# Chapter 13

# ISES-ITALIA Section of the International Solar Energy Society (1980 – 2004)

by
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## Abstract

This chapter recounts the history of the Italian Section of ISES from 1980 to 2004. The first phase, steered by Vittorio Storelli, who founded the Section in 1964, began to draw to an end in 1978, when major energy agencies like ENI and ENEL became members. Corrado Corvi was elected president in 1981 and served until 1998. This was a period rich in initiatives that broadened the Section's scope of action to include other renewable sources (e.g., biomass and wind energy) and energy conservation and encouraged the nation's major research and energy institutions to become more and more involved in the Section's activities. The 1987 referendum that halted the development of nuclear energy in Italy made the Section's potential role still more evident. However, nuclear power was abandoned at a time when solar energy seemed unable to live up to expectations and oil prices were falling. Preparations for the Earth Summit in Rio de Janeiro and the ISES 2000 program promoted by Michael Nicklas relaunched the Section's activities. On the occasion of the Earth Summit, the Section organized a solar art exhibition in Rome that had no parallel anywhere in the world. In 1998, Vincenzo Naso was elected president of ISES ITALIA, the Section's official name since 1995. Naso's presidency came at a time when the renewables market was growing and new associations, magazines, conferences, and trade fairs devot-

ed to the various renewables sectors were multiplying. It was also the time when the Internet began to boom. ISES ITALIA kept up to date, changing again so as to remain among Italy's principal cultural, scientific, and technological reference points for solar energy and renewables. From 1980 to 2004, ISES ITALIA contributed to ISES under the presidencies of Corrado Corvi (1987–1989) and Cesare Silvi (1999–2001).

## 13.1 The Italian Section's Transformation and the End of the Nuclear Option in Italy

### 13.1.1 The role of the major energy and research organizations in the '80s

For the Italian Section of ISES, 1981 began under the best auspices. The major energy agencies, persuaded by the 1973 oil shock to look more closely at solar energy, were already taking an active part in the Section's programs. ENEL, the national electric utility, was represented by the head of its research department, Corrado Corvi, who had been serving as the Section's vice president since 1979. Corvi, an engineer, brought to the Italian Section, not only his experience in the power industry, but above all the weight of a national utility that had begun to take a concrete interest in solar energy. ENEL was designing and building large-scale research-and-demonstration projects, and at the end of 1980 had successfully completed construction of the Eurelios, a central receiver power plant in Adrano, Sicily (Fig. 1).

Fig. 1a

Fig. 1a, b: Two views of the 1 MW Eurelios power plant at Adrano, Sicily. The central boiler rises above a field of mirrors. This was the world's first example of solar kWhs being fed into a national electricity grid. The project was undertaken jointly by ENEL and the European Economic Community (Photo ENEL).

Fig. 1b

The Section was thus entering a period of far-reaching changes. The small group, which, under Vittorio Storelli's leadership, had created the Italian Section of SES in 1964, was made up mainly of people who had a strong interest in the solar sector but for the most part worked individually. Though the original members were known as highly qualified scientists and engineers, their work received little recognition, sometimes even within their own academic and research institutions. The inflow of new members from the major energy agencies and research organizations, especially from the mid-'70s on, laid the foundations for a sweeping transformation of the Italian Section.

On May 20, 1981, just after the Eurelios plant's successful connection to the national grid (on April 14th), Corrado Corvi was unanimously elected president of the Section (Fig. 2), and Vittorio Storelli was elected honorary president. At the same meeting, the members decided to move the Section's headquarters from Naples to Rome, at Viale Liegi 10.

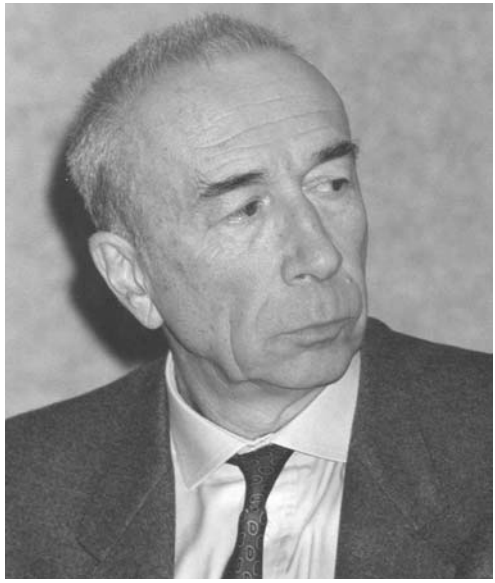

Fig. 2: Corrado Corvi

The programs of the National Nuclear Energy Committee (CNEN) were still being revised that year. The renewable energy program was broadened, and in March 1982 CNEN's name was changed to ENEA, an acronym standing for National Committee for Research and Development of Nuclear Energy and Alternative Energies. This created another reference point for the development of solar energy, in addition to the National Research Council (CNR) whose "Targeted Energy Project 1," running since the early '70s, included a large part devoted to solar energy.

1981 was also the year when the effects of the action program adopted at the UN's Nairobi conference on new and renewable energies began to be felt in Italy. The program's goal was to raise the share of renewables in global energy consumption from 15% to 25% by 2000, above all through actions in the developing countries, where prospects for the development of renewables seemed greatest.

Italy, too, budgeted large financial resources for projects in the developing countries. Feasibility studies and demonstration plants were financed in Africa, Asia, and Latin America. Education and training projects were conducted through SIES (International School for Solar Energy and Renewable Energy Sources), an organization created in 1979 on the initiative and under the sponsorship of the Foreign Affairs and Industry Ministries. Corrado Corvi established close collaboration with SIES and sat on its board.

In this climate of growing interest in solar energy, Corvi launched a wide-ranging proselytism program addressed to energy industries, electricity generation and distribution companies, energy research centers and universities, political and economic institutions that set energy policy, and to the vast public that was beginning to be concerned about the issues of environmental protection and sustainable development.

