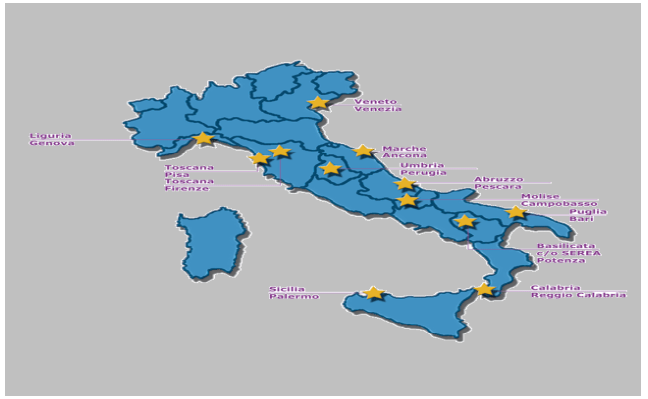
Energy Efficiency in Italy

Rino Romani
Technical Unit for Energy Efficiency -UTEE

www.efficienzaenergetica.enea.it

Summary



- National Energy Strategy
- Energetic and economic indexes
- NEEAP 2011
- Effectiveness of the measures

Seven Priorities

1) Energy Efficiency
    1) Further 20 Mtoe of primary energy savings
    2) 55 million tons of CO_2 avoided
    3) 8 billion euro of fossil fuel not imported

.....

* Currently in the public consultation phase

Energy Efficiency in Italy

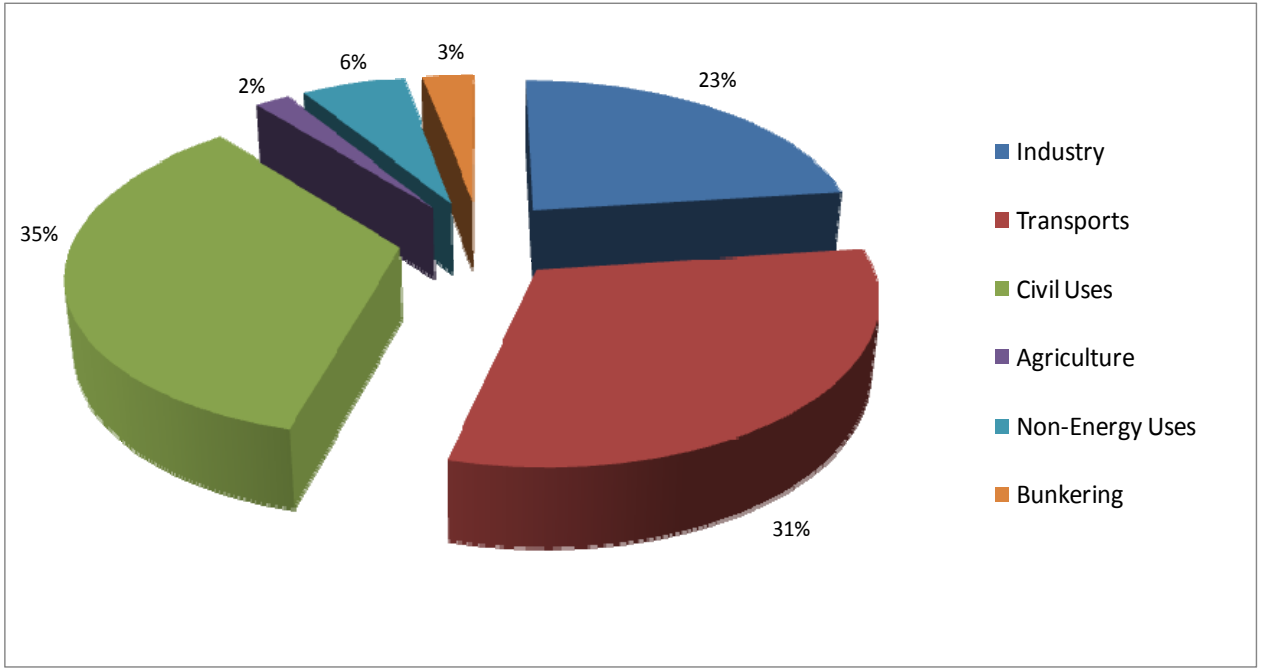
To understand the recent developments on Italian energy efficiency legislation it's worth to underline that:

- Italian energy demand, in terms of primary energy, is around 185 Mtoe and for about 85% relying on imported fossil fuels;

