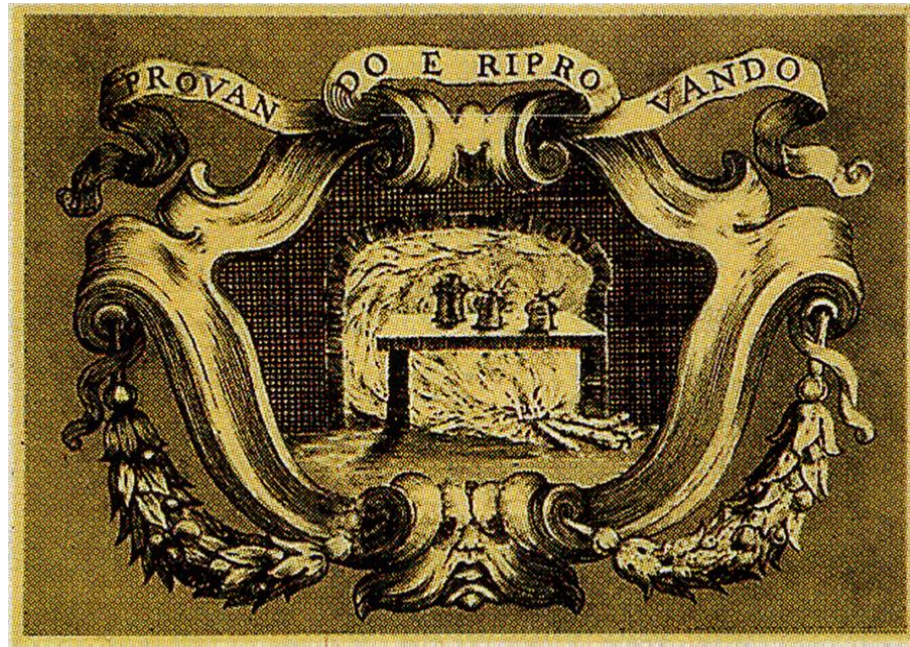


Update of the work of SIF energy group

Enzo De Sanctis



SIF Energy Initiatives: year 2008

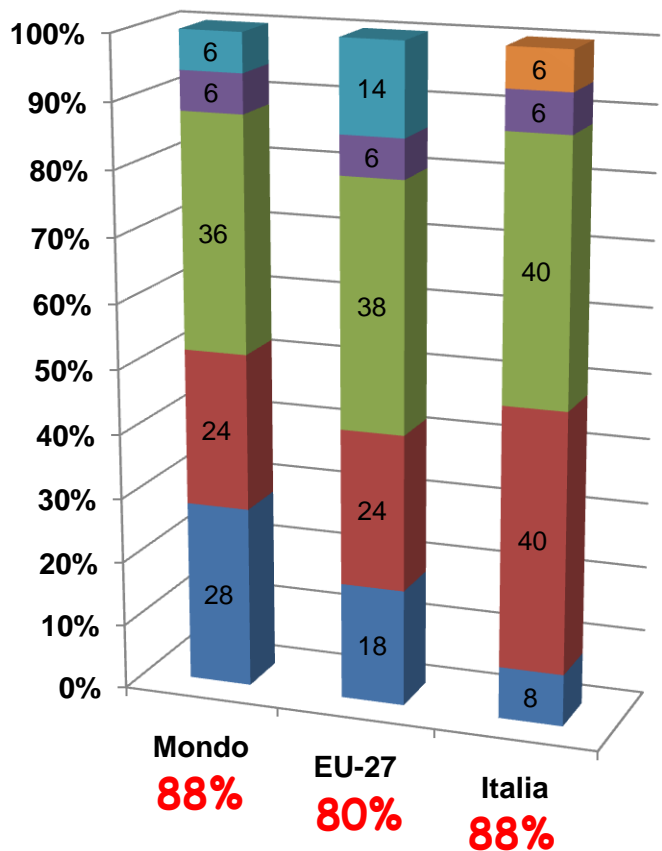
- Report "Energy in Italy: problems and perspectives (1990-2020)". Distributed to Ministries, energy Agencies, experts, politicians, journalists, ...
- SIF/EPS (European Physical Society) Meeting "Energy Perspectives in Europe", Varenna, April 7-8, 2008.
- Round Table: "Energy in Italy" at the 94th SIF Congress, Genova, Sept. 25, 2008.
- Seminars and papers on popular journals ("Il Nuovo Saggiatore", "Normale " bulletin of the Scuola Normale of Pisa).

