



# Reconciliation of Energy Security and Climate Objectives: The Case of Italy



by Pier Paolo Raimondi



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## Introduction

The energy sector in Italy has been characterised by a high dependence on fossil fuels and imports. Indeed, the country relies mainly on fossil fuels for its total energy supply and imports over 90 per cent of its energy. Moreover, it is one of the largest energy-consuming countries in the EU. Throughout the post-World War II period, Italy's economic growth was underpinned by rising energy consumption, in particular oil. As a result, oil's share of total primary energy supply reached 76 per cent in 1973. However, following the two oil crises in the 1970s, Italy started to reduce its dependence on oil (oil's share fell to 34 per cent in 2019) with the critical contribution of natural gas, which displaced oil as the largest contributor to total primary energy supply (TPES), reaching 42 per cent of TPES in 2019. Italy has become one of the largest gas markets in Europe consuming between 70 and 80 billion cubic meters (bcm) over the past ten years. Meanwhile, the country has progressively reduced its domestic gas production (from 17 bcm in 2000 to 3.5 in 2021), exacerbating its import dependence (imports increased from 57.4 bcm in 2000 to 72.7 in 2021). Due to limited coal power plants and the total absence of nuclear capacity, the country has ended up relying significantly on gas for its power generation (50 per cent of power generation in 2021 compared to 37 per cent in 2000). These features influenced and affected the country during the 2021/22 energy crisis, exacerbated by Russia's war to Ukraine. Indeed, in 2022 natural gas and the European Union have been at the heart of the "first truly global energy crisis" as stated by the Director General of the International Energy Agency (IEA).<sup>1</sup>

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<sup>1</sup> Emily Chow and Muyu Xu, "World Is in Its 'First Truly Global Energy Crisis' – IEA's Birol", in *Reuters*, 25 October 2022, <http://reut.rs/3MZUdrv>.

At the same time, the energy transition has undergone different phases in Italy. On one side, the country has adhered to the European climate and energy targets, through numerous public and official documents and strategies. On the other side, the deployment of renewables, after a positive period (2010–2014), has been hindered by chronic challenges, namely lengthy administrative and bureaucratic procedures, which have severely hindered deployment. Another factor that affected the slower pace of renewable deployment is the reduction of economic and fiscal incentives. During the initial phase of the crisis, the government worked on reducing and overcoming such challenges also in line with the EU strategy (i.e., REPowerEU Plan) as clean energy is instrumental to reduce fossil fuel demand hence import dependency.

The new security dimension of the energy transition is a result of the energy crisis. Indeed, the energy crisis has triggered a series of paradigm shifts in the world. It marked the return of State governments in the economy through subsidies and bailouts. However, this approach raises important questions over the efficiency and the actual capabilities to support existing groups while steering the economic and energy transformation. Moreover, energy security and diversification strategy have gained a new-found relevance with governments working to ensure enough non-Russian energy supplies. For example, Italy has looked especially towards neighbouring regions like the Mediterranean and sub-Saharan Africa. This renewed focus however could result in derailing – or at least slowing down – the energy transition. Therefore, countries (including Italy) need to take into considerations national climate objectives and find new strategies to reconcile energy security with climate targets.

The paper seeks to analyse these shifts within Italy's energy and climate policy and how the country can enhance energy security while pursuing and reaching its climate goals. Starting from Italy's key climate and energy targets pushed by the European climate legislation and regulations, Section 1 highlights some of the existing challenges for a domestic energy transition. Then, the paper examines the negative effects of the energy crisis in terms of economic hurdles and the consequent energy responses (Section 2), underlining some of the chronic challenges that spur a reconsideration of policy measures. Section 3 investigates the role of the Mediterranean region, as an area for enhancing energy security and diversification especially regarding natural gas. Therefore,

Section 4 outlines the need to address certain topics, notably flexibility, methane emissions and the development of hydrogen, as means to reconcile energy security with climate objectives. Section 5 provides some key policy recommendations and conclusions.

# 1. Drivers and challenges of the Italy's energy transition

Italy has become the third largest energy market in the EU and the second largest manufacturing country. The national energy mix is heavily reliant on fossil fuels with no nuclear capacity and limited coal capacity. The main catalyser of Italy's climate targets and strategies is certainly the EU climate and energy governance. As a result, the country has greenhouse gas (GHG) emissions reduction targets for 2020 and 2030 as well as being committed to reaching climate neutrality by 2050 in line with the EU Climate Law. Between 2005 and 2019, Italy reduced total GHG emissions by almost 30 per cent.<sup>2</sup> Moreover, the country has published several documents and strategies<sup>3</sup> delineating its future energy trajectory in line with EU climate objectives. In 2019, it submitted its National Energy and Climate Plan (NECP) which sets a share of 30 per cent of renewables in final energy consumption, including 55 per cent in electricity, 22 per cent in transport and 33.9 per cent in heat consumption. Since then, the energy and climate sphere has been shocked by numerous crises (Covid-19, the war in Ukraine and the energy crisis), which pushed the EU to enhance its targets (i.e., Fit for 55 package and REPowerEU Plan). Therefore, countries need to adapt their NECPs according to the new context and targets.

In July 2023, Italy submitted the draft of its new NECP, which increased the share of renewables in the total final consumption to 40 per cent and up to 65 per cent of final electricity consumption. According to the new NECP, Italy should install around 108 GW of solar and wind capacity combined (28.1 GW

<sup>2</sup> International Energy Agency (IEA), *Italy 2023. Energy Policy Review*, May 2023, p. 11, <https://www.iea.org/reports/italy-2023>.

<sup>3</sup> Such as the Italian Long-Term Strategy on the Reduction of Greenhouse Gas Emissions and the Ecological Transition Plan (EPT). For further details: Pier Paolo Raimondi, "Italy and Norway: Perspectives for a Further Energy Cooperation", in *IAI Papers*, No. 23|18 (July 2023), <https://www.iai.it/en/node/17342>.

of wind and 79.9 of solar). While it increased renewable targets compared to the previous version, the new NECP has reconsidered the role of natural gas both for the energy transition and geopolitically. Indeed, according to the document, natural gas could contribute to the phase-out of coal and the stability of the energy system. At the same time, gas is seen as an opportunity to gain geopolitical relevance in the Mediterranean. Final approval of the new version should occur by June 2024.<sup>4</sup>

National political debate has only partially focused on climate change and key issues of the energy transition despite polls and the growing manifestation of negative effects of climate change that severely damage the livelihood of citizens and businesses. Notwithstanding this general condition, a new momentum occurred with the advent of Mario Draghi's government, which partially reshuffled the institutional landscape and created a new ministry for the ecological transition (MiTE). In the midst of the energy crisis, Draghi's government has undertaken measures aimed at reducing and removing the administrative and bureaucratic barriers, also in line with the European strategy outlined in the REPowerEU Plan, that have severely hindered the deployment of renewables in Italy. Delays in permitting, coupled with social opposition, have slowed down the deployment of renewable especially over the past decade. From 2010 and 2014, the country had managed to add 20 GW of renewable installed capacity, mainly from solar (15 GW), because of generous incentives which contributed to reaching the 2020 target.<sup>5</sup> As these incentives faded away, Italy has experienced a drastic slowdown with an average yearly addition of 1.2 GW between 2015 and 2020, which is well below the 4 GW required by the NECP. In 2022, around 3 GW of renewable installed capacity was made possible by some simplification measures undertaken by Draghi's government. The momentum continued in the first half of 2023, with Italy adding 2.3 GW of new photovoltaic (PV) systems and reaching around 27.4 GW of cumulative installed PV capacity in June 2023.<sup>6</sup>

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<sup>4</sup> Ibid., p. 6-7.

<sup>5</sup> Ibid., p. 7-8.

