

# Italian white certificates: a first glimpse on the effects of the new guidelines introduced in 2021

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## Keywords

tradable white certificates, white certificates, energy efficiency obligation, energy efficiency policy

## Abstract

The Italian White Certificates scheme (WhC) was introduced in 2001 and has been effectively working since 2005. It has been characterised by the coverage of all sectors and energy efficiency solutions, and many flexibility options in place (e.g. non-obliged – a.k.a eligible – parties, tradable market for white certificates, bankability, flexibility on obliged parties targets, etc.).

With more than 29 million tonnes of oil equivalent (toe) of energy savings cumulated by the end of 2021, it has considerably contributed to the national energy efficiency targets.

The scheme has undergone important changes first in 2012, then in 2017, both for the targets and the operating guidelines. These modifications, combined with energy market developments, resulted in a reduced capability of producing the expected certificates and in an increasingly shorter WhC market that resulted in rising prices, thus putting at risk both the compliance with the targets and the operation of the scheme itself.

For this reason, a deep revision of the scheme was introduced in 2021, trying to solve and overcome the risk of collapse and to relaunch the scheme in accordance with the National Energy and Climate Plan.

The paper will illustrate the main changes of the scheme guidelines, the reason why they were adopted, and the first results of their application over one year from their introduction.

## Introduction

The Italian White Certificates scheme is the national Energy Efficiency Obligation scheme under Art.7 EED, in which the electricity and gas distributors (DSOs) with more than 50,000 clients<sup>1</sup> are obliged to reach annual energy efficiency targets, proportional to the share of energy carriers distributed. The scheme was defined in 2001, after the liberalisation of electricity and gas markets, but due to its ambition and innovativeness<sup>2</sup> the operative design took more time than anticipated and the scheme effectively started in 2005. In the original scheme of 2001 at least four intents can be gathered:

- The introduction of yearly growth targets in terms of energy savings, in accordance with the obligations imposed on distributors of electricity and natural gas.
- The design of a flexible market scheme, which could also act as a stimulus for the implementation of energy efficiency measures, due to the possibility of having eligible parties able to sell certificates to the obliged subjects.
- The possibility and opportunity to include all sectors and a large number of solutions in the mechanism.

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1. The threshold was initially set to 50,000 clients. In 2017, 12 electricity distributors (227 TWh distributed and a total obligation of 2.39 million white certificates) and 46 gas distributors (1,056 PJ of distributed gas and a total obligation 2.95 million white certificates) were involved in the obligation.

2. Since most of the existing schemes were limited in terms of eligible solutions and/or sectors it was not easy to adopt solutions already tested. One of the issues, for example, was how to calculate energy savings, considering that simplified approaches such as deemed savings, would not have been indicated for large industrial projects, but at the same time metered savings approaches would have been too complex for small energy efficiency measures.

- The idea of promoting the role of the Energy Service Companies (ESCOs), the only eligible subject initially admitted.

Given the technicality and complexity of the Italian white certificate scheme, it is impossible to cover all the information and the details in a paper. Our main objective is thus to give experts interested in white certificate schemes information on which measures were applied in 2021 in Italy to overcome the existing issues and how they are working. We also tried to give the possibility to non-experts of the Italian scheme to understand the main points on how it works, what issues it faced, and what countermeasures were recently adopted. A detailed history of the different phases of the Italian WhC scheme is available in (Di Santo and De Chicchis, 2019). Here we focus on recent events.

### Scheme basics

Obligated parties shall present each year by May 31 a number of white certificates in line with their specific target, which is calculated from the general WhC targets considering their volumes of distributed electricity or natural gas. White certificates give proof of end-use energy savings achieved through projects aimed at increasing energy efficiency in the final uses of energy. Each certificate represents one tonne of oil equivalent (toe) saved due to the interventions carried out. Projects receive certificates for a period of time related to their complexity and expected lifetime (we refer to it as “WhC lifetime”, which presently can range from 3 to 10 years). Only additional savings are considered, which are those savings over and above spontaneous market trends and/or legislative requirements.

Eligible projects can be implemented by the obliged parties themselves, or by eligible parties (small DSOs, ESCOs, companies with energy management expert or energy management system), which can obtain certificates and subsequently sell them. Therefore, WhC is not just an obligation scheme, but a market mechanism, made up of a demand side and a supply side, acting as an incentive for eligible parties. The costs incurred by the obliged distributors, being regulated companies, are partially reimbursed through a tariff reimbursement component defined by ARERA (Italian Regulatory Authority for Energy, Networks and Environment) and linked to the weighted average price of the certificates in the spot market of the previous year. This tariff reimbursement is based on the income of a specific component of end users’ electricity and natural gas bills.

The new Ministry of Ecologic Transition, created in 2021 merging the Ministry of Environment with a department of the Ministry of Economic Development, is in charge of the policy and defines the guidelines. The main legislative act used to modify the scheme’s guidelines is the ministerial decree, indicated as D.M. followed by the issuing date.

The scheme is managed by the public company GSE, which defines operative rules, evaluates the submitted proposals and releases WhC, performs verification and control activities by means of documental checks and on-site inspections, monitors the scheme outcomes, and produces reports on the results.

