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Возобновляемые источники энергии в Италии: методы стимулирования, стоимость и конкурентоспособность

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Резюме: В статье выделены основные слабые стороны ВИЭ в электроэнергетике в Италии, связанные с методами стимулирования, стоимостью и конкурентоспособностью. Отмечаются проблемы с сетью, постоянные изменения в законодательстве, необходимость в больших финансовых ресурсах. У ВИЭ могут наблюдаться также негативные экологические и социальные последствия. В Италии государство и потребители платят за большую часть мер стимулирования, в то же время цена ВИЭ неконкурентоспособна без субсидий, а в ЕС и в Италии все больше и больше внимания уделяется именно конкурентоспособной энергии. В данных условиях Италия урезает количество субсидий, и наблюдается заметное уменьшение инвестиций в ВИЭ в стране. В целом, работа показывает, что ВИЭ – это хорошо, но не слишком.

Ключевые слова: ВИЭ, электроэнергетика, Италия, ЕС, энергетическая политика, методы стимулирования, стоимость, конкурентоспособность

Renewables in Italy: measures of stimulation, costs, and competitiveness

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Abstract: This essay aims at highlighting main weak points of RES-E in Italy in terms of measures of stimulation, costs and competitiveness. There are problems with grid, constant change in legislation, and need of great financial resources. Renewables also can have negative environmental and social impacts. In Italy stimulation measures are mainly covered by consumers and state. At the same time renewables do not have compatible price without subsidies, while now more and more emphasis is put on competitive energy by the EU and Italian officials. In these circumstances Italy reduces subsidies and there is a significant decrease of investments in RES in the country. Overall, the work shows that renewables are good, but not too good.

Key words: RES, electricity, Italy, the EU, energy policy, measures of stimulation, costs, competitiveness

Introduction

The question of the development of renewables has become very important in the EU lately. In 1997 White Paper set out a goal of 12% share of renewables in EU energy mix. However, the targets were not binding and were not met. In 2007 Renewable Energy Roadmap was published which highlighted a target of 20% share in the EU's energy mix by 2020. In order to reach this goal Renewables Directive was adopted in 2009 setting individual targets for each member state. According to this document Italy has to achieve 17% share of renewables by 2020 (Euractiv, 2012).

In general in the EU the majority of renewable energy is produced from biomass and hydro (Kaveshnikov, 2014). However, Italian case looks quite different. It is

evident that hydro and solar are main renewable sources of energy in Italy with the production of 41.8 and 18.8 GWh while biomass on contrary did not gain significant popularity and it produces only 12.4 GWh (GSE, 2012).

Moreover, as a result of stimulation measures and willingness to reduce its high dependence on import Italy has developed RES very rapidly. Italy projects that it will outperform the objective of 17% by having 19-20% share of renewable energy in gross final consumption in 2020. Furthermore, it anticipates renewables to exceed the levels of gas as a main source in electricity. Italy expects that it will have 34-38% of RES-E consumption in 2020 comparing with 23% in 2010 (Italy's National Energy Strategy, 2013).

At first sight it can be said that Italy is a case of successful development of renewables. Even during economic crisis Italian production of renewables was stable (Kaveshnikov, 2014). However, it can be argued that everything has its fee and in this case it is of high importance to understand what Italy paid for renewables.

Therefore, this essay aims at highlighting key weak points of RES-E in Italy. The work consists of three main parts. Firstly, measures of stimulation of RES-E are analysed. Secondly, costs of renewables in the country are specified. Finally, the interconnection of RES-E and compatibility is identified.

1. Measures of stimulation

There are different policy instruments for support of renewables in the European Union. Two main types of support schemes in the EU can be individualized in the following way: major and supplementary ones. Major support schemes include: feed-in tariffs, feed-in premiums, tenders, and quota obligations with tradable green certificates. Supplementary support schemes embrace investment grants, fiscal measures and financing support (Haas et al., 2011).

