



THE ITALIAN CLIMATE CHANGE THINK TANK

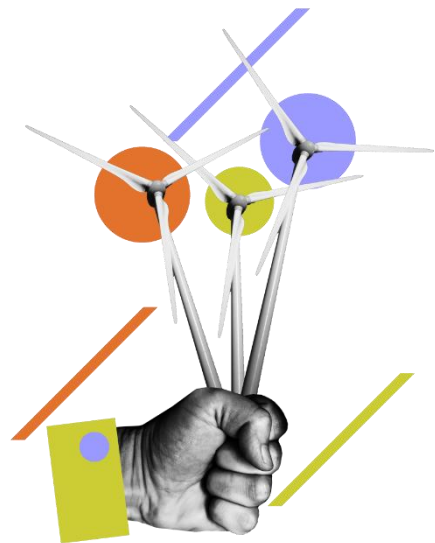
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THE ITALIAN RESPONSE TO THE CRISIS LACKS EFFICIENCY

ANALYSIS

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1 KEY MESSAGES

This paper offers an analysis of the Italian government's actions, suggests a series of proposals with respect to the gas crisis in terms of supply from Russian gas and identifies policies aiming at managing the price impacts in the short-medium term (2022-2025). This work follows a first analysis of how Italy could respond to the current gas crisis in the next 12 months thanks to energy savings, energy efficiency, renewables and existing infrastructure.

Energy supplies: prioritizing efficiency and renewables

- Currently the Italian response to the energy crisis does not quantify the contribution of energy efficiency in the diversification options from Russian gas, despite it is an essential element of the energy strategy, already included in the National Energy and Climate Plan (NECP), and it represents a founding component of the European *Fit For 55*, as well as a significant cost item in the national budget.
- The options currently identified by the government generate a potential gas replacement that is totally equal to about 59 bcm, compared with annual Russian gas imports of 29 bcm. Among these diversification options, a full exploitation of LNG (Liquefied Natural Gas) terminals and existing pipelines, considered as a short-term measure, can make a maximum contribution of 16 bcm, while the construction of new LNG terminals as well as the expansion of pipeline infrastructures, which are longer-term measures, can potentially account for 26 bcm. New national gas and coal production would contribute to additional 5 bcm. The contribution of renewables accounts for about 3 bcm per year (9 bcm in three years), whereas the one due to biogas growth for an additional 2.3 bcm. Thus, 95% of Russian gas imports would be already covered thanks to the contributions of renewables, biogas and a full exploitation of existing infrastructure, without the need for new infrastructure, new national gas production or the restart of coal-fired power plants.
- The impact of national and European energy efficiency measures has not yet been estimated in the government's strategy, nonetheless they are included in the NECP. The contribution of energy efficiency measures should also take into account the impacts of the NRRP (National Recovery and Resilience Plan), the Ecobonus and the Superbonus, as well as the targets on energy savings established by the European Directives on Energy Efficiency that has been revised by the *Fit For 55*, including those for public buildings.
- **Our estimates on energy efficiency contributions are 2.3 bcm by 2025. By considering additional energy efficiency measures the contribution rises to 6.9 bcm. This value is equal to 60% of the energy savings already projected by the NECP to 2030.** This estimate does not include immediate energy savings that can be made by changing our behaviour through voluntary measures of emergency consumption containment, estimated at about 5-7 bcm.
- **The inclusion of energy efficiency measures, combined with the contributions of renewables and the full exploitation of existing infrastructure, would allow to diversify Russian gas imports by 2025 in a structured way**, ensuring energy system security.
- The development of energy efficiency and renewables does not need a longer implementation time than other gas infrastructure extension options. On the contrary, renewables and efficiency allow a gradual contribution into the energy system.
- Nowadays it is necessary to define priority actions among all the options that are on the table; how much and how the response to the gas crisis coincides with the goals

of the Green Deal, as recommended by RePowerEU, and how much it is willing to invest in new gas infrastructure.

- **The risks of the government's strategy are the duplication of infrastructure costs, a further instability of the energy system and the inconsistency with the achievement of decarbonization goals.**
- To ensure the contributions of energy efficiency and renewables, it is necessary to set the quantitative targets in the short term and proceed in their implementation. It is necessary to reform, strengthen and make permanent the current mechanism to support efficiency in public and private buildings and introduce new instruments (conditionality and guarantees) for financing energy efficiency in the industry sector, by also directing PNRR funds.
- With respect to renewables, the contribution estimated by the government (9 bcm) or those proposed by Elettricità Futura (15 bcm) can be achieved only if there is a clear intention to remove the current obstacles to permitting processes, essentially caused by the government's renunciation of taking its responsibilities on the renewable development.

Action on prices:

- The government's response to the energy price crisis has been directed at distributing public resources in a manner that is unselective and inconsistent with voluntary and virtuous actions aimed at improving energy savings and efficiency, being the economic supports linked to real consumption.
- After six months since the gas price crisis began and one month since the start of the conflict, in the government's strategy there is no measure aiming at facilitating/incentivizing efficiency in energy consumption (for businesses and households) and/or the decarbonization of industry processes, elements that most contribute to diversify gas supply without creating contradictions with respect to the energy transition.
- In the residential sector, the annulment of charges and the reduction of VAT on gas generate a contribution proportional to the consumption (the greater the consumption the greater the economic supports), disadvantaging those who decide to reduce their energy consumption, voluntarily or because they are already in an economically difficult status.
- **Measures so extended over time risk to become unsustainable in terms of economic terms and at the same result insufficient to mitigate the increase in energy prices, particularly for the most vulnerable classes.** In the simulation, it is estimated that the subsidies for electricity and gas bills are approximately 265€ for a wealthy family and 108€ for a low-income family.
- The need to review the fiscal and parafiscal structure of the electricity tariff, and particularly the ASOS charge, should not overlap with the protection instruments addressed to the most vulnerable classes. Eliminating ASOS component during the crisis period does not help households and does not structurally solve the problem of charges on the electricity tariff, which must also be revised to correct the inequality between the electricity and gas sectors.
- By comparing the impacts of government's mitigation measures on household energy expenditures with those generated by self-reduction and consumption energy savings (in absence of governments' interventions), it emerges how the latter generate a very similar result on the final energy bill.
- **Resources should be directed at extending both the social bonus (electricity and gas), which is the most suitable mechanism for mitigating the energy price crisis, and household's purchasing capacity, which is further aggravated by rising inflation. Any support measures for energy bills should be linked to standard**

consumption levels and limited to a maximum volume of electricity and gas, so as not to decrease the incentive aimed at reducing consumption.

- Support measures should consider energy efficiency goals in the medium and long term. Specific conditionalities aimed at promoting energy efficiency in the industry sector should be included in the government's strategy.

2 INTRODUCTION

The current Italian response to the energy crisis does not quantify the contribution of energy efficiency in the diversification options from Russian gas, despite it is an essential element of the national energy strategy and a cost item in the national budget. The risks are a duplication of infrastructure costs and a further instability of the energy system. It is therefore necessary to understand what options are most impactful for energy and climate security in the short, medium and long term. Resources on reducing energy bills reaches 20 billion euros with the new energy decree, and after six months of emergency the time for make a reflection on the sustainability principles of spending and on a distribution of these resources that is fair and functional with respect to actual priorities has arrived.

The European strategy to the energy crisis, the RePowerEU plan, pointed out that the Fit for 55 package includes decarbonization measures that, before the Russian crisis, could reduce gas consumption by 30% (116 bcm) by 2030. As a crisis response, the RepowerEU reinforces and anticipates the results achieved by the Fit for 55 package promoting measures capable of reaching a 40% reduction in gas demand by 2030 compared to 2021 (up to 160 bcm).¹ This, combined with supply diversification through increased liquid gas (LNG) imports and greater exploitation of existing pipelines, would make it possible to end the dependence on Russian gas well by 2030.²

At the national level, the response to the Russian crisis has not yet quantified the contributions to diversify gas supply due to the RePowerEU's and the Fit for 55's measures in a recognizable and structured manner. In particular, in the strategy provided by the government³, the quantification of the impact of energy efficiency measures is still missing; the effects of the National Recovery and Resilience Plan (NRRP) on energy savings is unknown, as well as the expected energy savings due to more than 20 billion euros addressed at the 110% Superbonus; there is no reference on the impact of the proposal for the revision of the Energy Efficiency Directive, included in the Fit for 55 package, and of its related targets.⁴ It is still unclear how much the role of renewables, although mentioned and quantified in several speeches, is complementary with the options for expanding gas supplies and infrastructures.

