

# **The Netherlands' Tax on Energy**

## **Questions and Answers**

## **THE NETHERLANDS' TAX ON ENERGY**

As a consequence of the Netherlands' second National Environmental Policy Plan a regulatory energy tax entered into force on January 1, 1996.

This document describes the purpose and modalities of the tax system as well as how the revenues were being recycled back into the economy through reductions in direct taxes (personal and corporate income taxes) and some other measures. The original tax and recycling bills were bound to one another through provisions in both which made the entry into force of each dependent on the entry into force of the other.

## QUESTIONS AND ANSWERS

### 1. What is the purpose of the tax?

The main purpose of the tax is to stimulate additional conservation of energy among small energy consumers. The revenues raised are being recycled back to taxpayers through reductions in direct taxes in line with the government's aim of shifting the tax burden away from labor and capital based income and towards use of the environment. A part of the revenue is recycled through specific positive incentives to promote energy saving by households and businesses.

### 2. Why a tax on "small scale" energy consumption?

The tax is mainly focusing on small scale energy consumption in order to avoid the economic risks which would result from unilateral imposition of an energy tax on large industrial energy users facing competition from countries where such a tax is not in force. Since other policy instruments, like the long term agreements and the Benchmark Protocol, are proving effective in inducing large energy consumers to save energy, exposing them to the economic risks of an unilateral tax was felt to be unwarranted. In 2004 also the large scale energy consumption is brought under the energy tax on the basis of the implementation of the new European directive on energy taxation and the incorporation of a part of the tax on fuels in the energy tax.

### 3. What environmental impacts are expected from the tax?

The tax is expected to generate extra energy conservation through the price impact on the demand side. In order to prevent double taxation, natural gas used in the generation of electricity is exempted.

A CO<sub>2</sub> emission reduction on the order of 1.7 to 2.7 million tonnes per year in the year 2000 was expected as a result of the tax as it was originally introduced, amounting to 1.5% of total CO<sub>2</sub> emissions in the Netherlands. CO<sub>2</sub> emissions from the groups targetted by the tax were projected to decline by something on the order of 5%. The raise in the tax by € 1.54 billion in three years (starting in 1999) is expected to generate a CO<sub>2</sub>-effect of 3.6 to 3.8 million tons in the year 2010 and 4.6 to 5.1 million tons in 2020. The indexing of environmental taxes will have a CO<sub>2</sub>-effect of about 0.4 million tons per year after 5 years, while the positive incentives are expected to generate an effect of another 2 to 5 million tons of CO<sub>2</sub> in the medium term.

### 4. What is taxed?

Until 2004 natural gas was taxed up to a ceiling of 1,000,000 m<sup>3</sup> per year and electricity up to a ceiling of 10,000,000 kWh per year. Mineral oil products which can be used as substitutes for gas by households or small commercial establishments are also taxed (home heating oil, light fuel oil, non-transport applications of LPG/butane/propane). Fuels used to power road vehicles are not subject to this regulatory tax. The excise duties on those fuels will be raised in line with general inflation. The scope for further raises is limited by the rate of excise duties charged in neighboring countries. The tax paid on mineral oil products in excess of a certain quantity may be restituted. The quantity limits were: 159,000 liters per year light fuel oil, 153,000 liters per year heating oil, and 119,000 kilograms per year LPG. With the implementation of the European directive on energy taxation and the incorporation of the tax on fuels the original ceilings are cancelled on 1 January 2004.

Since it is impossible to reduce energy use to zero, a tax free energy allowance (= floor) was also introduced for the metered energy sources (gas and electricity). This floor was set at 800 m<sup>3</sup> per year for gas and 800 kWh for electricity. The existence of the tax free floor reduced the amount of the tax

individuals and businesses had to pay without reducing the incentive created by the tax, which exists on the margin. The tax free energy allowance also reduced the net impact on purchasing power, particularly of lower income groups, of the energy tax combined with the adjustment in direct taxes. In 2001 these tax free energy allowances have been replaced by a fixed tax reduction of € 142 per year per electricity connection. In 2004 this tax reduction has been raised to € 181.

## 5. How were the ceiling and floor for taxable gas and electricity use selected?

### Gas

The ceiling for taxable gas use was chosen to align with the natural gas pricing system in the Netherlands, which is characterized by volume zones. The marginal price per cubic meter declines as users move through the volume zones. For example, gas customers pay about € 0,25 per m<sup>3</sup> over their gas use in the first zone - up to 170,000 m<sup>3</sup>/year -, about € 0,13 for cubic meters in the second zone, € 0,11 for cubic meters in the third zone and so forth.

