DESFA
Hellenic Gas Transmission System Operator

Halandri, Attica

Operation Report of the NNGS for the Year 2020

(In accordance with the provisions of paragraph 2.z of Article 68 of the Law 4001/2011 on the operation of Energy Markets Electricity and Natural Gas, for Research, Production and Hydrocarbon Transportation Networks and other regulations)

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1. General description of the National Natural Gas System

The National Natural Gas System (NNGS) transports Natural Gas from the upstream Interconnected Natural Gas Transmission Systems of Bulgaria and Turkey, the Trans Adriatic Pipeline (TAP) and from the Liquefied Natural Gas (LNG) terminal, which is installed at Revithoussa island at Megara, to consumers connected to the NNGS in the Greek mainland.

The Natural Gas is delivered from the Users to four (4) Entry Points to the National Natural Gas Transmission System (NNGTS) and it is off-taken by the Users via forty-three (43) Exit Points in the Greek mainland, including Reverse Flow Exit Point 'SIDIROKASTRO', through which the delivery of Natural Gas quantities to the Interconnected Natural Gas Transmission System of Bulgaria is achieved.

The NNGS consists of:

- The main pipeline, with 512 Km length and 36'' & 30'' diameter, and the branches of total length 953.20 Km (containing (a) the underwater pipeline of Aliveri branch, with 14.20 Km length and 20" diameter and (b) the two (2) underwater pipes, each one a back-up to the other, of 24'' diameter each and of 620m and 630m length, that connect the Revithoussa LNG Station to the mainland), which connect various areas of the country to the main pipeline;
- The Metering Stations of the Entry Points 'SIDIROKASTRO', 'KIPI', 'NEA MESIMVRIA' and 'AGIA TRIADA' of the NNGTS;
- The Liquefied Natural Gas (LNG) Station at Revithoussa connected to the Entry Point 'AGIA TRIADA';
- The Compression Station at Nea Mesimvria, Thessaloniki;
- The Natural Gas Metering and Regulating Stations;

- The Control and Dispatching Centers;
- The Operation and Maintenance Centers of Sidirokastro Border Station, Eastern Greece, Northern Greece, Central Greece, Southern Greece and Peloponnese; and
- The Remote Control and Communication System.

The Revithoussa LNG Station is the only installation in the NNGS, which following its 2nd upgrade, can now temporarily store Natural Gas quantities up to 221,815.677 m^3 LNG. It consists of:

- Three (3) Liquefied Natural Gas storage tanks of 63,379.931 m^3, 63,379.931 m^3 and of 95,055.815 m^3 LNG storage capacity;
- LNG unloading installations of maximum LNG unloading rate 7,250 m^3 LNG/h; and
- LNG gasification installations of sustained maximum sendout rate 1,250 m^3 LNG/h.

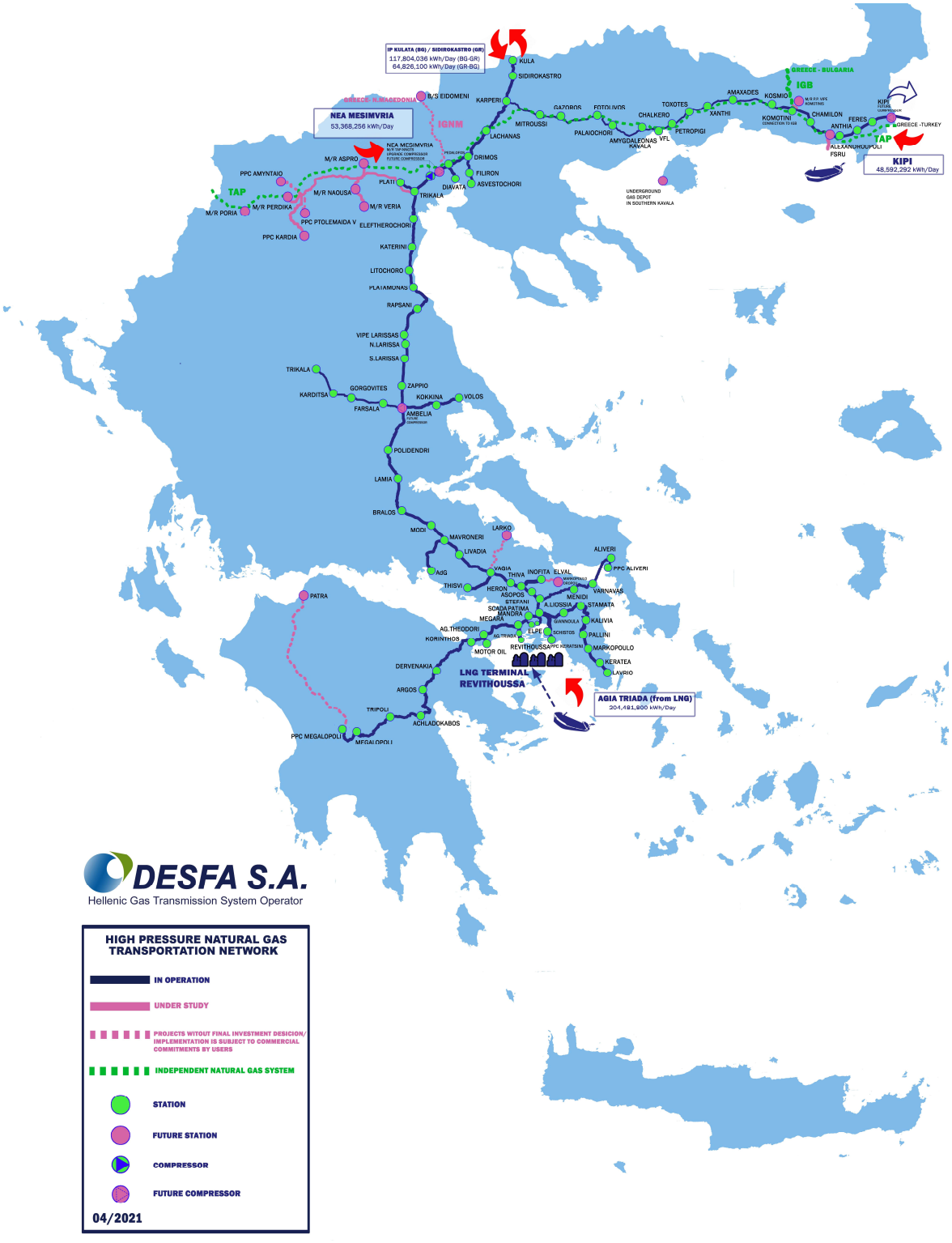

Diagram 1: NNGS Geographical Depiction

2. Report for the operation of NNGS

2.1. Technical Characteristics of the System

Table 1 below shows the diameters and total lengths of the main pipeline and the branches of the NNGTS.

Natural Gas Pipeline	Diameter (inch)	Total Length (Km)
Main Pipeline	36 & 30	**512**
Transmission Branches of NNGTS		
Lavrion Branch	30	100.05
Keratsini Branch	30 & 24	24.48
HAR Branch	14	2.02
Oinofyta Branch	10	20.62
Volos Branch	10	40.42
Thessaloniki North - EKO Branch	24 & 10	9.70
Thessaloniki East Branch	24	24.41
Platy Branch	10	10.98
Karperi - Komotini Branch	24	216.79
Komotini - Kipi Branch	36	86.71
Alouminion Branch	20	28.12
Megara - Korinthos Branch	30	52.88
MOTOR OIL Branch	20	1.46
Trikala Branch	10	71.94
Thisvi Branch	20	26.27
Heron Branch	14	0.75
Aliveri Branch	20	73.13
Elefsina (ELPE) Branch	10	6.41
Korinthos - Megalopoli Branch	24	155.43
Revithoussa - Agia Triada Underwater Pipeline		
East Pipeline	24	0.62
West Pipeline	24	0.63
TOTAL (Transmission Branches and Underwater pipelines)		**953.20**

Table 1: Diameters and lengths of the NNGTS Natural Gas pipelines

2.2. Variations in Technical Characteristics of the System

During the Year 20120 the technical characteristics of the NNGS varied as follows:

1. on the 01st.01.2020 the Technical Capacity of the NNGTS Reverse Flow Exit Point

'SIDIROKASTRO' varied from 46,535,000 kWh/Day to 64,695,000 kWh/Day;

2. on the 01st.10.2020 the Technical Capacity of the Entry Point 'SIDIROKASTRO' varied from 122,580,000 kWh/Day to 117,804,036 kWh/Day and the Technical Capacity of the Reverse Flow Exit Point 'SIDIROKASTRO' varied from 64,695,000 kWh/Day to 64,826,100 kWh/Day;
3. on the 31st.12.2020, at the Interconnection Point between the NNGTS and the TAP Transmission System, the new NNGTS Entry Point 'NEA MESIMVRIA' with Technical Capacity 53,368,256 kWh/Day was put into operation, where on the same day the Metering/Regulating Station 'NEA MESIMVRIA' (U-6910) was completed and put into operation with a Maximum Capacity of 117,543,960 kWh/Day; and
4. the SCADA, control and metering management systems of the Metering Stations 'KIPI' (U-3900) and 'PPC LAVRIO' (U-3430), the Metering/Regulating Station 'PPC KOMOTINI' (U-3570) and the Regulating Station 'ANO LIOSIA' (U-2920) have been upgraded.

