Before going through the content of each specific Project Fiche, please read the introduction document.

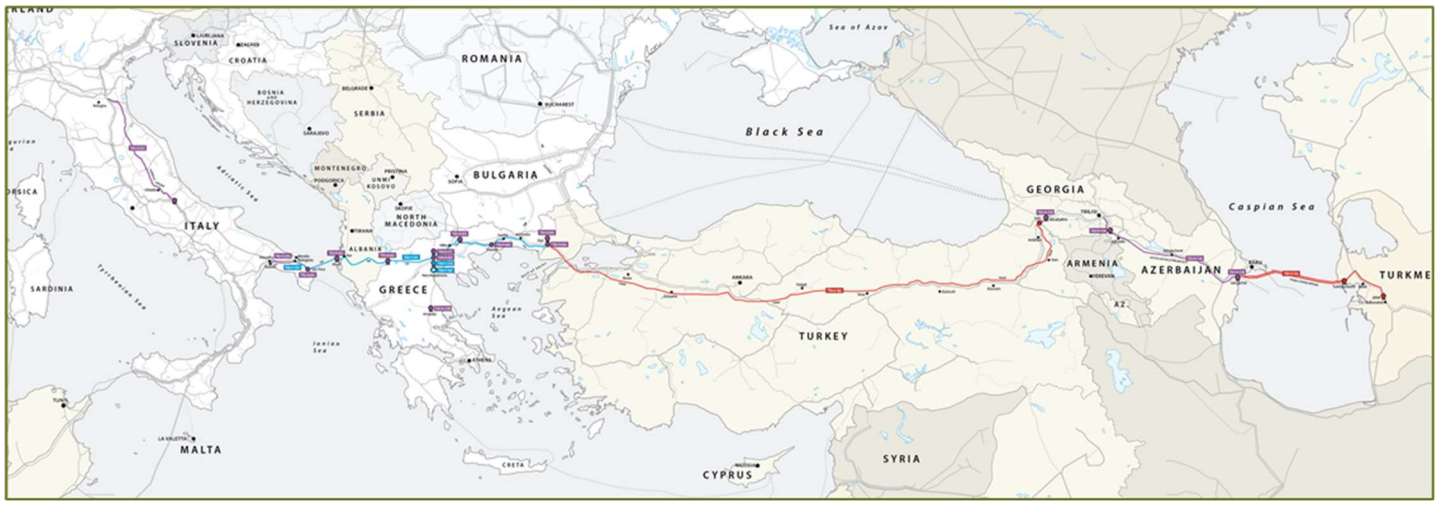
Project Group SGC_03B - Trans Caspian pipeline + Azeri Supply Chain with expansion projects (including enhancer project IAP)

Reasons for grouping [ENTSOG]

This project group includes the projects part of the Expansion of the Southern Gas Corridor. Corridor starting point is Turkmenistan, allowing through Trans Caspian Pipeline and South Caucasus Pipeline Future Expansion (SCPFX) gas supplies from the Caspian Sea (Azerbaijan and Turkmenistan) and transported to Europe through TANAP and TAP and their respective expansion pipelines (TANAP X and TAP X).
This project groups also includes the necessary developments in the Italian and Greek transmission networks to ensure flows from Caspian Region to Europe. In addition, this project group also includes IAP pipeline, allowing Caspian supplies to arrive to Croatia, Albania, Bosnia and Herzegovina and Montenegro.

Objective of the project(s) in the group [Promoter]

The Group aims at improving the security of supply and diversification of the internal energy market by bringing new additional natural gas supplies from the Caspian region (Shah Deniz field, other fields in Azerbaijan, as well as Turkmenistan) to South East Europe enhancing gas flows through the expansion of TAP and via the development of Italian infrastructures allowing to both serve the Italian market and spread these benefits towards overall Europe. The Group also provides a platform to foster gas to gas competition in European gas market and supports, among others, the establishment of a gas market in Albania, Croatia, Bosnia and Herzegovina and Montenegro and the gasification of other areas, such as Albania and the southern part of Croatia.




GEORGIA
Caspian Sea
TBILISI
TRA-N-1138
Vale
Akhaltsikhe
Ardahan
Aghstafa
Mingachevir
SOUTH CAUCASUS PIPELINE (SCP)
TRA-N-1138
TANAP
Kars
ARMENIA
AZERBAIJAN
BAKU
TRA-N-1138
TRA-A-339
TRANS-CASPIAN PIPELINE
TURKMEN
YEREVAN
Sangachal
Turkmenbeshi
Belek
TANAP
Erzurum
Jebel
Balkanabat
AZ.


GEORGIA
TBILISI
TRA-N-1138
Vale
Akhaltsikha
TRA-N-810
Kipi
TRA-N-810
TRA-N-1138
Aghstafa
Ardahan
TANAP
Kars
ARMENIA
YEREVAN
Saros
Bursa
TANAP
ANKARA
Yozgat
TRA-A-782
Eskişehir
Sivas
Erzincan
TANAP
Erzurum
TANAP
AZ
TURKEY


Bologna
AND
HERZEGOVINA
SERBIA
SARAJEVO
Split
Zagvozd
Ploče
TRA-A-068
MONTENEGRO
PODGORICA
PRIST
UNMI
KOSOVO
TRA-N-007
ADRIATICA PIPELINE
L'Aquila
Adriatic Sea
ITALY
TIRANA
MA
TRA-A-068
ALBANIA
TRA-N-1195
Massafra
Brindisi
Mataglola
Tarantò
TRA-F-1193
San Foca
TRA-N-810
TRA-N-810
Fier
Vlorë
TRA-A-1303
TAP
Tyrrhenian Sea
GR
Ionian
Sea


BUCHAREST
ERBIA
PRISTINA
UNMI
KOSOVO
SOFIA
BULGARIA
SKOPJE
NORTH
MACEDONIA
IRANA
BANIA
TRA-N-810
TRA-F-051
TRA-N-971
TRA-N-810
TRA-F-1276
TRA-F-941
Nea Messimvria
Kilkis
TRA-N-810
Kavala
Xanthi
Komotini
TRA-N-810
Kipi
TRA-N-810
Gulf of Saros
Bursa
GREECE
TRA-N-1278
Ampelia
Aegean
Sea

Projects constituting the group

TYNDP Project Code	Project Name	Promoter	Hosting Country	Project Status	4th PCI List Code	First Comm Year	Last Comm. Year	Compared to TYNP 2018
TRA-F-51	Trans Adriatic Pipeline	Trans-Adriatic Pipeline	GR	FID	7.1.3	2020	2020	Commissioned
TRA-N-0007	Development for new import from the South (Adriatica Line)	Snam Rete Gas S.p.A.	IT	Less-Advanced	7.3.4	2026	2026	Rescheduled
TRA-A-0068	Ionian Adriatic Pipeline	Plinacro Ltd	HR	Advanced	-	2023	2025	Rescheduled
TRA-A-0339	Trans-Caspian	White Stream	TM	Advanced	7.1.1	2022	2023	Rescheduled
TRA-F-0941	Metering and Regulating station at Nea Messimvria	DESFA S.A.	GR	FID	7.1.3	2020	2020	Commissioned
TRA-F-1193	TAP interconnection	Snam Rete Gas	IT	FID	7.1.3	2020	2020	Commissioned
TRA-N-0971	Compressor station at Nea Messimvria	DESFA S.A.	GR	Less-Advanced	7.1.3	2023	2023	On time
TRA-N-1138	South Caucasus Pipeline Future Expansion (SCPFX)	Socar Midstream	AZ	Less-Advanced	7.1.1	2024	2024	Rescheduled
TRA-N-1195	Matagiola - Massafra pipeline	Snam Rete Gas	IT	Less-Advanced	7.3.4	2026	2026	Rescheduled
TRA-F-1276	Compressor station at Nea Messimvria (3rd unit)	DESFA S.A.	GR	Less-Advanced	-	2022	2022	On time
TRA-N-1278	Compressor station at Ambelia	DESFA S.A.	GR	Less-Advanced	-	2023	2023	On time
TRA-N-810	TAP Expansion	Trans Adriatic Pipeline	GR	Less-Advanced	-	2025	2025	Not applicable
TRA-A-0782	TANAP X- Expansion of Trans Anatolian Natural Gas Pipeline Project	Socar	TR	Less-Advanced	7.1.1	2025	2025	On time

Technical Information

TYNDP Project Code	Diameter [mm]	Length [km]	Compressor Power [MW]
TRA-A-0068	800	180	-
TRA-A-0068	800	110	-
TRA-A-0068	800	250	1
TRA-A-0339	915	300	350
TRA-A-0782	1442	1347	125
TRA-A-0782	1219	460	70
TRA-F-51	900	105	-
TRA-F-51	1200	773	90
TRA-F-0941	-	1	-
TRA-F-1193	1400	55	-
TRA-F-1276	-	-	8
TRA-N-0007	1200	430	33
TRA-N-810	-	-	275
TRA-N-0971	-	-	7
TRA-N-1138	1219	93	80
TRA-N-1195	1400	80	-
TRA-N-1278	-	-	20

Capacity Increment

The capacity increment values for each project are provided at all related Interconnection points (IP), both for "exit" and "entry" directions, being indicated the operator of the IP as well as the associated commissioning years of the capacity increments.

This information is presented in the table below and should be read per each line as follows: a certain project, TRA-N-123, can bring at a specific "Point Name" operated by "Operator X" an "exit" capacity increment "From System Y" "To System Z" which has associated an "Increment Commissioning Year". Equally, for the same "Point Name" and operated by the same "Operator X", an "entry" (reverse) capacity increment can be available to system "Y" from system "Z" which at its turn has associated an "Increment Commissioning Year".

TYNDP Project Code	Point Name	Operator	From System	Exit Capacity [GWh/d]	Increment Comm. Year 1	To System	Entry Capacity [GWh/d]	Increment Comm. Year 2
TRA-A-339	TCP/SCP	W-Stream Caspian Pipeline Company OU	Transmission Turkmenistan	505	2022	Transmission South Caucasus Pipeline Azerbaijan	0	-
TRA-A-339	TCP/SCP	W-Stream Caspian Pipeline Company OU	Transmission Turkmenistan	505	2023	Transmission South Caucasus Pipeline Azerbaijan	0	-
TRA-A-68	Ionic-Adriatic Pipeline - IAP / AB	Plinacro Ltd	Transmission Ionic-Adriatic Pipeline Croatia	33.3	2025	Transmission Albania	0	-
TRA-A-68	Ionic-Adriatic Pipeline - IAP / ME	Plinacro Ltd	Transmission Ionic-Adriatic Pipeline Croatia	16.6	2025	Transmission Montenegro	0	-
TRA-A-68	Ionic-Adriatic Pipeline - IAP / Split - HR	Plinacro Ltd	Transmission Croatia	116.6	2025	Transmission Ionic-Adriatic Pipeline Croatia	0	-
TRA-A-68	Ionic-Adriatic Pipeline - IAP / Split - HR	Plinacro Ltd	Transmission Croatia	0	-	Transmission Ionic-Adriatic Pipeline Croatia	83.2	2023
TRA-A-68	Ionic-Adriatic Pipeline - IAP Entry	Plinacro Ltd	Transmission Ionic-Adriatic Pipeline Croatia (TAP-IAP Interconnection)	0	-	Transmission Ionic-Adriatic Pipeline Croatia	166.5	2025
TRA-A-68	Trans-Adriatic Pipeline (TAP) / Ionic-Adriatic Pipeline (IAP)	Plinacro Ltd	Transmission Trans-Adriatic Pipeline Albania	0	-	Transmission Ionic-Adriatic Pipeline Croatia (TAP-IAP Interconnection)	166.5	2025
TRA-A-782	Kipi (TR) / Kipi (TAP)	TANAP TSO	Transmission Trans-Anatolian Pipeline Turkey	286	2025	Transmission Trans-Adriatic Pipeline Greece	0	-
TRA-A-782	Türkgözü	TANAP TSO	Transmission South Caucasus Pipeline Georgia	0	-	Transmission Trans-Anatolian Pipeline Turkey	286	2025
TRA-F-1193	Melendugno - IT / TAP	Snam Rete Gas S.p.A.	Transmission Italy (PSV) (Southern Projects)	158	2020	Transmission Trans-Adriatic Pipeline Albania	509	2020
TRA-F-1276	Nea Mesimvria	DESFA S.A.	Transmission Greece	32.4	2022	Transmission Trans-Adriatic Pipeline Greece	32.4	2022
TRA-F-51	Kipi (TR) / Kipi (TAP)	Trans-Adriatic Pipeline AG	Transmission Trans-Adriatic Pipeline Greece	331	2020	Transmission Trans-Anatolian Pipeline Turkey	350	2020
TRA-F-51	Komotini - TAP / IGB	Trans-Adriatic Pipeline AG	Transmission Trans-Adriatic Pipeline Greece	142	2020	Transmission Interconnector Greece-Bulgaria Bulgaria	0	
TRA-F-51	Melendugno - IT / TAP	Trans-Adriatic Pipeline AG	Transmission Trans-Adriatic Pipeline Albania	291	2020	Transmission Italy (PSV) (Southern Projects)	272	2020

TRA-F-51	Nea Mesimvria	Trans-Adriatic Pipeline AG	Transmission Trans-Adriatic Pipeline Greece	142	2020	Transmission Greece	142	2020
TRA-F-941	Nea Mesimvria	DESFA S.A.	Transmission Trans-Adriatic Pipeline Greece	0	-	Transmission Greece	49.2	2020
TRA-N-1138	Türkgözü	SOCAR Midstream Operations	Transmission South Caucasus Pipeline Georgia	150.7	2024	Transmission Trans-Anatolian Pipeline Turkey	0	-
TRA-N-1195	Melendugno - IT / TAP	Snam Rete Gas S.p.A.	Transmission Trans-Adriatic Pipeline Albania	0	-	Transmission Italy (PSV) (Southern Projects)	310	2026
TRA-N-1195	Otranto - IT / IGI Poseidon	Snam Rete Gas S.p.A.	Transmission ITGI Poseidon Greece	0	-	Transmission Italy (PSV) (Southern Projects)	310	2026
TRA-N-1278	Nea Mesimvria	DESFA S.A.	Transmission Greece	32.4	2023	Transmission Trans-Adriatic Pipeline Greece	32.4	2023
TRA-N-7	Italy Mezzogiorno Import Fork	Snam Rete Gas S.p.A.	Transmission Italy (PSV) (Southern Projects)	0	-	Transmission Italia (PSV)	264	2026
TRA-N-810	Komotini - TAP / IGB	Trans-Adriatic Pipeline AG	Transmission Trans-Adriatic Pipeline Greece	0	2025	Transmission Interconnector Greece-Bulgaria Bulgaria	0	2025
TRA-N-810	Melendugno - IT / TAP	Trans-Adriatic Pipeline AG	Transmission Trans-Adriatic Pipeline Albania	292	2025	Transmission Italy (PSV) (Southern Projects)	0	2025
TRA-N-810	Nea Mesimvria	Trans-Adriatic Pipeline AG	Transmission Trans-Adriatic Pipeline Greece	0	2025	Transmission Greece	0	2025
TRA-N-810	Kipi (TR) / Kipi (TAP)	Trans-Adriatic Pipeline AG	Transmission Trans-Anatolian Pipeline Turkey	0	-	Transmission Trans-Adriatic Pipeline Greece	233	2025
TRA-N-971	Nea Mesimvria	DESFA S.A.	Transmission Greece	49.2	2023	Transmission Trans-Adriatic Pipeline Greece	0	-

B. Project Cost Information

During the TYNDP 2020 Project Data Collection, promoters were asked to indicate whether their costs were confidential or not. The following tables display the costs provided by the promoters (as of June 2019, end of TYNDP 2020 project collection). The amounts provided can differ from the figures used by the project promoters in other contexts, where costs can be updated and/or evaluated using different methodologies or assumptions. For the purposes of this project fiche, in case promoters identified their costs as confidential, alternative costs have been provided by the promoter. The alternative costs are identified with "*".