Feed-in tariffs have the following traits: long-term contracts, guaranteed price and dependence on the cost of generation of various technologies. Feed-in premium

means special bonus to the market price which is given per unit. Both feed-in tariffs and feed-in premiums are usually guaranteed either for a specific period of time or for a specific amount of production. Tenders are often used jointly with other types of support policies. Quota obligations are understood as a quantity-control measure of stimulation and mean that producers or suppliers have to have a specific share of renewable resources in their portfolio. Investment grants are given by governmental institutions (including European ones) to investors in renewable energy projects in form of payments without return. Fiscal measures include direct fiscal support of renewables. For example, income tax reliefs, electricity tax reliefs, reduced VAT. Financing support in contrast to investment grants are not non-reimbursable (Kitzing et al., 2012).

All these types of support schemes are also implemented in Italy. Measures of stimulation of renewables in electricity in Italy include feed-in-tariffs and feed-in premium tariffs. However, renewable technologies can also be backed by tenders (after tendering process PV plants can receive premium tariff). Furthermore, photovoltaic and wind energy plants as well as grids that distribute this electricity can receive fiscal support such as reduced VAT of 10%. There is also an opportunity for building with renewable energy equipment installations to pay a reduced real estate tax. Moreover, special organization called GSE (Gestore Servizi Energetici) is required to manage the sale of renewable energy by request. Last but not least, there is also an obligation for new buildings and constructions under refurbishment to integrate the systems of RES-E (Zane, 2014).

One of the main problems of the mentioned measures of stimulation of renewables is grid issue. Italy does not manage to process all the requests and therefore, in reality it is doubtful that the priority is given to renewables (Leone, 2011). Moreover, there is a constant change of support schemes which can undermine stability of development of renewables. For example, while previously electric incentive system in Italy put emphasis on Green Certificates, now according to the Legislative Decree n.28 of 3 March 2011 it is gradually replaced by feed-in tariffs.

FIT are believed to be more successful in triggering RES-E (Haas et al., 2011), while GC are not considered to be cost-effective (Aune et al., 2012). However, even though price-based initiatives are supposed to be more efficient now, instability in legislation and constant adaptations can negatively influence the market of renewables in the country. Finally, financial leverage can also be considered as an issue. Kitzing et al. (2012) outlines that there is a European trend of the increase of the number of support mechanisms for renewables in electricity. The authors argue that while in 2000 there was one scheme per state, in 2011 there were already three instruments per country. All this increasing number of instruments of stimulation needs money and there can be a possibility of lack of financial resources.

All in all, there is an established system of measures of stimulation of renewables in electricity in Italy. Feed-in-tariffs, feed-in premiums, tenders and fiscal measures are main instruments of the support of RES-E in the country. Several weak points in this support system can be highlighted. Main issues can be the following: grid problem, instability of legislation and need of big amount of financial resources for the implementation of stimulation measures.

2. Costs of renewables in Italy

While reflecting on costs of renewables in Italy there are several key questions to ask. First of all, who pays for stimulation measures? Secondly, what is the situation with investments in renewables in the country? Finally, are there any other costs except economic ones?

To start with, RES-E feed-in tariffs are mainly paid by consumers and plant operators. For example, in feed-in-tariff I costs distribution consumers reward RES through electricity bill (A3 component); plant operators pay 0.05 euro for each kWh that receives the incentive. The distribution mechanism looks the following way: consumers pay the electricity bill; A3 component goes to GSE (Gestore Servizi Energetici) via special fund which is managed also by GSE. Feed-in

premiums are mainly borne by consumers via electricity bills. The payments (as in feed-in-tariffs) are transformed to the special fund governed by GSE (Fund of the Promotion of Renewable Energy Plants). Fiscal measures of stimulation are covered by the state as the reduced VAT means lower revenue of state and reduced real estate tax means revenue losses of municipalities (Zane, 2014). Overall, answering to the first question (who pays for measures of stimulation of renewables in electricity?) it is evident that the majority is covered by consumers and state.