The following table presents the natural gas price zones:

zone	annual consumption in m <sup>3</sup>
a	0-170,000
b1	170,000- 1,000,000
b2	1,000,000 - 3,000,000
c	3,000,000 - 10,000,000
d	10,000,000 - 50,000,000
e	> 50,000,000

In 1999 a special tariff group was introduced for use up to 5,000 m<sup>3</sup>, especially aimed at the amounts used by households.

Household energy use was taken as the reference point in setting the tax free energy allowance. The floor was set at 800 m<sup>3</sup> natural gas per year to reflect natural gas consumption for heating, hot water and cooking by energy-conscious inhabitants of a new, state of the art, house. About 6% of small gas consumers remained completely outside the reach of the tax with this floor.

### Electricity

Unlike gas, the tariff structure for electricity is not characterized by volume zones and is not the same for "large" and "small" consumers of electricity. Small electricity consumers pay a fixed amount per connection as well as a price per kilowatt hour. The price for small users of electricity is on average € 0,11 per kWh, including the fixed amount per connection.

Until 2004 the volume limit on taxable electricity consumption was set at 10,000,000 kWh's per year.

Electricity use is much more dependent on behavioral factors - such as the acquisition and intensity of use of electrical appliances - than gas use. No objective yardstick existed for setting a tax free allowance for electricity comparable to the new, state of the art house used for natural gas. It was therefore decided to set the floor at a level that would exclude about the same number of electricity users from the electricity tax as were excluded from the natural gas tax with a floor of 800 m<sup>3</sup>.

Following this reasoning, the electricity floor was set at 800 kWh per connection per year, which excluded about 5%-10% of small electricity users completely from the tax on electricity.

With the volume ceilings, the total gas and electricity use of all households and of about 95% of all Dutch companies was covered by this tax; the tax applied to 40% of non-transport, non-feedstock energy use in the Netherlands.

In 2001 the tax free energy allowances have been replaced by a fixed tax reduction of € 142 per year per electricity connection. In 2004 this tax reduction has been raised to € 181.

## 6. What are the tax rates and how were they set?

In 1996 the regulatory energy tax joined a number of already existing taxes on energy in the Netherlands. These included excise duties on mineral oil products, an environmental tax on fuels, and the compulsory stock tax, which finances maintenance of the strategic oil reserves. The fuel tax is in 2004 incorporated in the excise duties on mineral oils and in the energy tax; only the tax on coal remained in the fuel tax. The table presents the rates on 1 January 2004 (excl. of VAT) of all existing taxes on energy in the Netherlands in € per unit. The VAT rate on all these energy sources is 19 %.

		<u>Fuel</u>	<u>Energy</u>	<u>Compulsory</u>	<u>Exise</u>	<u>Total</u>
		<u>Tax</u>	<u>Tax</u>	<u>Stock Tax</u>	<u>Duties</u>	
	<u>unit</u>					<u>euro/unit</u>
<u>natural gas</u>	<u>m<sup>3</sup></u>					
0-5,000			0.1429			0.1429
5,000-170,000			0.727			0.727
170,000-1 mln			0.0227			0.0227
1 mln-10 mln			0.0113			0.0113
> 10 mln non business			0.0106			0.0106
> 10 mln business			0.0075			0.0075
<u>electricity</u>	<u>kWh</u>					
0-10,000			0.0654			0.0654
10,000-50,000			0.0212			0.0212
50,000-10 mln			0.0065			0.0065
> 10 mln non business			0.001			0.001
> 10 mln business			0.0005			0.0005
<u>blast furnace cokes oven,</u>						
<u>refinery and coal gas<sup>1)</sup></u>	1000 GJ		124.240			124.24
<u>coal gasification gas</u>	1000 GJ		490.640			490.64
<u>gasoline</u>	1000 liter					
leaded				5.90	733.73	739.63
unleaded				5.90	658.88	664.78
<u>light fuel oil</u>	1000 liter					
transport				5.90	359.87	365.77
other use						
0-159,000			152.77	5.90	46.56	205.23
> 159,000			14.43	5.90	46.56	66.89
<u>diesel</u>	1000 liter					
transport				5.90	359.87	365.77
other use						
0-153,000			154.04	5.90	46.56	206.50
> 153,000			14.53	5.90	46.56	66.99
		<u>Fuel</u>	<u>Energy</u>	<u>Compulsory</u>	<u>Exise</u>	<u>Total</u>

