Solar energy italy

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Solar power is an important contributor to electricity generation in Italy, accounting for 11.8% of total generation in 2023, up from 0.6% in 2010 and less than 0.1% in 2000.[1]

Total installed solar power capacity in the country reached 30.3 GW at the end of 2023.[2][3] Current (2023) government plans are targeting solar PV capacity to rise to 79 GW by 2030.[4]

Like most countries, solar power usage in Italy was minimal before the 21st century. During the 2000s, however, Italy was the third country after Germany and Spain to experience an unprecedented boom in solar installations after actively promoting the energy source through government incentives. Solar capacity growth slowed in the 2010s, due to cessation of governmental subsidy programmes,[5] but installations have picked up in the 2020s.[6]

The entire nation of Italy retains high potential for solar energy production, ranging from 3.6 kWh per square meter per day in the Po river plain to 5.4kWh per square meter per day in Sicily.[7]

Installed capacity in Italy was less than 100 MW before 2008. Growth accelerated during 2008 and 2009 to reach over 1,000 MW installed capacity and tripled during 2010 to exceed 3,000 MW. The standout boom year in Italy was during 2011 when over 9,000 MW of solar power was added. This huge and rapid rise in installations was mostly due to the very generous "Conto Energia" support schemes operating during these years. A more responsive support scheme might have reduced support more quickly and lead to less rapid growth during 2011 but stronger medium term growth.

More than a fifth of the total production in 2010 came from the southern region of Apulia.[9]: 30 In 2011, 20% came from Apulia, followed by 10% from Emilia-Romagna. The annual energy production from solar PV in Italy ranges from 1,000 to 1,500 kWh per installed kWp.[9]

Building Integrated Photovoltaic systems (BIPV) accounted for 2,650 MW of capacity in 2014, these are solar cells integrated into the building itself such as construction materials, roof tiles and ceramic or glass facades. Building Applied Photovoltaic systems (BAPV) measure 7,125 MW and are regular solar cell systems that are generally installed on top of roofs. Ground mounted PV totalled 8,650 MW whilst Concentrator Photovoltaics (CPV) amounted to 30 MW which use lenses or curved mirrors to focus sunlight onto small, highly efficient, multi-junction (MJ) solar cells.

In 2005 the Italian government introduced the first feed in tariffs (FIT) specifically for photovoltaics connected to the grid, the Conto Energia schemes. The payments for the schemes were designed to be made

over a 20-year period and to incentivise both smaller and larger producers to invest in the installation of photovoltaic plants and systems. Between 2005 and 2013, five different Conto Energia schemes were introduced by ministerial decree. Each scheme had differing terms and conditions and tariffs provided to producers.

In 2007, The second Conto Energia resulted in a massive increase of 6,791 MW of new PVs at an annual cost of EUR3.27 billion, and was the most costly scheme. Almost half of the total cost of the schemes is accounted for by Conto Energia 2.

Conto Energia 3 ran briefly, resulting in 1,567 MW of installed power at an annual cost of EUR0.65 billion. This was succeeded by Conto Energia 4 which resulted in the largest increase in solar capacity so far at 7,600 MW of installed power at the annual cost of EUR2.47 billion.

There are also several other incentives like tax credits for photovoltaic systems and solar thermal energy plants. A net metering scheme supports RES-E producers with plant capacities between 20 kW and 500 kW.[40]

In 2013, the government funded energy technology research, development and demonstration (RD& D) with EUR529 million. In recent years, other areas of the government budget were restructured. Between 2000 and 2013, nuclear research and development funding decreased from 40.7% to 18.2% in favour of energy efficiency and renewable energy, which grew from 13.8% to 21.5% in the same time period.

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