2.3. NNGTS Entry/Exit Points Capacity

Table 2 below shows the Technical Capacities of the Entry/Exit Points of the NNGTS, and the Maximum Capacity of the relative Metering/Regulating Stations of DESFA.

TECNICAL CAPACITIES OF THE NNGTS ENTRY/EXIT POINTS				
No.	**ENTRY POINT**	**Technical Capacity [kWh/Day] (1)**	**DESFA' s Metering/Regulating Station**	**Maximum Capacity of DESFA's Metering/Regulating Station [kWh/Day]**
1	SIDIROKASTRO	117,804,036	M SIDIROKASTRO (U-2010)	180,383,280
2	AGIA TRIADA	204,481,800	M AGIA TRIADA (U-3020)	241,073,280
3	KIPI	48,592,292	M KIPI (U-3900)	232,202,632
4	NEA MESIMVRIA	53,368,256	M/R NEA MESIMVRIA (U-6910)	117,543,960
No.	**EXIT POINT**	**Technical Capacity [kWh/Day] (1)**	**DESFA' s Metering/Regulating Station**	**Maximum Capacity of DESFA's Metering/Regulating Station [kWh/Day]**
1	ALOYMINION	26,714,340	M AdG (U-2820)	26,714,340
2	ALOYMINION II	20,723,593	M AdG B (U-2830)	20,723,593
3	ALOYMINION III	6,678,585	M AdG III (U-TM1/TM5)	6,678,585
4	MOTOR OIL	26,714,340	M MOTOR OIL (U-7130)	26,714,340

5	MOTOR OIL II	21,371,472	M MOTOR OIL B (U-7140)	21,371,472
6	AG. THEODOROI	2,992,197	M/R AG, THEODOROI (U-7045)	2,992,197
7	ATHENS	101,876,740	M/R NORTH ATHENS (U-2910)	29,444,279
			M/R EAST ATHENS (U-2940)	29,444,279
			M/R THRIASIO (U-2960)	13,545,506
			M/R WEST ATHENS (U-2990)	29,442,676
8	ALEXANDROUPOLIS	7,480,015	M/R ALEXANDROUPOLIS (U-3630)	7,480,015
9	ALIVERI (PPC)	21,371,472	M PPC ALIVERI (U-6370)	21,371,472
10	VIPE LARISSA	2,671,434	M/R VIPE LARISSA (U-2515)	2,671,434
11	VOLOS	13,796,086	M/R VOLOS (U-2680)	13,796,086
12	VFL	6,493,989	M VFL (U-2170)	6,493,989
13	DRAMA	7,480,015	M/R DRAMA (U-2140)	7,480,015
14	ELPE	4,815,794	M/R EKO (U-2250)	4,815,794
15	ELPE-VEE	12,756,552	M ELPE ELEFSINAS (U-7420)	12,756,552
16	ELPE-HAR	8,014,302	M/R ATHENS ELDA (U-2970)	8,014,302
17	ENERGIAKI THESS. (ELPE)	26,714,340	M ELPE DIAVATA (U-2270)	26,714,340
18	HERONAS	10,685,736	M HERON (U-6020)	10,685,736
19	HERON II	22,441,482	M HERON B (U-6030)	22,707,189
20	THESSALONIKI	77,501,024	M/R THESSALONIKI NORTH (U-2240)	38,750,512
			M/R THESSALONIKI EAST (U-2220)	38,750,512
21	THISVI	23,738,101	M IPP THISVI (U-6650)	23,738,101
22	KAVALA	2,671,434	M/R KAVALA (TM4-A)	2,671,434
23	KARDITSA	5,342,868	M/R KARDITSA (U-6240)	5,342,868
24	KATERINI	7,480,015	M/R KATERINI (U-2340)	7,480,015
25	KERATSINI (PPC)	27,289,500	M PPC KERATSINI (U-3090)	27,289,500
26	KILKIS	11,754,309	M/R KILKIS (U-2060)	11,754,309
27	KOKKINA	2,671,434	M/R KOKKINA (U-2670)	2,671,434

28	KOMOTINI (PPC)	28,851,488	M/R PPC KOMOTINI (U-3570)	28,851,488
29	KOMOTINI	5,342,868	M/R KOMOTINI (U-3580)	5,342,868
30	LAMIA	7,480,015	M/R LAMIA (U-2620)	7,480,015
31	LARISSA	13,843,371	M/R NORTH LARISSA (U-2520)	6,921,685
			M/R SOUTH LARISSA (U-2530)	6,921,685
32	LAVRIO (PPC)	64,114,418	M PPC LAVRIO (U-3430)	64,114,418
33	MEGALOPOLIS (PPC)	42,742,945	M PPC MEGALOPOLIS (U-7320)	42,742,945
34	SPATA	3,072,149	M/R MARKOPOULO (U-3460)	3,072,149
35	XANTHI	11,754,309	M/R XANTHI (U-3530)	11,754,309
36	OINOFYTA	11,836,679	M/R THIVA (U-2740)	4,755,242
			M/R INOFYTA (U-2880)	7,081,437
37	PLATY	5,740,377	M/R PLATY (U-2410)	5,740,377
38	SALFA ANO LIOSSIA	2,671,434	M STATION ANO LIOSSIA (U-5010) (2)	
39	SALFA ANTHOUSSA	1,371,600	M STATION ANTHOUSA (U-5210)	1,371,600
40	SERRES	11,754,309	M/R SERRES (U-2110)	11,754,309
41	TRIKALA	5,342,868	M/R TRIKALA (U-6260)	5,342,868
42	FARSALA	1,870,003	M/R FARSALA (U-6280)	1,870,003
No.	**REVERSE FLOW EXIT POINT**	**Technical Capacity [kWh/Day] (1)**	**DESFA' s Metering/Regulating Station**	**Maximum Capacity of DESFA's Metering/Regulating Station [kWh/Day]**
1	SIDIROKASTRO	64,826,100	M SIDIROKASTRO (U-2010)	180,383,280

Table 2

Comments on Table 2:

1. 'Technical Capacity' is the maximum invariable capacity that DESFA is able to offer to the Transmission Users, considering the integrity and the operational demands of the NNGTS.

2. Given that DESFA has not completed the installation works of the metering facilities through which gas shall be supplied from the Transmission System to the relative Receiving Natural Gas Installation and until the completion of these metering facilities, Exit Point will be considered the location of the last insulating joint weld on the pipeline which supplies the Receiving Natural Gas

Installation within the plot land already purchased by DESFA for the construction of the relevant metering facilities.

Finally, Table 3 depicts the Annual profile of Natural Gas physical Deliveries and Off-takes at the Entry and Exit Points of the NNGTS for the Year 2020.

Annual profile of physical Natural Gas Deliveries/Off-takes and Daily peaks at the NNGTS Entry/Exit Points					
Year 2020					
Entry Point	**Technical Capacity [kWh/Day]**	**Annual Average of Natural Gas Deliveries to the Point [kWh/Day]**	**Daily peak of the Point [kWh/Day]**	**Annual Average of Natural Gas Deliveries to the Point as a percentage of Technical Capacity [%]**	**Daily peak of the Point as a percentage of Technical Capacity [%]**
SIDIROKASTRO	117,804,036	67,649,445	117,880,769	57.4	100.1
AGIA TRIADA	204,481,800	89,144,940	202,526,304	43.6	99.0
KIPI	48,592,292	16,786,052	48,516,112	34.5	99.8
NEA MESIMVRIA	53,368,256	86,869	665,927	0.2	1.2
Exit Point	**Technical Capacity [kWh/Day]**	**Annual Average of Natural Gas Off-takes from the Point [kWh/Day]**	**Daily peak of the Point [kWh/Day]**	**Annual Average of Natural Gas Off-takes from the Point as a percentage of Technical Capacity [%]**	**Daily peak of the Point as a percentage of Technical Capacity [%]**
ALOYMINION	26,714,340	10,525,298	16,671,252	39.4	62.4
ALOYMINION II	20,723,593	11,665,432	19,827,076	56.3	95.7
ALOYMINION III	6,678,585	1,962,298	2,658,440	29.4	39.8
MOTOR OIL	26,714,340	11,643,032	14,963,433	43.6	56.0
MOTOR OIL II	21,371,472	12,653,833	18,647,036	59.2	87.3
AG, THEODOROI	2,992,197	120,937	255,805	4.0	8.5
ATHENS	101,876,740	10,907,585	37,279,501	10.7	36.6
ALEXANDROUPOLIS	7,480,015	96,392	200,403	1.3	2.7
ALIVERI (PPC)	21,371,472	12,847,067	19,444,916	60.1	91.0
VIPE LARISSA	2,671,434	182,957	304,503	6.8	11.4
VOLOS	13,796,086	2,016,270	5,117,733	14.6	37.1
VFL	6,493,989	3,448,407	4,066,651	53.1	62.6
DRAMA	7,480,015	828,988	1,034,037	11.1	13.8
ELPE	4,815,794	1,225,712	2,114,872	25.5	43.9
ELPE-VEE	12,756,552	6,420,819	9,187,680	50.3	72.0