		Tax	Tax	Stock Tax	Duties
	unit			euro/unit	
<u>lpg</u>	1000 kg				
transport				5.90	96.21 102.11
other use					
0-119,000			182.38	5.90	188.28
> 119,000			17.35	5.90	23.25
<u>heavy oil</u>	1000 kg				32.51 32.51
<u>coal</u>	1000 kg	12.28			12.28
or per	GJ	0.21			0.21
and	kg CO2	2.5984			2.5984
<u>green electricity</u>	kWh				
0-10,000			0.0357 <sup>2)</sup>		0.0357
>10,000			-		-
<u>green gas</u>	m <sup>3</sup>				
0-5,000			0.0577		0.0577
5,000-10 mln			0.0113		0.0113
> 10 mln			0.0075		0.0075
<u>greenhouse horticulture</u>					
<u>natural gas</u>	m <sup>3</sup>				
0-5,000			0.01295		0.01295
5,000-170,000			0.01207		0.01207
170,000-1 mln			0.01144		0.01144
1 mln-10 mln			0.01130		0.0113
> 10 mln			0.00750		0.0075
<u>light fuel oil</u>	1000 liter				
0-159,000			16.1629	5.90	22.0629
> 159,000			14.43	5.90	20.33
<u>heating oil</u>	1000 liter				
0-153,000			16.2775	5.90	22.1775
> 153,000			14.53	5.90	20.43
<u>lpg</u>	1000 kg				
0-119,000			19.4171	5.90	25.3171
> 119,000			17.35	5.90	23.25

<sup>1)</sup> rate applies when fuels are traded; rate for non traded fuels is zero.

<sup>2)</sup> from 1 July 2004 this rate will be € 0.0504; on 1 January 2005 the special rate for green electricity will be cancelled entirely in relation to the introduction in 2003 of a new subsidy system to stimulate the production of electricity from renewables.

Differences in the structure and rates of these taxes reflect differences in the goals they are serving. Excise duties and the environmental tax on fuels are intended primarily to raise funds for the general revenues. The compulsory stock tax is intended to finance maintenance of the strategic oil reserves. The regulatory energy tax was in 1996 introduced in order to influence behavior; the amount of revenue raised was secondary. The raise of the tax in the period 1999-2001 was part of the overall shift in the fiscal system.

The rate of the energy tax as it became into force in 1996 was taken from the first draft EU-directive for a

CO<sub>2</sub>/energy tax in the European Union (COM(92)226 def.), which provided for step-by-step increases up to an ultimate rate equal to \$10 per barrel oil equivalent. As in the draft EU-directive, the system proposed in the Netherlands derived tax rates for specific fuels on the basis of CO<sub>2</sub>/energy content equivalents. The tax was introduced in three stages in order to limit potentially undesirable economic impacts. At its 1998 level the tax has raised the gas price by 20 to 25% for smaller consumers.

The tax rates for household heating oil, LPG and light fuel oil were also calculated on the basis of CO<sub>2</sub>/energy content equivalents.

A different approach had to be taken in calculating a tax rate for electricity, since electricity itself does not contain any carbon. The rate was therefore derived by looking at the fuels used in generating electricity (both centrally and decentrally) for the public grid in the Netherlands, calculating fictional tax rates for those fuels based on their CO<sub>2</sub>/energy content ratios, and applying a correction for the residual heat provided by cogeneration plants based on the current average efficiency factor. This tax was introduced all at once rather than in three stages as with natural gas and the mineral oil products. The tax raised the average kWh price paid by small consumers by about 15%.

In the coalition agreement of 1998 it was decided to raise the tax on energy by Dfl. 3.4 billion (€ 1.5 billion) in the context of the proposed change in the national tax system in the year 2001. The tax is being raised in three steps, two of which have entered into effect in 1999, 2000 and 2001. It was also decided to raise the rates on electricity more than the rates on the other energy products, because of the faster growth in the use of electricity than in the use of the other products. The consequence of this decision was that the original approach to calculating the tax on electricity based on the CO<sub>2</sub>/energy content ratios of fuels used is no longer applied.

The rates for 2004 are the result of the implementation of the European directive on energy taxation and the incorporation of the former fuel tax into the energy tax.