<sup>6</sup> Lara Morandotti, "Italy's Solar Installations Hit 2.3 GW in H1", in *PV Magazine*, 4 September 2023, <https://wp.me/p87GMW-WTm>.

Compared to the previous government, the new government, led by Giorgia Meloni, focuses more on energy security than decarbonisation, also illustrated by the decision to change the name of the previously created ministry on ecological transition into Ministry of the Environment and Energy Security. Furthermore, political parties have begun to express their position regarding the energy transition as climate policies increasingly affect sectors and aspects of daily life. In this sense, several Italian party officials have expressed their opposition and criticism to some key European climate measures, notably the Directive on Energy Performance of Buildings and the ban on internal combustion engine vehicles by 2035. Meanwhile, Italy has ultimately abstained on the latter, highlighting a dichotomy between the rhetoric within national borders and the conduct in European institutions. This dichotomy highlights the beginning of the struggle between local and international dimensions of climate policies as they increasingly affect the livelihood of different stakeholders.

While the EU has been the main driver for Italy's climate objectives, the energy transition, especially the deployment of clean energy technologies, has been hindered by chronic challenges and barriers such as lengthy permitting procedures and social opposition to infrastructure projects. Italy instituted a number of measures in 2021/22 to remove these barriers, leading to some positive developments.

## **2. Italy and the energy crisis: Economic and energy consequences**

The growing imbalances in the market since 2021 instigated the rise in energy prices. Since the end of 2021, geopolitical tensions have exacerbated uncertainty, driving prices further upward. The energy dimension is a key component of the conflict as Russia deliberately reduced its supply to the European market and the EU announced its intention to phase out Russian energy imports. These developments have left Italy particularly exposed to high price volatility given its great dependence on natural gas and especially from Russia (40 per cent of its gas imports) and consequently on the Ukrainian route before 2022. Gas supply shocks had several economic effects throughout

Europe as they were a key driver of the surge in inflation in Europe in 2022.<sup>7</sup> Inflation has caused a drastic change in macroeconomic and monetary policies across the world, adding a layer of challenges for Italy's economy.

To isolate energy prices from inflation in the attempt to reduce it, Italy has strongly advocated for a price cap on natural gas at the European level. After lengthy and harsh negotiations between member states, a final agreement was reached in December 2022.<sup>8</sup> However, in a tight market it is crucial to reduce demand in order to depress energy prices. In summer 2022, EU countries agreed to set a voluntary natural gas consumption target of 15 per cent for the period August 2022 to March 2023, compared to their average consumption over the past five years. Collectively they overachieved the target since they cut natural gas consumption by 19 per cent (equal to 41.5 bcm).<sup>9</sup> Given the structural challenges, member states extended the target for an additional year in March 2023. Italy reduced its gas consumption by 10 per cent compared to 2021 (-7.5 bcm), declining to 67.3 bcm. Gas demand in the industrial sector dropped by 15.5 per cent and in power generation by 4.1 per cent.<sup>10</sup> Meanwhile, power generation severely suffered from historic droughts in the summer which resulted in a collapse of hydro output (-15 TWh, -34 per cent).<sup>11</sup> The new normal of higher prices (compared to the period before 2021) may limit future industrial gas demand, while gas demand in power generation is more exposed to seasonal variations especially in the absence of other sources (i.e., hydro) operating as baseload.

<sup>7</sup> Piergiorgio Alessandri and Andrea Gazzani, "The Impact of Gas Supply Shocks in Europe", in *VoxEU*, 25 July 2023, <https://cepr.org/node/429404>.

<sup>8</sup> The market correction mechanism will be automatically activated if the month-ahead price on the TTF exceeds 180 euro/MWh for three working days and the month-ahead TTF price is 35 euros higher than a reference price for LNG on global markets for the same three working days. See: Council of the EU, *Council Agrees on Temporary Mechanism to Limit Excessive Gas Prices*, 19 December 2022, <https://europa.eu/!p3PcQm>.

<sup>9</sup> Council of the EU, *Infographic - Gas Demand Reduction in the EU*, last reviewed on 15 January 2024, <https://europa.eu/!tdKVJY>.

<sup>10</sup> Italian Regulatory Authority for Energy, Networks and Environment (ARERA), *Annual Report on the State of Services and Regulatory Activities Carried Out During 2022. Summary 2023*, July 2023, p. 31, <https://www.arera.it/en/publications/annual-report>.

<sup>11</sup> Ember, *Global Electricity Review 2023*, April 2023, p. 86, <https://ember-climate.org/insights/research/global-electricity-review-2023/#supporting-material>.

## 2.1 Economic hurdles and responses

The energy crisis and the spike in energy prices have put Italy's economic wellbeing under pressure, given the importance of energy-intensive industries and their reliance on gas imports – especially cheap Russian gas. Furthermore, Italy relies heavily on gas for power generation and heating. Therefore, the spike in gas prices deeply affected individual households as well. Italy has been suffering from high energy prices from the very beginning of the energy crisis, forcing governments to undertake measures to support the different stakeholders. Italy was one of the first countries (alongside Spain) to adopt support measures during summer 2021. Throughout 2022, European gas and electricity prices experienced massive volatility, reaching a record level in summer 2022. Between September 2021 and January 2023, Italy allocated 92.7 billion euros (equal to 5.2 per cent of GDP) to shield consumers and firms from the energy crisis, according to Bruegel data analysis.<sup>12</sup> However, government needs to reconsider its approach to contrast rising price volatility. Until today, EU support measures have been universal, causing macroeconomic and energy damages. Italy should target and prioritise support measures only to the most vulnerable groups to avoid worsening the fiscal deficit and incentivising demand.

Regarding price levels, Italy already recorded among the highest prices in the International Energy Agency because of high energy taxes, including value-added tax.<sup>13</sup> Energy prices increased between 2010 and 2020, but in 2022 households and firms experienced a higher increase of annual average energy prices compared to the rest of the Union. For example, power prices for households and firms increased by +46.3 per cent and +72.8 per cent respectively (compared to 17.8 per cent and 40.8 per cent in the EU-27).<sup>14</sup> Such a steep increase in energy prices has affected the most vulnerable groups; in Italy there are around 2.1 million households suffering energy poverty. Italy has increasingly focused on this issue with the establishment of the Italian

<sup>12</sup> Giovanni Sgaravatti et al., “National Policies to Shield Consumers from Rising Energy Prices”, in *Bruegel Datasets*, last updated on 26 June 2023, <https://www.bruegel.org/node/7844>.

<sup>13</sup> IEA, *Italy 2023*, cit., p. 25.

<sup>14</sup> Italian Ministry of the Environment and Energy Security (MASE), *La situazione energetica nazionale nel 2022*, July 2023, p. 91, <https://www.mase.gov.it/notizie/energia-mase-pubblica-la-relazione-sulla-situazione-energetica-nazionale-2022>.

Observatory on Energy Poverty – although the country does not have an official definition or indicator of energy poverty per se. High gas and electricity prices have sparked discussion over potential deindustrialisation in Europe. Indeed, electricity (33.2 per cent) and gas (32.7 per cent) accounted for nearly two-thirds of final energy consumption in the EU's industrial sector in 2021.<sup>15</sup> High energy prices, industrial transformation due to digital and climate transitions and a global race to subsidies to develop new industrial capacity force countries to find adequate adjustment measures for their national industrial sector. The limited fiscal space of Italy drives the necessity for new strategies to shield and develop its industrial sector in a competitive manner.<sup>16</sup> Furthermore, the fiscal issues push consideration of the ongoing industrial revolution and competition through subsidies. Italy would ideally be in favour of a European industrial fund rather than weakening state aid rules, which could damage the European internal market. At the same time, Italy needs to prove itself able to adequately use existing European funds.

