September 2021

Energy & Climate Report for EIA

Climate impact assessment of the coal to gas conversion of the thermoelectric power station “Federico II” in Brindisi

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Introduction

With the present report, the undersigned organisations ClientEarth, WWF Italy and ECCO think tank underline additional energy and climate related aspects of the coal to gas conversion of the thermoelectric power plant "Federico II" of Brindisi. This document shall be read in conjunction with other legal and technical observations, as well as additional observations regarding health aspects, submitted by WWF Italy and ClientEarth.[*]

"Federico II" is a coal-fired thermoelectric power plant, located at Cerano in the Municipality of Brindisi, operated by Enel Produzione S.p.A. ("**Enel**"). While Enel is already legally obliged to phase out its coal units by 2025,[1] it now intends to convert the plant into a fossil gas power plant – hence it plans to replace one fossil fuel by another fossil fuel.

The project shall consist of three phases of construction, starting with two units in open-cycle operation (OCGT) and ending with the completion of a closed cycle of both open cycles (CCGT) – as a two-in-one configuration (2 gas turbines and related recovery boilers connecting to a single steam turbine), with a nominal capacity of 1680 MWe. The total construction duration of the entire project is estimated to be approximately 58 months by Enel. Moreover, the project shall include the construction of a new methane pipeline connecting the gas transmission network and the plant.

Enel's plan to build a new gas power plant is happening while there are many applications pending for Environmental Impact Assessment ("**EIA**") procedures for new gas power plants in Italy by Enel and other operators. To our knowledge, Enel's project of new 1680 MWe gas capacity would be one of the largest conversions compared to the rest of the pending applications (based on EIA procedures as of September 2021).

Enel applied for an EIA procedure for this project in February 2020 at the Ministry for the Environment, Land and Sea, which is now the Ministry for Ecological Transition ("**MiTE**"). This was followed by a first public consultation in June/July 2020. Due to missing information, the MiTE requested in April 2021 supplementary documentation on various aspects, including on alternatives of the proposed project and its compatibility with energy transition objectives ("Richiesta integrazioni CTVA")[2]. Following Enel's response in July 2021 ("Integrazioni e chiarimenti")[3], the new EIA public consultation has been formally re-opened on 3rd September, allowing us to comment within 30 days.

[*] This report has been submitted in Italian to the Italian Ministry for Ecological Transition, 02/10/2021, https://va.minambiente.it/it-IT/Oggetti/MetadatoDocumento/537404.

[1] As indicated by the National Energy Strategy (Strategia Energetica Nazionale, SEN) 2017 and the National Energy and Climate Plan (NECP – Piano Nazionale Integrato per l'Energia e il Clima, PNIEC) 2019; in compliance with art. 2, paragraph 4 of the Decreto di riesame AIA n. 0000084 del 21 aprile 2020 and prescription no. 84 of the Parere Istruttorio Conclusivo and pursuant to Article 2, paragraph 2 of D.D. 430/2018, Enel was already obliged to transmit a plan for the cessation of the use of coal for thermoelectric production of Federico II; see ClientEarth, Press Release, "Italy's biggest coal plant to swap one fossil fuel for another – ClientEarth reaction", 11/06/2021, https://www.clientearth.org/latest/press-office/press/italy-s-biggest-coal-plant-to-swap-one-fossil-fuel-for-another-clientearth-reaction/.

[2] Ministero della Transizione Ecologica, "Richiesta integrazioni CTVA", 12/04/2021, https://va.minambiente.it/it-IT/Oggetti/MetadatoDocumento/488315.

[3] Enel, "Integrazioni e chiarimenti", 11/08/2021, https://va.minambiente.it/it-IT/Oggetti/MetadatoDocumento/525377.

This report, in addition to the legal and technical observations already submitted, reflects critical energy and climate related issues of such a new gas-fired power plant, based on the new documentation by Enel. The requirement to assess those aspects derives from EU Environmental Impact Assessment Directive ("**EIAD**", Directive 2011/92/EU as amended by Directive 2014/52/EU), transposed into Italian legislation via Legislative Decree 152/2006. In particular, Art. 3(1) EIAD prescribes that "the environmental impact assessment shall identify, describe and assess in an appropriate manner, in the light of each individual case, the direct and in direct significant effects of a project", in particular on "climate" (Art. 3(1)(c) EIAD).

Therefore, in order to assess the climate impacts, the operator is obliged to provide sufficient information describing the current state of the environment and an outline of the likely evolution thereof without implementation of the project. In addition, the operator must describe reasonable alternatives to the proposed project. Finally, it is required to describe the likely significant effects of the project on the environment, including a comparison of the environmental impacts of those options and scenarios.

The present Energy and Climate Report demonstrates:

Part I: **The applicant Enel fails to identify the actual need for the project in Brindisi. The project, in fact, is not necessary for the security of energy supply. On the contrary, there is a risk of overcapacity of energy generation and of artificial prolongation of the use of fossil technologies (carbon lock-in) as well as of stranded assets.**

Part II: **The project has adverse climate impacts that contradict European and national climate objectives. Combusting fossil gas as another fossil fuel emits significant amount of carbon dioxide. Furthermore, methane emissions also occur in the pre-combustion phases, i.e., during gas extraction and transportation processes.**

As there is no justification from the energy point of view for a plant that is so harmful from the climatic point of view, Enel's application for this project must be rejected without delay by the Ministry for Ecological Transition.

I. No need for the proposed plant

This section outlines that the proposed development of "Federico II" is not needed, not even in relation to the coal phase-out by 2025.

This section shows why the baseline scenario and the alternatives have not been adequately described as required in an EIA procedure. In reality, there is no risk of "blackout", but a risk of overcapacity of fossil fuels based power generation, long-term displacement of climate-friendly technologies and abuse of state aid in favor of unnecessary assets, also due to the fact that the contracts of the capacity market provide remuneration for 15 years to new plants.

Legal background

To identify, describe and in particular to assess direct and indirect significant effects of a project on climate (Art. 3(1) EIAD), the applicant of the proposed development is obliged to provide *inter alia* the following information (Art. 5(1), Annex IV No. 2 and 3 EIAD):

"2. A description of the reasonable **alternatives** (for example in terms of project design, technology, location, size and scale) studied by the developer, which are relevant to the proposed project and its specific characteristics, and an indication of the main reasons for selecting the chosen option, **including a comparison of the environmental effects**.

3. A description of the relevant aspects of the **current state of the environment (baseline scenario)** and an **outline of the likely evolution thereof without implementation of the project** as far as natural changes from the baseline scenario can be assessed with reasonable effort on the basis of the availability of environmental information and scientific knowledge." *(emphasis added)*

Requirements for baseline scenarios in EIA

The Baseline assessment is the starting point of an EIA. The Baseline scenario and its assessment provide a description of the affected environment as it is currently, and as it could be expected to develop if the project were not to proceed (the so-called "do-nothing" scenario)[4].

The European Commission has published detailed guidance on the requirements of the EIA rules and on how baselines should be developed and used in particular, including in the specific context of climate change mitigation.[5] This guidance explains that baseline scenarios must:

a. "form the foundation" against which both the project and alternatives to the project are assessed at the outset, and therefore allow for consideration of the maximum extent to which a significant

[4] See European Commission, "Environmental Impact Assessment of Projects Guidance on the preparation of the Environmental Impact Assessment Report", 2017, http://ec.europa.eu/environment/eia/pdf/EIA_guidance_EIA_report_final.pdf, page 33: "do-nothing".
[5] "Environmental Impact Assessment of Projects Guidance on the preparation of the Environmental Impact Assessment Report", page 32 et seq.; European Commission, "Guidance on Integrating Climate Change and Biodiversity into Environmental Impact Assessment", 2013, http://ec.europa.eu/environment/eia/pdf/EIA%20Guidance.pdf.

environmental impact can be either avoided or reduced, including by developing less, differently or not at all;[6]

b. be "dynamic", "moving baselines", taking into account future "trends and scenarios" over the life of the project and avoiding "snapshot analysis (i.e. at a single point in time)", particularly in the context of long-term infrastructure projects and in respect of greenhouse gas emissions;[7]

c. be based on rigorous and thorough analysis, proportionate to the scale of the project, with the development of the baseline often comprising "the bulk of the EIA process" and "a significant proportion of the final EIA Report";[8]

d. take into account "relevant greenhouse gas reduction targets at the national, regional, and local levels" and the extent to which the project and its alternatives would contribute to these targets;[9] and

e. consider trends in key indicators over time such as greenhouse gas emissions and the drivers of such trends (including "already approved developments that have not been implemented yet, changes in economic incentives and market forces and changes in the regulatory or policy frameworks"), using the best available scenario studies and projections, including proxy indicators where necessary.[10]

Crucially, the baseline scenario – and the EIA process in general – is not aimed at assessing a project's climate impact only once it is built and in operation. Rather the baseline scenario must allow for an assessment of the full climate impact of the project by reference to a scenario without implementation of the development, i.e. the "do-nothing" scenario, including by assessing the impact of alternatives. The baseline must therefore serve as a benchmark that takes account of the full extent of possible climate mitigation opportunities at the outset and before a project design or specification is selected. Among other things, this allows for lock-in effects to be assessed and taken into account.

[6] "Guidance on Integrating Climate Change and Biodiversity into Environmental Impact Assessment", 2013, page 39 ("For climate change mitigation, it is important to investigate and use options to eliminate GHG emissions as a precautionary approach in the first place, rather than having to deal with mitigating their effects after they have been released."); "Environmental Impact Assessment of Projects Guidance on the preparation of the Environmental Impact Assessment Report", 2017, page 33.

[7] "Guidance on Integrating Climate Change and Biodiversity into Environmental Impact Assessment", 2013, pages 17 and 33; "Environmental Impact Assessment of Projects Guidance on the preparation of the Environmental Impact Assessment Report", 2017, pages 33-34.

[8] "Environmental Impact Assessment of Projects Guidance on the preparation of the Environmental Impact Assessment Report", 2017, pages 33-34.

[9] "Environmental Impact Assessment of Projects Guidance on the preparation of the Environmental Impact Assessment Report", 2017, pages 39.

[10] "Guidance on Integrating Climate Change and Biodiversity into Environmental Impact Assessment", 2013, page 34; see also page 17 ("Since we cannot fully understand all aspects of complex systems at the point in which we make decisions, we need to be able to use what we have. For example, we can analyse trends — the general direction in which things seem to move — based on available studies, reports and other sources of information.").

1. No risk for security of supply

This section argues that the proposed facility is not necessary for the security of energy supply.

a) Coal plants are already idling with no harm: no need for substitution with more fossil fuel plants

Enel states (albeit in a convoluted way) that the failure to build the gas units in Brindisi would put the closure of coal at risk (see page 8 of "Integrazioni e chiarimenti"). This is a very serious statement, given that the coal phase-out is already included in the National Energy and Climate Plan (NECP) and that Enel is already obliged to phase out its coal units of "Federico II" by 2025 regardless of any gas plans[11].

Actually, the use of existing coal plants has been declining already. A de facto phase-out of coal is already happening and it is market driven.