The exchange of White Certificates between obliged and voluntary parties takes place on a dedicated platform managed by the GME (a public company owned by GSE), either as a spot market exchange, or as a bilateral agreement between parties.

### The new rules

Ministerial Decree 21 May 2021 renewed the mechanism’s targets for the four-year period 2021–2024 and introduced changes to the previous rules. These changes act both on the demand side, trying to restore an effective market mechanism<sup>3</sup>, and on the supply side with the aim to increase certificates’ release and relaunch the scheme in terms of contribution to the global EED art. 7 targets.

Important changes in this way have already been introduced in 2018 with the apposition of the threshold on the tariff contribution for the obliged parties (demand side) – see note 3 – and the abolition of “per-project” additionality for retrofit projects (supply). The first involved the slowdown of WhC prices that was growing steadily due to lack of supply, while the second was meant to increase the amount of eligible energy savings accounting them as the difference between *ex-ante* and *ex-post* consumption<sup>4</sup>.

#### MODIFICATIONS RELATED TO TARGETS AND DEMAND OF CERTIFICATES

In 2021 a further deep revision of the scheme was introduced. On the demand side, the target for 2020 was reduced from 7.09 to 2.84 million WhC as a response to the short-market phase of the scheme (lack of WhC issued with respect to the set targets). Also, the targets for the following four-year period have been significantly scaled down (Figure 1). The cut of the targets was established considering the amount of WhC available on the market and the potential related to the projects presented in recent years. Besides that, a market stability mechanism has been adopted, i.e., the opportunity for the Ministry to be able to review the targets of the mechanism, based on a periodic analysis of defined parameters, in particular monitoring the amount of issued WhC and ensuring its consistency with the current targets and with the National Energy and Climate Plan.

With respect to the target trend, it’s first important to take into account the numerous modifications of the rules that affected the potential to present projects and obtain certificates. To summarise:

- From 2011 to 2017 the tau coefficient has been applied (Di Santo et al. 2012), summing future savings related to years beyond the WhC lifetime to annual savings, affecting issued certificates also after 2017 for projects presented in that period.
- Since 2013 it is impossible to get white certificates together with other national incentives for the same project (i.e. many energy efficiency measures opted since then for differ-

3. In 2018, to calm the skyrocketing market prices, which reached almost 500 Euro/certificate, a cap at 250 Euro/certificate on the tariff reimbursement was introduced. The measure was effective but reduced the capability of the market to push new projects in a short supply situation. To overcome this issue, it was necessary to set new targets more suited for the actual supply level and to push the supply at the same time.

4. Previously additionality was evaluated on a per-project basis: proponents had to correct energy savings evaluated as normalized difference between *ex-ante* and *ex-post* savings (i.e. an approach in line with IPMVP – International Performance Measurement and Verification Protocol – option B), by considering what part of savings would have been obtained in any case due to legislative, market, and technological reasons. Such approach was quite precise and a unicum globally, but also quite complex to apply, requiring a huge effort from proponents to evaluate market baselines and trends for each intervention. With the new rules, for retrofit installations additionality is pre-evaluated by the Ministry and only energy efficiency measures considered additional according to the EED, listed in the Decree’s Annexes, are eligible.

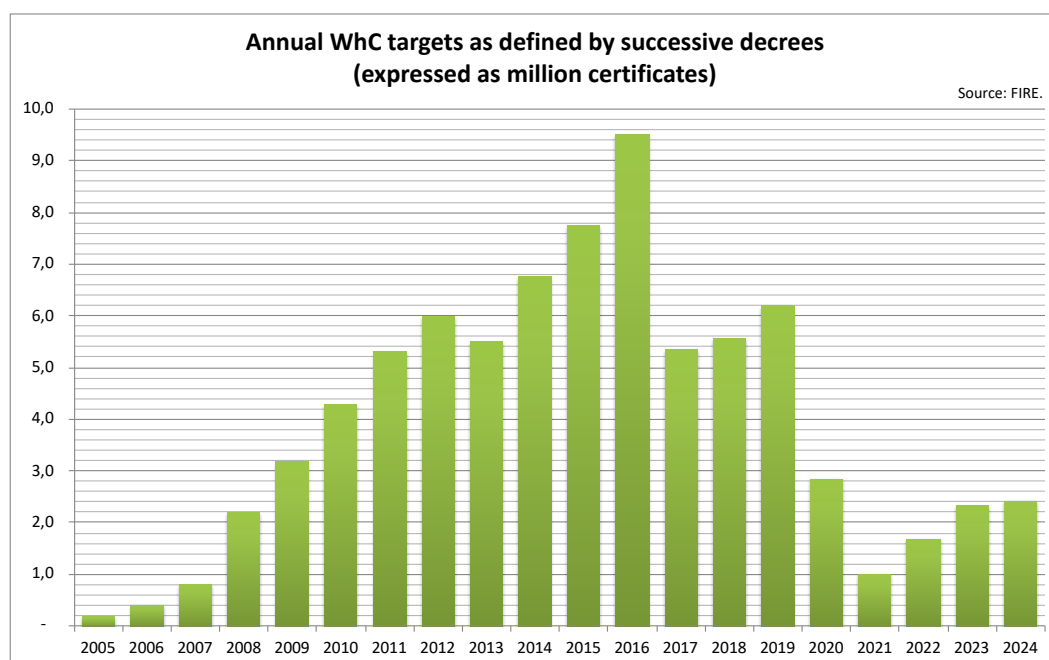


Figure 1. Annual targets in millions of certificates (each certificate corresponds to one Mtoe).

ent schemes, like tax reductions and “conto termico”). The only exception is the tax credit for energy efficiency measures related to digitalisation in the industrial sector but in that case the number of certificates issued is halved.

