



BETTER BUILDING

Certifying VET teachers as Energy Saving Advisers

A transfer system into three different European societies

The situation in Italy, Slovenia and Turkey
Multiplier conference
June 23rd, Bologna



BETTER BUILDING

Certifying VET teachers as Energy Saving Advisers

A transfer system into three different European societies

Italian context

Regulation and initiatives connected to EE and RES in buildings



Preliminary remarks

In Italy the regulation connected to environment and EE creates a confusing and complex situation because of the concurrent interventions of national, regional, and local institutions

Law 10, 1991 (Energy manager introduction)

Legislative decree 192/2005 and the following Legislative decree 311/2006

Decree 27 July 2005. The implementation of the “National energy Plan in matter of rational use of energy, energy savings, and RES development”

Regional Energy Plan, 2008

Policy and Coordination Act about energy performance and certification of buildings, Regione Emilia Romagna, March 2008

Financial acts (2008-2009)

DESK RESEARCH regulation analysis



In particular, at a regional level, the Policy and Coordination Act (March 2008) about energy performance and certification of buildings starts

- the energy certification process of buildings
- foresees the setting up of a regional information system to monitor the improving of EE in buildings
- introduces the compulsory use of RES in new buildings and renovated ones
- establishes the accreditation of the energy auditor by the Region
- defines the professional provenience of the auditors

filling in the gap left by the national guidelines for determining the energy efficiency specificity of buildings.

The Act underlines the importance of training aimed at preparing the Energy managers, but it has not provided yet the minimum standards/requirements for this training

Remarks on Italian energy balance



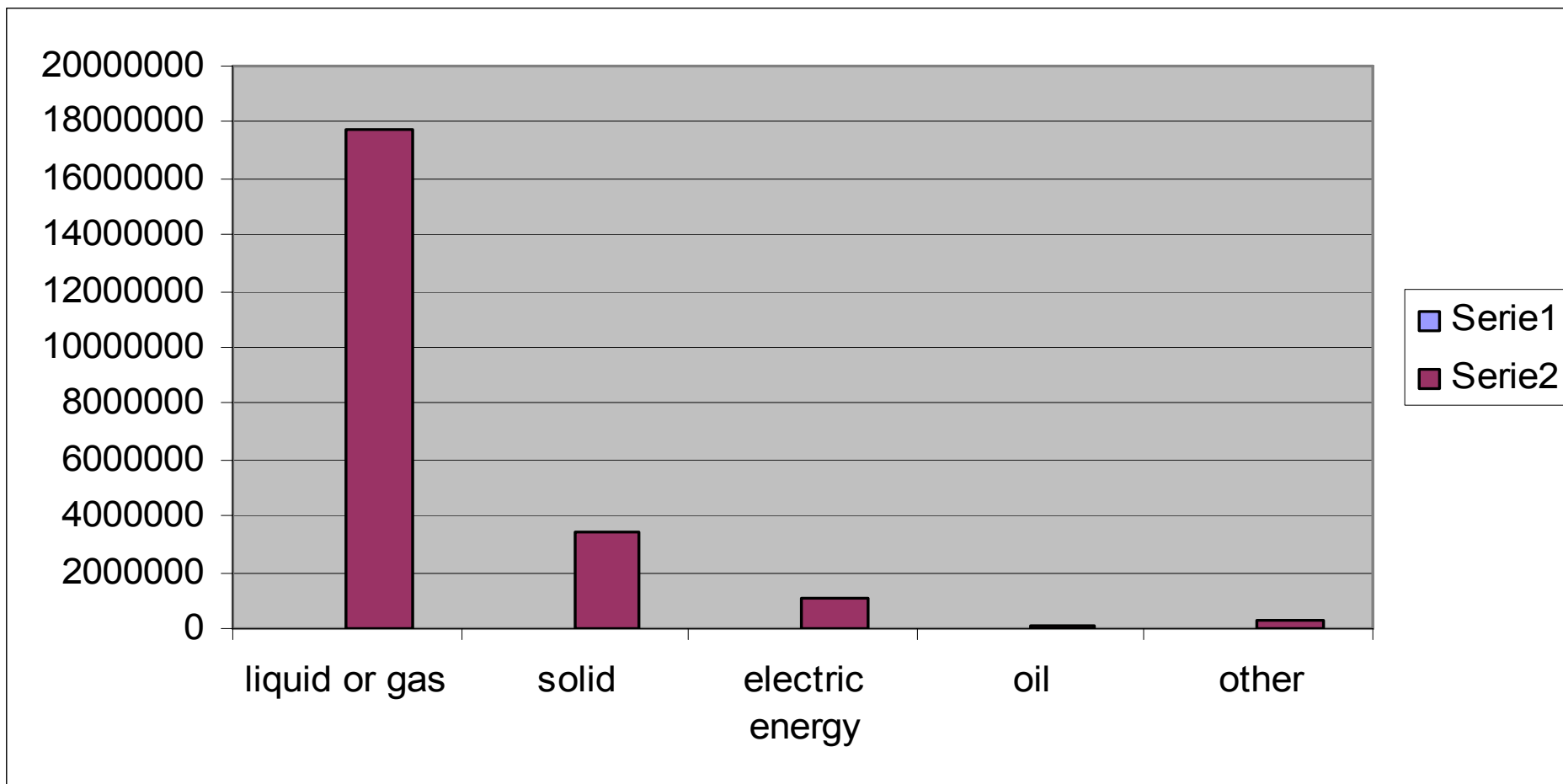
Italy is almost completely dependent on energy sources inflows.

The Import of hydrocarbons and fossil combustibles (oil, natural gas, carbon) overtakes 90%.

