

Allegato A

ARERA decision on the investment request by Terna and STEG for the PCI 3.27 Interconnection between Sicily (IT) and Tunisia node (TU)

Regulation (EU) No 347/2013 of the European Parliament and of the Council of 17 April 2013 on guidelines for trans-European energy infrastructures requires that National Regulatory Authorities (NRAs) take a coordinated decision on the allocation of investment costs across borders within six months of receiving an investment request by project promoters.

On 17th April 2020, the Italian Regulatory Authority for Energy, Networks and Environment (ARERA) received an investment request from Terna S.p.A. (Terna) and Société Tunisienne de l'Electricité et du Gaz (STEG), hereinafter the "Project Promoters", for the Project of Common Interest 3.27 Interconnection between Sicily (IT) and Tunisia node (TU) (hereinafter: Italy-Tunisia interconnection).

After having assessed the contents of the application and the subsequent information received, ARERA acting in accordance with the European and Italian legislative framework and taking into account the Recommendation of the Agency for the Cooperation of Energy Regulators (ACER) No 05/2015 of the 18 December 2015 on good practices for the treatment of the investment requests, including cross-border cost allocation requests, for electricity and gas projects of common interest (Recommendation 05/2015)¹, has adopted a decision on investment cost allocation for the Italy-Tunisia interconnection, as well as for the inclusion of such costs in tariffs for network access. This document sets out ARERA's detailed reasons for reaching this decision.

¹ https://www.acer.europa.eu/Official_documents/Acts_of_the_Agency/Recommendations/ACER%20Recommendation%2005-2015.pdf

1. Project Description

The Italy-Tunisia Interconnection project consists of a 600 MW High-Voltage Direct Current (HVDC) undersea cable connecting the existing electrical substation in Partanna (Sicily) on the Italian side and a newly built substation in Menzel Temime (Mlaaba, Cap Bon Peninsula) on the Tunisian side.



Figure 1: Geographical project overview

The undersea section is approx. 200 km long and is expected to be laid at a max depth of 750 m.

Besides the undersea cable routes and the converter stations, the Italy-Tunisia interconnection project comprises also the onshore underground cables connecting the marine pole with the two converter stations, and the two electrode lines to connect the electrodes laid in the seabed. No other network reinforcements or developments on either side of the sea are part of the PCI scope.

As better described in the investment request, the current status of the project design foresees two possible landing sites in Italy: Marinella di Selinunte or Kartibubbo which will be selected upon accomplishment of the permitting procedures. In case the former site is chosen the underground cable will be 12 km, while it will be of 34 km if the latter is selected. On the Tunisian side the underground section will have of total length of about 10 km, depending on the specific landing site chosen.

The main features of the interconnection are summarized in the following table.

Characteristics of the Italy-Tunisia interconnection	
Rated voltage	±320 / ±500 /kV direct current
Rated pole current	1200 - 1875 A
Maximum power	600 MW
Minimum power	50 MW
Rated power per pole	600 MW
Power flow	bidirectional
Length of undersea cables (1)	About 200 km
Maximum depth reached	Around 750 m
Length of land cables	44 km / 22 km

Table 1: Electrical parameters of the interconnection

Once commissioned the new interconnection capacity will be offered to market participants through explicit auctions, the related congestion revenues will be shared equally between the two grid operators.

According to the analysis and simulations performed by the Project Promoters in the different scenarios presented in the investment request the interconnection is expected to be used mainly in the export direction from Italy to Tunisia; the commercial exchange is expected reaching 4 TWh/y at least during the first years of operation with the Tunisian power generation fleet still highly dependent on natural gas. Nevertheless, the project is expected to support the integration of larger amounts of variable solar and wind energy in Tunisia by providing a large, reliable and flexible source of power capacity.

Once Tunisia, and the whole Maghreb area, have scaled up their solar power generation the interconnection is expected to be used also to supply Renewable energy to Europe.

Given its strategic importance to realize the North-South Electricity Interconnections in Central Eastern and South Europe corridor, the Italy-Tunisia interconnection project has received the Project of Common Interest status since 2017 and is reported among the PCIs also in the recent Commission Delegated Regulation (EU) 2020/389.

2. Project timeline

With reference to the table presented in ACER's Recommendation 05/2015, the Project Promoters provided information on the project timeline. With reference to the permitting phase the process is currently ongoing in Italy and the public consultation foreseen by Regulation (EU) No 347/2013 is in progress (in March 2020 the Italian Ministry of

Economic Development approved the concept for public consultation submitted by TERNA). The permitting is expected to last until end of 2023.

