

# MONTHLY DAS TRADING SYSTEM REPORT

*SEPTEMBER 2019*

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## Monthly Report Highlights

### Participation in DAS

- In Participants' Register for month September 2019, there were: **65** Participants from which **52** were active during the month: **8** Producers, **32** Suppliers and **15** Traders.

### System Marginal Price (SMP) and Reserves Prices

- The average SMP for September is **60,91 €/MWh** which is **3,11 €/MWh lower** than the SMP of the previous month, **5,72 €/MWh lower** than the average of the last twelve months and **6,15 €/MWh lower** comparing to the same month of the previous year.

### DAS Energy Balance

- For September, *Domestic Demand* constitutes the **94,92%** of total monthly Load, *Exports* the **5,07%** and *Pumping* the **0,01%**. Generation from *Natural Gas Units* covered **38,00%** of the monthly Load, *Imports* covered **21,38%**, *RES* the **21,14%**, *Lignite Units* the **14,16%**, and *Hydro Production* the **5,31%**.
- Comparing to September 2018, *Natural Gas Units Generation* and *Imports* increased by **15%** and **9%** respectively, *Exports*, *Lignite* and *Hydro Generation* decreased (**-57%**, **-49%** and **-33%** respectively) while *RES* generation remained at the same level.
- Electricity demand decreased (**-2,9%**) relatively to September 2018 demand. The highest load appeared at 14:00 03/09/2019 (**7723 MW**) while the lowest load was **3704 MW** at 04:00 23/09/2019.
- The monthly DAS value for September reached **260,2 MEUR** while the daily average DAS value was **8,7 MEUR**.

### Domestic Power Generation

- *Monthly Production Shares per fuel type* for September were: *Natural Gas Units* **48,33%**, *RES* **26,89%**, *Lignite Units* **18,01%** and *Hydro Units* **6,76%**. Concerning Market Participants, the respective shares were: *PPC* **38,45%**, *DAPEEP* **26,89%** and *MYTILINEOS* **8,87%**.
- For September 2019, the **lowest** monthly lignite generation and the **3 highest** daily RES energy injections in the last 3 years were scheduled.

### Supply of Electricity

- The *Daily Average Load* for September was **130.094 MWh**.
- The monthly *Consumption Share of PPC* in September was **71,77%** (High Voltage: 12,11, Medium Voltage: 11,14%, Low Voltage: 48,51%). The second higher consumption share belongs to *MYTILINEOS* **5,63%** (HV: 0,02%, MV: 3,26%, LV: 2,35%) which is the highest monthly Consumption share of an alternative supplier during the last 3 years and the third to *HERON* **5,55%** (HV: 0,00%, MV: 2,79%, LV: 2,76%). The relevant numbers for the previous month were *PPC*: 74,18%, *MYTILINEOS*: 5,09% and *HERON*: 5,07%.

### Electricity Trading

- Total energy injections from *Imports* amounted **899 GWh** while *Exports* reached **213 GWh**.
- For the Interconnection with Italy, *wrong direction energy flows* were scheduled for **248 hours** (33% of total month hours) while for the Interconnection with Bulgaria *wrong direction energy flows* were scheduled for **500 hours** (67% of total month hours).

## 1. Participation in DAS

### 1.1 Participants Register

The following tables present the registered Participants from the Participants' Register at the end of the month. Participants who participated in DAS during the month with the specific Participant Type which is stated at the top of each table are indicated with blue color.

#### Producers

S/N	PARTICIPANT NAME	ABBREVIATION
1	ELPEDISON ΠΑΡΑΓΩΓΗ ΗΛΕΚΤΡΙΚΗΣ ΕΝΕΡΓΕΙΑΣ Α.Ε.	ELPEDISON
2	ΔΗΜΟΣΙΑ ΕΠΙΧΕΙΡΗΣΗ ΗΛΕΚΤΡΙΣΜΟΥ Α.Ε.	PPC
3	ΗΡΩΝ II ΒΟΙΩΤΙΑΣ Α.Ε.	HERON_II_VIOTIAS
4	ΗΡΩΝ ΘΕΡΜΟΗΛΕΚΤΡΙΚΗ Α.Ε.	HERON
5*	ΚΟΡΙΝΘΟΣ POWER Α.Ε.	KORINTHOS_POWER
6*	ΛΙΓΝΙΤΙΚΗ ΜΕΓΑΛΟΠΟΛΗΣ Α.Ε.	LIG_MEGALOPOLIS
7*	ΛΙΓΝΙΤΙΚΗ ΜΕΛΙΤΗΣ Α.Ε.	LIG_MELITIS
8	ΜΥΤΙΛΗΝΑΙΟΣ ΑΝΩΝΥΜΟΣ ΕΤΑΙΡΕΙΑ – ΟΜΙΛΟΣ ΕΠΙΧΕΙΡΗΣΕΩΝ	MYTILINEOS

\* LIG\_MELITIS, LIG\_MEGALOPOLIS and KORINTHOS\_POWER, holders of production license, participated also in DAS as Suppliers for serving the auxiliary loads of their generation units. The RES and GOs Operator S.A. (DAPEEP) participated in DAS as a "Producer", as the credits for the RES production are transferred to the RES Special Account of Article 40 of Law 2773/1999.

#### Suppliers

S/N	PARTICIPANT NAME	ABBREVIATION
1*	ALPIQ ENERGY SE	ALPIQ_ENERGY
2	ECONOMIC GROWTH A.E.	GROWTH
3*	EDELWEISS ENERGIA S.P.A.	EDELWEISS
4*	ELECTRADE S.P.A.	ELECTRADE SPA
5*	ELPEDISON ΠΑΡΑΓΩΓΗ ΗΛΕΚΤΡΙΚΗΣ ΕΝΕΡΓΕΙΑΣ Α.Ε.	ELPEDISON
6	ENEL GREEN POWER HELLAS ΠΡΟΜΗΘΕΙΑ Α.Ε.	EGPH_SUPPLY
7*	EUNICE TRADING A.E.	EUNICE_TRADING
8*	EVN TRADING SOUTH EAST EUROPE EAD	EVN_TRADING_SEE
9*	GEN-I ATHENS Μ.Ε.Π.Ε. (SM LLC)	GEN-I-ATHENS
10*	GREEK ENVIRONMENTAL & ENERGY NETWORK A.E.	GREENENV
11	GREENSTEEL-CEDALION COMMODITIES A.E.	GREENSTEEL
12	NOVAERA ENERGY A.E.	NOVAERA_ENERGY
13*	NRG TRADING HOUSE S.A.	NRG_TRADING_HOUS
14	NECO A.E.	NECO_HELLAS
15*	PROTERGIA ΘΕΡΜΟΗΛΕΚΤΡΙΚΗ Α.Ε.	PROTERGIA_THER
16	SOLAR ENERGY	SOLARENERGY
17*	VOLTERRA A.E.	VOLTERRA
18*	VOLTON ΕΛΛΗΝΙΚΗ ΕΝΕΡΓΕΙΑΚΗ Α.Ε.	VOLTON
19*	WATT AND VOLT A.E.	WATT_AND_VOLT
20	ΑΝΩΝΥΜΗ ΕΤΑΙΡΕΙΑ ΤΣΙΜΕΝΤΩΝ TITAN	TITAN
21*	BIENER A.E. ΕΝΕΡΓΕΙΑΚΕΣ ΕΠΙΧΕΙΡΗΣΕΙΣ Α.Ε.	VIENER
22	ΒΙΟΛΑΡ Α.Ε.	VIOLAR
23*	ΔΗΜΟΣΙΑ ΕΠΙΧΕΙΡΗΣΗ ΗΛΕΚΤΡΙΣΜΟΥ Α.Ε.	PPC
24	ΕΛΙΝΟΙΛ ΕΛΛΗΝΙΚΗ ΕΤΑΙΡΙΑ ΠΕΤΡΕΛΑΙΩΝ Α.Ε.	ELINOIL
25	ΕΛΛΗΝΙΚΑ ΤΑΧΥΔΡΟΜΕΙΑ Α.Ε.	ELTA
26	ZENIO GAS & LIGHT	EPA_THESS
27*	ΗΛΕΚΤΡΟΠΑΡΑΓΩΓΗ ΣΟΥΣΑΚΙΟΥ Α.Ε.	SUSAKI_POWER
28*	ΗΡΩΝ ΘΕΡΜΟΗΛΕΚΤΡΙΚΗ Α.Ε.	HERON
29*	ΙΝΤΕΡΜΠΕΤΟΝ – ΔΟΜΙΚΑ ΥΛΙΚΑ Α.Ε.	INTERBETON
30*	ΚΕΝ ΠΑΡΑΓΩΓΗ ΚΑΙ ΕΜΠΟΡΙΑ ΕΝΕΡΓΕΙΑΚΩΝ ΠΡΟΪΟΝΤΩΝ Α.Ε.	KEN
31	ΚΩΝΣΤΑΝΤΙΝΟΣ Β. ΜΑΡΚΟΥ Α.Β.Ε.Ε.	KVMARKOUSA