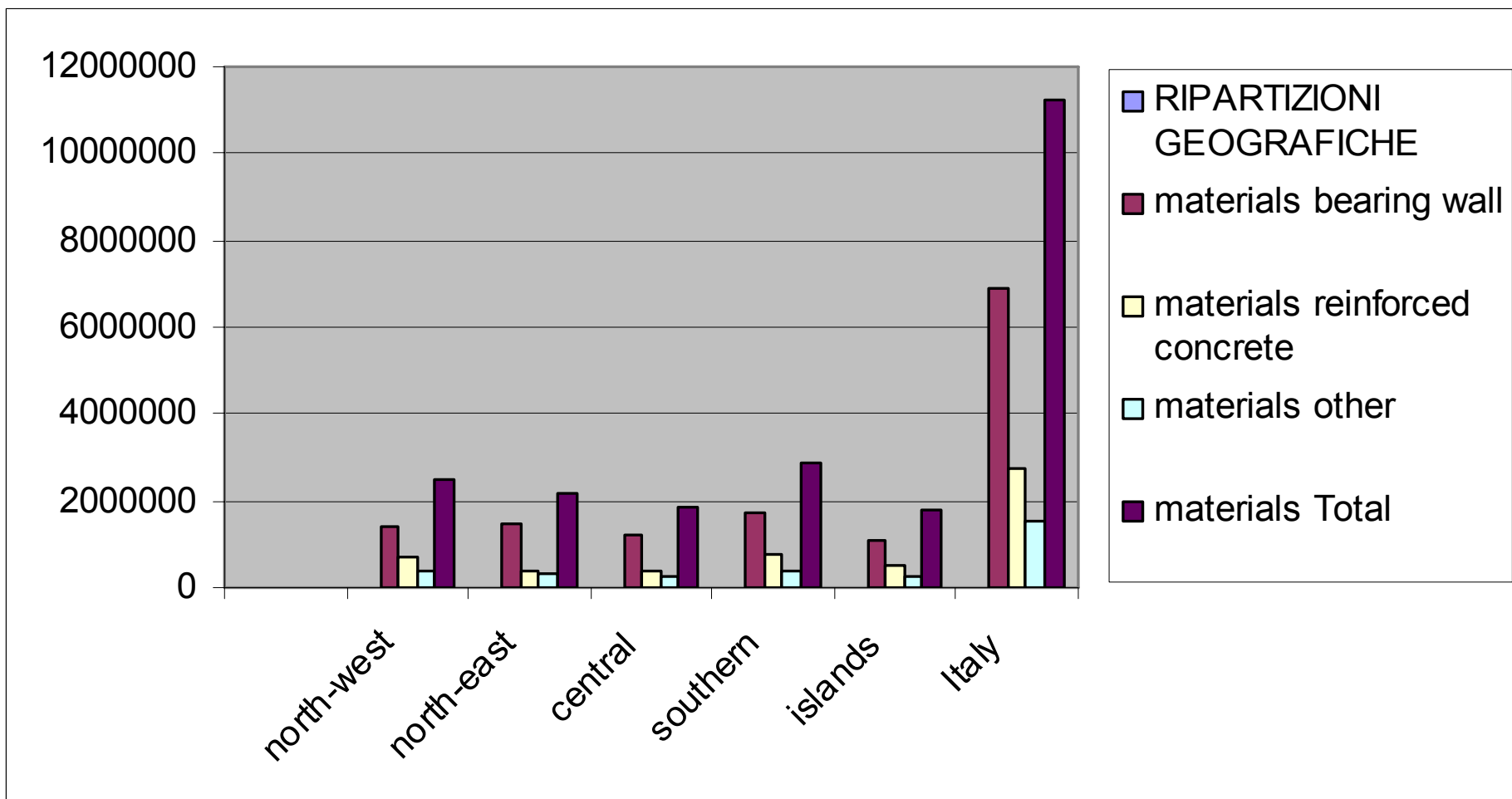
A consistent quote of the imported hydrocarbons is used for the production of electric energy; so, almost $\frac{3}{4}$ of the electric need depend on importation.

Energy produced by renewable sources represents only 6%.

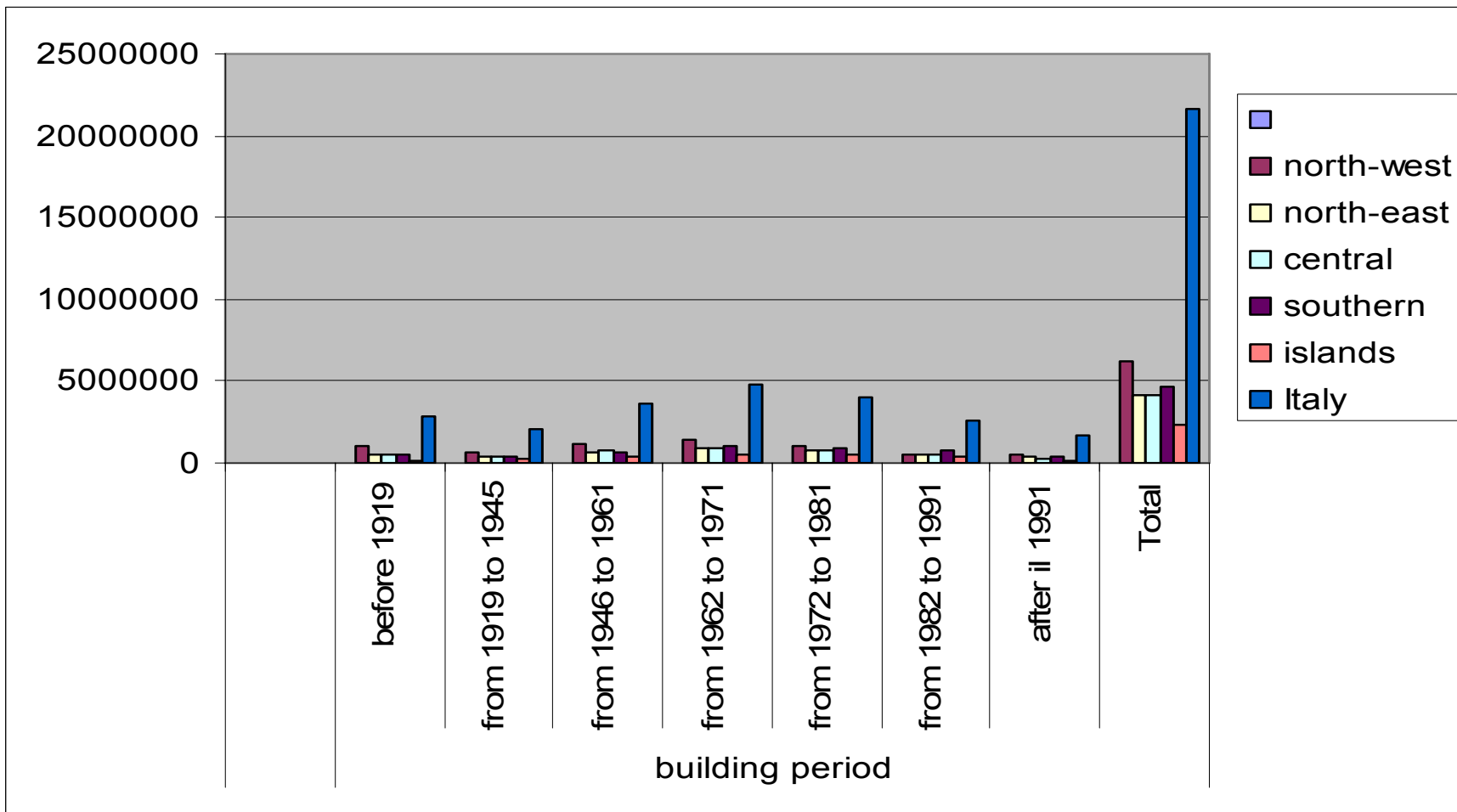
Consumption of energy in households (%):