Indeed, based on ENTSO-E data, both power production and load factor of coal plants in Italy have been generally declining. This is also true for "Federico II": starting with an original capacity of 2640 MW, one out of its four coal units has been already closed by 2021. But even with three units left, it has recently been operating most of the time at a very reduced capacity, for example in 2020 it operated at less than 25% of its capacity, as is also evident from the CO_2 emission equal to around 3.7 $MtCO_2$[12] in 2020, i.e. it is as if the plant had been operating with only one unit of 660 MW.

This decline is a general trend across Europe, especially amongst countries in Western Europe, as a result of rising CO_2 emission allowances prices and the deployment of solar and wind capacity that has become more competitive than fossil-fired power plants in most markets.

ENTSO-E data from 2018[13] – even without considering the effect due to the initial COVID period – shows how Italian coal power plants have de facto (or better: by virtue of the market) reduced their contribution to power production both in terms of volume and load factor.

Only from spring 2021 the world surge in gas prices has increased the competitiveness of coal plants, but based on current forward gas prices in the main EU gas organized market (Dutch Title Transfer Facility (TTF)) this is expected to be a temporary effect for winter 2021-22.

This means that there is little reason to see the legal deadline of phase out in 2025 as a critical transition in itself: the phase-out is already happening, driven – inter alia – by higher carbon emission allowances prices and growing competition from renewables, and the electricity system has been able to cope with it even without any of the new planned gas plants (which are being developed solely in view of the capacity market and certainly not because of prospects of a market remuneration).

[11] See National Energy and Climate Plan (NECP – Piano Nazionale Integrato per l'Energia e il Clima, PNIEC) 2019, https://www.mise.gov.it/images/stories/documenti/PNIEC_finale_17012020.pdf; in compliance with art. 2, paragraph 4 of the Decreto di riesame AIA n. 0000084 del 21 aprile 2020 and prescription no. 84 of the Parere Istruttorio Conclusivo and pursuant to Article 2, paragraph 2 of D.D. 430/2018, Enel was already obliged to transmit a plan for the cessation of the use of coal for thermoelectric production of Federico II.
[12] https://beyond-coal.eu/database/.
[13] ENTSO-E, "Transparency Platform", https://transparency.entsoe.eu/dashboard/show.

Moreover, due to the capacity markets contracts[14] already signed for 2022 and 2023 (which amount to about 5.8 GW[15] of new flexible thermoelectric capacity and subsidize much of the existing gas-fired capacity), the security of supply of the Italian electricity system is largely satisfied by existing and already contracted capacity. The latter is already almost double the target set in the Italian National Energy and Climate Plan[16] (NECP) and is already higher than the 5.4 GW that Terna had included in its Adequacy Report.[17] As a consequence, **there is no sound reason to expect that the full coal phase-out will add serious risks in terms of grid security.**

On the other hand, Enel itself admits in its document "Integrazioni e chiarimenti" that, according to a (Enel-made) scenario consistent with the new EU 2030 -55% CO_2 targets, Italy should reduce electricity production from fossil gas by more than 40 TWh in 2030 vs. 2020, and that **in the scenario of a failure to build the new Enel gas plant in Brindisi the risk would not be a blackout, but a production shift to existing gas plants not owned by ENEL** (page 12 of the above-mentioned document). It is clear that **what is a risk for Enel would instead be a saving for energy consumers, who would avoid paying through the capacity market the cost of building a new plant.**

b) Sustainable alternatives: flexible and efficient system with renewables, demand response and storage

The limited ability of coal plants to provide backup services to the power system (i.e. modulation reserve) does play a role in their diminished operation, but it can be balanced by new sources of modulation alternative to new gas generation.

A recent study by Compass-Lexecon for DR4EU delivers a (cautious) estimation of EU demand response capacity potential by 2030 at 30 GW, with advantages in terms of reduced CO_2 emissions (1 Mt/y) and overall cost of power supply.[18]

With a specific focus on Italy, **the Carbon Tracker study "Foot off the gas" issued in March 2021[19] shows** – based on a model developed by the Rocky Mountain Institute – that, **in terms of Levelized Cost of Energy (LCOE), building new combined cycle gas power plants in Italy would lead to unrecoverable and unnecessary higher costs with respect to available alternatives**. Such costs, referred to as "stranded" in the study and estimated as 11 bn €, would be socialized (i.e. forcedly passed through to the final customers) in case of application of the capacity market to such plants, as provided by the current regulation. This is due to the **higher average cost of energy produced by gas plants** (combined cycle – CCGTs) **when compared to more efficient (and climate friendly) portfolios of renewables, storage and energy efficiency**.

[14] Terna, "Mercato della capacità", https://www.terna.it/it/sistema-elettrico/mercato-capacita.
[15] See also Carbon Tracker, "Foot off the gas in Italy", March 2021, https://carbontracker.org/reports/foot-off-the-gas-italy/, page 25.
[16] NECP, https://www.mise.gov.it/images/stories/documenti/PNIEC_finale_17012020.pdf, page 111.
[17] TERNA, "Rapporto Adeguatezza Italia 2019", https://download.terna.it/terna/Rapporto%20Adeguatezza%20Italia%202019_8d71cb7ff32ad37.pdf.
[18] Compass Lexecon, "Study on the quantification of Demand Response (DR) benefits to electricity suppliers and consumers in Europe in 2030 on its way to achieve deep decarbonisation", March 2021, http://dr4eu.org/wp-content/uploads/2021/05/CL-DR4EU-DSR-study-06052021_vdef.pdf.
[19] Carbon Tracker, "Foot off the gas in Italy", March 2021, https://carbontracker.org/reports/foot-off-the-gas-italy/.

This study proves that gas capacity of 1680 MWe – the same technology as the proposed project "Federico II" – can be replaced by renewables, storage and demand response (see page 13 et seq. of the study).

Carbon Tracker's analysis of the average costs of the different electricity generation technologies (LCOE) internalizes the fact that with low load-factor perspectives the estimated variable cost of new gas plants is considerably high and makes the overall investment excessive, while in the analysis by Enel, as already mentioned above, the socialization of the investment cost through capacity markets is completely disregarded (see page 12 of "Integrazioni e chiarimenti").

Storage and demand response will also be able to provide more stability to the grid as the electricity system evolves and removes obstacles preventing their participation.

c) Risks of gas-fired thermoelectric overcapacity in Southern Italy

Based on the adequacy plan of the Italian Transmission System Operator (TSO, Terna) and based on the development of gas conversions in Southern Italy, there is a substantial risk of overcapacity.

According to Terna's 2019 Adequacy Report,[20] it is calculated that **1500 MWe** of new fossil gas-fired power is needed to compensate for the closure of coal-fired power and meet national grid adequacy requirements in Southern Italy, as shown in the picture below:

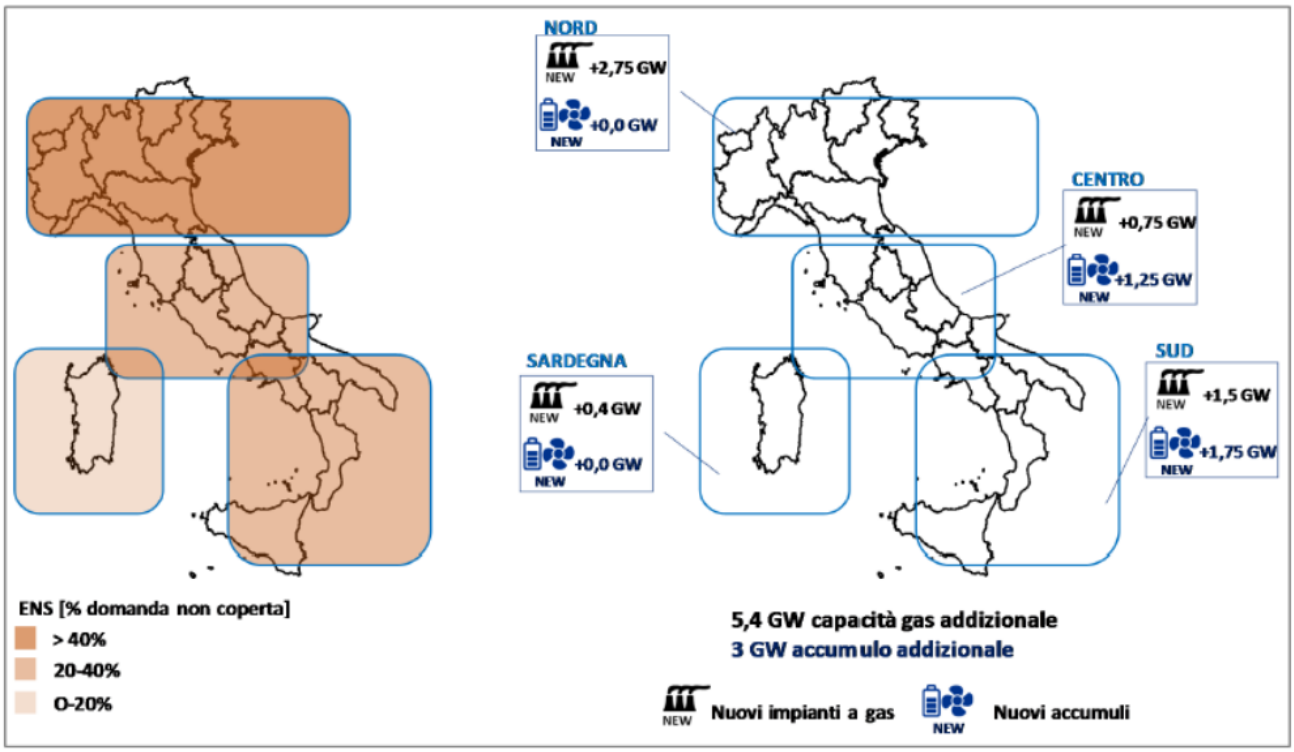

Figura 28 -PNIEC 2025, localizzazione nuova capacità gas e accumuli

Figure 1. Source: TERNA – Italian Adequacy Report 2019 (Rapporto Adeguatezza Italia 2019)

[20] TERNA, "Rapporto Adeguatezza Italia 2019", https://download.terna.it/terna/Rapporto%20Adeguatezza%20Italia%202019_8d71cb7ff32ad37.pdf.

The new plant "Federico II" alone would exceed this requirement with its **1680 MWe** (or even 1730 MWe as stated by Enel depending on the technological development of the individual machines being used).

