PRESS RELEASE

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TERNA: 2025 DEVELOPMENT PLAN FOR THE NATIONAL ELECTRICITY GRID PRESENTED

INVESTMENTS OF MORE THAN € 23 BILLION OVER THE NEXT TEN YEARS TO FACILITATE THE INTEGRATION OF RENEWABLE SOURCES AND INCREASE THE TRANSPORT CAPACITY OF THE GRID

ELECTRICAL INFRASTRUCTURE IN SUPPORT OF ITALY'S ENERGY TRANSITION TO BE OPERATIONAL BY 2030: THE TYRRHENIAN LINK, THE ADRIATIC LINK, THE CONNECTION BETWEEN SARDINIA, CORSICA AND TUSCANY, AND THE ITALY-TUNISIA ENERGY BRIDGE

EFFICIENT TERRITORIAL PLANNING MODEL ADOPTED TO RESOLVE VIRTUAL GRID SATURATION

Rome, 14 March 2025 – Terna's 2025-2034 Development Plan, containing **investments of more than € 23 billion over the next ten years** (+10% compared to the previous Plan), consolidates Terna's role in service of the nation, towards a sustainable and decarbonised future. The interventions set out within the Plan are essential to the pursuit of national and European targets in terms of energy transition and independence, resilience and efficiency of the electricity system.

The 2025 Development Plan is aligned with the targets defined by the **2024 Integrated National Energy and Climate Plan**, as detailed in the Terna-Snam 2024 Scenario Description Document, which foresees an increase of over 65 GW in installed solar and wind capacity by 2030 and of 94 GW by 2035, both with reference to installed capacity in 2023.

The 2025 Development Plan for the company led by **Giuseppina Di Foggia** was presented in Rome today, in the presence of Terna's Chairman **Igor De Biasio**, the Italian Minister of the Environment and Energy Security **Gilberto Pichetto Fratin**, and the Chairman of ARERA (the Italian Regulatory Authority for Energy, Networks and the Environment) **Stefano Besseghini**.

"The Development Plan presented today rises to meet the urgent needs of the current situation. In fact, investing in planning, modernising and digitising electricity grids will be essential to cope with the growing demand for energy and the integration of renewable sources. With 23 billion euros to be invested over the next ten years, our goal is to ensure that the country has a reliable, resilient and sustainable system", **said Giuseppina Di Foggia, Terna's Chief Executive Officer and General Manager.** *"An adequate and interconnected transmission grid, along with the current legislative measures and incentives, is the crucial factor in achieving the targets set by the National Energy and Climate Plan for 2030. Proof of Terna's commitment to managing Italy's energy transition lies in the*

launch of the construction phase for our main electrical infrastructures, like the Tyrrhenian Link, the Adriatic Link and the connection between Sardinia, Corsica and Tuscany", added Giuseppina Di Foggia. "*Requests for the connection of renewable plants, storage systems and Data Centres are constantly increasing, particularly in recent months for the latter. In order to tackle the risk of virtual grid saturation, and to help Italy remain an attractive prospect for investors, including international ones, we adopted – following the approval of the Decree-Law Energy Security - a new territorial programming process for our infrastructure. This process ensures that the work to enable the connection of new resources can be carried out efficiently, reducing administrative hold-ups and minimising the costs for the system"*.

Terna's interventions as set out in its 2025 Development Plan will enable a **significant increase in the capacity for energy exchange between market zones**, which will reach around 39 GW compared to the current 16 GW, an increase of 22% over the previous Plan. Additionally, the Plan aims to **boost cross-border transfer capacity by around 40% compared to current levels**, when taking all the work included in the Plan into consideration, even beyond its ten-year timeline, thanks to future electrical interconnection projects which will increase grid reliability and security.

Thanks to the interventions included under the Plan, a total reduction of up to 2,000 kt/year of **CO_2 emissions** is expected by 2030, rising to 12,100 kt/year by 2040. This value represents a 2.5% improvement over the previous Development Plan.

THE GOALS OF THE 2025 DEVELOPMENT PLAN

Against the backdrop of a complex and challenging moment for electricity, Terna has devoted considerable efforts to defining its development priorities. Preference has been given to interventions which offer maximum value for the system, with capital-light solutions identified in order to reduce costs while maximising the effectiveness of the investments necessary for energy transition.