Building materials



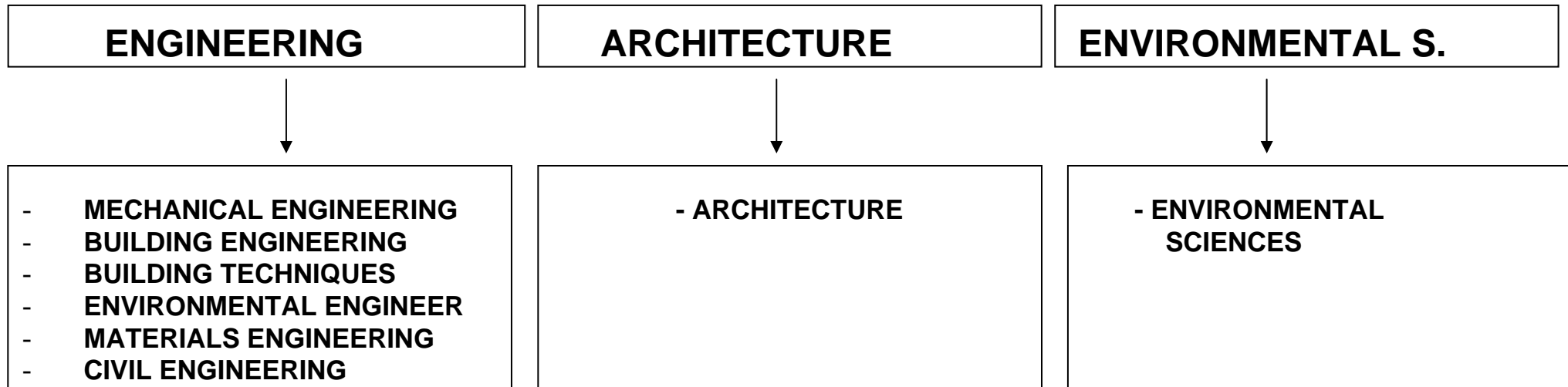
Age of buildings



VET experiences, Universities study courses and professional qualifications on energy efficiency into buildings



➡ **DEGREE COURSES** connected to buildings issues:



Some initiatives within VET



➡ **IFTS COURSES (high technical education courses) :**

- **HIGH TECHNICIAN FOR BUILDING RUNNING**

➡ **MASTERS AND POSTGRADUATE COURSES:**

- **ARCHITECTURE, ENERGY, HOUSE QUALITY AND ENERGY EFFICIENCY**
 - **ECO-SUSTAINABLE ARCHITECTURE**
 - **ARCHITECTURE AND ENERGY**
- **ENVIRONMENT AND ENERGY SOURCES MANAGEMENT**

Some initiatives within VET



➡ **QUALIFICATION COURSES:**

- **BUILDING SITE TECHNICIAN**
- **BUILDING OPERATOR IN SHELLS**
- **TECHNICIAN OF CONSTRUCTION SYSTEMS IN BIO-BUILDING**
 - **THERMAL-TECHNICIAN EXPERT**

Some initiatives within VET



➡ **REFRESHER COURSES:**

- SOLUTIONS FOR ENERGY SAVING IN BUILDINGS
- BUILDING FOREMAN: TECHNOLOGY AND RENEWAL
 - ENERGY SAVING IN BUILDINGS
 - BIO-CLIMATIC ARCHITECTURE
 - BIO-BUILDING OPERATOR
- BUILDING ENERGY PERFORMANCES AND ENERGY CERTIFICATION
 - CASACLIMA CERTIFICATE
- DOMOTICS PROJECT: PLANT ENGINEERING INTEGRATION
 - BUILDING METHODOLOGIES AND MATERIALS
 - BUILDING RENEWAL
 - BUILDING MATERIALS: CHOICE CRITERIA
 - ECONATURAL HOUSE
- ENERGY SOURCES AND ENERGY EFFICIENCY OF BUILDING PLANT SYSTEM
 - COURSE FOR ECOABITA DESIGNERS
 - COURSE FOR ECOABITA AUDITORS
 - COURSE FOR CASACLIMA DESIGNERS
- TECHNIQUES AND SOLUTIONS AIMED AT ENERGY SAVING
 -



High education and VET offer:

- *The official educational programs published on web concerning degree courses DON'T show contents areas formally dedicated to energy efficiency and RES subjects.*
- *The few number of postgraduate courses and masters do not face the subject energy efficiency in building sector, but only in a general way.*
- *Courses and masters are a really few number and they don't face the subject energy efficiency in building sector, but only in a general way; the unique case of high education in building (IFTS course) there's no trace of energy efficiency subjects, such as in degree courses.*
- *Need of more Masters/high training courses, more specific on energy efficiency in buildings even if the situation is changing (in Modena the Energy Engineering degree course will be implemented in 2009 and it will especially focus on energy efficiency in building sector).*
- *Too many courses but no one which prepares a profile capable to approach to the entire building process.*