The Italian strategy has put on the table diversification options that are double (about 60 bcm) than the current volume of Russian imports (about 30 bcm). The next step will be identifying the priorities on which to move towards. An underestimation of the contribution generated by the European Green Deal and a lack of determination on achieving its goals lead to a redundant and costly development of the gas infrastructure. With one month to go before the start of the

¹ This estimate were carried out by ECCO on the basis of gas savings due to a further development of renewables and energy efficiency measures, presented by the RePowerEU plan as additional to the Fit for 55 package ones (see Table 6 of the [European Communication](#)). See [IEA](#) for data on the 2021 European gas demand.

² https://eur-lex.europa.eu/resource.html?uri=cellar:71767319-9f0a-11ec-83e1-01aa75ed71a1.0001.02/DOC_1&format=PDF

³ Communication of the Minister of the Ecological Transition, Roberto Cingolani, on March 16th at the Senate and on March 22nd at the Chamber of Deputies.

⁴ The current Energy Efficiency Directive requires a reduction in final energy consumption of at least 0.8% per year. Within the new proposal this value has been revised to 1.5% starting in 2024. In the public sector, consumption needs to be reduced by 1.7% per year, and the annual building renovation rate must be equal to 3%.

conflict, in which Italy spent the equivalent of 3 billion euros on Russian gas supplies⁵, Italy's primary goal remains to diversify "one-to-one" Russian gas through new infrastructure and new gas production instead of focusing firstly on reducing gas consumption through the decarbonization options immediately available, as already suggested by the Fit for 55 package. These options offer the most economically reasonable ways to manage energy costs.

In the following paragraphs we offer an analysis and proposals about the response to the Russian crisis in terms of supply options and policies for managing price impacts in the short to medium term (2022-2025). This work follows a [first analysis of how Italy could respond to the current gas crisis in the next 12 months](#) thanks to energy savings, energy efficiency, renewables and existing infrastructure.

⁵ Daily physical flows at the Tarvisio entry point, published by Snam, and the spot price at the Dutch TTF hub, published by the European Energy Exchange (EEX), were considered for the expenditure on natural gas imports. The daily expenditure results in about 92 M€/day.

3 SUPPLIES: THE GOVERNMENT'S SCENARIO

To date the options identified by the Italian government generate gas reductions that are twice the current supplies from Russia. Unfortunately, no indication has yet emerged as to which priorities the government intends to ensure energy security, nor whether and how these priorities coincide with the goals of the Green Deal.

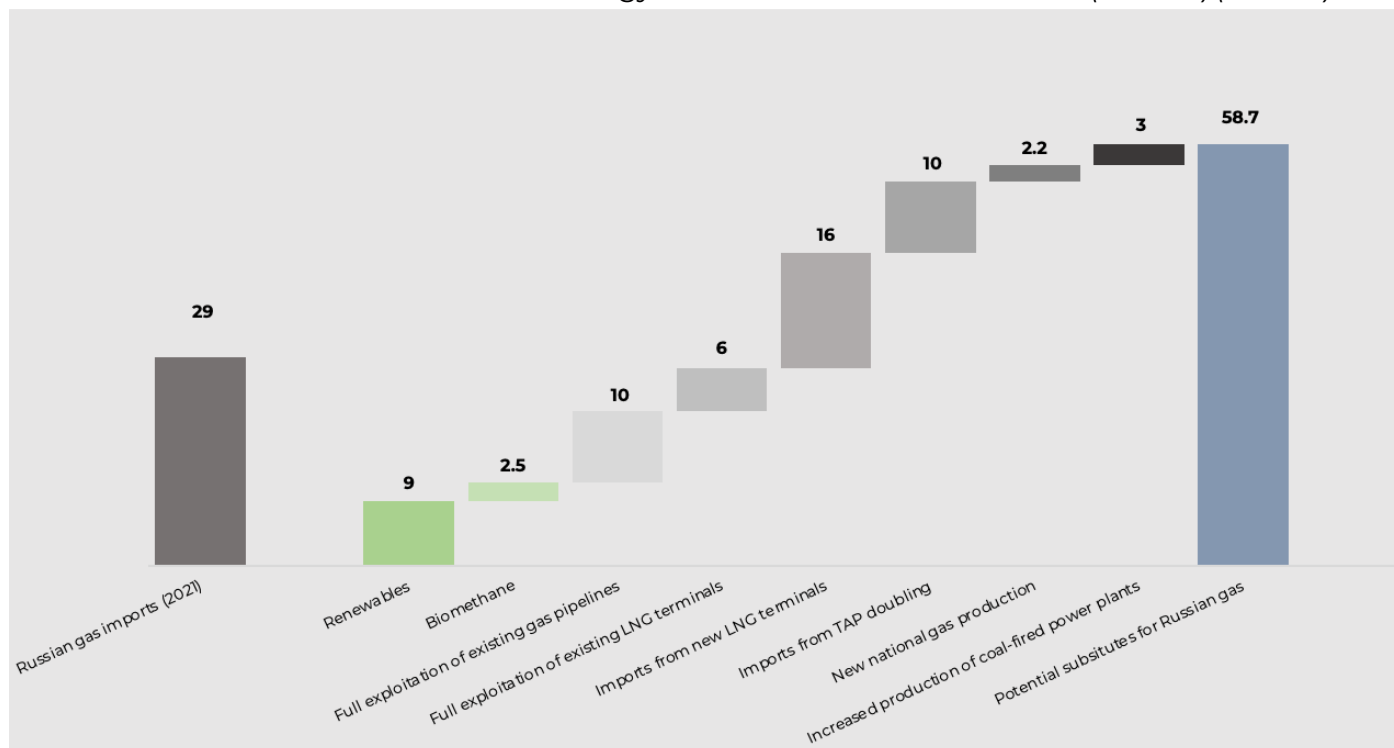
During its communications at the Senate on March 16th and the Chamber of Deputies on March 22nd, the Minister Cingolani listed a series of possible Russian gas substitution options, corresponding to a total volume of more than 58 bcm compared to a gas import from Russia of 29 bcm. In addition, the possibility of the Israel-Cyprus-Italy gas pipeline corresponding to further 12 bcm was recently reopened.

Energy efficiency is not included in these measures.

Of the identified options:

- 44 bcm regard the extension of gas production plants or import infrastructures. Of these, 16 billion are achievable through a full exploitation of existing infrastructure (pipelines and LNG terminals), 26 billion from new LNG infrastructure and TAP doubling, and 2 billion from an increase of national gas production.
- 11.5 billion are the cubic meters that can be replaced by increasing renewables (9 bcm) and biogas supply (2.5 bcm).

Chart 1 - Government's diversification strategy in the short and medium term (to 2025) (in bcm)



From the numbers provided by the Minister of Ecological Transition, the sum of the development of renewables and a full utilization of existing infrastructure is already equivalent to 95% of the gas imports from Russia. This package of measures and the choice of these priorities, despite the total absence of energy savings and efficiency, would represent a complete alignment of the Italian crisis response with the goals of the Green Deal, without a cost duplication for developing additional gas infrastructure, national gas production and restarting coal-fired power plants.

