

## MARKET OVERVIEW

By the end of 2012, Italy's total installed wind capacity reached 8 144 MW. The country has the fourth-largest installed wind capacity in the European Union (European Wind Energy Association (EWEA), 2013).

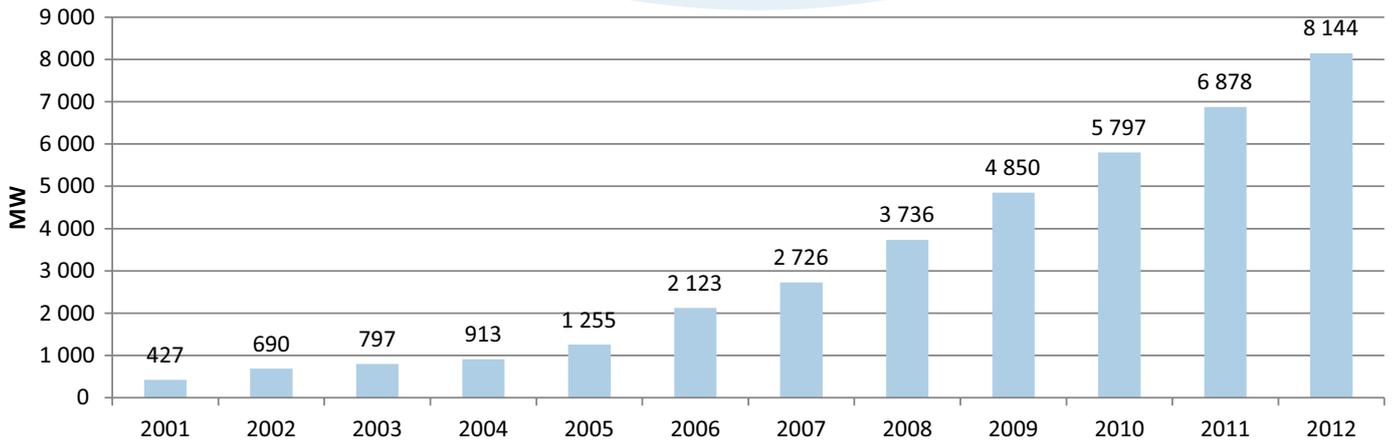


Figure 13: Cumulative Wind Installation (MW) of Italy (GWEC, 2013)

## HISTORY AND EVOLUTION OF POLICY AND REGULATORY FRAMEWORK FOR WIND ENERGY

### Phase 1:

#### National Energy Plans and Feed-in tariff system (1981-1998)

The first National Energy Plan was elaborated in 1981, setting objectives and targets for the development of renewable energy across the country. In 1982, Law 308/82 established the basis for future regulations, institutional rules and financial incentives for energy efficiency and renewable energy.

The second National Energy Plan was put forward in 1988 with objectives for 2000. This plan included implementation guidelines for energy saving, the rational use of energy, protection of the environment and human health, development of national energy sources and improvement of industry competitiveness.

In 1991, as part of electricity sector reforms, Law 9/91 allowed for producing energy from renewable sources through simplified authorisation procedures. The regional governments were obligated to propose energy plans (Law 10/91), with renewables as a policy priority.

In 1992, the CIP6/92 regulation established the first fixed feed-in tariff, covering the first eight years of energy production. The tariff was based on avoided investment and production costs for ENEL, the state-owned power company in charge of the national electricity system (including production, transmission and distribution).

The tariff enabled investors to see a predictable return on their investment. The initiatives that received support under CIP6/92 were chosen according to a procedure approved by the Ministry of Economic Development and consistent with ENEL's national electricity programme.

Both Law 9/91 and CIP6/92 were successful in establishing new rules for the electricity sector, liberalising electricity generation and moving towards a free electricity market. Independent power producers (IPPs) could produce

electricity from renewable sources without any capacity limit<sup>141</sup>. CIP6/92 created certainty on the financial flows, as ENEL was obligated to buy all electricity produced, simplified the remuneration to IPPs (on the basis of kWh produced) and provided a clear definition of the remuneration for each technology.