BETTER BUILDING

Certifying VET teachers as Energy Saving Advisers

A transfer system into three different European societies

Slovenian context

Regulation and initiatives connected to EE and RES in buildings



Energy Law (1999). OJ RS 79/1999 + modifications

Resolution on Energy National Programme (2004). OJ 57/2004

Law on building construction (2002). OJ 110/2002 + modifications

OVERALL SITUATION OF ENERGY IN SLOVENIA



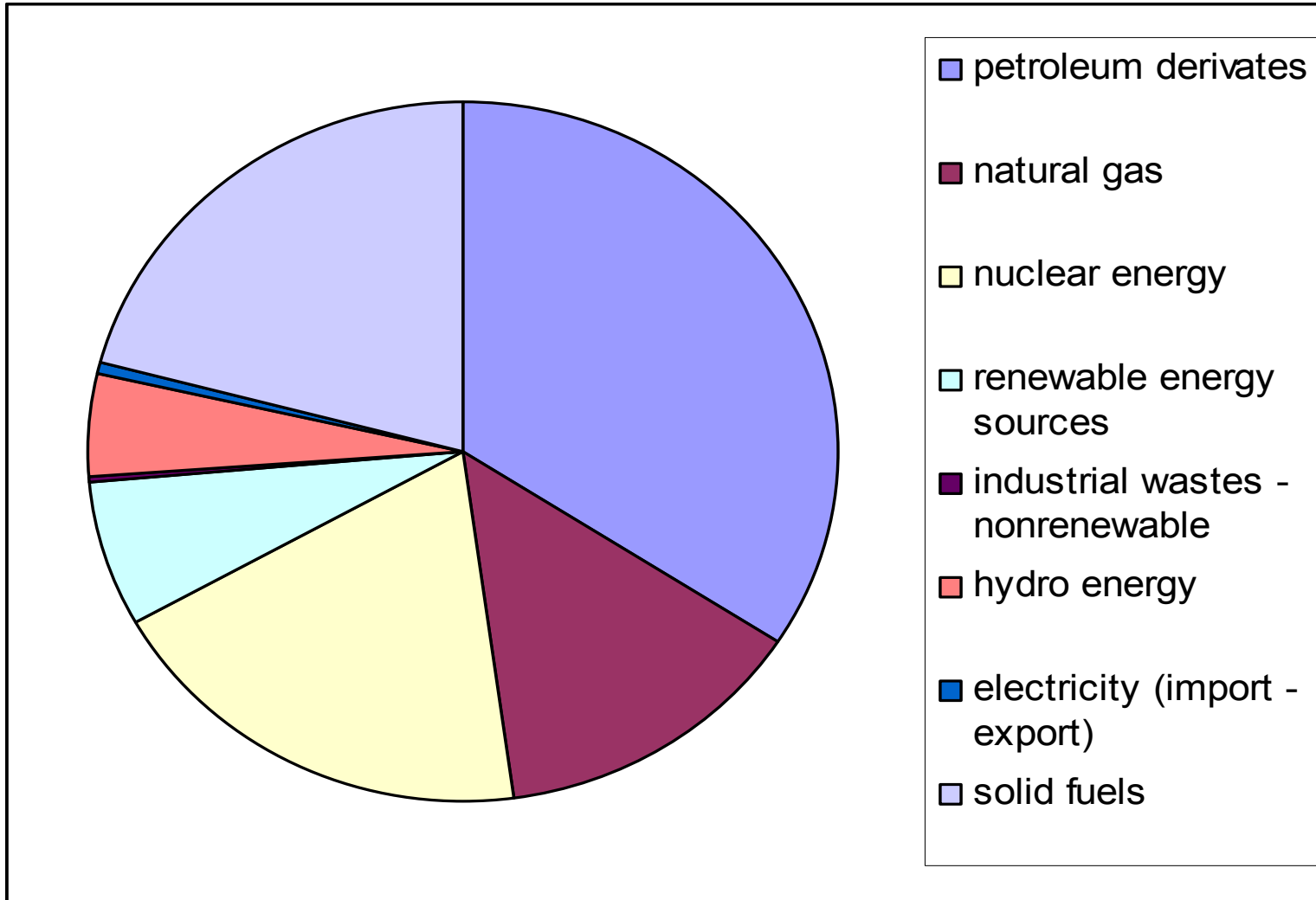
Energetic balance 2007:

| indicator | Index 2007/06 |
|----------------------------|----------------------|
| Primary production | 102,2 |
| Import | 101,3 |
| Change of stores | 80,2 |
| Export | 90 |
| Gross domestic consumption | 102,6 |

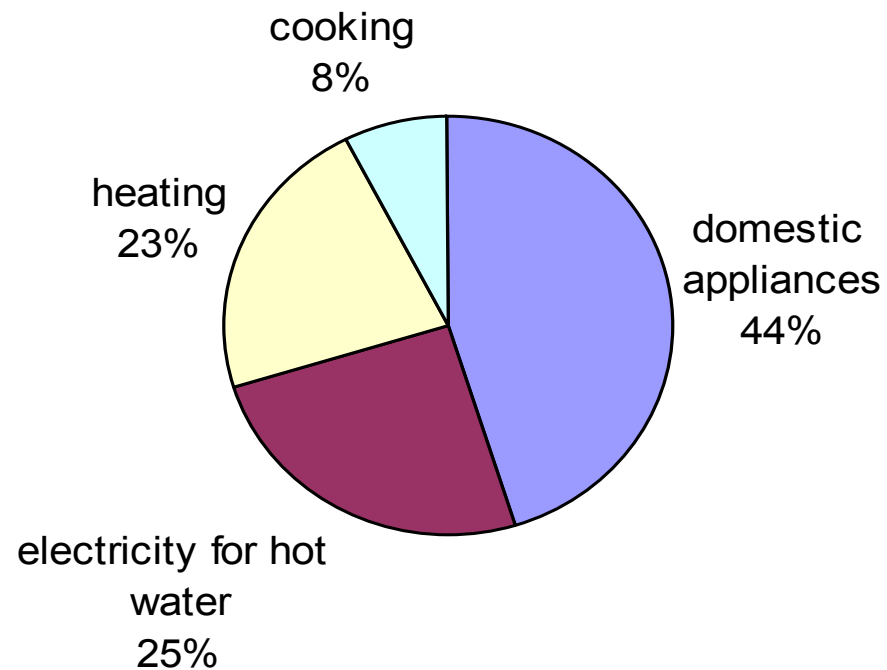
Import energetic dependency:

| | |
|--------------------------|-----|
| Domestic primary sources | 47% |
| Import dependency | 53% |

