Renewable Energy Policy Review

Italy

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1. General information

Population and geography

Situated in Mediterranean Europe, Italy has land frontiers with France in the north-west, Switzerland and Austria in the north and Slovenia in the north-east. The peninsula is surrounded by the Ligurian Sea, the Sardinian Sea and the Tyrrhenian Sea in the west, the Sicilian Sea and the Ionian Sea in the south and the Adriatic Sea in the east. There is a great deal of variety in the landscape in Italy, although it is characterized predominantly by two mountain chains: the Alps and the Apennines. The former extends over 600 miles from east to west. It consists of great massifs in the western sector, with peaks rising to over 14,000 feet.

Region	Area km2	Population 10/2001
Abrizzi	10,795	1,262,392
Basilicata	9,992	597,768
Calabria	15,080	2,011,466
Campania	13,595	5,701,931
Emilia-Romagna	22,123	3,983,346
Friuli-Venezia Guilia	7,844	1,183,764
Lazio	17,207	5,112,413
Liguna	5,421	1,571,783
Lombardia	23,861	9,032,554
Marche	9,694	1,470,581
Molise	4,438	320,601
Piemonte	25,3999	4,214,677
Puglia	19,363	4,020,707
Sardegna	24,090	1,631,880
Sicilia	25,707	4,968,991
Toscana	22,993	3,497,806
Trentino Alto Adige	13,607	940,016
Umbria	8,456	825,826
Valle d' Aosta	3,263	119,548
Veneto	18,379	4,527,694
Italy	13,576	1,685,267

source: www.citypopulation.de

Italy entered the European Union in 1957.

The Constitution (Art. 114, 115, 128) assigns to Italy a peripheral administrative organisation based on three territorial levels of competencies: Regions, Provinces and Communes. The article 5 of the Constitution states and promotes the autonomy of the local bodies. At present, this autonomy is not yet completely accomplished. Due notably to the complex nature of Italian juridical system, the complicated process of independence for the local autonomies started in 1975 by the Law 382/75. This assigns to the Govern the power to legislate in order to transfer some of the administrative functions to the local autonomies in the matter of their competencies according the article 117 of the Constitution.

Recently new legislative initiatives have been taken or are in planning, they are inspired to the principles of the European Union (E.U.) that consists to grant the management and administration competence of the public matter to the closer body to the citizens (Communes). In this line the Law 142/90 by article 128 introduced new measures remodelling the organization and activities of the local bodies (Provinces and Communes) by giving a form of autonomy opened to self-determination on their own territories. These measures represents the first step for the reform of the state in the federal sense. Regional Bodies were transformed from administrative

bodies to legislative ones with functions of programming and co-ordination concerning the territory of the local autonomies.

The most dynamic industries and markets tend to be concentrated in northern Italy, resulting in an income divergence between north and south that remains one of Italy's most difficult and enduring economic and social problems. Italy has few natural resources. Most raw materials used in manufacturing and around 80% of the country's energy sources are imported. Italy's economic strength is in the processing and the manufacturing of goods, primarily in small and medium-sized firms. Its major industries are precision machinery, industrial machinery and equipment, primary & fabricated metals, transportation equipment, motor vehicles, chemicals, pharmaceuticals, electric and electronic equipment, fashion, clothing, leather, jewelry, shoes.
Agriculture contributes 2.5% of the value added produced by the Italian economy, involving little less than 2 million workers. The recent revival of the national economy and the reduction of the balance of foreign trade are due in part to greater productivity and also to lower inflation and increased Gross National Product , with a vigorous impulse to productivity, the drop of inflation (down to levels of 20 years ago) and the increase in the gross national product, are reflected in the reduction of the balance of foreign trade. (source Italian Embassy http://www.italyemb.org/EconomicSection.htm)

2. Renewable Energy Policy

Energy and Renewable energy country profile

Country Profile

In Italy domestic fossil energy resources are limited and imports account for over 80% of national energy consumption. Dependence on imported oil has been reduced over the last 20 years in benefit of imported and domestic gas, but still supplies over 50% of requirements Natural gas is a much cleaner fossil fuel,which helps Italy to meet domestic, European, and broader international requirements for a cleaner environment. As with oil, North Africa is a large exporter of natural gas to Italy.