## **7. Are any sectors given special treatment?**

The greenhouse horticulture sector in the Netherlands is characterized by a unique combination of features. The sector is composed of a large number of small firms with a very high energy/employee ratio. The sector is also characterized by operations in an international market with extremely high export shares so that the margin for influencing product prices is extremely small. This exceptional combination of factors makes it impossible to recycle revenue back to this sector in a way which would compensate adequately for the very high burden imposed by the tax. It was therefore decided to introduce a special zero-rate on the natural gas used in greenhouses. The sector receives no special treatment as regards the tax on electricity. A long term agreement signed by the sector commits them to improving their energy efficiency by 65% in the period 1980-2010.

The European Commission allowed the use of the zero-rate until the end of 1999. Beginning in 2000 the greenhouse horticulture sector also have to pay a (also in 2004 still rather low) tax on natural gas and mineral oil products.

## **8. How does the tax relate to the other instruments of energy conservation policy in the**

## **Netherlands?**

The tax provides an important addition to the set of policy instruments currently being used to encourage energy conservation in the Netherlands. The different rates for the respective volume zones of taxable energy use focus the tax mainly on smaller users of energy - households and small commercial establishments such as restaurants and shops, office buildings, schools and so forth. These are precisely the target groups which are difficult or impossible to reach with policy instruments such as long term agreements or environmental permits.

Industrial energy conservation is being realized in the context of the long term agreements that industrial sectors have signed. In these agreements sectors commit themselves to taking certain measures to improve their energy efficiency. In 1999 the large energy-intensive companies signed the so called benchmark covenant, committing themselves to being among the most energy efficient in their sectors in the world.

The long term agreements are supported by provisions in the environmental permits which large installations are required to have.

When a company participating in a long term agreement applies for an environmental permit, it must submit to the permitting authorities the corporate energy plan drawn up under the terms of the agreement. If the corporate energy plan demonstrates that the company is fulfilling its obligations as laid down in the agreement, then the permitting authorities simply include a provision in the permit requiring the company to report on implementation of its corporate energy plan and any other measures stipulated in the agreement.

When a company fails to fulfill its obligations under the long term agreement, or when it does not participate at all in the agreement, then the permitting authorities may include requirements relating to energy conservation in the permit. This combination of voluntary and regulatory instruments ensures that large energy consumers contribute to the Netherlands' energy conservation goals.

A mix of policies has been developed to foster energy conservation by the smaller, more numerous users of energy which are difficult to reach with custom tailored instruments such as agreements and permits. Chief among these are the energy performance norm for new housing, sector-oriented programs and activities being carried out by the Netherlands' Agency for Energy and Environment (Novem), and the on-going development of energy saving technologies. The energy tax is the keystone to this multi-instrument policy approach to smaller energy consumers. It will supplement and enhance the effectiveness of the other instruments being deployed. For businesses, the existing arrangements for accelerated depreciation for environmental investments and for tax deductions for investments in energy efficiency measures are used to recycle part of the (extra) revenues of the tax.

### **9. How much revenue is raised by the tax and is it earmarked?**

The revenue of the tax is the main part of the total revenue of € 3,213 billion, excluding VAT paid over the taxes, generated by environmentally motivated taxes in 2004 in the Netherlands, bringing the contribution of these environmental taxes to 3% of total tax revenues.

The revenues raised by the tax are recycled through relief in other taxes paid by households and businesses and through positive fiscal incentives to promote energy saving and more environmental friendly behaviour. The amount paid by the group "households" is recycled to households and that paid by the group "businesses" is recycled to businesses and the government sector.

### **10. How were the revenues being recycled?**



Revenues were recycled back to households mainly through changes to the personal income tax like reduction in the rate charged over the first income bracket, raise in the tax free income allowance and raise in the standard deduction for senior citizens. Different recycling instruments are used to influence the tax burden on different income groups. From 1 January 2000 part of the recycling also took place via the so called energy premiums on the purchase of energy efficient appliances and other energy saving measures by households. In 2004 this premium exists only for solar energy appliances on larger buildings.

For businesses the compensation occurs through measures such as a reduction in the wage component paid by employers to cover social premiums paid by employees, a raise in the standard deduction for small independent businesses and a reduction in the corporate tax rate. A part of the recycling of revenues to businesses is more specific via schemes like the accelerated depreciation of investments in environmental equipment and the tax deduction for energy investments.

### **11. What is the effect of tax and recycling on job creation?**

The effect of the tax and recycling on job creation is expected to be positive but fairly modest. During the preparation of the bill, the Dutch Central Planning Bureau used economic models to calculate the employment impact of a small scale energy tax in combination with a number of different revenue recycling schemes. The employment impact was found to be dependent on several factors, of which the most important were how the revenues are recycled and how energy prices develop.