In 1982, the state energy agencies, in particular ENEA and ENEL, encouraged dozens of their experts and researchers to join the Section. Membership grew from around 300 in 1980 to over 450. The presidents of ENEL and ENEA, Francesco Corbellini and Umberto Colombo, respectively, were brought onto the board as honorary members.

The Section's organization was upgraded in multiple directions. In the first place, the by-laws were changed so as to better define the roles and tasks of the various boards. On the operational plane, working committees were created on the pattern of what had been the Section's consulting committees. The first committee to develop a work program in 1982 was the one on passive solar energy, headed by Sergio Los; the others soon followed suit. By 1984 there were nine working committees, on energy storage, renewable

energies in agriculture, bioclimatic architecture, solar thermal components and systems, photovoltaics, regulations, energy saving, wind energy, and mini/micro-hydro plants (the latter two fields had been added to the original list covered by the consulting committees).

The committees became the pillars of the Italian Section's activities. Bringing together the know-how existing in Italy in each sector, they organized numerous conferences, workshops, and other events, both national and international, that drew representatives of the government and leaders of the economic and industrial world. Some, like the October 1982 wind energy conference in Sardinia, received considerable press and TV coverage, which helped to make the Section better known. The most active committees were the ones on wind energy, heat pumps, and bioclimatic architecture.

Section members employed with ENEL, ENEA, ENI, the CNR, the universities, manufacturers, professional firms, and industry associations all participated in the committees' activities. Their involvement strengthened the Section's image as an important reference for all forms of solar energy, both direct and indirect (wind, biomass, hydro), and as a venue where people operating in different sectors could share information and experiences.

Principal conferences organized by the Italian Section from 1982 to 1985:

- October 1982, the Bioclimatic Architecture Committee, headed by Sergio Los, met for the first time at SAIE2, a trade fair on the construction industry, in Milan.
- Feb. 24–25, 1983, the Section held the first Italian conference on wind energy, in Cagliari, Sardinia, titled "Wind Energy: Availability and Prospects for Use in Sardinia;" the CNR, ENEL, ENEA and the nascent wind-industry concerns took part, and the event drew an audience of 400.
- February 1984, the Section organized a conference at the university of Rome on "Italian Achievements and Programs in the Renewable Sources Sector"; the speakers included the ministers of Research and Industry as well as senior representatives of energy and research agencies. Later that year a conference was held on "Heat Pumps: Possibilities and Prospects."
- Nov. 7-8, 1985, the Bioclimatic Committee organized a conference in Trieste titled "The City of the Sun," on the use of renewables in city planning (Fig. 3).
- Dec. 13, 1985, the ISES Day on "Heat Pumps in the Hotel Sector" was held in Rimini.


Fig. 3: Cover of the Proceedings of the 1985 "The City of the Sun" conference organized in Trieste by the Italian Section's Bioclimatic Committee

Other initiatives of the Section during this period included the establishment of cash prizes for outstanding dissertations; ENEL-ISES awards for companies that had distinguished themselves in building successful solar systems, in particular in the framework of the campaign promoted by ENEL to install 100,000 square meters of solar water-heaters; and ENEA-ISES student internships at ENEA laboratories and research centers. In 1988, the Section instituted the ISES journalism prize for outstanding contributions to the promotion of renewable sources and energy saving; the awards went to Piero Bianucci for the press, the magazine *Geodes*, Silvana Bevione of *Panorama*, Stefano Marcello of *Channel 2 News* and Elena Scoti of *Radio 3 News*.

In addition, the Section started publishing a series of books that brought together the views of the national energy and research agencies (ENEA, ENEL, CNR) and those of industry, and were aimed primarily at policy-makers. One of the first to appear, in 1987, was a glossary of wind-industry terms. It was followed in 1990 by the first edition of the *Wind Energy Manual*, the result of collaboration between technicians and writers. In the following years the Section brought out manuals in other sectors as well, from photovoltaics to solar architecture; these manuals were the Section's most widely circulated publications.

In 1983 the Italian Section joined the European Wind Energy Association (EWEA). Partly because the wind energy committee was an especially active group, the Section then undertook the organization of the first meeting with foreign experts at the ENEA's Casaccia Research Center, near Rome. The

European Wind Energy Conference was held in October of 1986, under the auspices of the EEC and EWEA; the proceedings were opened by Italy's Industry Minister and closed by the Minister of Scientific Research. William Beckman, the president of ISES, and Wal Read, the secretary, were among the participants.

These developments also helped raise the Section's visibility in ISES. At the world conference on solar energy held in Perth in August 1983, the Italians presented 23 technical papers, and Corvi was appointed to the board of directors. From 1985 on, as the Section's membership grew, it was awarded two seats on the ISES board. Maurizio Cumo, who represented ENEA on the Section's board, was chosen as the second Italian representative on the ISES board. Partly in light of the Italian Section's growing participation in ISES activities, Corvi was elected president of ISES for 1987–89; his term began on the occasion of the ISES congress in Hamburg.

Corvi was the first European to hold this office. In the speech he gave at the beginning of his term, he emphasized the importance of involving energy industry operators in the activities of all of the ISES Sections, side by side with the academic institutions and research centers. As president of ISES, Corvi described the Society's role in lectures at M.I.T. in Cambridge, Massachusetts, USA (1987) and the United Nations headquarters in New York (1988).

