

**Risikogruppe „Gasversorgung Nordafrika, Algerien“ (EL, ES [Koordination], FR, HR, IT, MT, AT, PT, SI):**

### **1. Beschreibung des Netzes**

*1.1. Geben Sie eine kurze zusammengefasste Beschreibung des regionalen Gasnetzes für jede Risikogruppe (2), an der der Mitgliedstaat teilnimmt, mit folgenden Angaben:*

*a) die wichtigsten Gasverbrauchszahlen (3): jährlicher Endgasverbrauch (Mrd. m<sup>3</sup> und MWh) und Aufschlüsselung nach Art der Kunden (4), Spitzennachfrage (insgesamt und aufgeschlüsselt nach Kategorie der Verbraucher in Mio. m<sup>3</sup>/Tag),*

*b) eine Beschreibung der Funktionsweise des/der Gasnetze(s) in den betreffenden Risikogruppen: Hauptgasflüsse (Einspeisung/Ausspeisung/Durchleitung), Kapazität der Infrastruktur der Einspeise-/Ausspeisepunkte für den Transport in die und aus der/den Region(en) der Risikogruppen und je Mitgliedstaat (einschließlich Nutzungsrate), LNG-Anlagen (maximale tägliche Kapazität, Nutzungsrate und Zugangsregelung) usw.,*

*c) eine prozentuale Aufschlüsselung, soweit möglich, der Gasimportquellen nach Herkunftsland (5),  
d) eine Beschreibung der Rolle der für die Risikogruppe relevanten Speicheranlagen, einschließlich des grenzüberschreitenden Zugangs:*

*i) Speicherkapazität (insgesamt und Arbeitsgas) im Vergleich zur Nachfrage während der Heizperiode, ii) maximale tägliche Entnahmekapazität bei unterschiedlichen Füllständen (idealerweise bei vollen Speichern und bei Füllständen am Ende der Heizperiode);*

*e) eine Beschreibung der Rolle der heimischen Produktion in der/den Risikogruppe(n):*

*i) Produktionsmenge im Vergleich zum jährlichen Endgasverbrauch,*

*ii) maximale tägliche Produktionskapazität sowie eine Beschreibung, wie diese den maximalen täglichen Verbrauch decken kann;*

*f) eine Beschreibung der Rolle von Gas bei der Stromerzeugung (z. B. Bedeutung und Rolle als Ersatz für erneuerbare Energien) unter Einbeziehung der Erzeugungskapazität von Gaskraftwerken (insgesamt (MWe) und als Prozentsatz der gesamten Erzeugungskapazität) und der Kraft-Wärme-Kopplung (insgesamt (MWe) und als Prozentsatz der gesamten Erzeugungskapazität).*

### **Greece**

#### Transport Network

The National Natural Gas System (NNGS) transports Natural Gas from the Greek-Bulgarian and Greek-Turkish borders, as well as from the Liquefied Natural Gas (LNG) terminal located on the island of Revithoussa in the Megara bay, to consumers in the continental Greece.

The network has three entry points: two at the north and north-eastern borders, Sidirokastro and Kipi, connecting Greece with the Bulgarian and Turkish gas networks, and one in southern Greece, Agia Triada, linked to the LNG terminal.

The two pipeline entry points have a total capacity of 170 GWh/d. The Greek-Turkish interconnector at Kipi brings gas mainly from the Middle East and the Caspian region into Greece. The interconnector with Bulgaria allows gas flows from the Russian Federation via Ukraine-Republic of Moldova-Romania-Bulgaria.

The NNGS consists of:

- The main pipeline with 512 km length and 36 and 30 inches diameter, and the branches of total length of 952 km which connect various areas of the country to the main pipeline;

- The Border Meter Stations at Sidirokastron, near Serres, and at Kipi near Evros river;
- The LNG Station at Revythoussa;
- The Compression Station at Nea Messimvria, Thessaloniki;
- The Natural Gas Metering and Regulating Stations;
- The Control and Dispatching Centers at Patima Elefsinas and at Nea Mesimvria near Thessaloniki;
- The Operation & Maintenance Centers of Sidirokastron Border Metering Station, Eastern Greece, Northern Greece, Central Greece, Southern Greece and the Peloponnesse;
- The Remote Control & Communications system; and
- Two submarine (offshore) pipelines, each one a back-up to the other, of 24 inches diameter each and of 620m and 510m long length that connect the Revythoussa LNG Station to the Transmission System.



Figure 7: Greek gas system

### Compression Stations

The Transmission System has one Compression station at Nea Mesimvria.

### LNG Facilities

The biggest natural gas infrastructure of Greece is the LNG Terminal on Revythoussa Island. This terminal is the only installation in the NNGS, which can temporarily store up to 130,000 m<sup>3</sup> LNG. It consists of:

- Two LNG storage tanks, 65,000 m<sup>3</sup> each;

- LNG unloading installations of maximum LNG unloading rate 7,250 m<sup>3</sup> LNG/h; and

LNG gasification installations of sustained maximum sendout rate 1,000 m<sup>3</sup> LNG/h and peak sendout rate 1,250 m<sup>3</sup> LNG/h. The Revythoussa LNG Terminal is going to be upgraded by the end of September 2018. The Project, which is now in progress, includes:

- The construction of a 3rd LNG tank of 95,000 m<sup>3</sup>;
- The upgrading of gasification rate (from 150 GWh/d to 230.4 GWh/d);
- The upgrading of marine to accommodate larger vessels (allowing the reception of LNG vessels with a capacity of up to 260,000 m<sup>3</sup> from 140,000 m<sup>3</sup>).
- The upgrading of Agia Triada Entry Point of the Transmission System.