The permitting procedures were lengthy due to complex and inconsistent rules across the country. The permitting procedures for small and large wind farm developers were identical, and disadvantaged smaller producers. The developers faced a lack of grid connectivity in rural areas.

Some of the local governments in southern regions<sup>142</sup> provided capital cost subsidies under the regional support programme (POP programme) funded by the European Structural Funds. The POP programme covered a given percentage of the capital costs and could be combined with the CIP6/92 feed-in tariff. This initial tariff regime was implemented between 1992 and June 1995 for the proposed projects.

## Phase 2:

### Liberalisation of the electricity market and introduction of the green certificate system (1999-2005)

The 1999 Legislative Decree<sup>143</sup> 79/99 (widely known as the Bersani Decree) addressed the restructuring and gradual liberalisation of the Italian electricity market, in line with the European Directives for the liberalisation of energy markets. It encouraged electricity production from renewable sources by introducing priority on grid

access for renewables based electricity generation, as well as a renewable energy quota system.

Unlike the fixed guaranteed feed-in prices under the CIP6/92 regime, the new support mechanism was designed as a market-based mechanism. The Bersani Decree also introduced a tradable green certificates<sup>144</sup> system, under the quota obligation.

This green certificate mechanism required power producers and importers to produce a certain percentage of electricity from renewable sources, starting from 2% and gradually increasing. Green certificates were to be used to fulfil this obligation. Producers and importers could also fulfill their renewable quota obligation by purchasing certificates from third parties. The certificates were traded on a parallel market independent of the electricity market<sup>145</sup>. The price of a green certificate stood at EUR 109/MWh (USD 172.7/MWh) in 2005.

The Bersani Decree also enhanced the support to the Italian National Agency for New Technologies, Energy and Sustainable Economic Development (ENEA) to work on research, innovation, and technology transfer for renewable energy technologies (Italian National Agency for New Technologies, Energy and Sustainable Economic Development, n.d.).

The decree liberalised parts of the energy markets, in particular the activities of electricity production, which had been monopolised by ENEL up until then. This law also made the distribution and supply of electricity to captive customers subject to licensing, and reserved the transmission and distribution for the government. In addition, it provided for the creation of a Transmission

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<sup>141</sup> The 3 MW power limit introduced by Law 308/82 was eliminated.

<sup>142</sup> Such as Apulia, Campania, Sicily etc.

<sup>143</sup> The decree was passed on 16 March, 1999 in compliance with Directive 96/92/EC.

<sup>144</sup> Green certificates were provided for the electricity produced from renewable energy plants put in operation after 1 April, 1999. Green certificates were issued on the basis of the electricity produced from renewable sources in the previous year or on the expected capability to generate electricity from plants in the current or following year.

<sup>145</sup> The exchange of green certificates can be made either bilaterally among operators, or using a platform facility organised by the Manager of the Electric Market (Gestore del Mercato Elettrico – GME).

<sup>146</sup> ENEL formed the national TSO (GRTN), which became operational in 1999.

<sup>147</sup> The Single Buyer was envisioned as a joint-stock company formed by the TSO to operate and stipulate supply contracts in order to guarantee the generating capacity necessary for franchise clients.

<sup>148</sup> The Market Operator was envisioned as a joint-stock company formed by the TSO to manage power exchange in accordance with criteria of neutrality and competitiveness among generators. The power exchange became operational in 2004.

<sup>149</sup> In 1998 ENEL published the White Paper (Libro Bianco per la valorizzazione della fonte rinnovabili) to introduce the national target.

System Operator (TSO)<sup>146</sup> and a Single Buyer (SB)<sup>147</sup>, and proposed the creation of a Market Operator (MO)<sup>148</sup> (Luciani and Mazzanti, 2006).

In 1999, a White Paper<sup>149</sup> on the exploitation of energy from renewable sources was adopted. This document provided the basis for policies and strategies for meeting production targets up to 2008-2012 (for each type of source). Wind was allocated 700 MWe by 2002, 1 400 MWe by 2007 and 2 500 MWe by 2008/2012 (Glorioso, Lionetti and Presicce, 2007). The White Paper also highlighted the role of regional governments in reaching these goals.