- since the first oil crisis (1973) the Italian governments have shown great interest on energy efficiency, considering it as the most cost effective way to reduce energy consumption, to improve energy security and to tackle environmental problems;

- after several laws and legislative decrees, largely based on grants and subsidies to carry out energy efficiency projects, actually two main incentive mechanisms are in force at national level:
    - 55% tax deduction (mainly for family)
    - Energy Efficiency Titles (WCS) (mainly for firms)
    - *A new mechanism is pending approval for public/tertiary sector*

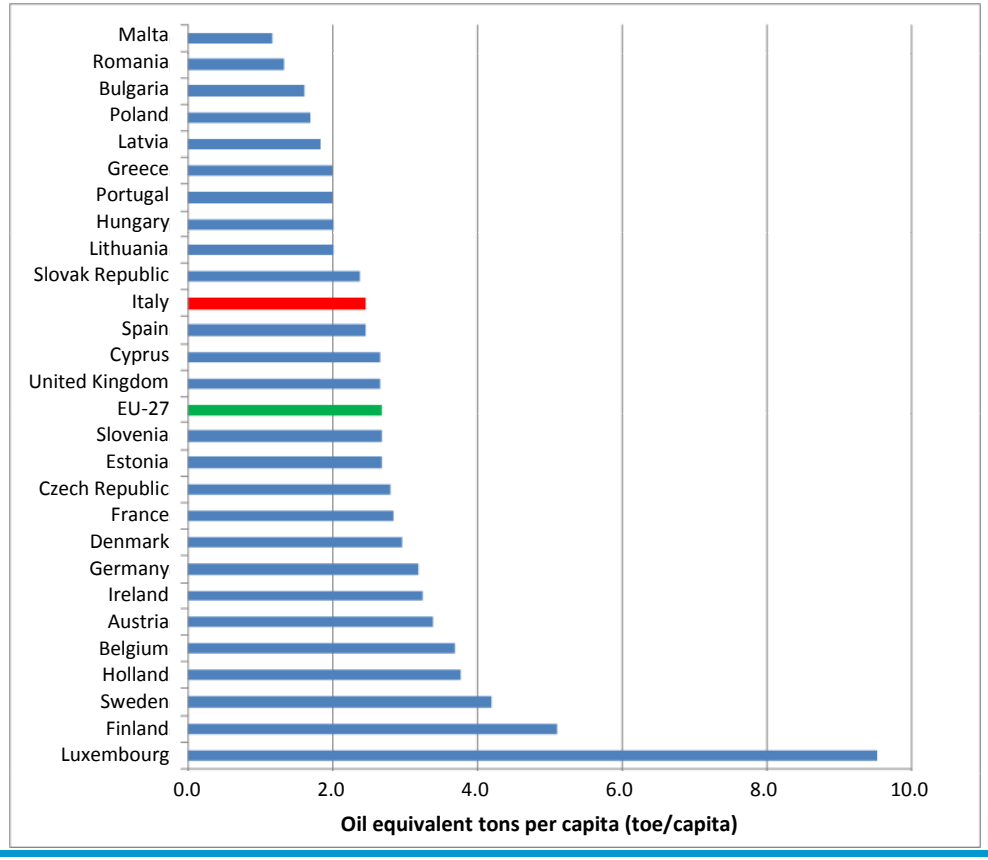
Final Energy Consumptions



In 2010, the **final energy consumption** was 137.5 Mtoe, 3.6% higher than 2009.Such increase is due to: higher consumption in the industrial sector (+5.5%);increased non-energy (+12.9%) and civil uses (+4.1%).