For example, recycling revenue via the tax free income allowance tends to be beneficial for the purchasing power of lower income groups, but works out less favorably for the labor market, while recycling revenue through the standard deduction for labor costs is better for the labor market but leads to greater erosion in the purchasing power of social security beneficiaries. The revenue recycling package adopted attempts to strike a balance between protecting purchasing power and promoting job creation and therefore has a more modest effect on employment than a recycling package aimed solely at promoting job creation would have.

Energy price development is important because of its impact on the timing and extent of investments in energy conservation, which in turn largely determine the number of additional jobs generated. The employment effect projected therefore varies with assumptions concerning future energy price development. In a scenario with relatively high energy prices, investments take place fairly quickly following introduction of the tax and then taper off (to zero in 2010), while in a scenario with lower prices the investment impulse takes longer to work and tapers off from its high point (about 11,000 extra jobs in 2010) much later. The extra jobs created in both scenarios are largely in the construction sector and tertiary services sector.

Social consensus regarding both the tax and the recycling of the revenues is essential for reaping the potential economic benefits of the tax and recycling package. If employees claim extra wage compensation for their higher energy costs beyond the compensation that they receive through relief in their direct taxes, this could lead to a wage-price spiral which would have a negative impact on job creation. In modelling the effect on job creation social consensus is therefore assumed. The government has also taken a number of steps to promote confidence regarding the tax relief and thereby minimize the risk of claims for double compensation. For one thing, the tax and recycling bills have been bound to one another through provisions in both which make the entry into force of each dependent on the entry into force of the other. In addition, the introduction of the tax in stages and the existence of the tax free energy allowance both reduced the effect of the tax on the price index, thereby lowering the risk of claims for double compensation.

### **12. How has the tax changed over time?**

The enabling legislation passed by Parliament contained a provision allowing the government to extend the tax

base to include high amperage as well as low amperage electricity. The government made use of this power and extended the tax base as of January 1997. The extra revenue generated by the extension has been allocated to cover part of the costs of an investment tax credit for investments in energy conservation and renewable energy which was introduced in the corporate income tax in 1997.

The 1998 tax plan introduced a zero-rate for electricity from renewables on the condition that this rate advantage is passed on to consumers who have a special contract for buying such "green electricity". The already in 1996 introduced payment discount for the energy distribution companies was maintained as though such electricity were not zero-rated. It can therefore be said that electricity from renewables profits from a double advantage: the energy company can pay its supplier of green electricity more than its suppliers of regular electricity and it can charge its consumers of such electricity less energy tax than its consumers of regular electricity.

The 1998 tax plan also introduced a special arrangement for electricity generated by waste incineration plants. The energy distribution companies pay 50% less regulatory energy tax to the central government for electricity originating in waste incineration plants than for regular electricity on condition that this advantage is passed on to the waste incineration plant. This arrangement rewards waste incinerators for generating electricity from the biomass fraction in waste, estimated at 50 to 60% percent of total incinerated waste.

In 1999 several new tariff groups were introduced. On the one hand to focus the tax even more on the smaller uses (up to 5,000 m<sup>3</sup> gas and 10,000 kWh electricity). On the other hand to broaden the tax to more business uses (up to 1,000,000 m<sup>3</sup> gas and 10,000,000 kWh electricity), with still relatively low tariffs. Above these new ceilings the tax is not applied.

As part of the overall tax shift in 2001, the revenue of the energy tax was raised by Dfl. 3,4 billion (€ 1.5 billion) in three years, starting in 1999. Next to the more general recycling of the revenues by lowering other taxes, part of the revenue is used to finance specific stimulation of investments in energy saving measures, like the energy premiums for households and the tax deductions and accelerated depreciation for businesses.

In 2000 the decision in the coalition agreement of 1998 that the rates on electricity should be raised more than the rates on the other energy products, because of the faster growth of the use of electricity than of the other products, was implemented.

In 2001 the original tax free energy allowances for 800 m<sup>3</sup> natural gas and 800 kWh electricity have been replaced by a fixed tax reduction per electricity connection.

In 2003 the zero-rate for green electricity is changed to a reduced rate in relation to the introduction of a new subsidy system for electricity from renewables (environmental quality electricity production).

The special arrangement for electricity generated by waste incineration plants has been ended.

In 2004 the European directive on energy taxation is implemented in the energy tax, together with a part of tax on fuels. The fuel tax on mineral oils has been incorporated in the excise duties on mineral oils. Only the tax on coal remained in the fuel tax. This integration of the different taxes on energy products was reason to change the name 'regulatory energy tax' in 'energy tax'.