



Terna – Green Bond Framework

16 July 2018

Company overview

Terna is the Italian TSO (Transmission System Operator), owner of the National Transmission Grid (NTG), one of the most modern and technologically advanced electricity transmission network in Europe. With over 73 thousand kilometers of electricity lines, 871 transformer substations, and 25 lines interconnecting with foreign grids (data at 31 December 2017) Terna is one of the main TSO worldwide.

Terna is responsible, under Government concession, for transmitting and managing the electricity flows on the high-voltage and very-high-voltage grid throughout the whole of Italy to maintain balance between the demand and supply (dispatching), as well as for developing, maintaining and integrating the national transmission grid within the European grid.

The company plays a central role in the ongoing transformation of the electricity market towards the use of eco-compatible and renewable sources of electricity, guaranteeing a secure and efficient supply to households and businesses.

By pursuing innovation, Terna aims both at improving the electricity infrastructures and their management, and at developing non regulated, market activities compatible with the compliance with its duties as TSO.

The Terna S.p.A. holding company is listed on the Borsa Italiana electronic market. With approximately € 10 billion market capitalisation, it is one of the leading Italian companies in terms of stock-market capitalisation.

Terna: Committed to Sustainability

Enabling energy transition

The electricity market is rapidly changing, driven by new challenges such as decarbonisation, market efficiency and security of supply, which have been included into specific targets by the European Commission¹ to ensure that Europe will have secure, affordable and climate-friendly energy.

On 10 November 2017 the National Strategic Plan (2017 NSP) has been approved by the Ministry of Economic Development and the Ministry of the Environment; the 2017 NSP has launched an ambitious challenge:

- phasing-out of coal and
- electricity from renewable sources: more than 55% by 2030 of gross final consumption.

¹ <http://ec.europa.eu/energy/en/topics/energy-strategy-and-energy-union>

Terna must be able to guarantee the security of the system in the new 2017 NSP scenario.

Terna, thanks to its positioning at the heart of the Italian Electricity system, is playing a strategic role, facilitating the energy transition towards more efficient and cleaner energy production and guaranteeing security of supply at the lowest price for families and enterprises.

The continual growth of non-programmable renewable production sources and - at the same time - the gradual decommissioning of traditional generation plants make appropriate development of the electricity grids necessary. This has led to undertaking strategic initiatives aimed at:

- enabling the integration of renewable sources and improving the security of the system
- expanding interconnections to reduce local congestions
- using cutting-edge technologies, with ever-increasing attention to environmental and sustainability aspects.

Most parts of the quoted initiatives are investments, namely grid development investments included in a Network Development Plan (NDP) prepared by Terna every year, as prescribed by legal norms². Every NDP, that contains the projects envisaged for the next ten years and the progress made on the works planned in previous Plans, is assessed and approved by the Ministry of Economic Development. In the approval process, stakeholders can express their views in many ways. The NDP is subject to:

- 1) public consultation carried out by the sector Regulatory Authority for Energy, Networks and the Environment (ARERA);
- 2) evaluation by the Grid User Consultation Committee;
- 3) Strategic Environmental Assessment (SEA), a process carried out by the Ministry of the Environment and Protection of Land and Sea in collaboration with the Ministry for Cultural Heritage with the purpose of integrating environmental considerations into the process of preparing the plan, thus guaranteeing environmental sustainability.

Over and above legal compliance, Terna regularly engages with local stakeholders on a drafted version of the main investment projects. Different options are discussed with local authorities before starting the authorization process, in order to agree on an optimal localization that takes into account environmental aspects and local concerns. Since 2015, stakeholders engagement at local level includes the organization of meetings with citizens, to illustrate the reason for building a new electricity infrastructure and its main features and to gather comments and suggestions.

Since 2013, the NDP contains a section devoted to the investments that have the goal of favoring the increase of production from renewable sources, such as the connections of new plants or the lines and substation that will remove the constraints to an increased inflow of production from renewable in a given grid portion.

Actions taken by Terna in the last ten years have already contributed to allowing the increase of production from renewable sources in Italy. In the period 2007-2017, the installed capacity of wind and solar production increased by around 15 times, from 2,8 to 29,3 Gigawatts. Grid development investment made it possible for the electricity system to fully benefit of the new production: in the same period, the actual share of production from wind and solar sources rose from around 1% to 15%.