As for energy supply, national production in 2000 has been 30.7 Mtep, which corresponds to a decrease of 4.9% with respect to 1999. The loss of production has been particularly high for hydrocarbon, with a 7.1% decrease for gas and 10.0% decrease for oil. This loss of production has caused an increase of over 1% of total energy dependence, which passed from 82.3% in 1999 to 83.4% in 2000, the highest value in OECD countries. Heavy dependence on oil and gas imports and the decision to close nuclear plants have concentrated Italian political efforts on the development of RES. However, the share of inland consumption met by RES is still very limited (about 8.2%).

Renewable energy: largely geothermal and biomass, contributed 5.7% of Italy's total energy supply and 20.1% of total electricity supply in 2001 compared to EU averages of 5,8% and 15.5% respectively. In 2001, Italy's gross national electricity requirement (final consumption + losses) was 305 TWh. It is assumed that this will grow by an average of 2% a year. Similarly, it is assumed that national production of electricity from renewable sources will rise to 76 TWh in 2012. (source CIRCULAR FROM THE MINISTER FOR PRODUCTION ACTIVITIES concerning "national indicative targets for the consumption of electricity produced from renewable energy sources over the period 2003-2012 and measures taken or planned at national level to achieve those targets", in accordance with Article 3(2) of Directive 2001/77/EC 2002)

Geothermal energy is an important renewable energy source in Italy, and is mainly used for electricity production. in 2002 4.78 TWh of electricity was produced from geothermal energy. The majority of biomass is used directly in the residential sector. Small (but rapidly growing) quantities of wind and solar energy are also used in Italy. Hydropower contributed 2.2% of Italy's energy supply as 42 TWh (17.6%) of electricity production in 1996. In 1993, well over 40% of Italy's domestic energy production was derived from renewables, representing almost 8% of total primary energy supply. Approximately half of this is derived from ydroelectricity, 18% of total electricity supply, with the remainder, from geothermal electric plant and biomass.

Half of RES production in Italy takes the form biomass, of which households consume 80%. Nearly 30% of RES production is from hydropower and 20% from geothermal energy. The contribution of other renewable source to total RES production is almost negligible. The outlook for some technologies is positive. Italy is the world's fourth largest producer of geothermal energy and the Europe's largest fuel cell plant (1.3 MW capacity) is located in Milan. There is also a considerable potential for wind energy, particularly along the long Italian coastline.

Hydro
Small Hydropower installed capacity in Italy rose about seven times between 1990 and 2001. While electricity generation and hydroelectric production have increased by 29% and 54% over the reference period, SHP electricity generation raised about 8 times from 1044 GWh in 1990 to 8 656 GWh in 2001. SHP contributed to about 16% of the electricity generated by hydropower and about 3% of the total electricty generated in the country in 2001. (source Report on Small Hydropower Statistics: General Overview of the Last Decade 1990-2001 ESHA)

Biomass
Italy used 1.2 Mtoe of solid biomass, and small quantities (47 ktoe) of other biomass in 1996. The majority of this was in the residential sector, although significant quantities were also used in coke ovens (107 ktoe) and in industry (136 ktoe). Some biomass was also used in electricity and CHP plants, and produced 255 GWh

electricity in 1996. Reported biomass use has increased substantially over the 1990s, and the importance of biomass-generated electricity is likely to grow, given the amount of additional independent capacity that has been authorised but not yet constructed. A 12 MW biomass gasification plant that will be fired from agro-forestry waste is being constructed near Pisa, as part of an "Energy Farm". In addition, some biogas extraction takes place providing small quantities of electricity and heat.

Wind

Wind-generated electricity is relatively high in Italy, producing 1179 GWh of electricity in 2001, this represents a massive increase from 1 GWh in 1993Total installed capacity reached 902 MW at the end of 2003 (source EWEA) in 2002 1000 people worked for the wind power industry in Italy,either directly in production plants or for suppliers.