- From 2013 a WhC application must be submitted before starting to implement the project, with strict timelines<sup>5</sup>.
- Since 2017 simplified procedures (i.e. the so-called standard evaluations, based on deemed savings) are not eligible anymore and only metered projects with strict requirements in terms of metering and evaluation of energy consumption *ex-ante* and *ex-post* can be presented.
- In 2017 large frauds have been discovered, producing the non-issuance of at least 1.3 million certificates per year<sup>6</sup>.
- Since 2018 the additionality is no more evaluated on a per-project basis for retrofit projects<sup>7</sup>.

To understand the reasons behind the strong reduction of the targets introduced by the last decree, it is also fundamental to recognise the weight of the delayed certificates, i.e., certificates that should have been presented in a given target year but were postponed thanks to the flexibility granted to obliged parties<sup>8</sup>. Given the short supply of certificates that started affecting the

scheme since 2009, especially from 2016 on delayed targets have played a determinant role and basically minimum yearly targets have become the real reference. In a given year, such minimum target for each distributor is the sum of its quota of the decree target (calculated on the basis of its distributed energy in the previous year), minus the flexibility quota, plus the postponed quota of the previous years' targets. Figure 2 allows to see the difference between the supply (available certificates) and the demand (as sum of decree's targets and delayed ones). Both 2020 and successive targets would have been completely unachievable without the targets' reduction. The Ministry also wanted to make targets in line with the supply, recovering the dead weight of delayed targets.

Another goal of the decree is to progressively reduce the use of the so called “virtual certificates”, introduced in 2018 to allow the scheme to work without fining obliged distributors in the absence of a fair supply to cover the actual obligations. This involves the issuing by GSE of certificates not corresponding to energy savings to distributors that apply for between April and May, until their minimum obligation is achieved. The purchase price is higher than the value of the definitive tariff contribution for the obligation year, making this choice suitable only in case of lack of certificates on the market. The new rules fix a minimum cost for the purchase of those certificates of 10 Euro/certificate. They also require a distributor to cover at least 20 % of their target with real certificates to unlock the possibility to purchase virtual certificates.

#### MODIFICATIONS RELATED TO THE SUPPLY OF CERTIFICATES

##### Enlargement of eligible projects

On the supply side, the list of eligible energy efficiency projects has been updated, categorised by type of intervention and form of energy saved with an indication of technological WhC lifetime values (it lasts from three years, valid for behavioural change measures and some simple energy efficient solution, to

5. Before it was possible to apply also after the project implementation, making much easier to participate, but also creating issues in terms of materiality (i.e. ensuring the project were implemented because of the WhC scheme).

6. This number refers both to the fraudulent certificates and to certificates not issued due to very strict documental control adopted as a countermeasure for all simplified projects. Due to the WhC timeline, the supply has been deprived of this number of certificates for at least 5 years, making it impossible to achieve the scheme targets.

7. For new installations it is still required to evaluate additionality on a per-project basis, identified the correct reference scenario for the energy consumption baseline.

8. Depending on the period, such flexibility, available for a quota between 40 and 50 % of each obliged distributor's target, has given the opportunity to produce the required certificates one or two years after the target year.