	TRA-A-339	TRA-A-68	TRA-A-782	TRA-F-1193	TRA-F-1276	TRA-F-51	TRA-F-941	TRA-N-1138	TRA-N-1195	TRA-N-1278	TRA-N-7	TRA-N-810	TRA-N-971
CAPEX [min, EUR]	1500	576	750	183	15	4500	12	1047.5	240	65	1384	1035	30
OPEX [min, EUR/y]	16	10.37	150	0.1	0.8	55	0.2	34.6	0.11	2.4	4.4	50	0.4
Range CAPEX (%)	30	0	10	10	25	0	10	10	30	25	30	50	10
Range OPEX (%)	30	0	10	10	25	0	25	10	30	25	30	50	25

Total	SGC_03b
Total CAPEX [min, EUR]	**11337.5**
Total OPEX [min, EUR/y]	**324.77**

Description of costs and range [Promoter]

Costs represent best estimations available to project promoters at the moment of TYNDP 2020 call for projects (start of June 2019) or they are just forecasts and the actual results may differ from the forecasted amounts. Since 2019, further detailed analysis has been carried out and costs appraisals might have been changed. CAPEX ranges take into account the maturity of the projects and the cost contingencies which could reasonably be anticipated at the moment of TYNDP 2020 data collection.

C. Project Benefits

C.1 Summary of project benefits

This section provides a summarised analysis by ENTSOG of the main benefits stemming from the realisation of the overall group and according to the guidelines included in the ENTSOG 2nd CBA Methodology. More details on the indicators are available in sections D and E.

National Trends

Benefits explained (but Sustainability) [ENTSOG]

> Security of Supply:

The project group **increases remaining flexibility** in Italy and Greece from 2025 under all climatic stress cases and infrastructure levels and also in Croatia in all infrastructure levels and in Slovenia in the existing infrastructure level from 2030, thanks to the implementation of the Ionian-Adriatic pipeline that is included in this group. In addition, and to a lower extent, the project group **increases the remaining flexibility** in France, Germany, and Netherlands under peak-day climatic stress case, as with the implementation of the project group Italy need less cooperation.

Regarding the supply route disruptions:
In case of **Algerian pipe disruption**, in the existing infrastructure level, the project group **fully mitigates the risk of demand curtailment** in Croatia, Italy and Slovenia in 2025 during peak-day climatic stress conditions and in Italy and Malta in 2025 in the advanced infrastructure level.

Regarding disruptions of the main infrastructure:
In the case of **SLID-Greece**, in the existing infrastructure level, the project group **reduces the risk of demand curtailment** in Greece from 2025. This situation improves with the implementation of FID and advanced infrastructure, reaching slightly lower curtailment rates in the low infrastructure level and **full mitigation of the risk of demand curtailment** in North Macedonia and Greece in 2040 in the advanced infrastructure level. Greece and North Macedonia cooperate and share the risk of demand curtailment in the advanced infrastructure level, thanks to the realization of the interconnection between these both countries.
In case of **SLID-Austria**, the project group **fully mitigates the risk of demand curtailment** in Austria, Italy, Slovenia and Switzerland in the existing infrastructure level and in Italy and Slovenia in the low infrastructure level in 2025.
Thanks to the connection between TAP pipeline and IAP pipeline, which allows the project group to **fully mitigate the risk of demand curtailment** in Croatia from 2025 in the existing infrastructure level in case of disruption of gas infrastructure, such as **SLID-Croatia.**

> Competition:

By enabling the connection of Europe to a new supply sources from the Caspian Region, the project group realisation also allows to **reduce the dependence from the two main supply sources: Russia and LNG.** In the case of Russian dependence, the project group significantly reduces the dependence for South-East and Central Europe in the existing infrastructure level and these benefits are further spread in the low and advanced infrastructure levels among almost all European countries.
In the case of LNG dependence, the project group reduces the dependence for almost whole Europe in all infrastructure levels. There is no impact on LNG dependence in 2040 because almost no country show dependence in that year.

Thanks to the implementation of the project group, South European countries (such as Italy, Greece, North Macedonia, Croatia, and Slovenia) **can now have access to Caspian gas (both Azerbaijan and Turkmenistan supplies)** in the existing infrastructure level. The project group increases the cooperation in the area and improves diversification of supply sources, while increasing the access to Caspian gas. The fact that the Commercial Source Access indicator (CSA) does not always show an increase in the number of supply sources for these countries is consequence of the standard threshold applied by ENTSOG to all the supply sources.
In low and advanced infrastructure level more countries display access to this new source. This thanks to the realisation of projects included in these two infrastructure levels.

Furthermore, by increasing the access to the new supply source in some European countries (i.e. Greece, Italy, North Macedonia, Croatia), the project group is also improving the overall availability of the existing supply sources in South-East Europe, and therefore, increasing access to LNG, Norwegian and Algerian gas supplies in Southern Europe for all infrastructure levels.
Also, by further reducing the LICD indicator value, the projects group significantly contributes to the diversification of entry points (precondition for competition and arbitrage) in Greece thanks to the bidirectionality of TAP project (Greece could receive gas from Italy).

> **Market integration:**

The project group has a **significant positive impact in terms of supply cost savings** for Europe.

In the reference supply price configuration this can be estimated around 526 MEur/y (on average) in the existing infrastructure level. Such benefits are driven by the fact that the project allows some European countries to connect to new supply sources of gas from Azerbaijan. Those benefits are clearly higher in case of cheap South gas supply price configuration, reaching 865 MEur/y (on average) in the existing infrastructure level. Also, in case of expensive LNG supply price configuration, the project group brings additional benefits compared with the reference situation (716 MEur/y on average in the existing infrastructure level). Such benefits are driven by the fact that the project group allows European countries such as Greece, Italy and Croatia, to further benefit from a decrease of Caspian gas price while at the same time to rely on alternative sources in case of more expensive LNG prices.

Project group SGC_03B, thanks to Trans-Caspian Pipeline (TCP) pipeline included in the group that allow flows from additional Caspian sources (such as Turkmenistan). This is particularly evident under the cheap South gas supply price configuration with additional supply cost savings in comparison with group SGC_02A and SGC_02B that can be attributed to the new Caspian supplies arriving to Europe.

While still significant, benefits are lower in the advanced infrastructure levels when compared to the existing and low infrastructure levels. This is related to the composition of the infrastructure levels themselves. In fact, the advanced infrastructure level includes other projects that could allow part of the Caspian gas to flow through Turkey (and up to the limit defined in the supply potential) as well as could enable new national production. Those already contributes to a lower overall cost of gas supply for Europe, leading to reduced benefits in the advanced infrastructure level (358 MEur/y on average in reference case). This reduction effect can be also partially observed already in the low infrastructure level.

Compared to group SGC_03A, the additional benefits in the reference price configuration can be in fact attributed to the Ionian Adriatic Pipeline project IAP (not included in SGC_03A) that allows also Croatia (and neighbouring countries such as Albania) to access to Azeri gas and reducing other more expensive sources (mainly Russian gas), such benefits are higher in the South gas cheap and Russian expensive supply price configurations, as it allows this country to rely on a cheaper source with expensive Russian gas prices. Supply cost savings related to this project mainly happen in the existing infrastructure level, as in the low and advanced infrastructure levels FID and advanced projects commissioned in Croatia (LNG terminal) that will reduce Azeri flows arriving through IAP.

Distributed Energy

Benefits explained (but Sustainability) [ENTSOG]

> **Security of Supply:**

The project group **increases remaining flexibility** in Italy and Greece from 2025 under all climatic stress cases and infrastructure levels, it also **increases remaining flexibility** in Croatia under all climatic stress cases from 2030 in the existing infrastructure level, thanks to IAP pipeline included in this group. In addition, and to a lower extent, the project group also **increases the remaining flexibility** in France, Germany, and Netherlands under peak-day climatic stress case, as with the implementation of the project group Italy need less cooperation. Higher remaining flexibility levels in these countries are reached in the low and advanced infrastructure levels.

Regarding the supply route disruptions:

In case of **Algerian pipe disruption**, in the existing infrastructure level, the project group **fully mitigates the risk of demand curtailment** in Croatia, Italy and Slovenia in 2025 during peak-day climatic stress conditions and in Italy and Malta in 2025 in the advanced infrastructure level.

Regarding disruptions of the main infrastructure:
In the case of **SLID-Greece**, in the existing infrastructure level, the project group **reduces the risk of demand curtailment** in Greece from 2025 and **fully mitigates the risk of demand curtailment** in this country in 2040. This situation improves with the implementation of FID and advanced infrastructure, reaching slightly lower curtailment rates in the low infrastructure level and **full mitigation of the risk of demand curtailment** in North Macedonia and Greece in 2030 in the advanced infrastructure level. Greece and North Macedonia cooperate and share the risk of demand curtailment in the advanced infrastructure level, thanks to the realization of the interconnection between these both countries.
In case of **SLID-Austria**, the project group **fully mitigates the risk of demand curtailment** in Austria, Italy, Slovenia, and Switzerland in the existing infrastructure level and in Italy and Slovenia in the low infrastructure level in 2025.

Thanks to the connection between TAP pipeline and IAP pipeline, the project group to **fully mitigates the risk of demand curtailment** in Croatia from 2025 in the existing infrastructure level in case of disruption of the largest gas infrastructure in this country (**SLID-Croatia** indicator).

> Competition:

By further reducing the LICD indicator value, the project group **contributes to the diversification of entry points** (precondition for competition and arbitrage) in Greece thanks to the bidirectionality of TAP project (Greece could receive gas from Italy).

By enabling the connection of Europe to a new supply source from the Caspian Region, the project group realisation also allows to **reduce the dependence from the two main supply sources: Russia and LNG.** The FID and advanced-status projects considered in each infrastructure level complement the project group and allow to further reduce dependency of LNG and Russian gas in Europe.

In the case of Russian dependence, in the existing infrastructure level, the project group significantly reduces the dependence for Italy, Switzerland in 2025 and 2030, and these benefits are further spread in the low and advanced infrastructure levels among South East and Central Europe. In the low infrastructure level, the project group along with the interconnection between Greece and Bulgaria (IGB) **reduces the Russian gas dependence** mostly in 2025 and 2030 for the South East and Central countries and in 2040 for South East Europe. In the advanced infrastructure level, the project group reduces the dependence for overall Europe in 2025 and 2030. In 2040, there is no dependence of Russian gas in Europe thanks to the higher National Production and lower gas demand assumptions related to Distributed Energy demand scenario.

In the same way, the project group **reduces the dependence to LNG** for almost whole Europe in 2025 and 2030 and for all infrastructure levels. As explained for Russian supply dependence, in 2040 there is no dependence to LNG in Europe, due to the higher National Production and lower gas demand in this demand scenario.

Thanks to the implementation of the project group, South European countries (such as Italy, Greece, North Macedonia, Croatia, and Slovenia) **can now have access to Caspian gas (both Azerbaijan and Turkmenistan supplies)** in the existing infrastructure level. The project group increases the cooperation in the area and improves diversification of supply sources, while increasing the access to Caspian gas. However, the Commercial Source Access indicator (CSA) does not always show an increase in the number of supply sources for these countries, this is linked to the standard threshold applied by ENTSOG to all the supply sources.

In low and advanced infrastructure level more countries display access to this new source. This thanks to the realisation of projects included in these two infrastructure levels.

Moreover, by increasing the access to the new supply source in some European countries (i.e. Greece, Italy, North Macedonia, Croatia), the project group is also improving the overall availability of the existing supply sources in South-East Europe, and therefore, increasing access to LNG, Norwegian and Algerian gas supplies in Southern Europe for all infrastructure levels.

> Market integration:

The project group has a **significant positive impact in terms of supply cost savings** for Europe. The lower benefits compared to National Trend and Global Ambition scenarios is related to a lower level of demand as well as higher level of national production (the latter contributing to decrease the overall cost of European gas supply).

In the reference supply price configuration this can be estimated around 468 MEur/y (on average) in the existing infrastructure level. Such benefits are driven by the fact that the project allows some European countries to connect to new supply sources of gas from Azerbaijan. Those benefits are clearly higher in case of cheap South gas supply price configuration, reaching 777 MEur/y (on average) in the existing infrastructure level. Also, in case of expensive Russian gas price configuration, the project group brings additional benefits compared with the reference situation (586 MEur/y on average in the existing infrastructure level). Such benefits are driven by the fact that the project group allows European countries such as Greece, Italy and Croatia, to further benefit from a decrease of Caspian gas price while at the same time to rely on alternative sources in case of more expensive Russian gas prices.

Project group SGC_03B, thanks to Trans-Caspian Pipeline (TCP) pipeline included in the group allow flows from additional Caspian sources (such as Turkmenistan). This is particularly evident under the cheap South gas supply price configuration whit additional supply cost savings in comparison with group SGC_02A and SGC_02B that can be attributed to the new Caspian supplies arriving to Europe.

While still significant, benefits are lower in the advanced infrastructure levels when compared to the existing and low infrastructure levels. This is related to the composition of the infrastructure levels themselves. In fact, the advanced infrastructure level includes other projects that could allow part of the Caspian gas to flow through Turkey (and up to the limit defined in the supply potential) as well as could enable new national production. Those already contributes to a lower overall cost of gas supply for Europe, leading to reduced benefits in the advanced infrastructure level (350 MEur/y on average in reference case). This reduction effect can be also partially observed already in the low infrastructure level.

Compared to group SGC_03A, the additional benefits in the reference price configuration can be in fact attributed to the Ionian Adriatic Pipeline project IAP (not included in SGC_03A) that allows also Croatia to access to Azeri gas. As explained in National Trends demand scenario, IAP pipeline allows Croatia and neighbouring countries to benefit from cheap Azeri gas whereas to rely on this new source when Russian gas prices are more expensive, and therefore displacing Russian flows arriving to Croatia. Supply cost savings for DE demand scenario related to IAP project are lower than NT, as the latest shows the highest gas demand for this country. Also, these benefits mainly happen in the existing infrastructure level, as in the low and advanced infrastructure levels, FID and advanced projects reduce the flows through IAP pipeline.

Global Ambition

Benefits explained (but Sustainability) [ENTSOG]

> **Security of Supply:**

In GA scenario Greece faces the risk of demand curtailment under no disruption and climatic stress conditions and even higher risk under infrastructure or supply route disruptions. This is explained by the higher gas demand in Greece which is linked to the lower level of electrification assumed in this demand scenario.
The project group **fully mitigates the risk of demand curtailment** in Greece in the existing and low infrastructure levels in 2030 for 2-week dunkelflaute and peak-day climatic stress conditions. In the advanced infrastructure level, together with the implementation of the interconnection Greece-North Macedonia included in this infrastructure level which allows for further cooperation between these two countries and therefore, share the risk of demand curtailment, the **project group fully mitigates the risk of demand curtailment** in North Macedonia and Greece from 2030 for peak-day and 2-weeks dunkelflaute climatic stress conditions.

The project group also **increases the remaining flexibility** of Greece, Italy, Croatia, and North-West European countries in the existing and low infrastructure levels Slovenia (only existing) for peak-day climatic stress case; while for 2-week cold spell and dunkelflaute climatic stress conditions the project group **increases the remaining flexibility** in Greece, Italy and Croatia (in the existing), and in Germany (in the low infrastructure level 2weeks-dunkelflaute).
In the advanced infrastructure level, the project **increases remaining flexibility** in Greece, North Macedonia, Italy, Germany, and United Kingdom for peak-day and in Greece, Italy, and North Macedonia for 2-weeks cold spell and dunkelflaute.