Solar Thermal

Italy is one of the European countries with the highest potential for solar thermal,due to high solar radiation levels and high energy costs:nearly 100%of fossil fuels and a significant portion of electricity are imported.In the last few years,the Italian solar thermal market has had one of the highest growth rates in Europe,but starting from a very low level. The key factors for the positive developments in the last few years have been: .Increased awareness for the need of energy savings (environment,increasing energy costs) .Information campaign on solar thermal .More attractive financial offers for end-consumers to cope with the investment (paying by instalment).Public support programs The main barriers to growth which still prevent the Italian solar thermal sector from getting closer to its high potential are:

.Limited and discontinuous .nancial incentives to private end-consumers.
.Lack of long-term .nancial incentives
.High installation costs in the retro .t market (dif .cult integration of solar thermal into existing heating equipment)
.Awareness of the bene .ts of solar thermal still very limited
.High costs of promotion
.Lack of national coordination

In many areas,the permission to install a system comes with heavy administrative burdens,due to urban regulations and bureaucratic administration .Private users account for roughly 95%of the overall demand,public institutions for only 5%:more projects within public institutions (hospitals,schools,swimming pools,social housing,etc.)would help create more visibility and reach a critical mass. (source Sun in Action 2)

Solar PV

Since the early eighties, Italy is carrying out a comprehensive research, development and diffusion photovoltaic programme which cover both all the main aspects of the technology from the study of new materials up to plant operation and dissemination programme implementation. In this respect, the CO2 emission reduction targets, the contribution to diversity and security of supply, the development of national competitive industries, the local and regional development, mainly in Southern Italy were greater is the solar resource, as well as the creation of new job opportunity represent, in the medium and long term, the most important strategic goals of the Programme.

This continuing strategic address has up to now allowed Italy to reach relevant results as:

- about 26 MWp of total cumulative PV power installed in Italy up to now. Rural electrification, off-grid non domestic application, on-grid centralized systems and on-grid distributed systems have constituted the most important sectors of the Italian market;
- a competitive industrial system based on two major Italian manufacture with a production capacity of about 13 MWp of both single-crystal and polycrystalline modules and several small and medium size company mainly involved in the design and the construction of photovoltaic plants;
- a big effort in research, development and demonstration, performed essentially by ENEA, CESI, Universities and ENEL Green Power (established by the largest Italian Utility for business on Renewable Energy market);
- an ambitious dissemination programme (the Italian roof-top Programme) devoted to the realization of grid connected photovoltaic systems, installed or integrated on buildings and financed and managed (with the technical support of ENEA) by the MATT (Ministry for the Environment and Land Protection) and the Italian Regions;

- a market aligned at international level and characterized by prices for specific shipments of typical photovoltaic plants ranging from 14 €/Wp for off-grid applications to 7 – 8 €/Wp for grid connected systems, depending on categories of installation and excluding VAT/sales tax.
- A condsiderable budget for photovoltaics, that during the last year has reached the sum of about 25 MEUR (5 MEUR for R&D and 20 MEUR provided by both the Ministry of Environment and the Italian Regions in the framework of the Italian Roof-Top Programme)
- a growth of the popular acceptance for this attractive technology and of the real interest of end-users, photovoltaic operators and local Utilities.

(source Italy Photovoltaic technology status and prospects S. Castello, ENEA S. Guastella, CESI, on IEA Photovoltaic Power Systems Programme website Annual 2003 Italy)

RE Policy Outlook

Targets/Strategy/Climate change

Support for renewable energy started in earnest in 1991, with Laws 9 and 10 liberalising the electricity industry and facilitating access by independent renewable electricity producers. A subsequent Directive CIP6/92, introduced in 1992, allocated premium buy-back rates for independently generated renewable electricity (paid for via a levy on electricity bills), and resulted in increased interest in grid-connected renewable electricity, especially biomass, wind and PV. Indeed, almost 35% of new capacity authorised in 1992-95 was renewables-based, due to the increased interest shown in renewables by IPPs, and partly due to the priority given to renewable plants by the Laws 9 and 10.