Even if the amount of MW of "Federico II" were reduced (as requested by MiTE's CTVA itself), it is necessary to assess the development in whole Southern Italy, because this is not the only plant currently being planned by Enel itself and by other operators. If looking at pending EIA procedures in the south of the country, the following plants have to be added in addition:

- Rossano Calabro – ENEL – **300 MWe**
- Larino (CB) – Molise – ENEL – **300 MWe**
- Termini Imerese (PA) – ENEL – **300 MWe**
- Brindisi Nord – A2A – **147,44 MWe**
- Termoli (CB) – Snowstorm S.r.l. – **74,8 MWe**
- Melfi (PZ) – Snowstorm S.r.l. – **74 MWe**
- Pace del Mela – Messina – Duferco Sviluppo S.p.A. – **65 MWe**
- San Filippo del Mela (Messina) – A2A Energiefuture S.p.A. – **860 MWe** (plant should replace fuel oil units)
- Sparanise (CE) Campania – Calenia Energia S.p.A. – **940 MWe**

So approximately in the south of Italy there would be **3061 + 1680 = 4741 MWe**, almost three times the already high capacity requested by Terna. It also must be considered that this list may not even be exhaustive.

d) In any case: Italian TSO's energy demand forecast is overestimated

In the note "Integrazioni e chiarimenti", Enel heavily relies in the Terna's adequacy analysis.

However, as already set out in the previous section, the new gas-fired power plant in Brindisi would already be redundant with respect to Terna's Adequacy Report which, as we recalled, envisages a total new thermoelectric capacity of 1.5 GW in Southern Italy. And even in case of a project with reduced capacity in Brindisi, if one considers all the other investment plans in new gas capacity, Terna's indications are already largely exceeded, as indicated in the previous section.

Moreover, in addition to the above arguments, it is important to take into consideration that Terna's analysis is likely to:

- overestimate demand as similar analysis did so in the past
- underestimate the role of demand response and storage as providers of grid security.

In 2020, the Italian electricity demand was approximately **302 TWh, 17 TWh lower than in 2019.** This decrease was mainly due to the Covid-19 pandemic, which generated a demand reduction of about 17% in April 2020, compared to the level in the same period of the previous year. By looking at a broader temporal horizon (Figure 2**Fehler! Verweisquelle konnte nicht gefunden werden.**), it is worth noting **a very moderate growth trend** for the Italian electricity demand. In fact, after the decline period generated by the economic crisis, during which it reached its lowest level in 2014 (310 TWh), and the recovery of the

subsequent three-year period 2015-2017 (+1% on average per year), electricity consumption then moved along a very moderate growth trajectory in 2018 and even declined in 2019. The sharp collapse in 2020 has therefore led to a new increase in the gap compared to 2008, which is now over 10% (double that of the 2019 gap), **bringing the current electricity demand below the 2014 level (-2%).** It is only going back to the early 2000s that we find levels of electricity demand comparable to current ones[21].

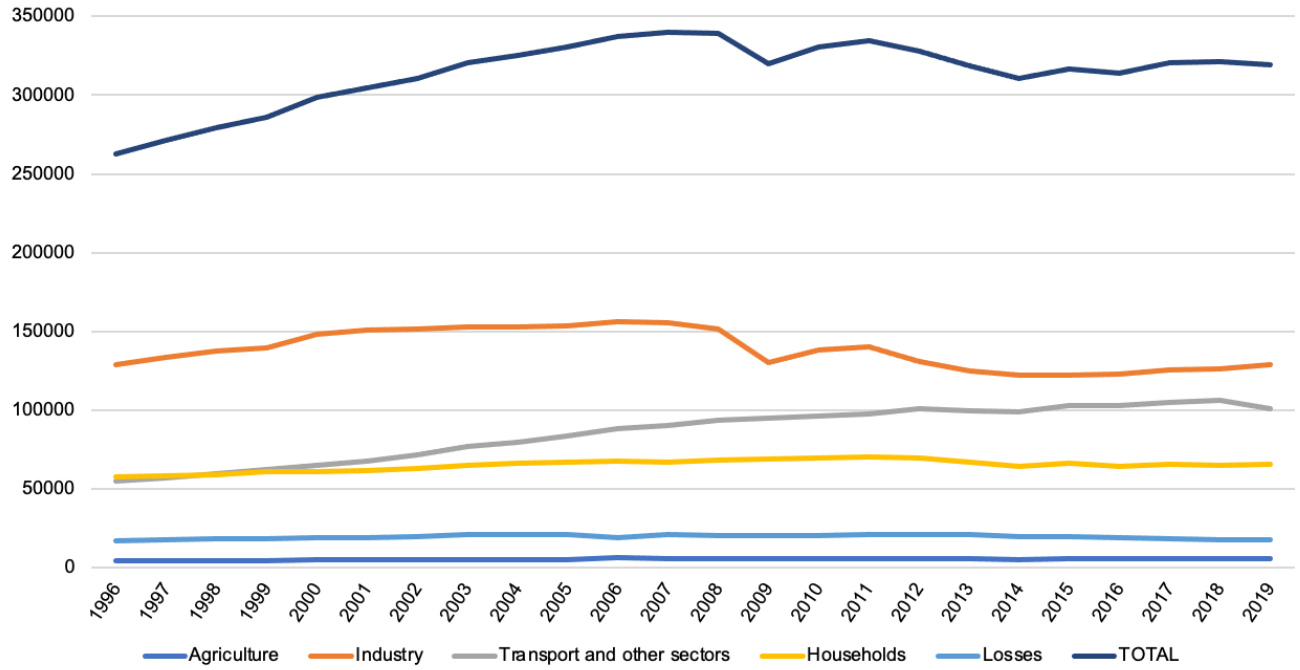

Figure 2. Electricity demand (in GWh) by sector from 1996 to 2019 (our processing on Terna's statistical data)

However, according to Terna's 2021 Development Plan, the Italian electricity demand is expected to significantly increase in the next years. Based on its National Trend (NT) scenario, which is consistent with the "National Trend" outlined by ENTSO-E and ENTSO-G for the 2020 European Development Plan (TYNDP) and reflects the NECP's demand evolution, the electricity demand is expected to reach 331 TWh by 2030 and 381 TWh by 2040[22].

It should be noted that the data of both ENTSO-E and ENTSO-G have to be approached with caution and particular attention. Grid operators have a vested interest in overestimating demand, as this allows them to maximize and justify their investment in new energy infrastructure, on which they are remunerated. The members of the ENTSOs, the TSOs, collect a substantial part of their income from regulated revenues derived from infrastructure construction and operation. This risk of bias towards higher demand and infrastructure needs estimations has been repeatedly denounced both by civil society[23] and by EU entities,

[21] ARERA, "Analisi trimestrale del sistema energetico italiano: anno 2020", 2021, https://www.enea.it/it/seguici/pubblicazioni/pdf-sistema-energetico-italiano/01-analisi-trimestrale-2021.pdf, pages 25-27.
[22] Terna, "2021 Piano di Sviluppo", 2021, https://www.terna.it/it/sistema-elettrico/rete/piano-sviluppo-rete, page 216.
[23] Global Witness, "Pipe Down – How gas companies influence EU policy and have pocketed €4 billion of taxpayer's money", June 2020, https://www.globalwitness.org/en/campaigns/oil-gas-and-mining/pipe-down.

such as the Agency for the Cooperation of Energy Regulators ("ACER")[24]. Even the report supporting the evaluation of the TEN-E Regulation (which governs part of the process for the preparation of TYNDPs), undertaken by a group of consultancies for the European Commission[25], recognises that the grid operators may be in conflict of interest when designing the scenarios for the TYNDP.

The assumptions on which Terna's NT scenario is based on, which considerate **a moderate/high GDP and population growth,** are not in line with the assumptions provided by the **Italian Long-Term Strategy (NLTS – Strategia italiana di Lungo Termine, SLT).** Contrary to Terna's scenarios[26], **the NLTS considers a very moderate annual GDP growth** (about +0.45% in the period 2020-2040, compared to Terna assumption of about 1.4%) **and a decline in the Italian population**[27] (about 59.8 million inhabitants by 2040, compared to 65.4 million according to Terna). Furthermore, based on similar input parameters, in collaboration with Snam, Terna proposed other development scenarios (namely Centralized – CEN and Decentralized – DEC), which hypothesize an electricity demand equal to about 332-356 TWh by 2030 and 352-391 TWh by 2040[28]. Besides relying on very boosted growth assumptions (especially regarding the population that will be in decline in 2020-2050 according also to the Italian National Institute of Statistics – ISTAT[29] – and the Energy System Research Company – RSE[30]), **all these development scenarios appear to disregard the stagnant growth characterizing the current electricity demand.**

In addition to GDP growth, energy efficiency and electrification represent the main elements that can affect the evolution of electricity demand.

The implementation of energy efficiency measures, which are considered one of the most important factors to reach short- and long-term targets, will generate a relevant decrease in energy demand (-10 Mtoe by 2030, compared to 2018 level). These measures will be applied particularly to the building sector, producing a decrease in energy demand equal to about 6.4 Mtoe by 2030[31]. **According to the NLTS, the energy intensity, considered a rough indicator for energy efficiency, will have to be reduced by 50% by 2050 compared to the 2018 level** (equal to about 99 toe/M€$_{2010}$[32]).

[24] ACER & CEER, "Position on Improving the Regulation on Guidelines for Trans-European Energy Networks (TENE Regulation)", March 2021, https://acer.europa.eu/Official_documents/Position_Papers/Position%20papers/ACER_CEER_TEN_E_2021.pdf.
[25] F. Akkermans et al., "Support to the evaluation of Regulation (EU) No 347/2013 on guidelines for trans-European energy infrastructure", January 2021, https://op.europa.eu/en/publication-detail/-/publication/19bec11f-5f86-11eb-b487-01aa75ed71a1/languageen?WT.mc_id=Searchresult&WT.ria_c=37085&WT.ria_f=3608&WT.ria_ev=search%C2%A0.
[26] Terna, "Scenario National Trend Italia", 2021, https://www.terna.it/it/sistema-elettrico/rete/piano-sviluppo-rete/scenari, page 16.
[27] "Strategia italiana di lungo termine sulla riduzione delle emissioni di gas ad effetto serra", January 2021, https://ec.europa.eu/clima/sites/lts/lts_it_it.pdf, pages 14-15.
[28] Snam, Terna, "Documento di descrizione degli scenari 2019", 2019, https://www.terna.it/it/sistema-elettrico/rete/piano-sviluppo-rete/scenari, pages 16-17.
[29] ISTAT, "Previsioni della popolazione – Anni 2018-2065", http://dati.istat.it/Index.aspx?DataSetCode=DCIS_PREVDEM1.
[30] RSE, "Affare assegnato n.784: aggiornamento della normativa in materia di Certificati Bianchi", http://www.senato.it/application/xmanager/projects/leg18/attachments/documento_evento_procedura_commissione/files/000/345/701/2021_04_28_RSE.pdf.
[31] RSE, "Affare assegnato n.784: aggiornamento della normativa in materia di Certificati Bianchi", http://www.senato.it/application/xmanager/projects/leg18/attachments/documento_evento_procedura_commissione/files/000/345/701/2021_04_28_RSE.pdf.
[32] ISPRA, "Intensità energetiche finali settoriali e totale", https://annuario.isprambiente.it/sys_ind/184.

Higher levels of electrification will cause a growth in the electricity demand. **But, according to RSE, only the transport sector, which is worth 4% of the entire final electricity consumption, will be characterized by a deep increase in electrification** (from 2.5% in 2018 to 11.7% by 2030). Electrification will remain stable in the industrial sector instead, despite a moderate increase from 27.4% in 2018 to 33.3% by 2030 in the building sector[33].