A further contribution to the transition to renewables will come from the grid development investments included in Terna's 2018-2022 Strategic Plan, which accounts for €5.3bn, representing an increase of more than 30% vs. the old Plan. The 2018 NDP, whose first 5 years are included in the Strategic Plan, was developed according to the CBA 2.0 cost-benefit analysis which improves the accuracy of calculation of significant Environmental and Social

² Decree of the Ministry of Productive Activities of 20 April 2005, amended by decree of the Minister of Economic Development of 15 December 2010

Key Performance Indicators (KPIs). Terna has used a cost-benefit analysis methodology since 2005 in the assessment of the investments assessments process. Environmental benefits have been gradually included in the CBA and agreed upon by the ARERA. The main features of the new CBA have been approved by the Sector Authority (ARERA) on 4 November 2016, with resolution 627/16/eel/r as updated on 14 December 2017, with resolution 856/17/eel/r.

Operating responsibly

Terna is an electricity utility that operates solely in electricity transmission: it does not own thermoelectric plants, which are among the principal sources of greenhouse gas emissions. This explains why the company is not subject to obligations to reduce emissions according to Kyoto targets, nor to emission trading schemes of any type. Nonetheless, Terna voluntarily focuses on the goal of monitoring and controlling its emissions, thus contributing to a solution for the problem of climate change.

Furthermore, attention to the environment and biodiversity is the subject of specific cooperation agreements in collaboration with the principal environmental organizations (e.g., WWF, LIPU, Greenpeace) designed to emphasize nature conservation in the planning activities and maintenance of the electricity grid.

In addition to environmental issues, Terna is also focused on social issues like integrity in business conduct (Terna is ISO37001 certified), health and safety, professional training, human rights. This is in line with the commitments expressed by adhering to the UN Global Compact in 2009. Terna also asks all its suppliers to adopt behaviors coherent with legal and ethical standards as far as human rights and the protection of the environment are concerned.

Believing that disclosure on ESG performances is a cornerstone of a sustainable approach to business, Terna has published a Sustainability Report every year since 2005, in line with GRI Reporting Initiative (since 2006, GRI Reporting Standards since 2017) and verified by external auditors (since 2006). Since 2013 Terna's Annual Report is an integrated report prepared in line with the principles of the IIRC (International Integrated Report Committee) framework, with the aim to illustrate how ESG factors interact with strategy and operations to deliver economic, social and environmental value to stakeholders.

Terna's Green Bonds Framework is an integral part of the long-term sustainability vision of the company. The framework provides a direct link from financing to relevant and continuing parts of Terna's activities, i.e. grid development investment, most of which is bearing positive environmental impacts.

The selection of green investment categories – see “Use of proceeds” below – and Terna's sustainable approach to operation management are also in line with the commitment of the company to contribute to the UN 2030 Agenda, namely towards the following Sustainable Development Goals:

SDG 7 “Affordable and clean energy”, in particular Goal 7.2 “increase substantially the share of renewable energy in the global energy mix”;

SDG 9 “Industry, innovation and infrastructure”, in particular Goal 9.1 “develop quality, reliable, sustainable and resilient infrastructure”;

SDG 13 “Climate action”;

SDG 15 “Life on land”, in particular Goal 15.9 “integrate ecosystem and biodiversity values into national and local planning”.

Terna has established this Green Bond Framework to be in alignment with the Green Bond Principles 2018 (GBPs).

1. Use of Proceeds

An amount equal to the net proceeds from the issue of the Notes will be allocated to the refinancing and/or financing, in whole or in part, of existing and/or future “**Eligible Green Projects**” which meet the Eligibility Criteria described as follows:

- A first eligibility condition is that projects must be included in one of Terna’s yearly Network Development Plans³ (NDP). Among the investments included in the NDPs, only those that entails environmental benefits (as defined in Section 2: Project Evaluation and Selection Process) shall be financed or refinanced using the proceeds of the Notes.
- To be eligible for the use of proceeds of the Green Bond, a project must fall into at least one of the following categories:

a) Projects aimed at increasing the production from renewable energies (Ref. GBP “renewable energy”):

- Connection of renewable sources generation plants (grid infrastructures devoted to directly connecting grid generation plants from renewable sources to the transmission grid).
- Integration of production from renewable sources (Grid infrastructures that allow a higher inflow of production from renewable sources into the transmission grid, for instance by resolving congestions in a given portion of the grid).

b) Projects aimed at reducing system CO2 emissions through the reduction of grid losses (Ref. GBP “energy efficiency”):

- Grid infrastructures that allow higher transmission efficiency (reduction of the difference between energy generation and consumption, other things being equal).

c) Projects aimed at reducing soil use and the impact on terrestrial biodiversity (Ref. GBP “environmentally sustainable management of living natural resources and land use” and “terrestrial and aquatic biodiversity conservation”):

- Grid improvements thanks to substitution of existing overhead lines with underground cables and demolition of kilometers of existing lines.