### 13.1.2 The Section's reaction to disappointments with solar energy and the end of nuclear power in Italy

From 1973 to 1986, the Italian Section benefited from the attention that solar energy had begun to draw from major government agencies and institutions. Large investments in human and other resources had led a great many people to become interested in solar energy. Strong mobilization after the oil shock of '73 had encouraged many new initiatives aimed at energy conservation and efficiency, and at the use of solar energy. Besides the large-scale demonstration and research projects undertaken by ENI, ENEA, and CNR, and accompanied by a long series of technical and educational publications, private enterprise was getting into the game. By 1980 there were some forty manufacturers of thermal solar collectors in Italy; more than a dozen had the capacity to turn out over 1,000 square meters per month. In 1983 Italy had three major photovoltaic companies. Two of them were state-owned: Ansaldo, a large engineering company that was part of the IRI-Finmeccanica

group, with a 300 kW/year manufacturing capacity, and Pragma from ENI Group with 1.5 MW/year capacity. The third, privately owned, was Helios Technology, operating under license from the American company SOLEC. As to energy conservation, in the early '80s FIAT, Italy's largest auto-maker, installed some 2,000 TOTEMs—small units for coproduction of electricity and heat—for consumers in the residential, industrial, and service sectors. There were likewise many projects based on biomass and wind energy.

Nonetheless, after ten or fifteen years of efforts and developments, solar energy began to be perceived as a sector tainted by failure. This perception was fueled by the results of various demonstration projects, both large and small, in Italy and elsewhere.

ENEL's large-scale Eurelios solar central receiver power plant was run on an experimental basis from May 1981 to December 1985. Its capacity to operate in parallel with an electricity grid was demonstrated, but Eurelios—technologically sophisticated and complicated to operate and keep in good repair—generated only a small amount of electricity per installed kW. ENEL judged the results decidedly negative and concluded that "tower and mirror-field solar plants will not have significant applications even in the medium and long term."

These results were compared with and found similar to those of other plants around the world, such as Themis in France, Nio in Japan, and Barstow in the United States.

ENEL's 1981 campaign to promote the installation of 100,000 square meters of solar water-heaters likewise had disappointing results.

Even some positive results from programs conducted in those years by ENEL and other agencies, universities, and companies were overlooked, also by people who were initially enthusiastic about solar energy and committed to its development. Some programs were soon forgotten, as were some valuable publications of that day, such as Aurelio Robotti's *Solar Energy and Hydrogen: Introduction to a New Energy System* (UTET, 1982), which featured a photo of the Eurelios plant on its cover.

A comment by Lucio Businaro, then manager at Fiat's industrial research center, one of Italy's largest, gives a good idea of the prevailing state of mind regarding solar energy one year after the Chernobyl accident. According to Businaro:

> The history of solar energy is a history of failure. This doesn't mean that the attempt to exploit solar energy in the grand style is at an end. Research continues on various fronts, though with less fanfare

> than in the last decade. Nonetheless, it's safe to say that there's been a failure. Certainly it was mistaken to perceive solar energy as just around the corner. Many people realized right away that its supposed simplicity was false. However, many people were under the illusion that large investments could shorten the amount of time needed to go from research to market. But this turned out not to be so. Like any other complex technology, solar energy will take decades before it can count as a significant percentage of energy sources.

This opinion was gaining sway just when the use of nuclear energy was ending in Italy. The Chernobyl accident had rekindled the debate between advocates and opponents of nuclear power. The antinuclear front broadened in the space of a few months and succeeded in persuading the courts to require a national referendum on whether to continue or stop Italy's nuclear programs. The vote was held on Nov. 8–9, 1987, and 75% of those who voted (65% of the electorate) came out against nuclear energy (at least that is how the outcome was interpreted). The three nuclear power plants then operating were shut down, the construction of new plants was halted, and the National Energy Plan (PEN) had to be rewritten, omitting nuclear energy.

For the first time ever, protection of the environment became a concern of the Italian energy policy, on equal footing with energy supply security. This could have been an excellent occasion for proposing wider use of solar energy, instead of the 1988 PEN, which proposed to protect the environment by massive use of natural gas and clean coal technology. Solar energy was given some space too, but—because of the fall in oil prices and the disappointing results of the solar research and testing projects conducted in the previous ten or fifteen years—its contribution was judged far smaller than the expectations of the early '70s. By the end of 2000, according to the 1988 plan, Italy would have installed 4,500 MW of hydroelectric plants, 1,500 MW generated by geothermal energy, 300–600 MW by wind energy, 25 MWe by photovoltaic plants, 2.5 MTOE by biomass, plus 2 million square meters of solar heating panels.

Regarding photovoltaics, in 1988 the Section and the European Community jointly organized the 8th European Conference on Photovoltaic Solar Energy; the event was held in Florence from May 9 to 13, and drew 500 participants. For Italy it was an important occasion that strengthened the nation's commitment for the photovoltaic programs set forth in the PEN. Because of that commitment, at the beginning of the '90s Italy led the rest of

Europe in the photovoltaic sector, in terms of installed power (25 MWe) and in the large variety of plants built, including several ranging from hundreds of kW to MWs, like Serre (Fig. 4).

Fig. 4: The 3.3 MW photovoltaic plant at Serre, near Salerno, built by ENEL and operating since 1993. It is still among the largest photovoltaic plants operating in Europe (Photo ENEL)

Among the more significant renewable-energy programs figuring in the 1988 PEN was ENEL's wind-power project, which envisaged building two 10 MW plants between 1989 and 1993, one in Sardinia and the other in Abruzzi.

The years following the Chernobyl accident were also the years in which many engineers who had been working on nuclear power at large energy agencies and industrial concerns were reconverted to the solar energy sector, and many of them were collaborating actively with the Italian Section of ISES.

## 13.2 The Italian Section's Activities in the '90s

### 13.2.1 The ISES World Solar Congress in Denver, 1991, and the relaunch of the Italian Section's activities

In August 1991, Corrado Corvi, president of the Italian Section; Cesare Silvi of ENEA, the Section's recently appointed Secretary; and Roberto Vigotti of ENEL, attended the World Solar Energy Congress organized by ISES in Denver.