Given these considerations, Terna's projection of a substantial and significant increase in electricity demand is not realistic and not consistent with the flat growth rate that has characterized the electricity demand in the last years.

Furthermore, by looking at Terna's old development plans and comparing its forecasts on electricity demand to actual values, it is possible to verify that its estimates have a mean absolute error higher than 5%. Specifically, in Terna's development scenarios electricity demand forecasts are characterized by an **8.5% error on average**, whereas in base scenarios the difference with observed values is about **5.7%, on average.**

The tendency to overestimate energy demand is not exclusive to Italy, and to a different extent seems present in many systems, such as the PJM Interconnection (which operates the grid of some North-Eastern States of the United States)[34], or the Australian system[35].

Finally, despite Terna's opposite assumption on increased demand, the **Mid-term Adequacy Forecast 2020 (MAF 2020) carried out by ENTSO-E does not foresee a security of supply concern for Italy within the next ten years**[36]. On the contrary, it assumes that the available energy will meet at any time the demand as the Loss of Load Expectation index (LOLE) will be on average null. It has to be noted that the MAF 2020 does not use the updated and most accurate tools of the new Electricity Market Regulation[37], namely the European Resource Adequacy Assessment Methodology. This methodology was adopted in October 2020 and it should be used by national TSOs when carrying out the national resource adequacy assessment. For example, as ENTSO-E states in the MAF report, the new methodology takes into account existing or future capacity markets, something that has not been reflected in Terna's assessment, which did not in fact consider the capacity market.

2. State Aid against decarbonisation

This section shows that investment decisions in gas-fired power plants (financed with public money through the capacity mechanism) are economically inefficient and harm private investments in carbon-free

[33] RSE, "Affare assegnato n.784: aggiornamento della normativa in materia di Certificati Bianchi", http://www.senato.it/application/xmanager/projects/leg18/attachments/documento_evento_procedura_commissione/files/000/345/701/2021_04_28_RSE.pdf.

[34] Wilson, J. F., "Over-Procurement of Generating Capacity in PJM: Causes and Consequences", prepared for Sierra Club and Natural Resources Defense Council, February 2020, https://www.sierraclub.org/sites/www.sierraclub.org/files/blog/Wilson%20Overprocurement%20of%20Capacity%20in%20PJM.PDF.

[35] The Connection, "Inaccurate energy forecasts are costing us the Earth: here's why", 14/06/2015, https://theconversation.com/inaccurate-energy-forecasts-are-costing-us-the-earth-heres-why-42808.

[36] MAF 2020, https://eepublicdownloads.entsoe.eu/clean-documents/sdc-documents/MAF/2020/MAF_2020_Executive_Summary.pdf.

[37] Regulation (EU) 2019/943 of the European Parliament and of the Council of 5 June 2019 on the internal market for electricity, OJ L 158, 14.6.2019, pages 54-124.

technologies in the long run. Prolonging dependence on gas-fired power plants also exposes to price volatility, such as we have been experiencing recently.

a) Risk of gas lock-in and stranded assets

The Italian capacity market provides 15 years of remuneration (hence, with the upcoming auctions until 2040) to new fossil gas plants, which far exceeds (based on the outcome of the auctions awarded to date) the overall fixed costs of a combined cycle gas plant. Moreover, the way the capacity market is designed reduces power market prices volatility so that alternative investments (for instance in demand response or storages) get lower payback expectations and less chances to be actually developed.

No Italian power generation company would invest today in fossil gas plants if it were not due to the incentive from the capacity market, which in its current form allows remuneration as high as 75 k€/MW/y, more than the total fixed costs of a CCGT. Therefore, all companies who have a chance of getting a fossil gas plant approved are rushing to develop the project and bid it in the capacity market, whose new auctions for the years from 2024 are expected to take place by 2021.

Putting energy customers' money into gas plants not only is inefficient economy wise, as argued in the already mentioned "Foot off the gas" document by Carbon Tracker, but also entails a **risk of technological lock-in effect**, because:

- Business opportunities for alternative sources of grid security will be undermined by the policy decision of building gas plants through a capacity market which is totally lacking a level playing field between projects of new gas generation – awarded 15-years-long capacity remuneration – and demand response initiatives.
- A national grid operator (TSO) with enough programmable capacity directly connected to its grid and to its control system will have hardly any incentive to develop demand response, batteries and distributed generation as providers of flexibility. This is already apparent in Italy where the engagement on demand response in the ancillary services markets is seriously lagging behind other EU markets.

Finally, Enel itself is warning about the risk of carbon-lock in. In its European "#WattAchange"-campaign, it states explicitly:[38]

> "2050 is just one investment cycle away and therefore the reduction of our current emissions must be driven exclusively through efficient and zero emission energy sources, **if we want to avoid the effects of carbon lock in**. Fossil fuels and low-carbon gases are not the solutions to successfully achieve the challenge of the Green Deal. **Cost benefit analysis are always in favor of renewables, if we consider environmental costs and abatement of residual CO_2 for "low carbon" solutions.** As IRENA puts it, renewable power generation is becoming the default economic choice for new capacity." *(emphasis added)*

[38] CSR Europe, "Enel: WattAChange Campaign on the Benefits of End-Use Electrification", 19/08/2021, https://www.csreurope.org/newsbundle-articles/enel-wattachange-campaign-on-the-benefits-of-end-use-electrification.

b) Risk of volatile electricity prices

The more the Italian electricity system continues to rely on fossil gas generation, the longer it will be exposed to induced volatility. Moreover, as the oil and gas sector is in a capacity reduction phase (towards eventual full decommissioning), gas price spikes might be more frequent in the future and they might become sharper due to reduced dimension and liquidity of that industry.

The recent surge in fossil gas prices has demonstrated the huge risks associated with dependence on imported fossil gas for electricity generation. It is not economically or politically viable to increase exposure to volatile global fossil fuel markets by installing new gas capacity in Italy.

EMBER's analysis below show that skyrocketing fossil gas prices push up cost of Italian electricity.