In 2003, the country implemented European Directive 2001/77 for the promotion of electricity from renewable sources under Article 2 of Legislative Decree 387/03. This decree introduced additional measures improving incentives and support for renewable energy projects. Under this EU Directive, the share of renewable energy was bound to increase from 5.2% in 2005 to 17% of the final energy consumption in 2010 (European Commission (EC), 2008).

### Phase 3:

#### Revision of the green certificate scheme and the introduction of auctions (2007-2012)

In 2007 the green certificates price reached EUR 130/MWh (USD 197.2/MWh). According to Law 244/2007, small generators (up to 1 MW, for wind power limited to 200 kW) could choose to sell their green certificates on the market or receive a feed-in tariff (European Renewable Energy Council (EREC), 2009). The period for the release of green certificates was extended to 15 years for new and refurbished installations (Law 244/2007).

The 2008 Finance Act and the subsequent 2009 Ministerial Decree increased the quota by 0.75% annually over the years 2007 to 2012. This translated into a quota obligation of 5.3% in 2009, 6.05% in 2010, and 6.8% in 2011.

Under this Act, the Italian government introduced a “banding” mechanism into the certificate system, which accounts for the technology maturity. The quantity of green certificates granted to renewable energy producers having larger than 1 MW installations was multiplied by a coefficient, which is varied with the technology from 1.0 for onshore wind energy to a maximum value of 1.8 for wave and tidal energy.

The market regulates the value of the certificates, although in case of an excess of certificates on the market (long

market), GSE must buy them at a fixed price. This price is calculated (article 25, paragraph 4 of the Legislative Decree 28/2011) as 78% of the price of certificates sold by GSE. In case of a shortage of certificates (short market), GSE can sell those certificates coming from the former feed-in (CIP6) scheme at a published price, calculated as the difference between EUR 180/MWh (USD 263.1/MWh) and the annual average market price of electricity in the previous year, which is EUR 87.38/MWh (USD 121.63/MWh) in 2011, net of VAT.

In addition, one green certificate was now worth 1 MWh, instead of 50 MWh which was the previous value. Therefore, the certificate system became more suitable for smaller renewable energy installations.

The certificate scheme was handled by GSE (electricity market operator) and AEEG (Regulatory Authority for Electricity and Gas). GSE's role was to verify that the participants were fulfilling their quotas and inform AEEG who could impose a penalty, in case of non-compliance.

The implementation decree of Budget Law 2008 (International Energy Agency (IEA), 2012) created a mechanism to withdraw unsold green certificates from the market in order to maintain the green certificate price. The price was set to the average price of the previous three years.

A new legislative decree (Number 28 of 3 March, 2011) (Gazzetta Ufficiale Della Repubblica Italiana, 2011) transposed the European Directive for the promotion of renewable energy sources (2009/28/EC) (IEA, 2012) into a national target of 17% of renewable energy in the gross final energy consumption by 2020.

#### Expected future changes

From 1 January, 2013 the quota system will be replaced by a feed-in system for schemes under a given threshold and a tendering scheme for new plants (except biomass) with a capacity above the threshold. The threshold is differentiated by renewable energy sources. Details of the implementation will be elaborated in upcoming Ministerial Decrees.

GSE must buy all certificates that exceed the annual demand. Legislative Decree 28/2011 rules that for renewable energy installation starting operation after 31 December 2012, the feed-in premium system in place over 2011-2012 will be replaced by a feed-in tariff scheme. The tariff would include the price at which GSE purchased the electricity generated by renewable sources from the producers.



The duration of the support will be equal to the average lifetime of the technology. This incentive is to be granted under private contracts with the national transmission system operator. The incentive will remain constant throughout the support period. The 2011 Decree sets a goal of 23 000 MW of renewable capacity installed by 2016 and is likely to produce major changes in the national support policy to renewable energy.

## CURRENT CHALLENGES

During the past decade the Italian electricity system suffered from inadequate grid infrastructure, which led to frequent curtailment of wind power to avoid congestions. The administrative processes to develop the grid are not centralised, which slows the authorisation process.