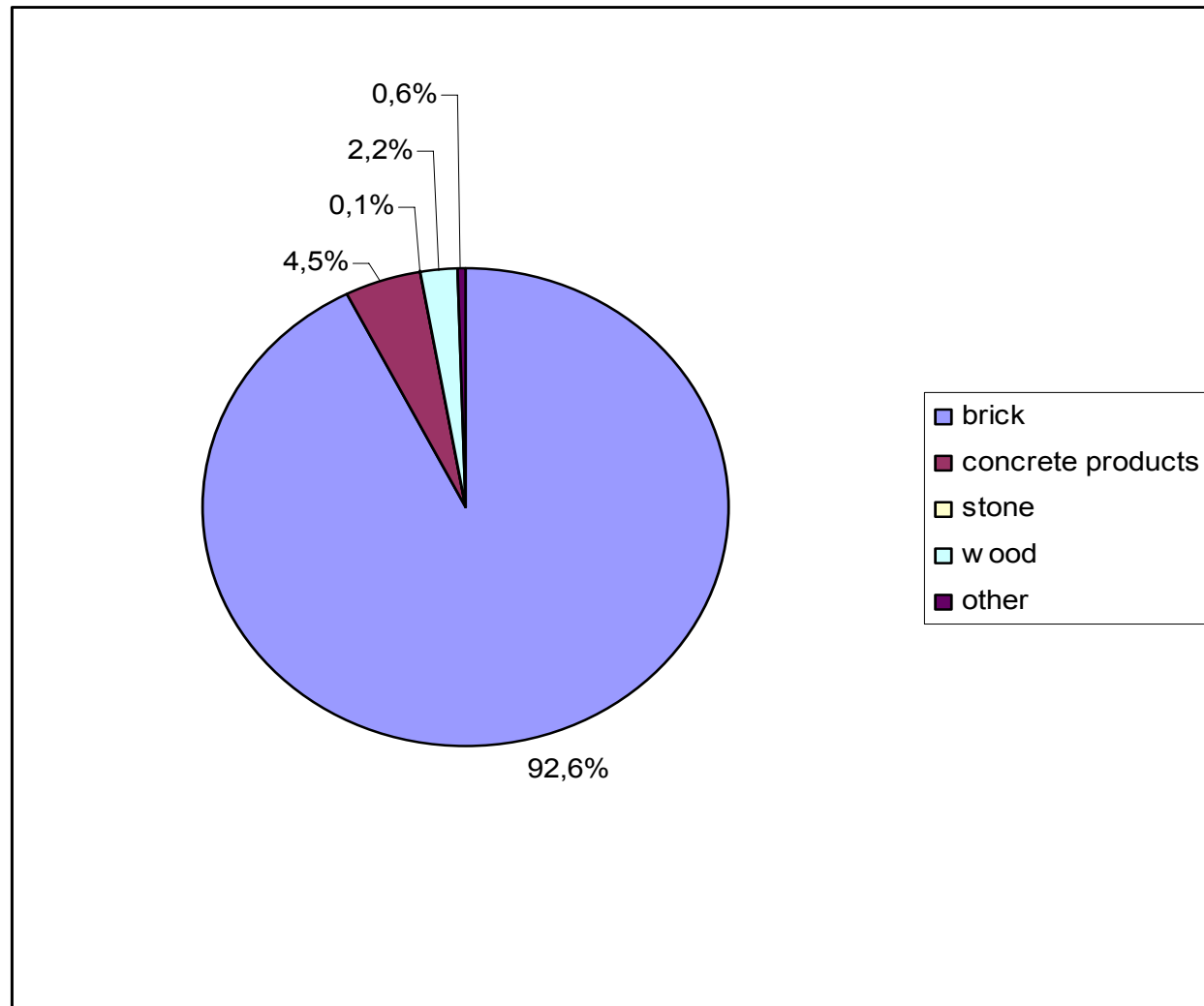
Primary energy sources:



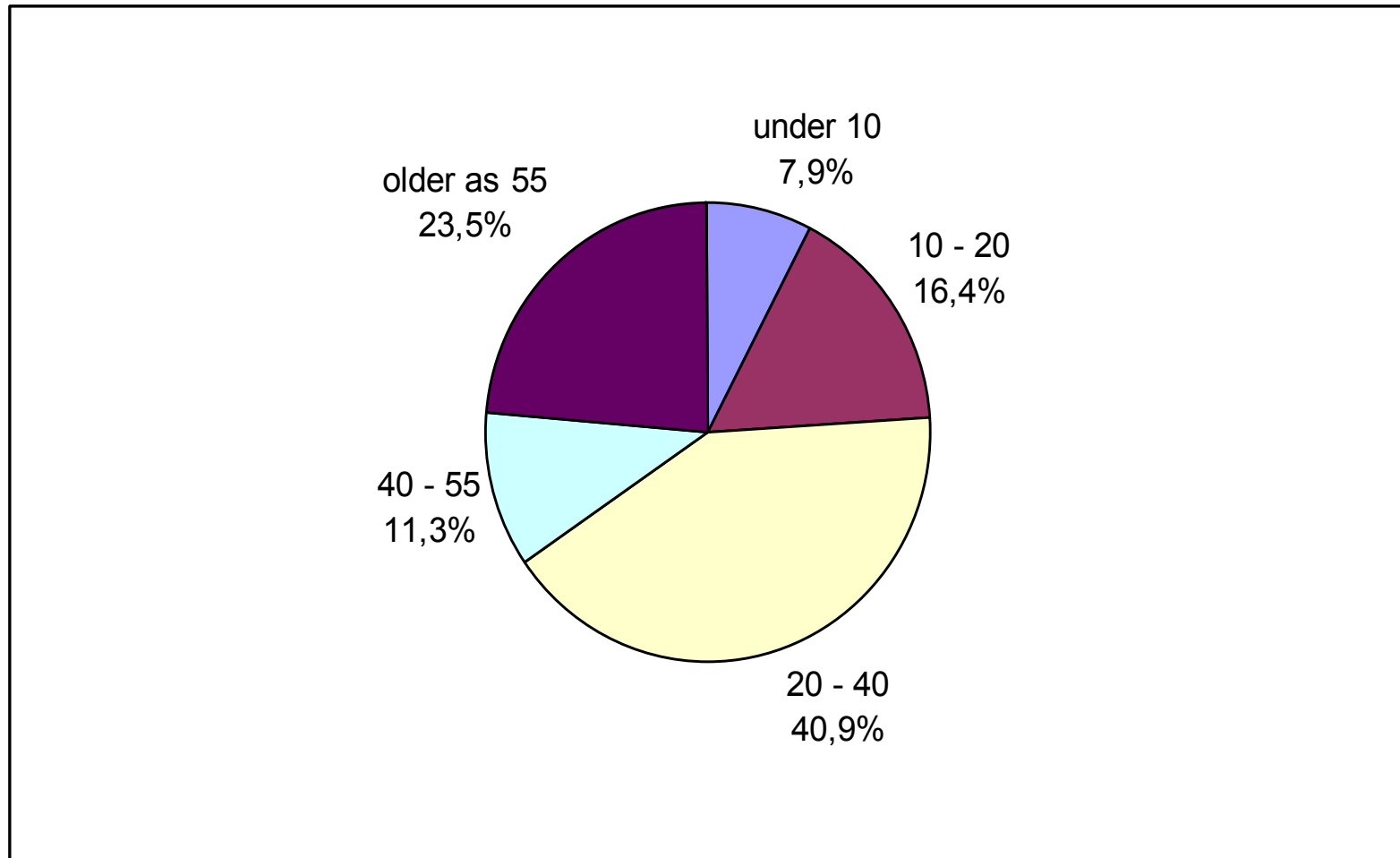
Consumption of energy in households (%):



Building materials in newly-built buildings:



Age of buildings:



VET experiences, Universities study courses and professional qualifications on energy efficiency into buildings



Environmental protection and communal (additional education, national level: 2)

Construction worker (national level: 3)

Mason (national level: 4)

Environmental technician (national level: 5)

Constructional technician (national level: 5)

Environment (national level: 7)

Landscape architecture (national level: 7)

Architecture (national level: 7)

Civil engineering (national level: 7)

Energetics (national level: 7)



11. ECO SCHOOL PROJECT (FEE)

Applicable in all educational institutions, except university education

Promoting responsible environmental education

| 2006/07 | kindergartens | Elementary schools | Higher educational institutions | Centers for educational and additional activities | together |
|----------------|----------------------|---------------------------|--|--|-----------------|
| Registered | 44 | 230 | 24 | 9 | 307 |
| rewarded | 28 | 183 | 20 | 7 | 238 |

General remark



Energy saving is quite popular topic in Slovenia; a lot of people are very well informed about this issue, especially those who are preparing to build a house (among them especially real estate services)

In Slovenian educational system in recent five to ten years, a lack of learners in VET is appeared, especially in construction programs on national level 3,4 and 5 (*Environmental protection and communal, Construction worker, Mason, Environmental technician Constructional technician*)



BETTER BUILDING

Certifying VET teachers as Energy Saving Advisers

A transfer system into three different European societies

Turkish context



Regulation and initiatives connected to EE and RES in buildings

In 1935

Was funded the Electrical Power Resources Survey and Development Administration (**EIE**) .

It is governed by the provisions of private law and administrated in accordance with commercial methods, has the status of a juridical person and being bound to the Ministry of Energy and Natural Resources, carries out engineering service with opportunity of production of electrical energy as an investor public organization.



In Turkey, energy conservation studies were started in 1981 by EIE under the Ministry of Energy and Natural Resources. At the beginning of **1993**, National Energy Conservation Center (**NECC**) is constituted by EIE in order to execute EIE's energy conservation activities more effectively and more comprehensively all over the country.

ACTIONS OF GENERAL DIRECTORATE OF ELECTRICAL POWER RESOURCES SURVEY AND DEVELOPMENT



Efficient Use of Energy in Buildings Project: this project was implemented in 2002 in the Province of Erzurum within the framework of Technical Cooperation between Turkey and Germany.

Activities foreseen by the project: building studies, educational programs, determining needed regulations, opening consultancy centers in municipalities.

Standard for Thermal Insulation Rules in Buildings, TS 825: Since that in Turkey the energy spent in buildings per unit area or volume for heating is 2-3 times more than European countries, this Standard dated 1935, was revised by EİE and entered into force in 2000. Thus, thermal loss are halved in buildings to be constructed but unfortunately the rule is not completely fulfilled.

Precautionary Measures To Be Taken by Public Institutions to Reduce Energy Consumption: public institutions throughout the country prepare annual reports every May about energy consumption in their buildings and send them to the Ministry of Energy and Natural Resources; examination and evaluation is done by EİE.

In 2007



- entered into force the **Energy Efficiency Law**, which aims at:

improvement of energy resources and energy efficiency for effective energy use

prevention of energy wastage

relief the burden of energy costs on economy and environmental protection

- a **TAIEX Workshop** on Demand Side Management in Energy Efficiency was held in EIE (General Directorate of Electrical Power Resources Survey And Development Administration) thanks to the cooperation between EIE and TAIEX (TAIEX is an instrument of the Directorate-General Enlargement of the European Commission).