### Underground Storage

N/A

### Key data 2016

<b>PRODUCTION (GWh)</b>	<i>Maximum Production</i>	-	
<b>POWER GENERATION (Mwe)</b>	<i>Installed gas-fired capacity</i>	5,202	
<b>DEMAND (GWh)</b>	<i>Total 2016</i>	44,419	<b>Total 2016</b> 1 Jan 2016 to 31 Dec 2016
	<i>Summer</i>	19,215	<b>Summer</b> 1 Apr 2016 to 30 Sep 2016
	<i>Winter</i>	29,568	<b>Winter</b> 1 Oct 2016 to 31 Mar 2017
	<i>Max. Day</i>	276	
	<i>Min Day</i>	40	

## **Spain**

### Transport Network

Spain gas system has around 81,000 kilometers of natural gas pipelines. Enagás Transporte operates more than 95% of transport pipelines.

The Spanish gas grid is connected with Algeria, Morocco, Portugal and France.

Algerian gas is imported through two non-bi-directional interconnection points:

- Maghreb-Europe pipeline (entry point: Tarifa), via Morocco.
- Medgaz pipeline (entry point: Almeria).

The interconnections with France:

- VIP PIRINEOS (Larrau and Irún),

and Portugal:

- VIP IBERICO (Badajoz and Tuy bi-directional)

Spain's total import capacity via pipeline is 1,039 GWh/d whilst Spain is able to export up to 369 GWh/d.



Figure 11: Spanish gas system

### Compression Stations

The Spanish gas system has 19 compression stations.

### LNG Facilities

Spain has the largest LNG regasification capacity in the European Union having six operating regasification plants.

- Barcelona
- Cartagena
- Huelva
- BBG
- Sagunto
- Reganosa (owned by REGANOSA, certified as TSO).

They have a total LNG storage capacity of 3,308,680 m<sup>3</sup> and a regasification capacity of 1,910 GWh/d.

### Underground Storage

Spain has four operating underground gas storages sites. They have a combined working gas capacity of 32,059 TWh, a total injection capacity of 127 GWh/d and a withdrawal capacity of 239 GWh/d.

Three storage facilities are depleted gas fields: Gaviota (offshore, Basque Country), Serrablo (Huesca) and Marismas (Huelva). Yela (Guadalajara) is a saline aquifer.

Marismas is owned by a subsidiary of Naturgy, and the other three by Enagás Transporte.

### Key Data 2016

<b>PRODUCTION (GWh)</b>	<i>Maximum Production</i>	5	
<b>POWER GENERATION (Mwe)</b>	<i>Installed gas-fired capacity</i>	32,323	
<b>DEMAND (GWh)</b>	<i>Total 2016</i>	321,443	<b>Total 2016</b> 1 Jan 2016 to 31 Dec 2016
	<i>Summer</i>	137,419	<b>Summer</b> 1 Apr 2016 to 30 Sep 2016
	<i>Winter</i>	191,486	<b>Winter</b> 1 Oct 2016 to 31 Mar 2017
	<i>Max. Day</i>	1,589	
	<i>Min Day</i>	567	

### **France**

#### Transport Network

The natural gas transmission network is operated by two TSOs: GRTgaz and TERECA. GRTgaz manages 8,110 km of main network and 24,043 km of regional network. This is more than 85% of the gas transmission network in France. TERECA manages 650 km of main network and 4,450 km of regional network in the south-west of France, which is around 14% of the country's total network.

France has an entry/exit system with 7 entry/exit points:

- VIP Pirineos (formed by the physical IP Larrau and Biriadou)
- Oltingue
- Jura
- Alveringem
- Taisnieres
- Dunkerque
- Obergailbach

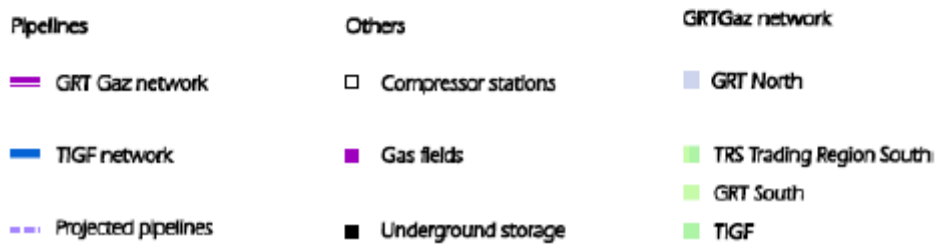


Figure 6: French gas system

### Compression Stations

GRTgaz operates twenty-seven compression stations while TEREGA operates five.

### LNG Facilities

France has four operating LNG terminals:

- Dunkerque LNG
- Montoir-de-Bretagne
- Fos-Cavaou
- Fos-Tonkin

The total regasification capacity is 1,267 GWh/d, having a total maximum inventory of 1,370,000 m<sup>3</sup>, making France the third-largest LNG capacity holder in Europe.

### Underground Storage

France has fifteen gas storage facilities; thirteen of those are operated by Storengy, a subsidiary of ENGIE. Ten of those thirteen sites are aquifers located in the Paris Basin; the remaining three are salt caverns located in the south-east.

The total working volume in France is 134,465 TWh, being the maximum injection capacity 1,220 GWh/d and the maximum withdrawal capacity 2,389 GWh/d.