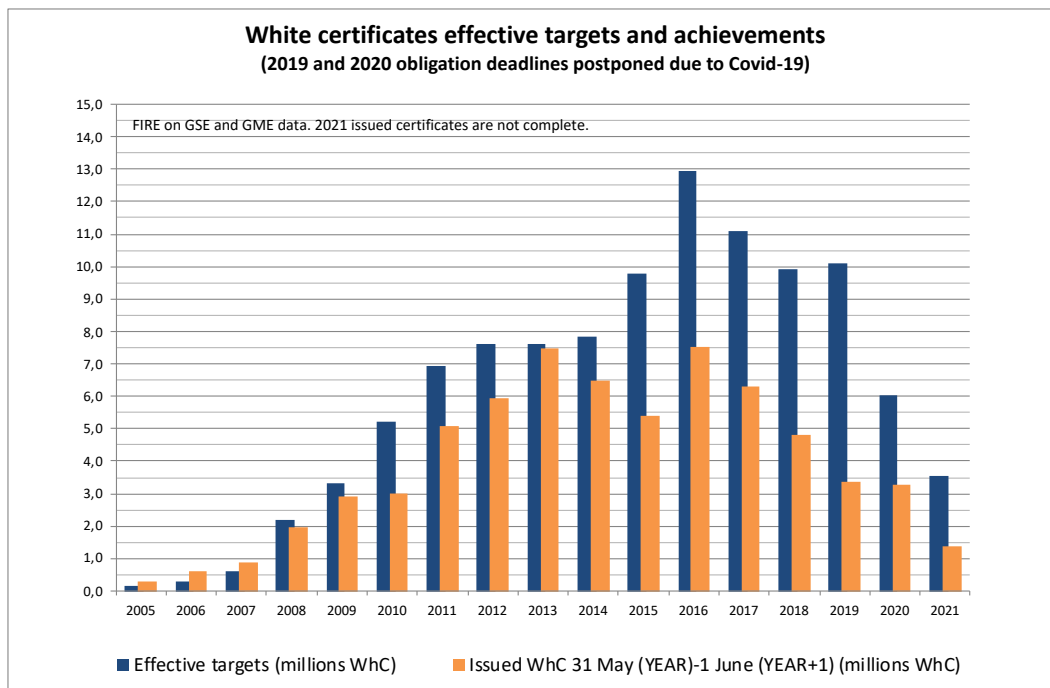


Figure 2. Effective yearly targets (flexibility excluded) and certificates issues.

ten years for complex and expensive projects with an adequate expected lifetime). The idea is to facilitate the submission of projects, by increasing the number of eligible solutions.

To solve issues arisen with some project applications, integrated efficiency projects have been introduced in addition to retrofit and new installation projects (a distinction introduced both to manage additionality and different WhC lifetimes for various energy efficiency measures). That is a category cross between the other two and can include the contextual replacement or new installation of components and devices, as well as a change in the layout of production lines, applied to entire components, transport vehicles, production lines (or part of them), or buildings (or part of them).

#### Simplifications and enhancements for the submission of projects

Regarding the submission of the projects, many innovations have been introduced, some very specific:

- Possibility of avoiding the twelve months pre-intervention measures where *ex-ante* consumption is higher than a reference one deriving from market analysis.
- Reduction of the minimum thresholds for half-yearly and quarterly reporting to 500 and 1,000 certificates, respectively<sup>9</sup>.
- Possibility, for interventions in transport and buildings sectors, to receive 50 % more certificates in the first half of the WhC lifetime period, with a corresponding reduction in the second half.

- A 2 % certificates bonus for the entire WhC lifetime, up to a maximum of 40 toe, for interventions carried out in implementation of energy audits in compliance with EED art. 8 transposition, provided that the owner has implemented a certified energy management or environmental system.

To reduce the risk of application rejection for complex projects (an event that is quite frequent when dealing with industrial processes), proponents can now submit preliminary applications to GSE prior to the start date of the project:

- Preliminary communications, showing the willingness to access the mechanism, as a necessary precondition for the development of the project. By sending this preliminary communication, the proposing party undertakes to submit a formal application no later than 24 months from the date of the preliminary communication. This communication allows GSE to evaluate possible eligibility issues, so that the proponent can receive feedback on that prior to the start of implementation of the project and be assured on the obtaining the white certificate.
- Preliminary assessments, requesting an effective pre-assessment of the project. In this case, GSE will communicate the outcome of the technical assessment carried out, giving the proponent the option to verify if there are issues with the various parts of the proposal (eligibility, description, M&V, additionality if new installation, etc.). Following any positive outcome on the admissibility of the project to the mechanism, the proposing party is in any case required to submit a subsequent formal application no later than 24 months from the date of transmission of the request, pointing out any changes that have occurred with respect to the original project. With respect to the previous option, in this case an effective assessment of the project is done, giving the propo-

9. The standard reporting period is equal to one year. The possibility to present reporting more frequently allows to issue certificates more often, ensuring an improved stability on the market, other conditions being equal.

ment assurances not only on the eligibility of the project, but also on aspects such as the methodologies used to evaluate the savings, the meters, the used algorithms, the correction factors to be considered, etc., ensuring both the success of the application and a quantification of the potential white certificates.

A revision of project evaluation procedures has also been introduced with the provision that the GSE may request, for one time only, additional information from the proponent to be transmitted. The proponent has in any case the right to provide additional information in support of the application, and the evaluation is concluded within 60 days of receiving the supplementary information. This should simplify the administrative procedure with benefits both for GSE and applicants.

#### Introduction of new eligible proponents

According with the 2017 Ministerial Decree, projects can be submitted by a proponent that can be an ESCO certified according to the UNI CEI 11352 Italian standard, an energy management expert certified according to the UNI CEI 11339 Italian standard, or an ISO 50001 certified company. The proponent can present projects on behalf of or be the owner (i.e. the subject that made the investment). With the new rules, in addition to individual companies/entities, temporary business groupings or temporary business associations can also be configured as owners; in this case, a collective mandate is given to one of the companies to operate in the name and on behalf of the other participants. Also this modification of the rules should facilitate the participation to the WhC scheme.

#### Support measures to promote and facilitate the submission of energy efficiency projects

An important part of the decree is the provision to offer a more structured support to proponents and the other involved stakeholders. Unfortunately, when dealing with industrial processes standardisation is a utopia, apart from cross-sectoral measures like electric motors, pumps, air compressors, etc. That means many issues arise both for proponents in drafting the application and for GSE in its evaluation, with projects rejected or with reductions of the number of certificates in the reporting phase. A scheme without a reasonable success record is not considered reliable by companies and produces limited results.