ELPE-HAR	8,014,302	3,282,646	6,945,009	41.0	86.7
ENERGIAKI THESS, (ELPE)	26,714,340	7,573,038	17,586,991	28.3	65.8
HERONAS	10,685,736	507,348	7,118,808	4.7	66.6
HERON II	22,441,482	6,872,237	18,021,380	30.6	80.3
THESSALONIKI	77,501,024	8,549,458	26,960,891	11.0	34.8
THISVI	23,738,101	11,194,862	18,347,591	47.2	77.3
KAVALA	2,671,434	1,645	15,431	0.1	0.6
KARDITSA	5,342,868	544,110	1,488,827	10.2	27.9
KATERINI	7,480,015	305,863	338,546	4.1	4.5
KERATSINI (PPC)	27,289,500	0	0	0.0	0.0
KILKIS	11,754,309	1,319,681	2,142,851	11.2	18.2
KOKKINA	2,671,434	151,602	240,118	5.7	9.0
KOMOTINI (PPC)	28,851,488	9,068,638	22,473,469	31.4	77.9
KOMOTINI	5,342,868	156,935	238,741	2.9	4.5
LAMIA	7,480,015	146,261	227,610	2.0	3.0
LARISSA	13,843,371	2,056,057	6,801,592	14.9	49.1
LAVRIO (PPC)	64,114,418	16,064,439	42,389,180	25.1	66.1
MEGALOPOLIS (PPC)	42,742,945	13,065,133	30,186,568	30.6	70.6
SPATA	3,072,149	287,336	598,955	9.4	19.5
XANTHI	11,754,309	151,285	294,104	1.3	2.5
OINOFYTA	11,836,679	2,995,925	4,054,437	25.3	34.3
PLATY	5,740,377	204,710	351,266	3.6	6.1
SALFA ANO LIOSSIA	2,671,434	246,647	325,560	9.2	12.2
SALFA ANTHOUSSA	1,371,600	113,856	234,179	8.3	17.1
SERRES	11,754,309	567,388	1,355,593	4.8	11.5
TRIKALA	5,342,868	397,975	1,449,864	7.4	27.1
FARSALA	1,870,003	46,853	191,699	2.5	10.3
Reverse Flow Exit Point	**Technical Capacity [kWh/Day]**	**Annual Average of Natural Gas Off-takes from the Point [kWh/Day]**	**Daily peak of the Point [kWh/Day]**	**Annual Average of Natural Gas Off-takes from the Point as a percentage of Technical Capacity [%]**	**Daily peak of the Point as a percentage of Technical Capacity [%]**
SIDIROKASTRO	64,826,100	694,147	46,823,504	1.1	72.2

Table 3

2.4. Load Balancing

Balancing Gas is the Natural Gas required for the load balancing of the NNGTS. The Balancing Gas Quantity that the Operator injects/takes to/from the NNGTS, during a certain period, is set out to create a balance between Natural Gas Deliveries and Off-takes (during the same period) so as in every case the reliable, safe and efficient operation of the NNGS is considered secure. As part of his responsibilities and obligations, DESFA ensures the above balance by undertaking Balancing Actions, taking into account the losses and the stored Natural Gas quantities in the NNGTS.

In accordance with the provisions of Chapter 8 of the NNGS Network Code, the Operator may undertake Balancing Actions through (a) purchase and sale of Balancing Gas in the form of Short-Term Standardized Products which are auctioned at the Balancing Platform and/or (b) use of Balancing Services through Balancing Services Contracts.

Diagram 2 below shows the Balancing Actions performed by the Operator during the Year 2020.

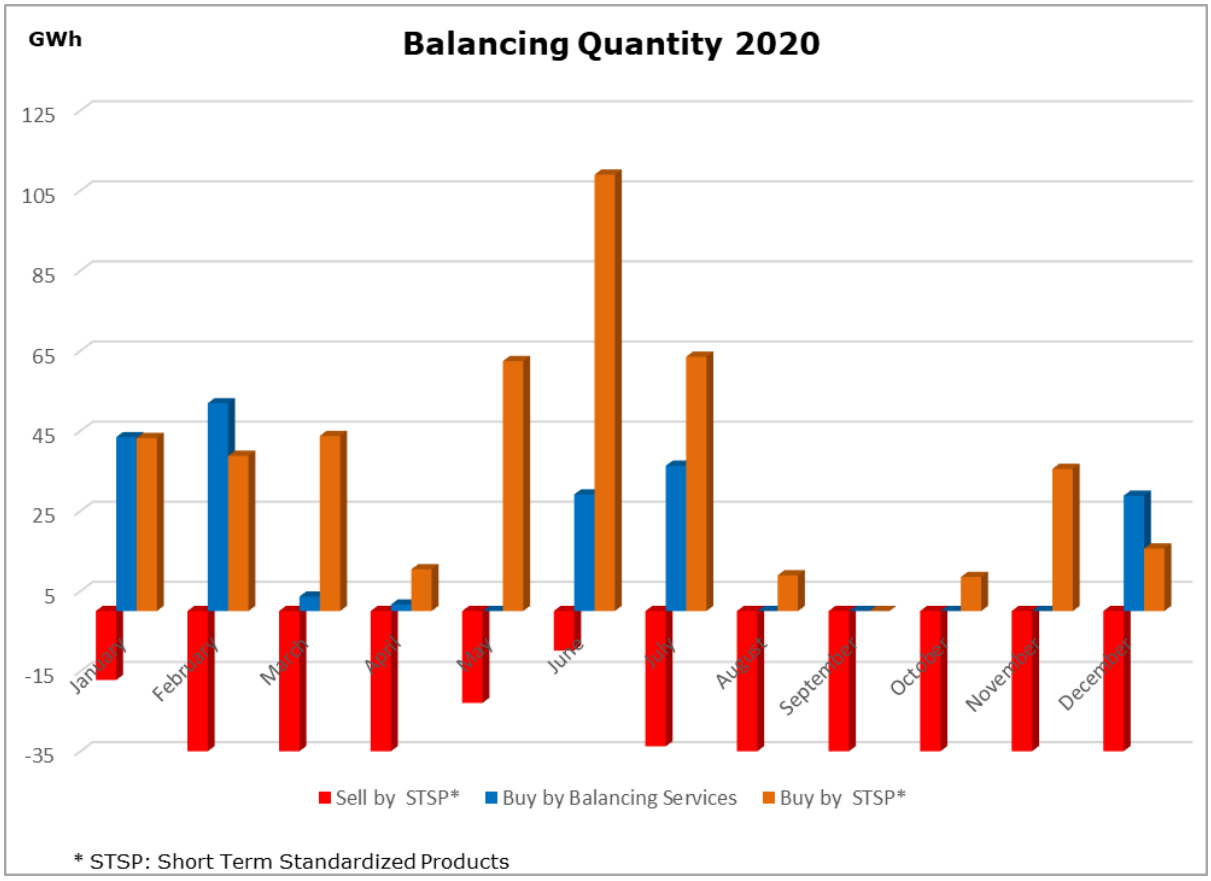

Diagram 2

Table 4 on the next page shows data on the cost/revenue, frequency and quantity of the Balancing Actions undertaken by the Operator during the Year 2020, in accordance with the provisions of paragraph 7 of Article 44[A] of the NNGS Network Code.