The grid problem affects projects in Campania, Apulia and Basilicata and some in Sardinia. Problems occur due to the high concentration of projects in pockets and the low capacity of the grid, especially on old 150 kV lines, which do not allow all the power produced by the wind farms to be dispatched. In 2009, a number of wind farms operated at 30% less than their normal capacity due to this issue. In some cases, wind farms were limited by over 70%, while others were shut down completely.

Integration to the grid is a source of concern for accommodating both the current installed wind energy capacity and the planned capacity. At present, some

projects are under development to include storage (battery-based) systems for renewable energy-based electricity. In addition, Italy also suffers from administrative constraints such as complex authorisation procedures and high connection costs.

The quota system enables considerably higher profits for onshore wind than most other European countries applying feed-in systems (Re-Shaping, n.d.). In the face of economic concerns in Italy, the generous levels of support for renewable energy sources may be revised downwards, as seen in recent months in neighboring countries like Spain, Portugal and Greece.

## CONCLUSION

Several policy elements are characteristic of the Italian case:

- » The green certificate system was an efficient support mechanism leading to strong growth in the wind energy market.
- » However, Italy has the highest average expenditure for supporting wind power and small hydroelectric plants in the European Union (Rathmann, *et al.*, 2009). Although Italy's priority is to diversify its energy supply and to lower its dependency on imported gas in the electricity sector, the costs of the support policy might not be sustainable in the future.
- » The country's generous support scheme has however attracted investors, despite long administrative procedures and grid constraints putting investments at risk.
- » The regions play an important role in the deployment of renewable energy technology. Up until now developments have been mainly concentrated in the south of the country, causing grid overloads.

The national policy for renewables operates through a complex set of incentives which range from indirect regulatory support measures, such as feed-in tariffs and fiscal incentives, to market-based mechanisms, such as quota obligations and tradable green certificates.

The incentives schemes are not adjusted in line with the technology learning curve. The support for renewable energy is not within the range of production costs from other technologies. The high support levels have increased the number of investors involved in renewable energy production, and led to the successful growth of onshore wind power and solar PV.

## ANALYSIS ON ENABLING CONDITIONS FOR WIND ENERGY

<p><b>Effective rule of law; and transparency in administrative and permitting processes</b></p>	<p>A continuous and long-term policy framework has been in place since 1988. There is scope for improving regional permitting procedures to facilitate project development.</p>
<p><b>A clear and effective pricing structure</b></p>	<p>The tradable green certificates system under the quota obligations was an effective mechanism. The proposed shift to a feed-in system is likely to provide dependable support for wind power development.</p>
<p><b>Provisions for access to the grid (incentives and penalties for grid operators)</b></p>	<p>Electricity produced from renewable sources has priority for dispatch by the distribution companies and favourable connection procedures.</p>
<p><b>An industrial development strategy</b></p>	<p>The main driver developing renewable energy sources has been to promote energy security and reduce import dependency. No national industrial development strategy is in place. Some of the regions provide capital subsidies.</p>
<p><b>A functioning finance sector</b></p>	<p>Financing for wind projects has been available through the private sector.</p>
<p><b>Expression of political commitment from government (e.g., targets)</b></p>	<p>Long-term renewable energy target of 17% by 2020. Italy plans to produce 98 TWh from renewable sources by 2020, up from 27.5 TWh in 2010.</p>
<p><b>A government and/or industry-led strategy for public and community buy-in</b></p>	<p>Stakeholder engagement and consumer awareness have not been a specific activity undertaken by the government or industry.</p>
<p><b>An employment development strategy</b></p>	<p>Not Applicable</p>
<p><b>NOTE</b></p>	<p><b>Italy's national policy for renewables operates through a complex set of incentives which range from indirect regulatory support measures, such as feed-in tariffs and fiscal incentives, to market-based mechanisms, such as quota obligations and tradable green certificates. According to a recent European study, Italy has the highest average expenditure for supporting wind power and small hydropower.</b></p>

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