Such improvements reduce the permanent occupation of soil caused by the pylons of overhead lines and the connected need of cutting and keeping under control the vegetation below the overhead lines. The reduced impact is bigger when the overhead lines cross areas of environmental interest, such as Natural Parks, wet lands and other protected areas.

Further, they eliminate the – existing albeit low - risk of bird collision against the wires. Finally, it must be noticed that project in this category reduce as well the visual impact of the electricity infrastructure, one of the most high ranking impact in the local stakeholders’ view.

An example of projects falling in each of the above categories is reported in Annex 1 of this document.

An amount equal to the proceeds from the issue of the Notes will be used to refinance existing Eligible Green Projects that have been completed in the last years (from 2014 onwards) and / or finance on-going and future Eligible Green Projects.

³ See the definition above in the introduction section.

If, for any reason, a project becomes ineligible, it will be replaced by another Eligible Green Project on a best effort basis.

The division of the allocation of Green Bond proceeds between new projects and refinancing will be included in the annual reporting until full allocation (see section 5 below).

2. Project Evaluation and Selection Process

Since 2005 the main investment projects included in Terna's NDP have been evaluated through a cost-benefit analysis methodology, which includes environmental and social indicators. In 2014 Terna developed a review – named CBA 2.0 - of such methodology, published as an Annex to the 2015 NDP. The CBA 2.0 is an evolution of the previous version which takes into account, among many factors, the refinement of estimating techniques and the parallel development of a new CBA methodology by ENTSO-E, the European association of the national TSOs. After a period of observation and fine tuning, the main features of the new CBA have been approved by the Sector Authority ARERA on 4 November 2016, with resolution 627/16/eel/r as updated on 14 December 2017, with resolution 856/17/eel/r (<https://www.arera.it/it/docs/16/627-16.htm>, 627-16eng.pdf), as a tool to gauge the worthiness of a projected investment from the collective standpoint of the users of the electricity service. The 2017 NDP has adopted for the first time the approved CBA 2.0.

The categories reported above are among those used in the CBA 2.0. The values of specific underlying KPIs determine the association between projects and categories. For example, the indicator B5 “greater production integration from renewable sources, calculated by market simulations (system over generation)” is used for determining the eligibility to category “a”, the indicator I8 “variation of CO2 emission calculated by market simulations of the energy market” is used for category “b” and indicator I22 “variation, in terms of km occupied by High Voltage lines” is linked to category “c”.

The described setting of the eligibility and selection process – only projects included in Terna's Network Development Plans and only when they fall in the relevant categories on the basis of specific KPIs – is very strict and grounded on publicly available documents.

The attribution to the above categories is possible as well in the case of projects that were evaluated before the CBA 2.0: the same categories were already present before, although the expected impact may have been estimated in a different way on the basis of the existing models.

As part of the governance of its Green Bond program, Terna has put in place a dedicated Green Bonds Committee. The role of the Committee is to review and validate the selection of the Eligible Green Projects.

The dedicated Green Committee comprises:

- the Head of Finance department,
- the Head of Sustainability,
- the Head of Planning and control department,
- the Head of grid planning and interconnections.

The Committee meeting will take place on an annual basis and as and when the situation requires.

The sustainability of the projects financed through the Green Bond depends primarily on their impact, as illustrated above. Terna will guarantee, whenever feasible, that the management of operations, including the consultation and authorization phases, the selection of suppliers and

the management of worksites, is sustainable as well. The main ESG management commitments are as follows:

- Consultation. Terna is committed to listen to local stakeholders, as described in the previous paragraph “Operating responsibly”. This leads the Committee to consider potential environmental impacts as an input for the final definition of the project before entering the authorization phase. In this context, Terna is committed to prevent and manage controversies arising with stakeholders, in order to minimize negative impacts.
- Authorization. Terna is committed to disclose all relevant information, including the Environmental Impact Assessments, and to fulfill all the obligations coming from prescription by the relevant Authorities in due course.
- Selection of suppliers. Terna adopts a “funnel” approach that makes the requests to suppliers stricter the higher the environmental and social risks associated with the suppliers’ performance are.
- Management of worksites. Terna is putting much care in the mitigation of risks associated with the actual construction of its infrastructures. Among the main issues under control, there are safety at work and prevention of injuries – including contractors’ and subcontractors’ employees – and the correct management of potential environmental impacts.