### Key data 2016

<b>PRODUCTION (GWh)</b>	<i>Maximum Production</i>	-	
<b>POWER GENERATION (Mwe)</b>	<i>Installed gas-fired capacity</i>	11,679	
<b>DEMAND (GWh)</b>	<i>Total 2016</i>	491,322	<b>Total 2016</b> 1 Jan 2016 to 31 Dec 2016
	<i>Summer</i>	144,711	<b>Summer</b> 1 Apr 2016 to 30 Sep 2016
	<i>Winter</i>	355,869	<b>Winter</b> 1 Oct 2016 to 31 Mar 2017
	<i>Max. Day</i>	3153	
	<i>Min Day</i>	416	

## **Croatia**

### Transport Network

Gas Transport Infrastructure owned by PLINACRO d.o.o. has a total of 2,694 km of transport pipelines, of which:

- 952 km are maximum 75 bar gas pipeline, diameter DN 200 to DN 800 mm
- 1,742 km of pipeline with maximum working pressure of 50 bar, diameter from DN 80 to DN 500 mm.

Gas is transported to the transmission system at input metering stations:

- 2 of them are located at the entry point in the interconnections with the transmission systems of the Republic of Slovenia and Hungary
- 7 are input metering stations on natural gas production plants
- 1 is an input metering station (MS) shared with the underground storage facility of Okoli.



Figure 5: Croatian gas system

Croatia's total import capacity is 132 GWh/d whilst no export capacity is available.

#### LNG Facilities

N/A

#### Storage

There is only one gas storage infrastructure, located at Okoli, Naftaplinska 10, Velika Ludina, and is part of the Underground Gas Storage Ltd., which is owned by PLINACRO d.o.o.

The working volume of the warehouse is 5,065 TWh, being the maximum injection capacity 45.43 GWh/d and the maximum withdrawal capacity 60.57 GWh/d.

#### Key data 2016

<b>PRODUCTION (GWh)</b>	<i>Maximum Production</i>	37	
<b>POWER GENERATION (Mwe)</b>	<i>Installed gas-fired capacity</i>	731	
<b>DEMAND (GWh)</b>	<i>Total 2016</i>	27,141	<b>Total 2016</b> 1 Jan 2016 to 31 Dec 2016
	<i>Summer</i>	8,698	<b>Summer</b> 1 Apr 2016 to 30 Sep 2016
	<i>Winter</i>	20,232	<b>Winter</b> 1 Oct 2016 to 31 Mar 2017
	<i>Max. Day</i>	175	
	<i>Min Day</i>	23	



## *Italy*

### Transport Network

Gas transmission activities in Italy are mainly carried out by Snam Rete Gas S.p.A., which owns and operates approximately 95% of the natural gas transmission network, around 32,306 km of pipeline.

There are five interconnectors:

- Transmed
- Greenstream
- TAG
- TENP/Transitgas
- Italy Slovenia

The combined natural gas import capacity of the five pipeline entry points is 3,739 GWh/d. All of Italy's northern natural gas pipeline interconnectors have reverse flow capacity:

- Tarvisio
- Gorizia
- Gries Pass

The other two interconnectors does not have reverse flow:

- Mazara del Vallo
- Gela



Figure 8: Italian gas system

### Compression Stations

The Italian gas system has twelve compression stations.

### LNG Facilities

Italy also has three operational LNG regasification terminals:

- Adriatic (Cavarzere) offshore LNG
- Panigaglia terminal
- Livorno offshore terminal

The total regasification capacity of Italian system is 576 GWh/d having a total maximum inventory of 427,160 m<sup>3</sup>.

### Underground Storage

The storage facilities are managed by Stocaggi Gas Italia (Stogit), the legally unbundled storage company of ENI, and by Edison Stocaggio, the legally unbundled storage company of Edison. Stogit is 100% owned by Snam, and Edison Stocaggio is 100% owned by Edison.

Stogit operates a total capacity of 183,688 TWh of gas storage whilst Edison Stocaggio operates 10,838 TWh. The nominal aggregated withdrawal capacity of the Italian system is 2,868 GWh/d.

Key data 2016

<b>PRODUCTION (GWh)</b>	<i>Maximum Production</i>	179	
<b>POWER GENERATION (Mwe)</b>	<i>Installed gas-fired capacity</i>	39,510	
<b>DEMAND (GWh)</b>	<i>Total 2016</i>	742,453	<b>Total 2016</b> 1 Jan 2016 to 31 Dec 2016
	<i>Summer</i>	257,161	<b>Summer</b> 1 Apr 2016 to 30 Sep 2016
	<i>Winter</i>	506,836	<b>Winter</b> 1 Oct 2016 to 31 Mar 2017
	<i>Max. Day</i>	4481	
	<i>Min Day</i>	836	

**Malta**Transport Network

N/A

Compression Stations

N/A

LNG Facilities

In January 2017, Malta began its gas supply thanks to the new floating storage and regasification unit at Delimara, which supplies gas to the new power plant.

The terminal has a total LNG storage capacity of 125,000 m<sup>3</sup> and a maximum send-out capacity of 165 GWh/d.

Since the beginning of the operation, Delimara LNG terminal has not received Algerian gas, so that it would not be directly affected by an hypothetical curtailment in the Algerian LNG supply.

Up till now, Malta has purchased LNG from the following countries of origin:

- Netherlands
- USA
- Equatorial Guinea
- Egypt
- Trinidad

Underground Storage

N/A

Key data 2016(\*)

<b>PRODUCTION (GWh)</b>	<i>Maximum Production</i>	-	
<b>POWER GENERATION (Mwe)</b>	<i>Installed gas-fired capacity</i>	358	
<b>DEMAND (GWh)</b>	<i>Total 2016</i>	-	<b>Total 2016</b> 1 Jan 2016 to 31 Dec 2016
	<i>Summer</i>	-	<b>Summer</b> 1 Apr 2016 to 30 Sep 2016
	<i>Winter</i>	118	<b>Winter</b> feb to Mar 2017
	<i>Max. Day</i>	-	
	<i>Min Day</i>	-	

(\*) Malta started operation in January 2017 with the introduction of the FSRU.