The vice president of ISES, Michael Nicklas, presented the work of the ISES/UNCED (UN Conference on Energy and Development) committee created in September 1990 to build broad support for the Earth Summit to be held in Rio the next year. The meeting also examined the ISES 2000 program, a momentous plan for transforming the association during the next decade.

The Italian Section, under the leadership of Corrado Corvi and Cesare Silvi, also launched several initiatives on both the national and international levels. Conferences multiplied, the range of publications increased in quality

and number, and new programs were added to enlarge the field of action and thereby strengthen the Section's presence outside the traditional scientific and technological spheres, the aim being to arouse greater interest in the public at large.

In February 1990, the Italian Section gave its full support to the creation of a secretariat serving all the national ISES groups in Europe. This was an idea that Leslie Jesch had been promoting for years, partly through his work as editor of the magazine *Sun at Work in Europe*. This proposal had already been circulated back in 1977 by Vittorio Storelli, then secretary of the Italian Section, in a letter to president Morse of ISES; the purpose was to promote closer collaboration among all the ISES Sections around the world. At the 3rd European Solar Summit, organized by the Italian Section and held in Rome on Jan. 25–26, 1991, ISES Europe, the umbrella organization for all the European Sections, finally came into existence. The European Sections had increasingly felt the need for an organization of this kind that would enable them to respond better to the far-reaching changes occurring across the continent: the prospects opened up by the Single European Market, the opening of the economies of the former USSR and the central and eastern European countries, the growing interdependence of Europe and the Mediterranean and Middle Eastern regions. The twelve Sections present at the Rome meeting agreed on the operating rules of ISES Europe and elected the first officers—Corrado Corvi as president, Leslie Jesch as vice president, and Cesare Silvi as secretary—for a two-year term, during which the ISES Europe office was hosted free of charge by the Italian Section.

The Italian Section's contributions to the preparations for the Earth Summit included organizing one of the four international round tables envisaged by the ISES/UNCED program on "Economic, Social and Political Aspects of Renewable Sources in the Industrialized Countries." The meeting, held in Rome, on Oct. 30–31, 1991, was attended by 200 experts representing sixteen national ISES Sections. Adolf Goetzberger, President of ISES and Michael Nicklas, Vice President of ISES, participated in the meeting (Fig. 5). The conclusion that emerged was that the use of renewables in the industrialized countries was not only a technological problem; above all it would require a radical change in the political sphere (national energy planning), in the economic sphere (assessment of the overall costs related to the whole cycle of the various energy technologies), and in cultural values. The need for change in cultural values was a subject about which the Italian Section was especially sensitive and had promoted a singular initiative – given the association's technical-scientific character—in view of the upcoming Earth Summit.


Fig. 5: L to R: Michael Nicklas (vice president of ISES and chair of the ISES/UNCED Program), Maurizio Cumo (ISES board member), Corrado Corvi (president of the Italian Section and ISES board member) and Adolf Goetzberger (president of ISES) (Photo ISES ITALIA)

In August 1991, at the ISES World Congress in Denver, Michael Nicklas had introduced Cesare Silvi to the American solar artist Peter Erskine. Less than a year later, on March 21, 1992—shortly before the Earth Summit and on the date of the spring solstice—Erskine's solar art exhibition, "Secrets of the Sun - Millennial Meditations," opened at Trajan's Markets in Rome: a unique event in a unique venue (Fig. 6). The exhibition was promoted and organized in a matter of months through the joint efforts of the artist, the Italian Section of ISES, and the City of Rome's Culture Department, and with a $300,000 grant from the Frederick R. Weisman Art Foundation.

Fig. 6: Opening ceremony of the solar artwork exhibition, "Secrets of the Sun," at Trajan's Markets in Rome, March 21, 1992, at 12 noon. L to R: Cesare Silvi, secretary of the Italian Section; Frederick R. Weisman of the Frederick R. Weisman Art Foundation; Peter Erskine, solar sculptor; Corrado Corvi, president of the Italian Section; and Paolo Battistuzzi, Councillor for Cultural Affairs, City of Rome

In the prestigious setting of Trajan's Markets, an imposing structure still standing above the ancient Roman forums after 2,000 years, Erskine installed a huge heliostat, four mirrors, prisms, and a series of other technologically sophisticated systems he used to manipulate the sunlight entering the building (Fig. 7) and to project the colors of the solar spectrum on the ancient walls and on the marble fragments, producing an impressive symbiosis of technology, science, art, architecture, history, and archeology.

Fig. 7: The heliostat in the "Secrets of the Sun" exhibition installed at the center of Trajan's Markets in Rome, 1992, powered by photovoltaic modules visible in the foreground

Before this event, the Italian Section had focused essentially on the technical and scientific aspects of solar energy. With the efforts put into staging "Secrets of the Sun," the Section intended to underline the importance it attributed to the cultural factors that, in an era of great technological progress, might constitute a far more difficult obstacle on the path to achieve widespread use of solar technologies. The exhibition was also intended to help spread this important message—more and more shared by the entire international solar energy community—to the UN Conference to be held three months later in Rio, where Cesare Silvi was to represent the Italian Section of ISES.

Before and after the 1992 Earth Summit in Rio, there was a great mobilization in Italy for solar energy. Together with ISES's activism, it had impor-

tant repercussions on the Section's activities, which expanded significantly in the following years.

In 1991, the structure of the magazine *HTE* was renovated. To address a wider readership, including people in local and national government, *HTE* added articles for the general public as well as technical and scientific readers, and a review of Italian and European Community legislation and regulations. In addition to the work of Section staff, Gabriella Manazza, as editor, ensured the ongoing publication of the magazine.