As mentioned in Di Santo and De Chicchis, 2019, issues related to large frauds, additionality evaluation, and metering produced in recent years both a large decrease in the issued certificates and a reduction of trust in the scheme by potential applicants. GSE has invested in the last two years many resources in trying to recover this issue and the decree offers additional tools to recreate a working system.

The launch of an assistance service by the GSE is thus foreseen to support the proponents in the project preparation phase (e.g.: the provision of preliminary technical, procedural, and administrative clarifications, extensive guidelines, tools for preventive simulation of certificates, etc.). GSE has also been requested to build a database of projects divided by type of intervention, containing a brief description of the project, an indication of the baseline consumption, the algorithm for calculating the savings, the energy savings generated by

the project and the costs related to the implementation of the project<sup>10</sup>.

The guidelines will contain:

- Eligibility conditions to be met, including any regulatory constraints.
- The detailed list of documentation to be sent to GSE when submitting the proposal with suggestions to avoid non-conformities.
- The detailed list of the documentation to be kept by the proponent in case of need for additional documental and on-site verifications with suggestions to avoid non-conformities.
- Reference consumption values for typical new installations energy efficiency measures.
- Information through dedicated guides for the definition of the energy consumption baseline, metering requirements, algorithms, and of the needed correction factors for typical retrofit energy efficiency measures.

With respect to the last point, priority will be given for information documents related to projects in the service and transport sectors, as well as for projects concerning pumping systems, refrigeration units, heat pumps, thermal energy production systems, compressed air production systems, lighting systems and connection of new users to district heating and cooling networks.

Having a collaborative approach and dialogue between the parties is key to ensure a proper operation of a scheme based on savings evaluated with an IPMVP option B approach, especially in contexts like the industrial sector where standardisation is not easy to achieve.

Table 1 summarise the main measures introduced in 2021 in Italy.

## The results so far

### WHC PRICE

The reduction of the targets has had, as expected, an effect on the price of the certificates, both on the spot and on the bilateral markets. The following figures show the price trend in both cases<sup>11</sup>. After the surge in price in 2018, the Ministry introduced a cap at €250 for the tariff reimbursement for distributors, obtaining in fact a stabilisation of the price around €260/certificate<sup>12</sup> but reducing the possible driving effect of higher prices on the supply of certificates. Despite this, the shortage became

10. Due to privacy constraints, in the past it has not been possible to implement such a database that could obviously facilitate proponents in understanding how to prepare proposals and to correctly evaluate savings.

11. It is worth saying that a short market condition with high prices is one of a possible working condition in a market-based EEO. The underlying idea is that 1) the rise in prices will make more energy efficiency measures economically viable, 2) thus the supply of certificates will rise 3) allowing to recover the equilibrium in the market. So usually, policy makers shall not intervene in case of an insufficient supply. However, if the shortage in the supply is too high and there are regulatory or market conditions that interfere with an adequate recover, like it was the situation in Italy for the reasons explained in Di Santo and De Chicchis, 2019, a reduction of the targets is needed to ensure the cost-effectiveness of the scheme.

12. This difference is connected to the purchase price of virtual certificates, as explained before.

Table 1. Summary of measures introduced in 2021 for the Italian WhC scheme.

Measure	Aim	Estimated effect	Additional space for improvements
WhC targets reduction	To allow to re-establish an equilibrium between demand and supply	High	
Market stability mechanism	To ensure that the targets are updated to avoid excessive differences between supply and demand	High	To verify the possibility to introduce automatic updates of the targets
Enlargement of eligible projects through new admitted projects	To increase the number of eligible projects	Medium	To regularly update the list of the eligible projects
Enlargement of eligible projects through the new integrated projects type	To increase the number of eligible projects	Medium	
Simplifications for the <i>ex-ante</i> baseline definition	To facilitate the submission of projects	Low	More flexibility should be granted in accordance with IPMVP
Preliminary communications and assessments	To reduce the risk of projects rejection and to create the possibility to discuss M&V and other technical details.	Medium	To improve after the evaluation of the effectiveness of the measure
New eligible proponents	To facilitate projects submission	Low	
Support measures	To stimulate the supply of WhC	High	

so huge in 2021 that prices rose to €300/certificate, with distributors buying certificates even if it meant a loss in their balance sheet of around €50/certificate.

The issuing of the new decree, with the reduction of the 2020 target, relaxed the situation and produced a price reduction (in fact, the decrease started in April, when the main content of the new decree has been anticipated). The new decree assigned to ARERA the task to define in future years the value of the cap that has been left equal to €250/certificate for now but with an additional component that allows to reach a tariff reimbursement of up to €260/certificate in case of shortage.

So, providing the new rules will produce a positive effect on the supply of certificates, in the near future a WhC price of €250–260/certificate is expected.

#### WHC SUPPLY

It is important to notice that one of the most interesting provisions of the decree to bring the scheme to a new life – i.e. the activation of the support measures, with the guidelines and the project database – has been delayed due to Ministry's internal reorganization and has not been able yet to provide a push to the market.