Regarding supply import route disruptions:
In case of **Algerian pipe disruption**, in the existing infrastructure level, the project group **fully mitigates the risk of demand curtailment** in Croatia, Italy and Slovenia in 2025 during peak-day climatic stress conditions. Whereas in the low infrastructure level

the project group **fully mitigates the risk of demand curtailment** in Austria, France, Italy and Slovenia in 2030 and in the advanced level in Italy and Malta in 2025.
In case of Ukrainian route disruption, the project group **fully mitigates the risk of demand curtailment** in 2030 in Czech Republic, Germany, and Luxemburg, and **reduces the risk of demand curtailment** in Italy, Slovenia, and Switzerland.
Regarding disruptions of the main infrastructure:
In the case of **SLID-Greece**, the project group **reduces the risk of demand curtailment** in Greece in the existing and low infrastructure levels, whereas in the advanced level it **fully mitigates the risk of demand curtailment** in Greece and North Macedonia in 2040 and reduces the risk in 2030.
In case of **SLID-Austria**, the project group **fully mitigates the risk of demand curtailment** in Austria, Italy, Slovenia and Switzerland in 2025 (GBC) and 2030 the existing infrastructure level and in Italy and Slovenia in 2025 GBC in the low infrastructure level. In the same way, in case of **SLID-Slovakia**, the project group reduces the risk of demand curtailment in Austria, Czech Republic and Slovakia in 2030 in the existing infrastructure level and fully mitigates this risk in the low infrastructure level.
In case of **SLID-Italy** (Mazara del Vallo, Algerian interconnection), the project group **fully mitigates the risk of demand curtailment** in Italy and Slovenia in 2025 (GBC) in the existing infrastructure level.
Thanks to the connection between TAP pipeline and IAP pipeline, the project group to **fully mitigates the risk of demand curtailment** in Croatia from 2025 in the existing infrastructure level in case of disruption of gas infrastructure such as **SLID-Croatia** and in 2030 under **SLID-Slovenia**.

> **Competition:**

By enabling the connection of Europe to new supply sources from Azerbaijan, the group realisation also allows to **reduce the dependence from the two main supply sources: Russia and LNG.**
More specifically, the project group **reduces the dependence of Russian gas** for South-East (i.e. Italy, Croatia and Slovenia) in the existing infrastructure level and these benefits are further spread in the low and advanced infrastructure levels among South East and Central Europe. The FID and advanced-status projects considered in each level complement the project group, especially the new interconnection between Greece and Bulgaria (IGB) which allows to spread these benefits through South-Eastern Europe.
In the case of LNG dependence, the project group **reduces the dependence of LNG** also for South-East and Central Europe from for all infrastructure levels. In 2040 there is not impact due to the lower demand and higher National Production, almost any country shows dependence from LNG. As in the case of Russian dependence, these benefits are further spread in the low and advanced infrastructure levels among almost whole Europe.

Thanks to the implementation of the project group, South European countries (such as Italy, Greece, North Macedonia, Croatia, and Slovenia) **can now have access to Caspian gas (both Azerbaijan and Turkmenistan supplies)** in the existing infrastructure level. The project group increases the cooperation in the area and improves diversification of supply sources, while increasing the access to Caspian gas. However, the Commercial Source Access indicator (CSA) does not always show an increase in the number of supply sources for these countries, this is linked to the standard threshold applied by ENTSOG to all the supply sources.
In low and advanced infrastructure level more countries display access to this new source. This thanks to the realisation of projects included in these two infrastructure levels.

Furthermore, by increasing the access to the new supply source in some European countries (i.e. Greece, Italy, North Macedonia, Croatia, Slovenia), the project group is also improving the overall availability of the existing supply sources in South-East Europe, and therefore, increasing access to LNG, Norwegian and Algerian gas supplies in Southern Europe for all infrastructure levels.

> **Market integration:**

The project group has a **significant positive impact in terms of supply cost savings** for Europe.

In the reference supply price configuration this can be estimated around 587 MEur/y (on average) in the existing infrastructure level. Such benefits are driven by the fact that the project allows some European countries to connect to new supply sources of gas from the Caspian region. Those benefits are clearly higher in case of cheap South gas supply price configuration, reaching 929 MEur/y (on average) in the existing infrastructure level. Also, in case of expensive LNG supply price configuration, the project group brings additional benefits compared with the reference situation (779 MEur/y on average in the existing infrastructure level). Such benefits are driven by the fact that the project group allows European countries such as Greece, Italy and Croatia, to further benefit from a decrease of Caspian gas price while at the same time to rely on alternative sources in case of more expensive LNG prices.

Project group SGC_03B, thanks to Trans-Caspian Pipeline (TCP) pipeline included in the group allow flows from additional Caspian sources (such as Turkmenistan). This is particularly evident under the cheap South gas supply price configuration whit additional

supply cost savings in comparison with group SGC_02A and SGC_02B that can be attributed to the new Caspian supplies arriving to Europe.

While still significant, benefits are lower in the advanced infrastructure levels when compared to the existing and low infrastructure levels. This is related to the composition of the infrastructure levels themselves. In fact, the advanced infrastructure level includes other projects that could allow part of the Caspian gas to flow through Turkey (and up to the limit defined in the supply potential) as well as could enable new national production. Those already contributes to a lower overall cost of gas supply for Europe, leading to reduced benefits in the advanced infrastructure level (400 MEur/y on average in reference case). This reduction effect can be also partially observed already in the low infrastructure level.

Compared to group SGC_03A, the additional benefits in the reference price configuration can be in fact attributed to the Ionian Adriatic Pipeline project IAP (not included in SGC_03A) that also allows Croatia and neighbouring countries to access to Azeri gas. As explained in National Trends demand scenario, IAP pipeline allows Croatia and neighbouring countries to benefit from cheap Azeri gas whereas to rely on this new source when Russian gas prices are more expensive, and therefore displacing Russian flows arriving to Croatia. Supply cost savings for GA demand scenario related to IAP project are lower than NT, as this last demand scenario shows the highest gas demand for this country, Also, these benefits mainly happen in the existing infrastructure level, as in the low and advanced infrastructure levels, FID and advanced projects reduce the flows through IAP pipeline.

Sustainability benefits explained [ENTSOG]

The ENTSOG analysis shows that, in the yearly assessment, the projects group realisation enhances the replacement of more polluting fuels with natural gas, which enable fuel switch savings between 4.2-15.3 MEUR/y under existing infrastructure level, between 3.8-17.7 MEUR/y under low infrastructure level and between 3.1-15.7 under advanced infrastructure level. The table below shows the related reduction in terms of CO2eq/y for each scenario and infrastructure level and over the 25-years assessment period of the project group. The contribution of the project group to the CO2eq/y emissions (positive number indicate reduction in CO2eq/y emissions) is also displayed for the three simulation configurations that consider different level of tariffs for the project group.

Sustainability		EXISTING			LOW			ADVANCED		
CO2 and Other externalities (KtCO2 eq/y)	Reference	100 / 131	176 / 192	304 / 331	88 / 120	208 / 224	305 / 337	70 / 104	208 / 224	271 / 303
	Lower Tariff Sensitivity	104 / 135	118 / 207	258 / 363	90 / 122	207 / 224	303 / 337	72 / 106	209 / 225	328 / 372
	Higher Tariff Sensitivity	25 / 42	50 / 54	109 / 119	84 / 114	170 / 182	231 / 256	68 / 101	168 / 180	234 / 264

The minimum and the maximum values displayed in the table above refer respectively to the CO2eq/y savings in case emissions from the additional gas demand increase not replacing other more polluting fuels are counted in the overall CO2eq emissions assessment or they are considered neutral. For more information, please consult the Project Fiche introduction document and the TYNDP 2020 Annex D.

Savings have been allocated to the project group based on the flows resulting from ENSTOG simulations under the reference supply price configurations and according to the methodology described in TYNDP 2020 Annex D. Such methodology is also based on the assumption that the use of the infrastructures already included in the different infrastructure levels (versus which the project group is assessed) is always prioritised.
As per project group SGC_03B, the increase in flows compared to group SGC_02 and SGC_01 is limited when considering the situation where Caspian gas is more expensive than in its reference supply configuration (i.e. “South min” supply price configuration). As explained in Annex D, this is was the supply price configuration considered for this PS-CBA.
Compared to project group SGC_03A, project group SGC_03B brings additional benefits in 2030 and under existing infrastructure level. These benefits, up to 0.5 MEUR/y, are linked to fuel switch in Croatia with gas replacing other fuels in the power sector thanks to the implementation of Ionian Adriatic Pipeline, part of the B variant of groups SGC_03.
As per the other project groups concerning the Caspian Supply chain, observing the evolution of benefits among the assessed years (section C.3), in National Trends it can be noted that most of the benefits materialise in the period 2021-2030 with the project

group contributing to fuel switch towards natural gas in Greece, Italy (especially in the power sector) and to a minor extent in Croatia and Bulgaria. The project is assessed by ENTSOG from its first full year of operation, in this case year 2021.
Additional to the benefits observed in the period 2021-2030, in Distributed Energy and Global Ambition scenarios the project group further contributes beyond 2030 to fuel switch in Greece and Italy (fuel switch happening mostly in the transport sector), in Croatia (in transport sector) and in Bulgaria (in the residential and transport sectors).
TYNDP 2020 ENTSOG and ENTSO-E scenario storylines have identified for Distributed Energy and Global Ambition scenarios the need for hydrogen imports to satisfy the hydrogen demand that cannot be covered by European production of hydrogen (e.g. through power-to-gas). In the future, hydrogen demand not satisfied by locally produced hydrogen could be covered by directly imported hydrogen through hydrogen-compatible pipelines and/or by natural gas through natural gas pipelines. In TYNDP 2020 ENTSOG has considered fuel switch benefits from hydrogen import in the form of natural gas import then converted into hydrogen in Europe. For project group SGC_03B, such benefits represent, on average, 60% of the benefits from fuel switch in DE and GA scenarios in 2030 and 2040.

Sustainability benefits explained [Promoter]

In addition to ENTSOG analysis on Sustainability, the promoter complements this analysis with the following country-specific information.
Gas will play an important role in the de-carbonization process in all countries concerned by the project group. First in the power generation sector where, in all countries a phase-out of the generation based on coal/lignite is expected in the present decade, then in the transportation sector with the increase in the use of the CNG in cars and light trucks and of LNG in the heavy duty trucks.
Specifically, gas will play an important role in Italian the decarbonization process, particularly in the power generation sector, where a complete phase-out of coal is expected by 2025 (8 coal power plants of approx. 8 GW will be shut down). Gas will also have a primary role in decarbonizing the transport sector (used in substitution of oil products, with the potential of covering between 20% and 35% of the sector energy demand by 2040, growing from around 2% today) and the industry sector (especially in the processes where high temperature heat is required). Gas will also have a role in the emission reduction of the residential & commercial sector given the gas heat pumps installed for substituting older oil and gas boilers. Similarly, in Greece, the role of natural gas in the transition to lower greenhouse gas emissions will be crucial. At the same time its use can lead to both improved energy efficiency and lower energy costs compared to other conventional technologies.
Particularly, in the power generation, a complete phase out of lignite is expected by 2028 (13 lignite fueled power plants will be shut down and the expected installed capacity for power production from natural gas is expected to increase to approximately 7 GW in year 2030, from current installed capacity of 5,2 GW).
In the transport sector the use of natural gas can be used either in the form of compressed gas (CNG) for passenger cars and light trucks (especially in the cities) or in the form of liquefied natural gas for the transportation by heavy duty trucks, particularly on highways.
Measures for the improvement of energy efficiency of the buildings and the industry sector, include electricity and gas infrastructure, in order to contribute to the reduction of GHG emissions and consequently to their impact on Climate Change.
The development of necessary infrastructure for the transportation and the distribution of natural gas is considered a priority, so that a bigger percentage of end-users to have access to natural gas supply. The quantitative objective for this priority is to increase the direct use of natural gas in the final consumption sectors by at least 50% in year 2030 compared to 2017.

In line with revised EU rules on Trans-European Networks for Energy (the TEN-E Regulation) to better support the modernisation of Europe's cross-border energy infrastructure and achieve the European Green Deal the objectives, the promoters of SCPFX, and TANAP-X pipelines have already conducted desktop study, which comprises different scenarios by means of 2%, 10%, 20%, 30% and more hydrogen blending. The subsequent comprehensive study anticipated to be conduct by involving a competent and experienced company to assess the possible sources of hydrogen along with SGC.

Promoters believe that gas – natural, renewable or decarbonised – will be indispensable to ensure security of supply, reduce Europe’s environmental footprint, improve air quality and support the renewables.

C.2 Quantitative benefits [ENTSOG]

The following tables display all the benefits quantified by ENTSOG through specific indicators and stemming from the realisation of the considered project group. Some of those benefits are measured through quantitative indicators (i.e. SLID and Curtailment rate) and monetised ex-post. Their monetised value is displayed in section E. When assessing those type of benefits, it is important to avoid any double counting considering them both in quantitative and monetised terms.

EXISTING Infrastructure Level – National Trends

	2025						2030			2040		
	CBG			GBC			NT			NT		
Row Labels	WITHOUT	WITH	DELTA	WITHOUT	WITH	DELTA	WITHOUT	WITH	DELTA	WITHOUT	WITH	DELTA
Security of Supply												
Algeria Pipe Disruption Curtailment Rate Peak Day (%)												
Croatia				-2%	-1%	1%						
Italy				-2%	0%	2%						
Slovenia				-2%	0%	2%						
Remaining Flexibility 2-Week Cold Spell (%)												
Croatia							21%	74%	53%	21%	73%	53%
Greece				42%	86%	44%	67%	100%	33%	51%	97%	46%
Italy	36%	43%	7%	30%	36%	7%	75%	93%	17%	58%	73%	16%
Slovenia							71%	100%	29%	67%	100%	33%
Remaining Flexibility 2-Week Cold Spell (%) --- DF												
Croatia							14%	64%	50%	17%	69%	51%
Greece				36%	78%	42%	34%	76%	41%	28%	67%	39%
Italy	35%	42%	7%	28%	35%	7%	72%	89%	17%	55%	69%	15%
Slovenia							57%	100%	43%	61%	100%	39%
Remaining Flexibility Peak day (%)												
Croatia							10%	56%	47%	14%	63%	49%
France				45%	54%	9%				73%	86%	13%
Germany	35%	40%	5%	25%	30%	5%	35%	37%	3%	26%	27%	1%
Greece	47%	92%	45%	20%	57%	37%	26%	65%	39%	22%	60%	38%
Italy	19%	25%	6%	14%	20%	6%	44%	57%	13%	36%	48%	12%
Netherlands	60%	69%	9%	44%	52%	9%				68%	78%	10%
Slovenia							33%	89%	57%	39%	89%	50%
Single Largest Infrastructure Disruption (SLID)-Austria												
Austria				2%	0%	-2%						
Italy				3%	0%	-3%						
Slovenia				4%	0%	-4%						
Switzerland				2%	0%	-2%						
Single Largest Infrastructure Disruption (SLID)-Croatia												
Croatia	35%	0%	-35%	37%	1%	-36%	35%	0%	-35%	35%	0%	-35%
Single Largest Infrastructure Disruption (SLID)-Greece												
Greece	34%	0%	-34%	46%	9%	-37%	43%	4%	-39%	45%	7%	-38%
Single Largest Infrastructure Disruption (SLID)-Italy												
Italy				2%	0%	-2%						
Slovenia				2%	0%	-2%						
Single Largest Infrastructure Disruption (SLID)-Slovenia												
Croatia							25%	0%	-25%	24%	0%	-24%