The tender phase for the HVDC stations and cables is foreseen to start by the end of 2021, and to be performed in parallel to the authorization process. In this way the Project Promoters deem possible to award the contracts for the supply of the main equipment by the end of 2023 and start the realization phase as soon as the authorization decree is achieved. According to the Project Promoters' experience a period of 4 years is considered necessary for the suppliers to design and build the cable link, while the actual commissioning is envisaged to last for a few months only.

In the consultation with other transmission system operators, which took place before the investment request, another option, with commissioning date in 2026, was also reported. The main milestones for "option 2027" are reported in the following table.

Milestone description	(expected) start date	(expected) end date
Consideration	completed	
Planned but not yet in permitting	completed	
Preliminary design studies and detailed marine and terrestrial survey analyses	Started	12/2021
Preliminary investment decision	2016	
Permitting including public consultation on the Italian side	Q1/2020	End of 2023
Investment/CBCA request submitted and decision granted	H2/2019	H1/2020
Final investment decision (FID)	Upon CEF call results (H2/2020)	Upon CEF call results (H2/2020)
Tendering for construction	Q1/2022	12/2023
Detailed design	01/2024	12/2024
Construction	01/2025	09/2027
Commissioning	10/2027	12/2027

Table 2: Implementation plan

3. Admissibility and completeness of the investment request

Pursuant to Article 12(3) of Regulation (EU) No 347/2013, the investment request shall include a request for cross border cost allocation (CBCA) accompanied by:

- A project specific cost-benefit analysis;

- A business plan evaluating the financial viability of the project;
- A substantiated proposal for a CBCA.

The investment request submitted to ARERA in terms of Article 12(3) of Regulation (EU) No 347/2013 included a Business Plan, a Cost Benefit Analysis (“CBA”) and a CBCA proposal.

Taking also into account the ACER’s Recommendation 05/2015 on the completeness of the investment request and the response to a request for information provided on 8 May 2020, ARERA deems that the investment request contains the necessary information to be considered complete.

Article 12(3) of Regulation (EU) No 347/2013 contains three admissibility criteria, which project promoters need to satisfy for submitting a valid investment request and which require assessment by NRAs, namely:

- the investment request is submitted after having consulted the TSOs from the Member States to which the project provides a significant net positive impact,
- the project has reached sufficient maturity shortly before the submission of the investment request,
- the investment request is submitted to all concerned NRAs.

Evidence of TSO Consultations

The Project Promoters provided information on a formal consultation carried out with the TSOs of the EU member states showing, in at least one of the scenarios considered, a potential significant positive impact.

In particular the Project Promoters have provided evidence of a consultation carried out by written and oral exchanges with the German TSOs Amprion GmbH, TenneT TSO GmbH, TransnetBW GmbH, 50Hertz Transmission GmbH and with the French TSO Rte.

All the consulted TSOs endorsed the main outcomes of the project specific CBA carried out by the Project Promoters and acknowledged that the Italian TSO, being Italy the only EU member state with significant benefits in all of the considered scenarios, should be the only EU TSO bearing the investment costs.

ARERA deems fulfilled the consultation requirements foreseen in article 12(3) of Regulation (EU) No 347/2013.

Project Maturity

ARERA reviewed the information provided by the Project Promoters in the investment request in the light of ACER’s Recommendation 05/2015 to assess whether the project meets the “sufficient maturity” criterion for a CBCA decision.

In particular:

- a. *ACER recommends that an investment cost certainty of 20% is achieved (or justification is provided if the cost uncertainty is higher).*

The investment request indicates that the project CAPEX estimation of € 600 million takes into account uncertainties accounting for approximately 10%. The Project Promoters indicated two main sources of uncertainty affecting the CAPEX estimation: the total length of the underground cable linking the landing site with the Italian converter station (currently two different landing sites are considered in the permitting phase, with about 20 km of different cable length) and the expected cost of procurement of the undersea cable and the converter stations. The investment request explains that a high demand of these cables is expected in the coming months and due to the limitation of producing facilities a partial uncertainty of the related costs is considered inevitable.

- b. *ACER recommends that the project should be delivered within 60 months from the date of submission of the investment request (or justification is provided if the timespan is higher).*

The investment request provides sufficient evidence that in the specific case of the Italy-Tunisia interconnection (which is expected to be commissioned within max 93 months from the investment request submission) it is necessary to extend this time duration parameter. The Project Promoters clarify that due to the complexity of the project the procurement and the construction phase may well last for 72 months, a time span which – on the basis of the experience of promoters in similar investments - cannot be compressed.

Moreover, the Italian Ministry of Economic Development (MISE), in its Decree 25 February 2020 on the approval of the transmission network development plan, has approved the Italy-Tunisia interconnection project subject to the condition set out by the Intergovernmental Agreement of 30 April 2019 that the project obtains adequate European financial support. The Project Promoters state in the investment request their expectation that MISE will issue the final authorization only once the funding requirement is met and that the final investment decision is “upon EU financing”. Given the above, the Project Promoters deemed appropriate to submit the investment request in order to start the process aimed at obtaining the EU financial assistance.