In terms of timing, the full exploitation of existing infrastructure, which is subject to the availability of supply from producing countries, combined with a strategic use of storage allows

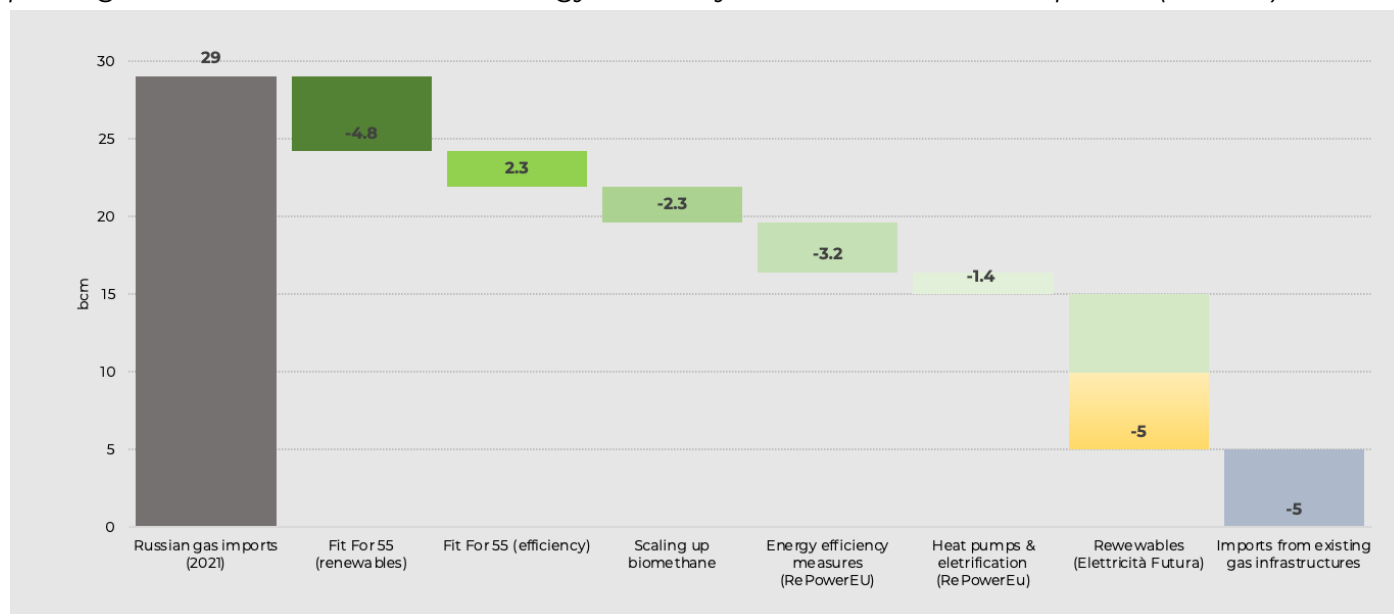
for a short-term response, while the development of renewable sources accounts for a progressive contribution of about 3 bcm per year. The construction time for new infrastructure ranges from 12-18 months in case of floating LNG terminals to more than 3 years for the TAP doubling.

4 IF WE ADD EFFICIENCY

By trying to quantify the Italian gas reduction generated by the energy saving options already provided by the European targets, it is possible to obtain a gas substitution of about 2.3 bcm over the next 3 years. By considering the RePowerEU guidelines of anticipating the 2030 targets, additional energy efficiency measures can be added corresponding to a further gas reduction of about 3.2 bcm. An additional potential of 1.4 bcm can be obtained by the electrification of final consumption in buildings and in low-to-medium temperature industry. **By summing these values, the contribution of energy efficiency results to be about 6.9 bcm by 2025.** After all, already the NECP, although based on a European emissions reduction target of 40% by 2030, now updated to 55%, plans a reduction in Italian final energy consumption from an average of 115 Mtoe (2017-2019 period) to 104 Mtoe by 2030. 6.9 bcm corresponds to less than 60 % of the overall efficiency 2030 target in Mtoe set by the NECP.

Further strengthening of green options could also include **a greater increase in the contribution of renewable sources bringing it to a total of 15 bcm.** This hypothesis, in line with the potential savings presented by Elettricità Futura, the Italian association of electric industry, is higher than the value estimated by the Ministry of Ecological Transition (MITE) equal to 9 bcm.

Chart 2 - Substitution of Russian gas imports through the implementation of the Fit for 55 package and further measures of energy efficiency and renewable development (to 2025)



By combining the options of renewables and efficiency with the full exploitation of existing infrastructure, our country would be able to have resources equivalent to the current Russian gas imports by 2025.

The sum of options that include Green Deal goals and a greater use of existing infrastructure ranges between about 30 bcm, corresponding to the scenario presented by the government combined with the minimum efficiency contribution of 2.3 bcm, as provided by current targets, and 40 bcm for a scenario closer to RepowerEU, in which there is a greater boost in energy efficiency and renewable.

These options can be also combined both with additional immediate energy savings that can be made by changing our behavior through voluntary measures of emergency consumption containment and that are estimated at about 5-7 bcm, and with the possibility of restarting coal-fired power plants, which is an option to be avoided but still available and that can generate further 3 bcm of gas reduction. In fact, from this perspective, the use of coal-fired power plants should not be seen as a step backward respect to environmental goals, but as a backup option to a scenario that optimizes the energy strategy toward climate goals in a way that avoids duplication of system costs.

The government's ability and determination to implement and strengthen the objectives of the Fit for 55 represent the assumptions for the achievement of this scenario's goals.

Given these considerations, the implementation of the Green Deal package becomes a priority action in selecting which diversification options to carry out, ensuring that the goals are met rather than choosing the development of new gas infrastructure or the immediate use of coal-fired power plants. It is worth noting that before the pandemic crisis gas prices were at historic lows due to an infrastructure that was already redundant compared to European and Italian demand trends. In fact, and contrary to Minister Cingolani's claims about a constant trend for gas consumption over the past 20 years⁶, the Italian gas demand has suffered a structural decline (not to be confused with annual fluctuations) of 14% since the 2005 peak, thanks precisely to energy efficiency, renewables and the impact of economic crisis and industrial restructuring.⁷ This trend is likely to accelerate given the new Fit for 55 and RePowerEU targets, leading to a drop of up to 40 % by 2030 in European gas. In this context, without a stress-test and an analysis about the compatibility of gas supply with respect to decarbonization scenarios, there is a risk of overestimating and over-investing in new infrastructure that will not be needed and whose sunk costs will burden public and private spending.

5 HOW TO ACTIVATE ENERGY EFFICIENCY

Activating the estimated potential of energy efficiency requires a clear recognition of its role by the government and a strategy that ensures a review and the introduction of new tools for reaching the goals in public and private buildings as well as in industry processes.

To achieve this, a review and an enhancement of the effectiveness of current incentive instruments are needed.

1. The current 110% mechanism needs to be reformed and made a key structural element of energy policy. The incentive component will have to be reduced and linked to more conditionalities with respect to targets. Currently, the Superbonus requires the improvement of only two building energy labels and permits gas boilers to obtain incentives. Therefore, the effectiveness in ensuring access to energy efficiency by most vulnerable consumers needs to be enhanced. The financing of the mechanism is neither guaranteed nor programmed over a long-term horizon, triggering an accordion-like growth in the sector and dynamic speculation on renovation costs. **Its rationalization should include a reordering of fiscal incentives**