GSE in the meantime continued working on a more supportive approach, in line with its efforts in the last years. One of the outcomes is the reduced number of rejected projects. The rejection rate rose to 50 % in 2015–2017 due to a progressive complication in the M&V rules and to stricter evaluations, often not correctly interpreted by applicants. In 2021, according to GSE's November monthly communication, the percentage of the approved projects was around 79 % that appears to be a remarkable improvement. However, according to GSE's 2022 January

communication these are only preliminary figures since only 30 % of the presented projects has completed the evaluation process<sup>13</sup>. So, it is still early to draw conclusions.

Preliminary communications and preliminary assessments have been used (from September 2021 to February 2022, 8 preliminary communications and 79 preliminary assessments have been presented, to be compared with 182 formal applications received by GSE in the same period), showing that they are considered a good tool to reduce uncertainty.

In terms of issued certificates Figure 5 shows that overall in 2021 the slow decline from the end of 2017 continues despite the efforts to stimulate the supply of certificates. This is both due to the progressive completion of the WhC lifetime of projects presented before 2017 and to the effects of the Covid-19 pandemic.

So apparently there is no good news on the supply side yet. However, there are two facts that can balance this result. First of all, a detailed analysis of the certificates issued by year and by year of first request based on GSE's open data shows that in 2021 there has been a reduction in the number of certificates issued with respect to 2020 and 2019<sup>14</sup> that is most probably due to the reduction of activities in the industrial sector caused

13. As a useful reminder, in the Italian scheme the proponent has first to present a monitoring plan proposal and then, after its approval, a request for certification – containing the data collected from the M&V – at least once a year over the WhC lifetime to receive the certificates. For additional information: Di Santo et al., 2018, IEPPEC.

14. Considering projects presented in 2017, for example, the certificates issued in 2019 were around 409 thousand, in 2020 246 thousand, and in 2021 around 133 thousand (for 2021 statistics are available until the end of October), whereas the number should have been more constant being related to the same projects. Such a behavior could be explained considering a reduction of savings due to the reduction of activities in the industrial sector linked with the pandemic in 2020 and 2021.

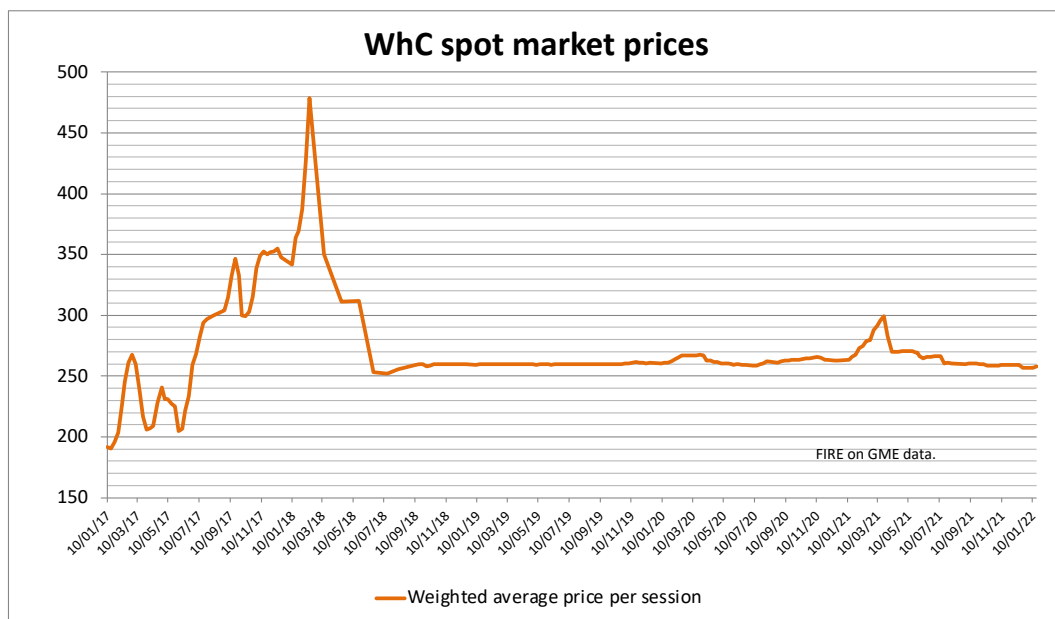


Figure 3. Price trend in the spot market.