Secondly, looking at the increase of rate of investments in renewables in Italy in 2006-2011 it is possible to conclude that this country has the greatest index at global level (+89%) (Ciccarese, 2012). In 2007-2010 Italy has been ranked 3^d among EU states in terms of an overall investment value in RES by foreign projects. Spain and Germany had the majority of foreign investments in RES in Italy at that time (Invitalia, 2012). In 2011 Italy invested 28 billion dollars in RES being second in the EU after Germany (Assoelettrica, 2013). In 2012 Italy invested the majority of its money in solar and wind industries; however Italy was first in the EU in terms of investments in geothermal industry (Raia, 2014). Nevertheless, the situation is changing. In 2013 there was a decrease of the amount of investments by 73% (Qailenergia, 2014). In first 9 months of 2014 Italy invested just 262 million euro in renewables. Analytics argue that it is an authentic decrease of investments in RES as at a global level there is an increase of 16%. However, another important point should be mentioned: now the focus in terms of RES investments goes from the EU to Asia (China, Japan) and almost all European countries (except France) reduce significantly their RES investments (Balocchi, 2014). However, according to Ernst and Young (2014) Italy's score in renewable energy country attractiveness is still good being the 11th in the world and the 4th in the EU (after Germany, UK and France). Overall, it can be argued that there is a change of trends in RES investment. While not long ago Italy was the first in terms of the increase of rate of RES investments, nowadays Italy faces a significant decrease. This new trend can slow down the development of RES-E in the country.

In 2011 53.7% of Italians believed that it is possible to cover all the needs in energy in the country with the help of renewables (Bucchi, 2011), but now this statement seems a bit unrealistic because of a decreasing tendency of investments in this sector.

Finally, there are not only economic costs of renewables; there are environmental ones as well. For instance, solar power may have impact on land use, habitat loss, water use and the use of hazardous materials in manufacturing (UCSUSA, 2014). Geothermal energy despite all its advantages may also be environmentally harmful: geothermal sites can release poisonous gases (Conserve Energy Future, 2014). Biofuels are considered to be clean but they also have a great carbon footprint as the process of its production results in emitting great amount of carbon emissions. It is argued that fuel from soy beans can create up to 4 times more emissions than petrol (Harrison, 2010).

In Italy one of the key issues about renewables in electricity are connected to the consequences for wildlife (Basso et al., n.d.). Another greatest problem is the abuse of laws. For example, in Puglia the project of wind farm by Italgest Wind was not in accordance with the law about the distance from houses and roads (ANSA, 2014). Therefore, the construction of renewables in Puglia could have influenced the tranquillity of people. Finally, Brizio et al. (2010) shows that even though renewable energy plants are encouraged by legislation, they can negatively effect on air quality in Northern Italy. Overall, it cannot be said that there are only economic costs that should be paid because of RES-E. The production and consumption of renewables can also have negative impact on environment and society and this should be taken into consideration.

All in all, the analysis shows that mainly consumers and state pay for stimulation measures of renewables in electricity. The investment rate in RES in Italy is falling while not long ago it was the greatest in the world. Having invested a lot, now there is a trend of putting away the focus from renewables in this country. Finally, it should be understood than there are not only economic costs and requirements of

RES-E. The development of renewables can impact environment and society not only in a good way, but also negatively.

3. Competitiveness

Competitiveness is “ability of a firm or a nation to offer products and services that meet the quality standards of the local and world markets at prices that are competitive and provide adequate returns on the resources employed or consumed in producing them” (Business Dictionary, 2014). Therefore, the definition puts emphasis on competitive price.