32	ΜΟΤΟΡ ΟΙΛ (ΕΛΛΑΣ) ΔΙΥΛΙΣΤΗΡΙΑ ΚΟΡΙΝΘΟΥ ΑΕ	MOH
33*	ΜΥΤΙΛΗΝΑΙΟΣ Α.Ε. – ΟΜΙΛΟΣ ΕΠΙΧΕΙΡΗΣΕΩΝ	MYTILINEOS
34	ΟΤΕ ΑΚΙΝΗΤΑ Α.Ε.	OTEESTATE
35	ΠΕΤΡΟΓΚΑΖ ΕΛΛΗΝΙΚΗ ΕΤΑΙΡΙΑ ΥΓΡΑΕΡΙΩΝ, ΒΙΟΜΗΧΑΝΙΚΩΝ ΠΡΟΪΟΝΤΩΝ & ΓΕΝΙΚΩΝ ΕΠΙΧΕΙΡΗΣΕΩΝ Α.Ε.	PETROGAZSA
36	ΠΡΟΜΗΘΕΥΤΗΣ ΚΑΘΟΛΙΚΗΣ ΥΠΗΡΕΣΙΑΣ	PPC_USS
37	ΠΡΟΜΗΘΕΥΤΗΣ ΤΕΛΕΥΤΑΙΟΥ ΚΑΤΑΦΥΓΙΟΥ	PPC_LRS
38	ΦΥΣΙΚΟ ΑΕΡΙΟ-ΕΛΛΗΝΙΚΗ ΕΤΑΙΡΕΙΑ ΕΝΕΡΓΕΙΑΣ	ATTIKI_GSC

\* Participants who are holders of supply license, participated in DAS as Traders.

### Traders

S/N	PARTICIPANT NAME	ABBREVIATION
1	ALPIQ ENERGY HELLAS A.E.	ALPIQ_HELLAS
2	AYEN ENERGIA D.O.O.	AYEN_ENERGIA
3	AXPO ENERGY ROMANIA S.A.	AXPO_ROMANIA
4	CEZ A.S.	CEZ A.S.
5	DANSKE COMMODITIES A/S	DANSKECOM
6	DUFERCO ENERGIA S.P.A.	DUFERCO
7	EDISON S.P.A	EDISON_TRADING
8	EDF TRADING LIMITED	EDF_TRADING_LTD
9	ELEKTRICNI FINANCNI TIM D.O.O.	EFT_SLOVENIA
10	ENEL TRADE S.P.A.	ENEL_TRADE
11	ENERGY MT EAD	ENERGY_MT_EAD
12	ENSCO S.A.	ENSCO_ENERGY
13	EZPADA S.R.O.	EZPADA
14	GAZPROM MARKETING & TRADING LIMITED	GAZPROM
15	GROUP TRANS ENERGY OOD	GT_ENERGY
16	HSE D.O.O.	HSE
17	INTERENERGO D.O.O.	INTERENERGO
18	LE TRADING A.S.	LE TRADING
19	NVALUE A.G.	NVALUE
20	SENTRADE A.E.	SENTRADE
21	VITOL GAS AND POWER B.V.	VITOL
22	ΣΟΛΑΡΙΣ ΕΝΕΡΓΕΙΑΚΗ Α.Ε.	SOLARIS
23	ΤΕΡΝΑ ΕΝΕΡΓΕΙΑΚΗ ΑΒΕΤΕ	TERNA_ENERGY

## 1.2 Generation Units in Interconnected System

	UNIT	OWNER	INSTALLED CAPACITY (MW)
Lignite Units	AG. DIMITRIOS I	PPC	274.0
	AG. DIMITRIOS II	PPC	274.0
	AG. DIMITRIOS III	PPC	283.0
	AG. DIMITRIOS IV	PPC	283.0
	AG. DIMITRIOS V	PPC	342.0
	AMYNDEO I	PPC	273.0
	AMYNDEO II	PPC	273.0
	MELITI	LIG_MELITIS	289.0
	KARDIA I	PPC	271.1
	KARDIA II	PPC	270.8
	KARDIA III	PPC	280.0
	KARDIA IV	PPC	280.0
	MEGALOPOLI III	LIG_MEGALOPOLIS	255.0
	MEGALOPOLI IV	LIG_MEGALOPOLIS	256.0
	<b>Total of Lignite Units</b>		<b>3,903.9</b>
Natural Gas Units	KOMOTINI	PPC	476.0
	LAVRIO 4	PPC	550.0
	ELPEDISON THESS	ELPEDISON	400.2
	ELPEDISON THISVI	ELPEDISON	410.0
	HERON 1	HERON	49.0
	HERON 2	HERON	49.0
	HERON 3	HERON	49.0
	<b>Subtotal of bi-fuel Natural Gas Units*</b>		<b>1,983.2</b>
	LAVRIO 5	PPC	378.0
	ALIVERI V	PPC	417.0
	MEGALOPOLI V	PPC	500.0
	HERON CC	HERON_II_VIOTIAS	422.0
	PROTERGIA CC	MYTILINEOS	432.7
	KORINTHOS POWER	KORINTHOS POWER	433.4
	ALOUMINIO	MYTILINEOS	334.0
	<b>Total of Natural Gas Units</b>		<b>4,900.3</b>
Hydro Units	AGRAS	PPC	50.0
	ASOMATA	PPC	108.0
	P_AOOU	PPC	210.0
	EDESSAIOS	PPC	19.0
	THESAVROS	PPC	384.0
	ILARIONAS	PPC	153.0
	KASTRAKI	PPC	320.0
	KREMASTA	PPC	437.2

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	LADONAS	PPC	70.0
	PLASTIRAS	PPC	129.9
	PLATANOVRYSI	PPC	116.0
	POLYFYTO	PPC	375.0
	POURNARI 1	PPC	300.0
	POURNARI 2	PPC	33.6
	STRATOS 1	PPC	150.0
	SFIKIA	PPC	315.0
	Total of Hydro Units		3,170.7
RES	WIND	RES	2,975.8
	PV	RES	2,206.1
	PV ROOFS	RES	351.4
	HYDRO	RES	239.5
	BIOMASS	RES	83.8
	CHP	RES	105.5
	Total of RES Units		5,962.1
	Total of Thermal Units		8,804.2
	Total of RES & Hydro Units		9,132.8
	Total of all Units		17,937.0

Source: DAPEEP, ADMIE

\* From Dispatch Day 11/04/2019, Trading System functionalities for the implementation of RAE's Decision 199/2018 were activated. RAE has approved amendments on Power Exchange Code for Electricity (PECE) and System Operation Code regarding the participation of bi-fuel Generation Units in DAS. The bi-fuel Generation Units are the following: KOMOTINI, LAVRIO 4, ELPEDISON THESS, ELPEDISON THISVI, HERON 1, HERON 2, HERON 3.