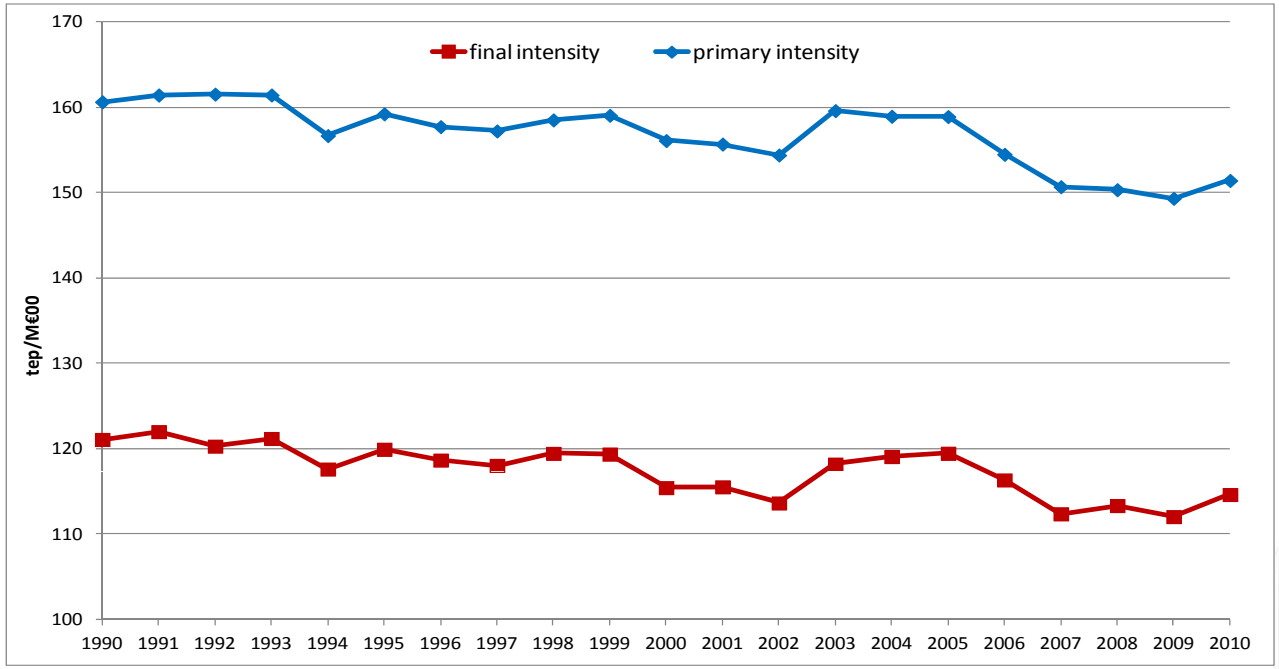
final energy consumption per capita

Italy is one of the most energy-efficient countries among the industrialized ones: the **final energy consumption per capita** of 2.4 toe/capita is actually one of the lowest among the countries with similar industrial development



Energy Intensity

Between 1990 and 2010, Italy showed a decrease both in primary and in final energy intensity, with an average annual decrease rate of 0.30% for primary intensity and 0.27% for final intensity.



Improvements achieved in End-Use sectors (ODEX-index)