In general it is argued that levelized cost of electricity from renewables is uncompetitive comparing to hydrocarbon generation. The only exceptions are geothermal and hydro energy (Kaveshnikov, 2014). Looking at the Italian case it is noticeable that in terms of hydrocarbons gas has the predominance while in the EU in general coal has more popularity. In Italian case it is evident that electricity generated from onshore wind and solar PV is much more costly than the one from gas. For example, gas CCTG costs a bit more than 80 USD/MWh, while onshore wind costs almost two times more and solar PV one has a price of approximately 400 USD/MWh (IEA, 2010).

As it was argued in the second part of the work consumers play a very important role in bearing costs for stimulation measures. And nowadays Italy has the third-highest electricity rates in the EU after Denmark and Cyprus, Italian power is 35% more expensive than European average. Electricity consumers are historically regarded as a source of funds in order to achieve political and economic goals. Now an average Italian pays 94 euro/year more for electricity in order to support green energy (in 2010 he/she paid 31 euro/year for this) (Stagnaro, 2014). Over the next 20 years Italians are projected to pay 200 billion euro for energy bills (Bastasch, 2014). In the circumstances of very rapid growth of electricity prices and economic instability the state decided to pull down prices by lowering subsidies to renewables (Stagnaro, 2014). Industry Minister C. Passera told that

“Italy has important goals to meet and even surpass...we need to do so without over-reliance on taxpayer resources” (Wynn and Erick, 2013). Therefore, Italian officials start to understand that renewables are very costly both for state and consumers.

Furthermore, there is a recent trend within the EU to focus on economic compatibility of renewables. Even more, on 22 May of 2013 the summit of European Council declared the change of priorities on energy policy of EU: from sustainable energy towards competitive energy (Kaveshnikov, 2014). Nevertheless, Italy’s National Energy Strategy (2013) aims at “achieving a more competitive and sustainable energy” at the same time (p.3). Therefore, Italy tries to unite two important goals. Having recognized three main challenges for compatibility (1. big prices on energy for businesses and families, 2. security of supply, 3. economic and financial difficulties of operators in energy sector) Italy acknowledges that it is necessary to move the focus on sectors with more economic and environmental returns.

All in all, Italy has been successful in developing renewables. However, nowadays the state is not sure that the price it pays for RES is necessary. With more focus of EU organs on compatible energy and with lowering subsidies to renewables in Italy, renewables are left at crossroads. RES have their advantages, but market encourages hydrocarbons.

Conclusion

Italy has developed its RES-E capacities very fast and there is a significant increase of production and consumption of electricity from renewables in the country. However, it can be said that there are certain disadvantages and weak points of RES-E in Italy.

First of all, there are fragile points concerning support schemes. To start with, Italian measures of stimulation do not fully recognize grid problem. Even though renewable capacities are constructed it is still very difficult to be connected to the

grid in Italy. Additionally, there is no stability in support scheme policy line. Certain mechanisms can be easily recalled. Furthermore, all these support instruments require a lot of money.

Secondly, disadvantages can be highlighted in terms of costs of renewables in electricity. First of all, the price of backing schemes is mainly born by consumers and state. Italy having one of the greatest prices on electricity in Europe cannot always raise prices because of support of green energy. Moreover, there is a decreasing trend of investments in renewables in Italy. Last but not least, there are also environmental and social costs of RES-E that should be recognized.

Thirdly, there are weak points of RES-E in terms of competitiveness. Renewables are costly. They cost more than any electricity from imported hydrocarbons. Furthermore, there is a recent cut of subsidies towards RES which will slow down the development of industry. Final point is that more and more attention is put towards compatible energy both by EU and Italian officials. This shows that both parts understand that previous subsidies made for the industry are too generous and may be unfair for other types of resources on the market.

To sum up, it can be argued that renewable resources are sustainable and they are a necessity in Europe. Production and consumption of renewables can result in the decrease CO₂ emissions, advance of technologies and reduction of import and consumption of hydrocarbons. All this is definitely good. But according to sustainable development perspective the world is perceived as a balance of factors which are analysed in a holistic manner. That is why certain negative points connected with renewables should not be forgotten and they should (if not must) be taken into consideration. Overall, it can be concluded that renewables are good, but not too good.