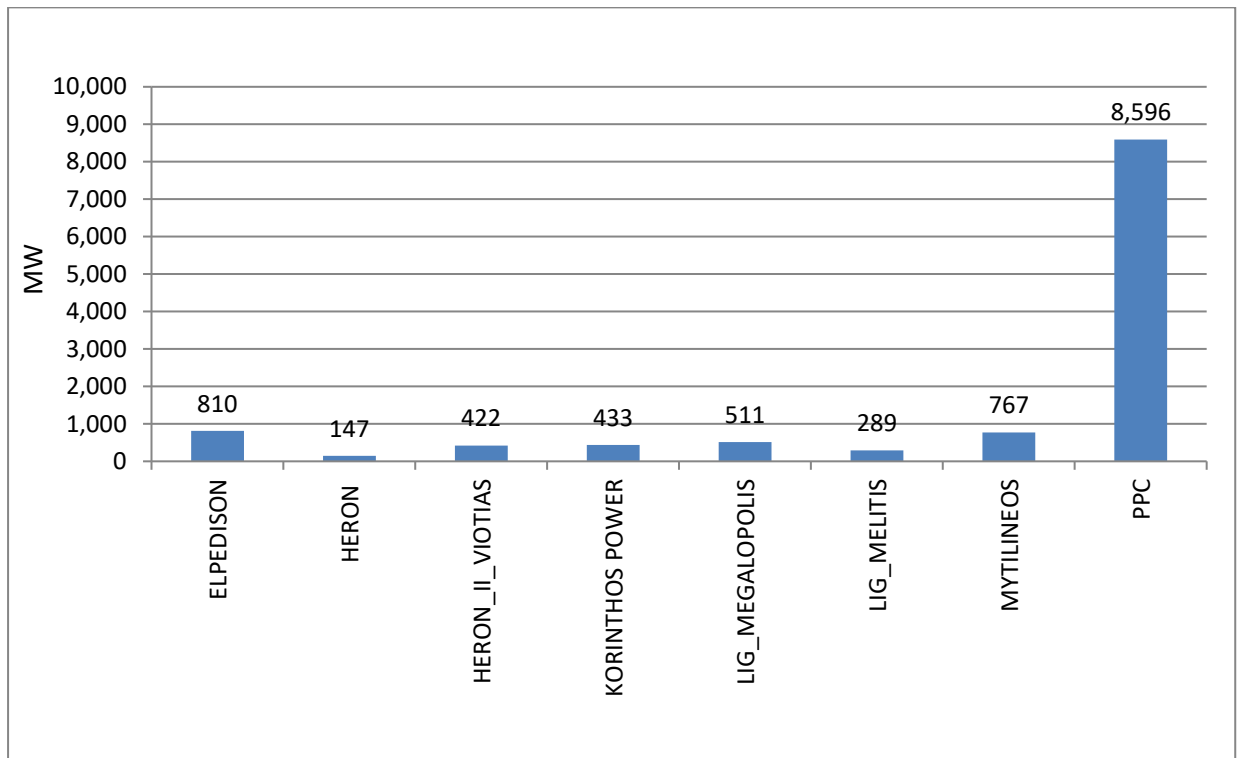


Figure 1: Total Installed Capacity of Units per Producer (RES excluded)

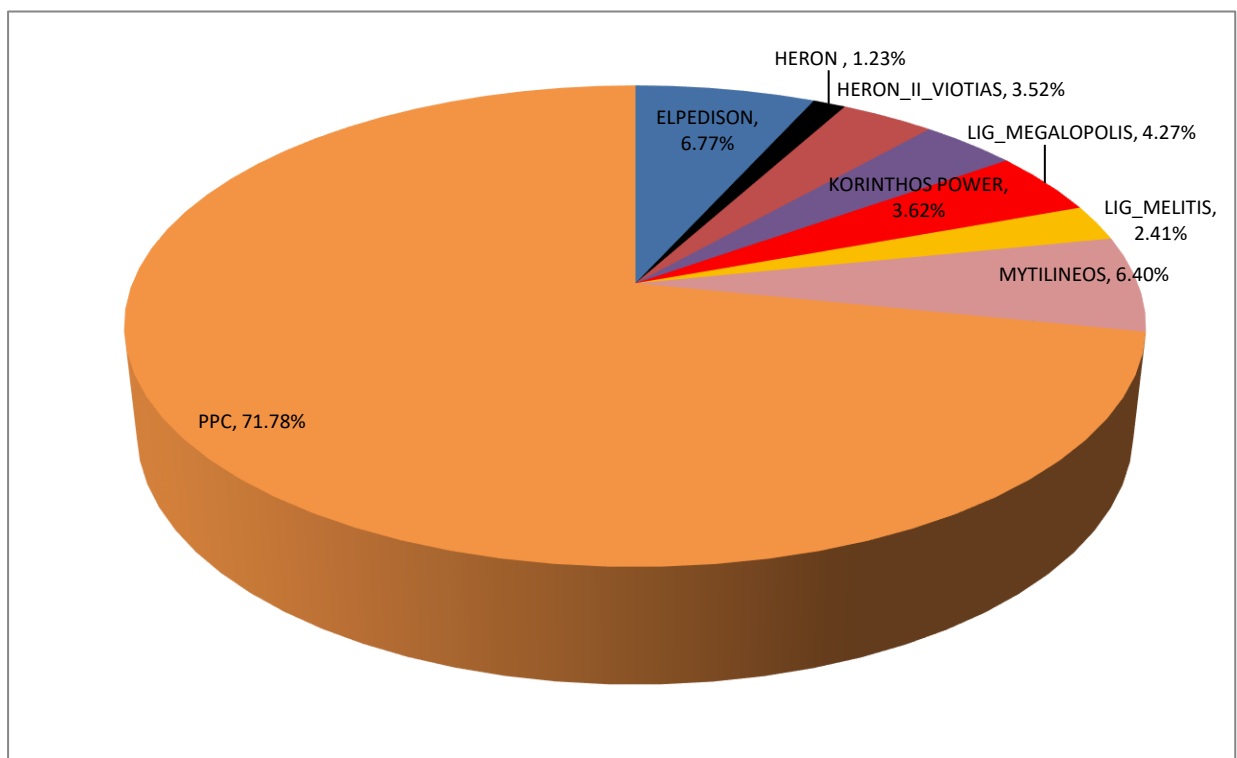


Figure 2: Percentage (%) of Total Installed Capacity per Producer (RES excluded)



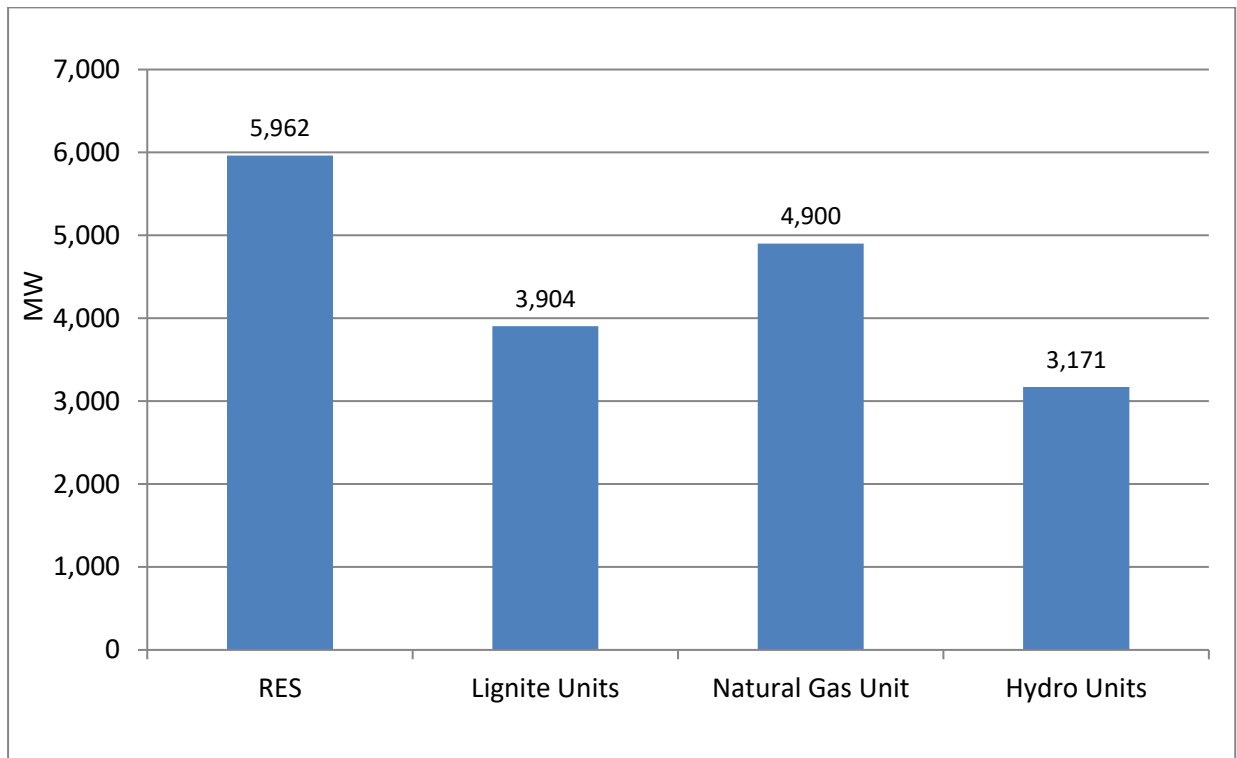


Figure 3: Total Installed Capacity of Units per Fuel type in the Interconnected System