Last, upon ARERA’s request, the Project Promoters clarified that the permitting procedure (including the consultation phase) has been formally launched in the last months, therefore the project has achieved the corresponding maturity level. As the project permitting phase could last till the end of 2023, no significant variations in the maturity of the project are expected in the next years.

The Project Promoters have therefore considered appropriate to submit the investment request timely after the start of the permitting procedure.

- c. *Permitting procedure having started in all hosting countries.*

On the Italian side Terna, according to Regulation (EU) No 347/2013 will carry out the public consultation, preceding the start of the authorization procedure; once the public consultation phase has been completed, Terna will transmit to the Ministry of Economic Development and the Ministry of the Environment and the Protection of the Territory and the Sea the application for the authorization according to the decree-law of 29 August 2003, no. 239, together with the project design and together with the report on

the results of the consultation. In the request Terna has provided evidence of the submission of the Public Consultation Plan to the Ministry of Economic Development which, in March 2020, has communicated its approval of the launch of the consultation phase.

Also on the Tunisian side STEG has provided evidence of kicking off a consultation phase, carrying out meetings with local authorities and local populations, in particular with reference to the site of the converter station.

Given the above, ARERA deems the Italy-Tunisia interconnection to be mature enough for the investment request to be assessed and CBCA decision issued.

All concerned NRAs have received the investment request

According to section 1.4 of the ACER's Recommendation 05/2015, project promoters should send its investment request to the NRAs of the Member States hosting the project and to the NRAs of any other Member States having a potentially significant net positive impact based on the project specific CBA.

The only hosting EU Member State is Italy.

The only EU Member State having a significant net positive impact is Italy, as further discussed in paragraph 4.2 below.

Therefore, ARERA deems that the investment request was duly submitted to all concerned NRAs.

4. Assessment of the Investment Request and cost allocation decision

This chapter presents ARERA's assessment of the investment request and its decision on the allocation of investment costs. First, in paragraph 4.1 the Project Promoters' proposal for cross-border cost allocation is summarised, then paragraphs 4.2, 4.3, 4.4 provide ARERA's evaluation of the cost-benefit analysis, of the efficiency of investment costs and of the business plan. Last, after considering the Project Promoters' feedback (para 4.5), ARERA's cost allocation decision is presented in paragraph 4.6.

4.1 Proposal for cross border cost allocation

Pursuant to Article 12(3) of Regulation (EU) No 347/2013, the Project Promoters included in the investment request a substantiated proposal for a cross-border cost allocation.

The investment request states that *"according to the Inter-Governmental Agreement signed on 30th of April 2019 by the Tunisian Minister of Industry and Small and Medium Enterprises and the Italian Minister of Economic Development, Terna and STEG will share the cost of the Project on equal basis (50%-50%) and will apply for a substantial EU grant to be shared as well on equal basis (50%-50%). Moreover, this cross-border allocation is based on a 50/50 sharing of the project's operational and maintenance costs, and of the project's revenues from congestion rents between Terna and STEG"*.

4.2 Evaluation of the Cost-benefit Analysis

The Project Promoters presented a cost-benefit analysis for the Italy-Tunisia interconnection which considers:

- the capital expenditures (CAPEX);
- the operational expenditures (OPEX);
- the variation of congestion revenues;
- the externalities related to producers' and consumers' surplus, as a component of the "socio-economic welfare" (benefit B1 of the ENTSO-E cost benefit analysis methodology²);
- the externalities related to the variation of network losses (benefit B5 of the ENTSO-E cost benefit analysis methodology);
- the externalities related to the increase of security of supply on the European side (benefit B6 of the ENTSO-E cost benefit analysis methodology, second approach);
- the externalities related to the avoided cost for additional generation on the Tunisian side (benefit B6 of the ENTSO-E cost benefit analysis methodology, first approach);
- (only for the purpose of calculating the national impacts) the national revenues from and payments to the inter-TSO compensation mechanism.

The cost benefit analysis adopted the following assumptions, in line with ACER's Recommendation 05/2015:

- 4% discount rate (real);
- 25 years of lifetime after commissioning;
- Residual value set at zero.

The results are expressed in euro, in 2019 prices.

The main results of the cost-benefit analysis, as calculated in the investment request, are reported in Table 3 below.