3. Management of Proceeds

Upon receipt, the net proceeds will be invested in cash and cash equivalents until allocation to Eligible Green Projects. The allocation of the net proceeds to Eligible Green Projects will be monitored throughout the period that the capital expenditure and operating costs will be incurred. Terna will review the allocation of the net proceeds to projects to ensure that they are in compliance with the criteria set forth in the Green Bond Framework. Until full allocation, Terna will disclose the amount equal to the net proceeds unallocated to Eligible Green Projects which will be held temporarily in cash and cash equivalents.

4. Reporting

			Environmental benefits				
			Connection of RES production plants (MW)	Increase in production from RES (MWh and/or tCO ₂)	Reduction of grid losses (MWh and/or tCO ₂)	Construction of underground cables (Km)	Demolition of lines (Km)
			planned / effective	expected (estimate *)	expected (estimate *)	planned / effective	planned / effective
Project categories	Renewable energy	Renewable energy - Connection of production plants from renewable sources					
		Renewable energy - Integration of production from renewable sources					
	Energy Efficiency	CO ₂ Emissions - reduction of grid losses					
	Environmentally sustainable land use & terrestrial and aquatic biodiversity	Soil use & biodiversity - new underground cables					
		Soil use & biodiversity - demolition of existing lines in protected areas					
		Soil use & biodiversity - demolition of existing lines (all sorts of territory)					

■ Main environmental benefit: KPI will be presented in reporting

░ Other possible environmental benefit: KPIs may be presented in reporting

(*) Estimates of the expected impacts may vary in time, when a project is subject to a new evaluation under a different scenario. Changes will be reported when significant.

Allocation reporting

Terna will report annually until full allocation, and as necessary thereafter in the event of material developments, on the following:

- (i) Allocated amounts by Eligible Green Project, including a brief description of the largest and most representative projects from each category.
- (ii) Main technical data referring to the single project, when available (e.g. peak power of wind or solar plants connected)
- (iii) Division of the allocation between refinancing and new projects
- (iv) The outstanding amount of net proceeds yet to be allocated to projects at the end of the reporting period

Impact reporting

Where feasible, Terna will also report on an annual basis project impacts and environmental benefits by Eligible Green Project or aggregated by the three categories of eligibility. In most cases, the environmental KPIs linked to the single project will be those calculated in the cost-benefit analyses, i.e. expected impacts. The CBA documents will be the reference of the key underlying methodology used in the quantitative metrics.

Moreover, information on ESG management of Eligible Green Projects and potential controversies will be provided, where feasible, for the most representative projects.

Example of outputs and impact metrics

The report will be integrated in Terna's annual Sustainability report or Annual Report and made publically available on Terna's website.

5. External Review

Second Party Opinion

Vigeo Eiris has reviewed Terna's Green Bonds Framework and has issued a Second Party Opinion.

Annual Assurance Report

An independent auditor appointed by Terna will review that the allocation of the Green Bonds is done in accordance with Terna's Green Bond Framework and will provide an annual assurance report, until all the proceeds of the bonds have been allocated, confirming that an amount equal to the net proceeds of the bonds has been allocated in compliance with all material aspects of the Eligible Green Projects criteria set forth in the Green Bond Framework and with the "Use of Proceeds" section of the bond documentation.

Both Terna's Green Bonds Framework and Vigeo Eiris' Second Party Opinion will be made available on Terna's website (www.terna.it).

ANNEX 1 – EXAMPLES OF ELIGIBLE GREEN PROJECTS

Project:	Genzano new electrical station
Eligible Green Project Category:	a) Renewable energy - integration of production from RES
Description:	Substation to be built for the connection of Renewable Energy Plants in the Basilicata Region to the 380 kV High Voltage Line "Matera - S. Sofia".
Environmental benefit:	Expected increase in production from RES = 89,600,000 kWh/y

Project:	City of Naples 220kV grid reorganisation
Eligible Green Project Category:	b) Energy efficiency (reduction of grid losses)
Description:	In order to improve network security in the Naples area and eliminate operational constraints, a development program has been planned, including the development of new electrical lines, enhancement of existing connections and the demolition of some old electrical lines. The benefits depends on the effects of the grid reorganization on the whole, as assessed through simulations which consider the grid setup with and without the new development projects.
Environmental benefit:	Expected reduction in grid losses = 23,800,000 KWh/y

Project:	Piedmont and Lombardy 220/132 kV High Voltage Grid rationalization
Eligible Green Project Category:	c) Environmentally sustainable land use & Terrestrial and aquatic biodiversity conservation
Description:	Following the entry into service of the 380 kV High Voltage Line "Trino-Lacchiarella" in January 2014, a series of rationalization measures are planned, aimed also at minimizing the presence of infrastructure in the territory.
Environmental benefit:	Planned demolition of overhead lines (km)= 80 km