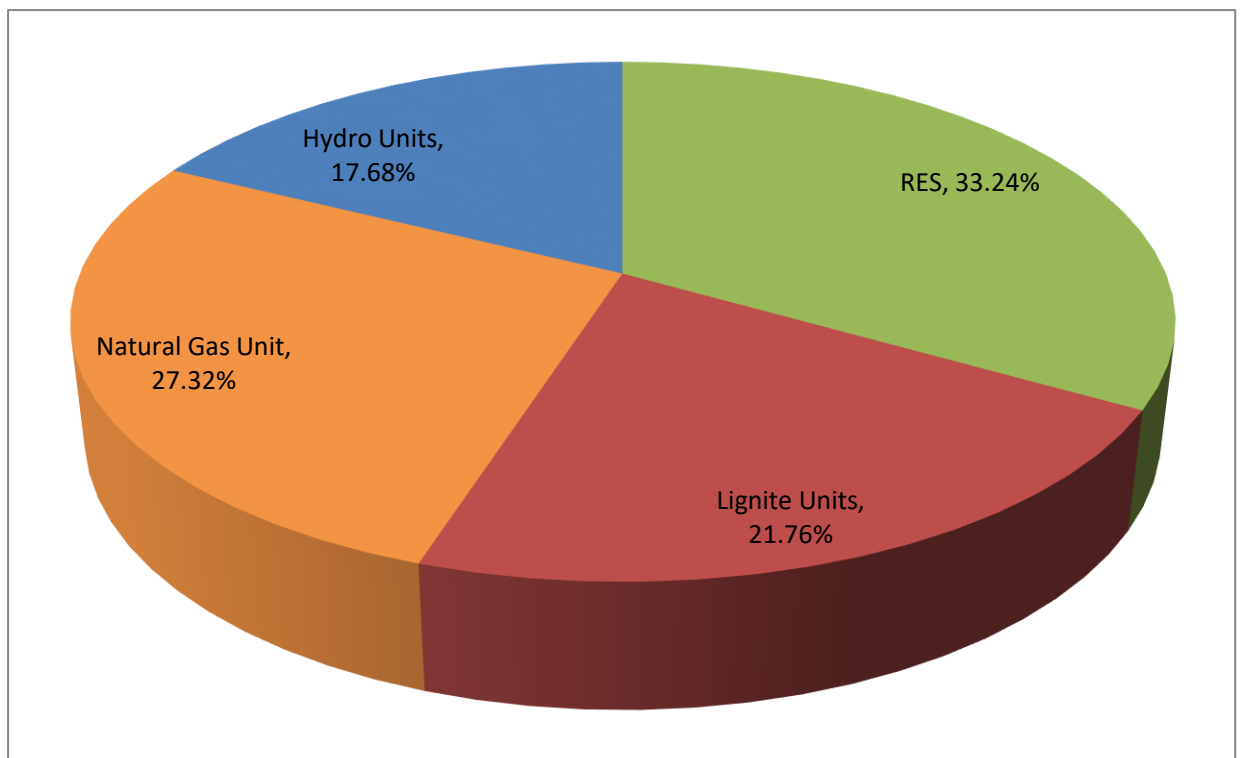


Figure 4: Percentage (%) of total Installed Capacity per Fuel type in the Interconnected System

## 2. System Marginal Price (SMP) and Reserves Prices

	SMP (€/MWh)	Date	Hour
Minimum	0,000	24/09/2019	01
Maximum	100,000	17/09/2019	19
Average	60,911		

Table 1: SMP data

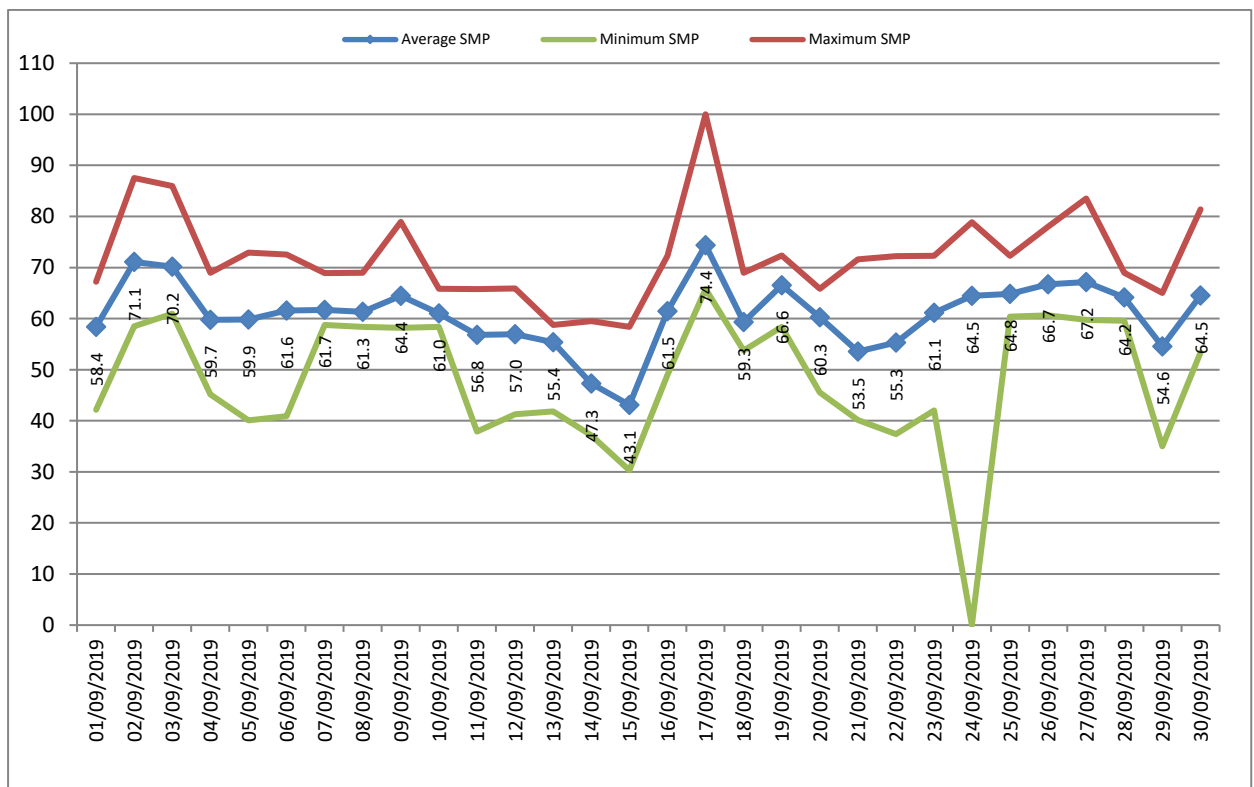


Figure 5: Average, Minimum and Maximum Daily SMP (€/MWh)