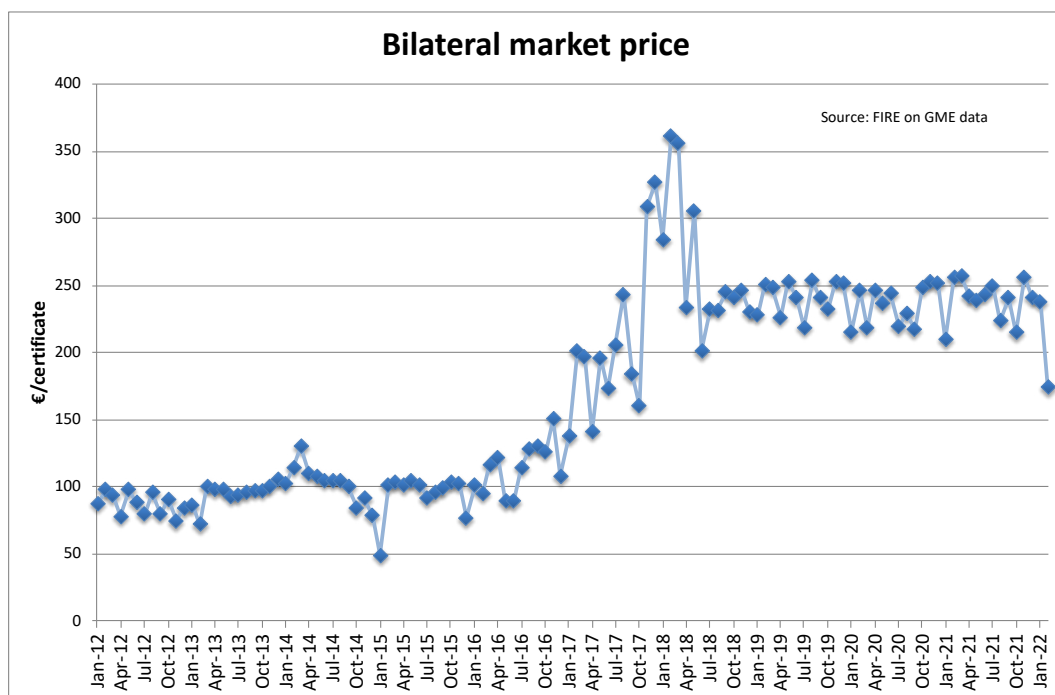


Figure 4. Price trend in the bilateral market.

by the pandemic. One of the provisions of the new decree was to allow proponents to present an extra annual request for certification to balance the effect of the economic crisis, giving the opportunity to obtain additional certificates in 2022. Furthermore, the possibility to postpone the starting date of a project, or the starting period for accounting the savings achieved, by the end of the national Covid-19 “emergency period,”<sup>15</sup> has

been given to the proponents. So, it is conceivable that there are some already approved projects that will start to get certificates after that deadline.

The second point is that the certificates issued for projects presented with the rules introduced in 2017 are continuously rising. Numbers are still low if compared with the previous years, as Figure 6 shows, however there are three important points. First, in 2021 the certificates linked to new projects showed an increase with respect to the previous year for the first time in five years. Secondly, the tau multiplier and standardised projects

15. The deadline of such emergency period is presently fixed to the end of March 2022.

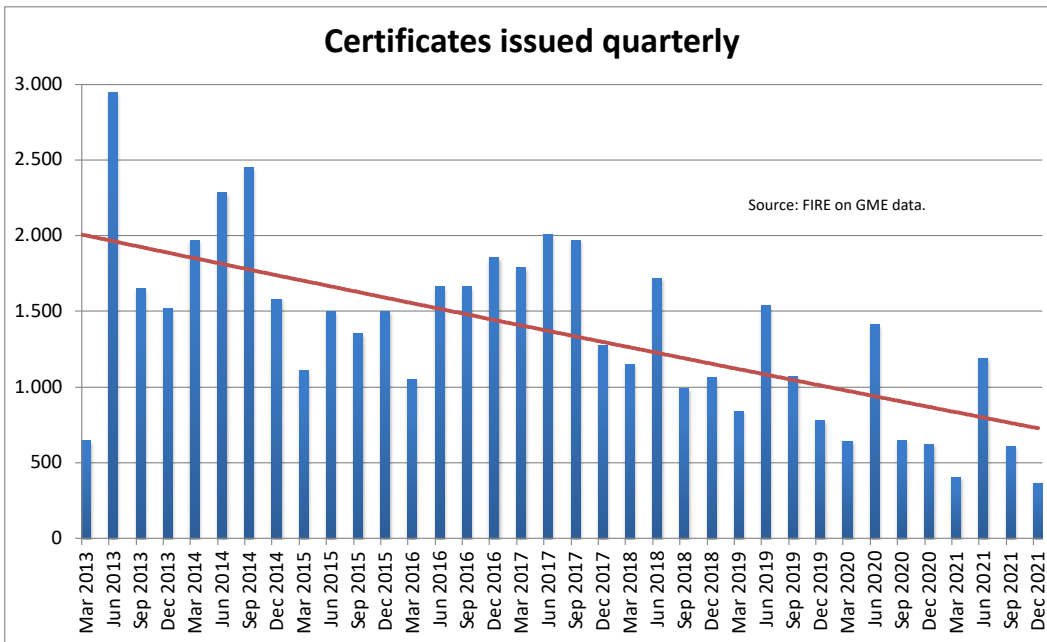


Figure 5. Quarterly release of white certificates over the last years.