## **Portugal**

### Transport Network

The National Natural Gas Transmission Network (RNTGN) consists of main and branch pipelines totalling 1,375 km and two hundred and three pipeline stations. The entire network operates as a single balancing zone and is managed by REN Gasodutos.

The backbone of the system is the main pipeline running through the west of the country between Sines and Valença do Minho, where the main natural gas consumption points are located, a transit pipeline interconnecting the central zone of the system in the Leiria - Pombal area with the eastern border with Spain, two lines that supply the interior of the country in Beira Interior, and several branches, including the one that supplies the Lisbon area and a connection to the Carriço underground storage facility.

The main entry points in the network include the connection of the Sines LNG terminal, the connection point to the Carriço underground storage facility and the reversible interconnection with the Spanish high-pressure natural gas network:

- VIP IBERICO (formed by the physical IP of Campo Maior and Valença do Minho, both bi-directional)

The two pipelines have a total import capacity of 144 GWh/d and an export capacity of 80 GWh/d.



Figure 9: Portuguese gas system

### Compression Stations

N/A

### LNG Facilities

The Sines LNG terminal has three tanks with a combined storage capacity of 390,000 m<sup>3</sup>. The plant's send-out capacity is 321 GWh/d, but it's limited by the pipeline receiving capacity of 229 GWh/d.

### Underground Storage

Portugal has one natural gas storage facility. The Carrizão underground storage has six salt caverns in operation, since the end of 2014, and a maximum working volume of 3.839 TWh of natural gas. It has a nominal withdrawal capacity of 71 GWh/d for storage capacity of less than 60% and 129 GWh/d for storage capacity greater than 60%, and an injection capacity up to 24 GWh/d.

### Key data 2016

<b>PRODUCTION (GWh)</b>	<i>Maximum Production</i>	-	
<b>POWER GENERATION (Mwe)</b>	<i>Installed gas-fired capacity</i>	3,829	
<b>DEMAND (GWh)</b>	<i>Total 2016</i>	54,513	<b>Total 2016</b> 1 Jan 2016 to 31 Dec 2016
	<i>Summer</i>	27,120	<b>Summer</b> 1 Apr 2016 to 30 Sep 2016
	<i>Winter</i>	32,520	<b>Winter</b> 1 Oct 2016 to 31 Mar 2017
	<i>Max. Day</i>	247	
	<i>Min Day</i>	72	

## Slovenia

### Transport Network

The Slovenian gas transmission network consists of 1,121 kilometers of pipelines, 246 metering-regulation stations and around 300 measurements points.

The central part of the network includes

- M1 from Ceršak to Rogatec, Vodice with a nominal pressure of 50 bars.
- M2 from Rogatec through Podlog to Vodice with a nominal pressure of 50 bars.
- M4 from Roden to Novo Mesto with a nominal pressure of 50 bars,
- M3 from Šempeter near Nova Gorica to Vodice with a nominal pressure of 67 bars.



Figure 10: Slovenian gas system

The Slovenian gas transmission network is connected with the gas transmission networks of Austria, Italy and Croatia via:

- Šempeter
- Rogatec
- Ceršak

Slovenia's total import capacity is 168 GWh/d whilst is able to export up to 94 GWh/d.

## Compression Stations

The Slovenian gas system has two compression stations

- Kidričevo
- Ajdovščina

## LNG Facilities

N/A

## Underground Storage

N/A

## Key data 2016

<b>PRODUCTION (GWh)</b>	Maximum Production	0	
<b>POWER GENERATION (Mwe)</b>	Installed gas-fired capacity	84	
<b>DEMAND (GWh)</b>	Total 2016	9,278	<b>Total 2016</b> 1 Jan 2016 to 31 Dec 2016
	Summer	3,304	<b>Summer</b> 1 Apr 2016 to 30 Sep 2016
	Winter	6,305	<b>Winter</b> 1 Oct 2016 to 31 Mar 2017
	Max. Day	56	
	Min Day	13	

## 2. Infrastrukturstandard (Artikel 5)

viii) Falls mit den zuständigen Behörden der betreffenden Risikogruppen(n) oder mit direkt verbundenen Mitgliedstaaten vereinbart, gemeinsame Berechnung(en) des N – 1-Formel:

— Berechnung der N – 1-Formel gemäß Anhang II Nummer 5,

— Beschreibung der Werte, die für alle Elemente in der N – 1 Formel verwendet werden, einschließlich der für ihre Berechnung verwendeten Zwischenwerte (falls diese von den unter Nummer 2 Buchstabe a Unternummer iii beschriebenen Werten abweichen),

— Angabe der für die Berechnung der Parameter in der N – 1 Formel (z. B. Dmax) zugrunde gelegten Methodologien und etwaigen Annahmen (Verwendung von Anhängen zwecks ausführlicher Erläuterungen)

— Erläuterung der Vereinbarungen, die getroffen wurden, um die Einhaltung der N – 1-Formel sicherzustellen;

### Infrastructure standard

#### *Preliminary considerations*

The infrastructure with the greatest capacity at the regional level is the interconnection between Austria and Slovakia via Baumgarten with a firm entry capacity of 2,306 GWh/d. Thereby this infrastructure will be considered for the calculation of the N-1 formula at regional level.

