

Citizen Primaries: Energy

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The **efficiency** with which we use energy in this country is **really low**.

At least **half the energy consumption** is **wasted** and this can be avoided by using technologies that are economically mature. By reducing the waste of energy and increasing the efficiency of energy use, not only will we have the maximum **possible reduction of CO₂ emissions** for the same investment, but we **reduce the imports of fossil fuels** and the savings allow us to pay for investments **without having to get public financing**.

The increase in efficiency and the reduction of waste are pre-requisites for the **development of renewable sources**, which currently cost more and produce less than fossil fuels. Only if we reduce waste and improve efficiency will their contribution to energy needs be significant and the **capital needed to cover the costs** can be recovered.

Consumption of imported **fossil fuels** is divided into **three roughly equal areas**:

- ambient **heating**
- **thermo-electric production**
- **transport**

If the **law 10/91** were rigorously applied, to heat our buildings we would consume **14 litres of oil** (or cubic metres of methane) for each **square metre** of floor space **each year**. But in fact we consume more.

From 2002, German law and a more recent regulation in force in the **Province of Bolzano**, fixed **7 litres of oil**, or cubic metres of methane for each square metre of floor space each year as the maximum allowed consumption for ambient heating. This is **less than half of the average Italian consumption**.

Using the **labelling system set up for white goods**, in the Province of Bolzano, this level corresponds to **Class C**, while **Class B** corresponds to consumption not exceeding 5 litres of oil, or cubic metres of methane and **Class A** to not more than 3 litres of oil, or cubic metres of methane for each square metre of floor space each year.

For ambient heating, energy policy designed to **reduce CO₂ emissions** which will also avoid economic sanctions under the **Kyoto agreement** for those countries which do not meet the requirements, should be articulated as follows:

- immediate **application** of the **regulations**, already set out in the 10/91 law and outlined in the European Directive 76/93 about the **energy certification of buildings**
- **Class C** definition set out by Bolzano Province set as the **maximum consumption level for the granting of a building license** for new constructions, and for the restructuring of existing buildings
- **reduction** by at least **10 per cent in five years of energy consumption** of the buildings occupied by **public bodies**, with financial penalties for non-compliance
- **reasonable facilities** on **bank loans** and simplification of the regulations regarding contracts for energy restructuring using the method called **esco** (energy service company), that is **carried out at the expense of who does the work** and **repaid from the money saved** by who uses the energy;
- working out **regulations about paying for thermal energy consumption in condominiums**, as set out in the European Directive 76/93, as already applied in other European countries.

The **average yield** of Enel's {Enel is the Italian State Electricity company} **thermoelectric generating stations is about 38%**. The standard for the construction of the new generation of combined cycle plants is **55 to 60%**

Distributed co-generation of electrical energy and of heat, with the use of heat at the point of production and the transportation to a distant place of the electrical energy allows for the use of the **energy potential from combustibles to go up to 97%**. The inefficiencies and the actual waste of thermoelectric production are not acceptable technologically, economically nor morally, for the following reasons: because of the **devastating effects on the environment**, because they accelerate **the end of availability of fossil fuels**, because it means that the richer countries corner the market **leaving insufficient for poorer countries**. From the start it is not acceptable to remove what is necessary from those who need it, but if it is then wasted, it is not conceivable.

To increase the supply of electrical energy **it is not necessary to construct new power stations of any type**. The first thing to do is to **increase the efficiency and reduce the waste of existing power stations**. At the same time we need to increase the efficiency of use of the energy produced (lamps, white goods, air conditioning, industrial machinery). After that, if the energy supply is still insufficient, we can consider constructing new electricity generating stations.

For the production of **electrical energy**, an energy policy aimed at **reducing CO₂ emissions** while increasing the supply, must be articulated as follows:

- **Strengthening of existing power stations** and reduction in the impact they have on the environment
- Providing incentives for the **distributed production of electrical energy** with technologies that use fossil fuels more efficiently, like **distributed co-generation of electrical energy and heat**, starting with buildings that are high energy-consumers like hospitals, commercial centres, industries using heat technology, sports centres etc.
- **Extension** of the possibility to **return energy to the national grid and to sell electrical energy** even from micro-generating plants producing less than 20 kW
- Providing incentives for the distributed production of electrical energy with **extensions to all renewable sources** and to distributed micro-generation **regulations for energy accounting**, tied to the kilowatt-hours sent to the grid during peak hours and excluding any produced during off-peak hours.
- Rigorous application of **regulations** set down by decree about the certification of **energy efficiency** even in consideration of the provision of incentives for the production of electrical energy from renewable sources connected with this;
- **Elimination of the incentives** set out in CIP 6/1992 (Provvedimento del Comitato interministeriale prezzi) for the **combustion of refuse** since refuse was inserted without any techno-scientific basis, **among renewable resources**.
- Legislation and provision of incentives for the **production of bio-combustibles** while obliging agricultural production aimed at this to increase organic substances in the soil.
- Providing incentives for the distributed production of thermal energy with renewable sources in particular virgin biomass, in small units designed for self-consumption, with rigorous controls on wood originating from differentiated collection and excluding from the incentives the distribution of heat over a distance because of its inefficiency and environmental impact.
- Providing incentives for the production of biogas from the anaerobic fermentation of organic refuse.

In the **transport** sector, interventions are needed at a technical level where incentives must develop more efficient and less-polluting means of transport as well as at an organisational level to favour the **development of public transport** and remove incentives for using private vehicles especially in highly congested urban areas.

In relation to the technical aspects, a big reduction in CO₂ emissions from vehicles can be achieved by following the following four approaches:

- increased efficiency of vehicles driven by thermal engines, providing incentives for research and innovation aimed at significantly increasing the number of kilometers traveled per litre of fuel;
- providing incentives for the production of vehicles with engines running on biocombustibles: biodiesel and bioethanol;
- the development of alternative forms of traction for thermal engines: electric and hybrid engines
- providing incentives for vehicles with engines running on methane, with the immediate lowering of polluting emissions , and the strengthening of distribution network for methane on ordinary roads and on motorways.

As for moving around in urban settings we need to provide disincentives for the use of private vehicles in favour of alternative forms. With this in mind we need:

- to develop protected cycle paths covering whole urban areas;
- to bring in a tax applied to any private car with a single occupant entering the historic centre of a city;
- to strengthen **collective use public transport** and **individual-use public transport (car sharing)**, even better if using **electric motors fed through a network** rather than using batteries.

A more interesting version of the traditional trolley bus imprudently abandoned in recent decades can be created by positioning **networks of electrical cables underneath the road surface**. In this way it's possible to provide power not only for collective public transport, but also for fleets of public automobiles for individual use with **payment on consumption** by using pre-paid electronic cards. The combined effect of these technical and organisational measures can make it feasible to place **ever more rigorous limitations on private vehicle traffic** and at the same time increasing the **speed of movement** and reconstructing the possibility to have the function of "door to door" which car drivers in urban areas have not seen for some time.

Starting from these preconditions, all these **technological innovations** aimed at **reducing polluting emissions** from cars start to have an effective utility in terms of reducing the consumption of fossil fuels and the impact on the environment. They can also increase the number of kilometres travelled per litre of fuel.