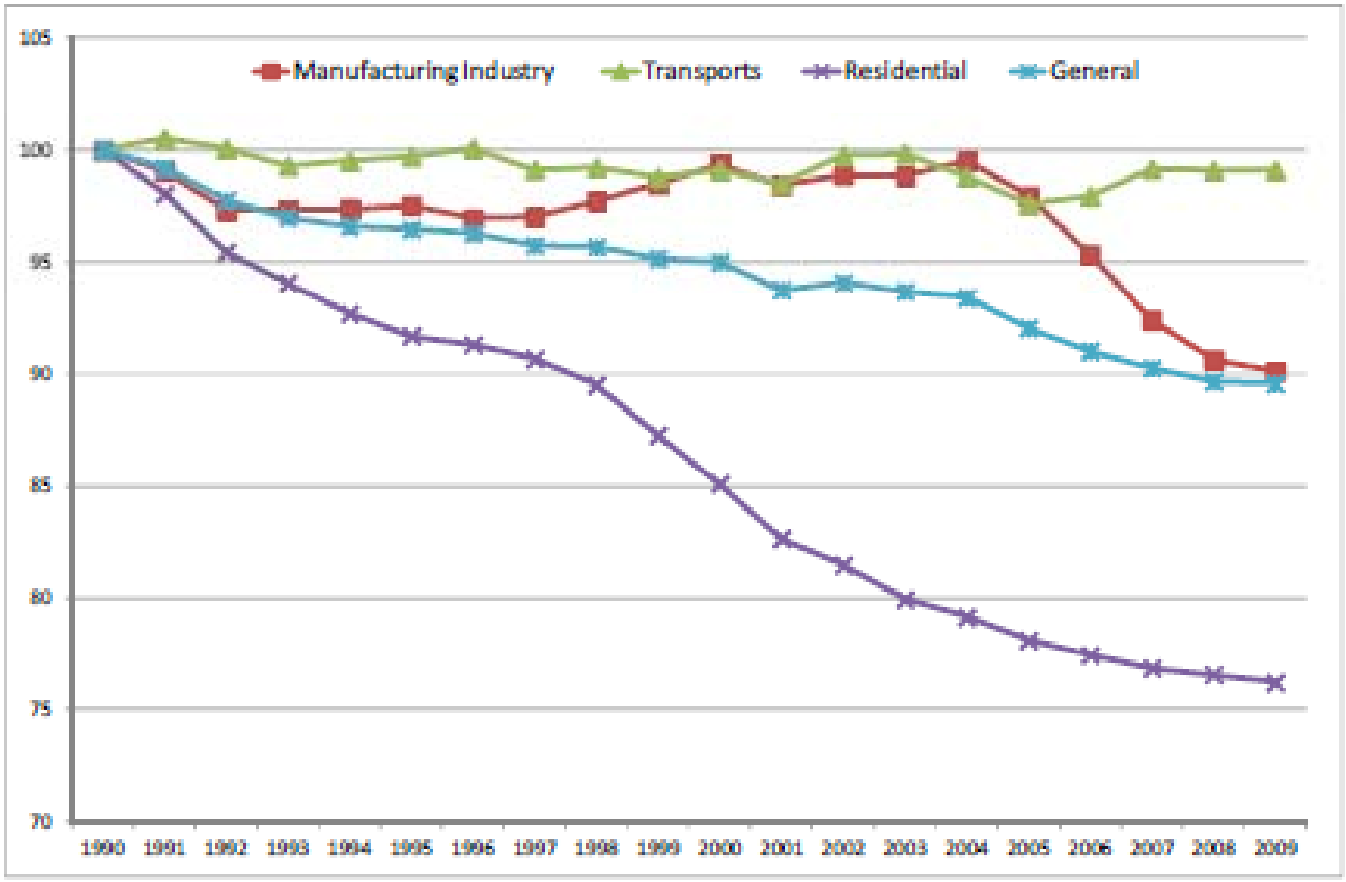
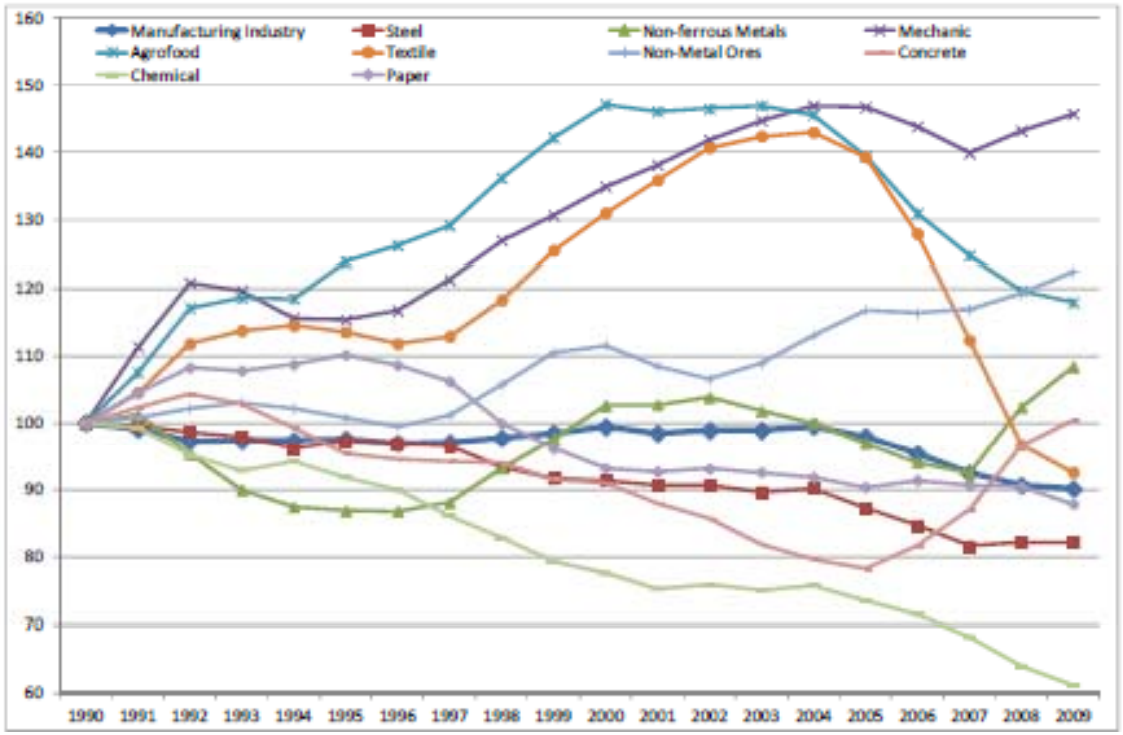