The constitution of the risk group is based on the importance of supply of Algerian gas in the region, thus an analogous calculation of the N-1 formula, considering the largest infrastructure that imports gas from Algeria, has also been carried out. This infrastructure is Transmed pipeline across the entry point of Mazara del Vallo in Italy: 1,203.3 GWh/d.

Both N-1 formulas are calculated taking into account different points of the withdrawal capacity curve of underground storages, for different filling levels. Consequently, different results can be obtained for each of the infrastructures. In order to facilitate the assessment, only the most severe combination, for a filling level of 30%, is considered below. Calculation do not take into account the loss of capacity of TENP pipeline system (reduced for survey activity due to corrosion phenomena) affecting southbound flows from Germany to Italy through Switzerland.

#### *N-1 formula for Baumgarten*

Results of the N-1 standard are well above 100%: decreasing from 127% in the winter 2018/2019 to 123% in the winter 2021/2022. In fact, a total disruption of the gas flow through the Baumgarten interconnection took place in the last winter 2017/2018 during less than 24 hours in specially demanding conditions. Both Austrian and Italian gas systems were able to react swiftly and supply their demand thanks to withdrawal capacity. Moreover, Transmed pipeline also increased significantly its flow during the day. The main parameters used in the calculation of the N-1 formula are shown in Table 1.



	winter 2018-2019		winter 2019-2020		winter 2020-2021		winter 2021-2022	
	GW/day	month	GW/day	month	GW/day	month	GW/day	month
<b>Epm</b>	<b>8.026</b>	<b>690</b>	<b>8.080</b>	<b>695</b>	<b>8.080</b>	<b>695</b>	<b>8.080</b>	<b>695</b>
Tarifa (Spain)	444	38	444	38	444	38	444	38
Almeria (Spain)	290	25	290	25	290	25	290	25
Mazara del Vallo (Italy)	1.227	106	1.227	106	1.227	106	1.227	106
Gela (Italy)	546	47	546	47	546	47	546	47
Pizzo Gries (Italy)	695	60	695	60	695	60	695	60
Baumgarten (Austria)	2.306	198	2.306	198	2.306	198	2.306	198
Oberkappel (Austria)	362	31	362	31	362	31	362	31
Kufate (BG) / Sitirokastro (Greece)	121	10	121	10	121	10	121	10
Kipi (Greece)	48	4	48	4	48	4	48	4
Interconnection between TAP and DESFA	0	0	54	5	54	5	54	5
Dravszerdahely (Croatia)	77	7	77	7	77	7	77	7
Oberzellbach (France)	570	49	570	49	570	49	570	49
Taizieres (France)	770	66	770	66	770	66	770	66
Dunkerque (France)	570	49	570	49	570	49	570	49
<b>Pm</b>	<b>325</b>	<b>28</b>	<b>325</b>	<b>28</b>	<b>325</b>	<b>28</b>	<b>325</b>	<b>28</b>
Austria	44	4	44	4	44	4	44	4
Croatia	108	9	108	9	108	9	108	9
France	0	0	0	0	0	0	0	0
Greece	0	0	0	0	0	0	0	0
Italy	169	15	169	15	169	15	169	15
Malta	0	0	0	0	0	0	0	0
Portugal	0	0	0	0	0	0	0	0
Spain	4	0,4	4	0,4	4	0,4	4	0,4
Slovenia	0	0	0	0	0	0	0	0
<b>Sm (30 % filled)</b>	<b>4.726</b>	<b>406</b>	<b>4.731</b>	<b>407</b>	<b>4.735</b>	<b>407</b>	<b>4.738</b>	<b>407</b>
Austria	926	80	926	80	926	80	926	80
Croatia	39	3	39	3	39	3	39	3
France	1.669	143	1.669	143	1.669	143	1.669	143
Greece	0	0	0	0	0	0	0	0
Italy	1.877	161	1.877	161	1.877	161	1.877	161
Malta	0	0	0	0	0	0	0	0
Portugal	71	6	71	6	71	6	71	6
Spain	143	12	148	13	152	13	155	13
Slovenia	0	0	0	0	0	0	0	0
<b>LNGm</b>	<b>4.377</b>	<b>376</b>	<b>4.377</b>	<b>376</b>	<b>4.377</b>	<b>376</b>	<b>4.377</b>	<b>376</b>
Dunkerque LNG Terminal (France)	520	45	520	45	520	45	520	45
Fos Tankin LNG Terminal (France)								
Fos Ceveou LNG Terminal (France)	410	35	410	35	410	35	410	35
Montoir de Bretagne LNG Terminal (France)	337	29	337	29	337	29	337	29
Revythoussa LNG Terminal (Greece)	230	20	230	20	230	20	230	20
Adriatic LNG Terminal (Italy)	290	25	290	25	290	25	290	25
Panigaglia LNG Terminal (Italy)	118	10	118	10	118	10	118	10
FSRU OLT Offshore LNG Toscana (Italy)	168	14	168	14	168	14	168	14
Delimara LNG Terminal (Malta)	165	14	165	14	165	14	165	14
Sines LNG Terminal (Portugal)	229	20	229	20	229	20	229	20
Bilbao LNG Terminal (Spain)	223	19	223	19	223	19	223	19
Barcelona LNG Terminal (Spain)	543	47	543	47	543	47	543	47
Cerbogera LNG Terminal (Spain)	376	32	376	32	376	32	376	32
Huelva LNG Terminal (Spain)	376	32	376	32	376	32	376	32
Mugartos LNG Terminal (Spain)	115	10	115	10	115	10	115	10
Segunto LNG Terminal (Spain)	278	24	278	24	278	24	278	24
<b>Im (Baumgarten)</b>	<b>2.306</b>	<b>198</b>	<b>2.306</b>	<b>198</b>	<b>2.306</b>	<b>198</b>	<b>2.306</b>	<b>198</b>
<b>Dmax</b>	<b>12.145</b>	<b>1.044</b>	<b>12.334</b>	<b>1.060</b>	<b>12.415</b>	<b>1.067</b>	<b>12.465</b>	<b>1.072</b>
Austria	501	43	501	43	501	43	501	43
Croatia	188	16	191	16	205	18	211	18
France	4.020	346	4.020	346	4.020	346	4.020	346
Greece	231	20	248	21	270	23	265	23
Italy	4.916	423	4.983	428	4.999	430	5.009	431
Malta	13	1	13	1	13	1	13	1
Portugal	252	22	247	21	243	21	243	21
Spain	1.975	170	2.079	179	2.111	182	2.150	185
Slovenia	50	4	51	4	52	4	53	5
<b>Deff</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>% N-1</b>	<b>125%</b>		<b>123%</b>		<b>123%</b>		<b>122%</b>	