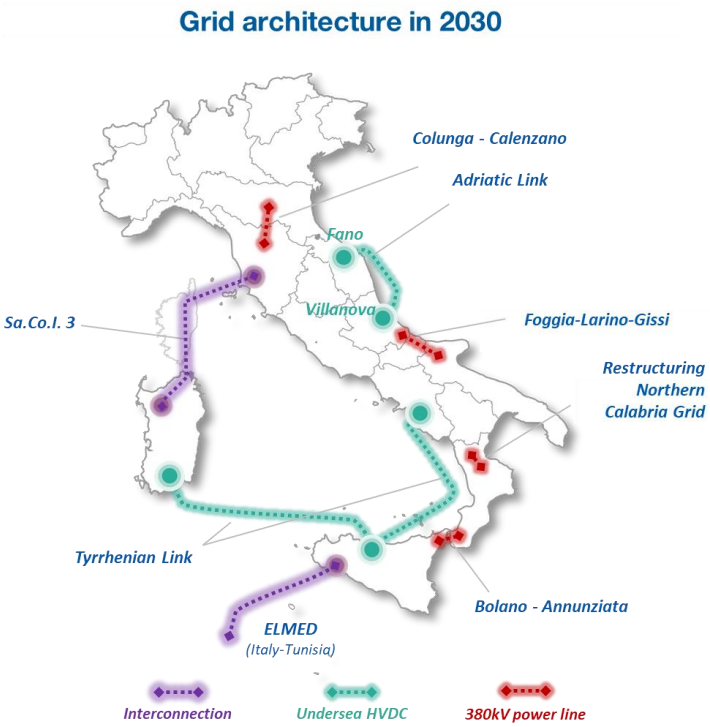
The interventions set out in the Plan, which will allow the grid's requirements to be seen from a long-term perspective, will address the following needs:

- **developing innovative enabling infrastructure**, paving the way to achieving the efficient target capacity, in order to increase transport limits between market segments and maximise the exchange of energy;
- **resolving local congestion**, guaranteeing secure operation within market zones by planning cross-zone interventions;
- **responding efficiently to all requests for connection to the grid** by putting together a new model of **Efficient Territorial Planning**;
- **guaranteeing the stability and security of the electricity grid and the integration of markets through international interconnections**, allowing the flexible and balanced management of energy resources and encouraging exchanges between national grids.

GRID INTERVENTIONS

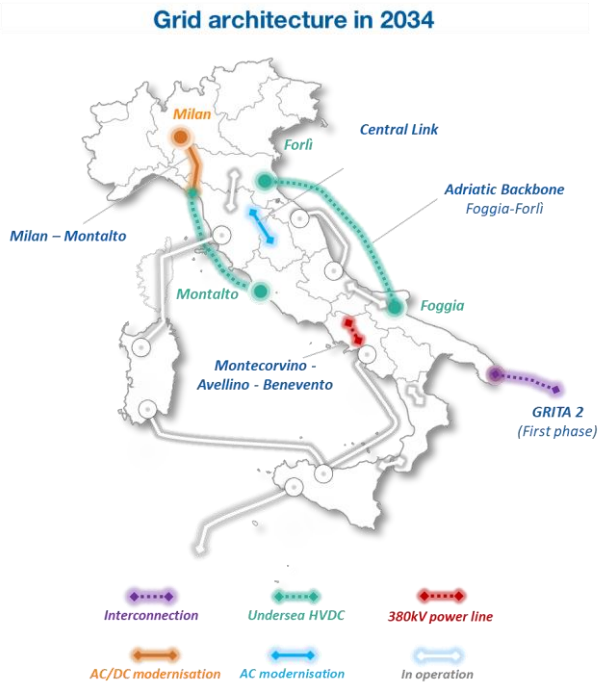
The grid architecture illustrates the main interventions to meet development needs, across a time frame spread out over multiple years.

Within the timeline of the 2025 Development Plan, most of the interventions expected to be operative by 2030 have obtained authorisation or are currently in the authorisation phase. These include the company's main infrastructural works:



- **Tyrrhenian Link:** the 500 kV submarine HVDC link that will connect Sicily to Campania and Sardinia. The infrastructure will allow greater integration between the different market zones and a more effective use of the flow of energy from renewable sources. The East branch, between Campania and Sicily, was authorised by the Ministry of the Environment and Energy Security in September 2022, while the West branch, between Sicily and Sardinia, was authorised in September 2023. The laying of submarine cable for the East branch began in Sicily in January, with work to be completed by 2028.
- **Adriatic Link:** the 1,000 MW HVDC connection between Abruzzo and Marche which extends for around 250 km, including 210 km of submarine cable. The project received the green light from the Ministry in January 2024, with construction sites opening on land at the end of 2024. It is expected to become operative in 2029.
- **Bolano-Annunziata:** authorised in September 2024, this 380 kV AC submarine power line will connect Sicily and Calabria, increasing the interconnection capacity between Sicily and the mainland to 2,000 MW. Benefits are expected to result for the development and integration of renewable energy sources in southern Italy. The connection will also help improve grid meshing and operational flexibility, making the electricity systems in southern Italy and those on the island even more secure.
- **Colunga-Calenzano:** a 380 kV power line running for 84 km between the provinces of Bologna and Florence. The infrastructure, which is currently under construction, will ensure a significant increase in the exchange capacity between the north and centre-north, strengthening the meshing of the area's electricity grid.

Additional infrastructural reinforcements planned to take place by 2034 include:



- **Milan-Montalto:** this DC power line, with a maximum voltage of 525 kV and a capacity of 2,100 MW, will connect the regions of Lazio and Lombardy, passing through Tuscany, Liguria and Emilia-Romagna via a route totalling 500 km of lines, including a submarine section and an overhead section. The public consultation phase for the work was launched in January.
- **Central Link:** this project involves the reconstruction of the 220 kV power lines between Umbria and Tuscany, following the existing route and connecting the substations at Villavalle (Terni) and Santa Barbara (Arezzo). Once complete, the work will allow the secure transfer of energy from central Italy to high-load areas in Tuscany.
- **Adriatic Backbone:** this DC connection between Foggia and Forlì will strengthen the Adriatic corridor, enabling a substantial increase in exchange capacity.
- **Montecorvino-Benevento:** a construction project for a new 380 kV connection between the areas of Montecorvino and Benevento, passing through the 380 kV “Avellino N.” electrical substation. The upgrading of the 380 kV substations in Montecorvino and Benevento will also be required to allow the construction and operation of the new power line. The solution will take advantage of potential synergies with existing corridors and infrastructure, allowing greater reliability as well as facilitating the secure integration of the new generation of renewable energy.

Terna also plans to build major **infrastructure for the purpose of increasing grid security and intrazonal transmission capacity**. These interventions, which will facilitate the exchange of energy within the same market zone, are vital to the integration of renewable sources and the resolution of local grid congestion. The planned works include three 380 kV connections in Sicily (**Chiaramonte Gulfi-Ciminna**, **Caracoli-Ciminna** and **Paternò-Priolo**) and one in Lombardy (**Milan-Brescia**).

Terna's 2025 Development Plan aims to extract as much value as possible from existing assets through capital-light interventions based on innovative solutions and tools, alongside traditional infrastructural works. In this way, significant benefits to the grid can be pursued.

Terna's work in planning the electricity grid of the future can take advantage of simplified ARERA and Ministry approval processes for large infrastructure.

Specifically, the Regulatory Authority has simplified its procedure through a phase approval mechanism, providing tools to speed up the process of design, authorisation and construction.

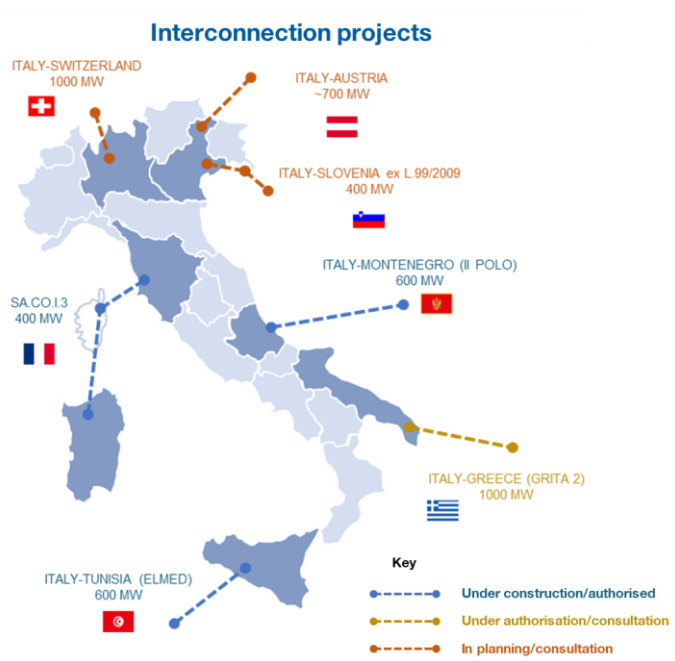
Significant time can also be saved following the Ministry's recent regulatory simplifications (art. 47, paragraph 1-bis, 1-ter, Decree-Law 13/2023, converted with amendments by Law 21 of April 2023, n. 41). The HVDC Milan-Montalto, Central Link, and Montecorvino-Avellino-Benevento connections, for example, were exempted from the Environmental Impact Assessment, meaning that they could avail of an accelerated process and enter into service at least three years earlier than would otherwise have been possible.