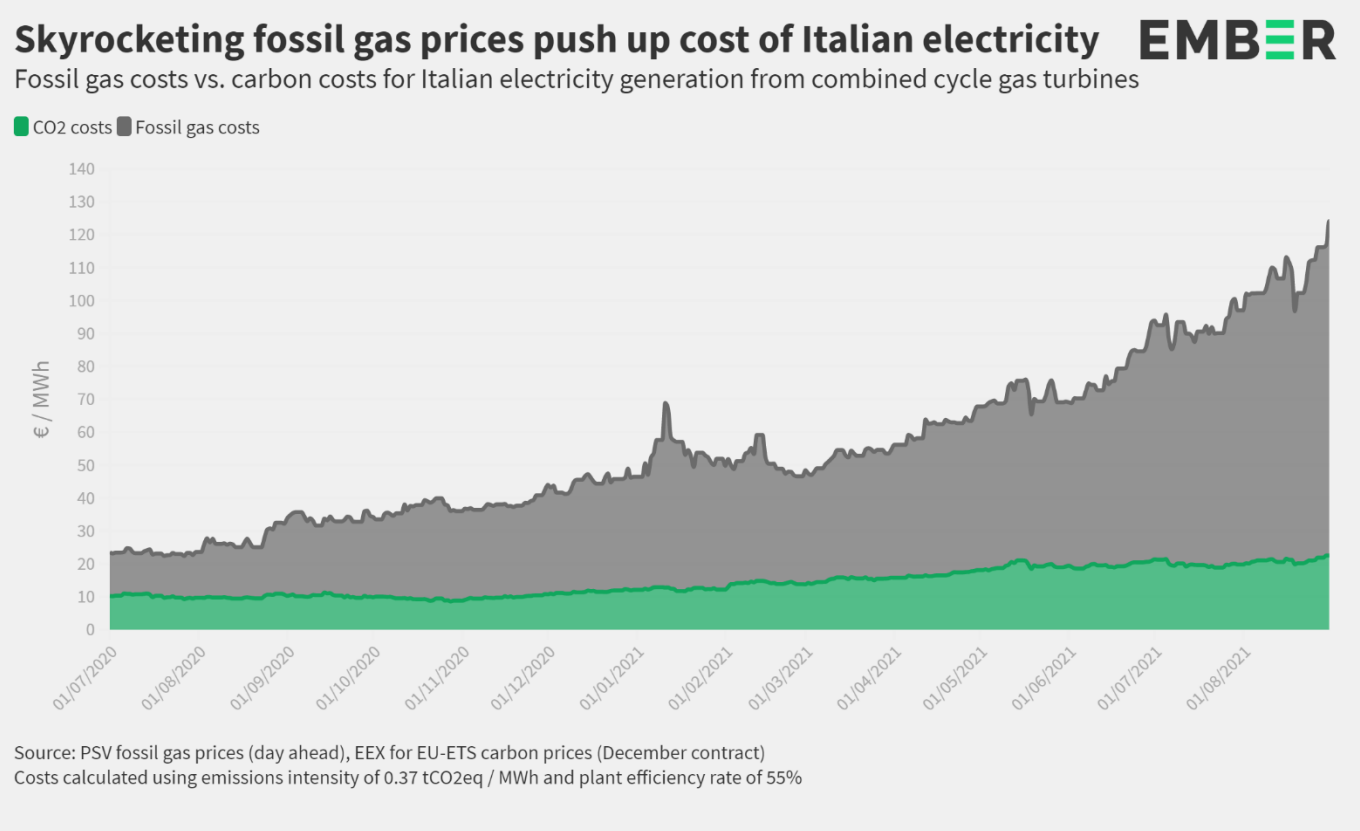

Figure 3a. Source: Ember, 2021

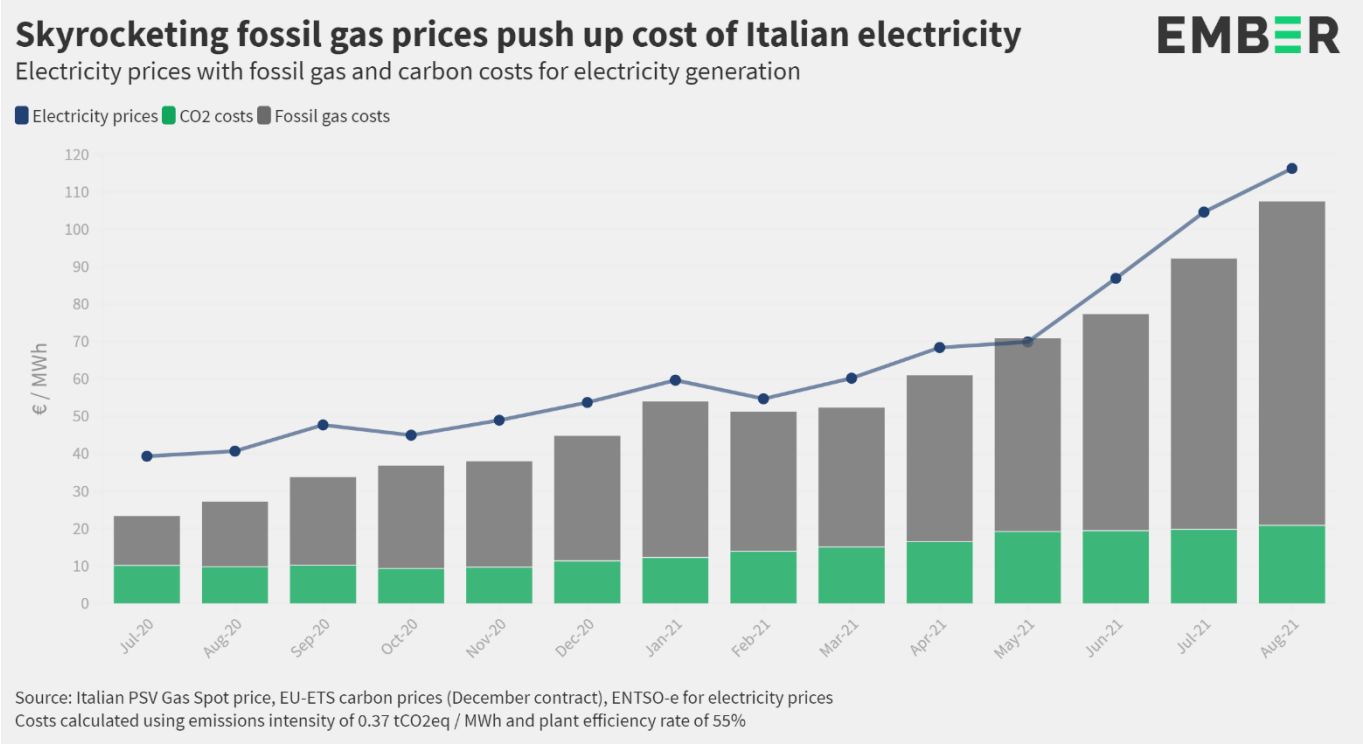

Figure 3b. Source: Ember, 2021

3. New gas pipeline: significant impacts in terms of economy (stranded costs), environment, health and safety

As part of the power plant project "Federico II", the construction of a new underground pipeline, called *"Allacciamento Centrale ENEL di Brindisi Sud DN 500 (20") - 75 bar"*, is planned to ensure the supply of natural gas to Enel's plant. This pipeline will have a length of about 6.7 km (NW-SE direction), and for its construction excavations in the ground will be carried out to a maximum depth ranging between 2.2 m and 3.8 m.

Such new asset will exacerbate the considerable overinvestment in fossil gas grids, which has already been observed in Italy so far. This shows how the continuous growth of network investments, which are remunerated in the tariffs and repaid by all gas users throughout their energy bills, follows a complete decoupling with the current stagnant consumption trend. Furthermore, according to the network code, the gas connection of the new gas plant would impact the gas transmission tariff paid by all gas customers, and only for a residual (if any) part exceeding a standard amount provided for in the code itself would be directly paid by Enel. In other words, **the new gas plant would increase the fixed energy costs for all customers not only in terms of power tariffs but also in terms of gas tariffs.**

Excursus: Environmental, health and safety impacts of the new gas pipeline

In response to MiTE's request of clarification, Enel estimated an amount of soil and rocks to reuse equal to about 47,494 m^3 (53% of the total volume of digging equal to 88,941 m^3). The remaining volume (47% and not just 12% as estimated originally) must be managed as waste and sent for disposal/recovery. Part of the new pipeline site falls, in fact, in an agricultural area characterized

by a high risk of potential contamination ("I Lotto"). An environmental characterization campaign, carried out in the period 2005-2006, showed exceedances of the limit concentrations for some Metals (Tin, Beryllium, Arsenic, Vanadium, Cobalt, Copper, Cadmium, Nickel and Mercury), Pesticides and Hydrocarbons C>12 in soils and for Manganese, Nickel and Selenium in groundwater. For this reason, soil and rocks produced by excavations in this agricultural area cannot be reused[39].

Although Enel claims that the gas pipeline will not have relevant interferences on environmental media (e.g., absence of interferences with soil and groundwater reclamation activities), it is worth noting that project construction can potentially expose workers to the following risks: (i) inhalation of potentially contaminated dust; (ii) ingestion of potentially contaminated soil and groundwater; (iii) dermal contact of potentially contaminated soil and groundwater. Given this, a detailed assessment of chemical risks results to be necessary[40].

In addition, as assessed by Enel, the new pipeline will negatively affect the environment, especially during the construction phase. Lineside equipment ("impianti di linea") will particularly have negative impacts, classified as "medium", on biodiversity (fauna and ecosystem), soil and subsoil, groundwater and landscape[41]. The planned "P.I.L." ("Punti di Intercettazione di Linea") will generate permanent negative changes of land use, natural ecosystem and agricultural land. Furthermore, during construction phase there is a contamination risk for the superficial groundwater, as it ranges between 2 and 6 meters[42].

Finally, Enel analysed the effects of micropollutant emissions and assessed the impacts on the atmosphere and air quality generated by the new gas plant, by carrying out simulations on specific monitoring points representing places with high population density. It emerged that, on the one hand, there are positive reductions in NO_2, NO_x, PM_{10} and $PM_{2.5}$ emissions, while on the other, there are no significant reductions in CO emissions and an increase in NH_3 emissions (from 2.66 to 7.44 µg/m^3 in the maximum daily average concentration). We shall notice that air pollutant emissions result to be already lower the legal limit level in the reference scenario, which describes the state-of-the-art with the current coal power plant[43].

[39] CESI, "Relazione di non interferenza del progetto d'installazione del metanodotto, denominato "Allacciamento Centrale ENEL di Brindisi Sud DN 500 (20") – 75 bar", con le matrici ambientali (suolo, sottosuolo e acque sotterranee) – Revisione 1", https://va.minambiente.it/it-IT/Oggetti/MetadatoDocumento/525407, page 31.
[40] CESI, "Relazione di non interferenza del progetto d'installazione del metanodotto, denominato "Allacciamento Centrale ENEL di Brindisi Sud DN 500 (20") – 75 bar", con le matrici ambientali (suolo, sottosuolo e acque sotterranee) – Revisione 1", page 30.
[41] Snam, "Chiarimenti e integrazioni di competenza Snam Rete Gas", https://va.minambiente.it/it-IT/Oggetti/MetadatoDocumento/525423, pages 9-18.
[42] Snam, "Risposte alle Richieste di Integrazioni contenute nel parere n. 8610 del 17/07/2020", https://va.minambiente.it/it-IT/Oggetti/MetadatoDocumento/525404, pages 5-12.
[43] CESI, "Centrale Termoelettrica Federico II di Brindisi Sud: Progetto di sostituzione delle unità a carbone esistenti con nuove unità a gas. Addendum – configurazione 1+1", https://va.minambiente.it/it-IT/Oggetti/MetadatoDocumento/525412, pages 65-67.

II. Adverse climate impacts contradicting decarbonisation targets

This section outlines the climate impacts of the proposed project, in light of the considerations to be taken into account under Environmental Impact Assessment ("**EIA**") law. In particular, Enel presents its coal to gas conversion as a more environmental and climate friendly solution compared to coal power plants (see also page 7 of the Non-Technical Summary)[44]. However, after the Italian coal phase-out by 2025, the comparison of environmental impacts should not be made between coal-fired power plants that are shutting down and new gas-fired plants that are operating after the 2025 coal phase-out.[45] Enel does not consider sufficiently that the actual comparison must be made between the impacts of a fossil gas power plant and the impacts when the plant is just not being built.

Furthermore, next to the impacts of carbon dioxide (**CO_2**) emissions, also methane (**CH_4**) emissions occurring in industrial processes related to fossil gas (during exploration, production, processing, transmission and storage, liquefaction, and distribution), shall be assessed in an EIA. This has been completely ignored by Enel in its EIA documentation. In any case, building another gas plant in Italy like the proposed project would contradict (updated) national, European and international climate targets.

Legal background

The wording of the EIAD indicates that it has a wide scope and a broad purpose. All the more, an "overall assessment of the environmental impact of projects" is needed.[46] Annex IV, No. 5, sub-para. 2 explicitly states:

> "The description of the likely significant effects on the factors specified in Article 3(1) should cover the **direct effects and any indirect, secondary, cumulative, transboundary, short-term, medium-term and long-term, permanent and temporary, positive and negative effects** of the project. This description should **take into account the environmental protection objectives established at Union or Member State level** which are relevant to the project." *(emphasis added)*

[44] Enel, "Sintesi non Technica", 29/11/2019, https://va.minambiente.it/en-GB/Oggetti/MetadatoDocumento/402888, page 7.
[45] See also clarification by the European Investment Bank, "EIB Project Carbon Footprint Methodologies", July 2020, https://www.eib.org/attachments/strategies/eib_project_carbon_footprint_methodologies_en.pdf, page 11: "This baseline definition differs in general from an evaluation of emissions 'before and after' the investment. (…) If the project is designed to replace a life-expired asset, a ''before and after'' approach would use previous emissions as the baseline. However, this approach would lack credibility in many cases if, for example, the existing asset is life expired and could not have continued over the course of the asset life of the proposed project." Since the phase-out of coal by 2025 has already been decided, it is clear that this life-expired technology can no longer be a reference. EIB's methodologies are one of several sources for EIA guidance.
[46] "[O]verall assessment of the environmental impact of project", see e.g. Abraham and Others, C-2/07, EU:C:2008:133, paragraph 32 and 42 as well as European Union, "Environmental Assessments of Plans, Programmes and Projects – Rulings of the Court of Justice of the European Union", 2020, https://ec.europa.eu/environment/eia/pdf/EIA_rulings_web.pdf, page 28.