2020	Balancing Gas Purchases via usage of LNG Supply Agreements for performing Balancing Services			Balancing Gas Purchases via Short Term Standardized Products			Balancing Gas Sales via Short Term Standardized Products		
	Quantiy of Balancing Gas injected {kWh}	Balancing LNG Supply Cost	Frequency of Balancing Gas injected (number of Days)	Quantity of Balancing Gas Purchases {kWh}	Balancing Gas Purchases Cost	Frequency of Balancing Gas Purchases (number of Days)	Quantity of Balancing Gas Sales {kWh}	Balancing Gas Sales Revenue	Frequency of Balancing Gas Sales (number of Days)
JANUARY	43,411,455	943,984.40 €	8	43,210,000	962,484.19 €	13	17,220,000	96,800.73 €	3
FEBRUARY	51,880,453	1,540,224.00 €	10	38,750,000	722,827.00 €	11	65,010,000	333,165.73 €	7
MARCH	3,610,796	0	2	43,710,000	914,065.00 €	5	52,640,000	248,553.55 €	9
APRIL	1,614,663	0	1	10,420,000	206,246.00 €	1	71,430,000	323,593.10 €	15
MAY	0	0	0	62,400,000	1,129,672.65 €	10	22,940,000	68,158.56 €	5
JUNE	29,105,979	88,140.00 €	5	108,950,000	1,776,869.25 €	15	9,850,000	35,640.95 €	4
JULY	36,267,417	769,600.00 €	5	63,480,000	982,993.34 €	12	33,780,000	99,289.51 €	5
AUGUST	0	0	0	8,930,000	174,667.00 €	2	59,750,000	231,955.84 €	9
SEPTEMBER	0	0	0	0	0.00 €	0	98,480,000	568,129.27 €	16
OCTOBER	0	0	0	8,500,000	152,400.00 €	2	53,660,000	412,753.07 €	14
NOVEMBER	0	0	0	35,500,000	931,475.30 €	6	36,060,000	280,550.24 €	7
DECEMBER	28,799,390	0	8	15,620,000	468,387.56 €	2	59,810,000	536,654.68 €	13
YEARLY SUM	**194,690,153**	**3,341,948.40 €**	**39**	**439,470,000**	**8,422,087.29 €**	**79**	**580,630,000**	**3,235,245.23 €**	**107**

Table 4

2.5 Maintenance Standard and Quality

Table 5 shows the Maintenance Program of NNGS for the Year 2020, as it was announced in DESFA website, according to the provisions of Article 98 of the NNGS Network Code, and its revision. Preventive and repairing maintenance of all electromechanical installations, supervision, management and control of the pipeline row zone as well as the supervision and control of cathodic and lighting protection of the pipeline and the installations were carried out in accordance with the provisions of the maintenance manuals, the current legislation and the experience granted so far by the multiannual operation of the system.

The calibration of the measuring systems was done according to Table 6, with only minor time deviations from the Annual Calibration Program that was uploaded on DESFA website in December 2019, according to the provisions of Article 27 of the NNGS Metering Regulation.

DESFA is certified with ISO 9001:2008, OHSAS 18001:2004 & EN ISO 14001:2004 for all his activities, including the procedures of preventive and repairing maintenance and calibration of measuring systems. Furthermore, DESFA has a Pressure and Chemical Laboratory and a Chemical Analysis Testing Laboratory certified by the Hellenic Accreditation System (E.SY.D.) with ELOT EN ISO/IEC 17025:2005.

NATIONAL NATURAL GAS SYSTEM MAINTENANCE PROGRAM - YEAR 2020 / NON-SCHEDULED MAINTENANCE						
No.	**NNGS POINT**	**DESCRIPTION OF WORKS**	**IMPLICATIONS**	**PERIOD OF WORKS**	**MAINTENANCE DAYS**	**REMARKS**
1	Revithoussa LNG Station Entry Point: 'AGIA TRIADA'	Control and repair of failure of seawater supply system equipment to ORVC/D marine gasifiers at the Revythousa LNG Facility	Transmission Capacity for Delivery at Entry Point 'AGIA TRIADA': 135,082,680 kWh/Day	04.04.2020 07:00- 08.04.2020 07:00	4	Works were not included in the NNGS Maintenance Program for the Year 2020
2	Entry Points: 'SIDIROKASTRO' 'KIPI'	Maintenance at Nea Mesimvria Compression Station	Transmission Capacity for Delivery at Entry Point 'SIDIROKASTRO': 58,000,000 kWh/Day Transmission Capacity for Delivery at Entry Point 'KIPI': 15,000,000 kWh/Day	02.06.2020 07:00- 05.06.2020 07:00	3	Works were included in the NNGS Maintenance Program for the Year 2020
3	Entry Points: 'SIDIROKASTRO' 'KIPI' Reverse Flow Exit Point: 'SIDIROKASTRO'	- Maintenance at Border Metering Station (BMS) Sidirokastro - Disconnection of old and installation of new Regulating Valves Mokveld at Border Metering Station (BMS) Sidirokastro -In Line Inspection in the Karperi-Halkero-Komotini section of the NNGS pipeline	Transmission Capacity for Delivery at Entry Point 'SIDIROKASTRO': 46,500,000 kWh/Day Transmission Capacity for Delivery at Entry Point 'KIPI': 0 kWh/Day Transmission Capacity for Reception at Reverse Flow Exit Point 'SIDIROKASTRO': 0 kWh/Day	11.08.2020 07:00- 15.08.2020 07:00	4	Works were included in the NNGS Maintenance Program for the Year 2020
4	Entry Point: 'KIPI'	SCADA, control and metering system replacement at Border Metering Station (BMS) Kipi	Transmission Capacity for Delivery at Entry Point 'KIPI': 24,296,146 kWh/Day	09.09.2020 07:00- 11.09.2020 07:00 and 14.09.2020 07:00- 15.09.2020 07:00	3	Works were included in the NNGS Maintenance Program for the Year 2020
5	Entry Points: 'SIDIROKASTRO' 'KIPI' Reverse Flow Exit Point: 'SIDIROKASTRO'	- Disconnection of old and installation of new Regulating Valves Mokveld at Border Metering Station (BMS) Sidirokastro - Connection to the NNGTS of the Metering/Regulating Station (U-6910) at the Interconnection Point between the DESFA and TAP networks at Nea Mesimvria	Transmission Capacity for Delivery at Entry Point 'SIDIROKASTRO': (A) 19,000,000 kWh/Day [for the Days October 13, 14 and 15] (B) 40,000,000 kWh/Day [for the Days October 16, 17, 18, 19 and 20] Transmission Capacity for Delivery at Entry Point 'KIPI': (A) 36,000,000 kWh/Day [for the Days October 13, 14 and 15] (B) 15,000,000 kWh/Day [for the Days October 16, 17, 18, 19 and 20] Transmission Capacity for Reception of Reverse Flow at Exit Point 'SIDIROKASTRO': 0 kWh/Day	13.10.2020 07:00- 21.10.2020 07:00	8	Works were included in the NNGS Maintenance Program for the Year 2020
6	Entry Points: 'SIDIROKASTRO' 'KIPI'	Connection to the NNGTS of the Metering/Regulating Station (U-6910) at the Interconnection Point between the DESFA and TAP networks at Nea Mesimvria	Transmission Capacity for Delivery at Entry Point 'SIDIROKASTRO': (A) 19,000,000 kWh/Day [for the Days of October 27, 28 and 29] (B) 40,000,000 kWh/Day [for the Day October 30] Transmission Capacity for Delivery at Entry Point 'KIPI': (A) 36,000,000 kWh/Day [for the Days October 27, 28 and 29] (B) 15,000,000 kWh/Day [for the Day October 30] Transmission Capacity for Reception of Reverse Flow at Exit Point 'SIDIROKASTRO': 0 kWh/Day	27.10.2020 07:00- 31.10.2020 07:00	4	Works were included in the NNGS Maintenance Program for the Year 2020

7	Entry Point: 'NEA MESIMVRIA'	Control of equipment of the installation of the interconnection of the NNGTS with the TAP network in Nea Mesimvria Thessaloniki	Transmission Capacity for Delivery at Entry Point 'NEA MESIMVRIA': 648,291 kWh/Day	31.12.2020 07:00- 01.01.2021 07:00	1	Works were not included in the NNGS Maintenance Program for the Year 2020

Table 5

CALIBRATIONS – YEAR 2020

ENTRY POINT STATION	*JAN*	*FEB*	*MAR*	*APR*	*MAY*	*JUN*	*JUL*	*AUG*	*SEP*	*OCT*	*NOV*	*DEC*
SIDIROKASTRO / U – 2010				22,23,27, 28,30						19-23 & 26		
AGIA TRIADA / U – 3020				21						12		
KIPI / U – 3900				27,28,30, 22,23						7-8		
EXIT POINT STATION	*JAN*	*FEB*	*MAR*	*APR*	*MAY*	*JUN*	*JUL*	*AUG*	*SEP*	*OCT*	*NOV*	*DEC*
PPC LAVRIO / U – 3430			1-15				6-10				16-20	
THRIASSIO / U – 2960					12						11	
PPC ALIVERI PPC / U – 6370	21						14					
ATHENS WEST / U – 2990						1						7-8
ATHENS NORTH / U – 2910				10 & 15						14		
ATHENS EAST / U – 2940				21-22						15		
STATION ANTHOUSA / U-5210				23						16		
ATHENS HAR / U-2970		11						11				
INOFYTA / U – 2880						2						9-10
HERONAS / U – 6020			11						8			
HERON B / U – 6030			10						9			
MARKOPOULO / U-3460					11						12	
PP THISVI / U-6650	14						16					
AdG / U – 2820							23					14
AdG B / U-2830							25					16