http://www.sif.it/attivita/energia_it

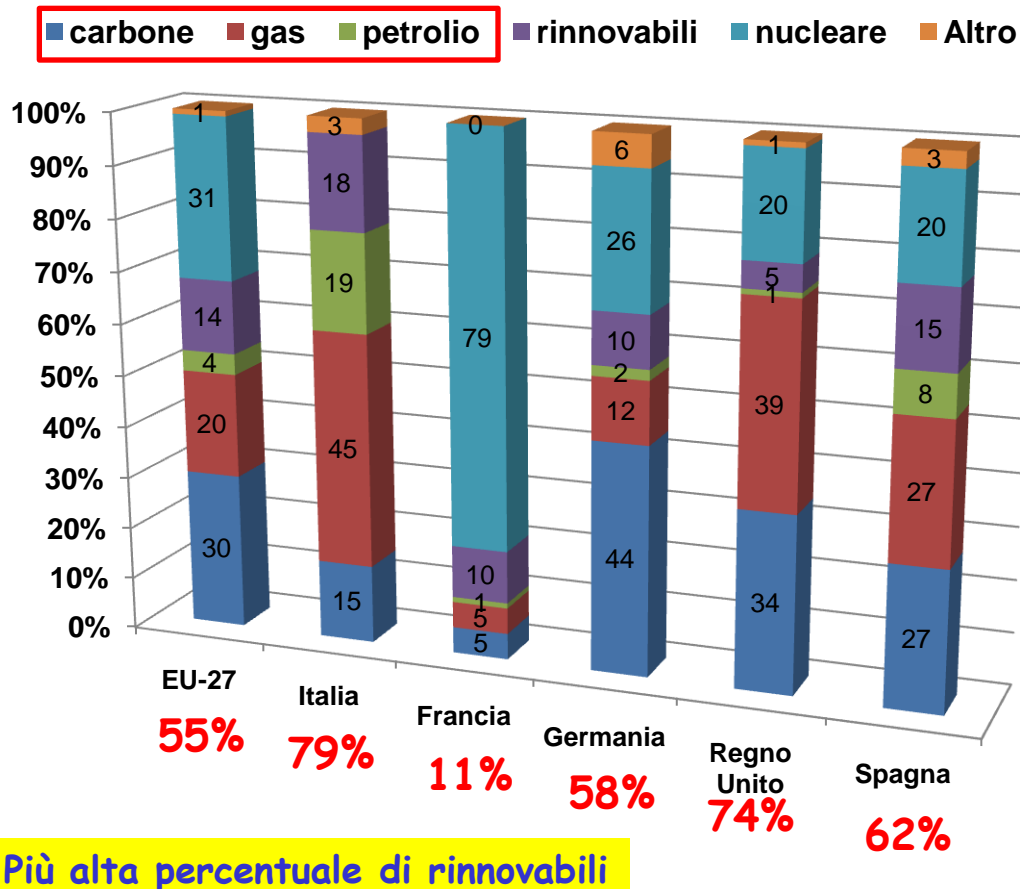
Italia nel contesto Europeo

Contributo percentuale delle varie fonti nel 2004