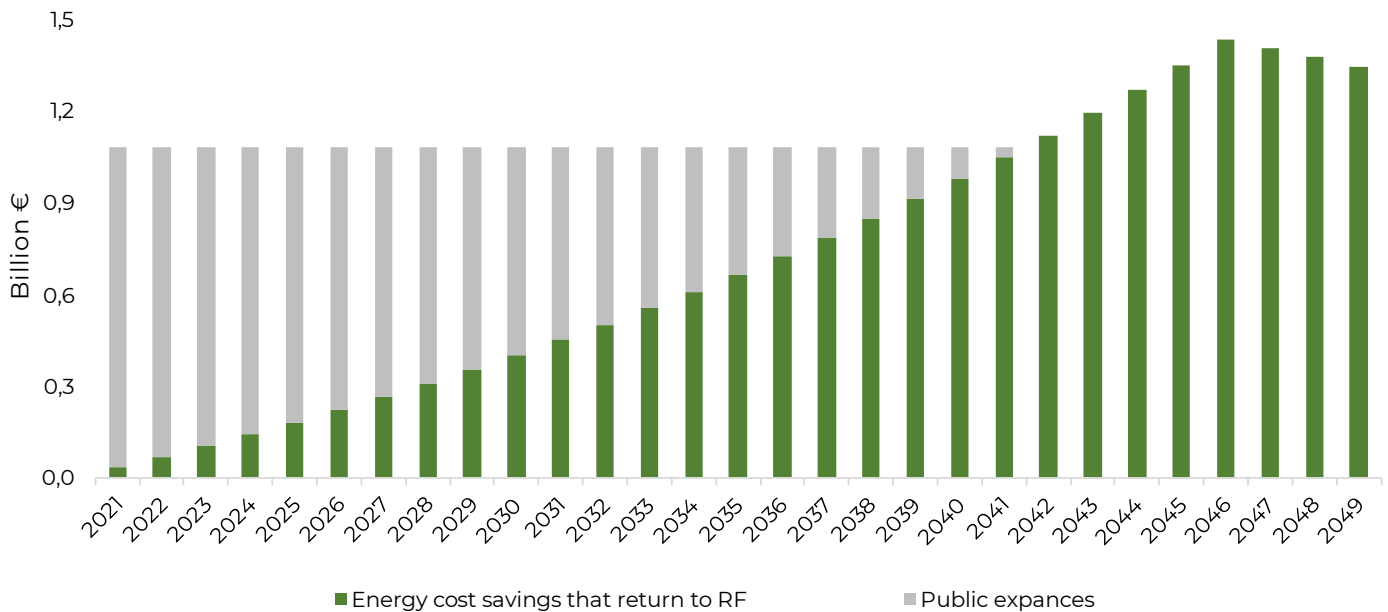
⁶ "Natural gas consumption has remained basically stable over the past two decades, with an average of 76 bcm in 2021; it has actually fluctuated between 70 and 86 bcm, but the average value has remained basically that" (Minister Cingolani on March 22nd during his communication at the Chamber of Deputies).

⁷ https://eccoclimate.org/wp-content/uploads/2022/03/Risparmio-e-rinnovabili-per-uscire-dalla-dipendenza-da-gas_Analisi_Embargoed-1.pdf

addressed to building renovations, the introduction of more challenging savings targets, the exclusion of gas boilers and a reduction gradual reduction of the fiscal deduction level. The instrument should be programmed at least until 2030 as was done for car disposal incentives. The reduction of the incentive component should be compensated by a mechanism that facilitates private individuals' access to credit. For example, the British government has just identified "energy security" as a strategic priority and has initiated measures (through the new UKIB infrastructure bank) aimed at reducing to zero the interest on bank loans designed to energy efficiency in buildings.

2. **Energy efficiency in social housing should be pursued with a specific and dedicated system of financing and supporting for administrations with a time horizon up to 2030.** A strategy addressed specifically on this sector is essential to manage the impacts on the most vulnerable population.
3. The ability of implementing a strategy to achieve energy efficiency goals for public buildings represents an essential component of the crisis response, taking into account also the resources of the NRRP and the revision proposal of the Energy Efficiency Directive that introduces a target for annual renovation rate in public buildings equal to 3%. The establishment of a revolving fund would make it possible to collect resources generated by achieved energy savings for financing new interventions over time. The revolving fund is supplied by schools' energy bills, whose reduction, generated by already realized energy efficiency interventions, is used by schools to support continuously the fund and in turn finance other energy efficiency projects (green part of the graph).

Chart 3 - Revolving fund for promoting energy efficiency in Italy's 8,000 schools.



4. For achieving efficiency targets and boosting end-users electrification, it will be necessary to review fiscal components and environmental charges of both electricity and gas tariffs. Currently the distribution of charges between the two carriers is strongly in favor of gas sector, thus contributing to support buildings' heating systems based on gas rather than favoring the penetration of electric heat pumps or other more efficient and cleaner electrification options. Environmental charges on gas are more than 5 times lower than those for electricity.

Chart 4 - Distribution of tariff components between gas and electricity in the civil sector

Gas tariff

Economic conditions for a typical residential consumer
(1400 m³/year) – Q1 2021

Tariff components [€/GJ]

Energy+ infrastructure+system charges	10,6
Environmental charges	0,4
Fiscal charges	6,9
TOTAL	17,9

Estimate of fiscal components with respect to externality



Electricity tariff

Economic conditions for a typical residential consumer
(3 kW – 2700 kWh/year) – Q1 2021

Tariff components [€/GJ]

Energy+ infrastructure+system charges	34,7
Environmental charges	13,6
Fiscal charges	7,2
TOTAL	55,5

Stima delle componenti fiscali rispetto all'esternalità

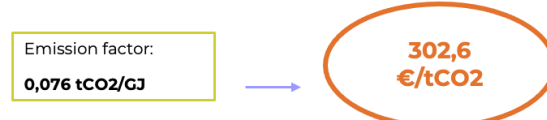
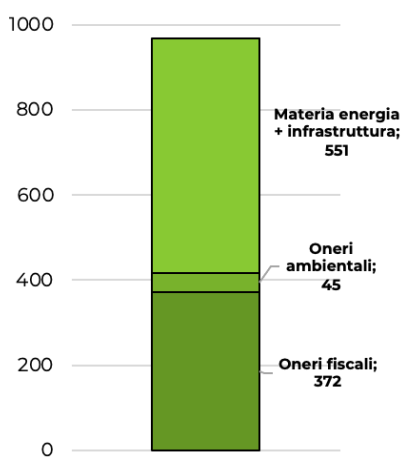


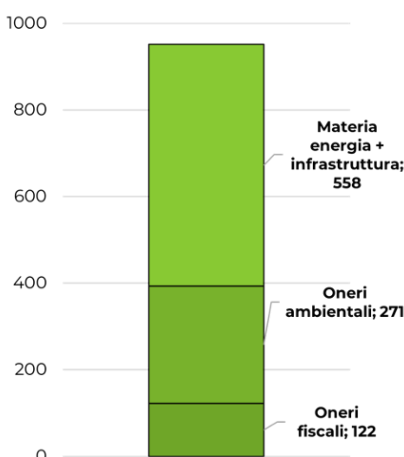
Chart 5 - the imbalance between environmental charges in gas and electricity tariff absorbs the higher efficiency of the heat pump (4 times higher than the gas boiler) in terms of costs⁸

Heating [€/year] Gas boiler vs electric heat pump

Gas boiler



Electric heat pump



6 CONDITIONALITIES AND GUARANTEES FOR EFFICIENCY IN INVESTMENTS

In the government decrees about the measures to mitigate the impacts on gas prices, the selected strategy is to delay the burden on companies (through the tax credit), to change it into a bank debt (through its transferability) and, at the same time, to spread its impact on operating costs (through rescheduling). Since rescheduling results in a revenue deferral for energy

⁸ Based on economic conditions defined by ARERA for the I quarter 2021 for residential customers under the protection market.

supplier enterprises, the latter are offered debt facilities by reducing their cost and guaranteeing them against the risk of inability to pay their energy bills (through SACE guarantees). The supporting measures for businesses, after six months of emergency, must be combined with instruments that reward energy efficiency or through differentiated access to tax credit mechanisms linked to the achieved energy efficiency or through energy efficiency commitments (such as commitment to carry out energy audits by 2022) or/and through specific support mechanisms.

In the government strategy, there is no measure for boosting/incentivizing energy efficiency and energy savings (for both businesses and households), and/or for favouring the decarbonization in production processes. Provided measures have exclusively the objective of mitigating the short-term impact of rising energy prices on companies' liquidity and profit and loss account (both users and suppliers), with no link to virtuous energy-efficient behaviour in the medium term.