² Latest draft version: https://eepublicdownloads.blob.core.windows.net/public-cdn-container/clean-documents/tyndp-documents/Cost%20Benefit%20Analysis/200128_3rd_CBA_Guideline_Draft.pdf

Scenario	ST	DG	EUCO
Costs	- 0.51	- 0.51	- 0.51
Congestion revenues	0.87	1.16	0.29
SEW externalities	0.32	0.05	0.43
Losses variation	- 0.24	- 0.15	- 0.22
SoS externalities in Europe	0.02	0.05	0.00
Avoided generation costs in Tunisia	0.21	0.21	0.21
Net present value (billion euro, 2019)	0.67	0.80	0.20
Benefit-to-cost ratio	2.31	2.58	1.40

Table 3: main CBA results, as calculated by the Project Promoters

ARERA's offices reviewed the cost benefit analysis and, as first elements, observed the presence of significant uncertainties regarding:

- the development of the electricity market in Tunisia;
- the development of generation in Tunisia and in Northern African countries, which could be significantly influenced by the presence of a new interconnector;
- the assumption on the demand growth in Tunisia;
- the assumptions of a significant export from Tunisia to the neighbouring northern African countries;
- the developments regarding carbon pricing in Tunisia.

The CBA review also identified the need for some adjustments, out of which the more significant ones are the monetisation of the security of supply benefit in Italy³ (the updated results are reported in Table 4 below) and the accounting of a positive monetary flow corresponding to the World Bank grant for project studies (about 12 million euro).

Scenario	ST	DG	EUCO
SoS externalities in Europe (by ARERA)	0.05	0.13	0.00

Table 4: CBA results regarding security of supply, as reviewed by ARERA

ARERA also observes:

³ As indicated in the TYNDP 2018, project sheet 29 regarding the Italy – Tunisia project (<https://tyndp.entsoe.eu/tyndp2018/projects/projects/29>) and in ACER Opinion 11/2019 on the draft TYNDP 2018 (https://www.acer.europa.eu/Official_documents/Acts_of_the_Agency/Opinions/Opinions/ACER%20Opinion%2011-2019%20on%20the%20ENTSO-E%20draft%20Ten-Year%20Network%20Development%20Plan%202018.pdf)

- that the Sustainable Transition scenario features a low plausibility due to the assumption on CO₂ price, which was already criticised in the ACER Opinion 10/2018 on TYNDP 2018 scenarios⁴; and
- that externalities related to the social cost of CO₂ (benefit B2 in the ENTSO-E CBA methodology) and to the variation of other emissions (benefit B4 in the ENTSO-E CBA methodology) have not been taken into account in the analysis.

The main CBA results, as reviewed by ARERA, are reported in Table 5 below.

Scenario	DG	EUCO
Total costs (billion euro, 2020 prices)	- 0.52	- 0.52
Total benefits (billion euro, 2020 prices)	1.46	0.75
Net present value (billion euro, 2020 prices)	0.94	0.23
Benefit-to-cost ratio	2.80	1.44

Table 5: main CBA results, as reviewed by ARERA (note: ST scenario is deemed to have low plausibility and therefore is not reported)

As a summary, ARERA considers that the techno-economic results of the CBA identify benefits of the Italy-Tunisia interconnection higher than its costs (with slightly better figures than those calculated by the Project Promoters).

However, significant uncertainties affect the expected socio-economic performance of the Italy-Tunisia interconnection, in particular regarding the development of the electricity market in Tunisia; the development of generation in Tunisia and in northern African countries, which could be significantly influenced by the presence of a new interconnector; the assumptions on the demand growth in Tunisia and about a significant export from Tunisia to the neighbouring northern African countries; the developments regarding carbon pricing in Tunisia.

Evaluation of national net impacts

In its Recommendation 05/2015, ACER recommends that a “significance threshold” is applied to identify countries with a significant net positive impact. The significance threshold should be, in principle, equal to 10% of the sum of the net positive impacts accruing to all beneficiary countries.

The sums of the net positive impacts, according to ARERA’s review of the cost benefit analysis are:

- about 807 million euro (expressed in 2019 prices) for the scenario ST. In this scenario, the only EU Member State with a net positive impact above 80.7 million euro is Italy;

⁴ https://acer.europa.eu/Official_documents/Acts_of_the_Agency/Opinions/Opinions/ACER%20Opinion%2010-2018%20on%20the%20ENTSO-E%20and%20ENTSO%20draft%20TYNDP%202018%20Scenario%20Report.pdf

- about 1042 million euro for the scenario DG. In this scenario, the only EU Member State with a net positive impact above 104.2 million euro is Italy;
- about 339 million euro for the scenario EUCO. In this scenario, three EU Member States have a net positive impact above 33.9 million euro: Italy, France (49 million euro, i.e. 15%) and Germany (41 million euro, i.e. 12%).

Based on the above, given its significant net positive impact in all scenarios, Italy is deemed the only EU Member State with a significant net positive impact.