References:

1. ANSA, 2014. Energia: 11 parchi eolici bloccati da tribunali. *ANSA*, 25/09/2014. Available at: <http://www.ansa.it/web/notizie/canali/energiaeambiente/rinnovabili/2010/09/23/visualizza_new.html_1759462637.html?idPhoto=1>
2. Assoelettrica, 2013. Rinnovabili – L'Italia prima negli investimenti nel fotovoltaico. Available online <<http://www.assoelettrica.it/rinnovabili-litalia-prima-negli-investimenti-nel-fotovoltaico/>>
3. Aune, F.R., Dalen, H.M., Hagem, C., 2012. Implementing the EU renewable target through green certificate market. *Energy Economics*, July 2012, Vol. 34(4), pp. 992-1000.
4. Ballocchi, A., 2014. Rinnovabili, –75% di investimenti per l'Italia. *Tekneco*, 07/10/2014. Available at: <<http://www.tekneco.it/energia/rinnovabili-75-di-investimenti-per-litalia/>>
5. Basso, C., Matera, F.V., n.d. Development of renewable energy in Sicily. *Regione Sicilia*. Available at: <http://www.regione.sicilia.it/industria/use/Documenti%20ufficiali%20energia/Internazionali/Developement_renewable_energy_Sicily.pdf>
6. Bastasch, M., 2014. Europe's Green Energy Industry Faces Collapse As Subsidies Are Cut. *The Daily Caller*, 24/06/2014. Available at: <<http://dailycaller.com/2014/06/24/europes-green-energy-industry-faces-collapse-as-subsidies-are-cut/>>
7. Brizio, E., Genon, G., Becchis, F., Russolillo, D., 2010. Renewable energy plants: environmental compatibility and external costs, assessment at global, regional and local scale. *International Conference on Renewable Energies and Power Quality*, Granada (Spain), 23th to 25th March, 2010. Available at: <<http://www.icrepq.com/icrepq%2710/563-Brizio.pdf>>

8. Bucchi, M., 2011. Grandi Speranze: Gli italiani e le energie rinnovabili. *Osservatorio scienza e società*. Available at: <http://www.observa.it/wp-content/uploads/2011/05/Observa_IlSole24Ore_03.05.2011.pdf>
9. Business Dictionary, 2014. Available at: <<http://www.businessdictionary.com/definition/competitiveness.html>>
10. Ciccicarese, L., 2012. Introduction to a handbook on renewable energy for Regione Calabria. *Institute for Environmental Protection and Research*. Available online <<http://proforbiomed.eu/sites/default/files/italy%20and%20renewables.pdf>>
11. Conserve Energy Future, 2014. Disadvantages of Geothermal Energy. *Conserve Energy Future*. Available at: <http://www.conserve-energy-future.com/Disadvantages_GeothermalEnergy.php>
12. Ernst and Young, 2014
13. Euractiv, 2012. EU renewable energy policy. *Euractiv*. Available at: <<http://www.euractiv.com/energy/eu-renewable-energy-policy/article-117536>>
14. GSE, 2012. Rapporto Statistico Impianti a fonti rinnovabili Settore Elettrico. *GSE*. Available at: <http://www.gse.it/it/Dati%20e%20Bilanci/GSE_Documenti/osservatorio%20statistico/Rapporto%20Statistico%202012%20-%20Settore%20Elettrico%20%20%20vers%20web%20def.pdf>
15. Haas, R., Resch, G., Panzer, C., Busch, S., Ragwitz, M., Held, A., 2011. Efficiency and effectiveness of promotion systems for electricity generation from renewable energy sources – Lessons from EU countries. *Energy*, April 2011, Vol. 36(4), pp. 2186-2193.
16. Haas, R., Panzer, C., Resch, G., Ragwitz, M., Reece, G., Held, A., 2011. A historical review of promotion strategies for electricity from renewable energy sources in EU countries. *Renewable and Sustainable Energy Reviews*, 15(2), pp. 1003-1034.