In 1994 the Section started delivering a monthly newsletter called *Ilsolea360gradi* (*The Sun at 360°*), designed by Cesare Silvi with useful suggestions from Michael Nicklas. The title was chosen to indicate that the newsletter would treat all the aspects of solar energy—science, technology, environment, economics, politics, legislation, culture—and also as a takeoff on the name of the Italian business daily, *IlSole24Ore*, the local parallel to the *Wall Street Journal*. Silvi was appointed editor-in-chief. Starting in 1995, Leonardo Berlen's commitment was decisive for the newsletter's growth.

The Section continued to publish the proceedings of the numerous conferences it organized, as well as books on specific subjects. From the late '80s to 1998, the Section delivered over sixty publications. A series that met with great success was the set of manuals intended mainly for decision-makers; these were produced by the Section itself, with important contributions, especially from Roberto Vigotti and Giuseppe Montesano of ENEL and Francesco Vivoli of ENEA, and collaboration from professional scientific and technical writers.

Selected publications of the Italian Section from 1990 to 1998:
(Italian titles translated into English)

*Wind for Energy: Prospects of Wind Energy in Italy*, 1990. The 1990 edition sold out and a new one was published in 1995.

*Energy From the Sun: Prospects for Photovoltaic Energy in Italy*, 1992.

S*ecrets of the Sun: Millennial Meditations I*, 1992 (catalogue of Peter Erskine's solar art exhibition).

*Social Costs of Electricity Service for the Italian System: Environmental Impact of Polluting Emissions*, 1993.

*Build With the Sun: A Look at the Past to Design the Future*, 1995.

*State of the Art of New and Renewable Energy Sources*, 1996.

*Overall Costs of Generating Electricity for the Italian System* (a study by the NOMISMA research institute), 1998.

From the start of the 1990s, solar energy conferences, study days, and workshops were held throughout Italy, with varying levels of participation by the Section. The success of these initiatives was due in large part to the Section's working committees on bioclimatic architecture, wind energy, biomass, photovoltaic energy, air conditioning, and sound energy use. The original (1981) set of committees had been revised, and one of their tasks was to describe the state of the art in each sector, from research and development to the dissemination of information to the public at large.

Selected conferences and workshops organized by the Italian Section from 1989 to 1998 are given below:

*Technology Development and Research in the Wind Sector in Italy*, Milan, October 1989.
*The Italian Wind Industry*, Taranto, November 1990.
*International Conference on the Evolution of External Perimetral Components in Bioclimatic Architecture*, April 1990.
*Photovoltaic Plants Connected to the Grid*, Monte Aquilone, May 1991.
*Examples of Bioclimatic Architecture Designed Under EEC and Italian Programs*, Milan, May 1991.
Wind Energy: Models, Tools and Resources for the Italian System, Bologna, June 1991.
*Seasonal Storage of Heat Energy for Air-Conditioning in Buildings*, Milan, June 1991.
*Innovation in Hotel Air-Conditioning*, Genoa, November 1991.
*Renewable Sources and Sound Energy Use in the Italian Highway System*, Rome, November 1991.
*Renewable Energy Policy in Italy: Social, Economic and Legislative Aspects*, Turin, October 1993.
*Energy From the Wind: Technological and Economic Aspects*, Bari, June 1994, with a visit to one of Italy's first wind-powered generating plants.
*Public and Private Construction: Renewable Sources, New Technologies and Innovative Materials*, Lecce, October 1994.
*Renewable Energies: Architecture and Territory*, Rome, October 1994.
*Energy Efficiency in School Buildings*, Milan, December 1994.
*Sun in the City: Opportunities for Active and Passive Solar Energy and Photovoltaic Systems*, Milan, March 1995.
*Wind Energy from Idea to Market*, Rome, May 1995.
*Engineers of New and Renewable Energy Sources*, Rome, May 1995.
*Sound Use of Solar Energy in Hospitals*, Bologna, December 1995.

*Integration of Wind-Powered Generating Plants in the Environment and Electrical Systems*, Rome 1996 (organized in collaboration with the EU and EWEA).

*Photovoltaic Applications for Civil and Rural Use in Italian Municipalities, Gubbio*, June 1997.

*Series of seminars on Solar Architecture and City Planning*, March-October 1998.

It should be noted that the committees' activities strengthened the bonds among the participating experts and perhaps encouraged members to promote or join other initiatives, stimulated in part by the growth of the biomass, solar thermal, solar photovoltaic, and wind sectors.

Another facet developed more systematically in those years was education and training. To promote solar education in Italian high schools, in 1996 the Section organized a program called "1000 Photovoltaic Cells for 100 Schools," in collaboration with the Astronomy Education Center run by the city of Modena's Planetarium. Over the span of four years, a hundred schools were involved. Each school was given ten photovoltaic cells, donated by the company Eurosolare, with which to carry out experimental activities based on guidelines supplied by the Section. The program was repeated until funding ran out in 2000.

In higher education, the first advanced course in ecosystemic architecture for undergraduates and postgrads was held from March to June of 1996. In the following years this activity was expanded with courses on solar architecture and city planning: The Use of Renewable Energies in Buildings; master's degrees organized in collaboration with the Rome University engineering faculty's mechanics department; and numerous courses, coordinated by Patricia Ferro, on the integration of photovoltaic and solar thermal systems in architecture.

1994 was an important year for development of the Section's communication and information activities. The Section created its first link to the Internet, due partly to encouragement from the ISES 2000 program, which aimed to develop an electronic communication network to make information exchange between the head office of ISES and the national Sections easier and faster. In July 1995, the Italian Section put its first home page on the ISES web site, at www.ises.org/Italy/; and in September 1997 activated its own domain (www.isesitalia.it). The Internet's growth in Italy also boosted the circulation of information among the Section's members to levels never before seen.

### 13.2.2 The Italian Section of ISES becomes ISES ITALIA. Associations operating in the renewables sector multiply. The importance of solar culture.