The Italian fiscal constraints raise questions over the country's investment needs for reaching climate targets. The new NECP estimates 830 billion euros of cumulative investment required for the transformation of the Italian energy system. Therefore, it is pivotal to direct funds in the most efficient way to both protect vulnerable groups from price spikes and invest in the energy transition. This new condition highlights some of Italy's chronic challenges.

## 2.2 Reconfiguration of energy priorities: Energy security back in vogue

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As a result of the energy crisis, energy security has re-emerged as the top priority for policymakers. The war and the consequent weaponisation of energy supplies forced Italy, along with the EU, to diversify its energy supplies, once more elevating energy security and diversification strategies as top political priorities after almost a decade. In 2022, Italy was among the countries

<sup>15</sup> Eurostat, *Industry Relied Mostly on Natural Gas & Electricity*, 12 May 2023, <https://ec.europa.eu/eurostat/web/products-eurostat-news/w/ddn-20230512-1>.

<sup>16</sup> Giovanni Sgaravatti, Simone Tagliapietra and Georg Zachmann, "Adjusting to the Energy Shock: The Right Policies for European Industry", in *Bruegel Policy Briefs*, 17 May 2023, <https://www.bruegel.org/node/9072>.

most dependent on Russian gas, a dependence which grew especially after 2011. With the outbreak of the war, Italy, like the EU and other member states, has expressed its highest commitment to phase out Russian energy imports. The government stated a goal of potentially ending imports of Russian gas by 2025 and significantly reducing its reliance on Russian gas within a year (29 bcm in 2021). The strategy to reach this target comprises a combination of measures: optimising existing LNG and pipeline infrastructure, adding floating storage regasification units (FSRUs), potentially adding new LNG import capacity and increasing the capacity of the Trans Adriatic Pipeline (TAP) as well as considering the construction of the EastMed pipeline. In summer 2022, the company bought two FSRUs with a capacity of 5 bcm/y each.<sup>17</sup> One will be located in central-northern Italy (Piombino), close to the areas with greatest gas consumption and in order to avoid potential bottlenecks from the reconfiguration of gas flows, while the second FSRU will be deployed in the upper Adriatic Sea, close to the coast of Ravenna. The full deployment of the first FSRU in Piombino has faced massive societal opposition from the local communities. Notwithstanding the challenging context, Italy experienced a reduction of Russian gas imports, which dropped to 13 bcm, and a rise of LNG imports up to 14 bcm in 2022. Yet, the surge of LNG imports raises concerns of receiving Russian LNG imports through Spain.<sup>18</sup> Indeed, while pipeline gas from Russia has collapsed, Russian LNG continues to reach European shores despite the growing political confrontation.

To further ensure energy security, the Italian government has also decided to temporarily halt its phase-out plans for coal plants. The goal of these emergency measures was to prevent and avoid energy shortages and blackouts, but they raised doubts about whether energy security plans would derail the energy transition. However, data shows that such a risk has not generally materialised. For example, the Italian coal units ran at an average of 30 per cent capacity in 2022, the same as in 2021, even after the government's decision to lift capacity limits.<sup>19</sup> At the same time, governments, including the Italian one, will need to

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<sup>17</sup> Pier Paolo Raimondi, *Natural Gas in Italy: Features and Perspectives in Light of Russia's War in Ukraine*, Rome, IAI, September 2022, p. 21, <https://www.iai.it/en/node/15987>.

<sup>18</sup> Ana Maria Jaller-Makarewicz, "Is Italy Unknowingly Importing Russian LNG via Spain and Other Routes?", in *IEEFA Analysis*, 13 July 2023, <https://ieefa.org/node/17422>.

<sup>19</sup> Ember, *European Electricity Review 2023*, 31 January 2023, <https://ember-climate.org/insights/research/european-electricity-review-2023/#supporting-material>.

recalibrate some emergency measures in order to prevent path dependence and risks of stranded assets.

Meanwhile, EU countries rushed to buy gas to refill their storage and prevent replicating the critical condition experienced in summer 2021. Storage is a key factor in the security equation and for seasonal gas balancing as it can supply typically 25–30 per cent of gas consumed in winter. However, this effort to refill storage before winter, in line with EU targets,<sup>20</sup> contributed to causing a spike in energy prices, which recorded their highest level in August 2022 reaching 232.7 euro/MWh for gas and 543.3 euro/MWh for electricity. In 2022, European government spent around 100 billion euros for refilling storage. Italy holds one of the largest storage capacities in Europe, with 197.7 TWh (equal to 17.8 bcm) of storage capacity, including 4.5 bcm of strategic reserves, corresponding to 17.8 per cent of EU gas storage capacity. To refill its capacity, Italy allocated 7.1 billion euros in 2022.<sup>21</sup> Thanks to milder temperature in the winter season 2022/23, demand reduction and high political commitment, the EU reached its target of filling gas storage to 90 per cent of capacity two months ahead of the 1 November deadline, putting Europe in a safer position for the upcoming winter.

Nonetheless, the ongoing decoupling between the EU and Russia has resulted to a major structural transformation of the global gas markets. Indeed, Europe has become the premium market, while China has become the balancing market for LNG. As Russia reduced drastically its supply to its main gas market (i.e., Europe), the role of LNG in the European market substantially increased.<sup>22</sup> In 2022, the EU increased its LNG imports and expanded its LNG import capacity. The share of LNG in the EU gas demand reached almost 35 per cent in 2022 (from an average of 12 per cent over the 2010s). Such increased relevance reflects the strategy outlined by the Commission's REPowerEU Plan, which focused on LNG imports to enhance energy security and diversification. Although LNG has contributed substantially to Europe's energy security, the profound transformation of the European gas markets entails risks. By

<sup>20</sup> June 2022 Regulation binding target of 90 per cent filling rate each year by 1 November.

<sup>21</sup> MASE, *La situazione energetica nazionale nel 2022*, cit.

<sup>22</sup> IEA, *Global Gas Security Review 2023*, July 2023, <https://www.iea.org/reports/global-gas-security-review-2023>.

relying on the “global” gas market (i.e., LNG), the EU is increasingly exposed to competition vis-à-vis other major LNG-importing countries and regions. Furthermore, as a consequence of the non-observance of Russian gas contracts, the EU has increased its reliance on spot procurements (from 20 per cent in 2021 to over 50 per cent in 2023). If expiring contracts are not renewed and no new contracts are signed, this share is expected to rise to more than 70 per cent by 2030, which will aggravate Europe’s exposure to greater price volatility. This highlights the European conundrum regarding contracts, energy security and climate objectives. European countries need to find a balance between long-term contracts for non-Russian gas and procurement from spot markets. Furthermore, a remaining tight market suggests that demand measures are still crucial in addressing potential price volatility, which will continue to characterise the EU market at least until 2024/25. Furthermore, despite positive results in 2022, the current energy crisis has not been fully overcome, which requires continuous reconsideration of policy measures and awareness of potential risks.

Nonetheless, according to the government the challenging context may create some opportunities for Italy from both the energy and geopolitical perspective. Firstly, the reconfiguration of gas flows presents opportunities for Italy due to several factors. Italy’s geographical position, coupled with existing energy interconnections, makes the country a potential transit hub and bridge between Mediterranean energy imports and European energy demand. If achieved, Italy would gain a position at the top of the supply chain compared to the previous order. Furthermore, increasing energy flows passing through Italy towards Europe could be beneficial for market liquidity in Italian gas prices, which are traditionally higher compared to other European prices.<sup>23</sup> The Italian government has renamed its ambition to become an energy hub, which will be a key component of the so-called Mattei Plan. The Plan is expected to be Italy’s development strategy for Africa and the Mediterranean aimed at building positive and win-win partnerships. Although the publication of a full and detailed strategy has been postponed also due to the Israel-Hamas conflict, some preliminary considerations can be made.

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<sup>23</sup> Pier Paolo Raimondi, *Natural Gas in Italy*, cit., p. 37.