In April 1999, The White Paper while giving the present state of art of RES technologies indicates policies, strategies and targets as well to achieve to the 2008-2010 year; milestones for the years 2002 and 2006 are also indicated. Energy production from renewable should increase from about 11.7 to 20.3 Mtoe, while milestone values foreseen to the years 2002 and 2006 are respectively estimated in 13.9 and 15.9 of Mtoe substituted. The White Paper points out a more important role of the regions in supporting the national policies to achieving the targets by regional and local initiatives and provisions. In fact, the white paper foresees the construction of Regional and local White papers and Renewable Energy Action Plans in order to integrate the renewable energy at the local level.

The Italian government plans to double current energy production by 2010. The National Energy Plan supports several aspects of renewable development - R&D, demonstration schemes, and commercial projects. This new policy enhanced the strategic role of RES for the country in guaranteeing greater security of energy supply, reducing environmental problems, and fostering social development. In accordance with this, short-to-medium term targets have been set. .A range of provisions and regulations followed, and were inserted in laws or other specific legislative acts.

In the framework of the “2001 Financial Law” (Law 388/00), the Government has taken further steps to promote renewables through:

- financial support to District Heating fuelled with geothermal and biomass;
- reduction of the duty on production of bioethanol, ETBE and other additives from biomass;
- tax exemption on biodiesel production;
- fund creation, by setting aside 3 % of the income from the Carbon Tax;
- a specific fund for the Ministry of the Environment and Territory Protection, with €130 mover three years, for sustainable development including a greater use of RES. The government’s measures also include Law N. 112/98, which transfers competencies to regional Governments on local energy planning and RES exploitation.

The Ministry of Industry, Commerce and Handicraft (MICA) is the main body responsible for implementing Italian energy policy. Furthermore the Italian government tries to establish several voluntary agreements with industrial sectors on renewable energy programs. For instance, last year (2001) the renewable energy market received in Italy a strong impulse from the first national programs on PV roofs and solar thermal.

Electricity

Hydropower represents around 85 – 90% of Italy's RES-E production, with a total production of 41 TWh of both small-scale and large-scale hydropower stations in 2001. Electricity production from renewable energy sources other than large hydro is detailed in Figure 1. **Geothermal** electricity is the second most important RES-E source, representing 8% of the RES-E production. Worth mentioning is also the strong growth of the installed **wind** power capacity, with a factor of 270 in the period from 1990-2002, up to 785 MWe in 2002. In absolute terms the Italian wind market is however still small in size. Installed **PV** capacity grew by 600% in the same period, up to an installed capacity of 23 MWp in 2002. According to the total electricity demand the share of RES electricity in Italy increased slightly from 16%in 1997 to 16.8% in 2002.
(source COMMISSION STAFF WORKING DOCUMENT, The *share of renewable energy in the EU Country Profiles, Overview of Renewable Energy Sources in the Enlarged European Union*, **{COM(2004)366 final}** 2004)

Promotion of RES-E in Italy is based on a feed-in tariff system although a TGC system has also been introduced. Concerning the feed-in tariff, utilities pay a price consisting of avoided fuel costs and a subsidy for the higher investments RES-E generators have to make. The subsidy for higher investments is only paid for 8 years and is dependent on the source of renewable energy. The extra expenses are funded by two levies electricity consumers have to pay: the Thermo-levy and the renewable plants levy. The feed-in tariff support goes from 5.3 cents €/kWh (hydro <3 MW) to 12.5 cents €/kWh (solar PV and biomass).

In relation to the electricity produced from renewable energy sources, the Italian White Paper has set up an official target of 78 TWh/yr of electricity production. Nowadays, in order to start a renewable market in the electricity sector, the government has introduced a tradable percentage obligation (with green certificates) for producers of electricity that deliver their electricity to the grid. Those plants which have been constructed after April 1st 1999 may participate in the TGC system. A 2% obligation (for 2002) has been set on generators (>100 GWh/year) and importers to produce (or import) green electricity. Then on this base the related green electricity produced will be annually and for the first eight years labelled on request of owners. The Decree of Ministry of Industry on 11 November 1999 concerning the electricity generation from RES establishes the 2% obligation and regulates the trading of green electricity. Green certificates have values corresponding to 100 MWh (source Admire rebus)
Regulating the obligation, the decree will assure appropriate rewarded prices for "green electricity" in order to remunerate adequately higher investments required by renewable technologies not yet competitive.