In 2008



- 2008 was announced as Energy Efficiency Year
- Regulation Draft Concerning Improvement of Efficiency in Energy Resources and Energy Use was prepared
- fairs on EE were organized along the country

STUDIES, RESEARCH ON EE AND RES IN BUILDINGS



- **Energy Consumption in Residences and Transportation Sector Project:** By the end of 1997 a statistical study called “Energy Consumption in Residences and Transportation Sector Project” was initiated through State Institute of Statistics and EIE cooperation.
- **Seminars Aimed at Schools and Public Institutions** to raise consciousness about Energy Conservation..
- **Publication Activities:** booklets and leaflets about energy conservation in buildings and transportation are prepared and distributed to public institutions and private stakeholders.



OVERALL SITUATION OF ENERGY IN TURKEY

Turkey is 50% dependent on external resources for electrical energy because of natural gas use and coal imports.

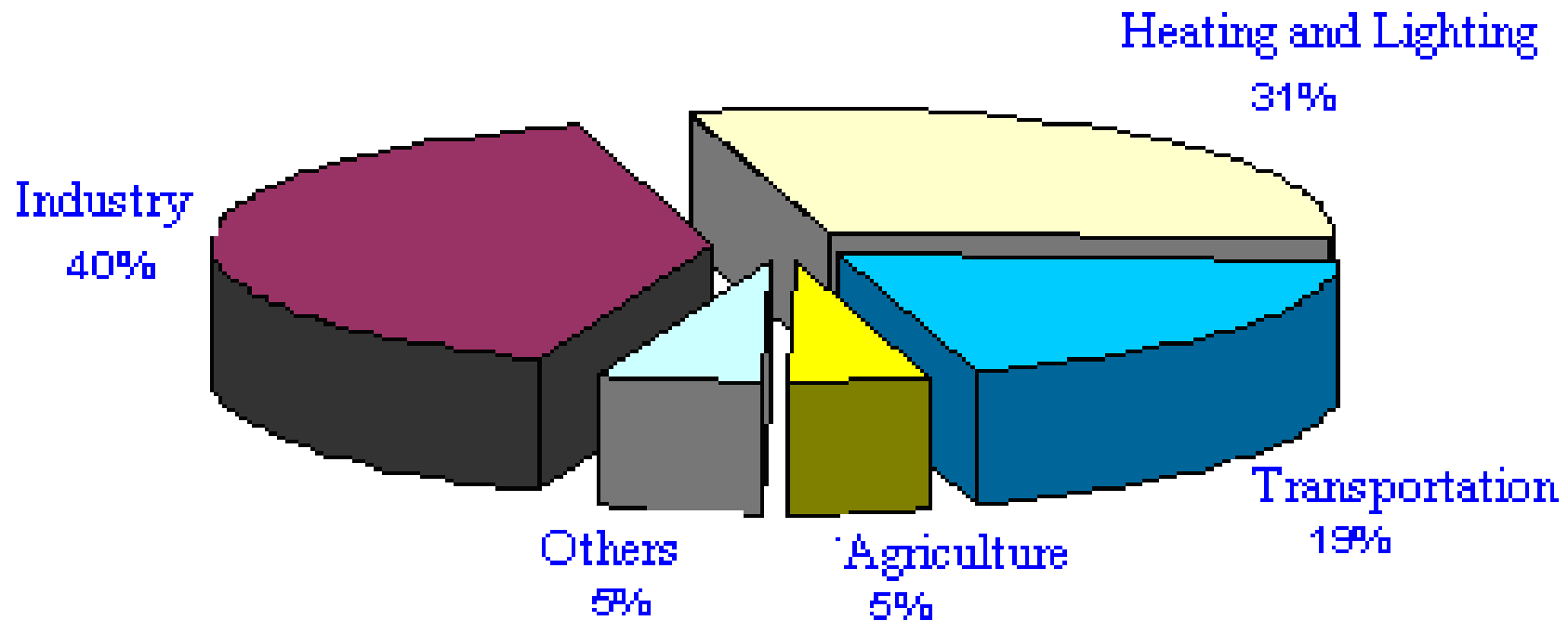
Costs for importing energy and demand for electrical energy are gradually increasing.

Efficiency of the energy used in Turkey is 2 times worse than OECD countries and 3.8 times than Japan. Especially thermal insulation of buildings is seriously problematic