The construction of infrastructure will also be supported by tools to ensure and guarantee the security and flexibility of the system. One example is the Capacity Market, through which Terna procures capacity via contracts awarded in competitive bidding processes. Another such tool is the Mechanism for the Procurement of Electrical Storage Capacity (MACSE), an innovative mechanism for forward contracting of new storage capacity, which represents an international benchmark for the regulation of markets and a major stimulus for investments in this technology. Terna will hold its first MACSE auction on 30 September next.

INTERNATIONAL INTERCONNECTIONS: ITALY AS A EUROPEAN AND MEDITERRANEAN ELECTRICITY HUB

Given its strategic geographical position at the centre of the Mediterranean, Italy represents an energy bridge between Europe, North Africa and the Middle East. Therefore, the 2025 Development Plan confirms international interconnection works to guarantee security, sustainability and efficiency by allowing for the possibility of mutual aid between interconnected systems. In addition, such infrastructure will constitute an essential tool for flexibility, so that storage capacity and generation resources can be shared in the context of the variability of renewable production.

The main projects planned include:



- **Sa.Co.I.3:** a project for the modernisation and upgrading of the current **interconnection between Sardinia, Corsica and Tuscany**. Authorised by the Ministry in 2023, this is one of the Terna projects financed by the *REPowerEU* Programme. Construction sites for the land branch opened in Sardinia in February.
- **ELMED:** with over 300 million euros in funding from the EU's *Connecting Europe Facility* programme, this **interconnection** project **between Italy and Tunisia** is one of the interventions provided for in the Mattei Plan for Africa. The work was authorised by the Italian Ministry in May 2024 and, a few months later, by the Tunisian government.
- **Doubling the Italy-Greece interconnection:** a public consultation was launched in January 2024 for this new connection, which will consist of two 250 km submarine cables with a power of up to 1,000 MW, and two 50 km DC cables on land, connecting the Melendugno landing point in Apulia to the Greek coast. The intervention will allow the secure management of the entire Southern Zone and will facilitate efficient energy procurement thanks to the possibility of enabling new resources via electricity market coupling and maintaining the exchange of energy between the two countries even when maintenance is being carried out.

Moreover, the 2025 Development Plan also contains further interconnection projects (so-called "***Merchant Lines***"), coming from other promoters and/or parties that do not hold transport concessions. Such initiatives have risen in number in recent years, partly due to the Mattei Plan and the recent developments in the energy sector in North Africa, as well as private parties' interest in developing projects for an increasingly interconnected electricity system. Eleven requests, representing over 12 GW in capacity, are in the consultation phase.

REQUESTS FOR CONNECTION TO THE NATIONAL TRANSMISSION GRID

The management of requests for connection to the high-voltage grid, which are concentrated mainly in the south and on the islands, grants Terna a systemic overview of future developments in renewable plants and storage systems, allowing it to **ensure that infrastructure develops in synergy and guarantee maximum efficiency in carrying out work on the grid**.

According to Terna's data, **requests for the connection** of renewable plants totalled 348 GW as at **31 December 2024**[1] (including 152 GW of solar power, 110 GW of onshore wind power and 86 GW of offshore wind power), while those for storage systems came to 277 GW. These numbers, which are far greater than the national demand identified by the Terna-Snam 2024 Scenario Description Document and the national targets, confirm Italy as a significant investment opportunity, thanks in part to legislative mechanisms encouraging renewable sources and regulations that incentivise their development.

In addition, the last two years have also seen a growth in requests for **consumption users**, which draw energy directly from the national transmission grid and include, for example, energy-intensive plants. Connection requests for such users may involve both the upgrading of plants already in operation and the connection of new plants to the grid. This trend is largely attributable to **Data Centres**: as at **31 December 2024**[2], they accounted for requests totalling **around 30 GW**, an annual figure 24 times higher than that for 2021. These requests are concentrated mainly in northern Italy, particularly in Lombardy.