The certificate system's overall target of 2% was not reached in the first full year of operation. Decree 387 of December 2003 that implements the EU Renewable Electricity Directive increased the target set for 2004-2006 by 0.35% per year.
(source COMMISSION STAFF WORKING DOCUMENT, The *share of renewable energy in the EU Country Profiles, Overview of Renewable Energy Sources in the Enlarged European Union*, **{COM(2004)366 final}** 2004)

Renewable and cogeneration producers as well as the first 100 MWh per year produced by each company are excluded from the obligation. The Italian TSO (GRTN) issues one *Green Certificate* for each 100 MWh produced each year to qualified plants. Renewable plants can no longer obtain green certificates after eight years of operation and will have to compete on the electricity market. Compliance with the annual quota will be demonstrated by presenting enough *Green Certificates* to GRTN by 31 March of the following year. Green certificates related to one year expire completely after 31 March of the following year. The GRTN may sell certificates produced at eligible RES-E plants under the former CIP6 support scheme at a fixed price and only if the market is short to prevent excessively high prices on the market. Voluntary demand for green electricity may be included in the certificate system.
(source COMMISSION STAFF WORKING DOCUMENT, The *share of renewable energy in the EU Country Profiles, Overview of Renewable Energy Sources in the Enlarged European Union*, **{COM(2004)366 final}** 2004)

45 Major PV plants will also benefit from Green certificates if their production in the year exceed 51,000 kWh, the minimum required to get GC. 16 In addition, projects receiving funding under the EU RTD programme are also guaranteed power purchase

agreements on similar terms to AER projects.

There are no additional industry initiatives yet. The Green Certificate System can be used for green electricity demand, but no green electricity products are very widespread yet at the Italian market. The Italian government tends also to issue certificates for sources that are not eligible for the obligation, to facilitate a voluntary market. It is considering giving tax reductions for consumption of green electricity.

There is a tax break of 1.03 cents € /kWh concerning the heat supplied by the district heating systems fuelled by biomass to buildings located in very severe climatic conditions (geographic areas classified E and F). In addition solar thermal benefits from, both, a reduced VAT rate (reduction rate set at 10% for systems exploiting solar energy for the heat supply to dwelling use) and a percentage deduction from taxable profits of 36% of the personal income tax for the investment costs concerning solar thermal projects in the building sector.
(Source Admire rebus June 2003 for the insertions from the table I cut)

A progressive carbon tax approved in December 1998 was inaugurated in 1999 and will be fully phased in by 2005. This new tax applies to all energy products; the existing tax structure on other fuels will be retained.Carbon Tax Rates on Fossil Fuels are as follows (in ItL):
Coal (metric tons) 1999:
5,084;Natural Gas (m3) 1999:
0.87;Fuel oil (metric ton) 1999:
1,286;Yearly increasing steps toward final 2005 values did not take place (source IEA Renewables Policy and Measures Italy)

At present incentives to the electricity production from RES are still linked to the legislative provisions of the CIP6/92 mechanism, which preceeded the TGC system, and the deliberations of Authority for electrical energy and gas concerning the electrical prices. This transitory situation will last up to 2002 due to fact that the reference framework of electricity sector is going quickly changing towards a free internal market in compliance with the legislative decree 79/99.
The legislative decree 79/99 liberalising the electricity market provides for rules supporting electricity from RES. Electricity from RES is also given priority in electricity dispatching. RES are increasingly being promoted by regions, provinces and local authorities. Incentives for RES production include investment subsidies, electricity feed-in tariffs and taxation.