If, however, energy efficiency were to be recognized as an urgent solution, the introduction of specific conditionalities in the provision of guarantees and financing is not deferrable:

- a) Measures like the Superbonus could be extended to massive projects on efficiency upgrading of enterprises belonging to energy-intensive sectors, as well as could be channelled through SACE, Invitalia-Mediocredito-Centrale and even CDP, specific guarantee and de-risking schemes on medium-term bank loans specifically aimed at energy efficiency and/or decarbonization of SMEs. Furthermore, the Green Deal, through the European InvestEU fund, allows CDP, Invitalia and SACE to draw directly on European guarantees (through the InvestEU fund) or of the European Investment Bank for the financing (or co-financing with private capital) of investments aimed at the energy transition.⁹
- b) Funds that are already available can be rapidly deployed by redirecting them (through a rapid review of the conventions that govern them) to energy and climate efficiency too. For example:
 - a. from May 2021, according to the implementation of the Relaunch Decree of July 2020¹⁰ and in compliance with the Regulations subsequently issued by the Ministry of Economy and Finance¹¹, was made operational the National Strategic Fund (NSF) by CDP, which permits companies with solid growth prospects to participate in co-financing operations at market conditions. The fund is part of a *Patrimonio Destinato*, which is an independent instrument of CDP, called *Patrimonio Rilancio* financed with public allocations and managed by CDP. The total endowment of *Patrimonio Destinato* is 44 billion euros. Of this, for the purpose of the initial allocation, State bonds were allocated with a countervalue of 3 billion euros.¹² The NSF is currently a dedicated fund for long-term investments in co-financing with market participants and it is focused on companies with solid growth prospects, **however, the regulation of the fund, which is based on a specific agreement with the MEF, could be more specifically qualified in the direction of investments aimed at efficiency and energy transition.**¹³

⁹ <https://eccoclimate.org/it/il-ruolo-delle-banche-del-clima-nella-strategia-del-green-deal-europeo-2-2/>

¹⁰ Law Decree n.104, July 16th 2020

¹¹ Ministerial Decree n.26, 3/2/2021

¹² Ministerial Decree MEF, May 7th 2021

¹³ https://eccoclimate.org/wp-content/uploads/2022/01/CDP_20220110.pdf

- b. Invitalia's subsidiary bank, called Mediocredito Centrale-Banca del Sud (MCC-BdS), manages the SME Guarantee Fund, which, together with the SACE's Guarantee Italy programme, has stepped in to co-guarantee bank loans to SMEs for more than 230 billion during the pandemic crisis: the activity of the SME Guarantee Fund could be extended to cover bank financing geared to support the energy transition of SMEs. MCC-BdS also manages another public facilitation and guarantee instrument, the Sustainable Growth Fund (SGF).¹⁴ The SGF is a fund established by the Ministry of Economic Development and administered by MCC-BdS¹⁵ as part of its activity of managing incentives and financial instruments on behalf of the state. The SGF is addressed at financing programs and interventions "with significant impact on the competitiveness of the productive apparatus at the national level"¹⁶ and its activity could also be oriented to special projects for energy efficiency, especially for the benefit of SMEs.¹⁷

Finally, it is worth noting that the resources of the first mission of the NRRP dedicated to the industry sector, equal to about 40 billion euros, are not addressed to objectives of energy savings and of diversification of supply sources. A greater integration of these objectives in the conditionalities for access to funds would allow to activate the potentials for energy savings and electrification of part of industrial consumption.

In terms of diversification supply, 10% savings in the industry sector would be worth 1 bcm.

7 THE CONTRIBUTION OF RENEWABLES

The development of renewables, in line with the Fit for 55 targets, provides the largest contribution to the gas crisis with a replacement of gas imports between 9 bcm (Mite) and 15 bcm (Elettricità Futura) by 2025. To date, however, this development target is made uncertain by the government's actual ability to authorize the required plant quota, equal approximately to 50 GW.

National targets on the development of renewables are currently established by the NECP, which is not updated to the Fit for 55 package. The NECP requires to increase the share of renewable sources in the electricity system to 55% by 2030, according to an overall renewable target originally planned at 32.5% for all sectors. As part of the Fit for 55 package, this latter target raised to 40%, which would correspond to a renewable development target in the Italian electricity system of about 70%. This implies increasing green energy from the current 116 TWh to about 238 TWh by 2030.¹⁸

The day before the release of the Fit For 55 package, the Minister of Ecological Transition Cingolani presented in Parliament a 2030 target for renewable growth in line with the

¹⁴ SGF is the renaming of the former Fund for Technological Innovation (FTI), as decided concurrently with the reform of business incentives by the Growth Decree in 2021 (Decree Law N. 83, June 22nd 2012).

¹⁵ In the case of the SGF, MCC-BdS operates as the lead partner in an RTI composed of 7 banks and the CNR.

¹⁶ Cfr. MISE Ministerial Decree, March 8th 2013

¹⁷ https://eccoclimate.org/wp-content/uploads/2022/01/INVITALIA_20220110.pdf

¹⁸ https://dgsaie.mise.gov.it/pub/sen/relazioni/relazione_annuale_situazione_energetica_nazionale_da_tj_2020.pdf

European Green Deal, according to which Italy aims to achieve a cut in CO2 emissions of 51% and to install about 42.3 GW of photovoltaic plants (of which about 14.5 GW distributed) and 12 GW of wind power plants. However, the growth trajectory is most concentrated in the 2025-2030 period. The Plan for Ecological Transition (PTE) defines a share of electric renewables at about 70% by 2030 but does not indicate annual development targets.¹⁹

To achieve these targets, 7-8 GW of renewables (wind and photovoltaics) need to be realized annually. In a single year during 2010-2011, the development of photovoltaic and wind power plants exceeded 10 GW. According to the recent estimates by Elettricità Futura it would be possible to install renewables up to 20 GW per year for the next three years.²⁰

Government's determination of reaching this target on renewables starts with the signing of a clear commitment in quantitative terms, either by reviewing the NECP indications or by providing a specific communication about the expected contribution of renewables in response to the Russian crisis. **The lack of a clear quantitative commitment on renewables growth in the electricity system is, together with the lack of any reference to efficiency, the greatest weakness in the whole response strategy to the Russian crisis.**

8 RENEWABLES HAVE LOW AND PREDICTABLE COSTS...

Renewable energy sources:

- Have average costs that are generally in line (or even lower for cheaper sources like photovoltaics) to the average wholesale electricity price in the decade before the beginning of the crisis. At the average price over the past 6 months, renewables are more competitive by 77%.²¹ Specifically in Italy, the production cost for a solar photovoltaic plant is on average equal to 40-50€/MWh, while for wind plant about 50-60 €/MWh, compared to an electricity market price that was above €200/MWh between October 2021 and February 2022.²²

They have mostly (when not exclusively) fixed costs that are therefore predictable and not subject to the volatility of fossil fuel costs.

9 ...BUT IN ITALY THEY ARE DIFFULT TO DEVELOP

According to the GSE, at the end of 2020, renewable energy sources grew by 1.09 GW compared to 2019 and by 1.5 GW in 2021 compared to 2020.²³ Although in 2021 the increase in wind and solar plants was greater than in the previous year (+0.4 GW and +1.1 GW, respectively), the growth rate is an order of magnitude lower than that needed to reach the Fit for 55 targets. The

¹⁹ <https://www.senato.it/service/PDF/PDFServer/BGT/1310524.pdf>

²⁰ https://www.elettricitafutura.it/News-/Comunicati-Stampa/Risolviamo-la-grave-crisi-energetica-con-60-GW-di-rinnovabili-autorizzate-entro-giugno-2022_4120.html

²¹ By assuming an average PUN equal to 219 €/MWh between October 2021 and February 2022 and a cost of renewables equal to about 50 €/MWh.