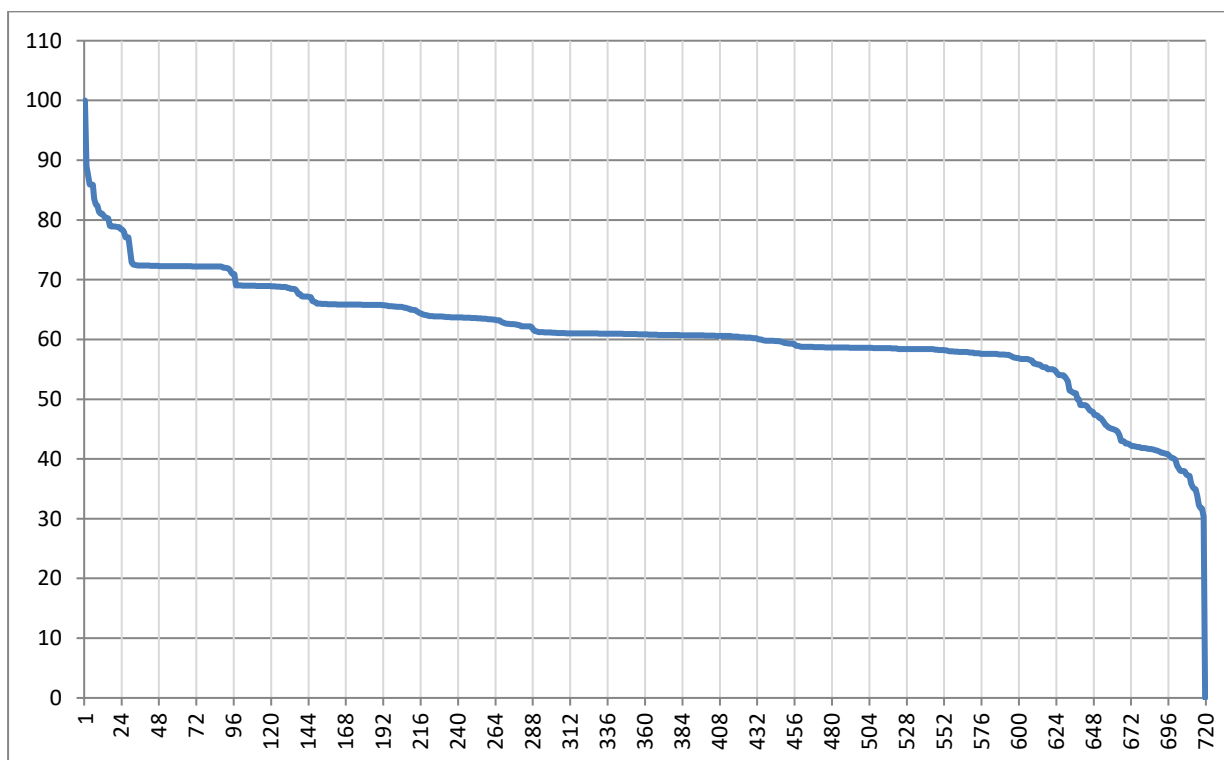


Figure 5a: SMP duration curve (€/MWh)

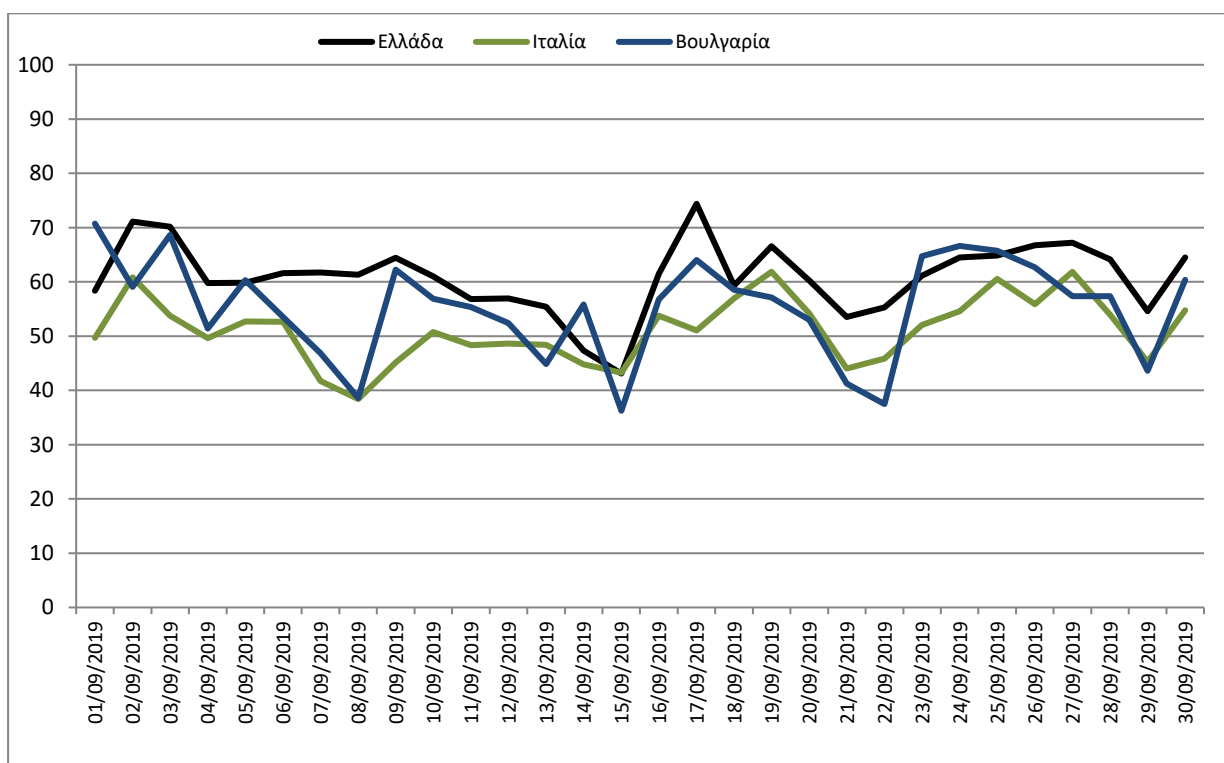


Figure 5b: Daily average marginal energy prices (€/MWh) of Greece, Italy, Bulgaria

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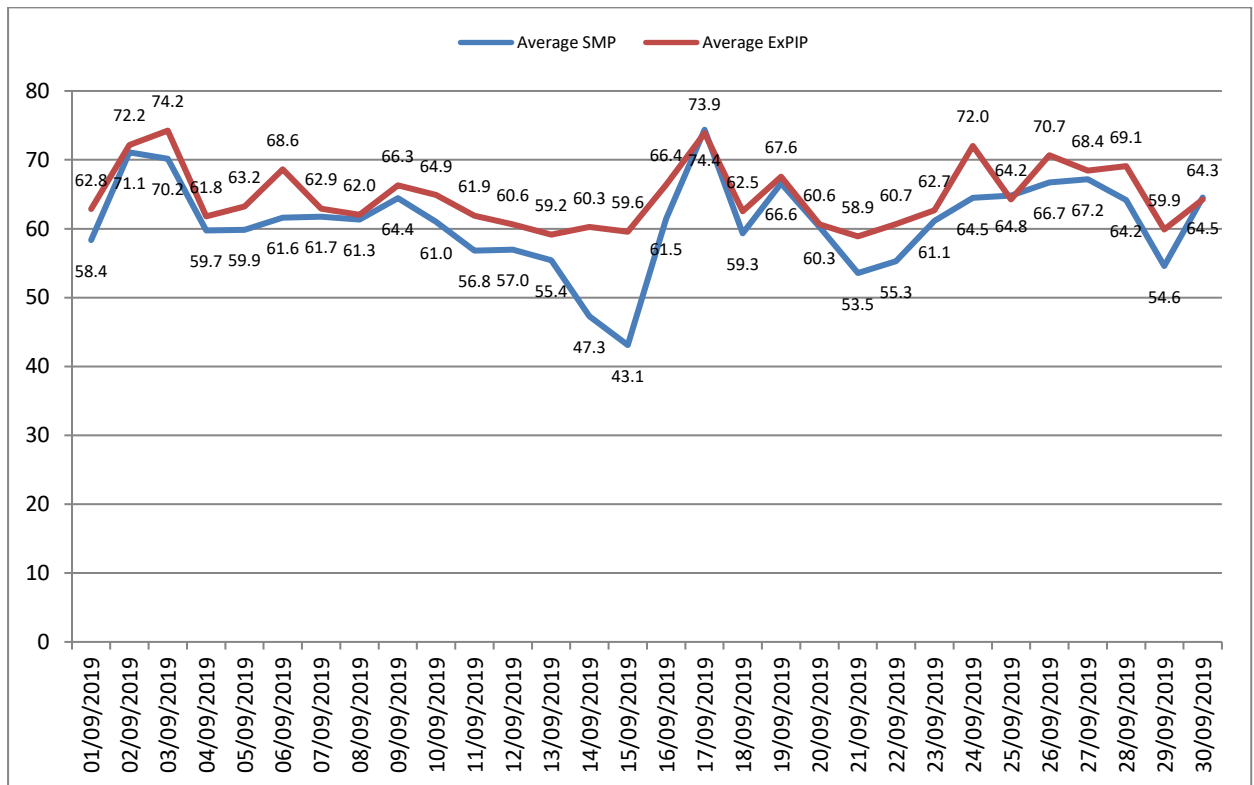