4.3 Evaluation of the efficient investment costs

The investment request report states that the total investment cost (CAPEX) for the Italy-Tunisia interconnection (including all network elements as defined in chapter 1 above) is equal to 600 million euro.

Upon ARERA's information request, the Project Promoters clarified in their response of 8 May 2020 that the investment cost estimate relates to the option with longer underground route in Italy: option 1 from Partanna to Kartibubbo (KAR) of 34 km and that contingencies in the order of 10% of the costs have been applied to cables and converter stations. The Project Promoters also indicated that the option relative to the shortest route (option 2) leads to a cost reduction in the order of about 10%.

Upon request to take into account the ACER unit investment cost report⁵ published in 2015, the Project Promoters observed that, based on recent surveys with manufacturers, the expected costs for the submarine cable and for the converter stations are higher (up to 30% more) than the unit investment cost provided in the ACER report (0.7-0.8 Meuro/km for subsea cables and 0.87 Meuro/MVA for an HVDC converter station).

The Project Promoters also argued that the Shetland HVDC transmission link is a comparable project to the Italy-Tunisia interconnection.

On 23 April 2020, Ofgem launched a public consultation on its position to approve the Shetland HVDC project proposed by SSE⁶. Ofgem also provided a press release stating that "Ofgem approves 600MW Shetland transmission link"⁷. The project in its preferred option is quite similar to the Italy-Tunisia interconnection as it has a similar length (260 km) and the same capacity (600 MW), while the commissioning date is 2024. The revised investment cost estimates proposed by SSE in January 2020 are 632 million pounds, expressed in 2018/2019 prices. At present exchange rates, they correspond to about 700 million Euro.

Based on the above, ARERA considers the investment cost of 600 million euro to be efficient regarding the implementation of route option 1 (longer underground route).

⁵ https://www.acer.europa.eu/Official_documents/Acts_of_the_Agency/Publication/UIC%20Report%20-%20Electricity%20infrastructure.pdf

⁶ https://www.ofgem.gov.uk/system/files/docs/2020/04/shetland_isles_fnc_consultation_accessibility_version_final_1.pdf

⁷ <https://www.ofgem.gov.uk/publications-and-updates/ofgem-approves-600mw-shetland-transmission-link>

4.4 Evaluation of the business plan

The Project Promoters presented two business plans, one for the Italian part, one for the Tunisian part of the Italy-Tunisia interconnection.

On the Tunisian side, the revenue stream is related to the foreseen price differential on the tie-line. The revenues calculated by STEG are based on the price differential between the Countries connected by the tie-line. Furthermore, in order to pursue a conservative and prudent approach, the worst scenario (i.e. EUCO), with explicit auctions, is taken into account.

Regarding Tunisia, the business plan indicates a substantial difference between the rate of return (IRR) without grants (2.5%) and the IRR with 50% grants for works (5.8%), therefore the grant contribution is necessary in order to achieve a financial viability and to implement the project.

On the Italian side, the project will be financed through the corporate financing of Terna at the conditions that will be available at the time of the funding needs. The cost of capital to finance the investment will be covered through the tariff.

Regarding Italy, the business plan states that if a grant (e.g. CEF) is achieved, the contribution given by the regulated remuneration can be reduced by 50%, leading to a project less impacting in terms of consumers' tariffs. This would significantly help the sustainability of the investment. It also indicates that the need of a EU grant funding is mainly correlated to:

- the Intergovernmental Agreement, signed on 30th of April 2019 by the Tunisian Minister of Industry and Small and Medium Enterprises and the Italian Minister of Economic Development, establishing that the realization of the new infrastructure requires a significant grant from the European Commission;
- the decision of the Italian Ministry of Economic Development, when approving the national Transmission Network Development Plan, by Decree of 25 February 2020, that the Project will be realized under the conditions established in the above-mentioned Intergovernmental Agreement;
- the need to mitigate the uncertainties arising from a not yet fully mature and developed electricity market in Tunisia, taking also into account that currently no interconnection exists on the Italy-Tunisia border;
- the possible evolution of generation scenarios described in the TYNDP, also due to the effect of the interconnection, enabling a higher development of RES in Tunisia and Maghreb Region, that could lead to a progressive reduction of the price differential.

ARERA's offices reviewed the business plan (as well as the rest of the investment request) and noted that:

- the use of the "worst scenario" for the Tunisian business plans seems reasonable. The business plan considers a revenue from explicit auctions which is significantly lower than the CBA-based revenues. However, this prudence is likely counter-balanced by the payments for the perimeter fee of the inter-TSO-compensation mechanisms. Due to the "revenue-based" financing scheme, it is evident that a grant would significantly increase the viability of the project.