In order to become an energy hub, Italy would need to expand its import capacity with the expansion of TAP and potentially add new LNG terminals and consider the construction of a new pipeline from the Eastern Mediterranean region (10 bcm of capacity). Furthermore, the country would need to expand its domestic gas network, such as the Adriatic line, to allow higher gas volumes flowing from south to north, where the main consuming centres are located. However, the investment in fossil fuel infrastructure may compete with clean energy investments over public finance and support – especially given the high investments for the energy transition and limited Italian fiscal capabilities. Furthermore, these infrastructural adjustments and expansion will need to be compatible with future gas demand both in Italy and the EU according to net-zero scenarios. According to the Italian TSO Snam, Italy's gas demand is expected to become more uncertain (between 62.2 and 65.6 bcm in 2040)<sup>24</sup> over the upcoming decades given the different pace of declining unabated gas demand and soaring green gases. Compared to other countries, Italy has very limited coal capacity to phase out, which it plans to do by 2025. The deployment of renewables may reduce the role of gas especially in the power and residential sector. Additionally, industrial gas consumption has declined over the past two decades (from 21 bcm in 2003 to 10 bcm in 2019 and 9.7 bcm in 2022) mainly due to stagnant growth and more recently linked to high gas prices, which could further depress industrial gas demand in the future. The new version of Italy's NECP states that natural gas will continue to play a key role in the national energy mix throughout the energy transition. Natural gas could be a baseload for the power sector in the absence of nuclear as renewables increase their share.

Furthermore, the evolution of EU gas demand is expected to experience a sharp downward trend given the climate commitments (European Climate Law, Fit for 55 and REPowerEU). To reach these ambitious commitments, gas demand is expected to drop by 35 to 52 per cent by 2030, depending on the scenario.<sup>25</sup> This may undermine the value of and need for Italian gas infrastructure

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<sup>24</sup> Snam, *Piano decennale di sviluppo della rete di trasporto di gas naturale 2022-2031*, 2022, <https://www.snam.it/en/our-businesses/transportation/ten-year-plans/piano-decennale-Snam-Rete-Gas.html>.

<sup>25</sup> Rheanna Johnston et al., "Are We on Track? Repowering towards EU Gas Demand Reduction", in *E3G Reports*, October 2022, <https://www.e3g.org/publications/repowering-towards-eu-gas-demand-reduction>.

expansion. Additionally, some key gas-consuming countries, such as Germany, have undertaken their own diversification strategy. For example, Germany has rushed to build its own LNG import capacity by buying and developing six import projects (five backed by the government and one privately funded terminal), joining the group of LNG importers.<sup>26</sup> This marked a drastic change as Germany has long neglected LNG imports, given its long-lasting relation with cheap Russian gas.<sup>27</sup> These efforts will increase Germany's total regasification capacity to 13.5 in 2023 and 54 bcm in 2027.<sup>28</sup> The expansion of LNG import terminals in north-western Europe could reduce the need for importing piped gas from the south. In short, Italy will need to assess the necessary infrastructural developments considering the future evolution of gas demand both in Italy and in Europe, as well as the preferences and measures of other European countries regarding import strategies in order to avoid lock-in effects and stranded assets.

For an import-dependent country such as Italy, the energy transition can represent an opportunity to enhance energy security. Indeed, reducing gas demand and accelerating the deployment of renewables could address some of the new challenges highlighted in Section 2. In this sense, recent measures can overcome historical barriers, especially lengthy permitting procedures. However, more still needs to be done. Indeed, according to Terna's data, at the end of January 2023 requests for connection to the high-voltage grid from new renewable power plants reached around 340 GW, of which approximately 37 per cent was from solar and 54 per cent from wind power.<sup>29</sup> This is well above the target Italy has set itself for 2030. However, Italy will need to invest in electricity grids – despite challenges and opposition to infrastructure investments – as the majority of renewable projects in the pipeline are located in the southern regions, while the demand hubs are in the northern parts of the country. The

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<sup>26</sup> Stuart Elliott, "Germany Joins Ranks of LNG Importers in Major Diversification Drive", in *S&P Global Commodity Insights*, 19 December 2022, <https://www.spglobal.com/commodityinsights/en/market-insights/latest-news/natural-gas/121922-feature-germany-joins-ranks-of-lng-importers-in-major-diversification-drive>.

<sup>27</sup> Thane Gustafson, *The Bridge. Natural Gas in a Redivided Europe*, Cambridge, Harvard University Press, 2020.

<sup>28</sup> Michał Kędzierski, "At All Costs. Germany Shifts to LNG", in *OSW Commentaries*, No. 510 (28 April 2023), <https://www.osw.waw.pl/en/publikacje/osw-commentary/2023-04-28/all-costs-germany-shifts-to-lng>.

<sup>29</sup> Terna, *2023 Development Plan for the National Electricity Grid Presented*, 15 March 2023, <https://www.terna.it/en/media/press-releases/detail/2023-development-plan>.

expansion of infrastructure could be challenged by social acceptability (e.g., “not in my back yard”).

The current energy crisis risks diverting attention away from climate objectives. In 2021/22, the government focused its efforts on avoiding supply shortages and disruptions as well as providing fiscal and economic support to households and industries. The crisis provides also some opportunities to enhance the role of Italy in the European energy supply architecture. However, Italy must carefully revise its approach also in light of great uncertainty over national and European gas demand in the next years.

### **3. The renewed Mediterranean focus**

For the sake of energy security, each EU member state has scrambled for non-Russian gas and especially LNG, in line with the REPowerEU Plan. However, a clear coordination at the EU level was generally missed despite EU Joint Gas Purchasing, which remains very modest volume-wise and is voluntary. Italy has mainly focused on its Mediterranean partners given its geographical location, long-lasting political relations and existing infrastructure. All of these factors strengthen the Italian ambition to become an energy hub and a bridge between Europe and Africa. North African countries – and notably Algeria – were crucial for Italy’s gas imports, accounting for half of Italy’s gas imports up to 2011. That year triggered major transformations of the relative relevance of each gas supplier to Italy because North African producers struggled to maintain energy volumes toward Italy due to rising domestic demand and declining production as well as general political instability following the Arab Spring – especially for Libya. The vacuum was filled by Russia, which became easily the main supplier of Italy’s gas market accounting for 40 per cent of national gas imports in 2021 (29 bcm). Despite the encouraging outlook, each Mediterranean gas-exporting country must tackle and surmount numerous challenges, both short-term and long-term, to bolster its role in European gas markets.

Among Mediterranean countries, Algeria has become the cornerstone of Italy’s diversification strategy. The two countries are linked with the 34 bcm TransMed pipeline via Tunisia. However, it is underutilised with a spare capacity of 13 bcm in 2021, which makes it the least-cost option for Italy because it does not require

infrastructural investments. Therefore, the two countries have worked on closing the gap. In April 2022 Eni and Algeria's national oil company, Sonatrach, agreed to increase gas volumes imported through the TransMed pipeline under the existing long-term gas supply contract. The agreement envisages using the spare capacity of the TransMed pipeline to provide gradually an additional 9 bcm/y by 2023/24. In 2022, Algeria regained its position as Italy's primary gas supplier, exporting 23.6 bcm. Italy benefited also from a more friendly political relation with Algeria compared to the other key market for Algerian gas: Spain.<sup>30</sup> However, Algeria needs to address its chronic challenges, such as the depletion rate of its traditional gas fields, attracting investments and addressing its environmental issues, to increase gas exports in the medium and longer term. Indeed, Algeria did not manage to fully monetise high prices as illustrated by constrained LNG terminals (in 2022 LNG exports dropped to 13 bcm compared to 17 bcm), highlighting the challenges the country faces in increasing export volumes. Meanwhile, Algeria prioritises pipeline gas exports compared to LNG.