Figure 6: Average Daily SMP and ExPIP

Source: HENEX, ADMIE

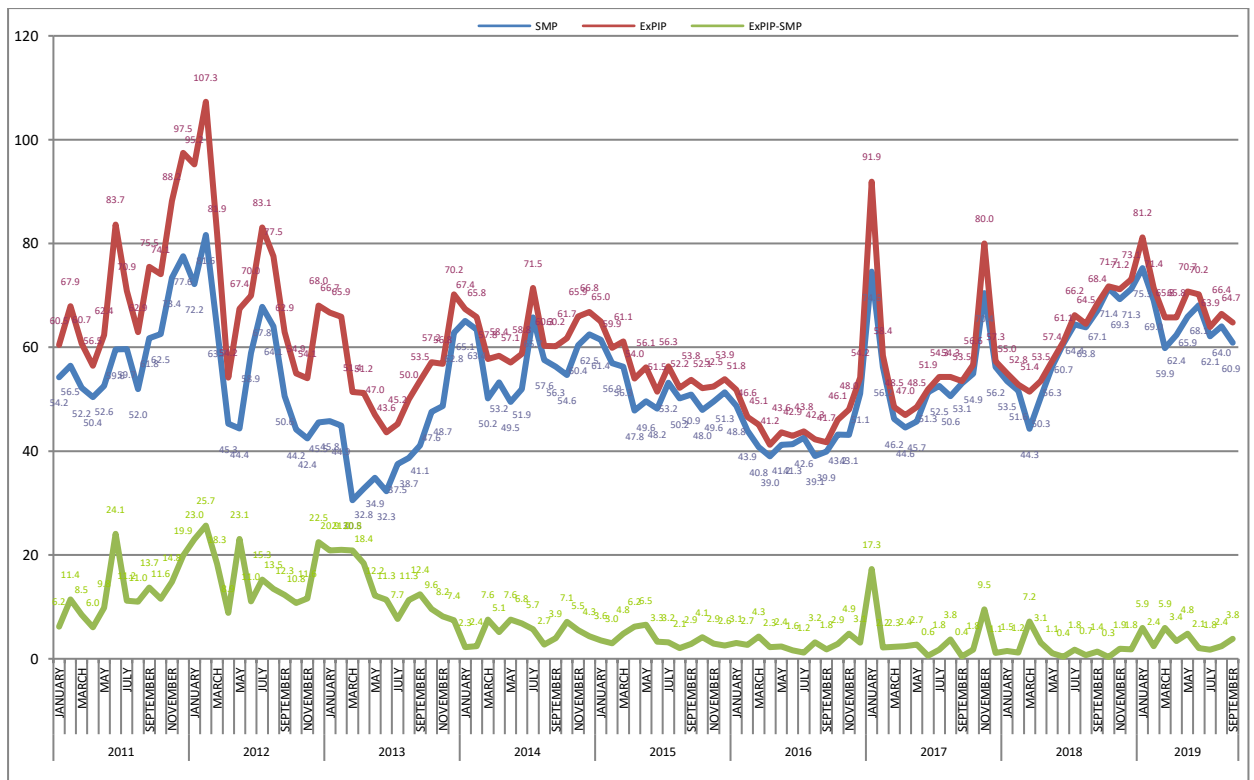


Figure 7: Evolution of average monthly SMP, ExPIP and their difference

Source: HENEX, ADMIE

		Average Monthly SMP		Average Monthly ExPIP		Difference SMP-ExPIP
		€/MWh	% deviation*	€/MWh	% deviation*	€/MWh
2018	January	53,50	-28,28	54,99	-40,17	1,49
	February	51,63	-8,17	52,82	-9,61	1,19
	March	44,28	-4,19	51,44	6,07	7,16
	April	50,35	12,97	53,47	13,81	3,12
	May	56,32	23,15	57,37	18,36	1,05
	June	60,69	18,26	61,07	17,68	0,38
	July	64,42	22,62	66,20	21,87	1,77
	August	63,83	26,23	64,52	18,79	0,69
	September	67,06	26,38	68,43	27,88	1,37
	October	71,40	30,11	71,74	26,68	0,34
	November	69,30	-1,63	71,22	-10,95	1,93
	December	71,25	26,81	73,08	27,48	1,83
2019	January	75,28	40,73	81,21	47,68	5,93
	February	69,01	33,67	71,44	35,26	2,43
	March	59,87	35,19	65,79	27,89	5,93
	April	62,40	23,93	67,29	25,85	4,89
	May	65,91	17,03	70,75	23,31	4,84
	June	68,14	12,27	70,21	14,96	2,07
	July	62,14	-3,53	63,90	-3,47	1,76
	August	64,02	0,30	66,42	2,95	2,40
	September	60,91	-9,17	64,75	-5,38	3,84

Source: HENEX, ADMIE

Table 2: Evolution of average monthly SMP, ExPIP and their difference, as well as the % deviation of average monthly SMP & ExPIP in relation to the same month of the previous year

\*The calculation of SMP & ExPIP commenced in the Fifth Reference Day on 30/09/2010

Reserve	Minimum Price (€/MW)	Maximum Price (€/MW)	Date of Maximum Price	Average Price (€/MW)
Primary	0,001	0,006	13/09/2019	0,001
Secondary Up	0,001	11,000	15/09/2019	1,201
Secondary Down	0,001	17,000	16/09/2019	0,968

Table 2a: Average, Minimum and Maximum Monthly Reserves Prices

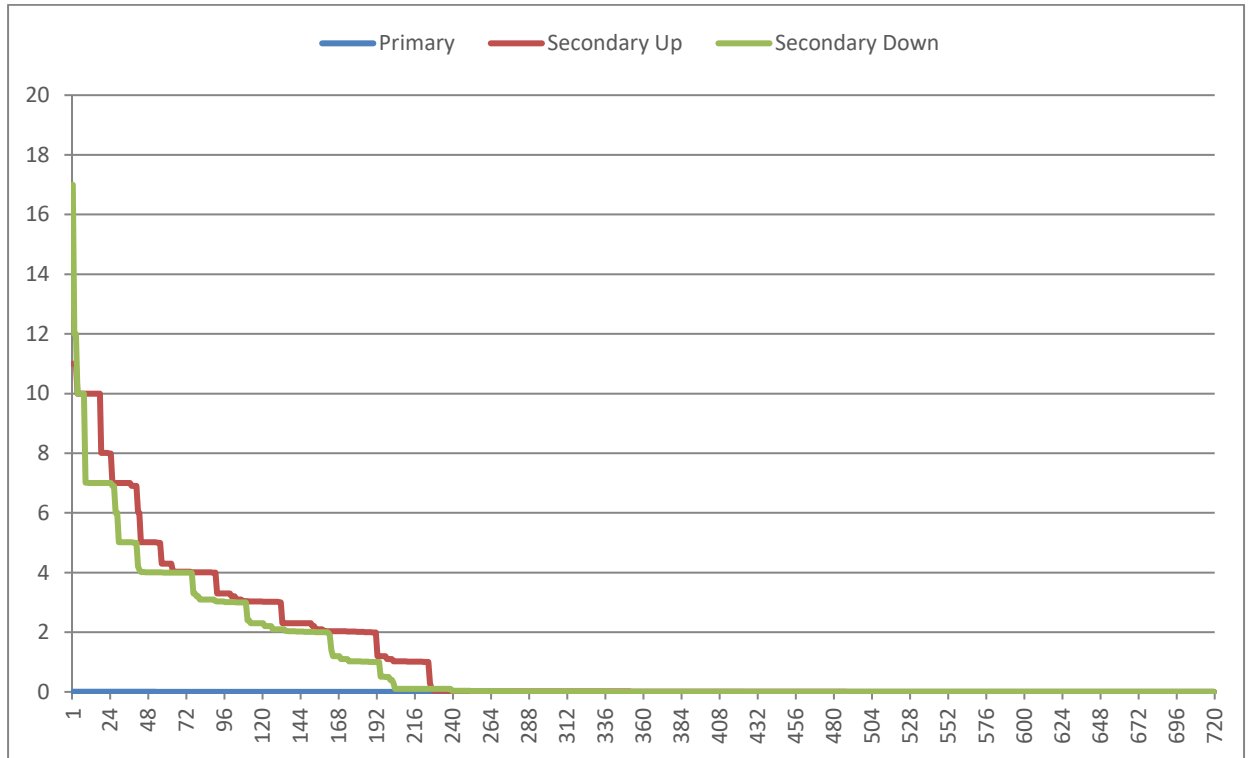


Figure 7a: Duration Curve of Primary, Secondary Up and Secondary Down Reserve Prices (€/MW)