Table 1: N-1 formula for Baumgarten; winters 2018-2019, 2019-2020, 2020-2021 and 2021-2022

### N-1 formula for Transmed (Mazara del Vallo)

Results of the N-1 standard are also well above 100%: decreasing from 136% in the winter 2018/2019 to 132% in the winter 2021/2022. In fact, this event is assessed in one of the scenarios considered in chapter 4 as a result of the technical disruption risks detected in chapter 3. The main parameters used in the calculation of the N-1 formula are shown in Table 2.

	winter 2018-2019		winter 2019-2020		winter 2020-2021		winter 2021-2022	
	GW/day	month	GW/day	month	GW/day	month	GW/day	month
<b>Epm</b>	<b>8.026</b>	<b>690</b>	<b>8.080</b>	<b>695</b>	<b>8.080</b>	<b>695</b>	<b>8.080</b>	<b>695</b>
Tarifa (Spain)	444	38	444	38	444	38	444	38
Almeria (Spain)	290	25	290	25	290	25	290	25
Mazara del Vallo (Italy)	1.227	108	1.227	108	1.227	108	1.227	108
Gela (Italy)	548	47	548	47	548	47	548	47
Passo Gries (Italy)	895	80	895	80	895	80	895	80
Baumgarten (Austria)	2.308	198	2.308	198	2.308	198	2.308	198
Oberkappel (Austria)	382	31	382	31	382	31	382	31
Kalata (BG) / Skirokastron (Greece)	121	10	121	10	121	10	121	10
Nipi (Greece)	48	4	48	4	48	4	48	4
Interconnection between TAP and DESFA	0	0	54	5	54	5	54	5
Dravazerdahely (Croatia)	77	7	77	7	77	7	77	7
Obergalbach (France)	570	49	570	49	570	49	570	49
Talencers (France)	770	66	770	66	770	66	770	66
Dunkerque (France)	570	49	570	49	570	49	570	49
<b>Pm</b>	<b>325</b>	<b>28</b>	<b>325</b>	<b>28</b>	<b>325</b>	<b>28</b>	<b>325</b>	<b>28</b>
Austria	44	4	44	4	44	4	44	4
Croatia	108	9	108	9	108	9	108	9
France	0	0	0	0	0	0	0	0
Greece	0	0	0	0	0	0	0	0
Italy	189	15	189	15	189	15	189	15
Malta	0	0	0	0	0	0	0	0
Portugal	0	0	0	0	0	0	0	0
Spain	4	0,4	4	0,4	4	0,4	4	0,4
Slovenia	0	0	0	0	0	0	0	0
<b>Sm (30 % filled)</b>	<b>4.726</b>	<b>406</b>	<b>4.731</b>	<b>407</b>	<b>4.735</b>	<b>407</b>	<b>4.738</b>	<b>407</b>
Austria	926	80	926	80	926	80	926	80
Croatia	39	3	39	3	39	3	39	3
France	1.669	143	1.669	143	1.669	143	1.669	143
Greece	0	0	0	0	0	0	0	0
Italy	1.877	161	1.877	161	1.877	161	1.877	161
Malta	0	0	0	0	0	0	0	0
Portugal	71	6	71	6	71	6	71	6
Spain	143	12	148	13	152	13	155	13
Slovenia	0	0	0	0	0	0	0	0
<b>LNGm</b>	<b>4.377</b>	<b>376</b>	<b>4.377</b>	<b>376</b>	<b>4.377</b>	<b>376</b>	<b>4.377</b>	<b>376</b>
Dunkerque LNG Terminal (France)	520	45	520	45	520	45	520	45
Fos Tonkin LNG Terminal (France)								
Fos Cavaou LNG Terminal (France)	410	35	410	35	410	35	410	35
Montor de Bretagne LNG Terminal (France)	337	29	337	29	337	29	337	29
Revythoussa LNG Terminal (Greece)	230	20	230	20	230	20	230	20
Adriatic LNG Terminal (Italy)	290	25	290	25	290	25	290	25
Fanigaglia LNG Terminal (Italy)	118	10	118	10	118	10	118	10
FSRU OLT Offshore LNG Toscana (Italy)	168	14	168	14	168	14	168	14
Delimara LNG Terminal (Malta)	165	14	165	14	165	14	165	14
Sines LNG Terminal (Portugal)	229	20	229	20	229	20	229	20
Bilbao LNG Terminal (Spain)	223	19	223	19	223	19	223	19
Barcelona LNG Terminal (Spain)	543	47	543	47	543	47	543	47
Cartagena LNG Terminal (Spain)	378	32	378	32	378	32	378	32
Huelva LNG Terminal (Spain)	378	32	378	32	378	32	378	32
Mugardos LNG Terminal (Spain)	115	10	115	10	115	10	115	10
Sagunto LNG Terminal (Spain)	278	24	278	24	278	24	278	24
<b>Im (Mazara)</b>	<b>1.227</b>	<b>198</b>	<b>1.227</b>	<b>198</b>	<b>1.227</b>	<b>198</b>	<b>1.227</b>	<b>198</b>
<b>Dmax</b>	<b>12.145</b>	<b>1.044</b>	<b>12.334</b>	<b>1.060</b>	<b>12.415</b>	<b>1.067</b>	<b>12.465</b>	<b>1.072</b>
Austria	501	43	501	43	501	43	501	43
Croatia	188	16	191	16	205	18	211	18
France	4.020	348	4.020	348	4.020	348	4.020	348
Greece	231	20	248	21	270	23	285	23
Italy	4.916	423	4.983	428	4.999	430	5.009	431
Malta	13	1	13	1	13	1	13	1
Portugal	252	22	247	21	243	21	243	21
Spain	1.975	170	2.079	179	2.111	182	2.150	185
Slovenia	50	4	51	4	52	4	53	5
Deff	0	0	0	0	0	0	0	0
<b>% N-1</b>	<b>134%</b>		<b>132%</b>		<b>131%</b>		<b>131%</b>	