Among Med countries, Libya could easily play a crucial role in Italy's energy security given its vast gas reserves. Libya has only one export option (the 12 bcm Greenstream pipeline linked to Italy) as the country does not have any operating LNG terminal. However, the current political and security conditions severely hinder the expansion of energy trade. In 2022, Italy imported only 2.6 bcm from Libya, down from 3.2 bcm in 2021. Without new gas production coming online, Libya will not be able to enhance its significance for Italy and Europe. A potential breakthrough came in January 2023, with the signing of an 8 billion US dollar deal between Italy and Libya aimed at revitalising Libya's energy sector. If implemented, this deal would represent a significant leap forward for the country, as it will boost domestic gas production for both the growing domestic market and European markets. However, energy investments, and by extension Libya's exports, are deeply intertwined with the country's political and security context.<sup>31</sup>

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<sup>30</sup> Pier Paolo Raimondi, *Natural Gas in Italy*, cit., p. 23-24.

<sup>31</sup> Pier Paolo Raimondi, "Mare Nostrum", in *World Energy Magazine*, No. 57 (July 2023), p. 56-61, <https://www.eni.com/static/en-IT/world-energy-magazine/the-new-routes-of-gas.html>.

Lastly, another promising area is the eastern Mediterranean region, which has long sought to become an energy export hub. In April 2022, the Italian energy company Eni inked a deal with the Egyptian company EGAS for up to 3 bcm of LNG in 2022 for Italy and Europe. Similarly, in June 2022, the European Commission, Egypt and Israel signed a trilateral memorandum of understanding aimed at increasing energy imports from these countries to the EU – in particular, to ship Israeli gas via Egypt's LNG export infrastructure. Indeed, Egypt became the cornerstone of East Med gas exports thanks to its LNG terminals. In 2022, it exported 11.2 bcm with 90 per cent directed to Europe. At the same time, Egypt is increasingly relying on Israeli gas exports and made the decision to prioritise LNG exports, which in turn led to a rise in oil consumption in the domestic power sector. Lastly, Italy could enhance its energy security through the 10 bcm EastMed pipeline which connects the Levantine basin to Europe via Cyprus and Greece. While the project faces some challenges, it could guarantee secure amounts of gas, protecting Italy from LNG competition, and could accommodate the long-term transportation of hydrogen to be in line with EU climate targets.

In conclusion, the Mediterranean area has played a crucial role in Italy's gas diversification strategy so far. It could further aid in securing the European gas market in the future. To achieve this, each producing country needs to address similar domestic challenges, such as rising domestic demand, production constraints and environmental issues. These challenges are compounded by the uncertainty related to European gas demand in light of its climate targets.

## **4. Reconciliation of energy security and climate: Flexibility, methane emissions and hydrogen**

In the quest for energy security, governments should not overlook or set aside their climate targets. An acceleration of renewables, coupled with improvements on energy efficiency, is crucial to reduce Italy's imports dependence. To actually achieve its ambitious targets, Italy will need to reconsider its economic and fiscal supports to shield vulnerable groups from price volatility while

accelerating the deployment of renewables in a cost-efficient manner. At the same time, the current government believes that natural gas can contribute to the energy transition and enhance geopolitical relevance in the Mediterranean area and Africa. Concerning natural gas, valid and smart ways for reconciling energy security with climate targets need to be found, starting by tackling methane emissions and developing decarbonised gas (especially hydrogen) in a strategic way.

## Flexibility

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Since the new NECP envisages a role for natural gas in Italy's energy transition and the government seeks to gain geopolitical relevance thanks the country's geographical position in the Mediterranean, Italy should consider the value of flexibility in securing gas supplies and related infrastructure. Given the uncertainty on future gas demand, Italy should promote flexibility both for infrastructure and for contracts. Regarding infrastructure, Italy could expand through flexibility, namely FSRUs, which can be redirected to other regions (e.g., Asia) once Italy's gas demand declines. Indeed, several countries in Asia still rely heavily on coal, especially for power generation. For some of these countries, gas imports may contribute to their mitigation strategy. In the same way, Italy should promote flexible contracts with clauses that allow the redirection of gas flows to third countries in case of future lower demand. At the same time, it should carefully assess the relevance of certain infrastructure in order to protect itself from excessive competition with other importing countries. Flexibility will guarantee adequate security of supply while preserving climate objectives.

## Methane emissions

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In its attempt to secure gas and navigate the energy transition, Italy should not only focus on the quantity of supply, given the expected decline of European gas demand, but also on its climate quality. Greater attention should be devoted to methane emissions. Having more than 80 times the warming potential of CO<sub>2</sub> in its first 20 years in the atmosphere, methane is a powerful short-term greenhouse gas. According to some estimates, methane is responsible for at least 25 per cent of global warming. Despite its role in global warming

and accelerating climate ambitions, governments have largely overlooked methane emissions until recently when policymakers across the globe started to increasingly look to methane mitigation strategies especially because abatement of methane emissions is considered to be one of the best strategies to slow global warming at low cost. Abatement of methane emissions in the energy industry is one of the cheapest measures to reduce GHG emissions. The IEA estimates that abatement measures would generate revenues of around 45 billion US dollars from the sale of captured methane at an average cost of less than 5 US dollars/tonne CO<sub>2</sub>-equivalent. In October 2020, the EU put methane emissions under the political spotlight when it released its Methane Strategy as part of the European Green Deal. At COP26, the EU, US and hundreds of other countries formed the Global Methane Pledge (GMP), which seeks to collectively cut methane emissions by 30 per cent by 2030 compared to 2020 levels to keep within reach the target of limiting global warming to 1.5°C. This marked the broad recognition on the part of governments of the issue of methane emissions. However, despite rising national and corporate awareness, a study reveals that only 13 per cent of global methane emissions are covered by direct methane mitigation policies.<sup>32</sup> Furthermore, the study highlights how limited policy stringency and reliance on inaccurate emission estimates remain key barriers to effective action. Indeed, despite the positive developments, key fossil fuel producers, exporters and consumers, such as Russia, China, India, Iran and Venezuela among others, have not adhered to the Pledge. Additionally, with the exception of Canada, members of the GMP have not outlined and presented clear and detailed commitments on how they will achieve the collective goal.<sup>33</sup> Despite the increased political interest, there is also some uncertainty over methane intensity data. This represents a barrier because good quality data is a precondition for outcome-based regulations targeting emissions performance.<sup>34</sup> Nonetheless, the GMP seems to have ignited a new momentum for methane emissions reduction strategies, especially in the USA, Canada and the EU.

<sup>32</sup> Maria Olczak, Andris Piebalgs and Paul Balcombe, "A Global Review of Methane Policies Reveals That Only 13% of Emissions Are Covered with Unclear Effectiveness", in *One Earth*, Vol. 6, No. 5 (19 May 2023), p. 519-535, <https://doi.org/10.1016/j.oneear.2023.04.009>.

<sup>33</sup> Jonathan Stern, "Methane Emissions: The Increasing Importance of Measurement, Reporting and Verification", in "Key Themes for the Global Energy Economy in 2023", in *OIES Papers*, No. SP 21 (January 2023), p. 32-33, <https://www.oxfordenergy.org/?p=45675>.

<sup>34</sup> Kristina Mohlin, Andris Piebalgs and Maria Olczak, "Designing an EU Methane Performance Standard for Natural Gas", in *RSC Policy Briefs*, No. 2021/09 (March 2021), <https://hdl.handle.net/1814/70535>.