- while the project is expected to be net-beneficial at pan-European level (with a benefit to cost ratio around 1.4 in the EUCO “worst” scenario), additional uncertainties beyond those indicated by the Project Promoters exist. They relate particularly to the demand growth rate assumed on the Tunisian side, to the assumptions of a significant export from Tunisia to the neighbouring northern African countries and to developments regarding carbon pricing in Tunisia. These uncertainties justify the condition of significant grant from the European Commission which is set out by the Italian Ministry of Economic Development.

4.5 The result of the consultation of the project promoter concerned

On 11 May 2020, ARERA provided to the Project Promoters the main elements of the draft decision on the allocation of investment costs and on tariff inclusion in Italy. A consultation meeting, in web-conference mode, took place on 12 May 2020.

In their response of 15 May 2020, the Project Promoters did not provide any specific feedback regarding the draft decision on the allocation of investment costs.

Indeed, the decision reflects the Project Promoters’ proposal outlined in paragraph 4.1, as further discussed in the next paragraph.

4.6 Decision on cross-border cost allocation

For the purpose of this decision, in line with the Project Promoters’ investment request, the PCI is “*between the converter substations to be constructed in Partanna (Sicily) and in the Cap Bon Peninsula (Tunisia)*” [Menzel Temime].

ARERA acknowledges that project promoters agree on an equal split of investment costs between Italy and Tunisia and that the project is deemed to be beneficial in several scenarios, with positive national net benefits for Italy and for Tunisia.

Under such conditions, according to the principle set out in ACER’s recommendation 05/2015, there is no need for CAPEX contributions by other countries, neither to adopt a different approach than the promoters’ CBCA proposal.

Therefore, ARERA allocated the CAPEX of the Italy-Tunisia interconnection equally to the Italian TSO and the Tunisian TSO.

ARERA acknowledges that the Italy-Tunisia interconnection is approved as part of the Italian national development plan, as per Ministry decree of 25 February 2020, subject to the condition of significant financing from the European Commission. ARERA acknowledges that the investment request quantifies such significant financing as 50% of the CAPEX of the Italy-Tunisia interconnection.

Therefore, ARERA allocated the CAPEX of the Italy-Tunisia interconnection 25% to the Italian TSO and 25% to the Tunisian TSO.

In case of EU contribution lower than 50% of the CAPEX, the cost allocation decision will be reviewed, as described in detail at the end of chapter 5 of this decision.

5 Tariff inclusion decision

Pursuant to Articles 12(4) and (5) of Regulation (EU) No 347/2013, the decision on the investment request shall include a decision on the inclusion of investment costs in the national network tariff and an assessment of the impact on tariffs.

As a short introduction, in this chapter, the current and future tariff framework for the Italian TSO is recapped (para. 5.1), then results of the consultation of the project promoter concerned are summarised (para 5.2). Impact on transmission network tariff is estimated at para. 5.3, while in following paragraph some considerations on incentive schemes applicable when the investment will be committed are described at para. 5.4 (as per incentives to increase expenditure efficiency) and para 5.5 (as per incentive to improve technical performance or “output”).

In general terms, ARERA adheres to the following principles stated in ACER’s Recommendation 05/2015:

- *“the allocated investments costs are included in tariffs of the respective Member State, in line with the applicable legislative and regulatory framework for transmission network elements in that Member State”*
- *“the concrete way of how they are reflected in tariffs is the responsibility of the respective NRAs”.*

5.1 Current and future tariff regulatory framework in Italy

Currently, capital expenditure (CAPEX) are remunerated on the basis of a rate of return mechanism. After their operational commissioning, efficient investments costs recognized in the “Regulatory Asset Base” (RAB) are remunerated via a depreciation quote (calculated according to the regulatory lifetime of assets) and a remuneration of capital cost, reviewed every 3 years in a cross-sectoral manner.

Currently the WACC (weighted average of capital cost) is 5.6%; it is subject to a revision every 3 years (next revision scheduled by end-2021, when the regulatory period for WACC⁸ expires).

For sake of completeness, although operational expenditures (OPEX) are out of the scope of these decisions, OPEX are subject to a *price-cap* mechanism: the baseline is currently set every 4 years, and the current regulatory period will terminate at end-2023.

For the next future, ARERA stated in its Strategic Plan 2019-21⁹ that is committed to improve the current framework. The new integrated approach focuses on the following aspects: realistic, well-founded forecasts and development plans on the future and actual needs of the customers of the service; incentives to improve the level of performance, in terms of efficiency, economy and quality of service.