Row Labels	2025						2030			2040		
	CBG			GBC			NT			NT		
	WITHOUT	WITH	DELTA	WITHOUT	WITH	DELTA	WITHOUT	WITH	DELTA	WITHOUT	WITH	DELTA
Competition												
Commercial Supply Access (CSA)												
Austria										2	3	1
Bosnia Herzegovina										2	3	1
Croatia							2	4	2	2	4	2
Czechia										2	3	1
Denmark										2	3	1
Germany										2	3	1
Romania	2	3	1									
Serbia										2	3	1
Slovakia										2	3	1
Slovenia							3	4	1	2	4	2
Sweden										2	3	1
LNG and Interconnection Capacity Diversification (LICD)												
Greece	10,000	5,124	-4,876	10,000	5,313	-4,687	10,000	5,205	-4,795	10,000	5,079	-4,921
MASD-LNGall												
Austria							8%	4%	-4%	7%	3%	-4%
Belgium							8%	5%	-3%	7%	3%	-4%
Bosnia Herzegovina	12%	9%	-3%				8%	5%	-3%	7%	4%	-3%
Bulgaria	12%	9%	-3%	15%	12%	-3%	8%	4%	-4%	7%	3%	-4%
Croatia	12%	9%	-3%				8%	4%	-4%	7%	3%	-4%
Czech Republic	12%	9%	-3%				8%	4%	-4%	7%	3%	-4%
Denmark	12%	9%	-3%				8%	4%	-4%	7%	3%	-4%
Estonia	12%	9%	-3%	15%	12%	-3%	8%	4%	-4%	7%	3%	-4%
Finland	12%	9%	-3%				8%	4%	-4%	7%	3%	-4%
France	12%	10%	-2%	16%	13%	-3%	8%	5%	-3%	7%	4%	-3%
Germany	12%	10%	-2%				8%	4%	-4%	7%	3%	-4%
Greece	12%	9%	-3%	16%	13%	-3%	8%	4%	-4%	7%	3%	-4%
Hungary	12%	9%	-3%				8%	4%	-4%	7%	3%	-4%
Ireland	12%	9%	-3%				8%	5%	-3%	7%	4%	-3%
Italy				16%	13%	-3%	8%	4%	-4%	7%	3%	-4%
Latvia	12%	9%	-3%	15%	12%	-3%	8%	4%	-4%	7%	3%	-4%
Lithuania	12%	9%	-3%	15%	12%	-3%	8%	4%	-4%	7%	3%	-4%
Luxembourg							8%	5%	-3%	7%	3%	-4%
Netherlands							8%	4%	-4%	7%	4%	-3%
North Noth Macedonia	12%	9%	-3%	15%	12%	-3%	8%	4%	-4%	7%	3%	-4%
Poland	12%	9%	-3%				8%	4%	-4%	8%	4%	-4%
Portugal							9%	7%	-2%	8%	4%	-4%
Romania	12%	9%	-3%	15%	13%	-3%	8%	4%	-4%	7%	3%	-4%
Serbia	12%	9%	-3%				8%	5%	-3%	7%	3%	-4%
Slovakia	12%	9%	-3%				8%	4%	-4%	7%	3%	-4%
Slovenia				16%	13%	-3%	8%	4%	-4%	7%	4%	-3%
Spain	13%	10%	-3%	16%	13%	-3%	9%	5%	-4%	8%	4%	-4%
Sweden	12%	9%	-3%				8%	4%	-4%	7%	4%	-3%
Switzerland							8%	4%	-4%	7%	3%	-4%
United Kingdom	12%	9%	-3%				8%	5%	-3%	7%	4%	-3%
MASD-RU												
Belgium							5%	0%	-5%			
Croatia							43%	3%	-40%	45%	9%	-36%
France							6%	0%	-6%			
Greece							4%	0%	-4%			
Italy	29%	15%	-14%	32%	20%	-12%	12%	0%	-12%	11%	0%	-11%
Luxembourg	12%	9%	-2%	14%	12%	-2%	6%	0%	-6%			
Slovenia							43%	17%	-26%	45%	20%	-26%
Switzerland	29%	16%	-13%	33%	20%	-13%	13%	0%	-13%	11%	0%	-11%

LOW Infrastructure Level – National Trends

	2025						2030			2040		
	CBG			GBC			NT			NT		
Row Labels	WITHOUT	WITH	DELTA	WITHOUT	WITH	DELTA	WITHOUT	WITH	DELTA	WITHOUT	WITH	DELTA
Security of Supply												
Algeria Pipe Disruption Curtailment Rate Peak Day (%)												
Italy				-1%	0%	1%						
Remaining Flexibility 2-Week Cold Spell (%)												
Croatia							73%	100%	27%	73%	100%	27%
Greece				45%	88%	44%	69%	100%	31%	53%	99%	46%
Italy	36%	44%	7%	30%	37%	7%	78%	96%	18%	60%	75%	15%
Remaining Flexibility 2-Week Cold Spell (%) --- DF												
Croatia							63%	100%	37%	69%	100%	31%
Germany										80%	84%	4%
Greece				38%	80%	42%	36%	78%	41%	30%	69%	39%
Italy	35%	42%	7%	29%	35%	7%	76%	93%	17%	57%	72%	14%
Remaining Flexibility Peak day (%)												
Croatia							55%	100%	45%	63%	100%	37%
France	57%	61%	4%	38%	48%	9%	64%	65%	1%	62%	77%	15%
Germany	32%	36%	5%	22%	27%	5%	32%	38%	6%	22%	28%	6%
Greece	49%	95%	45%	22%	59%	37%	28%	67%	39%	24%	62%	38%
Italy	20%	26%	6%	15%	21%	6%	47%	61%	14%	38%	49%	10%
Netherlands				37%	46%	9%				56%	71%	15%
United Kingdom										43%	47%	4%
Single Largest Infrastructure Disruption (SLID)-Austria												
Italy				2%	0%	-2%						
Slovenia				2%	0%	-2%						
Single Largest Infrastructure Disruption (SLID)-Greece												
Greece	32%	0%	-32%	45%	8%	-37%	42%	3%	-39%	43%	6%	-38%

Row Labels	2025						2030			2040		
	CBG			GBC			NT			NT		
	WITHOUT	WITH	DELTA	WITHOUT	WITH	DELTA	WITHOUT	WITH	DELTA	WITHOUT	WITH	DELTA
Competition												
Commercial Supply Access (CSA)												
Bosnia Herzegovina										2	3	1
Bulgaria										1	2	1
Croatia										3	4	1
North Noth Macedonia										1	2	1
Romania							2	3	1	1	2	1
Serbia										2	3	1
Slovenia							3	4	1	3	4	1
LNG and Interconnection Capacity Diversification (LICD)												
Greece	10,000	5,124	-4,876	10,000	5,313	-4,687	10,000	5,205	-4,795	10,000	5,079	-4,921
MASD-LNGall												
Austria	12%	9%	-3%				8%	4%	-4%	7%	3%	-4%
Belgium	12%	9%	-3%				8%	4%	-4%	7%	3%	-4%
Bosnia Herzegovina				15%	12%	-3%	7%	3%	-4%	7%	3%	-4%
Bulgaria							7%	3%	-4%	7%	3%	-4%
Croatia	12%	9%	-3%				8%	4%	-4%	7%	3%	-4%
Czech Republic				15%	12%	-3%	7%	4%	-3%	7%	3%	-4%
Denmark							8%	4%	-4%	7%	3%	-4%
Estonia							7%	3%	-4%	7%	3%	-4%
Finland							7%	3%	-4%	7%	3%	-4%
France							8%	4%	-4%	7%	4%	-3%
Germany	12%	9%	-3%	15%	12%	-3%	7%	4%	-3%	7%	3%	-4%
Greece				15%	12%	-3%	8%	4%	-4%	7%	3%	-4%
Hungary				15%	12%	-3%	7%	4%	-3%	7%	3%	-4%
Ireland	12%	9%	-3%				7%	4%	-3%	7%	4%	-3%
Italy	12%	10%	-2%				8%	4%	-4%	7%	3%	-4%
Latvia							7%	3%	-4%	7%	3%	-4%
Lithuania				15%	12%	-3%	7%	3%	-4%	7%	3%	-4%
Luxembourg	12%	9%	-3%				8%	4%	-4%	7%	3%	-4%
Netherlands	12%	9%	-3%				8%	4%	-4%	7%	3%	-4%
North Noth Macedonia				15%	12%	-3%	7%	4%	-3%	7%	3%	-4%
Poland	12%	9%	-3%	15%	12%	-3%	8%	4%	-4%	7%	4%	-3%
Portugal										8%	4%	-4%
Romania							7%	4%	-3%	7%	3%	-4%
Serbia				15%	12%	-3%	7%	3%	-4%	7%	3%	-4%
Slovakia	12%	9%	-3%	15%	12%	-3%	7%	4%	-3%	7%	3%	-4%
Slovenia							8%	4%	-4%	7%	4%	-3%
Spain							8%	4%	-4%	7%	4%	-3%
Sweden							8%	4%	-4%	7%	3%	-4%
Switzerland	12%	9%	-3%				8%	4%	-4%	7%	3%	-4%
United Kingdom	11%	9%	-2%				7%	4%	-3%	7%	3%	-4%
MASD-RU												
Austria										32%	29%	-3%
Belgium	15%	12%	-3%	17%	13%	-4%	10%	5%	-5%			
Bosnia Herzegovina	31%	23%	-8%	34%	26%	-8%	32%	11%	-21%	32%	13%	-19%
Bulgaria	31%	23%	-8%	34%	26%	-8%	32%	9%	-23%	32%	13%	-19%
Croatia	31%	28%	-3%				31%	9%	-22%	31%	4%	-27%
Czech Republic										32%	29%	-3%
Denmark										32%	29%	-3%
Estonia										32%	29%	-3%
Finland										32%	29%	-3%
France	18%	13%	-5%	20%	16%	-5%	11%	5%	-7%	6%	3%	-2%
Germany							31%	29%	-2%	31%	29%	-2%
Hungary										32%	29%	-3%
Italy	30%	23%	-7%	34%	27%	-7%	19%	9%	-10%	14%	4%	-11%
Latvia										32%	29%	-3%
Luxembourg	17%	14%	-4%	20%	16%	-4%	11%	6%	-6%			
Netherlands										31%	29%	-2%
North Noth Macedonia	31%	23%	-8%	34%	26%	-8%	32%	11%	-21%	32%	13%	-19%
Poland										32%	29%	-3%
Romania	31%	23%	-8%	34%	26%	-8%						
Serbia	31%	23%	-8%	34%	26%	-8%	32%	10%	-22%	32%	13%	-19%
Slovakia										32%	29%	-3%
Slovenia	31%	27%	-4%				31%	19%	-12%	31%	18%	-13%
Sweden										32%	29%	-3%
Switzerland	31%	23%	-8%	34%	27%	-7%	19%	9%	-10%	15%	4%	-11%

ADVANCED Infrastructure Level – National Trend

	2025						2030			2040		
	CBG			GBC			NT			NT		
Row Labels	WITHOUT	WITH	DELTA	WITHOUT	WITH	DELTA	WITHOUT	WITH	DELTA	WITHOUT	WITH	DELTA
Security of Supply												
Algeria Pipe Disruption Curtailment Rate Peak Day (%)												
Italy				-1%	0%	1%						
Malta				-2%	0%	2%						
Remaining Flexibility 2-Week Cold Spell (%)												
Greece				45%	88%	44%	66%	100%	34%	35%	82%	46%
Italy	36%	43%	7%	29%	36%	7%	84%	99%	15%	64%	80%	16%
Remaining Flexibility 2-Week Cold Spell (%) --- DF												
Croatia							96%	100%	4%			
Greece				38%	80%	42%	32%	74%	41%	9%	49%	39%
Italy	34%	41%	7%	28%	34%	7%	82%	97%	16%	61%	77%	15%
Remaining Flexibility Peak day (%)												
Croatia							87%	100%	13%	96%	100%	4%
Germany	43%	48%	5%	34%	39%	5%				33%	41%	7%
Greece	49%	95%	45%	22%	59%	37%	23%	62%	39%	3%	41%	38%
Italy	19%	25%	6%	14%	20%	6%	51%	65%	14%	42%	55%	13%
North Noth Macedonia										12%	15%	4%
Single Largest Infrastructure Disruption (SLID)-Greece												
Greece										10%	0%	-10%
North Noth Macedonia										10%	0%	-10%