Table 2: N-1 formula for Transmed (Mazara del Vallo); winters 2018-2019, 2019-2020, 2020-2021 and 2021-2022

## COOPERATION MECHANISM WITHIN THE "ALGERIA" GROUP OF RISK

## Background

Regulation (EU) 2017/1938 of the European Parliament and of the Council of 25 October 2017 concerning measures to safeguard the security of gas supply and repealing Regulation (EU) No 994/2010 establishes in its recital number 15 that:

«In order to make the regional cooperation feasible, Member States should agree on a cooperation mechanism within each risk group. Such a mechanism should be developed sufficiently in time to allow for conducting the common risk assessment and discussing and agreeing on appropriate and effective cross-border measures, which will require the agreement of each Member State concerned, to be included in the regional chapters of the preventive action plans and the emergency plans, after consulting the Commission. Member States are free to agree on a cooperation mechanism best suited to a given risk group. The Commission should be able to have a facilitating role in the overall process and share best practices for arranging regional cooperation such as a rotating coordination role within the risk groups for the preparation of the different documents or establishing dedicated bodies. In the absence of an agreement on the cooperation mechanism, the Commission should propose a suitable cooperation mechanism for a given risk group».

In relation to the common risk assessment and according to the Article 7 «the competent authorities within each risk group shall agree on a cooperation mechanism to conduct the common risk assessment and report it to the GCG eleven months before the deadline for the notification of the common risk assessment and its updates. At the request of a competent authority the Commission may have a facilitating role in the preparation of the common risk assessment, in particular for the establishment of the cooperation mechanism. If competent authorities within a risk group do not agree on a cooperation mechanism, the Commission shall propose a cooperation mechanism for that risk group, after consulting the competent authorities concerned. The competent authorities concerned shall agree on a cooperation mechanism for that risk group taking utmost account of the Commission's proposal.

10 months before the deadline for the notification of the common risk assessment or its updates, each competent authority shall share and update, within the agreed cooperation mechanism, all national data necessary for the preparation of the common risk assessment, in particular for running the various scenarios referred to in point (c) of paragraph 4».

Lastly, Annex VII describes a template for emergency plans. Among measures to be adopted per crisis level, cooperation mechanisms are included as follows:

- a) «describe the mechanisms in place to cooperate within each of the relevant risk groups and to ensure appropriate coordination for each crisis level. Describe, to the extent they exist and have not been covered in point 2, the decision-making procedures for appropriate reaction at regional level at each crisis level.
- b) describe the mechanisms in place to cooperate with other Member States out of the risk groups and to coordinate actions for each crisis level».

Regulation (EU) 2017/1938 was published in the Official Journal of the European Union on 28 of October 2017 and is applicable from 1 November 2017.

On the basis of the above, the Commission has proposed a “rotatory leader system” in the Gas Coordination Group held on 27 September 2017. After, the Commission asked for volunteers to hold the pen if this rotatory leader system is adopted.

Taking into account Spain imported more than 50% of gas supplies from Algeria in 2016, is one of the key destinations of Algerian exports and may be the most affected Member State in the case of a disruption, expressed its willingness to play the role of leader for the first common risk assessment. As a consequence, this Cooperation Mechanism has been proposed to be presented in the Gas Coordination Group of 9 November 2017. It shall be modified and new chapters will be added when necessary by consensus.

## **I. PRINCIPLES**

### **1. Subject matter.**

The key aim of this document is to establish a permanent cooperation mechanism for the “Algeria” group of risk. This mechanism shall be valid to organise:

- a) Preparation and notification of the common risk assessment, according to Article 7.
- b) Preparation and notification of the regional chapters for national preventive action plans and emergency plans, according to Article 8.
- c) Coordination in case of declaration of any crisis level in the emergency plans, according to Annex VII.
- d) Any coordination task to be addressed within the group of risk.