The idea of forming an Italian association that would be something more than simply a Section of ISES began to gain ground in 1993, when it was decided to distinguish between "national members" and "international members," the latter having been the only kind envisaged up till then. The name ISES ITALIA was officially adopted on Sept. 22, 1995. The category of "national members" was introduced to accommodate members who were not interested in receiving services from ISES, only from the Italian association. In October 1997, ISES ITALIA was awarded legal recognition by the Ministry of Scientific and Technological Research.

Legal recognition strengthened the association's image at the national level, including in its relations with national institutions. In parallel, however, the number of associations operating in the renewables sector was growing. ITABIA (Italian Biomass Association) was created in 1985, Assolterm (Italian Solar Thermal Association) in 1997, APER (Association of Renewable Energy Producers) and GIFI (Italian Photovoltaic Industries Group) in 1999, and ANEV (National Wind Energy Association) in 2002. The creation of these associations reflected the growing interest of enterprises operating in the individual sectors, stimulated in particular by government incentives for applications of the various technologies, such as the "10,000 Photovoltaic Roofs" program launched in 1999.

The multiplication of renewable-energies associations was accompanied by the multiplication of publishing initiatives. In the years from 1999 to 2003 new periodicals appeared, including *Fotovoltaici*, *Energia Blu*, *Energie Alternative*, *Energia dal Sole*, *Quale Energia*, *Pianeta Terr*a, and *Nuova Energia*; some were mainly trade publications, others dealt with policy issues.

In 1997 ISES ITALIA brought out a new quarterly called *Quaderni del Sole—Energie rinnovabili e sviluppo sostenibile* (Notebooks of the Sun—Renewable Energies and Sustainable Development), sponsored by ENEL, ENEA and the Industry Ministry, and with Roberto Vigotti as editor-in-chief. After six issues, publication was suspended in 1998 for lack of funds. Issue 4 was presented at the first Conference on Renewable Energy Sources, organized by ENEA and held in Naples on June 4–5, 1997. The Section's intent in publishing the Quaderni was to have a journal in which to treat the principal aspects of renewable-energy policy in Italy, taking up the line of its prede-

cessor *HTE* (in 1996, after the 102nd issue, *HTE* was dropped for financial reasons).

In 1998 ISES ITALIA started publishing a Renewable Sources Observatory on its web site. The idea was to create an electronic support for disseminating knowledge on the use of renewables in Italy by building a database on installed facilities (9,000 when the Observatory started) and operators. Among other things, the Observatory contained lists of legislation on renewables and EU R&D programs.

These and other initiatives launched in the late 1990s were all aimed at strengthening ISES ITALIA's capacity to remain an essential reference point for renewables—an objective that the association has always pursued with determination, both during Corrado Corvi's presidency and since Vincenzo Naso's election in 1998. Naso, who teaches special energy systems at Rome University's Engineering Faculty, involved dozens of young engineers in the association's activities. Their contributions took various forms, not only in training and information, but also in carrying out sizeable projects covering topics such as: integration of renewables in natural parks, hydrogen from renewables, promotion of professional skills of eco-energy managers aimed at promoting renewables at the local level and encourage small and medium enterprises to work on solar applications.

On the international level, the Section's contribution to ISES during those years was manifest in Corrado Corvi and Cesare Silvi's participation in board activities. Since the Denver conference in 1991, Silvi had continued to collaborate with ISES; one of his assignments was to head the Communications and Media Committee. In 1995, on the occasion of the first ISES World Congress on Solar Energy ever held in Africa, specifically in Harare, Silvi—then head of the Italian Agency for the Promotion of European Research—was brought officially onto the ISES board. In this capacity he took an active part in carrying out the ISES 2000 program, and as of 1997 he headed the ISES committee on restructuring the membership and publications.

Silvi was elected president of ISES for the 1999–2001 term. A high point of his mandate came in September 2000, when he presided over the Millennium Solar Forum organized by ISES in Mexico City. This was an extraordinary world event marking the arrival of the new millennium, and Silvi wanted to distinguish it with special attention to the themes of solar culture, history, and art.

Silvi's presidency also had positive repercussions on collaboration between ISES and ISES ITALIA. Many initiatives were launched and completed.

In June 1999, Roland Winston held a seminar on nonimaging optics at Rome University's Engineering Faculty. In June 2000 a solar art exhibition, called "New Light on Rome" and promoted by ISES ITALIA, was held again at Trajan's Markets and other historical buildings in Rome. The exhibition inspired ISES ITALIA and the State Superintendence of Archaeological Monuments in Rome to start "Solar Energy by studying Ancient Architecture" and "Arte e Tecnologie Solari" (Solar Art and Solar Technologies), an educational laboratory for schoolchildren held at archaeological sites. The Italian edition of John Perlin's book *From Space to Earth*, on the history of photovoltaics came out in October 2000 under the auspices of ISES ITALIA. In December 2000, the scientific-technical conference on solar thermal and photovoltaic concentration technology, organized by ISES ITALIA in the framework of the Solarexpo trade fair, was attended by the world's major experts. By chance, the conference had been planned for a date that came barely three weeks after Nobel laureate and ENEA President Carlo Rubbia's announcement of a grand solar thermodynamic project of ENEA's. This fact helped draw a numerous and highly qualified audience to the conference.

In the same period, the groundwork was laid for ISES Europe's fourth biannual EuroSun conference, in Bologna, which was to focus on renewable energies for local communities in Europe and preparations for Rio+10, the U.N.'s Johannesburg summit. EuroSun 2002 drew 350 participants, most of them from northern and central Europe. Another initiative was decided on during ISES Executive Director Burkhard Holder's visit to Rome: the organization in Italy of a summer academy of solar architecture, similar to the one already being held in Freiburg but devoted to the Mediterranean area, hence the name Summer Academy of Mediterranean Solar Architecture (SAMSA).

The following photos (Fig. 8, 9, 10, 11) illustrate some of the events and initiatives described above.