The average standard power associated with Data Centres currently exceeds 100 MW; reflecting, among other things, the development of cloud computing and, within the last two years of applications dedicated to Artificial Intelligence. The 2024 Scenario Document predicts an increase in electricity demand by 2030 and in the following years, due in part to consumption by Data Centres.

Consumption users also include interventions supporting rail transport infrastructure, for which there were power-withdrawal requests amounting to 2 GW as at 31 December 2024. Terna has additionally received connection requests totalling 1 GW in relation to **Cold Ironing**, i.e. all the systems necessary to electrify port sites, a vital step in enabling the auxiliary engines of ships - normally powered using traditional fuels - to be switched off while docked.

Finally, working together with the distribution service concessionaires, a set of Primary Cabins to be upgraded or connected to the National Transmission Grid has been identified with the aim of further enabling renewables and guaranteeing a high service quality. The number of such connection requests presented by distributors to Terna has trended even higher as a result of the funds made available as part of the National Recovery and Resilience Plan.

[1] As of 28 February 2025, requests for the connection of renewable plants came to around 350 GW, while those for the connection of storage systems were equal to 269 GW.
[2] As of 28 February 2025, requests for the connection of Data Centres came to 39.62 GW

EFFICIENT TERRITORIAL PLANNING

The need to manage such an immense quantity of connection requests, which has grown in recent years, has caused **administrative hold-ups and difficulties with authorisations**, as well as higher infrastructural costs due to the potential redundancy of grid works.

For these reasons, it has become necessary to take a different approach which ensures the efficiency of the works to enable connection of the new resources while minimising the costs for the system and the impact of the infrastructure on the territory.

Therefore, Terna has proposed a new model known as **Efficient Territorial Planning** to the institutions and launched the portal **TE.R.R.A. (an acronym for "Territory, Grids, Renewables and Storage")**, set up in June 2024 in accordance with article 9 of Italian Decree-Law 181/2023 (the so-called Energy Security Decree-Law). The goal is to make the information on infrastructural development projects transparent for the operators involved, to efficiently manage the process for the connection of authorised works, and to review solutions previously issued which did not complete the authorisation process, in accordance with the principle of transparency.

In addition, to tackle the problem of **virtual grid saturation** given that the requests for connection to Terna's grid alone far exceed the decarbonisation targets set by the Integrated National Energy and Climate Plan (NECP), a revision of the territorial planning processes has been launched and it will make the construction of new electrical infrastructure more efficient.

Terna has adopted an approach to the management of connection requests based on drawing up **76 "microzones"**. These allow the effective modelling of a perimeter inside which connection solutions can be studied and the additional renewable capacity which can be integrated into the grid can be quantified, in light of expected developments.

Using this model through innovative simulation algorithms and taking into account territorial restrictions and any territorial planning guidelines received from local administrations, among other things, a solution for each microzone can be defined. With a view to infrastructural efficiency, these solutions will allow the new renewable capacity needed to achieve the NECP targets by 2030 to be connected to the grid, with the necessary increases to guarantee flexibility in the actual location of the plants.

In relation to efficient territorial planning, Terna is working with the Authorities on updating the

Consolidated Law on Active Connections (TICA), in order to bring an open-season mechanism into operation by the end of the year[3].

THE 2025 DEVELOPMENT PLAN ON THE TERNA APP

The 2025 Development Plan is also digital, thanks to a dedicated section on the Terna app. Thanks to multimedia content, users will be able to check out projects and grid development works to support the energy and digital transition on their mobile devices. The app allows the main aspects of the Plan to be explored within a number of topical areas: “Context and guidelines”, “Efficient Territorial Planning”, and “Benefits for the system”. The most important projects are represented within the area dedicated to development works with interactive maps, from which it is possible to focus in on works in one of two-time frames: ‘2025-2034’ and ‘post-2034’. The new features for this edition include the possibility of consulting the Files and Annexes to the 2025 Development Plan directly in the app. Terna’s app contains all of the essential data on the Italian electricity system, along with a constantly updated information box on the CO_2 savings associated with the renewable evolution of energy production sources.

Apple Store https://apps.apple.com/it/app/terna/id1458535498

Google Play Store: https://play.google.com/store/apps/details?id=it.terna.energia&hl=it

Terna’s 2025 Development Plan is available at the following link: https://www.terna.it/en/electric-system/grid/national-electricity-transmission-grid-development-plan

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[3] In the electricity sector, the open-season mechanism is a process used to plan and allocate capacity to new infrastructure. This mechanism allows potential users to show their interest in and commitment to using the future capacity, helping operators with their decision to invest.