²² <https://www.mercatoelettrico.org/Newsletter/20220315Newsletter.pdf>

²³

https://www.gse.it/documenti_site/Documenti%20GSE/Rapporti%20statistici/Rapporto%20Statistis

main problem in Italy regarding the development of renewables is the inability to authorize them, which is mainly due to:

1. A decennial "abdication" of government responsibility on the issue. The constitutional reform of Title V transferred the responsibilities of renewable development to the regions. The Government has never intervened to ensure that the execution of accountability by the regions guaranteed the national interests for renewables development. No accountability or control mechanism was provided in response to the shift of competencies.
2. State representation within the authorization process carried out by the regions is solely limited to the participation of the Superintendencies of the Ministry of Culture, whose objective is not ensuring the development of renewables. This lack of balance between the involved legitimate interests has effectively blocked authorizations. According to 64% of market participants, the Ministry of Culture and local superintendencies represent the entities that hinder authorization procedures the most.²⁴
3. Regions' slowness in giving opinions, which, even when positive, come often too late for the original project to still be usable.
4. Regions' tendency to give negative opinions despite the general popular favour for renewables, except in strictly local areas where there is planned infrastructure.²⁵

The government has recently approved a series of measures to simplify the permitting process but has not yet managed to get to the heart of the matter, namely the ability to ensure the national interest in clear timeframes and significant amounts of authorization.²⁶

The installation of renewables into the territory is still a problem to which the government was not able to give a convincing answer either to itself or to the country. Their development is not recognized as an essential infrastructure for national development and security and for which suitable areas and installation methods into the territory must be found.

The development of about 48 GW of photovoltaics would occupy an area of 480 km², corresponding to 0.16% of the national territory (302,073 km²) and 1% of abandoned industrial areas and unused agricultural areas. Abandoned industrial areas in Italy amount to 9,000 km², while agricultural areas amount to 165,000 km². Of these, 22% (36,000 km²) are unused.²⁷

In the long run, it is likely to be necessary to review the responsibilities established by Title V of the Constitution, by returning to the central government the competences for the development of renewables and/or introducing mechanisms for empowering the regions to achieve their objectives also by intervening with fiscal federalism systems (incentives/disincentives).

²⁴ <https://regions2030.it/news/regioni-rinnovabili-transizione/>

²⁵ According to a survey carried out by the polling institute YouGov and commissioned by ECCO together with More in Common on a sample of 2,000 Italians, 82% are ready to make decisions that will help protect the environment and 74% believe the government is not doing enough to address climate change). Even more relevant especially today in this context is that 56% of respondents believe that Italy should stop using gas.

²⁶ Since 2020 the following decrees have been approved: Law Decree n.76/2020; Law Decree n. 77/2021; Law Decree n. 17/2022.

²⁷ <https://anierinnovabili.anie.it/4839-2/?contesto-articolo=/pubblicazioni/#.YkRLpedBy3A>

10 THE ACTIONS ON PRICES

Since the beginning of the gas price crisis, in different occasions the government has provided measures to reduce the impacts of electricity and gas bills for both the civil sector and industrial sector (see the tables of measures against gas price crisis in the Appendix).

The interventions were mainly aimed at:

- for the electricity sector reducing and setting to zero ASOS charges (which are addressed to hedge old incentives for renewable development) and, more recently, expanding the access to the social bonus for low-income consumers. Instead, for businesses, a tax credit on extra energy costs was introduced.
- For the gas sector reducing VAT from 10-22% to 5%, and for businesses introducing a tax credit.

Six months after the crisis began, it is worth pointing out some critical issues related to the distribution of public resources based on criteria that are not very selective and contradictory to voluntary actions and behaviours aimed at lowering consumption through savings and energy efficiency in order to mitigate rising prices.

The exceptional intervention on ASOS charges should not be confused (especially after six months of implementation) with the need for a reform of the energy fiscal and parafiscal system. As pointed out earlier the application of the ASOS in the electricity system alone introduces disproportionate environmental charges on electricity consumption that favours gas demand. The current ASOS revenue, however, should be distributed across all energy carriers to be adequately covered, in view also of energy systems integration, and not socialized indiscriminately through the public spending. It is also worth noting that a VAT of 10% is imposed on electricity consumption, while the tax remains equal to 22% for all energy-saving equipment (home appliances, home automation, LED, etc. etc.). (Current incentives for home appliances can be obtained only within renovation work, which is generally undertaken by higher income and homeowners).

Therefore, a proposal for an adequate crisis management and its priorities is needed, as well as a structural proposal (and not contingent) for an energy tax reform that takes into account the needs and goals of energy systems, including the integration and decarbonization objectives, and in which ASOS charges have a significant relevance.

Thus, it is worth pondering whether the emergency of dealing with rising energy prices in a context where vulnerable classes are the most exposed coincides with the correct objective of reviewing the structure and the application of parafiscal charges (ASOS) on the electric tariff.

Some options:

In the residential sector, the need to stop hedging the increase in energy cost with non-selective criteria, which does not address resources to the neediest classes and penalizes most virtuous behaviours, emerges. For example, a low-income family that were forced to reduce its heating demand last winter, as it couldn't pay the bill, suffered a reduction in the financial support provided by the government measures. In contrast, a wealthy person, for whom the price increase was not significant, had maintain his/her consumption level (generally high) and had not the need to activate savings and efficiency measures, but he/she received a greater

public support (see analysis below). This is due to the fact that the incentive is based on consumption and not on the economic difficulty.

- **Option 1:** Targeting all support resources according to ISEE, i.e., raising the current ISEE ceiling for access to the social tariff (energy bonus) that is based on standard consumption and on real households' economic conditions and not on real consumption. The social bonus developed by ARERA represents the best suitable mechanism to manage the price emergency.
- **Option 2:** for the same economic effort, not mitigating energy tariffs but increasing consumers' purchase capacity throughout income support measures or tax reduction. Nowadays the problem is not the cost of energy but the impact of inflation. If I have to give resources to those in most need I have to intervene either on their economic capacity or on the essential goods' prices and not on energy.
- **Option 3:** Defining a maximum volume of electricity and gas that is eligible to obtain supports. That is, for example, incentives are given only on the first 1000 kWh of electricity and the first 300 cubic meters of gas. This approach has always favoured singles over families but is not distorting to savings actions and can be easily corrected by a description of the family status.

For businesses, interventions should be linked to mechanisms that promote energy efficiency. Again, short-term actions need to be designed taking into account long-term objectives, and it is necessary to introduce rewarding incentive schemes, in addition to actions aimed at boosting energy efficiency, as above outlined.

For example:

- In line with the energy bonus scheme, the tax credit could be based on standard consumption levels, defined for every production activity, and not on real consumption.
- For collecting the tax credit it might be necessary to respect some conditionalities, such as having carried out an energy audit in the last 3 years or supposing to do it within the following year.
- An increase in the credit amount could be provided for investments in renewables of energy efficiency actions.
- Other fiscal incentives, such as IMU cancellation, could be introduced in case of renewable installations on the buildings' roofs or in case of buildings with a high energy label.

11 ERASING ENERGY PRICES DOES NOT ELIMINATE THE PROBLEM...

The government's actions to mitigate energy bills, in particular the cancellation of system charges in the electricity bill and the reduction of VAT to 5% in the gas bill, have partially lowered the increase in energy commodity prices.

While in the first quarter of 2021 a typical household²⁸ spent about €135 for the electricity bill and €401 for the gas bill²⁹, in Q1 2022 the expenditure rose by 130% and 100%, respectively. Without government interventions, the increases would have been 153% for electricity and 128% for gas.³⁰

Considering further price increases since the start of the Russia-Ukraine conflict (prices have reached unprecedented levels - on March 8th, the PUN price had a daily average value of 587 €/MWh), the second quarter of 2022 is expected to be similar to the previous one.

Despite the government's interventions, for a typical household under the protection market in the second quarter of 2022 the bill increase will be about 106% for the electricity and 80% for gas, compared to the pre-crisis period (Q1 2021). In the period April-June 2022 a typical family will pay about €279 for electricity and €149 for gas.

As they are structured, supporting measures are poorly selective with respect to the real economic status of end-consumers and end up being economically more relevant for those who have higher consumption. Both the zero-setting of system charges in the electricity bill and the reduction of VAT on gas generate a contribution proportional to the consumption (the greater the consumption the greater the economic supports).

The measure on system charges resets to zero not only the variable component but also the fixed one (amounting to 123 €/year) required only to non-resident users, and risks favouring those who have no real need, such as those who own a second home.