Fig. 8: A view of Peter Erskine's solar art exhibition, "New Light on Rome," at Trajan's Markets in Rome, June 2000. As in Secrets of the Sun, also in "New Light on Rome 2000," the medium used was not paint, but the solar spectrum, produced by passive systems that included laser-cut prisms to receive and catch the sunlight at various openings of the monument (Photo Erskine, Press Conference).

Fig. 9: ISES executive Director Burkhard Holder visits ISES ITALIA's offices in March 2000. L to R: Cesare Silvi, Mariano Cuzzaniti, Luca Rubini, Burkhard Holder, Leonardo Berlen, Vincenzo Naso, Pina Ciccotosto, Corrado Corvi


Fig. 10: Poster for EuroSun 2002, held in Bologna in June 2002

Fig. 11: Participants at the first Summer Academy of Mediterranean Solar Architecture (SAMSA), organized in Rome in August 2002

At the national level, the years from 2000 to 2004 were characterized by the launch of the "10,000 Photovoltaic Roofs" program after various postponements and difficulties, and by a rapid increase in the number of windpower installations, from 22 MW in 1994 to 904 MW at the end of 2003. Most of this capacity was installed by IVPC (Italian Vento Power Corporation). To support these developments, ISES ITALIA promoted a series of initiatives in collaboration with the Environment Ministry.

The association set up a toll-free phone number providing information on the "Photovoltaic Roofs" program, and brought out a new journal called *Ecoenergie*, covering topics from photovoltaic to biomass. Seven issues were published between 2001 and 2004, with the coordination of Luca Rubini.

The Section significantly developed training activities, in particular on the integration of photovoltaic systems in architecture and, more in general, on renewables integration in the natural and built environment with the organization of a postgraduate university masters in cooperation with the University of Rome, La Sapienza. On this topic the Section also organized several conferences. During 2002 more than 300 people attended a confer-

ence on "Environmental Compatibility of Renewable Energy: the Wind Energy Case," and more than 500 (engineers, architects, researchers, and students) attended the Conference on "Solar Technologies and Urban Quality," at which international experts spoke, among them Thomas Herzog, Ingo B. Hagemann, and Jiro Ohno.

From 2002 to 2003 ISES ITALIA took part in the European "Greenpro" Project regarding the translation of the successful German guides on thermal and PV solar systems, and bioenergy into the main European languages, contributing to the standardization of knowledge and professional skills in Europe. Among the "Greenpro" project partners were: IDIS Città della Scienza, Ecofys (NL), DGS (D), IST (P), and James & James (GB).

In 2003 an international conference was held in Naples in collaboration with ENEA, IDIS, the University of Naples, and other partners on "Offshore Wind Energy in Mediterranean and Other European Seas (Owemes 2003)," with the participation of more than 200 researchers from all over the world.

In addition, ISES ITALIA organized a variety of events, from study days to workshops, throughout the country. In 2001, the first "Open Day at Plants" was organized in the framework of the annual "Renewables Days" event and was repeated in the following years.

2004 began for ISES ITALIA with the publication of the 100th issue of the newsletter *Ilsolea360gradi*, now up to sixteen pages and with an estimated readership of 18,000–20,000, between printed and electronic copies (Fig. 12). All past issues, organized in subject and chronological indexes, are available on the Internet at www.ilsolea360gradi.it.

In the 100th issue, President Naso announced two important programs for 2004. The first, related to the fourth annual "Renewables Days" event, was the Open Day at Plants, during which the public is invited to visit installations that use renewable sources, with the collaboration of plant owners and operators and of the industry associations ANEV, APER, ASSOLTERM, GIFI and ITABIA. In addition, a national conference was to be held during the same event to take stock of the development of solar energy in Italy, partly in relation to the European and international programs to be discussed at the June 2004 international conference on renewables in Bonn. Second, the celebration of ISES ITALIA's 40th anniversary.

2004 also opened with a series of new legislative measures intended to assure the development of all renewable sources in Italy. At the end of January, the European directive on the generation of electricity from renewables was incorporated in Italian law. On the pattern of what had already been done in Germany and other European countries, the new law introduced the

energy feed in law for plants connected to the electricity grid. Other European directives on energy efficiency in buildings are before Parliament and should persuade Italy to look with new interest at the construction of buildings with low energy consumption and solar features.


Ilsoleatrecentosessantagradi

PER LE FONTI RINNOVABILI UN 2004 PIENO DI BUONI PROPOSITI

I NOSTRI PRIMI 100 NUMERI

Fig. 12: Cover of the 100th issue of ISES ITALIA's newsletter, *Ilsolea360gradi*

The large-scale solar energy project that stands out most in early 2004 is ENEL and ENEA's "Archimedes," a 20 MW solar trough plant to be built in Sicily (Fig. 13).

Fig. 13: Archimedes: A drawing of the ENEL/ENEA solar parabolic troughs in Priolo-Gargallo (Siracusa) announced in 2003, following studies begun by ENEA in 2000 (Source: ENEL/ENEA)

The location of proposed plant is not far from Siracusa, where Archimedes is said to have used burning mirrors to destroy an enemy fleet, as mentioned at the beginning of the first chapter of this history of the Italian Section of ISES.

## 13.3 Concluding Observations

In this chapter on the most recent quarter-century of ISES ITALIA's history, unlike the one devoted to the first sixteen years, from 1964 to 1980, only the most important initiatives have been cited and their context outlined. Due

to a growing interest in solar energy, which produced a huge number of events and programs, the Section's numerous activities could only be briefly described. In addition to what has been recounted, there are dozens of people not mentioned whose contributions were essential to the growth of ISES ITALIA.

In the time span of forty years, ISES ITALIA has delivered five periodicals and dozens of books, both technical-scientific and for the general reader, and has organized hundreds of conferences and meetings, including international events. In the past four years, the Section has supported Italian programs for integrating photovoltaic and solar heating systems in buildings with more than 30 training courses for architects, engineers, and technicians.