	Lignite	Natural Gas	Hydro	Imports	Exports
Hours/Month	87	448	36	115	34

Table 3: Number of hours for each type of fuel, imports and exports that have defined the SMP

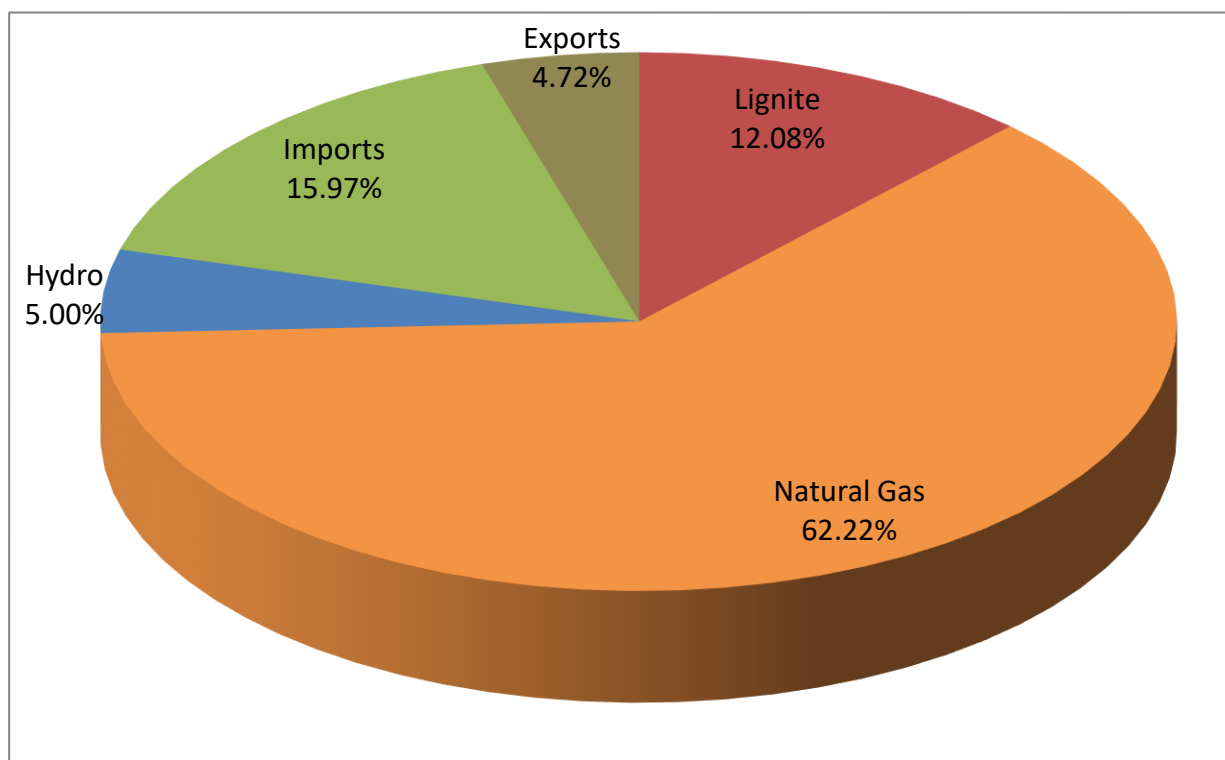


Figure 8: Percentage (%) of total hours per fuel type/imports/exports that have defined the SMP

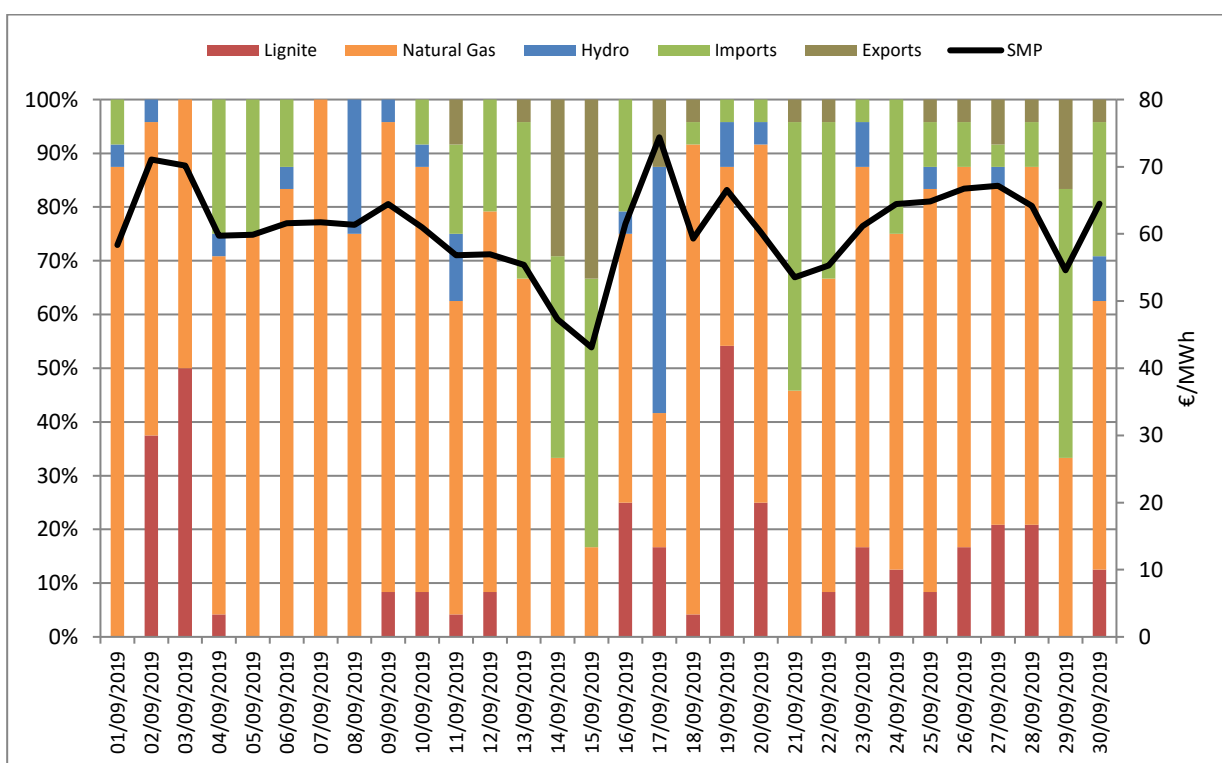


Figure 9: Daily percentage (%) distribution of fuel type/import/export that have defined SMP