Figure 9: Energy efficiency indexes (1990=100) *(Source: MiSE and ISTAT data processed by ENEA)*

Energy Efficiency indexses (Industry)

In 1990-2009, the manufacturing industry recorded a 9.9% of energy efficiency improvement



EE Technologies:

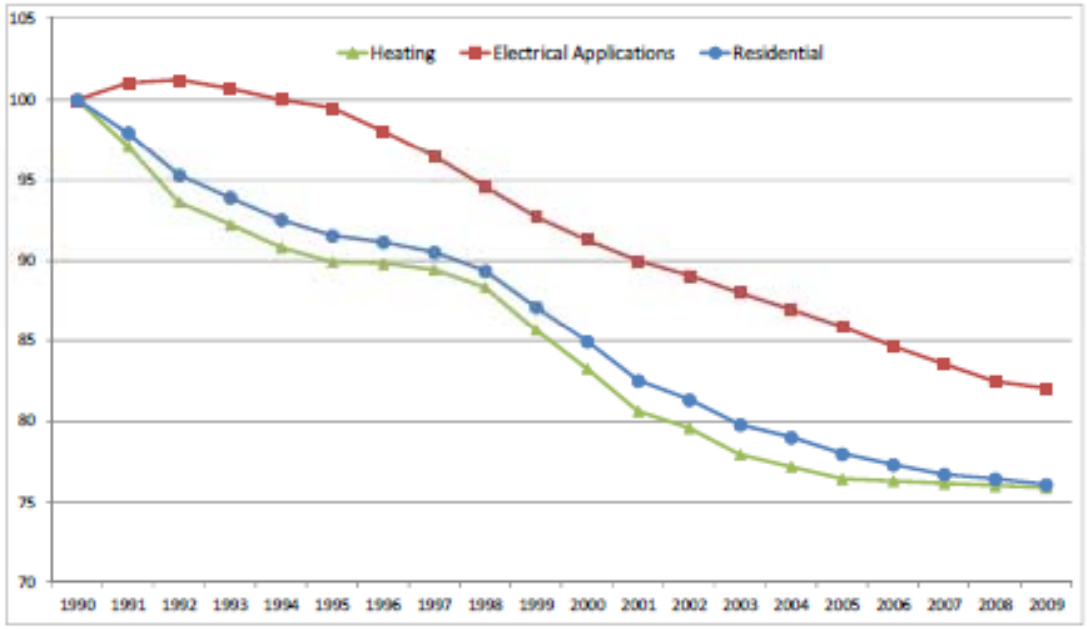
- High efficiency electric motors and inverters
- Cogeneration/trigeneration
- ……

Barriers:

- Pay-back periods too long
- EET (WCs) the only instrument available as incentive
- ……

Energy Efficiency Indexes (civil)

In 1990 – 2009, the residential sector recorded the best results in terms of increase in energy efficiency: in 2009, the EE index was 76.1, corresponding to an overall 23.9% increase in energy efficiency compared to 1990