Starting in the late '70s, the Italian Section intensified its collaboration with the national energy and research institutions CNR, ENEL, ENEA and ENI, and could rely on the presence, in its membership, of the major concerns in the renewables industry; today they are also represented in the Section's activities by ANEV, ASSOLTERM, GIFI, and ITABIA. However, the majority of members—about 750—are individuals: researchers, professionals, and other people interested in the development of solar energy in Italy.

Over its lifetime, ISES ITALIA has had three presidents and contributed two presidents to the international organization.

## Presidents of ISES Italia and Italian Presidents of ISES in 40 Years of Activity

| | |
|---|---|
| Presidents of ISES ITALIA: | Vittorio Storelli, secretary (1964–78) and president (1978–81)<br>Corrado Corvi (1981–98)<br>Vincenzo Naso (1998–2004). |
| Italian presidents of ISES: | Corrado Corvi (1987-89)<br>Cesare Silvi (1999-2001). |

## Periodicals Published by ISES Italia in 40 Years of Activity

| Name and frequency | Period | Issues | Pages | Press run |
|---|---|---|---|---|
| Rassegna Italiana di Eliotecnica – yearly | 1964–78 | 10 | 30–40 | 100–300 |
| Habitat Territorio Energia – bimonthly | 1979–96 | 103 | 50–60 | 500–800 |
| Ilsolea360gradi – monthly | 1994-04 | 103 | 16 | 13,000–18,000 |
| I Quaderni del Sole – quarterly | 1997-98 | 6 | 60-80 | 3,000 |
| Ecoenergie – half-yearly | 2000-04 | 5 | 32 | 5,000 |

## Key Developments of the Italian Section of ISES 1980 – 2004

May 20, 1981 Corrado Corvi is elected president of the Italian Section of ISES. The association's headquarters are moved from Naples to Rome. It now has some 250 individual members and fifty collective members. Nine working committees are set up, on energy storage, renewables in agriculture, bioclimatic architecture, solar thermal components and systems, photovoltaics, wind energy, regulations, mini/micro hydro, and energy conservation.

1982 The working committees start their activities. The wind energy committee meets in Sardinia, the bioclimatic committee at SAIE2, a trade fair of the building costruction industry.

1986 The Section organizes, in collaboration with ENEA, the first meeting with foreign wind-energy experts at ENEA's Casaccia Research Center. In October the Section organizes, jointly with the EEC and EWEA, a European conference on wind energy in Rome; the participants include SES President William Beckman and Secretary Wal Read.

1987 Corrado Corvi is elected president of ISES for the 1987–89 term.

1988 The Italian Section's first journalism prizes are awarded to individuals and media that have made significant contributions to the general public's knowledge of renewables through the press, radio, and TV. The Section organizes the 8th European Photovoltaics Conference, in Florence, in

collaboration with the European Commission.

1990 Publication of the Section's first manual for policy-makers: *Energy from the Wind.*

1991 Round table in Rome in preparation for the Earth Summit. Renovation of the magazine *HTE*. Transformation of the working committees. Creation of ISES Europe.

1992 The Section participates in the Earth Summit at Rio. Peter Erskine's first solar art exhibition in Rome, "Secrets of the Sun: Millennial Meditations."

1993 Distinction made between national and international members. Proposal to change the association's name from "Italian Section of ISES" to "ISES ITALIA."

1994 The association starts to publish a monthly newsletter called *Ilsolea360gradi*.

1995 In July, the Section opens its first home page at www.ises.org/Italy/). A domain will follow in September 1997, at www.isesitalia.it.

1997 With the sponsorship of ENEL, ENEA and the Industry Ministry, the Section starts publishing a quarterly called *Quaderni del Sole—Energie Rinnovabili e Sviluppo Sostenibile* (Sun Notebooks—Renewable Energies and Sustainable Development). The Section changes its name to ISES ITALIA and acquires the status of a legally recognized Italian association.

1998 Vincenzo Naso is elected president of ISES ITALIA, and his predecessor, Corrado Corvi, is elected honorary president.

1999 Cesare Silvi is elected president of ISES for the 1999–2001 term.

2000 Events in Italy featuring solar culture, history, and art as part of the international initiatives for the Millenium Solar Forum organized by ISES. Peter Erskine's solar art exhibition, "New Light on Rome," is installed in a number of historical monuments in Rome. Publication in Italian of John Perlin's book *From Space to Earth*, on the history of photovoltaic technology. Start of educational and training programs at archaeological sites. First issue of Ecoenergie.

2001 First yearly event of renewable energy plants open to the public.

| | |
|---|---|
| 2002 | Fourth "EuroSun" Biannual Congress organized by ISES ITALIA in Bologna. First SAMSA (Summer Academy of Mediterranean Solar Architecture). |
| 2004 | ISES ITALIA's newsletter, *Ilsolea360gradi*, celebrates its tenth birthday and publishes its 100th issue. The fourth annual edition of renewable-energy plants open to the public registers growing success and is associated with a national conference of industry operators, represented by the associations ANEV, APER, GIFI, ITABIA and ASSOLTERM. ISES ITALIA, now 40 years old, prepares to celebrate its birthday. |

## Acknowledgements

In writing this history I consulted the proceedings of the boards of ISES ITALIA and ISES from 1980 to 2004, the ISES ITALIA periodicals *HTE* (1980–96) and *Ilsolea360gradi* (1994–2004), and the ISES periodicals *Sun World* (1980–2000) and *Sun at Work in Europe* (1989–94). I would like to thank Corrado Corvi for his written notes and comments. Thanks are also due to all the people who helped with their comments and suggestions among officers and staff of ISES ITALIA. Among the staff special thanks to Pina Ciccotosto, who has been with the Section since 1986.