⁸ Decision ARERA 583/2015/R/com, Annex A

⁹ Decision ARERA 242/2019/A, Annex A, Strategic Target OS.21 “Regulation by expenditure targets and by service targets”. Press release in English: https://www.arera.it/allegati/com_stampa/19/190619eng.pdf

Two major aspects will go under scrutiny: the current, RAB-based scheme for capital expenditure, to be substituted with a *Forward-looking* approach, based on the Business Plan of the TSO; and the different regulatory treatment of CAPEX and OPEX, to be equalized through the concept of Total Expenditure (*TOTEX*).

As a complement to the tariff framework, ARERA has implemented a wide array of incentive schemes, including one that pushes the TSO to be efficient in respect of its own final cost estimate. In the next future, incentive schemes for both improving efficiency and enhancing performance outcome are expected to be strengthened in the new “*Forward looking / TOTEX*” scheme.

5.2 ARERA’s consideration of the consultation of the project promoters

During a consultation meeting with the project promoters (see previous paragraph 4.5) draft elements of the decision on inclusion in tariffs were presented to the project promoters.

The Project Promoters replied to the consultation rising some concerns, as follows:

- If ARERA intends to provide clarifications in relation to innovative ways of recognizing investment costs and compliance with specific service targets, these should be limited to the general principles that ARERA ultimately intends to apply to the Italy-Tunisia interconnection project. ARERA deems that the purpose of Article 12(5) of Regulation (EU) No 347/2013 is to provide the Project Promoters with as clear as possible indications about the applicable regulatory framework, so to allow the Project Promoters to take a decision on the project. Therefore, ARERA deems appropriate to concretely identify some regulatory measures for the Italy-Tunisia interconnection;
- on the proposed incentive mechanism for efficiency, ARERA should consider that cost efficiency criteria that include the provision of bonuses and penalties have never been applied to the tariff recognition related to transmission infrastructures¹⁰; Terna proposes to soften the mechanism in particular by using a dead-band; ARERA agrees on the opportunity of adopting a dead-band area of +/- 5% around the target capital expenditure level;
- on proposed incentive mechanism for performance (availability of the submarine cable), Terna acknowledges that any mechanism aiming at the evaluation of the performances should foresee both penalty and award and

¹⁰ ARERA introduced since 2016 regulatory incentives for Terna in order to improve efficiency in investment expenditure, as a counter-balance of undesired effect of RAB-based scheme (according to “Averch-Johnson effect”, such a scheme risks to push the TSO to “overspending”). As noted by Terna during the consultation process, so far these regulatory incentives are “reward-only” designed, i.e. no penalty is foreseen in the case of actual expenditure greater than expected expenditure. However, ARERA indicated the future transition to a penalty scheme (in case of cost over-runs) already in its consultation document 464/2015, i.e. the consultation before setting the rules for the regulatory period 2016-2023.

Moreover, in its decision 126/2019 <https://www.arera.it/allegati/docs/19/126-19.pdf> launching the mid-term review of the regulatory framework for the half-period 2020-2023, ARERA indicated that it intends to introduce during the period some regulatory instruments based on totex & forward looking approaches

shows concern that, both for penalties and awards, thresholds should be set based on reliable reference values relative to the specific project, but it's currently too early to define precise thresholds and performance indicators. In consideration of the comments received from Terna, ARERA agrees that the availability index will be cleansed from the effect of unavailability events that Terna will be able to demonstrate to be due to exogenous reasons, including Tunisian power system operations by STEG.

5.3 Estimation of the impact on Terna's revenues and on transmission tariffs

Taking into account the cost estimates and other information provided by the promoters, the maximum investment which could be potentially included in the Italian network tariffs (in case no grants for works would co-finance the Italy-Tunisia interconnection) is 294 million Euro.

The transmission investment in the last four years (2015-2018) were 3.73 billion euro.

Assuming that the future transmission investment level will be stable or will slightly increase, during the 4-year construction period, the Italy-Tunisia interconnection will represent about 7-8% of the transmission investments in Italy.

These investments will be included in network tariffs according to the regulatory framework set out by ARERA. Currently, the main features are:

- 5.6% Weighted Average Cost of Capital (real pre-tax)
- 45-years depreciation for cables, 33-years depreciation for stations

In their business plan, the project promoters assumed a 1% inflation rate and presented two options: without grants for works (i.e. 294 million euro) and with 50% grants for works (i.e. 147 million euro).

Further, in the business plan Terna's revenues due to Italy-Tunisia interconnection (i.e. the tariff impact) in 2029, i.e. the first year of full tariff inclusion, are estimated as follows:

- 25.7 million euro in the option without grants for works;
- 14.1 million euro in the option with 50% grants for works.

For sake of comparison, the TSO allowed revenues in the last years ranged from 1653 million euro in 2016 (expressed in 2020 prices)¹¹ to 1802 million euro in 2020 (opex included).