Row Labels	2025						2030			2040		
	CBG			GBC			NT			NT		
	WITHOUT	WITH	DELTA	WITHOUT	WITH	DELTA	WITHOUT	WITH	DELTA	WITHOUT	WITH	DELTA
Competition												
Commercial Supply Access (CSA)												
Cyprus							3	4	1	3	4	1
Greece										2	3	1
Malta	1	4	3	1	4	3	1	4	3	1	4	3
North Noth Macedonia										2	3	1
LNG and Interconnection Capacity Diversification (LICD)												
Greece	10,000	5,124	-4,876	10,000	5,313	-4,687	10,000	5,205	-4,795	10,000	5,079	-4,921
Italy							3025	2702	-323	3025	2702	-323
MASD-LNGall												
Austria							4%	0%	-4%	4%	0%	-4%
Belgium							4%	0%	-4%	4%	0%	-4%
Bosnia Herzegovina	10%	7%	-3%	13%	10%	-3%	4%	0%	-4%	4%	0%	-4%
Bulgaria	10%	7%	-3%	13%	10%	-3%	4%	0%	-4%	4%	0%	-4%
Croatia	10%	7%	-3%				4%	0%	-4%	4%	0%	-4%
Czech Republic	10%	7%	-3%				4%	0%	-4%	4%	0%	-4%
Denmark	10%	7%	-3%				4%	0%	-4%	4%	0%	-4%
Estonia	10%	7%	-3%	13%	10%	-3%	3%	0%	-3%	4%	0%	-4%
Finland	10%	7%	-3%	13%	10%	-3%	4%	0%	-4%	4%	0%	-4%
France				14%	11%	-3%	4%	0%	-4%	4%	0%	-4%
Germany	10%	7%	-3%				4%	0%	-4%	4%	0%	-4%
Greece	10%	7%	-3%	14%	11%	-3%	4%	0%	-4%	5%	0%	-5%
Hungary	10%	7%	-3%				4%	0%	-4%	4%	0%	-4%
Ireland							4%	0%	-4%	5%	0%	-5%
Italy				14%	11%	-3%	4%	0%	-4%	4%	0%	-4%
Latvia	10%	7%	-3%	13%	10%	-3%	3%	0%	-3%	4%	0%	-4%
Lithuania	10%	7%	-3%	13%	11%	-3%	4%	0%	-4%	4%	0%	-4%
Luxembourg							4%	0%	-4%	4%	0%	-4%
Malta							4%	0%	-4%	4%	0%	-4%
Netherlands							4%	0%	-4%	4%	0%	-4%
North Noth Macedonia	10%	7%	-3%	13%	10%	-3%	4%	0%	-4%	5%	0%	-5%
Poland	10%	7%	-3%				4%	0%	-4%	4%	0%	-4%
Portugal										5%	2%	-3%
Romania	10%	7%	-3%	13%	10%	-3%	4%	0%	-4%	4%	0%	-4%
Serbia	10%	7%	-3%	13%	10%	-3%	4%	0%	-4%	4%	0%	-4%
Slovakia	10%	7%	-3%				4%	0%	-4%	4%	0%	-4%
Slovenia							4%	0%	-4%	4%	0%	-4%
Spain				14%	11%	-3%				5%	1%	-4%
Sweden	10%	7%	-3%				4%	0%	-4%	4%	0%	-4%
Switzerland							4%	0%	-4%	4%	0%	-4%
United Kingdom	10%	7%	-3%				4%	0%	-4%	5%	0%	-5%
MASD-RU												
Austria	25%	22%	-3%	29%	26%	-3%	20%	17%	-3%	21%	17%	-4%
Belgium	25%	22%	-3%	29%	26%	-3%	19%	16%	-3%	20%	17%	-3%
Bosnia Herzegovina	25%	21%	-4%	28%	25%	-3%	20%	16%	-4%	21%	17%	-4%
Bulgaria	24%	21%	-3%	28%	25%	-3%	19%	16%	-3%	21%	17%	-4%
Croatia	25%	22%	-3%	28%	25%	-3%	19%	16%	-3%	21%	17%	-4%
Czech Republic	25%	22%	-3%	29%	26%	-3%	20%	17%	-3%	21%	17%	-4%
Denmark	25%	22%	-3%	29%	26%	-3%	19%	16%	-3%	20%	17%	-3%
Estonia	25%	22%	-3%				19%	16%	-3%	20%	16%	-4%
Finland	25%	22%	-3%	29%	26%	-3%	19%	16%	-3%	20%	17%	-3%
France	25%	21%	-4%	28%	25%	-3%	19%	16%	-3%	20%	17%	-3%
Germany	25%	22%	-3%	29%	26%	-3%	20%	16%	-4%	21%	17%	-4%
Greece	25%	21%	-4%	28%	25%	-3%	19%	16%	-3%	20%	17%	-3%
Hungary	25%	22%	-3%	29%	26%	-3%	20%	16%	-4%	21%	17%	-4%
Italy	25%	22%	-3%	29%	26%	-3%	19%	16%	-3%	20%	17%	-3%
Latvia	25%	22%	-3%				19%	16%	-3%	20%	16%	-4%
Lithuania	25%	22%	-3%				19%	16%	-3%	20%	16%	-4%
Luxembourg	25%	22%	-3%	29%	26%	-3%	19%	16%	-3%	20%	17%	-3%
Netherlands	25%	22%	-3%	29%	26%	-3%	19%	16%	-3%	20%	17%	-3%
North Noth Macedonia	25%	21%	-4%	28%	25%	-3%	19%	16%	-3%	20%	17%	-3%
Poland	25%	22%	-3%	29%	26%	-3%	20%	17%	-3%	21%	17%	-4%
Romania	24%	21%	-3%	28%	25%	-3%	20%	16%	-4%	21%	17%	-4%
Serbia	24%	21%	-3%	28%	25%	-3%	20%	16%	-4%	21%	17%	-4%
Slovakia	25%	22%	-3%	29%	26%	-3%	20%	17%	-3%	21%	17%	-4%
Slovenia	25%	22%	-3%	29%	26%	-3%	20%	17%	-3%	21%	17%	-4%
Sweden	25%	22%	-3%	29%	26%	-3%	19%	16%	-3%	20%	17%	-3%
Switzerland	25%	22%	-3%	29%	26%	-3%	19%	16%	-3%	20%	17%	-3%

EXISTING Infrastructure Level – Distributed Energy

	2025						2030			2040		
	CBG			GBC			DE			DE		
Row Labels	WITHOUT	WITH	DELTA	WITHOUT	WITH	DELTA	WITHOUT	WITH	DELTA	WITHOUT	WITH	DELTA
Security of Supply												
Algeria Pipe Disruption Curtailment Rate Peak Day (%)												
Croatia				-2%	-1%	1%						
Italy				-2%	0%	2%						
Slovenia				-2%	0%	2%						
Remaining Flexibility 2-Week Cold Spell (%)												
Croatia							66%	100%	34%			
Greece				42%	86%	44%	16%	48%	32%			
Italy	36%	43%	7%	30%	36%	7%	43%	55%	12%	78%	94%	16%
Remaining Flexibility 2-Week Cold Spell (%) --- DF												
Croatia							55%	100%	45%	81%	100%	19%
Germany				98%	99%	1%						
Greece				36%	78%	42%	6%	36%	31%	26%	60%	34%
Italy	35%	42%	7%	28%	35%	7%	42%	53%	11%	71%	87%	15%
Remaining Flexibility Peak day (%)												
Croatia							51%	100%	49%	89%	100%	11%
France				45%	54%	9%						
Germany	35%	40%	5%	25%	30%	5%	57%	60%	3%			
Greece	47%	92%	45%	20%	57%	37%	5%	35%	29%	47%	80%	33%
Italy	19%	25%	6%	14%	20%	6%	24%	34%	10%	47%	60%	13%
Netherlands	60%	69%	9%	44%	52%	9%						
Single Largest Infrastructure Disruption (SLID)-Austria												
Austria				2%	0%	-2%						
Italy				3%	0%	-3%						
Slovenia				4%	0%	-4%						
Switzerland				2%	0%	-2%						
Single Largest Infrastructure Disruption (SLID)-Croatia												
Croatia	35%	0%	-35%	37%	1%	-36%	8%	0%	-8%			
Single Largest Infrastructure Disruption (SLID)-Greece												
Greece	34%	0%	-34%	46%	9%	-37%	47%	18%	-29%	13%	0%	-13%
Single Largest Infrastructure Disruption (SLID)-Italy												
Italy				2%	0%	-2%						
Slovenia				2%	0%	-2%						

Row Labels	2025						2030			2040		
	CBG			GBC			DE			DE		
	WITHOUT	WITH	DELTA	WITHOUT	WITH	DELTA	WITHOUT	WITH	DELTA	WITHOUT	WITH	DELTA
Competition												
Commercial Supply Access (CSA)												
Croatia							2	4	2	3	5	2
Romania	2	3	1							2	3	1
Slovenia							3	4	1	4	5	1
LNG and Interconnection Capacity Diversification (LICD)												
Greece	10,000	5,124	-4,876	10,000	5,313	-4,687	10,000	5,218	-4,782	10,000	5,000	-5,000
MASD-LNGall												
Austria							8%	4%	-4%			
Belgium							8%	5%	-3%			
Bosnia Herzegovina	12%	9%	-3%				8%	4%	-4%			
Bulgaria	12%	9%	-3%	15%	12%	-3%	7%	4%	-3%			
Croatia	12%	9%	-3%				7%	4%	-3%			
Czech Republic	12%	9%	-3%				8%	4%	-4%			
Denmark	12%	9%	-3%				8%	4%	-4%			
Estonia	12%	9%	-3%	15%	12%	-3%	7%	4%	-3%			
Finland	12%	9%	-3%				7%	4%	-3%			
France	12%	10%	-2%	16%	13%	-3%	8%	5%	-3%			
Germany	12%	10%	-2%				8%	4%	-4%			
Greece	12%	9%	-3%	16%	13%	-3%	7%	4%	-3%			
Hungary	12%	9%	-3%				7%	4%	-3%			
Ireland	12%	9%	-3%				8%	5%	-3%			
Italy				16%	13%	-3%	8%	4%	-4%			
Latvia	12%	9%	-3%	15%	12%	-3%	7%	4%	-3%			
Lithuania	12%	9%	-3%	15%	12%	-3%	7%	4%	-3%			
Luxembourg							8%	5%	-3%			
Netherlands							8%	4%	-4%			
North Noth Macedonia	12%	9%	-3%	15%	12%	-3%	7%	4%	-3%			
Poland	12%	9%	-3%				8%	6%	-3%			
Portugal							8%	5%	-3%			
Romania	12%	9%	-3%	15%	13%	-3%	7%	4%	-3%			
Serbia	12%	9%	-3%				7%	4%	-3%			
Slovakia	12%	9%	-3%				8%	4%	-4%			
Slovenia				16%	13%	-3%	8%	4%	-4%			
Spain	13%	10%	-3%	16%	13%	-3%	8%	5%	-3%			
Sweden	12%	9%	-3%				5%	2%	-2%			
Switzerland							8%	5%	-3%			
United Kingdom	12%	9%	-3%				8%	5%	-3%			
MASD-RU												
Croatia							42%	3%	-39%	23%	0%	-23%
Italy	29%	15%	-14%	32%	20%	-12%	25%	3%	-22%			
Luxembourg	12%	9%	-2%	14%	12%	-2%						
Slovenia							42%	3%	-39%	23%	0%	-23%
Switzerland	29%	16%	-13%	33%	20%	-13%	25%	3%	-22%			

LOW Infrastructure Level – Distributed Energy

	2025						2030			2040		
	CBG			GBC			DE			DE		
Row Labels	WITHOUT	WITH	DELTA	WITHOUT	WITH	DELTA	WITHOUT	WITH	DELTA	WITHOUT	WITH	DELTA
Security of Supply												
Algeria Pipe Disruption Curtailment Rate Peak Day (%)												
Italy				-1%	0%	1%						
Remaining Flexibility 2-Week Cold Spell (%)												
Greece				45%	88%	44%	18%	50%	32%			
Italy	36%	44%	7%	30%	37%	7%	45%	57%	13%	80%	96%	16%
Remaining Flexibility 2-Week Cold Spell (%) --- DF												
Greece				38%	80%	42%	7%	38%	31%	28%	62%	34%
Italy	35%	42%	7%	29%	35%	7%	44%	55%	12%	74%	89%	15%
Remaining Flexibility Peak day (%)												
France	57%	61%	4%	38%	48%	9%						
Germany	32%	36%	5%	22%	27%	5%	47%	55%	8%			
Greece	49%	95%	45%	22%	59%	37%	7%	36%	29%	48%	81%	33%
Italy	20%	26%	6%	15%	21%	6%	26%	36%	10%	49%	61%	13%
Netherlands				37%	46%	9%						
Single Largest Infrastructure Disruption (SLID)-Austria												
Italy				2%	0%	-2%						
Slovenia				2%	0%	-2%						
Single Largest Infrastructure Disruption (SLID)-Greece												
Greece	32%	0%	-32%	45%	8%	-37%	46%	16%	-29%	11%	0%	-11%

Row Labels	2025						2030			2040		
	CBG			GBC			DE			DE		
	WITHOUT	WITH	DELTA	WITHOUT	WITH	DELTA	WITHOUT	WITH	DELTA	WITHOUT	WITH	DELTA
Competition												
Commercial Supply Access (CSA)												
Bosnia Herzegovina							3	4	1	3	4	1
Bulgaria										2	4	2
Croatia							4	5	1	4	5	1
Estonia										3	4	1
Finland										3	4	1
Greece										3	4	1
Latvia										3	4	1
Lithuania							2	3	1			
North Noth Macedonia										2	3	1
Romania							3	4	1	2	4	2
Serbia							3	4	1	3	4	1
Slovenia							3	4	1	4	5	1
LNG and Interconnection Capacity Diversification (LICD)												
Greece	10,000	5,124	-4,876	10,000	5,313	-4,687	10,000	5,218	-4,782	10,000	5,000	-5,000
MASD-LNGall												
Austria	12%	9%	-3%				8%	4%	-4%			
Belgium	12%	9%	-3%				8%	4%	-4%			
Bosnia Herzegovina				15%	12%	-3%	7%	4%	-3%			
Bulgaria							7%	4%	-3%			
Croatia	12%	9%	-3%				7%	4%	-3%			
Czech Republic				15%	12%	-3%	7%	4%	-3%			
Denmark							7%	4%	-3%			
Estonia							7%	4%	-3%			
Finland							7%	4%	-3%			
France							8%	4%	-4%			
Germany	12%	9%	-3%	15%	12%	-3%	7%	4%	-3%			
Greece				15%	12%	-3%	7%	4%	-3%			
Hungary				15%	12%	-3%	7%	4%	-3%			
Ireland	12%	9%	-3%				8%	4%	-4%			
Italy	12%	10%	-2%				8%	4%	-4%			
Latvia							7%	4%	-3%			
Lithuania				15%	12%	-3%	7%	4%	-3%			
Luxembourg	12%	9%	-3%				8%	4%	-4%			
Netherlands	12%	9%	-3%				7%	4%	-3%			
North Noth Macedonia				15%	12%	-3%	7%	4%	-3%			
Poland	12%	9%	-3%	15%	12%	-3%	8%	4%	-4%			
Portugal							8%	5%	-3%			
Romania							7%	4%	-3%			
Serbia				15%	12%	-3%	7%	4%	-3%			
Slovakia	12%	9%	-3%	15%	12%	-3%	7%	4%	-3%			
Slovenia							8%	4%	-4%			
Spain							8%	5%	-3%			
Sweden							5%	2%	-2%			
Switzerland	12%	9%	-3%				8%	4%	-4%			
United Kingdom	11%	9%	-2%				7%	4%	-3%			
MASD-RU												
Belgium	15%	12%	-3%	17%	13%	-4%	8%	6%	-2%			
Bosnia Herzegovina	31%	23%	-8%	34%	26%	-8%	29%	11%	-18%	9%	0%	-9%
Bulgaria	31%	23%	-8%	34%	26%	-8%	29%	11%	-18%	9%	0%	-9%
Croatia	31%	28%	-3%				28%	11%	-17%			
France	18%	13%	-5%	20%	16%	-5%	10%	7%	-2%			
Italy	30%	23%	-7%	34%	27%	-7%	27%	12%	-16%			
Luxembourg	17%	14%	-4%	20%	16%	-4%	10%	7%	-3%			
North Noth Macedonia	31%	23%	-8%	34%	26%	-8%	29%	11%	-18%	9%	0%	-9%
Romania	31%	23%	-8%	34%	26%	-8%	29%	16%	-13%	9%	6%	-3%
Serbia	31%	23%	-8%	34%	26%	-8%	29%	11%	-18%	9%	0%	-9%
Slovenia	31%	27%	-4%				27%	12%	-15%			
Switzerland	31%	23%	-8%	34%	27%	-7%	27%	12%	-15%			

ADVANCED Infrastructure Level – Distributed Energy

Sum of Value	Column Labels											
	2025						2030			2040		
	CBG			GBC			DE			DE		
Row Labels	WITHOUT	WITH	DELTA	WITHOUT	WITH	DELTA	WITHOUT	WITH	DELTA	WITHOUT	WITH	DELTA
Security of Supply												
Algeria Pipe Disruption Curtailment Rate Peak Day (%)												
Italy				-1%	0%	1%						
Malta				-2%	0%	2%						
Remaining Flexibility 2-Week Cold Spell (%)												
Greece				45%	88%	44%	16%	48%	32%	91%	100%	9%
Italy	36%	43%	7%	29%	36%	7%	49%	63%	14%	84%	98%	15%
Remaining Flexibility 2-Week Cold Spell (%) --- DF												
Greece				38%	80%	42%	4%	35%	31%	10%	44%	34%
Italy	34%	41%	7%	28%	34%	7%	48%	62%	13%	77%	93%	15%
North Noth Macedonia							50%	100%	50%			
Remaining Flexibility Peak day (%)												
Germany	43%	48%	5%	34%	39%	5%	58%	67%	9%			
Greece	49%	95%	45%	22%	59%	37%	3%	33%	29%	30%	63%	33%
Italy	19%	25%	6%	14%	20%	6%	30%	41%	11%	51%	64%	13%
North Noth Macedonia							35%	100%	65%			
Single Largest Infrastructure Disruption (SLID)-Greece												
Greece							8%	0%	-8%			
North Noth Macedonia							10%	0%	-10%			