### **2. Member States in the “Algeria” group of risk**

“Algeria” group of risk is composed of: Greece, Spain, France, Croatia, Italy, Malta, Austria, Portugal, Slovenia. A contact list is attached in the Annex of this document.

Members States commit to update this list whenever it is necessary.

### **3. Rotatory coordinator mechanism**

A rotatory coordinator shall organise the tasks and, in particular:

- a) Set a project schedule focused on meeting deadlines.
- b) Proposal of scope for assessments, chapters of plans and other documents.
- c) Call for meetings.
- d) Secretariat and minutes of meetings.
- e) Request of information and contributions to Member States within the group of risk.
- f) Coordination of exchange of information.
- g) Submission of documents to the Commission.

### **4. Election of the coordinator**

At the end of a task, the coordinator can:

- a) propose to continue to have this role subject to the agreement of the other competent authorities
- b) or ask to give the role to another competent authority.

In the latter case, a new coordinator may be defined by consensus taking into account the role competent authorities may have in other risk groups. Alphabetical order as defined on the Annex I of the Regulation may be used to define the next coordinator.

## **5. Commitment**

All the Member States commit to submit information requested by the leader and to support works carried out to prepare assessments, plans and other documents.

## **6. Communications.**

Communications shall be effected by different channels: email, phone, video or personal meetings. Furthermore, communications may be bilateral or multilateral.

Nevertheless, in order to ensure all the Member States within the group of risk are well-informed, any bilateral phone or personal communication shall be written and share.

## **7. Meetings**

Meetings shall be virtual in general though at least an annual meeting will be physical if possible. Meetings may be held in the Member State leading the group or in Brussels back-to-back Gas Coordination Group meetings.

Meetings can be arranged as:

- a) web-conferences
- b) telephone-conferences
- c) ordinary meetings held in the Member State coordinating the group
- d) ordinary meetings back to back of GCG-meetings by using EU-Commissions facilities.

The format of the meetings will depend on the issues to be discussed and the circumstances.

Each competent authority may request to convene a meeting.

If requested by a Member State, meeting can be restricted to competent authority only.

## **8. Working Language**

English shall be the working language without prejudice of using other languages in communications with gas undertakings and other national stakeholders. If these communications are relevant for all the members, they will be translated into English.

## **9. Decisions**

All the decisions and documents shall be adopted by consensus.

## **10. External assistance**

Whether Member States individually so decide, experts not belonging to Competent Authorities, such as Transport System Operators or National Regulatory Authorities (if they are not the Competent Authority) shall be authorised to attend meetings and to develop certain tasks under their surveillance. Competent Authorities shall be responsible of ensuring professional secrecy.

## **11. Professional secrecy**

Professional secrecy principles shall be guaranteed by Competent Authorities at the same level than in the Gas Coordination Group.

## **II. Common Risk Assessment**

### **12. Objective**

A Common Risk Assessment shall be prepared according to Article 7 of Regulation and notified to the Commission by 1 October 2018.

This document will include all relevant risk factors such as natural disasters, technological, commercial, social, political and other risks, which could lead to the materialisation of the major transnational risk to the security of gas supply for which the risk group was created. The competent authorities shall take into account the results of the EU-wide simulation carried out by ENTSO-G for the preparation of the document.

### **13. Rotatory leader**

Spain shall play the role described in point 3 for coordinating the document.

### **14. Kick-off meeting**

A kick-off meeting shall be held before the end of 2017 to analyse EU-wide simulation by ENTSO-G, organise the information gathering and approve a project schedule.

**ANNEX. CONTACT LIST**

<b>Member State</b>	<b>Competent Authority</b>	<b>Person</b>	<b>Email</b>	<b>Telephone</b>
Greece				
Spain	MinETAD	Juan SANCHEZ-PE- NUELA LEJAR- RAGA	<a href="mailto:jbsanchez@mine-tad.es">jbsanchez@mine-tad.es</a>	+34 913 494 705
France	MTES	Alban LIEGEARD	<a href="mailto:alban.liegeard@developpemedurable.gouv.fr">alban.liegeard@developpemedurable.gouv.fr</a>	+33 140 819 549
Croatia	Ministry of Environmental and Energy	Boris MAKSIJAN	<a href="mailto:Boris.maksijan@mzoe.hr">Boris.maksijan@mzoe.hr</a>	+385 99 8152421
Italy	Ministry of Economy Development	Andrea D'ELIA	<a href="mailto:andrea.delia@mise.gov.it">andrea.delia@mise.gov.it</a>	+39 06 47052721
Malta	TBD	Nadine Borg	<a href="mailto:nadine.b.borg@gov.mt">nadine.b.borg@gov.mt</a>	+356 22292578
Austria	Federal Ministry of Science, Research and Economy	Klaus JENNY Ronald FARMER	<a href="mailto:klaus.jenny@bmwf.w.gv.at">klaus.jenny@bmwf.w.gv.at</a> <a href="mailto:ronald.farmer@e-control.at">ronald.farmer@e-control.at</a>	+43 (0)1 711 00-803088
Portugal	Ministry of Economy-Directorate General For Energy And Geology (Me-Dgeg)	Manuela SEIXAS FONSECA Carlos OLIVEIRA	<a href="mailto:manuela.fonseca@dgeg.pt">manuela.fonseca@dgeg.pt</a> <a href="mailto:carlos.oliveira@dgeg.pt">carlos.oliveira@dgeg.pt</a>	+351 217 922 841 +351 217 922 744
Slovenia	Energy Agency	Marko SENČAR Urška DOLINŠEK	<a href="mailto:marko.sencar@agen-rs.si">marko.sencar@agen-rs.si</a>	