AdG III / TM1/TM5							30					15
THIVA / U-2740	15						15					
ELPE ELEFSINAS / U-7420				8						12		
MOTOR OIL / U – 7130	14-15						14					
MOTOR OIL B / U – 7140	16-17						16					
PPC MEGALOPOLI / U – 7320	22							25				
AG. THEODOROI / U – 7045				27-28						5-6		
VOLOS / U – 2680					18-19						16-17	
LARISSA NORTH / U – 2520					20-21						18-19	
LARISSA SOUTH / U – 2530					25-26						23-24	
VIPE LARISSA / U – 2515					7-8						5	
LAMIA / U–2620					5-6						3	
KARDITSA / U–6240					13-14						11-12	
TRIKALA / U-6260						3-4						3
FARSALA / U-6280					11						9-10	
KOKKINA / U-2670					27-28						25-26	
THESSALONIKI NORTH / U–2240					4-5					6-7		
THESSALONIKI EAST / U-2220					13-14					2-6		
ELPE DIAVATA / U-2270					11-12					12-13		
PLATY / U–2410					18					21 & 30		
EKO / U–2250					6-7					8-9		

KILKIS / U–2060					25-26					20 & 29		
KATERINI / U–2340					20-21					22 & 26		
PPC KOMOTINI / U–3570					26-29		20-23				27	15-18
KOMOTINI / U-3580				29-30						12-13		
KAVALA / TM4-A				28						23		
VFL / U–2170						9-10						22-23
XANTHI / U–3530			11-12						17-18			
ALEXANDROUPOLIS / U–3630					7						9-10	
DRAMA / U–2140			12-13						22-23			
SERRES / U–2110			10-11						24-25			

Table 6

2.6 Congestion and Congestion Management

According to paragraph [3] of Article 20 of the NNGS Network Code, 'Congestion' occurs when the available Transmission Capacity at an Entry Point or Exit Point or Reverse Flow Entry Point or Reverse Flow Exit Point is not sufficient to fulfill a User's request for Booking Transmission Capacity at that Point in order to serve a new Natural Gas Consumer.

Table 7 below presents the Technical Capacities of the NNGTS Entry/Exit/ Reverse Flow Exit Points and the Maximum Booked Transmission Capacity (MBTC) at the Points for Year 2020, in absolute terms and as a percentage of the Technical Capacity.

ENTRY POINT	Technical Capacity [kWh/Day]	Maximum Booked Transmission Capacity at Point [kWh/Day]	Maximum Booked Transmission Capacity at Point as a percentage of Technical Capacity [%]
SIDIROKASTRO(1)	117,804,036	170,577,718	139%
AGIA TRIADA	204,481,800	204,481,800	100%
KIPI(2)	48,592,292	74,133,250	153%
NEA MESIMVRIA	53,368,256	8,000,000	15%
EXIT POINT	Technical Capacity [kWh/Day]	Maximum Booked Transmission Capacity at Point [kWh/Day]	Maximum Booked Transmission Capacity at Point as a percentage of Technical Capacity [%]
ALOYMINION	26,714,340	16,000,000	60%
ALOYMINION II	20,723,593	18,200,000	88%
ALOYMINION III	6,678,585	2,100,000	31%
MOTOR OIL	26,714,340	13,500,000	51%
MOTOR OIL II	21,371,472	17,500,000	82%
AG. THEODOROI	2,992,197	240,000	8%
ATHENS	101,876,740	38,136,694	37%
ALEXANDROUPOLIS	7,480,015	193,001	3%
ALIVERI (PPC)	21,371,472	21,371,472	100%
VIPE LARISSA	2,671,434	251,129	9%
VOLOS	13,796,086	5,205,014	38%
VFL	6,493,989	4,580,000	71%
DRAMA	7,480,015	1,004,901	13%

ELPE	4,815,794	2,050,000	43%
ELPE-VEE	12,756,552	9,100,000	71%
ELPE-HAR	8,014,302	6,750,000	84%
ENERGIAKI THESS. (ELPE)	26,714,340	16,472,889	62%
HERONAS	10,685,736	7,303,865	68%
HERON II	22,441,482	17,463,189	78%
THESSALONIKI	77,501,024	27,708,302	36%
THISVI	23,738,101	17,194,600	72%
KAVALA	2,671,434	1,002	0%
KARDITSA	5,342,868	1,424,755	27%
KATERINI	7,480,015	311,430	4%
KERATSINI (PPC)	27,289,500	0	0%
KILKIS	11,754,309	1,967,564	17%
KOKKINA	2,671,434	231,619	9%
KOMOTINI (PPC)	28,851,488	21,718,000	75%
KOMOTINI	5,342,868	217,700	4%
LAMIA	7,480,015	177,916	2%
LARISSA	13,843,371	6,304,898	46%
LAVRIO (PPC)	64,114,418	42,709,000	67%
MEGALOPOLIS (PPC)	42,742,945	31,668,000	74%
SPATA	3,072,149	508,187	17%
XANTHI	11,754,309	262,596	2%
OINOFYTA	11,836,679	3,875,765	33%
PLATY	5,740,377	345,003	6%
SALFA ANO LIOSSIA	2,671,434	350,000	13%
SALFA ANTHOUSSA	1,371,600	180,000	13%
SERRES	11,754,309	1,183,213	10%
TRIKALA	5,342,868	1,483,488	28%
FARSALA	1,870,003	165,066	9%
REVERSE FLOW EXIT POINT	Technical Capacity [kWh/Day]	Maximum Booked Transmission Capacity at Point [kWh/Day]	Maximum Booked Transmission Capacity at Point as a percentage of Technical Capacity [%]
SIDIROKASTRO	64,826,100	55,540,741	86%

Table 7

Comments on Table 7:

1. The percentage of the Entry Point 'SIDIROKASTRO' was calculated based on the sum of the Technical Capacity of the specific Point on the Day of its Maximum Booked Transmission Capacity and the maximum of the sum of the Additional and the Interruptible Transmission Delivery Capacity, booked by the Transmission Users in the Year 2020.

2. The percentage of the Entry Point 'KIPI' was calculated based on the sum of the Technical Capacity of the specific Point and the maximum of the Additional Transmission Delivery Capacity, booked by the Transmission Users in the Year 2020.

2.7 Emergencies and Dealing with Emergencies

Alert Status 1 (Early Warning Level) 27.07.2020 14:42 – 29.07.2020 15:56

On July 27th, 2020 at 07:56, an accident occurred in Bulgaria's upstream Connected Natural Gas Transmission System, which resulted in the gradual interruption of the Natural Gas Deliveries at the NNGTS Entry Point 'SIDIROKASTRO'. The incident might affect the state of supply of Natural Gas in the Country and for this reason DESFA declared Alert Status 1 (Early Warning Level) on Monday 27.07.2020 at 14:42, as defined in the current Emergency Plan (Government Gazette 2501/B/ 25.06.2019) and in Chapter 10 of the NNGS Network Code.

In accordance with the Emergency Plan, DESFA informed RAE, Users and IPTO about the Country's Natural Gas supply situation and asked the Users and the IPTO to disclose their estimates of future quantities of consumption and supply of Natural Gas. At the same time, DESFA announced the following measures in order to avoid further deterioration of the supply of Natural Gas to the Greek market and to ensure its smooth operation, providing the possibility for:

1. intra-day capacity booking at the Entry Point 'AGIA TRIADA' and the Revithoussa LNG Facility;
2. intra-day LNG transactions;
3. an extension of the deadline for submitting requests concerning LNG transactions; and
4. an extension of the deadline for submitting requests concerning the transfers of Temporary Storage Space and Additional Storage Space.

Taking into account the information received from the Users and IPTO, the existing LNG reserves in the LNG Facility and the scheduled LNG cargo un-loadings based on the latest LNG cargoes unl-

oading monthly plan, DESFA compiled the supply-demand balance for the next seven (7) Days and informed RAE, as provided for in the Emergency Plan.

On July 29th, 2020 at 09:10 the flow of Natural Gas into the NNGTS from the upstream Natural Gas Transmission System of Bulgaria through the Entry Point 'SIDIROKASTRO' was commenced and the delivery conditions according to the provisions of the Interconnection Agreement between the two Transmission System Operators (DESFA and BULGARTRANSGAZ) were progressively restored. Therefore, based on the above and the provisions of the Emergency Plan, the Operator removed the Alert Status 1 (Early Warning Level), and restored the NNGS to normal operation.

2.8 Operating characteristics of the NNGS

The Minimum Inlet Pressure at Entry Points 'SIDIROKASTRO', 'KIPI' and 'NEA MESIMVRIA' is 47.75barg, 50 barg and 50 barg, respectively. Diagram 3 below shows the average Daily Inlet Pressure at the NNGTS Entry Points 'SIDIROKASTRO', 'KIPI' and 'AGIA TRIADA' for the Year 2020. It is noted that this diagram does not reflect the average Daily Inlet Pressure at the Entry Point 'NEA MESIMVRIA', as it was put into operation on the 31st.12.2020.