The European Commission released a legislative proposal for methane regulation in December 2021,<sup>35</sup> which requires companies to submit source-level measurement, reporting and verification (MRV) data and imposes leak, detection and repair (LDAR) requirements as well as a ban on routine flaring or venting. In December 2022, the European Council reached a provisional agreement on the proposed regulation, although it has softened several requirements envisaged by the proposal especially on LDAR requirements and flaring and venting rules. Regarding LDAR requirements, the Council agreed on outlining different requirements for different types of equipment.<sup>36</sup> The Parliament adopted its position on the regulation in May 2023, urging the Commission to propose a binding 2030 target for EU methane emission for all relevant sectors by the end of 2025. The Parliament also demanded more frequent LDAR surveys. Lastly, pointing out the high share of imports (over 80 per cent of the oil and gas consumed in the EU), it wants importers to be obliged to demonstrate that imports meet the requirements of the Regulation from 2026.<sup>37</sup> The Parliament proposes to grant exemptions for those imports that come from countries with similar requirements for methane emissions. The idea of standards and targets for methane intensities for energy imports to the EU was explored already by the EU Methane Strategy in 2020. The fact that the EU (and Italy) relies heavily on fossil fuel imports suggests that the EU cannot overlook methane emissions from energy imports. The EU will need to guarantee a playing level field between domestic and international operators. On 15 November 2023, the European Parliament and Council reached a provisional agreement on the new EU methane regulation. The agreement envisages both domestic and international provisions. The former concern MRV measurements<sup>38</sup> and LDAR surveys.<sup>39</sup> Additionally, the

<sup>35</sup> European Commission, *Proposal for a Regulation on Methane Emissions Reduction in the Energy Sector* (COM/2021/805), 3 March 2022, [https://eur-lex.europa.eu/legal-content/en/TXT/?uri=celex:52021PC0805R\(01\)](https://eur-lex.europa.eu/legal-content/en/TXT/?uri=celex:52021PC0805R(01)).

<sup>36</sup> Ben Cahill, "What's Next for Oil and Gas Methane Regulation", in *CSIS Briefs*, March 2023, <https://www.csis.org/node/104642>.

<sup>37</sup> European Parliament, *Fit for 55: MEPs Boost Methane Emission Reductions from the Energy Sector*, 9 May 2023, <https://www.europarl.europa.eu/news/en/press-room/20230505IPR84920>.

<sup>38</sup> Specific deadlines and frequencies have been agreed: between two and three years for source-level measurements, and source-level measurements along with a site-level reconciliation.

<sup>39</sup> The provisional agreement provides for the adoption of a risk-based approach, drawing a distinction between type 1 leak detection and repair surveys (lower accuracy to find big leaks) and type 2 surveys (higher accuracy to find small leaks) based on minimum detection limits and minimum leak thresholds, and differentiating between aboveground components, underground components, and components below sea level and below the seabed.

agreement expands methane regulation to energy imports as well. To do so, the agreement envisages three implementation phases for imports: i) focused on data collection and the creation of a methane emitters global monitoring tool and a super emitter rapid reaction mechanism; ii) equivalent MRV measures should be applied by exporters to the EU by 1 January 2027 and iii) maximum methane intensity values by 2030.<sup>40</sup> The regulation recognises each of the national competent authorities as having the power to impose administrative penalties in case of violation. Penalties should be imposed on new contracts. The transitional period will allow producers – both exporters and importers – to work on the required measures before the entry into force. Meanwhile, the Commission is expected to set methane intensity “classes” (or values) for fossil fuels on the EU market through a delegated act. By setting standards for imports, the EU tries to leverage its monopsony power and regulatory power (i.e., the Brussel Effect). Indeed, large importers can establish certain regulatory frameworks to induce exporters to change their production. This may be more challenging in a tight market context where market power lies on supply side.

At the national level, there have been some positive developments as Italy included methane emissions in the new version of its NECP,<sup>41</sup> highlighting the growing political commitment to this issue. In 2021, methane emissions from the gas value chain accounted for 6.6 per cent of the total Italian methane emissions. The core of the methane emission of the domestic gas value chain comes from distribution – although emissions from the distribution network declined by 64 per cent between 1990 and 2021 according the new NECP version<sup>42</sup> – while producing countries and gas suppliers like Algeria and Libya have higher methane emissions. Indeed, North African producers’ oil (and gas) production has higher carbon intensity and methane intensity compared also to other producers, notably the Gulf hydrocarbon producers.<sup>43</sup>

<sup>40</sup> Council of the EU, *Climate Action: Council and Parliament Reach Deal on New Rules to Cut Methane Emissions in the Energy Sector*, 15 November 2023, <https://europa.eu/lj3qXBQ>.

<sup>41</sup> MASE, *Piano nazionale integrato per l'energia e il clima*, June 2023, [https://www.mase.gov.it/sites/default/files/PNIEC\\_2023.pdf](https://www.mase.gov.it/sites/default/files/PNIEC_2023.pdf).

<sup>42</sup> *Ibid.*, p. 59.

<sup>43</sup> Manfred Hafner, Pier Paolo Raimondi and Benedetta Bonometti, *The Energy Sector and Energy Geopolitics of the MENA Region at a Crossroad. Towards a Great Transformation?*, Cham, Springer, 2023, <https://doi.org/10.1007/978-3-031-30705-8>.

This condition puts North African producers in a worse position in the context of a low-carbon scenario. At the same time, Italy heavily relies on gas imports, especially from the Mediterranean countries, which are a promising region for addressing the issue. Hydrocarbon-producing countries in North Africa are more exposed than Gulf countries regarding methane emission intensity as some of the largest methane hot spots are located in this area. For example, the giant Hassi R'Mel basin in Algeria, which is now the main gas supplier to Italy, has been a key source of leaking methane.<sup>44</sup> Addressing methane emissions can result in increasing liquidity in a tight gas market, with positive climate outcomes as promoted by the “You Collect/We Buy” approach outlined in the EU External Energy Strategy. According to the IEA, the EU could ensure an additional 20 bcm from Algeria (10 bcm), Libya (7 bcm) and Egypt (3 bcm) from reducing flaring and methane emissions.<sup>45</sup> In January 2023, Eni and Sonatrach signed two agreements for future joint projects on energy supply, energy transition and decarbonisation, including related to the reduction of greenhouse gas and methane gas emissions.<sup>46</sup> Algeria’s National Determined Contribution and Sonatrach have adopted a target of less than 1 per cent of total associated gas to be flared by 2030. Addressing methane emissions would be beneficial not only for importers but also for North African countries as they could prevent a loss of competitiveness and market share in the future. To promote methane emissions MVR standards and abatement policies, Italy could also further leverage its role of virtually monopsony purchaser for gas from Algeria and Libya as well as the positive relationships between its energy companies and these countries. Particularly, Italy should promote high MVR standards, which will induce these countries to comply in order to preserve market share and competitiveness. Methane performance standards for gas could become a key factor for future gas contracts. In 2020, French Engie halted negotiations over an LNG supply with NextDecade following alleged pressure from the French government over environmental concerns – particularly methane emissions. This could be the right pathway to ensure that exporters

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<sup>44</sup> Jess Shankleman and John Ainger, “Europe Faces an Old Methane Hotspot in Rush to Exit Russian Gas”, in *Bloomberg*, 30 May 2023, <https://www.bnnbloomberg.ca/1.1772301>.

<sup>45</sup> IEA, *The Energy Security Case for Tackling Gas Flaring and Methane Leaks*, June 2022, <https://www.iea.org/reports/the-energy-security-case-for-tackling-gas-flaring-and-methane-leaks>.

<sup>46</sup> Eni, *Eni and Sonatrach Sign Strategic Agreements to Accelerate Emissions Reduction and Strengthen Energy Security*, 23 January 2023, <https://www.eni.com/en-IT/media/press-release/2023/01/eni-sonatrach-sign-strategic-agreements-accelerate-emissions-reduction.html>.

are in compliance with the EU targets.