EE Techologies

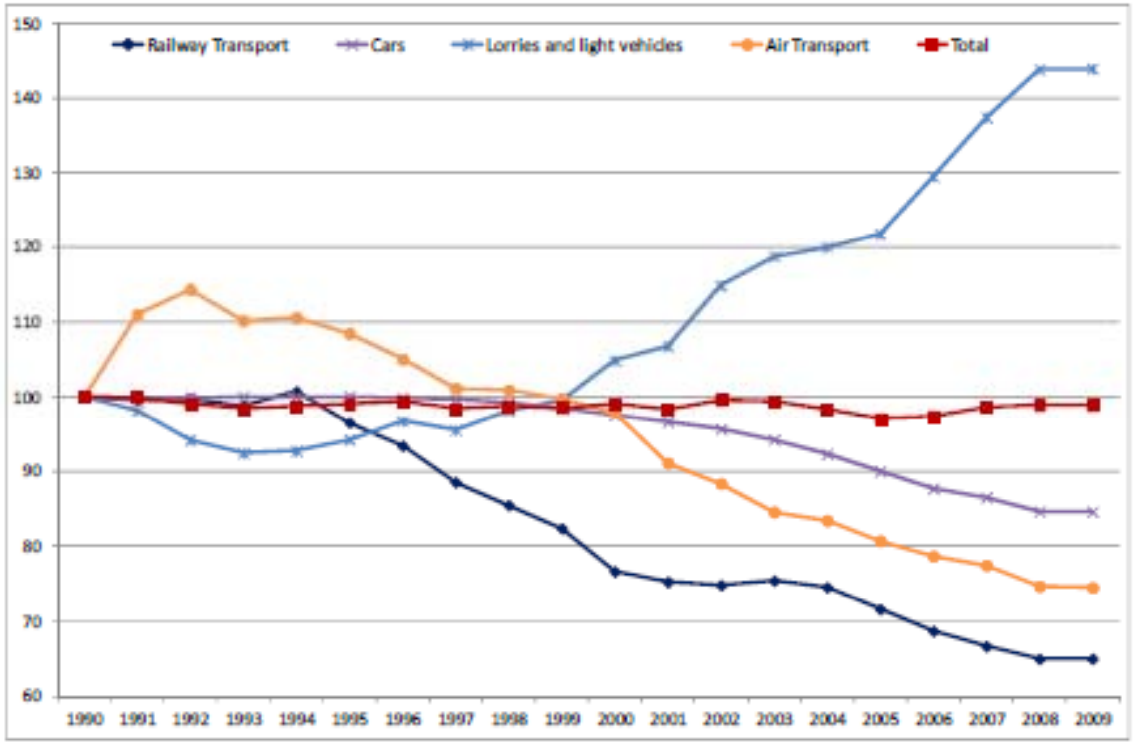
- High-efficiency system
- Innovative insulation bricks/materials
- Low heat dispersion products and system

Barriers:

- Limited dimension of the production chain subjects
- Fragmented and poorly integrated actors in the building process
- ……

Energy Efficiency Indexes (transport)

In 2009, the energy efficiency index in the transport sector was 98.9, with an overall efficiency increase of only 1.1% in 1990-2009



Intervention proposals:

- promoting transport modes alternative to road transport;
- containing transport demand by;
- providing the electrification of road transport;
- optimizing urban mobility by using Intelligent Transport Systems (ITS);
- using systems for quick electricity storage and recharge.

Technical Energy Efficiency Unit (UTEE)

The Legislative Decree n.115/2008, implementing the Directive 2006/32/CE, assigned ENEA the role of National Agency for Energy Efficiency.

To carry out the conferred new tasks and functions, ENEA set up inside itself an Energy Efficiency Unit (UTEE).

The starting point: NEEAP 2007

Monitoring	**New legislation**	**EU Objectives**
(which the measures required? Which barriers?)	(Energy Performance of buildings)	(cars: 95 gCO2/km by 2020)

It was necessary to consider NEEAP2007

- **Rethink the measures / tools**
- **share the basic assumptions with experts**
- **Add other measures**
- **Extend the objectives at 2020**