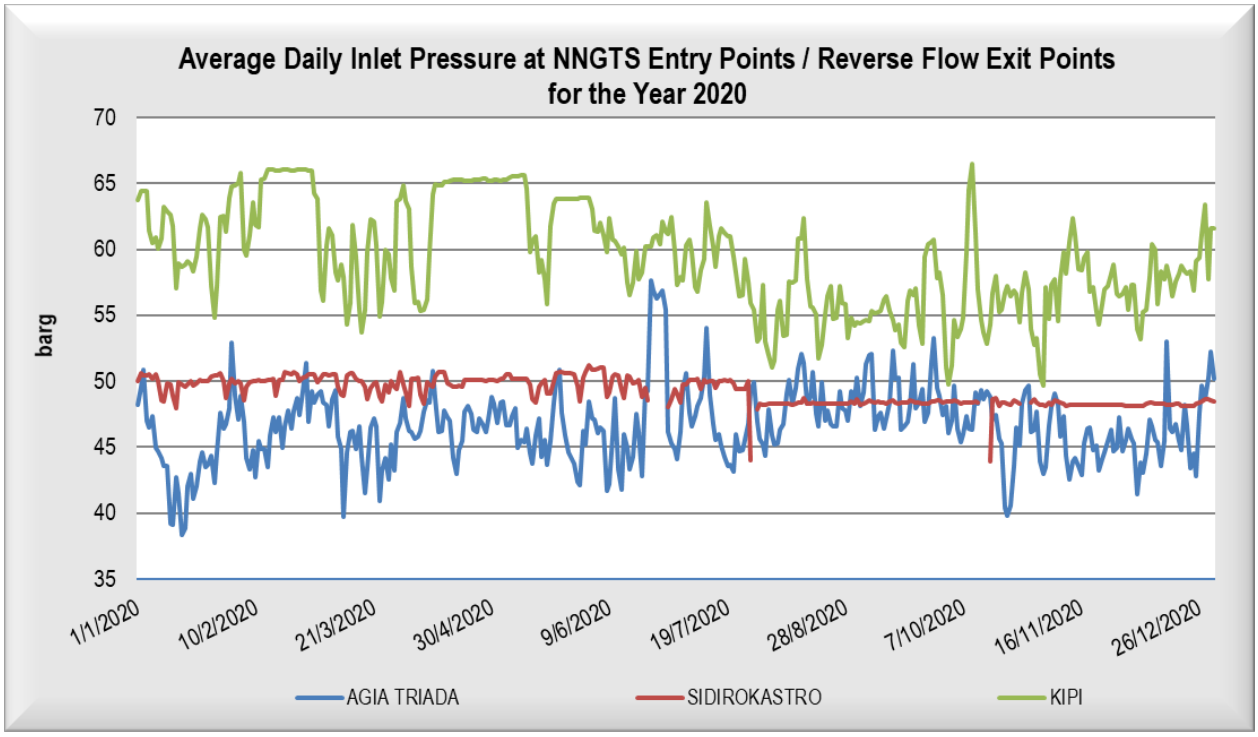

Diagram 3

Furthermore, Diagram 4 on the next page shows the average Daily Network Pressure of the NNGTS for the Year 2020, as calculated by data recorded by DESFA's SCADA system.

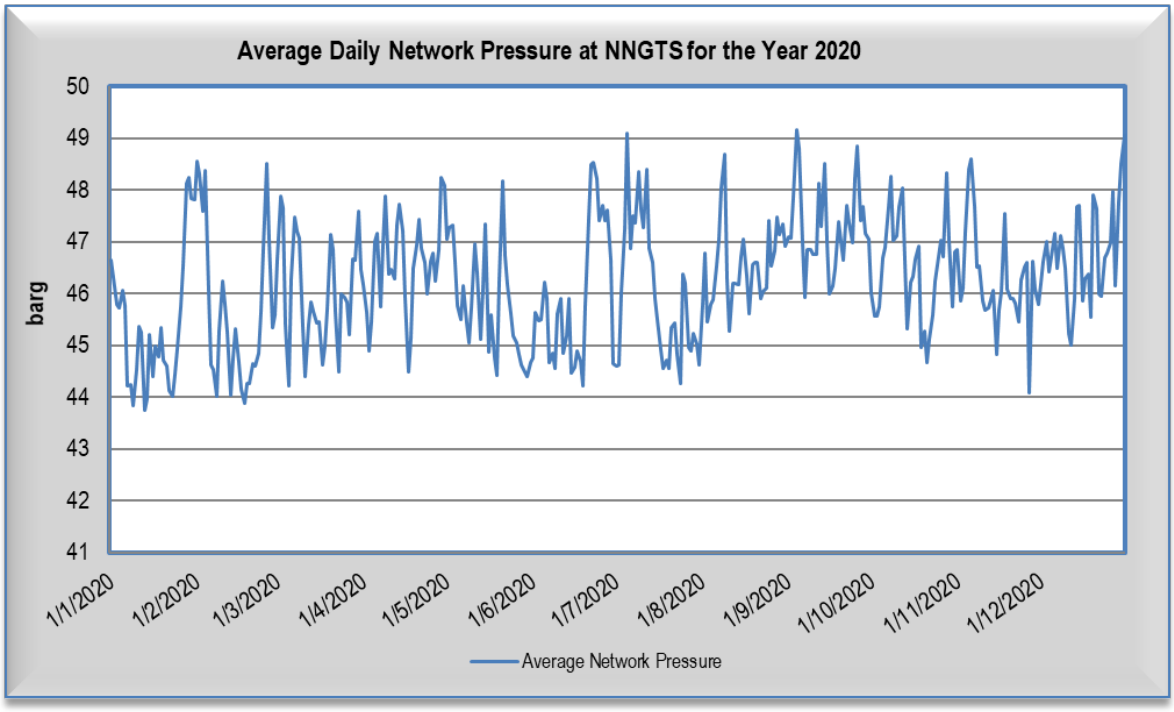

Diagram 4

2.9 Natural Gas Quantities historical data

2.9.1 Daily Natural Gas physical Deliveries/Off-takes

During the Year 2020 the total physical Natural Gas Off-takes at the NNGTS Exit/ Reverse Flow Exit Points was 63,359 mil. kWh (compared to 57,583 mil. kWh during the Year 2019). Diagram 5 on the next page shows the Daily physical Natural Gas Off-Takes at the NNGTS Exit/Reverse Flow Exit Points (as a sum) for the Year 2020. It is worth mentioning that the maximum amount of the physical Natural Gas Off-Takes at the NNGTS Exit/Reverse Flow Exit Points for the Year 2020 was recorded on the Day 09.01.2020, i.e. 272,203,661 kWh.

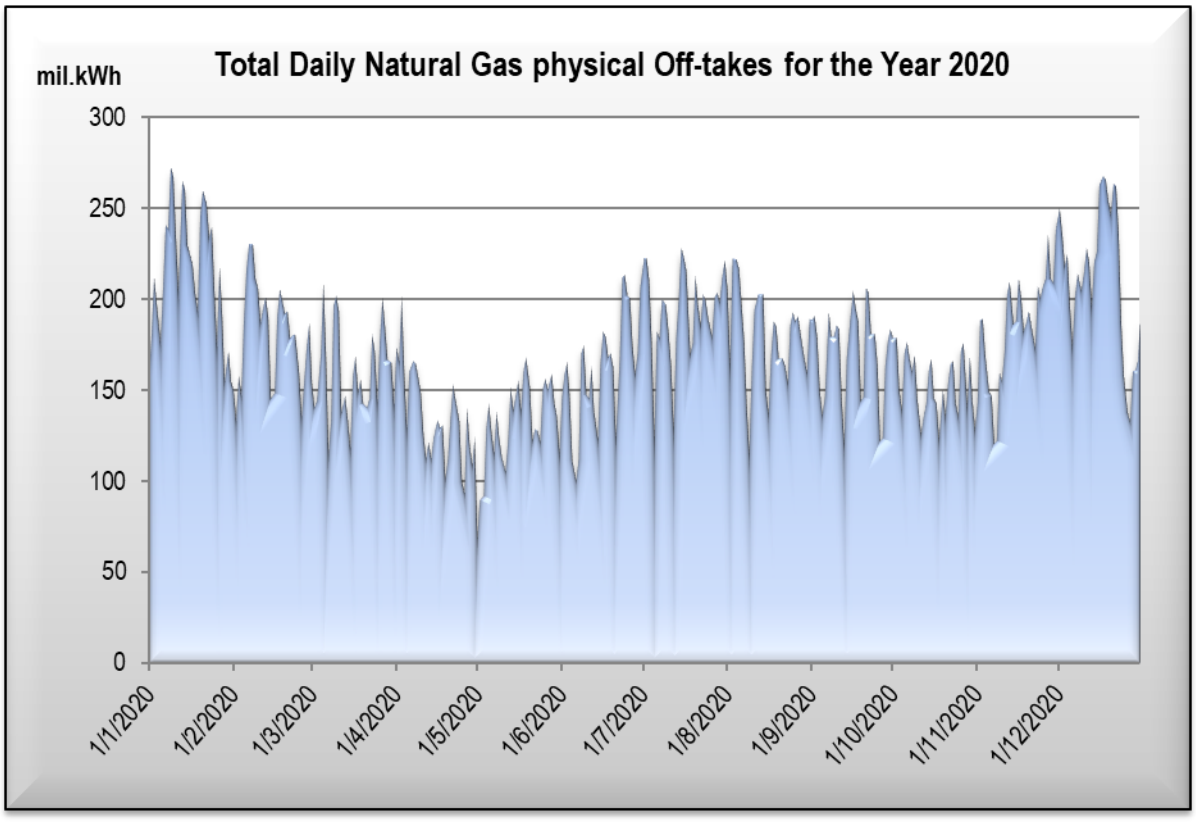

Diagram 5

During the Year 2020 the total Natural Gas physical Deliveries at the NNGTS Entry Points was 63,531 mil. kWh (compared to 57,680 mil. kWh during the Year 2019). Diagram 6 below shows the shares of Natural Gas physical Delivery quantities per NNGTS Entry Point for the Year 2020.