## Hydrogen

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Another avenue for reconciling energy security and climate objectives is the development of decarbonised gases, such as hydrogen. Clean molecules will be crucial in decarbonisation as the share of electricity in the global final energy consumption is set to rise from the current 20 per cent to 53 per cent by 2050, according to the IEA's Net Zero Emissions by 2050 scenario.<sup>47</sup> Furthermore, hydrogen could contribute to the decarbonisation of the so-called "hard-to-abate" sectors where electrification is not a feasible option. Given such potential, hydrogen has been often considered as the holy grail of the energy transition as it could be used in multiple sectors. However, production and trade of both renewable – or green hydrogen that is produced by electrolyzers powered by renewables – and low-carbon – or blue hydrogen that is produced by natural gas coupled with carbon capture and storage (CCS) – are still in their infancy. To avoid waste of money and time, countries should promote and prioritise the use of hydrogen in a strategic manner. Particularly, governments should promote its use in those sectors where hydrogen is already being consumed (refining and petrochemicals) and then those where other options are not feasible and efficient, such as hard-to-abate sectors, avoiding less feasible sectors such as buildings and cars. Italy foresees the use of hydrogen in industry and transport. In the new NECP, Italy's green hydrogen consumption target amounts to a total of 0.251 million tonnes by 2030 requiring around 3 GW of electrolyzers. The industry sector is expected to consume 0.115 million tonnes, and the transport sector 0.136 million tonnes by 2030. Domestic production will account for 80 per cent of 2030 hydrogen targets.<sup>48</sup>

Since the publication of its Hydrogen Strategy, the EU has reaffirmed its commitment to develop and import green hydrogen, while relegating blue hydrogen as an intermediary target. For example, the REPowerEU, which considered only green hydrogen, enhanced the EU hydrogen target, including

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<sup>47</sup> IEA, *Net-Zero Roadmap: A Global Pathway to Keep the 1.5 °C Goal in Reach. 2023 Update*, September 2023, <https://www.iea.org/reports/net-zero-roadmap-a-global-pathway-to-keep-the-15-0c-goal-in-reach>.

<sup>48</sup> MASE, *Piano nazionale integrato per l'energia e il clima*, cit., p. 88.

10 million tonnes of green hydrogen imports by 2030. For these reasons, the EU is considering the development of hydrogen corridors to reach this target. According to the IRENA, of the hydrogen that would be internationally traded by 2050, around 55 per cent would travel by pipeline. This pipeline-enabled trade would be concentrated in Europe (85 per cent).

EU has explored the possibility of importing green and cheaper hydrogen<sup>49</sup> from neighbouring regions, which holds competitive advantages in terms of renewable potential, land availability and energy infrastructure. Among these regions, the Mediterranean area stands out. Indeed, North African countries could produce green hydrogen at low cost and then export it towards the European markets, contributing to Europe's decarbonisation. Developing hydrogen trade between Europe and North Africa holds some merits both politically and economically.<sup>50</sup> Both hydrocarbon-rich and hydrocarbon-poor countries in North Africa have looked into the possibility of developing hydrogen-export-oriented projects thanks to their natural gas reserves, renewable potential, geographical proximity to Europe and existing interconnections. Morocco and Tunisia are mainly looking into green hydrogen, while Algeria, Libya and Egypt potentially could develop both blue and green hydrogen. Nonetheless, the EU is eager to import green hydrogen also in the framework of its REPowerEU plan launched in the aftermath of Russia's war in Ukraine. The European Commission is working on a Mediterranean Green Hydrogen Partnership (MGHP) and is also exploring opportunities with Gulf countries for concluding Green Hydrogen Partnerships in order to create win-win solutions and establish new sustainable energy cooperation. The MGHP will start with the EU-Egypt Hydrogen Partnership. Morocco has set an ambitious renewable target (52 per cent of power capacity by 2030) in the attempt to decarbonise its energy system. Having abundant solar and wind potential, Morocco has expressed its ambition to develop hydrogen. The presence of an existing pipeline to Spain is an additional comparative advantage. However, progress on this matter has been quite slow so far. Egypt gave a boost to its hydrogen ambition in 2022 when it signed several MoUs that would link

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<sup>49</sup> According to Snam, this option could reduce the cost of supply by 10–15 per cent with respect to national production. See: Luca Franza, *Clean Molecules across the Mediterranean. The Potential for North African Hydrogen Imports into Italy and the EU*, Rome, IAI, April 2021, <https://www.iai.it/en/node/13116>.

<sup>50</sup> Pier Paolo Raimondi, *Natural Gas in Italy*, cit.

renewable projects to its green hydrogen ambitions. Furthermore, it has released its hydrogen strategy and has managed to accelerate its deployment of renewables, with many international commitments to invest. By contrast, Algeria has increasingly looked into hydrogen opportunities but still lacks a regulatory framework and the planned renewable deployment has so far not taken off.<sup>51</sup> Italy seeks to support the development of hydrogen in the North African countries as part of its broader energy policy in the region. In May 2022, Sonatrach and Eni signed an MoU to boost decarbonisation through green hydrogen albeit with the development of gas fields alongside. Additionally, in 2023 Italy, with Austria and Germany, expressed their support for development of the “SouthH2 Corridor” project, which is expected to deliver 4 million tonnes of hydrogen by 2030 corresponding to around 40 per cent of the REPowerEU target.<sup>52</sup> Lastly, Tunisia and Libya could potentially develop hydrogen both from natural gas (Libya) and from renewables (Libya and Tunisia) but the current security and political context prevents any significant development.

However, the development of hydrogen (especially for export-oriented projects) in these countries faces some hurdles. First, the role of renewables is currently quite modest especially in Libya, Algeria and Tunisia, undermining the outlook for green hydrogen exports. Against this backdrop, Italy, alongside the EU, should promote a sustainable use of hydrogen, favouring and supporting first the decarbonisation of the national energy systems of producing countries and then creating avenues for exports. Otherwise, the risk would be to import green hydrogen while North African countries keep consuming more polluting sources domestically. Additionally, North African countries, supported by the EU, should prioritise the deployment of renewables for power generation, which is heavily reliant on oil, gas and also coal for Morocco. Another challenge is posed by the limited financial capabilities of North African countries, especially compared to hydrocarbon-producing countries in the Gulf. Therefore, the support of international investments will be crucial for developing a sustainable

<sup>51</sup> Manfred Hafner and Pier Paolo Raimondi, “Energy Transition and Prospects for Producing Countries in the MENA Region”, in *IEMed Mediterranean Yearbook 2023*, p. 69-75, <https://www.iemed.org/publication/energy-transition-and-prospects-for-producing-countries-in-the-mena-region>.

<sup>52</sup> Irina Breilean, “SouthH2-Corridor Could Ease European Hydrogen Supply Tightness as Pipeline Moves Forward”, in *ICIS News*, 9 May 2023, <https://www.icis.com/explore/resources/news/2023/05/09/10883496/south2-corridor-could-ease-european-hydrogen-supply-tightness-as-pipeline-moves-forward>.

hydrogen economy in North Africa. Additionally, North African countries need to take into account environmental challenges related to green hydrogen production. Particularly, the region suffers from water scarcity, which would imply adding desalination plants and increasing energy consumption and production costs. Lastly, the lack of an agreed certification system is a barrier for off-takers and hence the ramping up of international hydrogen trade.<sup>53</sup> Given these challenges, Italy should collaborate with North African countries for promoting the use of green hydrogen domestically in order to decarbonise existing industrial capacities – especially in the energy-intensive industries. This would overcome barriers and challenges in the international hydrogen trade, creating more added value in the countries, in turn creating new and higher source of revenues.<sup>54</sup> Furthermore, in doing so, these countries could become more integrated with European supply chains, in line with the “friendshoring” narrative, while reducing their exposure to the EU Carbon Border Adjustment Mechanism (CBAM) liability. This strategy would be particularly beneficial for Morocco and Egypt, which are heavily exposed to CBAM.