Climate change impact – including up- and downstream impacts

The EIA procedure requires that upstream and downstream impacts be considered. In this context, EU guidance on EIA Report notes:[47]

> "The EIA should include an assessment of the direct and indirect greenhouse gas emissions of the Project, where these impacts have been deemed significant: direct greenhouse gas emissions generated through the Project's construction and the operation of the Project over its lifetime (e.g. from on-site combustion of fossil fuels or energy use); **greenhouse gas emissions generated or avoided as a result of other activities encouraged by the Project (indirect impacts)** e.g. Transport Infrastructure (…)" *(emphasis added)*

This guidance also supports use of **a lifecycle assessment** ("**LCA**") to consider a project's overall direct and indirect emissions balance.[48]

The European Commission notes that an LCA is an internationally standardised methodology which helps to quantify the environmental pressures related to goods and services (products), the environmental benefits, the trade-offs and areas for achieving improvements taking into account the full life-cycle of the product. An LCA should include an "estimation of indicators of the environmental pressures in terms of e.g. climate change".[49]

Also EU guidance on integrating climate change and biodiversity into EIA emphasises that LCA is particularly useful when assessing impacts and informing the consideration of alternatives by identifying the most significant elements of a project in terms of climate change. It **can include the assessment of material being used**.[50]

A recent ruling in France gives an example that the upstream climate impacts of a feed stock (here: palm oil) to an industrial installation (here: refinery operated by Total) has to be assessed in an EIA. This is a very comparable example to the need to assess upstream climate impacts when using fossil gas a feed stock to a power plant. In particular, the French administrative court states:[51]

> "46. However, it results from the investigation that in the current state of scientific knowledge, the use of palm oil for the production of biofuels has negative impacts on the environment, in particular on the climate and biodiversity, and is recognized as such by institutions at both the national and Community levels. The production of palm oil causes a risk of "indirect land use change", the so-called "ICSF effect", which occurs when crops are cultivated for the production of biofuels. This

[47] See publications of the European Commissions, "Environmental Impact Assessment of Projects Guidance on the preparation of the Environmental Impact Assessment Report", 2017, https://op.europa.eu/en/publication-detail/-/publication/2b399830-cb4b-11e7-a5d5-01aa75ed71a1, page 39.
[48] "Environmental Impact Assessment of Projects Guidance on the preparation of the Environmental Impact Assessment Report", page 40.
[49] European Commission, "European Platform on Lifecycle Assessment (LCA)": https://ec.europa.eu/environment/ipp/lca.htm.
[50] European Commission, "Guidance on Integrating Climate Change and Biodiversity into Environmental Impact Assessment", 2013, http://ec.europa.eu/environment/eia/pdf/EIA%20Guidance.pdf, page 57.
[51] See Tribunal Administratif de Marseille, Jugement N°1805238, 01/04/2021, http://marseille.tribunal-administratif.fr/A-savoir/Communiques-Selection-de-decisions/Jugement-du-tribunal-administratif-n-1805238-sur-la-requete-des-associations-Les-amis-de-la-terre-France-et-autres-contre-la-decision-prefectorale-autorisant-la-societe-Total-raffinage-France-a-poursuivre-l-exploitation-de-la-raffinerie-de-La-Mede, paragraph 46, 50.

occurs when cultivation for biofuels, bioliquids and biomass fuels displaces traditional food and feed crops, **and this additional demand increases pressure on the land and can result in the expansion of agricultural land into areas with high carbon stocks, such as forests, wetlands and peatlands, leading to increased greenhouse gas emissions.**"

"50. Given the impact on the climate that the use of palm oil in the production of biofuels is likely to generate and the substantial quantities likely to be used for the operation of the La Mède biorefinery**, the impact assessment of the project should therefore include an analysis of its direct and indirect effects on the climate, a notion that cannot be understood in a strictly local manner within the immediate perimeter of the project.**" *(original in French, emphasis added)*

Climate change impacts – including long-term, cumulative and transboundary impacts

The European Commission highlights several times the complex nature of climate change and the potential of projects to cause long-term impacts and consequences as well as cumulative effects that have to be considered when integrating climate change into the EIA.[52] The Commission also says to base recommendations "**on the precautionary principle** and acknowledge assumptions and the limitations of current knowledge; (…) **Assess climate change** and e.g. biodiversity **synergies and cumulative effects**, which can be significant." *(emphasis added)*.[53]

The project's emissions and their cumulative climate change-related effects together with emissions from other oil and gas projects should be incorporated into the EIA. Information about the climate-related cumulative impacts of the up- and downstream emissions of projects is necessary for the government to make informed decisions concerning an individual project's impact on limiting global warming to 1.5°C. An assertion that the cumulative impacts of a project would be impossible to quantify is not accurate, particularly in the context of the world's remaining "carbon budget" and the production gap. A position that no individual project could be associated with significant, long-term, permanent and negative climate change-related environmental effects because its emissions are not significant compared to global emissions is also not consistent with the evolving international consensus concerning cumulative climate-related impacts.

When looking at the climate impacts of the proposed project, the EIA process requires to assess greenhouse gas emissions occurring during the operation of the plant (such as carbon dioxide) as well as during the up-, mid- and downstream process (such as methane).

[52] European Commission, "Technical guidance on the climate proofing of infrastructure in the period 2021-2027", 2021, https://ec.europa.eu/clima/sites/default/files/adaptation/what/docs/climate_proofing_guidance_en.pdf, pages 74 and 76; European Commission, "Environmental Impact Assessment of Projects Guidance on the preparation of the Environmental Impact Assessment Report", 2017, https://op.europa.eu/en/publication-detail/-/publication/2b399830-cb4b-11e7-a5d5-01aa75ed71a1, page 50; "Guidance on Integrating Climate Change and Biodiversity into Environmental Impact Assessment", 2013, http://ec.europa.eu/environment/eia/pdf/EIA%20Guidance.pdf, page 10.

[53] "Technical guidance on the climate proofing of infrastructure in the period 2021-2027", 2021, page 77. The latest IPCC Report just highlighted once more that climate change is bringing multiple different changes in different regions, see IPCC, "Climate change widespread, rapid, and intensifying – IPCC", August 2021, https://www.ipcc.ch/2021/08/09/ar6-wg1-20210809-pr/.

1. CO_2 emissions (combustion)

Enel estimates its greenhouse gas (GHG) emissions solely on the basis of CO_2 emissions (see page 23 of the document “Integrazioni e chiarimenti”). However, when assessing its CO_2 emissions, the following has to be considered:

The gas conversion project of “Federico II” of Brindisi foresees the construction of a combined cycle (CCGT) that, in final setup, should have a power of about 1680 MWe, while in ENEL’s document "Integrazioni e chiarimenti" it is even stated that: "it could undergo an increase from the 1680 MWe preliminarily indicated up to 1730 MWe to take into account the further technological development underway for the new class H gas turbines." *(original in Italian)*. It is also recalled how the project involves first the realization in succession of 2 OCGT units of 560 MW for 1120 MWe, then completed with the CCGT that brings the total power at least on the already mentioned 1680 MWe.

Assessing the amount of CO2 emissions of the plant is extremely complex since it is necessary to take into account simultaneously the possible operational modalities of the plant and the set-up (OCGT or CCGT), i.e. its efficiency and obviously the number of hours of operation. To be clear: if it were only a CCGT plant with base load operation, precise preliminary estimates of CO_2 emissions would be much simpler; but in particular because of the almost modular characteristics of the plant, it is only possible to make various scenarios that interpolate the various data to provide indicative annual emission levels. However, particularly because of the flexible characteristics of the plant, these scenarios should be taken with a certain degree of caution.

For example, if a CCGT plant operates at full power (1680 MWe) and with an efficiency of about 61%, i.e. with an emission factor of about 330 gCO_2/kWh (data declared by the company compatible with literature data), and if it operates of about 5000 h/y, it would emit over 2.77 $MtCO_2$/y.

If the plant operates as a peaker, i.e. operating at open cycle, with an efficiency of about 41% and therefore with specific emissions of about 491 gCO_2/kWh (data provided by ENEL consistent with literature data), and operates between 1500 and 2000 h/y with a single OCGT unit, it would emit between 0.41 and 0.55 $MtCO_2$. If both OCGTs were to operate for the same number of hours, annual emissions would be between 0.82 and 1.1 $MtCO_2$. In reality, the data in open-cycle operation could be even higher because the specific emissions are calculated with continuous operation, while a peaker tends to have many plant shutdowns and restarts that generally worsen its performance.

However, it should be noted that usually a plant like the one in question, due to its technical characteristics (2 gas turbines + steam cycle) and to possible different network requirements, could operate at certain times as a CCGT but at many other times as a simple OCGT when, for example, network demands are lower and it would be mainly used to cover peaks. Moreover, the possibility of having two OCGT units allows the plant a remarkable scalability.

When talking about greenhouse gas emissions, however, it is necessary to consider not only CO_2 emissions, but also CO_2 equivalents (CO_2eq), i.e. considering the fugitive emissions of CH_4 in the pre-combustion phases (see below, Part II.2). The values used above (330 and 491 gCO_2/kWh) refer, in fact, only to the combustion phases and with optimal operation of the plant. This way of reasoning leads to significantly underestimate the pre-combustion data and often the same values reported in the literature are not adequate to describe the problem, both because they often underestimate the extent of fugitive emissions of CH_4, and because they attribute a lower weight in terms of real GWP (Global Warming

Potential). For example, a warming potential of about 30 is rather arbitrary, or rather it is a figure that fits with the 100-year horizon (GWP100), but does not take into account the fact that the GWP for methane over 20 years (GWP20) is about 83 times higher than that of CO_2.[54] All this leads to further underestimation of the impacts, especially in view of the need for urgent action to address ongoing climate change.

Finally, it needs to be noted that Enel did only assess its climate impacts until 2030 (page 23/24 of the document "Integrazioni e chiarimenti"). However, as described above, GHG emissions generated by the project have to be assessed over its lifetime.[55] The lifetime of the project in question will exceed 2030 and continue in the following years where the trend of GHG emissions has to be reduced to achieve climate neutrality by 2050. At least, Enel intends to run this plant for 15 years according to the Italian Capacity Market contracts, going well beyond 2030.

2. Methane emissions (upstream and midstream)

Pursuant to the EIA requirements to consider indirect impacts, the midstream and upstream emissions associated with the proposed project contributing to climate change should be assessed. The following shows that, based on the most up-to-date science of midstream and upstream impacts from gas developments, there are strong grounds for the Ministry for Ecological Transition to reject planning consent for the project, based on its unacceptable climate impacts. As stated above, Enel did not assess any methane emissions in the new documents provided as part of the "Integrazioni e chiarimenti", which have already been strongly underestimated in the documentation previously presented.

Before gas is combusted, large quantities of greenhouse gas emissions (chiefly methane, carbon dioxide and nitrous oxide) occur at different points in the supply chain. The quantity of these indirect emissions varies depending on the region from which gas has been sourced, the technology applied, and the distance and manner in which gas is transported.

Methane is a highly potent greenhouse gas which increases global warming at a rate 83 times higher than carbon dioxide over a 20 year period.[56] **This means that, over the short- and medium-term, methane is far more climate-damaging than carbon dioxide.**

Methane leakages occur during exploration, production, processing, transmission and storage, liquefaction, and distribution.[57]

[54] IPCC Sixth Assessment Report, "Climate Change 2021: The Physical Science Basis" (Document is subject to final copy-editing), August 2021, https://www.ipcc.ch/report/ar6/wg1/downloads/report/IPCC_AR6_WGI_Full_Report.pdf, Table 7.15 7-125.
[55] "Environmental Impact Assessment of Projects Guidance on the preparation of the Environmental Impact Assessment Report", page 39.
[56] IPCC Sixth Assessment Report, "Climate Change 2021: The Physical Science Basis" (Document is subject to final copy-editing), August 2021, https://www.ipcc.ch/report/ar6/wg1/downloads/report/IPCC_AR6_WGI_Full_Report.pdf, Table 7.15 7-125.
[57] IEA, "Methane from Oil and Gas: Overview", https://www.iea.org/reports/methane-tracker-2020/methane-from-oil-gas; Joannes D. Maasakkers et al., "2010–2015 North American methane emissions, sectoral contributions, and trends: a high-resolution inversion of GOSAT observations of atmospheric methane", *Atmospheric Chemistry and Physics*, 2021; 21 (6): 4339 DOI, 10.5194/acp-21-4339-2021; Maazallahi, H. et al, "Methane mapping, emission quantification, and attribution in two European cities: Utrecht (NL) and Hamburg (DE)", *Atmospheric Chemistry and Physics*, 2020; 20, 14717–14740, https://doi.org/10.5194/acp-20-14717-2020.