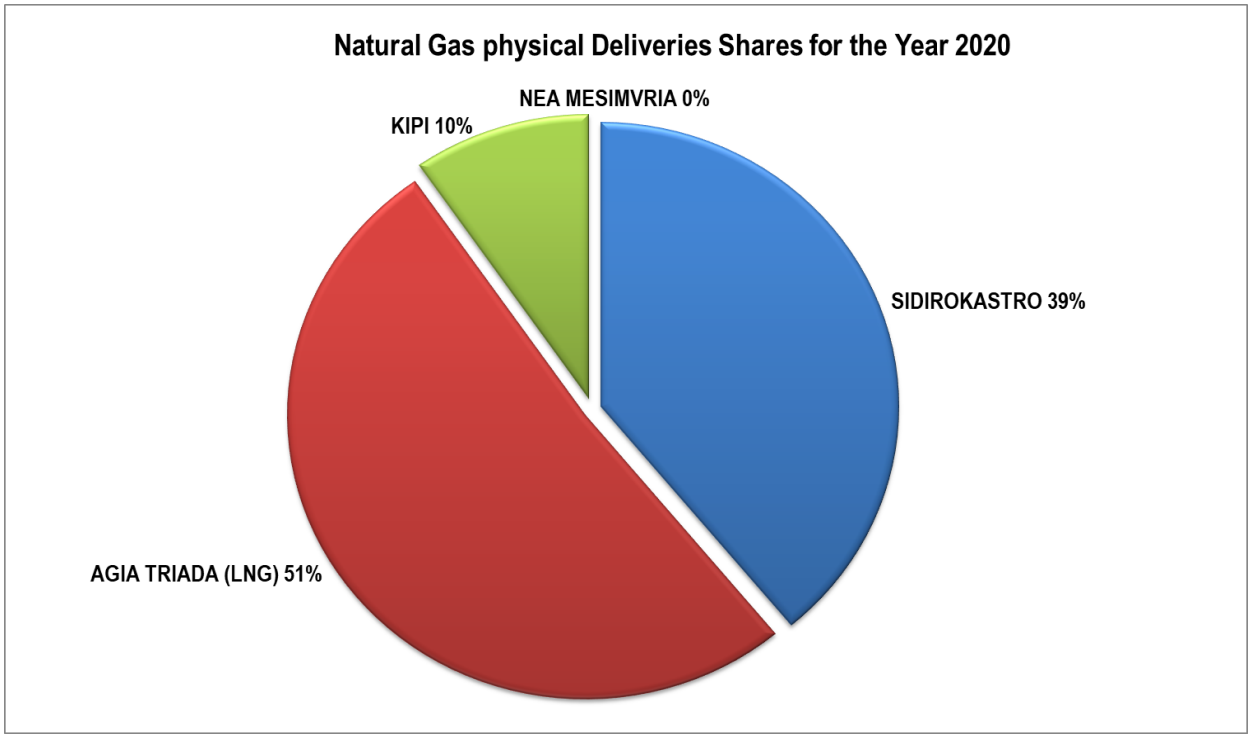

Diagram 6

2.9.2 Daily Natural Gas Quantity stored in the network of NNGTS

The Daily Natural Gas quantity stored in the NNGTS (i.e. Line Pack) varied from 24,959,744 Nm^3 (Day 06.07.2020) to 22,155,209 Nm^3 (Day 14.01.2020). Diagram 7 below shows the Daily variation of the NNGTS Line Pack, as well as the delimitation of the Line Pack for the Year 2020, according to which the Operator performs Balancing Actions so that:

a) the NNGTS is maintained within its operating limits, which refer to the minimum and maximum Line Pack at 20.5 and 26 million Nm^3, respectively, at the end of a Day, and/or

b) at the end of a Day, the Line Pack is aimed within the range [22.3 - 24.3] million Nm3, in order to ensure the cost-effective and efficient operation of the NNGTS during the Day.

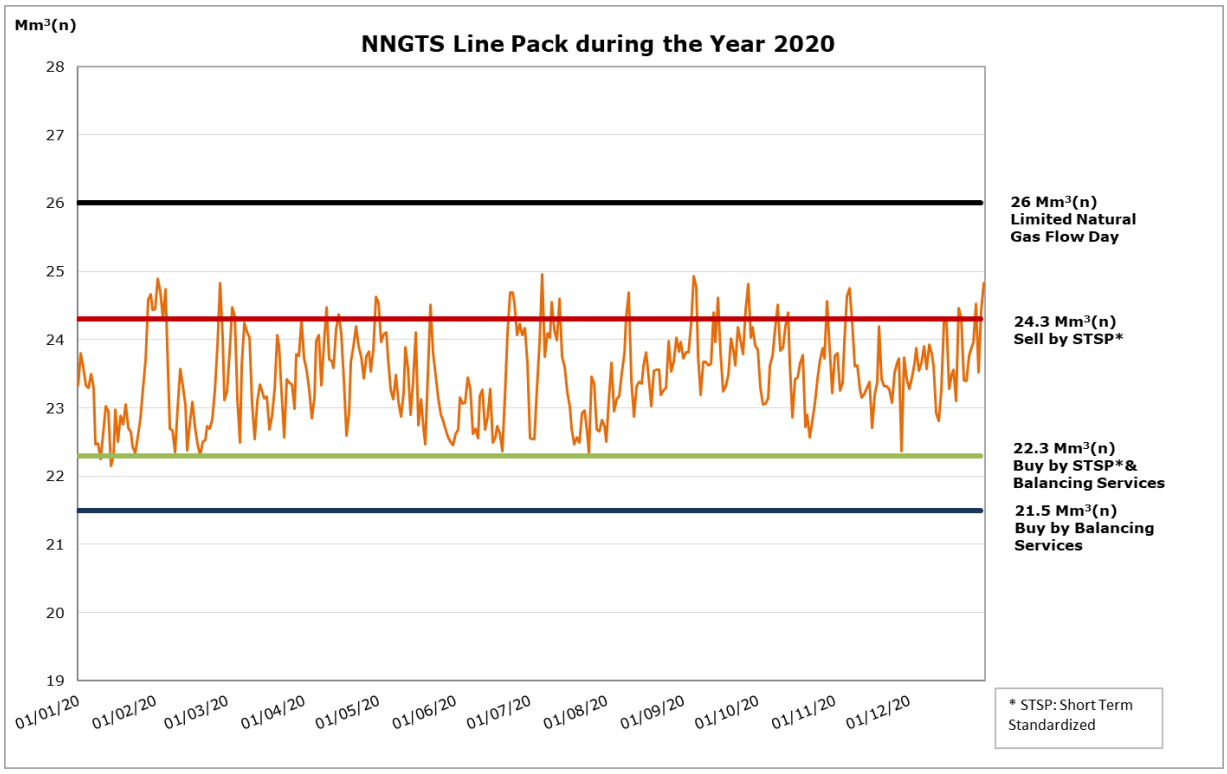

Diagram 7

2.9.3 Total Daily LNG Stock

Through the Entry Point 'AGIA TRIADA' 32,627 mil. kWh of Natural Gas were injected into the NNGTS (compared to 31,426 mil. kWh during the Year 2019), while the LNG unloads led to 33,405 mil. kWh (compared to 31,289 mil. kWh during the Year 2019).

Diagram 8 on the next page shows the Daily configuration of the total LNG stock, including the Balancing Gas that DESFA stored for balancing purposes, during the Year 2020.