Heating and cooling
Biomass heat and **solar thermal heat** show strong growth rates of 9% and 21%,respectively. As with RES-E, the contribution of **geothermal** to RES-heat is substantial, with 213 ktoe produced in 2002.
The production of **biofuels** in Italy also shows an upward trend. Average growth rate for the production of liquid biofuels since 1997 is 32% per year.
(source COMMISSION STAFF WORKING DOCUMENT, The *share of renewable energy in the EU Country Profiles, Overview of Renewable Energy Sources in the Enlarged European Union*, **{COM(2004)366 final}** 2004)

The contribution of renewables to this sector of energy market mainly can be obtained from solar thermal, low enthalpy geothermal and biomass including co-generation and district heating. The sector is not regulated as tightly as the electricity sector, however, a few of favourable measures exists, such as:

- subsidies linked to the law 10/91 and provided for by regional laws or provisions;
- deduction of 36% (provision of the recent annual financial laws) on the personal income tax for the investment costs concerning RES projects in the building sector (which is obviously very interesting for solar thermal applications);
- provision for VAT reduction set to 10% (normal value is 20%) for systems exploiting solar energy for the heat supply to dwelling use;
- a tax break of 20 Lit/kWh concerning the heat supplied by the district heating systems fuelled by biomass to buildings located in very severe climatic conditions (geographic areas classified E and F);
- setting up of specific programmes at national or regional level

According to the provisions of the Legislative Decree of 16 March 1999 (No. 79/99) entitled *Implementing the European Directive 96/92/EC with common rules for the single market of electricity*:

The GRTN (the public transmission system operator) must ensure precedence for the co-generation plants' dispatching (immediately after the plant fed by renewable sources): there is the obligation for any producer or importer handling more than 100 GWh/year to feed the system with at least 2% of CHP or renewable sources produced by plants that entered into production after 1 April 1999. From 1 January 2002, outputs from cogeneration plants are exempt from the obligation to introduce into the electricity network (or to acquire) a quantity of electricity from renewable sources equal to 2% of the electricity generated by conventional sources.

Under Law No. 9/91 and the Decree of the Prices Committee No. 6/92, the public utility ENEL purchases at avoided costs the electricity produced by renewable sources, waste and cogeneration. This regulation came to an end in 1997. Proposals for about 16 000 MW were presented but ENEL accepted only 7 200 MW, i.e. 3 700 MW of cogeneration, 1 400 MW for plants based on waste and 2 100 MW based on renewable sources. A total of 5 000 MW is already in operation; plants must be completed by 2001. Avoided costs and incentive premiums paid by consumers to producers are provided for the first eight years.
(source IEA Energy Efficiency Update sept 2003)

Transport

At present there are no relevant incentives, except an exemption of the excises provided for by Legislative Decree 504/95 and decree of Finance Ministry 219/98 on biofuel production up to the limit of 125 000 tons/year. For the future the preliminary condition for a larger use of biofuels in transport is linked to EU policy concerning biofuel products. However, the Italian contribution will be based on CIPE provisions which foresees introducing a wider use of biofuels in the public transport system starting from Municipalities with a population of over 100 000 inhabitants and also to be used mixed in with gas oil in the fuel grid and in the nautical sector.
There is a vehicle taxation in place, which is proportional to engine power.

The tax is increased for polluting vehicles and strongly reduced for low environmental impact vehicles. In 1988, energy performance monitoring in vehicle certification was set up and is being progressively implemented. To combat the weak rail infrastructure, the Italian government has introduced a complex investment plan. (IEA Energy Efficiency Update 2003)

Research and Development
R&D is the second main thrust for stimulating renewable deployment and penetration, and is concentrated on PV and wind. ENEA and ENEL are the main bodies responsible for implementing R&D policy. In 1996, almost 15% of the total 43.7 M USD Government funds available for R&D were allocated to renewable energy directly, (**sources to be updated)** although total funding could be higher as some indirect funding could be available through R&D funds for cross-cutting activities. However, budgetary constraints meant that total energy R&D (including renewables) was 6% lower than in the previous year.