Enel's application for this project does not specify exactly where the fossil gas that would be used in the proposed project, if built, would be sourced from. This is very important information for the public and public authorities to give proper consideration to the environmental impacts of the project. While we do not have this information, we will assume the gas will be sourced from similar countries of origin to Italy's overall gas supply (93% of the gas is imported[58]). This would mean substantial quantities would be sourced, for example, from Russia, Algeria, Azerbaijan, the United States. The below table sets out the International Energy Agency (**IEA**)'s estimated methane emissions from gas exploration and production in those countries, the total gas produced in those countries, and, where available, the methane intensity of that gas (based on data from Oxford University's Institute for Energy Studies).

Country	**Estimated total emissions from upstream gas in 2020[59] (kilotonnes)**	**Global natural gas production in 2020[60] (billion cubic meters)**	**Methane intensity[61] (kg CO_2-eq/boe)**
Russia	7316	638.5	34
Algeria	1142	81.5	56
Azerbaijan	93	25.8	Figure not available
Qatar	492	171.3	10
US	5603	914.6	21

Table 1. Estimated methane emissions from exploration and production of some gas exporters to Italy

These estimates only account for exploration and production. It should be emphasised that significant amounts of methane are emitted through other parts of the supply chain (including transportation) and also that specific supply chains differ. **Factoring transportation emissions into account, the overall upstream emissions intensity would very likely be considerably higher.**[62]

Particular in Italy, the **Clean Air Task Force** has proved methane emissions (that are normally invisible) at various installations. The non-profit environmental organization is filming methane pollution in, inter alia, Italy with an optical gas imaging (OGI) camera to locate leaks and emissions that are released into the atmosphere.[63] Inter alia, they **found the following emissions at sites in the central/southern parts of Italy**[64]:

- Continuous emissions from pressure relief vent at the TAP Interconnection Terminal Masseurs Capitano operated by Snam (11-12 April 2021).

[58] MITE, LA SITUATZIONE ENERGETICA NAZIONALE NEL 2020, July 2021.
[59] IEA, "Methane Tracker 2020", https://www.iea.org/reports/methane-tracker-2020.
[60] BP, "Statistical Review of World Energy", https://www.bp.com/en/global/corporate/energy-economics/statistical-review-of-world-energy.html.
[61] Jonathan Stern, "Methane Emissions from Natural Gas and LNG Imports: an increasingly urgent issue for the future of gas in Europe", November 2020, *Oxford Institute for Energy Studies,* page 19.
[62] See, for example, reports of large methane leaks from pipelines: Aaron Clark and Dina Khrennikova, "Huge Methane Leak Spotted by Satellite Came From Gazprom Pipeline", 18 June 2021, *Bloomberg*: https://www.bloomberg.com/news/articles/2021-06-18/gazprom-admits-to-massive-methane-leaks?sref=tghVnhKl.
[63] See Clean Air Task Force, 2021, https://cutmethane.eu/the-basics-of-optical-gas-imaging/.
[64] For more sites being looked at in Italy in April 2021: Clean Air Task Force on Youtube, 24 June 2021, https://www.youtube.com/watch?v=xyVpZtxrXC0&list=PLKH65C8nX1i9jCPj_uEV5Ci5itkUXP98o&index=1. For sites being looked at elsewhere in Europe, see https://cutmethane.eu/.

- Three sources of methane emissions, from central relief vent, tank vent and compressor vent, at Centrale Gas Garaguso operated by Edison (10 April 2021).
- Significant emissions from two tanks at Compressor Station Melizzano operated by Snam (09 April 2021).
- Three sources of methane emissions, two tanks venting continuously, vent pipe with continuous, high velocity emission and venting from unlit, central flare at Fiume Treste Underground natural gas storage field operated by Snam/Stogit (14 April 2021).
- Two leaks from pipeline equipment at Snam Metering Station next to Eni Central Gas in Candela Gathering facility (12 April 2021).
- Venting from three metering boxes (small to medium, high velocity, continuous) at Blocking Station Moliterno (gas pipeline Station) operated by Snam (09 April 2021).

These **examples** are not exhaustive, but they **confirm once more that methane emissions are a very frequent problem for gas plants and infrastructures**.

Consistent with the guidelines set out above, the EIA should include an assessment of all significant direct and indirect greenhouse gas emissions of the project. The indirect emissions "generated or avoided as a result of other activities encouraged by the Project" clearly include the significant quantities of methane emitted as a result of gas demand from European gas plants such as the one proposed in the application.

The project applicant might also argue that upstream and midstream emissions are too uncertain to be given serious consideration in determining whether the project should be permitted. In this regard, we would urge the Ministry for Ecological Transition to take into account the most up-to-date science in this area, where independent scientific studies consistently show that methane emissions from the gas supply chain are far higher than what is being reported by companies and governments.[65] The emissions calculations by the historically-conservative IEA for the key gas exporting countries relevant to the project are orders of magnitude higher than what those countries have reported to the UNFCCC. For example, for Russia, the IEA's estimate of total gas supply chain methane emissions in 2020 are more than double the amount that country reported to the UNFCCC.[66] In 2020 the Qatari government underestimated that country's gas-related methane emissions by more than eight times the IEA estimates.[67] Emissions reported by the Algerian and United States governments are also significantly less than the IEA's estimates. The project applicant should be required to clearly specify the quantum of such methane emissions that the project would produce.

It is also not sufficient for the applicant to rely on notions that the project's midstream and upstream emissions would not make a material contribution to climate change by itself. Climate science has now progressed to the point where the highest courts accept that individual fossil fuel projects are the major cause of climate change. The onus is on the project applicant to quantify clearly what the indirect and direct climate impacts of this project would be, in light of up-to-date, independent science.

Application of the precautionary principle

Without prejudice of the above, in the unlikely event that the Ministry for Ecological Transition is minded to consider the proposed project's emissions too uncertain to make an assessment of the project's likely

[65] European Commission, 2000, COM (2000) 1 final.
[66] IEA, "Methane Tracker 2020", https://www.iea.org/articles/methane-tracker-database.
[67] IEA, "Methane Tracker 2020", https://www.iea.org/articles/methane-tracker-database.

impacts, we would urge them to consider the application of the precautionary principle to this situation (as also stated by the European Commission).[68] The principle is incorporated into EU law through Article 191(2) of the TFEU, which provides that:

> "Union policy on the environment shall aim at a high level of protection taking into account the diversity of situations in the various regions of the Union. It shall be **based on the precautionary principle and on the principles that preventive action should be taken**, that environmental damage should as a priority be rectified at source and that the polluter should pay." *(emphasis added)*

The precautionary principle is derived from the 1992 Rio Declaration on Environment and Development, which states that: "Where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation".[69]

In the Communication on the Precautionary Principle, the European Commission clarified that:[70]

> "Recourse to the precautionary principle presupposes that potentially dangerous effects deriving from a phenomenon, product or process have been identified, and that scientific evaluation does not allow the risk to be determined with sufficient certainty. The implementation of an approach based on the precautionary principle should start with a scientific evaluation, as complete as possible, and where possible, identifying at each stage the degree of scientific uncertainty."

The Commission also notes the need for "reasonable grounds for concern" about potential risks.

As elaborated on below, applying the principle, it is clear that the continued emissions of vast quantities of methane from the fossil gas supply chain would have potentially dangerous effects deriving from the phenomenon of the greenhouse effect which causes catastrophic climate change. Because scientific assessment does not allow for a precise determination of all risks associated with such emissions, application of the precautionary approach is even more important.

Potentially dangerous effects

The Intergovernmental Panel on Climate Change ("**IPCC**"), in its latest report on the state of climate science, highlighted the importance of human-caused methane emissions in climate change outcomes.[71] The IPCC noted that it is likely that changes in short-lived climate pollutant (such as methane) emissions will cause additional temperature rise of between 0.06°C and 0.35°C by 2040 compared to 2019 temperatures. Given the global temperature rise from anthropogenic climate change is already around 1.1°C, and that the IPCC has highlighted 1.5°C of warming as being the threshold beyond which catastrophic climate change is likely to result, methane emissions have a significant bearing on climate

[68] European Commission, "Technical guidance on the climate proofing of infrastructure in the period 2021-2027", 2021, https://ec.europa.eu/clima/sites/default/files/adaptation/what/docs/climate_proofing_guidance_en.pdf, pages 77 et seq.
[69] United Nations Environment Programme, 1992.
[70] European Commission, "Commission adopts Communication on Precautionary Principle", 02/02/2000, https://ec.europa.eu/commission/presscorner/detail/en/IP_00_96.
[71] IPCC, "Climate change widespread, rapid, and intensifying – IPCC", August 2021, https://www.ipcc.ch/2021/08/09/ar6-wg1-20210809-pr/.

outcomes to 2050.[72] Another way of putting this is that while methane offers the last best "low-hanging fruit" for emissions mitigation, it also could cause immense harm if continued emissions levels continue.[73] The fossil fuel industry, including the gas supply chain, is one of the major contributors to climate change, and reducing those emissions could dramatically reduce the risk of runaway climate change.[74]

Scientific evaluation does not allow precise determination of the risks

While the IPCC identifies methane as a contributor to potentially dangerous levels of global warming, the exact atmospheric effects of continued methane emissions from fossil fuel projects such as the proposed project cannot be precisely determined. This is partly because the rate at which methane breaks down in the atmosphere depends on complex chemical reactions, which depend on the rate of other greenhouse gas emissions. For example, scientists have noted that "whilst the main driver of atmospheric methane increases since 1850 is emissions of methane itself, increased ozone precursor emissions [such as from air pollutants] have significantly modulated (in general reduced) methane trends".[75] This means that, if there are significant reductions of those precursor emissions due to, for example, policy changes to reduce air pollution, atmospheric methane concentrations could increase, which could cause higher levels of warming. **This makes the application of the precautionary principle even more important.**

3. Other relevant emissions

It shall be noted that the present report focuses only on the CO_2 emissions when burning gas and methane emissions in the up- and midstream process. It is important to highlight that there are more GHG emissions and climate impacts to be considered. E.g. methane can also occur at the plant site itself.[76] Downstream emissions are also relevant, i.e. the transportation and delivery to end consumers, to mention few examples. Also here, for any uncertainty of data, the precautionary principle is applicable. Therefore, the focus of Enel in its note "Integrazioni e chiarimenti" just on CO_2 emissions during the first part of the plant's lifetime (until 2030) do not satisfy the requirements of an EIA.