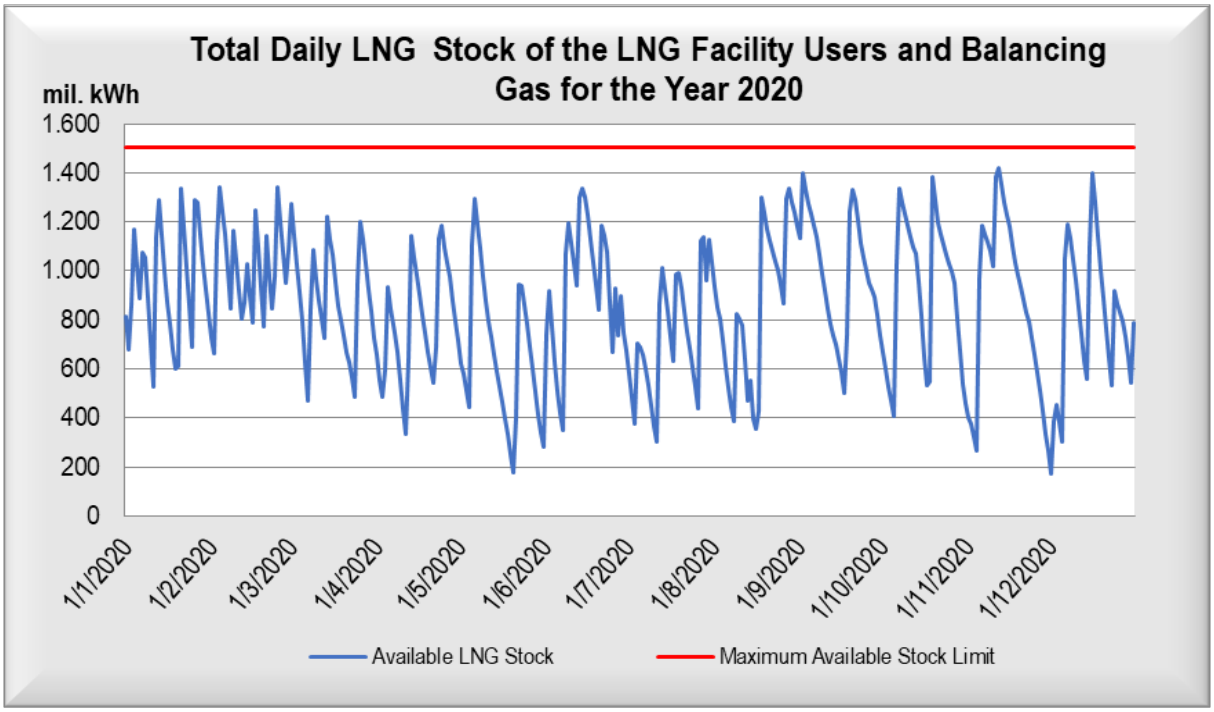

Diagram 8

2.9.4 Historical Operational data of the Compression Station in Nea Mesimvria

The Compression Station in Nea Mesimvria, Thessaloniki, consumed 73,928,443 kWh of Natural Gas as fuel during the Year 2020. The amount corresponds to 90% of the total Operational Gas that was used in the NNGTS during the Year 2020, which amounts to 82,147,280 kWh.

Diagram 9 on the next page shows the Operational Gas used in the NNGTS and the Natural Gas consumed as fuel for the operation of the Compression Station on a Monthly basis during the Year 2020.

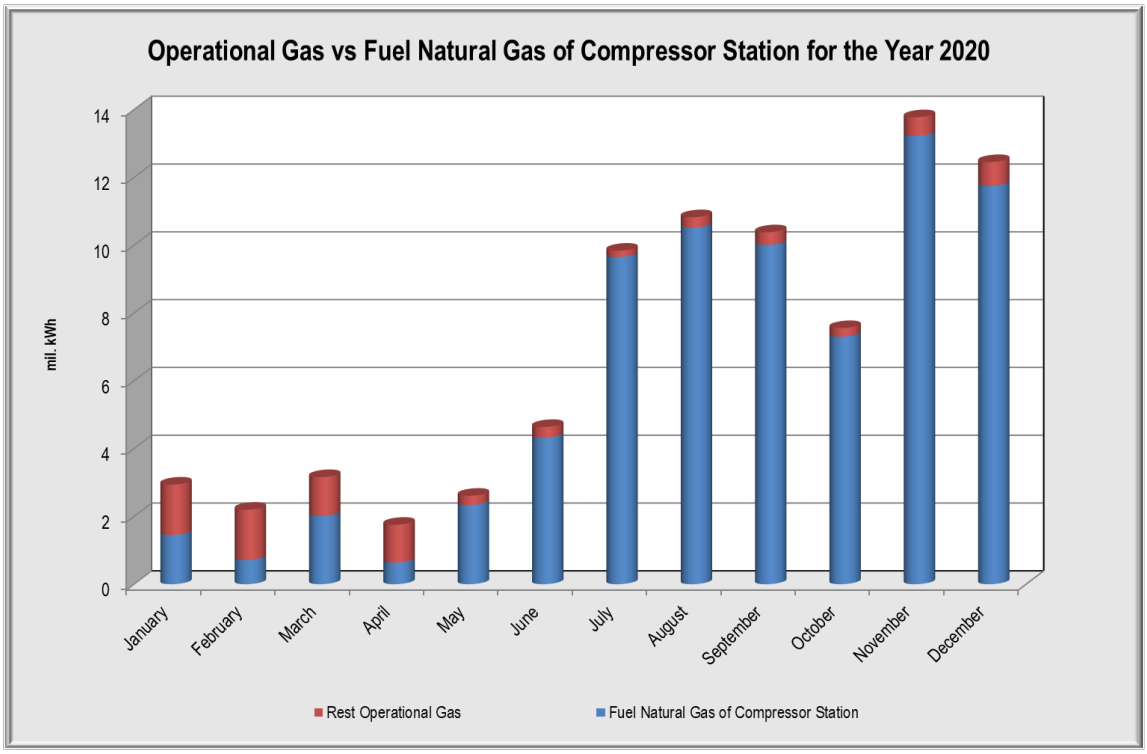

Diagram 9

Diagram 10 below shows the Natural Gas quantity that was handled by the Compression Station on a Monthly basis during the Year 2020.

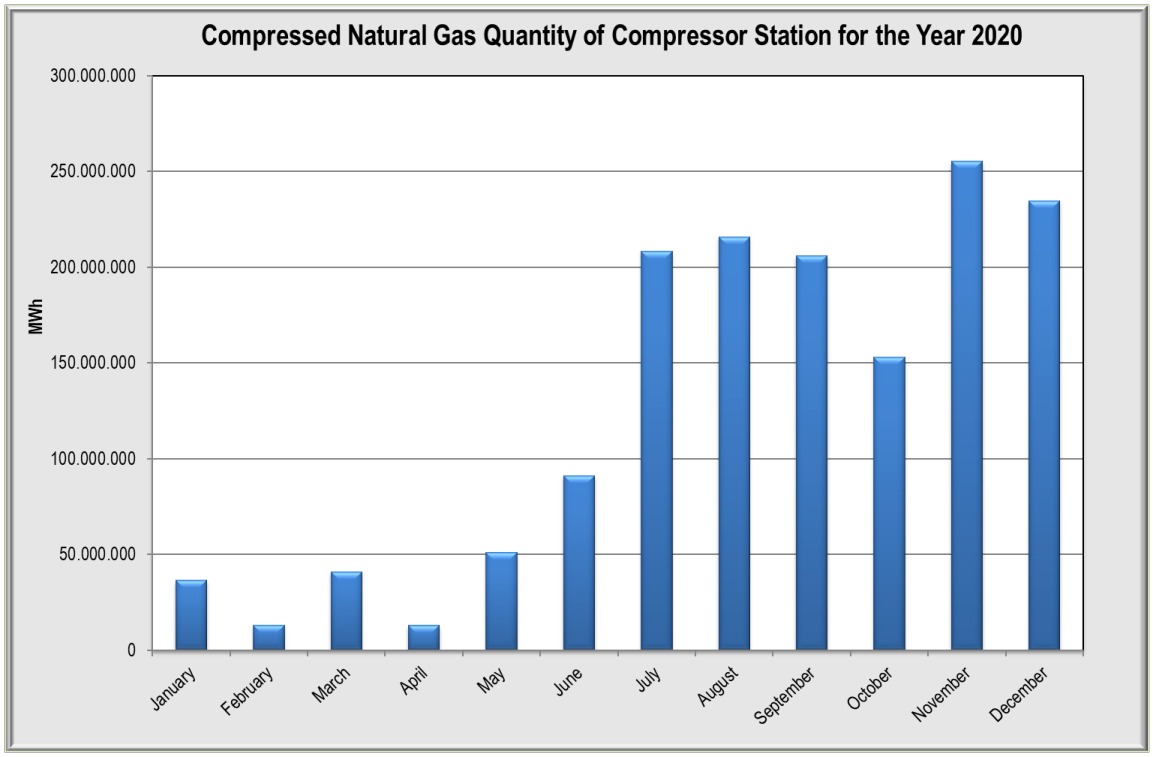

Diagram 10

2.9.5 Natural Gas out of specifications during the Year 2020

During the Year 2020, the average Daily Delivery Pressure at the Entry Point:

1. 'SIDIROKASTRO' was for two (2) Days lower than the Minimum Entry Pressure (47.75 barg);
2. 'KIPOI' was for two (2) Days lower than the Minimum Entry Pressure (50 barg);

while there was no average Daily Delivery Pressure lower than the Minimum Entry Pressure (50 barg) at the Entry Point 'NEA MESIMVRIA'.

Finally, throughout the Year 2020, there were no Days during which the Natural Gas delivered and off-taken at the Entry Points and the Exit/Reverse Flow Exit Points respectively was out of the quality standards of Natural Gas, as these are specified in Annex I of the NNGS Network Code.