17. Harrison, P., 2010. Once-hidden EU report reveals damage from biodiesel. *Reuters*. Available at: <<http://www.reuters.com/article/2010/04/21/us-eu-energy-biofuels-idUSTRE63K2CB20100421>>
18. IEA, 2010. Projected Costs of Generating Electricity. *International Energy Agency*. Available at: <http://www.iea.org/publications/freepublications/publication/projected_costs.pdf>.
19. Invitalia, 2012. RES – Renewable Energy Sources in Italy. *Invitalia*. Available online <https://www.google.ru/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&ved=0CBwQFjAA&url=http%3A%2F%2Fwww.invitalia.it%2Fsite%2Feng%2Fhome%2Fmedia-center%2Fresources%2Fdocumento1395.html&ei=6WWPVOjIEanXyQO5-oGYBQ&usg=AFQjCNG9_zkXt1OBVfK_KfjmfU5bCvyz9g&bvm=bv.81828268,d.bGQ&cad=rjt>
20. Italy's National Energy Strategy, 2013. National Energy Strategy: for a more competitive and sustainable energy. Available at: <http://www.encharter.org/fileadmin/user_upload/Energy_policies_and_legislation/Italy_2013_National_Energy_Strategy_ENG.pdf>
21. Kaveshnikov, 2014. Renewable energy in EU: change of priorities. *Russian Council*, 08/04/2014 [Translated From Russian by Ivanova D.V.]. Available at: <http://russiancouncil.ru/inner/?id_4=3482#top>
22. Kitzing, L., Mitchell, C., Moethorst, P.E., 2012. Renewable energy policies in Europe: converging or diverging? *Energy Policy*, 51(2012), pp. 192-201.
23. Leone, 2011. Lessons Learned: Italy's Solar Rise and the Path ahead. *Renewable Energy World*. Available online <<http://www.renewableenergyworld.com/rea/news/article/2011/08/lessons-learned-italys-solar-rise-and-the-path-ahead>>

24. Qailenergia, 2014. Energia pulita, investimenti 2013 in declino. Italia -73%. *Qailenergia*. Available at: <<http://www.qualenergia.it/articoli/20140116-investimenti-in-energia-rinnovabile-2013-declino-italia-crollo>>
25. Raia, D., 2014. Rinnovabili, Italia quarta in Europa per investimenti pubblici. *Cinquecolonnemagazine*, 15/10/2014. Available online <<http://www.cinquecolonne.it/rinnovabili-italia-quarta-in-europa-per-investimenti-pubblici.html>>
26. Stagnaro, C., 2014. Italy Powers Down Energy Subsidies. *The Wall Street Journal*, 01/09/2014. Available at: <<http://www.wsj.com/articles/italys-energy-subsidy-reform-1409594919>>
27. UCSUSA, 2014. Environmental Impacts of Solar Power. *Union of Concerned Scientists Science for a healthy planet and safer world*. Available at: <http://www.ucsusa.org/clean_energy/our-energy-choices/renewable-energy/environmental-impacts-solar-power.html#.VI9fwSusVbF>
28. Wynn, T., Erick, J., 2013. European Lessons on Renewable Energy Subsidies. *American Legislator*, 29/03/2013. Available online <<http://www.americanlegislator.org/european-lessons-on-renewable-energy-subsidies/>>
29. Zane, E.B., 2014. Italy: Summary. *Legal Sources on Renewable Energy*. Available online <<http://www.res-legal.eu/search-by-country/italy/summary/c/italy/s/res-e/sum/152/lpid/151/>>