Let us try, for example, to calculate how much government's interventions helped:

- A wealth family living in a 150 m² house that has not carried out energy saving measures (estimated annual electricity consumption is equal to 3500 kWh) and owns a second house (estimated annual consumption is equal to 590 kWh).
- A low-income family, not included in the social bonus (for which the maximum eligible ISEE level is 12,000 € year), with an electricity consumption of 1100 kWh/year.

The resulting reduction was about 9% for the main residence and more than 32% for the second home. In absolute terms, it emerges how the measures have subsidized €81 to the wealth family and €13 to the low-income family.

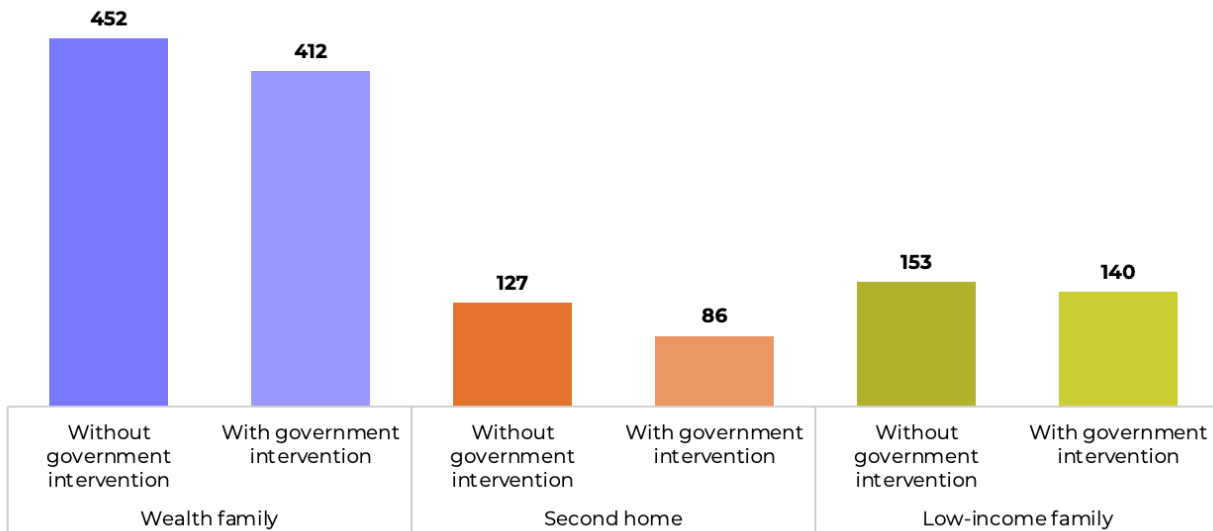
Chart 6 - The electricity bill for different types of residential consumers under the protection market for the first quarter of 2022 (in euros)³¹

²⁸ A typical household has 3kW of committed power and an average annual electricity usage of 2,700 kWh; for gas, consumption is 1,400 cubic meters per year.

²⁹ According to the economic conditions defined by ARERA for the first quarter of 2021. <https://www.arera.it/it/prezzi.htm>

³⁰ Economic conditions of the first quarter of 2021 were used for system charges and fiscal components (excise duty and VAT), while for components related to energy commodity and transport and distribution we applied the economic conditions defined by ARERA for the first quarter of 2022.

³¹ The economic conditions defined by ARERA for Q1 2022 were used and the following annual consumption levels were assumed: wealthy family (6kW) 3500 kWh; second home (3kW) 590 kWh; low-income family (3kW) 1100 kWh.



Now let us try to calculate the contribution for the gas bill. In this case, the consumption of the two types of households is:

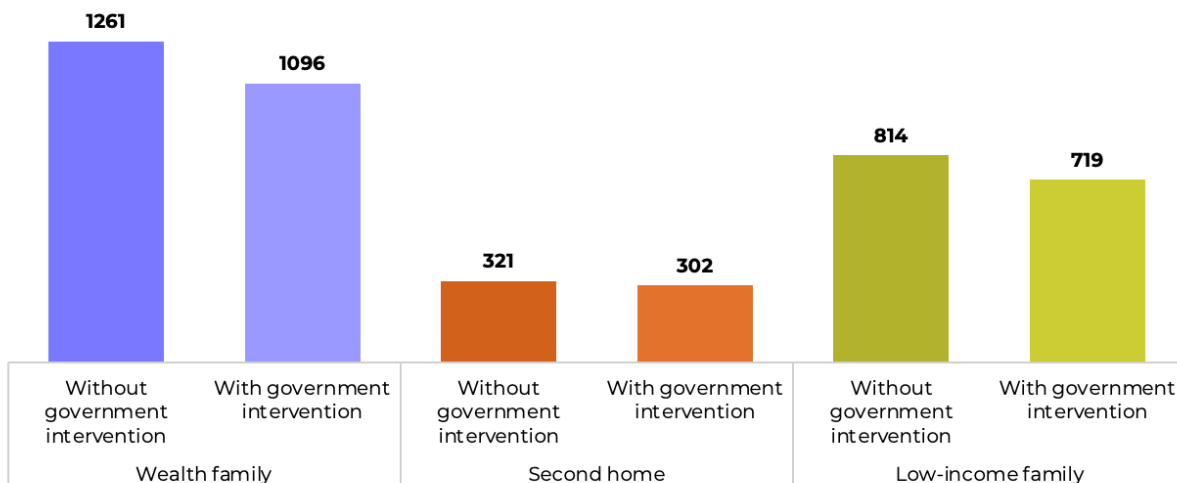
- 2000 m³/year for the wealth family living in a 150 m² house characterized by an energy label equal to D. For the second home we considered a consumption of 480 m³/year.
- 1200 cm³/year for the low-income family that has a 70 m² house in energy label F.

The government's intervention generated a reduction of about 13% in the main residence and almost 6% in the second home. In absolute terms, the contribution was about 184€ to the wealth family and 95€ to the vulnerable one.

Therefore, according to the above simulation total subsidies for both electricity and gas bills are estimated about 265€ for the wealth family and 108€ for the low-income family.

Chart 7 - The gas bill for different types of residential consumers under the protection market for the first quarter of 2022 (in euros)³²

³² The economic conditions defined by ARERA for Q1 2022 were used and the following annual consumption levels were assumed: wealthy family 880 m³; second home 200 m³; low-income family 515 m³.



Extended in time, these measures result to be unsustainable in economic terms and unable to effectively mitigate the increase in energy costs for those who are most vulnerable.

Tying economic supports together with consumers' real consumption does not encourage energy-saving measures and virtuous changing in behaviours, despite the recommendations of IEA³³ and EU Commission³⁴ push in this direction. Self-reducing actions on heating consumption and electricity savings measures proposed in our previous analysis can have an immediate effect on households' and businesses' energy bills. For example, in civil use, a reduction of two degree of heating saves about 15% of gas, resulting in a bill reduction of about 17% in Q1 2022. As for the electricity sector, a 10% reduction on consumption would have resulted in lowering electricity bill of more than 9% for a typical family.

