generated.

Furthermore, Promoted Sources of Energy Bill was drafted by Ministry of Industry and Trade in 2010. The bill, submitted to the Cabinet Office, should promote the use of energy from renewable and secondary sources, and from high-efficiency, combined production of electricity and heating. This bill was drawn up to the implementation of Directive 2009/28/EC in addition to change and scale up current support of renewables governed by Act No. 180/2005 Coll. as amended. The promotion of the use of energy from renewable sources should be long-term, stable, and viable. The promotion of production of electricity from secondary sources is presently governed by Act No. 458/2000 Coll. as amended. Procedures for the promotion should be simplified.⁷ It is noteworthy that according to the bill,

³ Musil, P.: *Hospodářská politika a globální energetický problém : se zaměřením na obnovitelné zdroje*. Praha: C. H. Beck, 2009. p. 26 - 150

⁴ *Energy Law in Europe : National, EU, and International Regulation*. 2nd issue. Edited by Roggenkamp, M. et al. Oxford: Oxford University Press, 2007. p. 1345

⁵ Klotz, M. et al.: *Využívání obnovitelných zdrojů energie. Právní předpisy s komentářem*. Praha: Linde, 2007. p. 46 - 64

⁶ Banet, C.: *The Use of Market-Based Instruments. In Beyond the Carbon Economy : Energy Law in Transition*. Edited by Zillman, D. et al. Oxford: Oxford University Press, 2008. p. 212 - 213

⁷ *Důvodová zpráva k návrhu zákona o podporovaných zdrojích* [cit. 31.12.2010] Available at:

<http://www.enepo.cz/attachments/article/92/ZPZ_duvodova_zprava.pdf>

electricity generating plants using solar radiation situated in agriculture or forest land should not be supported like currently.

3.5 Amendments to relevant legislation in Germany

Other European states have to solve the same problem as the Czech Republic does. However, their way to find a solution is not the same. Germany is an example how to decrease the promotion faster.

Several amendments to *Erneuerbare-Energien-Gesetz (EEG)*⁸ have reduced feed-in tariffs in Germany since 2008. Further modifications of support schemes followed in subsequent years; the reductions in feed-in tariffs and additional significant corrections for the next period are planned. What is noteworthy, financial support for installation on agricultural land has been entirely abolished from 1 July 2010 by the amendment of EEG, and conversely, the support has been increased for private users of photovoltaic systems.⁹

In comparison with the Czech Republic, Germany started with changing feed-in tariffs earlier and to a greater extent. Moreover, there is a distinction between solar and other renewable sources in Germany. Czech politicians were not willing to adopt amendments immediately when the problems occurred because of the fear of risking the actions mentioned below, which appeared later as well.

3.6 The issue of retroactivity

Governments of European Union states had similar intentions to reduce the support of solar power plants. Amendments to the renewable energy acts have been adopted, which is considered as a breaking of investors' confidence as well as trust in the renewable technology as a reliable investment. Photovoltaic plants were guaranteed to receive a fixed feed-in tariff for a long-term period so changes of the conditions guaranteed to the operators of solar power plants interfere with the legitimate expectations of their operators. The amendments are assumed to have a retroactive impact. One may therefore expect a number of litigations and arbitrations against European governments.¹⁰

However, there is a prevailing view on this issue that it is not the retroactivity. When considering this legal term, it is necessary to bear in mind that the retroactivity is ruled out particularly in criminal and tort law.¹¹ From a legal point of view there is an important difference between the retroactivity a pseudo-retroactivity which is permissible and quite frequent.¹²

3.7 Ecological tax incentive system

There are several other options how to promote the use of energy from renewable sources. Instruments such as investment aid, tax exemptions or reductions, tax refunds, increase the price at which it can be sold, or increase the volume of such energy purchased, etc. may be applied as a support scheme.

Generally speaking, the ecological tax incentive system is neglected in the Czech legal system despite it is considered to be the most effective economic incentive in terms of influencing the behavior of the business community. Existing taxes should be restructured, new green taxes should be introduced, and external costs should be internalized, etc. in order to comply with the principle of sustainable development. There are several alternatives to the ecological tax reform but the return of funds as a reduction in energy bills is questionable.¹³

⁸ *Erneuerbare-Energien-Gesetz* [cit. 05.01.2011] Available at: < http://www.gesetz-im-internet.de/bundesrecht/eeg_2009/gesamt.pdf>

⁹ *Výkupní ceny v Německu* [cit. 05.01.2011] Available at: <<http://www.czrea.org/cs/evropska-unie-a-oze/vykupni-ceny-nemecko>>

¹⁰ European Photovoltaic Industry Association: *Press Release* [cit. 05.01.2011] Available at: <http://www.czrea.org/files/pdf_en/tz-epia-091210.pdf>

¹¹ Fiala, J. et al.: *Malá právníková encyklopedie*. 7th issue. Praha: Linde, 2008. p. 195

¹² Fiala, J., Kindl, M. et al.: *Občanské právo hmotné*. Plzeň: Aleš Čeněk, 2007. p. 68 - 69

¹³ Petržílek, P.: *Legislativa udržitelného rozvoje a nové podnikatelské příležitosti*. Praha: LexisNexis, 2007. p. 17 - 32

3.8 Protection of the environment

In contrary to the abovementioned view on the obstacle to a development of the use of energy from renewable sources, there are the other ones: high cost of energy from renewable source is not the main obstacle, environmental protection also plays an important role¹⁴, and, I dare say, biases connected with the negative impacts of the use of energy from renewable sources on the environment are indispensable. There is either a very positive approach to this issue or an extremely negative one.

Moreover, a tendency to promote high-technology and large-scale projects such as the incineration of (hazardous) waste rather than the small-scale technology of separation, sorting, material recycling or composting of waste in EU research policy and, at the same time, an interest in seeding agricultural waste recognised as a renewable source of energy, allowing the granting of tax relief or state aid for the generation of biofuels¹⁵, are noteworthy when considering environmental protection related to the use of energy from renewable sources.

4 Conclusions

There are two types of economic incentives: positive and negative. The distinction can be seen in the purpose of their use, which is a motivation to opt environmentally friendly behaviour in the case of positive economic incentives. Although it is possible to use a large range of economical incentives, only some of them are used in the Czech Republic. Furthermore, positive economic incentives should be used more often than the negative ones.

The use of energy from renewable sources is promoted in the European Union for several reasons, *inter alia* for environmental protection. Despite the amount of ways how to promote the use of energy from renewable sources, mainly the systems of feed-in tariff and green certificates are used. This situation has caused an imbalance of the promotion with respect to types of renewable energy sources. In order to restrict support of large solar power plants using the scheme of feed-in tariffs, relevant legal regulations have been amended both in the Czech Republic and Germany where the approach is more intense. However, these amendments have triggered a debate on the issue of retroactivity in addition to an interference with the legitimate expectations. Nevertheless, it was necessary to change schemes of promotion of the use of energy from renewable sources sooner or later to prevent economic, social, and environmental consequences. As it was stated, the purpose of positive economical incentives is to advantage the use of natural resources provided that it is in accordance with the concept of sustainable development. In the opposite case, the positive economic incentives must be restricted.

To conclude, the issue of positive economic incentives to promote the use of energy from renewable sources should be viewed in a broader context, taking into account the internalisation of externalities, energy efficiency, conservation measures, etc. A compromise is essential to select appropriate incentives for a long term (for example taxes) although it appears to be a problematic matter in near future.

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