[72] IPCC, "Climate Change 2021: the physical science basis", page TS-68; Fiona Harvey, "Reduce methane or face climate catastrophe, scientists warn", 6 August 2021, *The Guardian*: https://www.theguardian.com/environment/2021/aug/06/reduce-methane-or-face-climate-catastrophe-scientists-warn.
[73] United Nations Environment Programme, and Climate and Clean Air Coalition, "Global Methane Assessment: Benefits and Costs of Mitigating Methane Emissions", 2021, https://www.unep.org/resources/report/global-methane-assessment-benefits-and-costs-mitigating-methane-emissions.
[74] United Nations Environment Programme, and Climate and Clean Air Coalition, "Global Methane Assessment: Benefits and Costs of Mitigating Methane Emissions".
[75] David S. Stevenson et al, "Trends in global tropospheric hydroxyl radical and methane lifetime since 1850 from AerChemMIP", 2019, *Atmospheric Chemistry and Physics* at https://acp.copernicus.org/preprints/acp-2019-1219/acp-2019-1219.pdf.
[76] "Observations of Methane Emissions from Natural Gas-Fired Power Plants", Environ. Sci. Technol. 2019, 53, 15, 8976–8984, https://pubs.acs.org/doi/10.1021/acs.est.9b01875.

4. Contradicting climate targets

The European Commission's guidance on climate proofing of infrastructure stresses key criteria on climate mitigation for the EIA, in particular:[77]

> "Infrastructure investments should be aligned with the goals of the **Paris Agreement** and compatible with a credible pathway to net zero GHG emissions scenario and climate neutrality by 2050. Furthermore, investments in infrastructure projects should do no significant harm to other **EU environmental objectives** such as the sustainable use and protection of water and marine resources, the transition to a circular economy, waste prevention and recycling, pollution prevention and control and the protection of healthy ecosystems" *(emphasis added)*

An EIA (its baseline report and its assessment of alternatives) has to take into account "relevant **greenhouse gas reduction targets at the national, regional, and local levels**" and the extent to which the project and its alternatives would **contribute to these targets**.[78]

Also, the Ministry for Ecological Transition is asking Enel how it wants to comply with energy transition targets (No. 1(a) di "Richiesta integrazioni CTVA"). Enel is, inter alia, referring to the Italian National Energy and Climate Plan (NECP) of December 2019. While in principle, NECPs are one of the strategic documents to consider, the situation in the present case shows instead:

First, building a new gas power plant in Brindisi is not in line with the objectives of the Italian NECP. Due to the capacity market contracts already signed for 2022 and 2023, covering 5.8 GW,[79] the target of 5.4 GW of Terna's Adequacy Report has already been exceeded, thus almost double the amount required by the NEPC to offset the effect from increase in demand, decommissioning of oil-fired power plants and the coal phase-out. The presence of another gas power plant exceeds this amount even more.

Second, the NECP itself is flawed and too unambitious to achieve European and international climate targets: According to an analysis of Ember, **Italy would be one of the EU countries falling furthest behind in decarbonising its electricity by 2030**.[80] Following the pathway of the plan, Italy would be one of the EU countries most reliant on fossil fuels for electricity and **planning the largest expansion of fossil gas use in the electricity sector in the EU between 2018 and 2025**, driven by its switch from coal to gas. "Italy's deployment of renewable electricity between 2018 and 2030 is below the EU-27 average and is insufficient to make significant progress on its current high share of fossil fuels in the electricity mix. By 2030 Italy will be responsible for around 10% of the EU-27's power sector emissions and will be the third biggest power sector emitter."[81]

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[77] European Commission, "Technical guidance on the climate proofing of infrastructure in the period 2021-2027", 2021, https://ec.europa.eu/clima/sites/default/files/adaptation/what/docs/climate_proofing_guidance_en.pdf, page 77.
[78] European Commission, "Environmental Impact Assessment of Projects Guidance on the preparation of the Environmental Impact Assessment Report", 2017, page 39.
[79] See also Carbon Tracker, page 25.
[80] Ember, "Vision or Division? What do National Energy and Climate Plans tell us about the EU power sector in 2030?", Country factsheet Italy, November 2020, https://ember-climate.org/wp-content/uploads/2020/11/NECP-Factsheet-Italy.pdf (English), https://ember-climate.org/wp-content/uploads/2020/11/NECP-Factsheet-Italy-Versione-italiana-.pdf (Italian).
[81] "Vision or Division? What do National Energy and Climate Plans tell us about the EU power sector in 2030?", Country factsheet Italy, November 2020.

Third, the **new European Climate Law** has entered into force,[82] increasing the ambition to reduce GHG emissions by at least 55 % by 2030 compared to 1990 levels (instead of -40 %) and agreeing on climate neutrality by 2050. Hence, **the current Italian NECP is out to date in any case**. The upcoming legislative files of the "Fit For 55 % package"[83] will define even more specific objectives and obligations. Therefore, the NECP will have to be reviewed and amended, including, inter alia, further reduction of greenhouse gas emissions. This work in progress should not be hindered by giving a development consent for a new climate damaging and avoidable fossil fuel installation. **The new gas power plant could risk the achievements of the new targets before even being specified in the updated NECP.**

In fact, Enel delivers a second scenario in the document "Integrazioni e chiarimenti", trying to take into consideration the new European GHG reduction target. In the scenario of major decarbonisation presented by Enel for 2030, the remarkable forecast of a gas-fired thermoelectric production of 100 TWh remains, inconsistent with a scenario of complete decarbonisation of the electricity sector at 2050.

It needs to be stressed that 100 TWh of gas power by 2030 – including its GHG emissions in particular of CO_2 and methane – contradicts the latest information how to achieve the objective of the Paris Agreement.

The **UNEP Emissions Gap Report 2020** shows clearly:[84]

> "Government pledges under the Paris Agreement, known as Nationally Determined Contributions (NDCs), are still woefully inadequate. Predicted emissions in 2030 leave the world **on the path to a 3.2°C increase this century**, even if all unconditional NDCs are fully implemented." *(emphasis added)*

The latest **Intergovernmental Panel on Climate Change (IPCC)** Report foresees already faster warming. It finds that "unless there are immediate, rapid and large-scale reductions in greenhouse gas emissions, limiting warming to close to 1.5°C or even 2°C will be beyond reach."[85]

The **International Energy Agency's (IEA) Net Zero by 2050 report** underscores the need to phase out oil and gas production. To be consistent with a 1.5°C warming scenario, it makes the unequivocal finding that, "no new oil and natural gas fields are required beyond those that have already been approved for development [in 2021]."[86] When it comes to electricity generation in particular, the IEA shows the Global electricity generation by source in the Net-Zero Emissions Scenario (NZE), showing that the generation using natural gas without carbon capture has to fall drastically by 2030 and is 90% lower by 2040 compared

[82] Regulation (EU) 2021/1119 of the European Parliament and of the Council of 30 June 2021 establishing the framework for achieving climate neutrality and amending Regulations (EC) No 401/2009 and (EU) 2018/1999.
[83] See also European Parliament, Legislative train schedule, https://www.europarl.europa.eu/legislative-train/theme-a-european-green-deal/package-fit-for-55.
[84] UNEP, "Key messages of United Nations Environment Programme (UNEP)", Emissions Gap Report, 2020, https://wedocs.unep.org/xmlui/bitstream/handle/20.500.11822/34461/EGR20KM.pdf?sequence=17; full report: https://www.unep.org/emissions-gap-report-2020. The current set of NDCs is subject to review ahead of COP26 in Glasgow November 2021. The EU has formally submitted to the UN its new targets of at least 55 % GHG reduction by 2030 compared to 1990 levels, see https://data.consilium.europa.eu/doc/document/ST-14222-2020-REV-1/en/pdf.
[85] IPCC, "Climate change widespread, rapid, and intensifying – IPCC", August 2021, https://www.ipcc.ch/2021/08/09/ar6-wg1-20210809-pr/.
[86] International Energy Agency, "Net Zero by 2050 A Roadmap for the Global Energy Sector", 2021, https://iea.blob.core.windows.net/assets/20959e2e-7ab8-4f2a-b1c6-4e63387f03a1/NetZeroby2050-ARoadmapfortheGlobalEnergySector_CORR.pdf, para 4.3.1.

with 2020.[87] Furthermore, "[i]n the NZE, CO_2 emissions from electricity generation fall to zero in aggregate in advanced economies in the 2030s. They fall to zero in emerging market and developing economies around 2040."[88] Italy as one OECD country is of course already one of the advanced economies.[89]

The IEA's report shows that "[t]here is a significant shift from the NZE from using coal- and gas-fired power plants for the provision of flexibility to the use of renewables, hydrogen, battery storage and demand-side response",[90] and the decrease of CO_2 intensity of electricity generation (up to negative emissions).[91] Italy as a high-income country and part of OECD has to consider that in light of the principle of "**common but differentiated responsibilities**", which is a cornerstone of the international legal regime governing national action on climate change, it is required to take on greater responsibility for mitigating climate change. Given this responsibility, Italy has to speed up its national targets and any updated NECP needs to be more ambitious than 100 TWh by 2030.

Adding new GHG emissions (including CO_2 and CH_4), by authorizing a new – avoidable[92] – fossil fuel power plant for a (long) time after the coal phase-out has already happened, does not contribute to climate targets at any level.

[87] "Net Zero by 2050 A Roadmap for the Global Energy Sector", 2021, pages 115 (Figure 3.10), 116 and 101 (Figure 3.2).
[88] "Net Zero by 2050 A Roadmap for the Global Energy Sector", 2021, page 114.
[89] "Net Zero by 2050 A Roadmap for the Global Energy Sector", 2021, page 212.
[90] "Net Zero by 2050 A Roadmap for the Global Energy Sector", 2021, page 117 (see also Figure 4.18 for figures for advanced economies).
[91] "Net Zero by 2050 A Roadmap for the Global Energy Sector", 2021, page 200 (Table A.5).
[92] In this regard, see Part I.

III. Conclusions: decarbonisation should not entail switching to gas

The present *Energy & Climate Report* shows that there is no justification to build a new power plant emitting climate damaging greenhouse gases.

The EIAD (transposed into Italian Law by D.Lgs. 152/2006) requires prior assessment of climate impacts of the proposed development, which implies describing the scenario in the absence of the project and comparing it with the scenario in which the project or other alternatives are implemented.

Part I shows that there is **no risk of energy security** in the absence of the proposed plant, which can be replaced by cheaper, climate-friendly alternatives. After all, energy supply is not being affected by the phase-out of coal-fired power generation that is already underway. In addition, insisting on gas-fired plants generates overinvestment in fossil-fuel plants through public money that will further **delay decarbonisation**.

Part II outlines the direct and indirect **adverse climate impacts** of the proposed plant as required in an EIA. Compared to the baseline scenario, these are new direct greenhouse gas emissions (**CO_2 in combustion phase**) and indirect greenhouse gas emissions (**CH_4 in pre-combustion phase**), which would also lead to a contradiction of international and European decarbonisation goals that Italy has to comply with.

In light of the above, the Ministry for Ecological Transition is asked to reject the application submitted by Enel. In fact, it has been clearly demonstrated that it is not possible to give development consent to the proposed project of converting "Federico II" in Brindisi from a coal power plant into a fossil gas power plant.