(Source IEA 2003: National Budget RD&D in OECD Countries – Italy 1980-2002, OECD, IEA)

3. RE Highlights

Italy — Wind energy
Because of its location, in the closed Mediterranean, Italy's wind resources are not as abundant as those in some other parts of Europe. Nevertheless, there is still potential, especially in the Apennines Mountains above about 1 000 m, and in other locations in southern Italy. Since the latter half of the 1990s, the Italian Vento Power Corporation (IVPC) has been active in developing a series of wind energy projects in southern Italy. IVPC linked with foreign trading partners, already involved in other wind projects around Europe, to obtain financial support for its venture. The company has now constructed wind farms at five sites, with further expansion expected. Total installed capacity is now almost 400 MW. One of the most difficult and expensive aspects of establishing wind energy schemes in Italy can be arranging grid connections. In some regions, the existing grid infrastructure is poor (as is the case in southern Italy), and it is expensive to upgrade the grid sufficiently for it to be able to accept power from the new wind farm. In such cases, developers like IVPC often have to contribute substantially towards the connection costs of the grid operator. In addition, obtaining permission to construct can be very lengthy — up to two years — because of the large number of permits that may be needed and a lack of clarity over the conditions that the project needs to meet.

Success factors:
• Political: Enhanced political support for renewable energy is boosting opportunities for wind energy developments
. Nationally, new aims for wind energy uptake are identified as 700 MW by 2002, doubling to 1 400 MW by 2006.

• Legislative: Premium-set tariffs combined with an obligation to purchase provide a stable, commercially favourable market for renewable electricity producers
A tariff system was established in 1992. The grid operator is obliged to purchase all electricity from renewable sources, at an agreed premium rate for the first eight years of electricity production, and at guaranteed minimum rates for the remainder of the project's life. The IVPC wind farms typically have a 15-year contract with the grid operator, which provides a premium payment for electricity output during the first eight years at ITL 202.4/kWh (EUR 0.105/kWh), after which the rate drops by about half. Early tariff structures were complex and provided different rates for different energy sources and different times of day. Since 1992 these tariff structures have been progressively revised and simplified. In general, feed-in tariffs consist of a supplement towards the avoided costs and the higher investment costs of renewable generation compared with power from conventional sources, and apply for the first eight years

• Fiscal: Some support available to renewable energy projects
Investment in wind energy (as well as in photovoltaics power) benefits from a 10% discount on value added tax. Investment in poorer southern regions in Italy benefits from 10-year corporation tax breaks. Funds for the financial support of renewable energy are now collected via a new carbon dioxide tax, approved in 1998. Over EUR 1.6 million were expected to be available in the first year.

Regional or local best practice
The experiences of Rome:
In Roma, the local energy agency "ROMAENERGIA" aims to set up a framework of political commitments and programmes so as to mobilise the city's operational and financial resources towards achieving sustainable development. The Agency acts as a technical consultant for projects submitted under Call for Proposals launched by the Italian Ministry for the Environment or by the Latium Region. These proposals concern two areas: PV roofs and solar thermal. The projects, developed throughout the city and its surroundings, are part of the national 'Photovoltaic Roofs' and 'Solar Thermal' programmes. These programmes are developed by the Italian Ministry for the Environment and by the Latium Region.

Financial Support
The 'Photovoltaic Roofs' Programme makes financial contributions available up to 75% of investment costs, whereas grants under the 'Solar Termal' Programme are limited to 30%.

Details
In the **'Photovoltaic Roofs' Programme**, the nominal capacity of each installation ranges between 1 and 20 kWp and the photovoltaic systems are connected to the low voltage mains. Projects approved include those for schools, pulibc street lighting and a greenhouse.

The **'Solar Thermal Programme'** consists of three projects developed for public sports centres owned by the City of Roma. In these projects, thermal energy is used to produce domestic hot water and to heat the pools of the centres.

Solar energy has not yet succeeded in penetrating the energy market in Roma. But if all the projects under two prgrammes are carried through in the next two years, this would mean a real take-off. For the Municipality of Rome, ROMAENERGIA is an indispensable tool in implementing the city's political commitments and solar programme, especially the new Environmental Action Plan for Energy, adopted by the Municipality on last 15th July. "ROMAENERGIA" is also engaged in providing seminars and workshops, training courses for designers and installers and technical advice.

4. Websites

Name	Description	Website
Ministry of Industry, Commerce and Handicrafts	Main body responsible for implementing national energy policy	http://www.minindustria.it/
ENEA	Italian Agency for new technologies, energy and environment and has the capacity to conduct and promote RTD&D project in energy field.	**www.enea.it**