

## Energy tax and CO2 emission rights in the Netherlands

*Elly Nederhoff*

*CropHouse Ltd, New Zealand*

*Elly@CropHouse.co.nz*

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'Carbon Tax is scrapped (for now)' writes Ken Robertson (Grower February 2006, page 45, and see also page 6). But .... the New Zealand government together with industry officials are working on alternative policies to reduce energy consumption and CO2 emission. The energy issue won't go away, and won't overlook the greenhouse industry in New Zealand. This article looks at what happens in the Netherlands with energy tax and CO2 emission rights trading in greenhouse horticultural. All Dutch schemes are part of European legislation, so most aspects apply to other European countries too.

This article is meant to be informative. Some aspects of the Dutch system are not good news for growers, while some other parts may be useful ideas for the NZ greenhouse industry. It covers only the tip of the iceberg, since the matter is very complex and still under construction.

### **In a nutshell**

The fuel commonly used in greenhouse heating in the Netherlands is natural gas. Burning natural gas produces CO2 and NOx, which are both 'greenhouse gases' (believed to contribute to global warming). The Netherlands are committed to reducing the greenhouse gas emission by 6% compared to 1990 over the period 2008-2012. Dutch greenhouse growers are required by law to apply for a permit to emit CO2 and NOx, and to adequately record the emission of these gases. Until now a system was in place (GLAMI) whereby growers had to keep their energy use below a certain cap. For every crop the cap was determined, and was reduced by some percents every year. This Dutch system will be gradually replaced by a European approach: CO2 emission rights trading. Phase 1 of CO2 trading in the Netherlands started 1 January 2006. So far only the very large energy users are involved, but quite a number of growers will participate in the second phase, starting 2008. The good news is that greenhouse growers get something back for their efforts. They pay a reduced GST rate and reduced energy tax on natural gas. Moreover, they can apply for subsidies and tax incentives for energy saving technologies and for using sustainable energy.

### **Energy tax**

The price of natural gas in the Netherlands consists of at least four components: gas costs, distribution costs, energy tax and GST. The 'peak' demand and total demand affect the price too. Competition between suppliers is fierce, so the natural gas price varies a lot. The energy tax is specified for five categories from very small to extremely large users (see table). Here the data are expressed in GigaJoule and NZ\$ (after conversion from Euros and m<sup>3</sup> gas). The first category (less than about 175 GJ/year) are either very small growers or use little greenhouse heating. They pay only 10% of the energy tax that other industries have to pay, namely NZ\$0.71 - \$1.07 per GigaJoule. For medium-size greenhouses the energy tax is NZ\$0.88 per GigaJoule. Extremely large greenhouse complexes would come into the last category of NZ\$0.40/GJ. These growers are probably the first to take part in the CO2 emission rights trading due to the size of their operation.

*Table. Energy tax on natural gas in the Netherlands in 2006.*

<b>Gas consumption GigaJoule p.a.</b>	<b>General industries NZ\$ / GJ</b>	<b>Greenhouse industry NZ\$ / GJ</b>	<b>Indication of size of greenhouse in NZ with this gas consumption *</b>
less than 175	7.75	0.71	Very small, or no pipe heating
175-6,000	6.37	1.07	Up to 0.4 ha in NZ
6,000 – 35,000	1.75	0.88	0.4 - 2.5 ha in NZ
35,000 – 350,000	0.60	0.60	2.5 - 25 ha in NZ
over 350,000	0.40	0.40	over 25 ha in NZ

### **Emission rights**

Energy tax is one thing, but the European states have agreed to do more to reduce the emission of 'greenhouse gases', including CO<sub>2</sub>, methane, NO<sub>x</sub>, N<sub>2</sub>O gas. The principle is to limit the right of emitting greenhouse gases, and to issue 'emission rights' which can be traded. For instance CO<sub>2</sub> emission trading is buying or selling rights that permit emission of CO<sub>2</sub>.

In the Netherlands, phase 1 of CO<sub>2</sub> emission trading started on 1 January 2006. NO<sub>x</sub> emission trading started mid 2005 for large industries. Other gases will follow. The schemes are embedded in the European regulations and are likely to be implemented in other European countries too. The European Union has put systems and rules in place for trading emission rights of greenhouse gases.

### **CO<sub>2</sub> emission rights trade**

Some years ago the European states agreed how much CO<sub>2</sub> each country may emit, and allocated CO<sub>2</sub> emission rights to each country. Governments appointed an 'Emission Authority' to distribute the emission rights within their country. After intense discussions, a certain allocation plan was established in the Netherlands, and approved by 'Europe'. The allocation was first announced in 2004, but was amended in 2005, and is now binding.

The first participants of the CO<sub>2</sub> emission rights trading are the really large industries. Some exceptionally large greenhouse enterprises qualify as well. The Dutch government obtained permission from Europe to let smaller and medium-size energy users (greenhouse growers) wait until the start of the second stage on 1 January 2008. This is because the costs of registering, monitoring and reporting are out of proportion for smaller companies, but will be better in two years time. It is expected that 50-80 larger greenhouse operations will be included in the second stage of CO<sub>2</sub> emissions rights trading of 2008-2012. The rules for the second stage have not been finalised yet.

### **How trading works for a grower**

At the start of each year, the grower receives CO<sub>2</sub> emission rights from Emission Authority. The rights are written in an official Rights Register. At the end of the year the grower has to report accurately how much energy he has used, and how much CO<sub>2</sub> he has emitted. This report has to be verified by an independent auditor. The grower must have enough rights to cover the amount of CO<sub>2</sub> emitted. During the course of the year the grower can buy more rights if he thinks he needs more, or sell rights if he wishes. Not only can the participating growers and industries trade in emission rights, but also other companies and individuals. The trading is done via a sort of stock market, bank or middle man. Each trader needs an account for their rights.

### **Tax incentives and other benefits**

Understandably, the current energy tax is loathed and the future CO2 emission rights trading system is seen as a huge burden. The positive side of the coin is that Dutch growers receive significant subsidies and tax returns for investments on energy saving technologies. This is the way the government can keep control over future developments in the Dutch greenhouse industry. This is always done in partnership with the industry. They agree on a list of technologies that qualify for support, and update the list every year. For example the use of sustainable energy and the implementation of co-generation are strongly stimulated. As a result many greenhouse growers now have a co-generator (= CHP = Combined Heat and Power generator) and deliver electricity to the grid. Natural gas used for co-generation (CHP) does not attract energy tax, and electricity put in the grid yields remuneration. Decentralised (local) electricity generation is appreciated and the growers benefit. Other developments that were strongly stimulated by tax incentives and subsidies are the use of waste energy from industries or power plants, bulk CO2 from the same sources, clustering, pilot projects on bio-fuel, heat storage in the deeper soil, 'closed greenhouse', and many more. Also there are services such as research and advice available to growers to assist with energy issues, often at a cost, but sometimes partly or indirectly subsidised.

### **Summary**

The Dutch approach for reducing CO2 emission from greenhouses consists of energy tax and capped energy use, with the latter gradually replaced by tradable CO2 emission rights. In return, the Dutch growers get energy tax reduction, GST reduction, subsidies and tax incentives for investment in energy saving technologies. This enables the Dutch government to steer the direction of new developments, in partnership with the industry. In this way sustainable energy and particular technology such as co-generation are implemented.

There are many more laws, rules, tools, policies, subsidies etc than discussed above. It is early days, and the systems are still under construction. Everything the Dutch government does needs approval from the European Union, thus avoiding inequity between member states. It can be expected that other European countries are taking similar actions as described above. The belief in Europe is that they will achieve the CO2 emission targets.