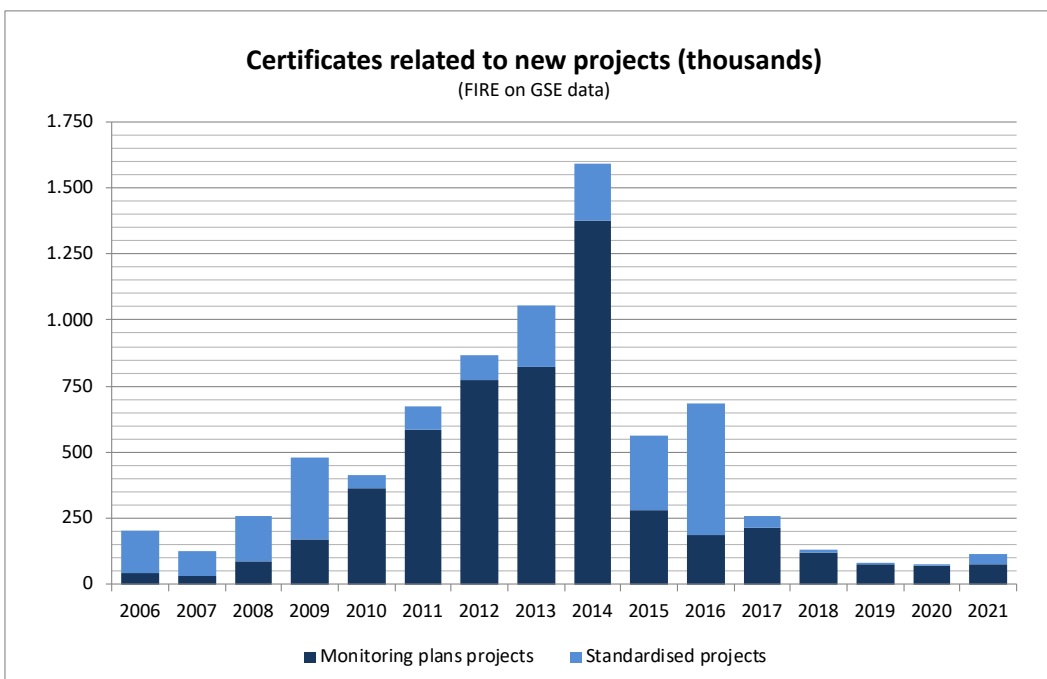


Figure 6. Issued certificates related to new projects by year.

are no longer available<sup>16</sup>. That means that when we compare 2017–2021 numbers with 2016 and previous years, not only the light blue part is no more available<sup>17</sup>, but the certificates issued

for monitoring plan projects have to be divided by a factor of 3 to take into account the tau multiplier. It means that the number of certificates for monitoring plan projects has not changed dramatically and that the effects of the new rules can be that of launching again the supply (on numbers non comparable with the golden era between 2011 and 2014 but due on much stricter

16. More correctly, it has been possible to present “progetti standardizzati” also after 2017. However, the standardization adjective in such projects refers to the possibility to limit M&V to a sample of interventions of the same type as defined in dedicated guidelines. These projects are thus much more similar to monitoring plan projects than to deemed saving approaches.

17. The 2021 data shows around 39,000 certificates linked to standardized projects, which are related to certificates blocked after the round of deep controls

implemented in 2017–2018 and unlocked due to recent decisions of the administrative court.



rules, not on the capability of the scheme to promote metered energy efficiency projects).

Presently there are two trends to take into account from a supply side point of view. On the one hand the number of certificates related to projects submitted under the rule defined in 2012 are going to disappear from the market. To give a reference, the certificates issued for monitoring plan and simplified monitoring plan projects submitted under the 2012 rules were around 2.5 million in 2018, in 2021 they amounted to 0.8 million and in 2022 are estimated to be 0.6 million. The certificates issued for monitoring plan projects submitted with the rules introduced in 2017 were 1.4 thousand in 2019 and rose to 49.7 thousand in 2021. In 2022 they are estimated to be 75.0 thousand, plus the ones linked to new projects presented during the same year. In addition there are certificates issued for high efficiency cogeneration, which are estimated to be around 900 thousand in 2022.

Once the certificates issued under 2012 rules will complete their WhC lifetime only certificates issued under 2017 and subsequent rules will be available. To match 2024 targets, we need to reach a number of certificates issued yearly from new projects of about 100 thousand. The potential related to presented projects is well above such value (it reached over 225 thousand yearly certificates in 2020 and around 120 thousand in 2021, so we have to see how many of these projects will present consumption data in the next years and get certificates, but the potential is there to increase the targets in the upcoming years.

## Conclusions

It is still too early to offer a detailed analysis of the outcomes of the new WhC guidelines introduced in 2021 in Italy. The improved attention to support measures, the options introduced to reduce uncertainty, and the definition of realistic targets after the negative effects of large frauds and the application of stricter rules to contrast such phenomenon are all measures that shall be able to bring the scheme to a new equilibrium and that should stimulate the supply of certificates through the presentation of more projects. Preliminary results are encouraging, but it is still early to draw conclusions on the impact of the new measures.

This will be a desired effect both in to comply with the 2030 targets, given the confirmed usage of white certificates as one of the policy measures to produce the required energy savings, and to support companies in reducing their energy demand, getting benefits both in terms of emission and of bill reduction. The last voice appears to be particularly important in view of the skyrocketing energy prices that the rising energy demand coupled with the Ukraine war has created.

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#### LINKS OF INSTITUTIONS RELATED TO WHITE CERTIFICATES IN ITALY

MiTE, Ministry of Ecologic Transition, [www.mite.gov.it](http://www.mite.gov.it)

ARERA, Regulatory Authority for Energy, Grids, and Environment, [www.autorita.energia.it](http://www.autorita.energia.it)

GSE, Italian energy services operator, [www.gse.it](http://www.gse.it)