Row Labels	2025						2030			2040		
	CBG			GBC			DE			DE		
	WITHOUT	WITH	DELTA	WITHOUT	WITH	DELTA	WITHOUT	WITH	DELTA	WITHOUT	WITH	DELTA
Competition												
Commercial Supply Access (CSA)												
Cyprus							3	5	2	3	5	2
Greece										3	4	1
Italy							4	5	1			
Malta	1	4	3	1	4	3	1	5	4	2	5	3
North Noth Macedonia							3	4	1	3	4	1
Slovenia							3	4	1			
Switzerland							3	4	1			
LNG and Interconnection Capacity Diversification (LICD)												
Greece	10,000	5,124	-4,876	10,000	5,313	-4,687	10,000	5,218	-4,782	10,000	5,000	-5,000
Italy							3025	2702	-323	3025	2702	-323
MASD-LNGall												
Austria							4%	0%	-4%			
Belgium							4%	0%	-4%			
Bosnia Herzegovina	10%	7%	-3%	13%	10%	-3%	4%	0%	-4%			
Bulgaria	10%	7%	-3%	13%	10%	-3%	4%	0%	-4%			
Croatia	10%	7%	-3%				4%	0%	-4%			
Czech Republic	10%	7%	-3%				4%	0%	-4%			
Denmark	10%	7%	-3%				4%	0%	-4%			
Estonia	10%	7%	-3%	13%	10%	-3%	4%	0%	-4%			
Finland	10%	7%	-3%	13%	10%	-3%	4%	0%	-4%			
France				14%	11%	-3%	4%	1%	-3%			
Germany	10%	7%	-3%				4%	0%	-4%			
Greece	10%	7%	-3%	14%	11%	-3%	4%	0%	-4%			
Hungary	10%	7%	-3%				4%	0%	-4%			
Ireland							5%	1%	-4%			
Italy				14%	11%	-3%	4%	0%	-4%			
Latvia	10%	7%	-3%	13%	10%	-3%	4%	0%	-4%			
Lithuania	10%	7%	-3%	13%	11%	-3%	4%	0%	-4%			
Luxembourg							4%	1%	-3%			
Malta							4%	0%	-4%			
Netherlands							4%	0%	-4%			
North Noth Macedonia	10%	7%	-3%	13%	10%	-3%	4%	0%	-4%			
Poland	10%	7%	-3%				4%	0%	-4%			
Portugal							5%	1%	-4%			
Romania	10%	7%	-3%	13%	10%	-3%	4%	0%	-4%			
Serbia	10%	7%	-3%	13%	10%	-3%	4%	0%	-4%			
Slovakia	10%	7%	-3%				4%	0%	-4%			
Slovenia							4%	0%	-4%			
Spain				14%	11%	-3%	5%	1%	-4%			
Sweden	10%	7%	-3%				2%	0%	-2%			
Switzerland							4%	0%	-4%			
United Kingdom	10%	7%	-3%				4%	1%	-3%			
MASD-RU												
Austria	25%	22%	-3%	29%	26%	-3%	19%	16%	-3%			
Belgium	25%	22%	-3%	29%	26%	-3%	19%	16%	-3%			
Bosnia Herzegovina	25%	21%	-4%	28%	25%	-3%	19%	16%	-3%			
Bulgaria	24%	21%	-3%	28%	25%	-3%	19%	16%	-3%			
Croatia	25%	22%	-3%	28%	25%	-3%	19%	16%	-3%			
Czech Republic	25%	22%	-3%	29%	26%	-3%	19%	16%	-3%			
Denmark	25%	22%	-3%	29%	26%	-3%	19%	16%	-3%			
Estonia	25%	22%	-3%				19%	15%	-4%			
Finland	25%	22%	-3%	29%	26%	-3%	19%	15%	-4%			
France	25%	21%	-4%	28%	25%	-3%	19%	15%	-4%			
Germany	25%	22%	-3%	29%	26%	-3%	19%	16%	-3%			
Greece	25%	21%	-4%	28%	25%	-3%	19%	16%	-3%			
Hungary	25%	22%	-3%	29%	26%	-3%	19%	16%	-3%			
Italy	25%	22%	-3%	29%	26%	-3%	19%	16%	-3%			
Latvia	25%	22%	-3%				19%	16%	-3%			
Lithuania	25%	22%	-3%				19%	16%	-3%			
Luxembourg	25%	22%	-3%	29%	26%	-3%	19%	16%	-3%			
Netherlands	25%	22%	-3%	29%	26%	-3%	19%	16%	-3%			
North Noth Macedonia	25%	21%	-4%	28%	25%	-3%	19%	16%	-3%			
Poland	25%	22%	-3%	29%	26%	-3%	19%	16%	-3%			
Romania	24%	21%	-3%	28%	25%	-3%						
Serbia	24%	21%	-3%	28%	25%	-3%	19%	16%	-3%			
Slovakia	25%	22%	-3%	29%	26%	-3%	19%	16%	-3%			
Slovenia	25%	22%	-3%	29%	26%	-3%	19%	16%	-3%			
Sweden	25%	22%	-3%	29%	26%	-3%	12%	9%	-2%			
Switzerland	25%	22%	-3%	29%	26%	-3%	19%	16%	-3%			

EXISTING Infrastructure Level – Global Ambition

Row Labels	2025						2030			2040		
	CBG			GBC			GA			GA		
	WITHOUT	WITH	DELTA	WITHOUT	WITH	DELTA	WITHOUT	WITH	DELTA	WITHOUT	WITH	DELTA
Security of Supply												
Algeria Pipe Disruption Curtailment Rate Peak Day (%)												
Croatia				-2%	-1%	1%						
Greece							-19%	0%	19%			
Italy				-2%	0%	2%	-1%	0%	1%			
Slovenia				-2%	0%	2%						
Curtailment Rate 2-Week Cold Spell (%) --- DF												
Greece							-10%	0%	10%			
Curtailment Rate Peak Day (%)												
Greece							-19%	0%	19%			
Remaining Flexibility 2-Week Cold Spell (%)												
Croatia							60%	100%	40%	70%	100%	30%
Greece				42%	86%	44%	2%	32%	30%	30%	63%	34%
Italy	36%	43%	7%	30%	36%	7%	38%	49%	11%	61%	76%	15%
Remaining Flexibility 2-Week Cold Spell (%) --- DF												
Croatia							45%	100%	55%	64%	100%	36%
Greece				36%	78%	42%	0%	17%	17%	3%	32%	29%
Italy	35%	42%	7%	28%	35%	7%	33%	42%	9%	48%	60%	12%
Remaining Flexibility Peak day (%)												
Belgium							75%	99%	24%			
Croatia							39%	98%	59%	55%	100%	45%
France				45%	54%	9%	28%	37%	9%	50%	52%	2%
Germany	35%	40%	5%	25%	30%	5%	16%	21%	5%	25%	26%	1%
Greece	47%	92%	45%	20%	57%	37%	0%	5%	5%	1%	27%	26%
Italy	19%	25%	6%	14%	20%	6%	13%	20%	7%	31%	41%	10%
Netherlands	60%	69%	9%	44%	52%	9%	34%	45%	11%	61%	63%	2%
Slovenia							73%	81%	7%			
United Kingdom							26%	34%	8%			
Single Largest Infrastructure Disruption (SLID)-Austria												
Austria				2%	0%	-2%	2%	0%	-2%			
Greece							19%	0%	-19%			
Italy				3%	0%	-3%	2%	0%	-2%			
Slovenia				4%	0%	-4%	4%	0%	-4%			
Switzerland				2%	0%	-2%	2%	0%	-2%			
Single Largest Infrastructure Disruption (SLID)-Croatia												
Croatia	35%	0%	-35%	37%	1%	-36%	16%	0%	-16%	7%	0%	-7%
Greece							19%	0%	-19%			
Single Largest Infrastructure Disruption (SLID)-Greece												
Greece	34%	0%	-34%	46%	9%	-37%	61%	38%	-24%	46%	20%	-26%
Single Largest Infrastructure Disruption (SLID)-Italy												
Greece							19%	0%	-19%			
Italy				2%	0%	-2%						
Slovenia				2%	0%	-2%						
Single Largest Infrastructure Disruption (SLID)-Slovakia												
Austria							24%	3%	-21%			
Czechia							24%	2%	-22%			
Greece							19%	0%	-19%			
Slovakia							24%	2%	-22%			
Single Largest Infrastructure Disruption (SLID)-Slovenia												
Croatia							4%	0%	-4%			
Greece							19%	0%	-19%			
Ukraine Disruption Curtailment Rate Peak Day (%)												
Austria							-2%	0%	2%			
Croatia							-2%	0%	2%			
Czechia							-2%	0%	2%			
Germany							-2%	0%	2%			
Greece							-19%	-2%	17%			
Italy							-4%	0%	4%			
Luxembourg							-2%	0%	2%			
Slovakia							-2%	0%	2%			
Slovenia							-4%	-2%	2%			
Switzerland							-3%	0%	3%			

Row Labels	2025						2030			2040		
	CBG			GBC			GA			GA		
	WITHOUT	WITH	DELTA	WITHOUT	WITH	DELTA	WITHOUT	WITH	DELTA	WITHOUT	WITH	DELTA
Competition												
Commercial Supply Access (CSA)												
Austria							2	3	1	2	3	1
Croatia							2	4	2	2	4	2
Czechia							2	3	1			
Denmark							2	3	1			
Germany							2	3	1	2	3	1
North Noth Macedonia										2	3	1
Romania	2	3	1									
Slovakia							2	3	1	2	3	1
Slovenia							3	4	1	2	4	2
Sweden							3	4	1			
LNG and Interconnection Capacity Diversification (LICD)												
Greece	10,000	5,124	-4,876	10,000	5,313	-4,687	10,000	5,030	-4,970	10,000	5,017	-4,983
MASD-LNGall												
Austria							15%	12%	-3%	4%	1%	-3%
Belgium							15%	12%	-3%	5%	1%	-4%
Bosnia Herzegovina	12%	9%	-3%				15%	11%	-4%	4%	1%	-3%
Bulgaria	12%	9%	-3%	15%	12%	-3%	14%	11%	-3%	4%	1%	-3%
Croatia	12%	9%	-3%				15%	11%	-4%	4%	1%	-3%
Czech Republic	12%	9%	-3%				15%	11%	-4%	4%	1%	-3%
Denmark	12%	9%	-3%				15%	12%	-3%	5%	1%	-4%
Estonia	12%	9%	-3%	15%	12%	-3%	14%	11%	-3%	4%	1%	-3%
Finland	12%	9%	-3%				14%	11%	-3%	4%	1%	-3%
France	12%	10%	-2%	16%	13%	-3%	15%	12%	-3%	5%	1%	-4%
Germany	12%	10%	-2%				15%	12%	-3%	5%	1%	-4%
Greece	12%	9%	-3%	16%	13%	-3%	14%	11%	-3%	4%	1%	-3%
Hungary	12%	9%	-3%				14%	11%	-3%	4%	1%	-3%
Ireland	12%	9%	-3%				15%	12%	-3%	5%	1%	-4%
Italy				16%	13%	-3%	15%	12%	-3%	4%	1%	-3%
Latvia	12%	9%	-3%	15%	12%	-3%	14%	11%	-3%	4%	1%	-3%
Lithuania	12%	9%	-3%	15%	12%	-3%	14%	11%	-3%	4%	1%	-3%
Luxembourg							15%	12%	-3%	5%	1%	-4%
Netherlands							15%	12%	-3%	5%	1%	-4%
North Noth Macedonia	12%	9%	-3%	15%	12%	-3%	14%	11%	-3%	4%	1%	-3%
Poland	12%	9%	-3%				15%	12%	-3%			
Portugal							15%	12%	-3%	5%	1%	-4%
Romania	12%	9%	-3%	15%	13%	-3%	14%	11%	-3%	4%	1%	-3%
Serbia	12%	9%	-3%				15%	11%	-4%	4%	1%	-3%
Slovakia	12%	9%	-3%				15%	11%	-4%	4%	1%	-3%
Slovenia				16%	13%	-3%	15%	12%	-3%	5%	1%	-4%
Spain	13%	10%	-3%	16%	13%	-3%	15%	12%	-3%	5%	1%	-4%
Sweden	12%	9%	-3%				15%	12%	-3%	4%	1%	-2%
Switzerland							15%	12%	-3%	5%	1%	-4%
United Kingdom	12%	9%	-3%				15%	11%	-4%	5%	1%	-4%
MASD-RU												
Belgium							13%	8%	-5%			
Croatia							47%	14%	-33%	42%	0%	-42%
France							15%	9%	-6%			
Italy	29%	15%	-14%	32%	20%	-12%	27%	14%	-13%	13%	0%	-13%
Lithuania							15%	12%	-3%			
Luxembourg	12%	9%	-2%	14%	12%	-2%	15%	9%	-6%			
Netherlands							25%	18%	-8%			
Slovenia							47%	18%	-29%	42%	12%	-30%
Switzerland	29%	16%	-13%	33%	20%	-13%	27%	14%	-13%	13%	0%	-13%

LOW Infrastructure Level – Global Ambition

	2025						2030			2040		
	CBG			GBC			GA			GA		
Row Labels	WITHOUT	WITH	DELTA	WITHOUT	WITH	DELTA	WITHOUT	WITH	DELTA	WITHOUT	WITH	DELTA
Security of Supply												
Algeria Pipe Disruption Curtailment Rate Peak Day (%)												
Austria							-2%	0%	2%			
France							-2%	0%	2%			
Greece							-18%	0%	18%			
Italy				-1%	0%	1%	-2%	0%	2%			
Portugal							-4%	-2%	2%			
Slovenia							-2%	0%	2%			
Curtailment Rate 2-Week Cold Spell (%) --- DF												
Greece							-8%	0%	8%			
Curtailment Rate Peak Day (%)												
Greece							-18%	0%	18%			
Remaining Flexibility 2-Week Cold Spell (%)												
Greece				45%	88%	44%	4%	33%	30%	32%	65%	34%
Italy	36%	44%	7%	30%	37%	7%	40%	51%	11%	63%	78%	15%
Remaining Flexibility 2-Week Cold Spell (%) --- DF												
Germany							86%	92%	6%			
Greece				38%	80%	42%	0%	18%	18%	5%	33%	29%
Italy	35%	42%	7%	29%	35%	7%	35%	45%	10%	51%	62%	12%
Remaining Flexibility Peak day (%)												
Belgium							37%	62%	25%	85%	100%	15%
Croatia							97%	100%	3%			
Czechia							78%	100%	22%			
France	57%	61%	4%	38%	48%	9%	14%	23%	9%	35%	47%	12%
Germany	32%	36%	5%	22%	27%	5%	8%	13%	5%	18%	24%	6%
Greece	49%	95%	45%	22%	59%	37%	0%	6%	6%	2%	28%	26%
Italy	20%	26%	6%	15%	21%	6%	11%	18%	7%	28%	38%	9%
Netherlands				37%	46%	9%	17%	28%	11%	43%	57%	14%
Spain							23%	29%	6%			
United Kingdom							13%	21%	9%			
Single Largest Infrastructure Disruption (SLID)-Austria												
Greece							18%	0%	-18%			
Italy				2%	0%	-2%						
Slovenia				2%	0%	-2%						
Single Largest Infrastructure Disruption (SLID)-Greece												
Greece	32%	0%	-32%	45%	8%	-37%	60%	37%	-24%	45%	19%	-26%
Single Largest Infrastructure Disruption (SLID)-Slovakia												
Austria							5%	0%	-5%			
Czechia							4%	0%	-4%			
Greece							18%	0%	-18%			
Slovakia							4%	0%	-4%			
Ukraine Disruption Curtailment Rate Peak Day (%)												
Greece							-18%	0%	18%			
Italy							-1%	0%	1%			
Slovenia							-2%	0%	2%			