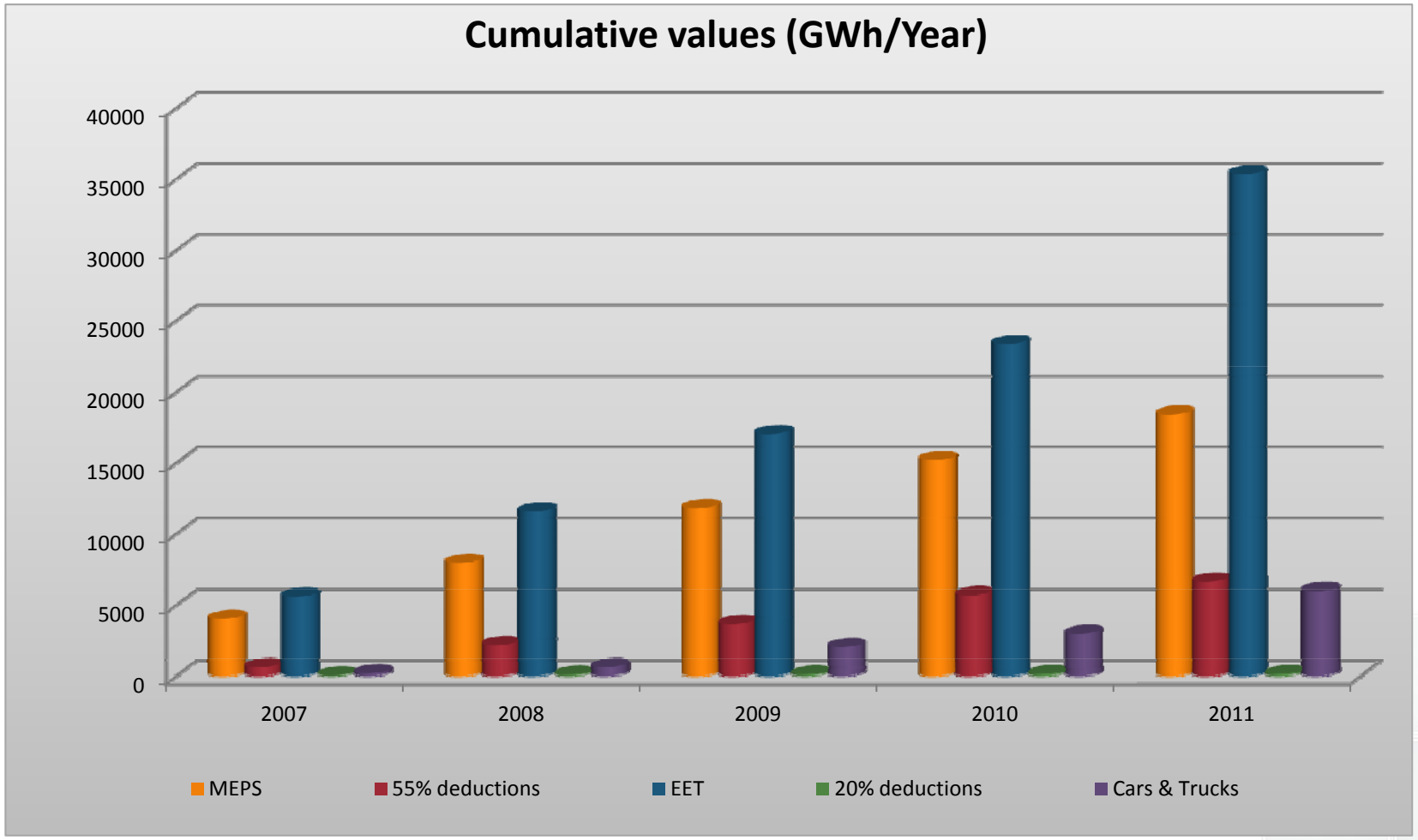
NEEAP2011: Achieved and expected energy savings

Measures for improving energy efficiency	Annual Energy Savings Achieved in 2010 [GWh/year]	Annual Energy Savings expected in 2016 [GWh/year]	Annual Energy Savings expected in 2020 [GWh/year]
Household sector	31,427	60,027	77,121
Tertiary sector	5,042	24,590	29,698
Industry sector	8,270	20,140	31,729
Transport sector	2,972	21,783	49,175
Total Energy Savings (% of 2001-2005 average consumption)	**47,711 (3%)**	**126,540 (9.6%)**	**187,786 (14%)**

Energy savings at 31/12/2011

Measures for improving energy efficiency	Energy Saving achieved at 2010 [GWh/y]	Energy Saving achieved at 2011 *[GWh/y]*	Energy Saving expected at 2016 [GWh/y]	Eneergy Saving expected at 2020 [GWh/y]
Household sector	31.427	***39.079***	60.027	77.121
Tertiary sector	5.042	***6.043***	24.590	29.698
Industry sector	8.270	***24.603***	20.140	28.678
Transport sector	2.972	***2.972***	21.783	49.175
Total (% with reference to the average final consumption 2001-2005)	**47.711** (3.6%)	***72.697*** *(5,5%)*	**126.540** (9.6%)	**184.672** (14%)

Effectiveness of energy efficiency measures



Economic efficiency of incentives

Measure	Cost - effectiveness private investment €/kWh	Cost -effectiveness gov.nt contribution €/kWh
Energy Efficiency Titles	-------	0.0025
55% fiscal deductions (2010)	0.1125	0.0619
20% fiscal deductions	0.0034	0.0006
Cars and Trucks	0.3625	0.0446

MEPS (Lgs Decree 192/05)	0.1064	-------

Thanks for your attention