Energia Primaria



Produzione di Elettricità



Fonte: European Commission DG TREN, Eurostat

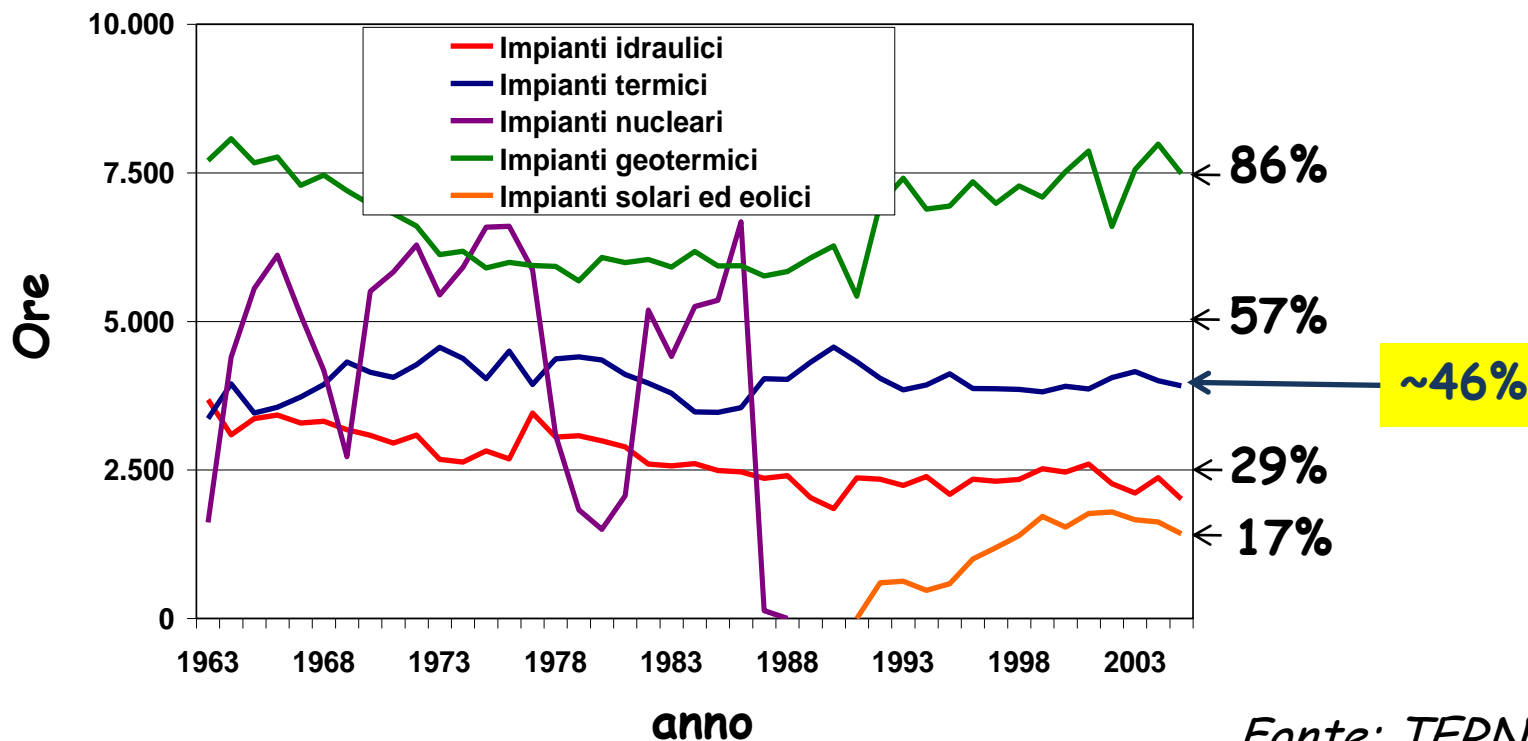
Importazioni:

Gas
Petrolio
Carbone

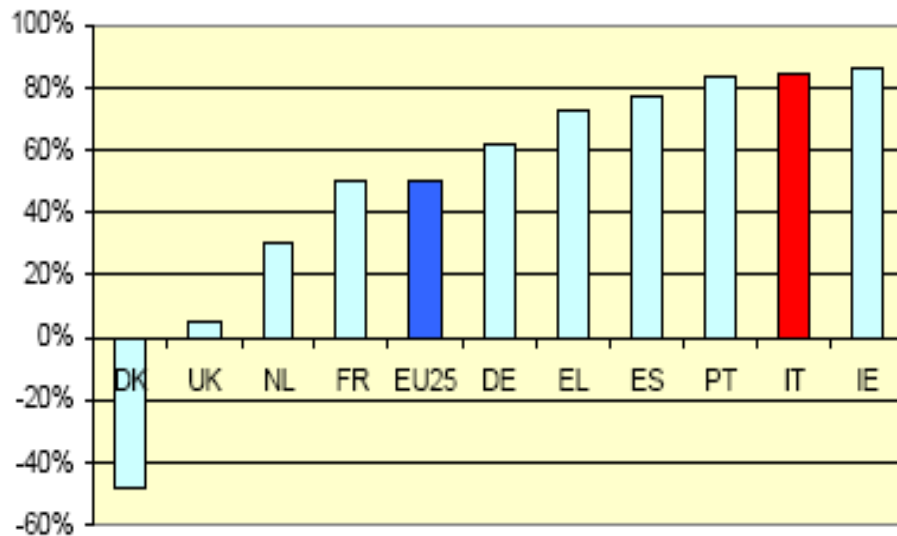
da Algeria e Russia (+ Libia e Olanda)
da Paesi OPEC (+ Russia)
da Indonesia, e Sud Africa (+ Paesi extraeuropei)

Fattore di uso degli impianti italiani

Ore in 1 anno = 8760

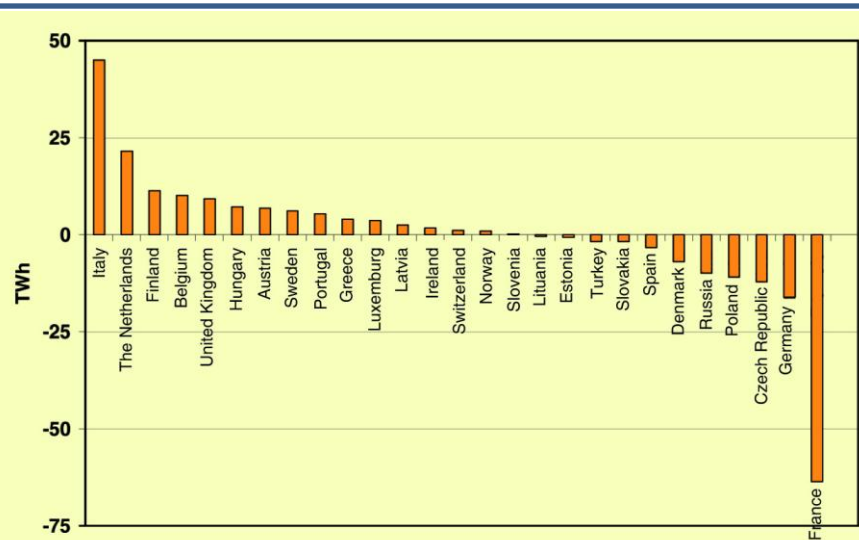


Dipendenza dalle importazioni



Importazioni di Energia nei Paesi europei nel 2004

EU-25: ~ 50% del fabbisogno
Italia : 84.5% del fabbisogno



Saldo di Energia elettrica nei paesi europei nel 2006

positivo=importazione; negativo=esportazione

L'Italia registra il maggiore sbilanciamento (45 TWh)

Fonte: EUROSTAT

Il sistema Italiano: un mix "peculiare", fragile e costoso

- Troppi combustibili fossili (~ 88%), essenzialmente gas e petrolio. (funzionamento impianti termoelettrici ~ 4000 ore/anno = 46%).
- Rinnovabili da aumentare secondo UE da ~ 6% al 20%. Più alta percentuale tra i grandi paesi europei (idroelettrico, geotermico e legna da ardere).
- Assenza del Nucleare interno (ma importazione ~ 6% fabbisogno da reattori nucleari prossimi alle frontiere).
- Eccessivo peso delle importazioni (~ 85%). Maggiore sbilanciamento in assoluto tra importazioni e esportazioni di energia elettrica.
- Costo dell'energia ~ +35% di quello degli altri Paesi Europei.
- Crescita emissioni di CO₂ (~ 10%), ma emissioni specifiche per produzione elettrica tra le più basse.
- Efficienza energetica costante con valore nella media EU.