Row Labels	2025						2030			2040		
	CBG			GBC			GA			GA		
	WITHOUT	WITH	DELTA	WITHOUT	WITH	DELTA	WITHOUT	WITH	DELTA	WITHOUT	WITH	DELTA
Competition												
Commercial Supply Access (CSA)												
Bosnia Herzegovina							3	4	1	3	4	1
Bulgaria										2	4	2
Croatia							4	5	1	4	5	1
Romania							2	3	1	2	4	2
Serbia							3	4	1	3	4	1
Slovenia							3	4	1	3	4	1
LNG and Interconnection Capacity Diversification (LICD)												
Greece	10,000	5,124	-4,876	10,000	5,313	-4,687	10,000	5,030	-4,970	10,000	5,017	-4,983
MASD-LNGall												
Austria	12%	9%	-3%				14%	11%	-3%	5%	1%	-4%
Belgium	12%	9%	-3%				15%	11%	-4%	5%	1%	-4%
Bosnia Herzegovina				15%	12%	-3%	14%	11%	-3%	4%	1%	-3%
Bulgaria							14%	11%	-3%	4%	1%	-3%
Croatia	12%	9%	-3%				14%	11%	-3%	4%	1%	-3%
Czech Republic				15%	12%	-3%	14%	11%	-3%	4%	1%	-3%
Denmark							14%	11%	-3%	5%	1%	-4%
Estonia							14%	11%	-3%	4%	1%	-3%
Finland							14%	11%	-3%	4%	1%	-3%
France							15%	12%	-3%	5%	1%	-4%
Germany	12%	9%	-3%	15%	12%	-3%	14%	11%	-3%	4%	1%	-3%
Greece				15%	12%	-3%	14%	11%	-3%	4%	1%	-3%
Hungary				15%	12%	-3%	14%	11%	-3%	4%	1%	-3%
Ireland	12%	9%	-3%				15%	11%	-4%	5%	1%	-4%
Italy	12%	10%	-2%				15%	11%	-4%	5%	1%	-4%
Latvia							14%	11%	-3%	4%	1%	-3%
Lithuania				15%	12%	-3%	14%	11%	-3%	4%	1%	-3%
Luxembourg	12%	9%	-3%				15%	11%	-4%	5%	1%	-4%
Netherlands	12%	9%	-3%				14%	11%	-3%	5%	1%	-4%
North Noth Macedonia				15%	12%	-3%	14%	11%	-3%	5%	1%	-4%
Poland	12%	9%	-3%	15%	12%	-3%	15%	12%	-3%	5%	2%	-3%
Portugal							15%	12%	-3%	5%	2%	-3%
Romania							14%	11%	-3%	4%	1%	-3%
Serbia				15%	12%	-3%	14%	11%	-3%	4%	1%	-3%
Slovakia	12%	9%	-3%	15%	12%	-3%	14%	11%	-3%	4%	1%	-3%
Slovenia							15%	12%	-3%	5%	1%	-4%
Spain							15%	12%	-3%	5%	2%	-3%
Sweden							15%	11%	-4%	4%	1%	-2%
Switzerland	12%	9%	-3%				14%	11%	-3%	5%	1%	-4%
United Kingdom	11%	9%	-2%				15%	11%	-4%	5%	1%	-4%
MASD-RU												
Belgium	15%	12%	-3%	17%	13%	-4%				6%	2%	-4%
Bosnia Herzegovina	31%	23%	-8%	34%	26%	-8%	34%	23%	-11%	28%	3%	-25%
Bulgaria	31%	23%	-8%	34%	26%	-8%	34%	22%	-12%	28%	3%	-25%
Croatia	31%	28%	-3%				34%	22%	-12%	23%	2%	-21%
Estonia										10%	3%	-7%
Finland										10%	3%	-7%
France	18%	13%	-5%	20%	16%	-5%	25%	22%	-3%	7%	1%	-6%
Greece										4%	1%	-3%
Italy	30%	23%	-7%	34%	27%	-7%	34%	22%	-12%	16%	3%	-14%
Latvia										10%	3%	-7%
Lithuania										10%	3%	-7%
Luxembourg	17%	14%	-4%	20%	16%	-4%				7%	2%	-5%
North Noth Macedonia	31%	23%	-8%	34%	26%	-8%	34%	23%	-11%	28%	3%	-25%
Romania	31%	23%	-8%	34%	26%	-8%	34%	26%	-8%			
Serbia	31%	23%	-8%	34%	26%	-8%	34%	23%	-11%	28%	3%	-25%
Slovenia	31%	27%	-4%				34%	23%	-11%	23%	13%	-10%
Switzerland	31%	23%	-8%	34%	27%	-7%	34%	23%	-11%	17%	3%	-14%

ADVANCED Infrastructure Level – Global Ambition

Row Labels	2025						2030			2040		
	CBG			GBC			GA			GA		
	WITHOUT	WITH	DELTA	WITHOUT	WITH	DELTA	WITHOUT	WITH	DELTA	WITHOUT	WITH	DELTA
Security of Supply												
Algeria Pipe Disruption Curtailment Rate Peak Day (%)												
Greece							-19%	0%	19%	-10%	0%	10%
Italy				-1%	0%	1%						
Malta				-2%	0%	2%						
North Noth Macedonia							-20%	0%	20%	-12%	0%	12%
Curtailment Rate 2-Week Cold Spell (%) --- DF												
Greece							-10%	0%	10%	-8%	0%	8%
North Noth Macedonia							-10%	0%	10%	-10%	0%	10%
Curtailment Rate Peak Day (%)												
Greece							-19%	0%	19%	-10%	0%	10%
North Noth Macedonia							-20%	0%	20%	-12%	0%	12%
Remaining Flexibility 2-Week Cold Spell (%)												
Greece				45%	88%	44%	2%	32%	30%	19%	52%	34%
Italy	36%	43%	7%	29%	36%	7%	45%	57%	13%	68%	83%	15%
North Noth Macedonia							24%	100%	76%			
Remaining Flexibility 2-Week Cold Spell (%) --- DF												
Greece				38%	80%	42%	0%	16%	16%	0%	19%	19%
Italy	34%	41%	7%	28%	34%	7%	39%	51%	11%	55%	67%	12%
North Noth Macedonia							0%	100%	100%	0%	22%	22%
Remaining Flexibility Peak day (%)												
France							39%	47%	8%	45%	57%	12%
Germany	43%	48%	5%	34%	39%	5%	21%	27%	6%	23%	29%	6%
Greece	49%	95%	45%	22%	59%	37%	0%	3%	3%	0%	13%	13%
Italy	19%	25%	6%	14%	20%	6%	20%	28%	8%	36%	46%	10%
Netherlands							46%	59%	13%	55%	66%	12%
North Noth Macedonia							0%	37%	37%	0%	15%	15%
Spain				50%	52%	2%						
United Kingdom							35%	42%	7%			
Single Largest Infrastructure Disruption (SLID)-Greece												
Greece							29%	7%	-22%	20%	0%	-20%
North Noth Macedonia							30%	8%	-22%	20%	0%	-20%

C.3 Monetised benefits [ENTSOG]

This section includes all benefits stemming from the realisation of a project that are quantified and monetised. Some benefits are monetised ex-post while others directly as a result of the simulations and are impacted by the modelling assumptions chosen (e.g. tariffs or supply price assumptions). Monetised benefits are showed at EU level. In order to keep the results in a manageable number, those have been aggregated per Infrastructure Level and Demand Scenarios. In line with the CBA Methodology, promoters could provide additional benefits related to Sustainability or Gasification. In the tables below these benefits are displayed separately from the ones computed directly by ENTSOG and are labelled as "(Promoter)".
More information on how to read the data in this section is provided in the Introduction Document.

		EXISTING			LOW			ADVANCED		
Benefits (Meur/year)		NATIONAL TRENDS	DISTRIBUTED ENERGY	GLOBAL AMBITION	NATIONAL TRENDS	DISTRIBUTED ENERGY	GLOBAL AMBITION	NATIONAL TRENDS	DISTRIBUTED ENERGY	GLOBAL AMBITION
EU Bill benefits With Tariffs	Reference Supply	526.1	468.5	587.0	481.6	431.2	521.2	358.2	350.1	399.7
	Supply Maximization	865.2	777.2	928.6	820.1	738.6	860.7	658.3	584.9	697.3
Security of Supply	Design Case	4.0	3.2	10.9	3.7	2.8	9.1	1.3	1.0	4.9
	2-weeks Cold Spell	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	2-weeks Cold Spell DF	0.0	0.8	6.5	0.0	0.0	5.7	0.0	0.0	13.7
Sustainability	CO2 and Other externalities savings	4.2 / 5	9.2 / 9.7	15.3 / 16.4	3.8 / 5.1	12.4 / 13.3	15.9 / 17.7	3.1 / 4.2	12.7 / 13.3	14.1 / 15.7
	Additional benefit (Promoter)	0	0	0	0	0	0	0	0	0

Comparison between the assessed SCENARIOS

ENTSOG runs the assessment for 5-year-rounded years (2020, 2025, 2030 and 2040) and interpolates these results to compute the benefits for the 25-years economic lifetime of projects. The following tables show the benefits as computed in the specific assessment years.

Year of assessment		*2020*									*2025*								
		EXISTING			LOW			ADVANCED			EXISTING			LOW			ADVANCED		
Benefits (Meur/year)		NT	DE	GA	NT	DE	GA	NT	DE	GA	NT	DE	GA	NT	DE	GA	NT	DE	GA
EU Bill benefits With Tariffs	Reference Supply	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	513.3	513.3	513.3	496.5	496.5	496.5	441.7	441.7	441.7
	Supply Maximization	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	745.4	745.4	745.4	728.5	728.5	728.5	660.4	660.4	660.4
Security of Supply	Design Case	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.3	29.1	7.3	4.9	4.9	4.9	2.2	2.2	2.2
	2-weeks Cold Spell	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	2-weeks Cold Spell DF	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sustainability	CO2 and Other externalities savings	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	16 / 17	16 / 17	16 / 17	14 / 15	14 / 15	14 / 15	12 / 13	12 / 13	12 / 13
	Additional benefit (Promoter)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Year of assessment		*2030*									*2040*								
		EXISTING			LOW			ADVANCED			EXISTING			LOW			ADVANCED		
Benefits (Meur/year)		NT	DE	GA	NT	DE	GA	NT	DE	GA	NT	DE	GA	NT	DE	GA	NT	DE	GA
EU Bill benefits With Tariffs	Reference Supply	546.2	611.1	783.1	479.3	535.0	647.8	328.2	406.7	476.2	575.1	372.1	548.3	523.2	346.4	494.3	358.0	274.7	350.5
	Supply Maximization	949.0	1018.1	1195.2	883.4	940.5	1058.4	669.0	730.4	825.3	978.4	692.3	950.7	924.0	664.3	892.7	717.5	475.9	696.9
Security of Supply	Design Case	3.4	3.4	28.6	3.4	3.4	24.3	0.0	1.1	6.5	3.4	1.3	3.4	3.4	1.1	3.4	1.2	0.0	36.2
	2-weeks Cold Spell	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	2-weeks Cold Spell DF	0.0	0.0	17.2	0.0	0.0	14.9	0.0	0.0	19.3	0.0	1.5	0.0	0.0	0.0	0.0	0.0	0.0	16.7
Sustainability	CO2 and Other externalities savings	0 / 1	12 / 14	18 / 19	0 / 1	15 / 16	17 / 18	0 / 0	17 / 19	15 / 16	1 / 1	3 / 3	15 / 17	2 / 2	11 / 11	19 / 22	2 / 2	11 / 11	16 / 19
	Additional benefit (Promoter)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

C.4 Sensitivities analysis on monetised benefits [ENTSOG]

In line with ENTSOG Adapted 2nd CBA Methodology, ENTSOG has also run sensitivities on some relevant assumptions such as tariffs, commissioning year and lower supply source price differential. The results included in the tables below have to be compared with the ones included in section C.3. Further information is available in the common introduction (Pages 1-6) to all project fiches. Independently from the source of the input as described in C3 (ENTSOG or Promoter), the sensitivity analysis has been caried out by ENTSOG and according to the criteria in the approved CBA Methodology.

EXISTING Infrastructure Level

		Commissioning Year Sensitivity			*Lower Tariff Sensitivity*			*Higher Tariff Sensitivity*			*Cost of Disruption Sensitivity*		
Benefits (Meur/year)		NATIONAL TRENDS	DISTRIBUTED ENERGY	GLOBAL AMBITION	NATIONAL TRENDS	DISTRIBUTED ENERGY	GLOBAL AMBITION	NATIONAL TRENDS	DISTRIBUTED ENERGY	GLOBAL AMBITION	NATIONAL TRENDS	DISTRIBUTED ENERGY	GLOBAL AMBITION
EU Bill benefits With Tariffs	Reference Supply	564.1	462.9	637.5	648.8	591.3	717.3	325.2	279.8	368.8	526.1	468.5	587.0
	Supply Maximization	967.2	816.1	1043.6	990.3	901.7	1057.8	645.2	566.3	698.9	865.2	777.2	928.6
Security of Supply	Design Case	3.4	2.1	5.4	4.0	3.2	10.9	4.0	3.2	10.9	2.0	2.0	16.0
	2-weeks Cold Spell	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	2-weeks Cold Spell DF	0.0	1.2	6.5	0.0	0.8	6.5	0.0	0.8	6.5	0.0	2.0	14.5
Sustainability	CO2 and Other externalities savings (MEUR)	0.5 / 0.9	7.2 / 7.2	16.5 / 17.5	4.4 / 5.6	7.3 / 11.2	13.9 / 18.6	1.1 / 1.8	2.5 / 2.7	5.4 / 6	4.2 / 5	9.2 / 9.7	15.3 / 16.4
	Additional benefit (Promoter)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

LOW Infrastructure Level

		Commissioning Year Sensitivity			*Lower Tariff Sensitivity*			*Higher Tariff Sensitivity*			*Cost of Disruption Sensitivity*		
Benefits (Meur/year)		NATIONAL TRENDS	DISTRIBUTED ENERGY	GLOBAL AMBITION	NATIONAL TRENDS	DISTRIBUTED ENERGY	GLOBAL AMBITION	NATIONAL TRENDS	DISTRIBUTED ENERGY	GLOBAL AMBITION	NATIONAL TRENDS	DISTRIBUTED ENERGY	GLOBAL AMBITION
EU Bill benefits With Tariffs	Reference Supply	506.5	418.1	552.6	594.8	545.6	641.7	296.8	253.5	318.9	481.6	431.2	521.2
	Supply Maximization	908.6	769.3	955.7	934.8	854.0	979.7	617.8	538.3	646.2	820.1	738.6	860.7
Security of Supply	Design Case	3.4	2.0	5.7	3.7	2.8	9.1	3.7	2.8	9.1	1.2	1.2	9.1
	2-weeks Cold Spell	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	2-weeks Cold Spell DF	0.0	0.0	5.7	0.0	0.0	5.7	0.0	0.0	5.7	0.0	0.0	12.6
Sustainability	CO2 and Other externalities savings (MEUR)	0.7 / 1.3	13 / 13	18.4 / 20.2	3.9 / 5.2	12.4 / 13.3	15.8 / 17.7	3.6 / 4.8	9.7 / 10.3	11.7 / 13.1	3.8 / 5.1	12.4 / 13.3	15.9 / 17.7
	Additional benefit (Promoter)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

ADVANCED Infrastructure Level

		Commissioning Year Sensitivity			*Lower Tariff Sensitivity*			*Higher Tariff Sensitivity*			*Cost of Disruption Sensitivity*		
Benefits (Meur/year)		NATIONAL TRENDS	DISTRIBUTED ENERGY	GLOBAL AMBITION	NATIONAL TRENDS	DISTRIBUTED ENERGY	GLOBAL AMBITION	NATIONAL TRENDS	DISTRIBUTED ENERGY	GLOBAL AMBITION	NATIONAL TRENDS	DISTRIBUTED ENERGY	GLOBAL AMBITION
EU Bill benefits With Tariffs	Reference Supply	358.2	350.1	399.7	477.0	376.9	529.5	175.7	166.4	199.6	358.2	350.1	399.7
	Supply Maximization	658.3	584.9	697.3	896.1	767.6	941.8	446.2	378.2	472.8	658.3	584.9	697.3
Security of Supply	Design Case	1.3	1.0	4.3	1.3	1.0	4.9	1.3	1.0	4.9	1.8	1.8	5.7
	2-weeks Cold Spell	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	2-weeks Cold Spell DF	0.0	0.0	13.7	0.0	0.0	13.7	0.0	0.0	13.7	0.0	0.0	30.0
Sustainability	CO2 and Other externalities savings (MEUR)	4.4 / 3.1	13.5 / 12.7	15.9 / 14.1	3.2 / 4.5	12.8 / 13.6	18.1 / 20.8	2.9 / 4.2	9.8 / 10.4	12.4 / 14.2	3.1 / 4.2	12.7 / 13.3	14.1 / 15.7
	Additional benefit (Promoter)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

D. Environmental Impact [Promoter]

Any gas infrastructure has an impact on its surroundings. This impact is of particular relevance when crossing some environmentally sensitive areas. Mitigation measures are taken by the promoters to reduce this impact and comply with the EU and National regulations. The Tables have been filled in by the promoter.