The 2016-2020 values show a compound annual growth rate of about 2.2% (real).¹²

The tariff increase due to the Italy-Tunisia interconnection at the first year of full inclusion in tariff can be estimated to be much more than 1% in the case of no grants for works, accounting in such a case for about half of the recent tariff increases evaluated on a year-on-year basis.

¹¹ The amount of 1643 million euro (expressed in 2019 prices) is given in the consultation document 337/2019. <https://www.arera.it/allegati/docs/19/337-19.pdf>

¹² www.arera.it/allegati/docs/19/568-19com.pdf

5.4 Decision on tariff inclusion and on incentives to improve cost efficiency

ARERA will include in the transmission tariffs the investment costs of the Italy-Tunisia interconnection which are allocated to the Italian TSO pursuant to chapter 4 of this Decision (hereinafter the 'expenditure target', equal to 25% of the estimated investment cost of 600 million euro, i.e. 150 million euro).

The tariff inclusion of the Italy-Tunisia interconnection will reflect the regulatory frameworks which will apply in the future years, regarding the remuneration of investments during construction¹³, the weighted average cost of capital and the regulatory lifetimes.

The tariff inclusion of the Italy-Tunisia interconnection will encompass an output-based incentive scheme, as defined in the next paragraph, and an incentive to improve cost efficiency, along the following lines.

The new scheme will comprehend a "dead band" area around the expenditure target: +/- 5% range of the expenditure target; if the actual expenditure will result in that "dead band", the actual investment cost will be included in the transmission tariffs.

In case the actual investment cost will be above the upper limit of the dead-band range (i.e. 157.5 million euro, expressed in 2019 prices), the amount included in transmission tariffs will be the upper limit of the dead-band range plus 80% of the cost differential.

In case the actual investment cost will be below the lower limit of the dead-band range (i.e. 142.5 million euro, expressed in 2019 prices), the amount included in transmission tariffs will be the actual investment cost plus 20% of the cost differential (as a reward to Terna).

5.5 Regulatory incentives to enhance performance (output-based scheme)

Availability of undersea cables has proved to be a risky factor for the performance of such kind of investments.¹⁴ For this reason, as stated in the consultation meeting, ARERA intends to introduce a specific incentive scheme for the availability of the Italy-Tunisia interconnection

[REDACTED]

[REDACTED]

¹³ The related regulatory provisions have been updated for the half-period 2020-2023 by ARERA's decision 568/2019.

¹⁴ Recently, ARERA in cooperation with RAE, the Greek NRA, started an investigation on the availability of the Italy-Greece undersea interconnection (decision 158/2018/E/eel).

5.6 Applicability of other incentives

No other incentive mechanism will be applicable to the Italy-Tunisia interconnection, in particular:

- Risk-based incentives pursuant Article 13 of Regulation (EU) No. 347/2013 will *not* apply to the Italy - Tunisia PCI, as Terna did not request such provisions.
- The currently enforced incentive scheme for transfer capacity increase up to the “target capacity” level¹⁵ will be *not* applicable to the Italy - Tunisia interconnection, as the realisation of this interconnection project is strictly linked to the implementation of the Inter-Governmental agreement, thus incentives are not needed.

5.7 Revisions of the decisions on cost allocation and on tariff inclusion

The cost allocation decision set out in chapter 4 is conditional to at least a 50% grant for works.

Furthermore, the completion of the permitting process will allow the detailed identification of the routing and a more precise cost estimate of the Italy-Tunisia interconnection.

Therefore, ARERA retains the rights to revise the decisions on cost allocation and on tariff inclusion. Such possible revisions would take place after the decisions by the European Commission regarding a possible co-financing of the Italy-Tunisia interconnection and after the completion of the permitting process.

The possible revisions would relate to the amount of costs covered or not covered by grants for works, to the expenditure target, to the efficiency incentive mechanism and to the output-based mechanism for HVDC unavailability, considering possible developments of the regulatory framework.

6. Communication requirements for project monitoring purposes

Pursuant to Article 12(3) of Regulation (EU) No 347/2013, the project promoters (of a project for which an investment request was submitted) shall keep all concerned NRAs regularly informed, at least once per year, and until the project is commissioned, of the progress of the project and the identification of costs and impacts associated with it.

The Project Promoters are requested to inform ARERA by 31 March of each year until the Italy-Tunisia interconnection is commissioned, including:

- The PCI monitoring report as submitted to ACER;
- A status update on the permitting process;
- The incurred CAPEX and the contracted but not yet incurred CAPEX;
- The estimated CAPEX and the expected range of CAPEX variation;
- The estimated project benefits, and in particular the expected congestion revenues;
- A status update on the financing plan.

¹⁵ ARERA decisions 129/2018/R/eel and 698/2018/R/eel.