- Differenziare il più possibile sia le fonti energetiche che i paesi fornitori.
- Aumentare l'efficienza energetica.

SIF Energy Initiatives : year 2009

- Joint Working Group SIF-SCI (Italian Chemical Society) with the participation of INGV (National Institute for Geophysics and Vulcanology). Update of the SIF Energy Report.
- Project "L'Energia nella scuola" for promoting the "critical knowledge" [Popular Booklets for Secondary Schools].
- Round Table: "The Physics for the Environment", at the 95th SIF Congress, Bari, Sept. 29, 2009.
- Seminars and open lectures (Bari, Udine, Trieste, Pavia, Como).
- The SIF report is used as a text-book for the Master for "Expert in Energy Matters" at the Udine university.
- Participation to the EPS Energy Working Group.

The project "L'Energia nella Scuola"

The Energy-page of the SIF-site (http://www.sif.it/attivita/energia_it) has received on the average 45 contacts/day in 2009.

On the basis of the very positive reception of the "SIF Energy Report" and the continuous, increasing interest in Italy for energy problems, SIF has decided to start the project "**L'energia nella scuola**"

- Publication and free distribution in the school of popular booklets about energy related problems.
- Publication and free access of the booklets in the web pages of SIF and SCI (Italian Chemical Society).

Objectives of the project

- To promote the “critical knowledge” in the public debate on energy problems (real danger vs perceived danger).
- To underline the capabilities of Physics and Chemistry for developing technologies for the production, transport, transformation and saving of the energy.
- To arouse the interest of young people for the scientific research through new R&D activities in the energy field.

Collaborations & Funds

Work in collaboration with:

- Italian Chemical Society (**SCI**),
- Italian Association for the teaching of Physics (**AIF**),
- Italian Association for the teaching of Chemistry (**AIC**),
- National Institute for Nuclear physics (**INFN**),
- National Institute for Geophysics and Vulcanology (**INGV**),
- Institute for New Technologies, Energy and Environment (**ENEA**).

Funds requested to the Ministry for Education and Research (Iniziativa per la diffusione della cultura scientifica).

Scheduled Titles

1. Energy production and transport; energy efficiency.
2. Nuclear energy from fission.
3. Photovoltaic.
4. Future of fossils source. Problems of the CO_2 .
5. Natural, continuous sources (hydro, geothermic, wind, thermodynamic solar).
6. Energy from biomass.
7. The Portable energy: Batteries and Accumulators.
8. Nuclear energy from fusion.

Booklets will be published as special issues of the SIF and SCI journals devoted to school teachers: "Il Giornale di Fisica" and "Chimica nella scuola".

Other Future initiatives

2010: Participation to the EPS EWG.

Participation to the 1st European Energy Conference, Barcellona, in April.

2011: Joint Report SCI-SIF focoused on energy perspectives in Italy.

2011 (2012): Course on Energy at the "E. Fermi" School in Varenna, on Como Lake.

Varenna School "Enrico Fermi"

2 Formats: 2-week (11 days) or 1-week (6 days) Course.

- Each Course aims at illustrating in a formative and critical way the subjects dealt with, according to their most modern aspect and to their present development starting from the foundations of the field. The level of each Course should be kept very elevated, decidedly postgraduate.
- Minimal number of paying students: 40. The fee of 1300 € (900 €) for the 2-week (1-week) course includes registration, full board, lodging and Proceedings.
- Requested additional fund of 10000 € for helping to meet some of the travel and living expenses.
- Deviations from such a format may be allowed, but in terms of general budgetary compatibility (e.g.: less paying students necessarily imply a higher fund raising from the Organizers.)
- The total number of Lecturers plus Seminar Speakers including Directors and Scientific Secretary has been fixed as 18 (12).

Proposal due by spring 2010 (2011).