TYNDP Code	Type of infrastructure	Surface of impact	Environmentally sensitive area
TRA-F-51	Pipeline (onshore and offshore) Above ground installations	765,000 m 48inch diameter pipeline (onshore) 113,000 m 36inch diameter meter (onshore and offshore) Total area of the compressor stations, block valve stations and pipeline receiving station - 1,500,000 m2.	Whilst wherever possible the pipeline route has been selected to avoid environmentally sensitive areas, over the 878km pipeline length, the pipeline intersects protected areas on 37 occasions.
TRA-N-810	Compressor Station/Upgrade in the existing compressor stations	The FEED has not been started yet.	N/A at this stage
TRA-N-0068	Transmission pipeline	DN 800 (32''), total length 540 km	No
TRA-F-1193	Pipeline	DN 1400 (56") length: 55 km	Not direct interference with environmental sensitive areas. During the EIA only one Habitat listed in the 92/43/EEC has been identified, it is crossed trenchless (Habitat 6210).
TRA-N-7	Sulmona-Foligno pipeline	DN 1200 (48") length 170,22 km	SIC IT7110097 "Fiumi Giardino – Sagittario – Aterno – Sorgenti del Pescara"; ZPS IT7110128 "Parco Nazionale Gran Sasso Monti della Laga"; SIC IT5210067 "Monti Pizzuto – Alvagnano"; SIC IT5210059 "Marcite di Norcia"; SIC IT5210046 "Valnerina".
	Foligno-Sestino Pipeline	DN 1200 (48") length 113,65 (km)	SIC IT5210024 "Fiume Topino"; SIC IT5210013 "Boschi del Bacino di Gubbio"; SIC IT5210004 "Boschi di Pietralunga".
	Sestino-Minerbio pipeline	DN 1200 (48") length 140,70 (km)	SIC-ZPS IT4050022 "Biotopi e ripristini ambientali di Medicina e Molinella"; ZPS IT4050023 "Biotopi e ripristini ambientali di Budrio e Minerbio"; SIC IT4050006 "Valle Benni"; SIC IT4080014 "Rio Mattero e Rio Cuneo".

	Sulmona Compressor station	119.176 sqm	There is not direct interference between the site and the surrounding protected area both Natura 2000 Network and National or regional protected areas
TRA-N-1195	Matagiola-Massafra pipeline	DN 1400 (56") lenght: 79 km	SIC IT9130007 "Aree delle Gravine"
TRA-N-1138	Pipeline and Above Ground Installations (AGI)	DN 1200 (48") length 93 km	During the previously performed desktop study several route corridor alternatives were assessed and a preliminary evaluation was undertaken. The finally selected route bypasses the most environmentally sensitive area Borjomi-Kharagauli National Park in Georgia without any impact on Support Zone.
TRA-F-0941	Above Ground Installation	10,000 m2	No
TRA-N-0971	Compressor Station	The FEED has not yet been finalized	No
TRA-F-1276	Compressor Station	No additional space will be needed as the existing station already includes all the facilities for the addition of a 3rd turbo-compressor unit	No
TRA-N-1278	Compressor Station	20,000 m2	No
TRA-A-782	Pipeline and Above Ground Installations (AGI)	No additional territory will be needed, except additional Compressor Station, a land plot for which has been allocated during Phase 0 and 1.	No
TRA-A-339			

Potential impact	Mitigation measures	Related costs included in project CAPEX and OPEX	Additional expected costs
TRA-F-51 **Environmental social and cultural heritage impact**	TAP completed comprehensive environmental and social impact assessments (ESIA), following international lender guidelines (including IFC, EIB, EBRD performance requirements and the Equator Principles) and EU regulatory requirements. All ESIA's have been approved by the host country competent authorities and involved significant public stakeholder engagement. During planning and construction phase, TAP's environmental, social and cultural heritage (ESCH) performance management is focused on implementation of a set of prioritised steps, known as a	Included in the project costs information	**N/A**

	'mitigation hierarchy'. This is a systematic and dynamic process of assessment, activity planning, management, mitigation and monitoring. TAP has disclosed its ESCH management system (https://www.tap-ag.com/resource-library/reference-documents/project-finance-disclosure) to supplement material already presented to project stakeholders through TAP's extensive engagement programme to the ESIA consultation and disclosure process.		
TRA-F-0941 **No impact is foreseen.** **An environmental impact assessment has been approved by the Ministry of Environment and Energy** and Environmental Terms for the project implementation have been approved		N/A	
TRA-N-0971 In principle no negative impact is expected **especially** if **an electric compressor will be selected**	Noise will be mitigated by housing the station in a building and by using enclosures for the turbo-compressors. In case a gas turbo-compressor will be selected, noise will be mitigated by housing the station in a building and by using enclosures for the turbo-compressors Chimney height and selection of low NOx emitting units will mitigate the exhaust gas issues.	N/A	N/A
TRA-F-1276 The compressor station operation will generate exhaust gas emissions and noise.	Noise will be mitigated by housing the station in a building and by using enclosures for the turbo-compressors. Existing chimney height and selection of low NOx emitting units (similar to the ones already installed) will mitigate the exhaust gas issues.	N/A	N/A
TRA-N-1278 The compressor station operation will generate exhaust gas emissions and noise. as the entire plot is situated in a rural area. An ESIA will be submitted to the permitting authorities	Noise will be mitigated by housing the station in a building and by using enclosures for the turbo-compressors. Moreover, the station will be located far from the closer village. Chimney height and selection of low NOx emitting units will mitigate the exhaust gas issues.	N/A	N/A

TRA-N-081	Construction and operation of the project will be supported by environmental and social management procedures which will be developed as part of the EIA/ESIA process for TAP Expansion.	Since the Binding Phase of TAP's Market Test is scheduled for July 2021, CAPEX and OPEX numbers provided are Class 4 estimates, in accordance with AACE® International Recommended Practice Cost Estimate Classification System, as applied in Engineering Procurement and Construction for the Process Industries No. 18R-97. The cost estimate includes a contingency that reflects the class 4 accuracy of the estimate and any applicable allowance. Cost for environmental and social impact assessments and support activities during the project planning and subsequent stages are included in CAPEX and OPEX provided.	N/A
TRA-N-0068 During construction period the potential impacts on the environment are likely for: air quality, noise, geomorphology, habitats, cultural heritage	For Croatian part of the route TRA-N-0068 EIA procedures have been carried out and Decisions on acceptability have been issued by the Croatian line Ministry. The Ministry' Decision on acceptability includes prescribed relevant environmental protection measures for reducing the potential impacts to the lowest level. EIA procedures were carried out in accordance with Croatian national legislation that is aligned with EU requirements. For the pipeline sections in Albania and Montenegro appropriate assessments (EIA) have also been carried out within Feasibility study.	Included in project CAPEX	
TRA-N-007 - Sulmona-Foligno pipeline Presence of priority habitats and priority fauna species (invertebrates, reptiles, amphibious, mammals, birds and fish).	Optimization of the routing of the pipeline to preserve the Habitats, use of a reduced right of way, care in the execution of the works to preserve wet areas Reintroduction of species of flora and fauna through conservation and naturalization methods; Construction	The additional costs have been incorporated in the relevant cost estimations (CAPEX & OPEX)	N/A

(Att 1-2 Dir.92/43/CEE)	works performed outside of the nesting period of the animal species; Building site areas set up as much as possible outside the Natura 2000 site boundaries. Conservation measures for at least three years following the construction works.		
TRA-N-007 - Foligno-Sestino pipeline Presence of priority habitats and priority fauna species (invertebrates, birds and fish). (Att. 1-2 Dir.92/43/CEE)	Mitigation project for each area SIC agreed with the Region; Optimization of the routing of the pipeline to preserve the Habitats, use of a reduced right of way, care in the execution of the works to preserve wet areas Reintroduction of species of flora and fauna through conservation and naturalization methods; Construction works performed outside of the nesting period of the animal species; Building site areas set up as much as possible outside the Natura 2000 site boundaries. Conservation measures for at least three years following the construction works.	The additional costs have been incorporated in the relevant cost estimations (CAPEX & OPEX)	N/A
TRA-N-007 - Sestino-Minerbio pipeline Presence of primary habitats and priority fauna species (invertebrates, reptiles, amphibious, birds and fish). (Att.1-2 Dir.92/43/CEE)	Reintroduction of species of flora and fauna through conservation and naturalization methods; Construction works performed outside of the nesting period of the animal species; Building site areas set up as much as possible outside the Natura 2000 site boundaries.	The additional costs have been incorporated in the relevant cost estimations (CAPEX & OPEX)	N/A
TRA-N-007 - Sulmona Compressor station The EIA and the asssessment under the habitat directive conducted for the site highlighted that the impact on the surrounding protected areas is negligible	A General mitigations measure not related to sensitive areas is the revegetation of the area of the compressor station	The additional costs have been incorporated in the relevant cost estimations (CAPEX & OPEX)	N/A
TRA-N-1195 Matagiola- Massafra pipeline **Interference with the Habitat and the species (flora and fauna) listed the EU Habitats Directive (92/43/EEC) inside the SIC**	To further analyse the possibility of a trenchless to cross the SIC "Aree delle Gravine"; To further analyse the Olive trees transplant before works and re-planted after works.	The additional costs have been incorporated in the relevant cost estimations (CAPEX & OPEX)	N/A

TRA-F-1193 The only habitat included in the EU Habitats Directive (92/43/EEC) is crossed trenchless	General mitigations, not related to sensitive areas: Olive trees transplanted before works and re-planted after works; Reconstruction of dry stones; Humus preservation; Geomorphologic and vegetation restorations.	Included in the project costs information.	N/A
TRA-N-1138	SCPFX project being an integral part of SCP pipeline system (along with all oil and gas export pipelines in Azerbaijan and Georgia) is subject to comprehensive environmental monitoring, including air emissions. Planned monitoring activities are implemented in accordance with SOCAR approved internal plans and procedures, where SOCAR holds on to its principles to monitor, minimise and, where necessary, mitigate the environmental impact of pipelines operations.	Included in Project CAPEX	Not expected
TRA-A-782	Planned monitoring activities are implemented according to TANAP's robust internal plans and procedures. Besides, TANAP have been conducting comprehensive environmental activities throughout construction of the project, a part of which was co-financed by the European Union.	Included in Project CAPEX	Not expected
TRA-A-339			

Environmental Impact explained [Promoter]

Environmental impact assessments for the projects have not indicated any substantial and irreversible impacts on the environment. In order to ensure that environmental assessments are correct, environmental monitoring is carried out before, during and after the construction of the infrastructure.

The implementation and completion of the projects in the Group will follow the best practices and all environmental laws and prescriptions. The environmental impacts have been minimized by a careful evaluation and choice of the possible routes for the projects' layouts. Additionally, mitigation measures and environmental restoration works ensure that the realization of the projects respects the crossed areas, further minimising potential impacts.

E. Other Benefits [Promoter]

Missing benefits are all benefits of a project which may be not captured by the current application in TYNDP 2020 of the 2nd CBA Methodology.
As a necessary condition a missing benefit cannot have discrepancies with the benefits already covered by the assessment run by ENTSOG and this condition needs to be proved and justified.

Other benefits explained

In case of single large infrastructure unavailability stretching for a period longer than a single day (a realistic case if technical or geopolitical problem cannot be immediately solved), the projects group shows benefits in terms of reduction of demand curtailment. Taking into account a single large infrastructure unavailability longer than a single day and also considering average demand conditions, countries such as Italy could experience demand disruptions: the gas from the Caspian region available to the Southern European markets will improves security of supply, enabling diversification of sources. As a reference, in a scenario where the main Italian import infrastructure (Tarvisio) should be impacted by a 30-day flow interruption, the projects group could mitigate the gas shortage with benefits up to € 111 Million, depending on the following conditions: other sources availability, such as North African gas, and reference years taken into account for benefits determination.

An additional benefit may be accounted also in the North European markets: considering the reverse-flow capacity from Italy to Northern Europe (up to 40mcm/d), the new reserves from Caspian Region can be used to cope with issues affecting a broader part of Europe, such as L-gas replacement and North-Sea decreasing production (latest expectation for Groningen gas field closure in 2022) . Regarding the benefit related to the availability of competitive gas for North-Western Europe, the assessment triggers the following result: for example, any 0,5 €/MWh price difference (the lower price of the gas made possible by diversification and competition effects materialised because of new gas sources via the Southern Corridor), applied to an annual demand of around 5 bcm (an conservative estimation, considering that L-gas consumption just for France, Germany and Belgium is around 30 bcm/year) would lead to potential benefits of 26 M€/year.

The Group provides diversification of routes and supplies (significant cross-border effect, certain projects within this Group enable other PCI and non-PCI projects), enables the connection of the SGC with the existing Croatian transmission system and the supply of CEE and SEE countries and facilitates the gasification of Montenegro, southern Croatia, Albania and Bosnia and Herzegovina.

Improved operation logistics and diversification of European transmission system as it will enable imports of up to 20 bcm/yr through the southern part of the system, improving the EU South-North corridor potential diversification of counterparts in Greece, Italy, and South East Europe will allow potential new participants to enter the respective markets and indirectly access to the EU market.

F. Useful Links

The project website

https://www.tap-ag.com/

http://www.socarmidstream.az

https://www.snam.it/it/index.html

http://w-stream-transcaspian.com/

https://www.tanap.com/

https://www.desfa.gr/en/

https://www.plinacro.hr/

Network Development Plan

PLINACRO NDP2018-2027 (p.64)
https://www.plinacro.hr/UserDocsImages/dokumenti/Desetogodi%C5%A1nji%20plan%20razvoja%20PTS%202018-2027.pdf

SNAM
https://www.snam.it/export/sites/snam-rp/repository-srg/file/it/business-servizi/Processi_Online/Allacciamenti/informazioni/piano-decennale/pd_2020_2029/SRG-Piano-Decennale-2020-2029.pdf

DESFA: https://www.desfa.gr/en/announcements/public-consultations
TAP: N/A
TANAP: N/A
SOCAR Midstream: N/A
Trans Caspian: N/A

PCI Fiche
To be found at this link, page 454 onwards