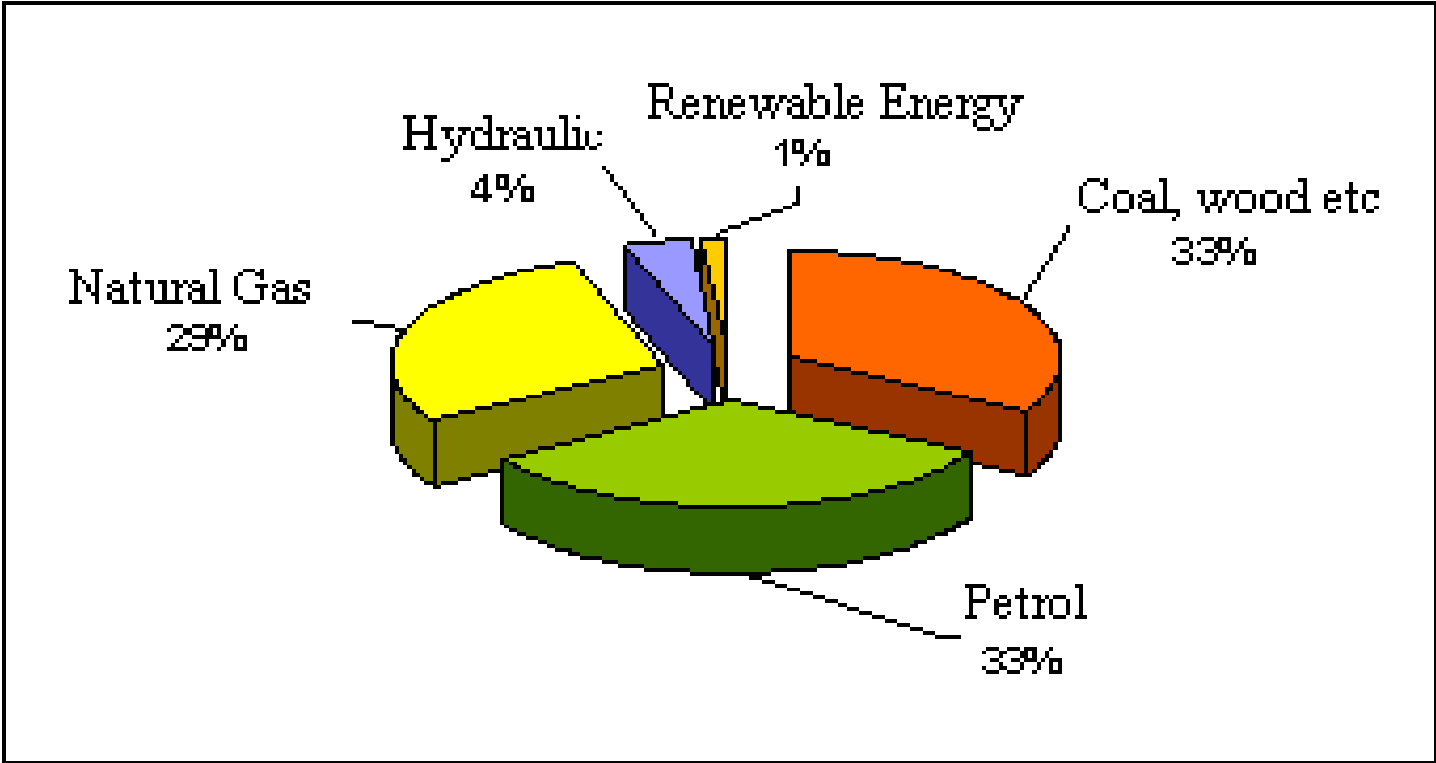
Turkey imports 70% of the energy used. Currently annual rise in energy demand is 5%. It is estimated that in upcoming years this rate will raise more due to developing economy and population growth.



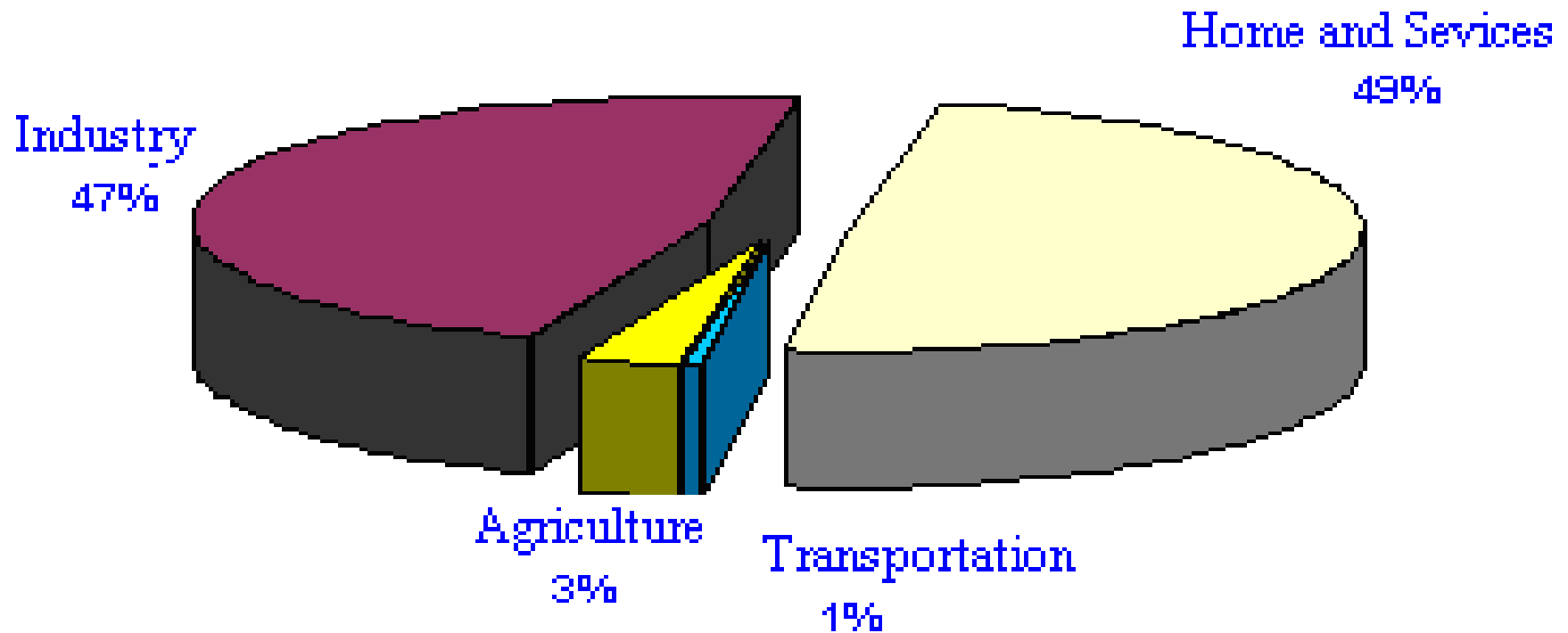
Energy Consumption Sectors and Rates in Turkey 2006 (EIE)



Energy Resources of Turkey 2006 (EIE)



Electric Energy Used Sectors in Turkey 2006 (EIE)



VET experiences and Universities study courses



There are heat transfer, heat isolation and building materials courses at vocational schools or in universities, but these courses are not directly energy efficiency connected courses.

Electrical Power Resources Survey and Development Administration (EIE) has been giving directly EE courses on building and industry for many years, but soon also training centers will be allowed to organize EE courses.

THANK YOU FOR YOUR ATTENTION!



NATASCIA SCHIERI

natasciaschieri.mo@ialemiliaromagna.it

+39 059 821 459 - 327