In promoting and developing the hydrogen economy, Italy should address several issues, such as its environmental impact and its usage. Hydrogen is indeed a leak-prone molecule that causes climate warming. Therefore, countries and companies need to address also the risk of hydrogen emissions, promoting measurement activities and methodologies. Furthermore, addressing methane emissions for the gas sector is also instrumental in ensuring that blue hydrogen is produced with the lowest environmental impact possible, for example regarding methane emissions. To do so, upstream gas operation for producing blue hydrogen would require strict methane emission standards and metrics coupled with the development of the most efficient and secure CCS technology. Moreover, Italy would need to apply a comprehensive approach by promoting the use of hydrogen in those sectors where there are no more efficient and cleaner alternatives. In this sense, prioritising first the decarbonisation of existing hydrogen demand is welcome both within the EU and abroad also by including considerations on risks of hydrogen leakage and

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<sup>53</sup> Christoph Heinemann and Roman Mendelevitch, “Sustainability Dimensions of Imported Hydrogen”, in *Oeko-Institut Working Papers*, No. 8/2021 (December 2021), <https://www.oeko.de/en/publications/sustainability-dimensions-of-imported-hydrogen>.

<sup>54</sup> Manfred Hafner, Pier Paolo Raimondi and Benedetta Bonometti, *The Energy Sector and Energy Geopolitics of the MENA Region at a Crossroad*, cit.

energy intensity related to sectors.

## 5. Key takeaways and policy recommendations

The paper seeks to analyse these shifts within Italy's energy and climate policy and how the country can enhance energy security while pursuing and reaching its climate goals. While energy security is firmly at the top of the political agenda, energy transition seems to be a secondary priority for the current Italian government. However, the evolving energy and international developments, alongside Italy's chronic challenges, demand a new approach to energy policy.

Given the relevant role of natural gas, especially imports from Russia, in the energy mix, Italy's exposure to high price volatility has put under pressure the macroeconomic and industrial landscape. Since September 2021, the country has allocated a massive amount of public finance (92.7 billion euros, equal to 5.2 per cent of GDP) to shield consumers and industries. Yet, this approach (universal subsidies) does not represent a viable solution to higher prices and price volatility, which will be the new normal for Europe as LNG has become crucial for the baseload. Additionally, universal subsidies entail some risks, notably encouraging energy demand, causing regressive consequences and putting further pressure on fiscal budgets. This latter is especially crucial for Italy, which has a very constrained fiscal space.

Therefore, it is pivotal for Italy to direct funds in the most efficient way to both protect vulnerable groups from price spikes and to invest in the energy transition. Additionally, further demand-containment measures are required to partially prevent the risk of price spikes. In 2022, Italy reduced its gas consumption by 10 per cent compared to 2021 (-7.5 bcm), declining to 67.3 bcm.

The limited fiscal space of Italy demands new strategies to shield and develop its industrial sector in a competitive manner.<sup>55</sup> Furthermore, the fiscal issues

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<sup>55</sup> Giovanni Sgaravatti, Simone Tagliapietra and Georg Zachmann, "Adjusting to the Energy Shock", cit.

spark relevant considerations regarding the ongoing industrial revolution and competition through subsidies both within and outside the EU. Italy would ideally be in favour of a European industrial fund rather than weakening state aid rules, which could also damage the European internal market. At the same time, Italy needs to prove itself able to use existing European funds efficiently.

The crisis has reaffirmed the need to accelerate the energy transition (renewables and energy efficiency) in order to reduce overdependence on fossil fuel imports. However, several challenges have hindered the deployment of renewables. Some positive developments have occurred with an acceleration of renewables deployments (+3 GW in 2022). Still, Italy needs to reduce administrative procedures and invest in electricity grids to connect new renewable plants (mainly located in the south) to consumption bases (in the north). The new NECP has enhanced renewables targets. However, limited fiscal capabilities urge Italy to invest in a cost-efficient way, while ensuring adequate and coordinated governance for a speedy and just transition.

The energy crisis is not over yet and remains relevant although Italy, along with the EU, has managed to avoid supply shortages and blackouts. The crisis has brought back energy security as a top political priority and the new government has emphasised its relevance. With energy diversification again becoming a crucial aspect of energy policy, Italy has mainly focused on its Mediterranean and African partners. Mediterranean countries present comparative advantages but still need to address several challenges that hinder their export potential to Italy.

The ambition to become an energy hub, which requires infrastructure expansions, will need to take into consideration the evolution of gas demand in the EU as well as other consuming countries' preferences on import routes. To reach the ambitious EU climate commitments, gas demand is expected to drop by 35 to 52 per cent by 2030, depending on the scenario. This may undermine the value of and need for Italian gas infrastructure expansion. Furthermore, Northern European countries have built and expanded their LNG regasification capacity. Nonetheless, Italy could export some volumes to Central European countries.

Finally, since Italy aims at gaining geopolitical relevance, natural gas remains crucial for Italy's energy mix as emphasised by the new NECP, and developing a comprehensive strategy to reconcile energy security and climate objectives is essential. First, in its quest for non-Russian gas, flexibility in terms of infrastructure and contracts avoiding excessive infrastructural rigidity and destination clauses should be pursued. This would allow the redirection of gas flows where they are much more needed in the long run for climate objectives (i.e., Asia replacing its coal power plants), thereby avoiding the risks of lock-in and stranded assets.

Second, promoting methane emission reductions is the low-hanging fruit for Italy's efforts to better align security of supply concerns with energy transition requirements. Indeed, this would increase liquidity in the market and can be a key factor for Italy to position itself as a bridge between Europe's climate objectives and North African economic and environmental interests. Despite the challenge inherent in applying methane standards in a tight market as the market power is on the supply side, the provisional agreement envisages the new measures from January 2027. By that time, the market is expected to be more liquid due to the ongoing expansion of LNG export capacity over the coming years. This period can be used as a transitional space to find common methodologies and share experiences. Italy can leverage its virtually monopsony role for Algerian and Libyan gas to promote higher methane standards in these countries. This would be beneficial also for these countries, whose hydrocarbon production has a high carbon intensity rate, and that would otherwise lose market share in their main markets. Italy could also leverage its long-lasting relations both in the private sector and at the governmental level. Companies should promote technical cooperation in the gas sector. Additional finance and technological supports are required. Furthermore, Italy will be responsible for enforcement as its national authority will have the power to impose administrative penalties if measures are not satisfied. This will require administrative capacity and coordination with the other EU importing countries.

Lastly, hydrogen can contribute to decarbonising hard-to-abate sectors. Italy, and the EU as a whole, should promote the development of hydrogen in a strategic way, prioritising sectors where other technological solutions are not feasible. While the EuroMed is characterised by complementarity in terms of trade, there are some challenges to the development of hydrogen

(especially for export-oriented projects) in North African countries. Challenges regard mainly the very modest existing renewable installed capacity in these countries and the absence of mutually agreed standards and certification systems reflecting the latest science. Against this backdrop, Italy, alongside the EU, should promote a sustainable use of hydrogen favouring and supporting first the decarbonisation of the national energy systems of producing countries and then creating avenues for exports. In this way, North African countries could develop hydrogen to decarbonise their energy-intensive industries to create more added-value, overcome international trade challenges, pursue green industrial policies and reduce their exposure to CBAM.

# Reconciliation of Energy Security and Climate Objectives: The Case of Italy

Traditionally, Italy is heavily reliant on fossil fuel imports, and the deployment of renewables has been hindered by chronic challenges such as lengthy procedures and social opposition. However, due to the dominant role of imported gas in the Italian energy mix (especially in power generation), the country's households and industry were put under incredible pressure by the spike in gas prices during the 2021/22 energy crisis. In 2022, Italy focused its efforts to avoid supply disruptions by engaging with hydrocarbon producers, especially in the Mediterranean. While electrification and energy efficiency can strengthen energy security, policy measures in the field of molecules, such as addressing methane emissions and the development of hydrogen, are necessary to reconcile energy security with climate objectives.



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