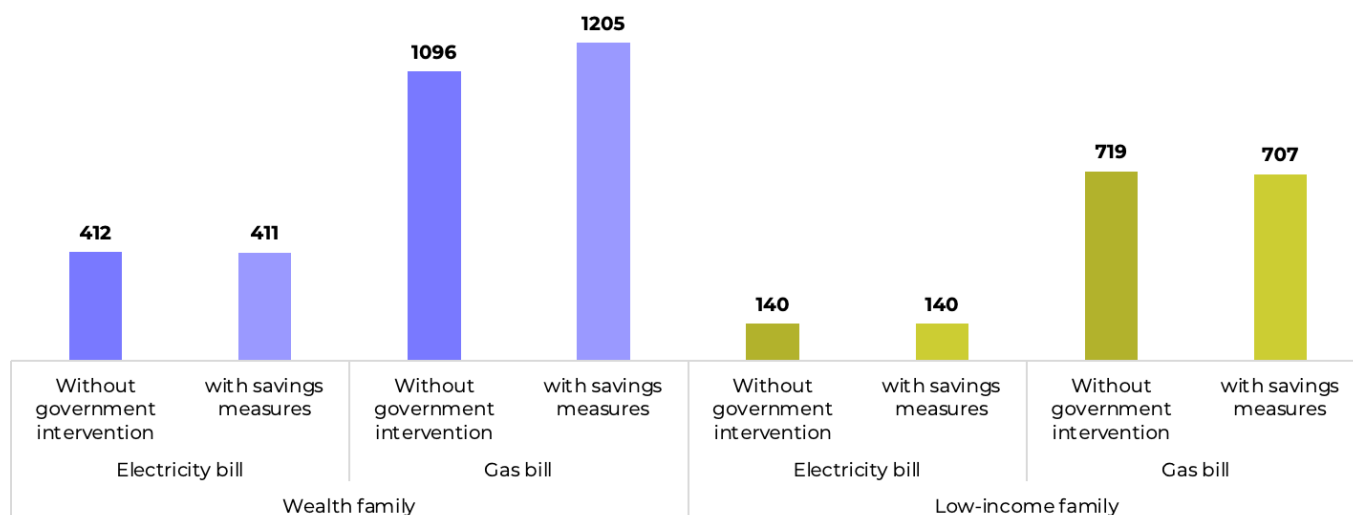
By comparing the impacts on household energy expenditures of the mitigation strategy provided by the government with energy efficiency measures, it emerges how the latter generate an almost identical effect on the final energy bill.

Chart 8 - Energy expenditure (Q1 2022) for different types of households under protection market - comparison of the impact of measures introduced by the government and energy saving actions (in euros)³⁵

³³ <https://www.iea.org/reports/a-10-point-plan-to-cut-oil-use>

³⁴ https://ec.europa.eu/commission/presscorner/detail/en/ip_22_1511

³⁵ Case study "with savings actions": the economic conditions of the first quarter of 2021 were used for components related to system and fiscal charges (excise duty and VAT), while for the ones related to energy and transport we applied the economic conditions defined by AREGA for Q1 2022.



Mitigation actions on energy costs should encourage voluntary and virtuous actions aimed at reducing consumption and be closely linked to selective criteria.

Contributions should be independent of real consumption (but not of demand), as in the case with social energy bonus. By shifting the resources currently directed to reducing VAT on gas, it would be possible to review the extension of social bonus by raising the ISEE threshold (currently at €12,000) so as to expand the pool of possible beneficiaries.

The increase in energy prices exacerbated inflationary pressures (+4.9% in February 2022³⁶), resulting in ever-higher retail goods prices that caused a further burden on consumers, particularly those most in need. Providing a €100 voucher to families (instead of reducing some components of energy bills) would cost about 2.4 billion euros³⁷ and would allow them not to reduce the purchase of other essential goods (with spill-over effects on trade and national economy).

In conclusion, as with diversification supply, the most effective and correct action to mitigate energy prices is the introduction of energy saving and energy efficiency measures. Supplies and prices are two dimensions that complement each other. Prices must continue to give correct signals in order to encourage savings, efficiency and renewable.

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<https://www.istat.it/it/archivio/266800#:~:text=L'inflazione%20acquisita%20per%20il,%2C1%25%20di>

³⁷ By assuming that the beneficiaries coincide with the number of sampling points of residential customers, which, as indicated by ARERA, were about 23.7 million in 2020.

12 APPENDIX: SYNOPSIS OF INTERVENTIONS AGAINST CAROBOLETTE

12.1 INTERVENTIONS IN 2021

Legislation	Type of intervention	Reference period	Sector involved	Beneficiaries	Budget (M€)
DL 73/2021	Reduction of system charges	Q3 2021 (July-September)	Electricity	All end-users	1200 (of which 609 from ETS)
	Reduction of system charges	Q4 2021 (October-December)	Electricity	All end-users	1200 (of which 700 from ETS)
DL 130/2021	Elimination of system charges	Q4 2021 (October-December)	Electricity	Residential and non-residential consumers, connected to the low-voltage grid with a committed power up to 16,5 kW	800
	VAT reduction to 5%	Q4 2021 (October-December)	Gas	Civil and industrial uses	608
	Reduction of system charges	Q4 2021 (October-December)	Gas	All end-users	480
	Social bonus	Q4 2021 (October-December)	Electricity and gas	Residential users in a state of economic difficulty	450
	National Budget Law 2022	a) Reduction of system charges	Q1 2022 (January-March)	Electricity	a) All end-users
b) Elimination of system charges				b) Residential and non-residential consumers, connected to the low-voltage grid with a committed power up to 16,5 kW	
VAT reduction to 5%		Q1 2022 (January-March)	Gas	Civil and industrial uses	

Reduction of system charges	Q1 2022 (January-March)	Gas	All end-users	480
Social bonus	Q1 2022 (January-March)	Electricity and gas	Residential users in a state of economic difficulty	912

12.2 DECREE "SOSTEGNI TER" (LAW DECREE NO.4, JANUARY 27TH 2022)

Type of intervention	Reference period	Sector involved	Beneficiaries	Budget (M€)
Elimination of system charges	Q1 2022 (January-March)	Electricity	Users with a committed power equal to or greater to 16,5 kW, connected to the medium, high and very high voltage grid	1200 (from ETS)
Tax credit (20% of energy expenditures)	Q1 2022 (January-March)	Electricity	Energy-intensive businesses (cost increase of 30% compared to 2019)	540 (of which 405 from ETS)
Introduction of a "two-way" compensation mechanism	February December 2022	-Electricity	Renewable plants with a power greater than 20 kW, incentivised by "Conto Energia" I-II-III-IV or not incentivised	

12.3 LAW DECREE NO.17, MARCH 1ST 2022

Type of intervention	Reference period	Sector involved	Beneficiaries	Budget (M€)
Elimination of system charges	Q2 2022 (April -June)	Electricity	Residential and non-residential consumers, connected to the low-voltage grid with a committed power up to 16,5 kW	1800
Elimination of system charges	Q2 2022 (April -June)	Electricity	Users with a committed power equal to or greater to 16,5 kW, connected to the medium, high and very high voltage grid	1200
VAT reduction to 5%	Q2 2022 (April -June)	Gas	Civil and industrial uses	592
Reduction of system charges	Q2 2022 (April -June)	Gas	All end-users	250
Social bonus	Q2 2022 (April -June)	Electricity and gas	Residential users in a state of economic difficulty	400

Tax credit (20% of energy expenditures)	Q2 2022 (April -June)	Electricity	Energy-intensive businesses (cost increase of 30% compared to 2019)	700
Tax credit (15% of gas expenditures, excluding thermoelectric uses)	Q2 2022 (April -June)	Gas	Energy-intensive businesses (cost increase of 30% compared to 2019)	522

Further measures:

- Simplifications for the installation of renewable energy plants
- Long-term contracts, managed by GSE, for the purchase of natural gas for industrial customers

12.4 DECREE LAW NO. 21, MARCH 21ST 2022

Type of intervention	Reference period	Sector involved	Beneficiaries	Budget (M€)
Social bonus	April-December 2022	Electricity and gas	ISEE up to 12,000 €	103
Tax credit (12% of energy expenditures, excluding thermoelectric uses)	Q2 2022 (April -June)	Electricity	Businesses with a committed power equal to or greater to 16,5 kW, which are not energy-intensive (cost increase of 30% compared to 2019)	863
Tax credit (20% of gas expenditures, excluding thermoelectric uses)	Q2 2022 (April -June)	Gas	Not energy-intensive businesses (cost increase of 30% compared to 2019)	238
Increase of the tax credit (25% per l'energia elettrica e 20% per il gas naturale)	Q2 2022 (April -June)	Electricity and gas	Energy-intensive businesses	460

13 ABOUT ECCO



THE ITALIAN CLIMATE CHANGE THINK TANK

ECCO is the first independent Italian, non-profit climate change think tank. Founded in 2021 with the mission to accelerate climate action in Italy and around the world, ECCO uses its independence and expertise to identify and promote transformative science-led climate solutions and implementation strategies. ECCO is an active agent of change, deploying strategic communication, advocacy and diplomacy to shape climate and energy politics in all forms. www.eccoclimate.org

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