### 3. DAS Energy Balance

	September 2019	% deviation (from 09/2018)	January - September 2019	% deviation (from 01-09/2018)
<b>PRODUCTION AND IMPORTS - EXPORTS BALANCE (MWh)</b>				
<b>TOTAL PRODUCTION &amp; IMPORTS - EXPORTS BALANCE</b>	<b>3,992,820</b>	<b>-2.88</b>	<b>38,907,469</b>	<b>1.29</b>
<b>NET PRODUCTION ANALYSIS</b>				
LIGNITE	595,600	-48.74	8,022,643	-28.11
OIL	334	0.00	737	0.00
NATURAL GAS	1,598,322	14.74	13,477,300	27.33
HYDRO	223,480	-33.14	2,196,112	-45.65
RES	889,247	-0.45	8,012,466	5.74
<b>TOTAL NET PRODUCTION</b>	<b>3,306,984</b>	<b>-12.57</b>	<b>31,709,259</b>	<b>-4.95</b>
<b>IMPORTS</b>				
	<b>899,228</b>	<b>9.20</b>	<b>9,526,494</b>	<b>15.77</b>
ALBANIA	107,355		1,318,559	
BULGARIA	277,912		2,709,508	
ITALY	324,334		3,001,778	
F.Y.R.O.M.	143,212		2,013,680	
TURKEY	46,414		482,970	
<b>EXPORTS</b>	<b>213,392</b>	<b>-56.87</b>	<b>2,328,284</b>	<b>-26.76</b>
ALBANIA	63,989		520,224	
BULGARIA	67,476		251,450	
ITALY	6,065		883,248	
F.Y.R.O.M.	73,262		663,735	
TURKEY	2,599		9,627	
<b>IMPORTS - EXPORTS BALANCE</b>	<b>685,836</b>	<b>108.68</b>	<b>7,198,210</b>	<b>42.55</b>
<b>DEMAND (MWh)</b>				
<b>TOTAL DEMAND</b>	<b>3,992,820</b>	<b>-2.88</b>	<b>38,907,469</b>	<b>1.29</b>
<b>NET DEMAND</b>	<b>3,992,416</b>	<b>-2.89</b>	<b>38,872,665</b>	<b>1.25</b>
<b>PUMPING</b>	<b>404</b>	<b>0.00</b>	<b>34,804</b>	<b>92.29</b>
<b>TOTAL DEMAND ANALYSIS</b>				
LOW VOLTAGE CUSTOMERS	2,517,534	-0.25	25,316,044	5.73
MEDIUM VOLTAGE CUSTOMERS	976,235	-8.19	9,062,583	-6.76
HIGH VOLTAGE CUSTOMERS	498,647	-4.81	4,494,037	-5.00
<b>SYSTEM PEAK POWER (MW)</b>				
<b>MAXIMUM HOURLY SYSTEM POWER</b>	<b>7,723</b>	<b>-3.86</b>	<b>9,313</b>	<b>2.57</b>
Date	03/09/2019		10/07/2019	
Hour of maximum	14.00		14:00	

The DAS Energy Balance refers to the Market Point, where the solution of DAS also refers to, in which system losses have already been allocated. According to Chapter 10 of the Power Exchange Code for Electricity, to each Generation Unit Metering point and to each Interconnection Metering point for Import, as well as to each Meter point of the Distribution Network, losses factors are applied, in order to allocate both injected and absorbed power to the Market Points.



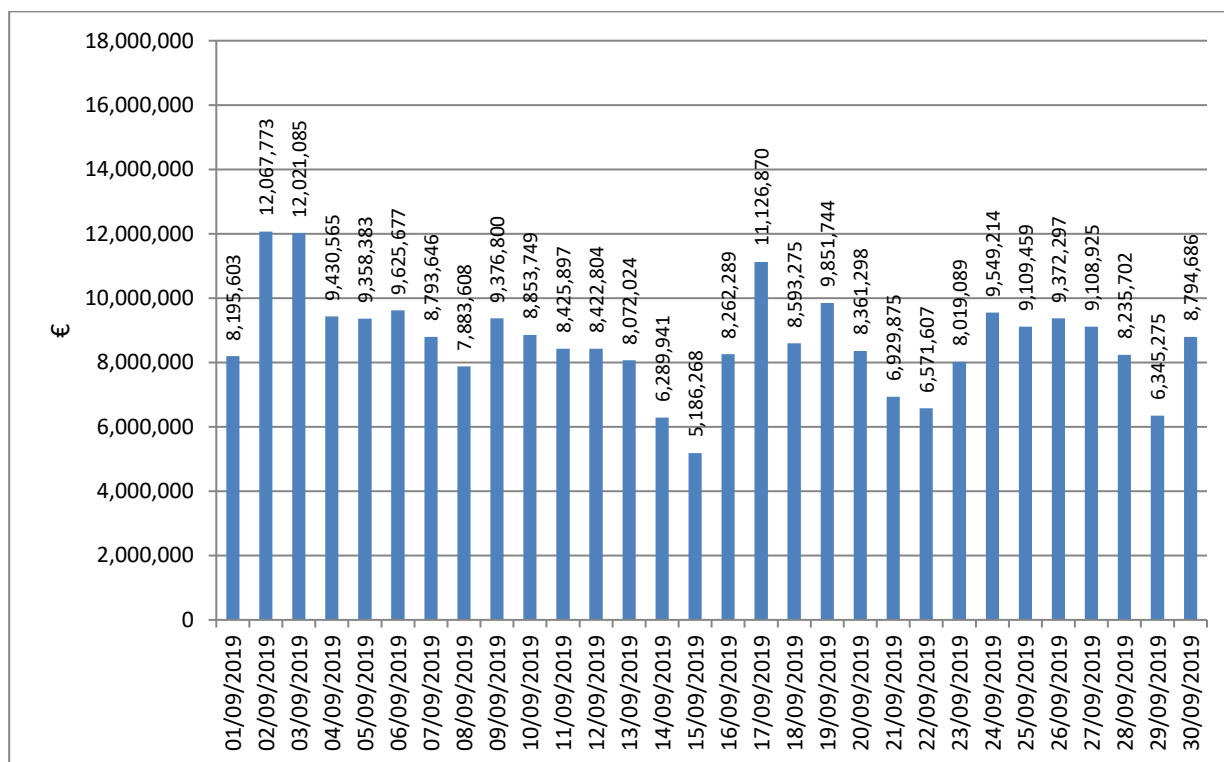


Figure 10: Daily value of DAS

The total value of DAS for September 2019 reached 260,2 M€.

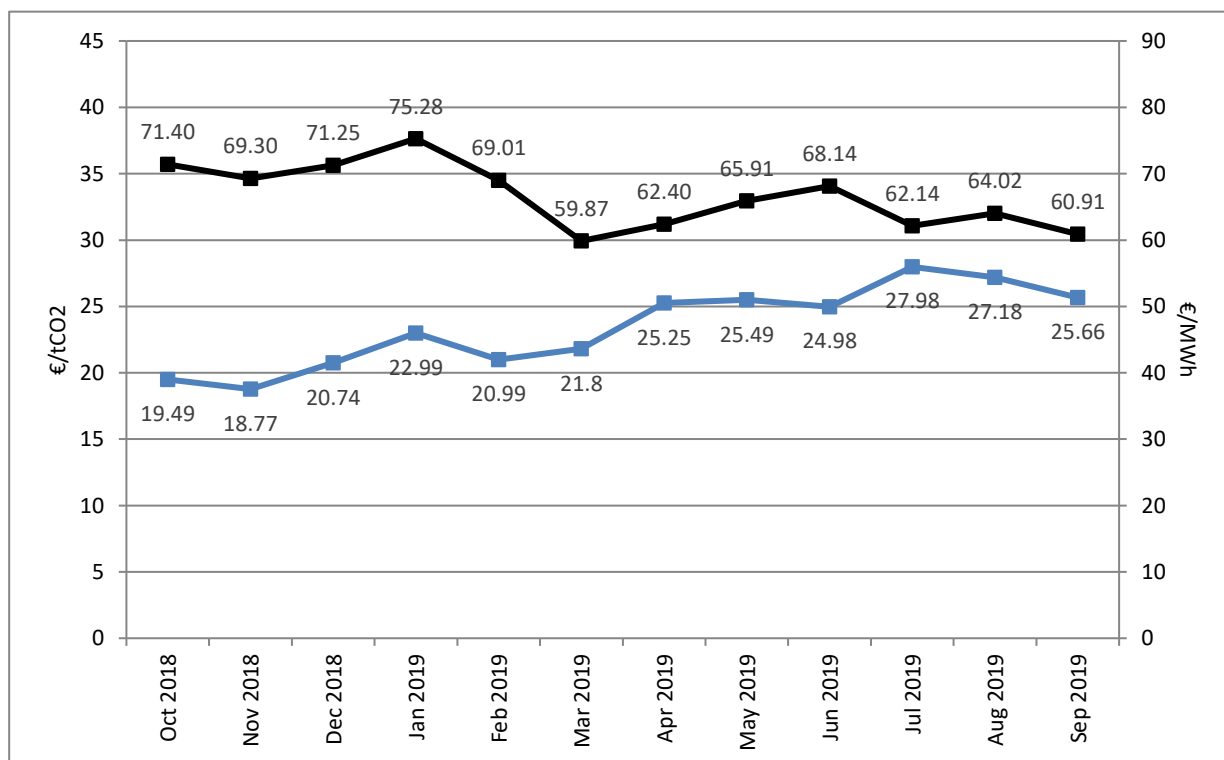


Figure 11: Weighted Average Monthly Prices of CO2 emissions rights (auction T3PA) and SMP (right axis)

Source: DAPEEP

## 4. Domestic Power Generation

### 4.1 Production and Credit per fuel type

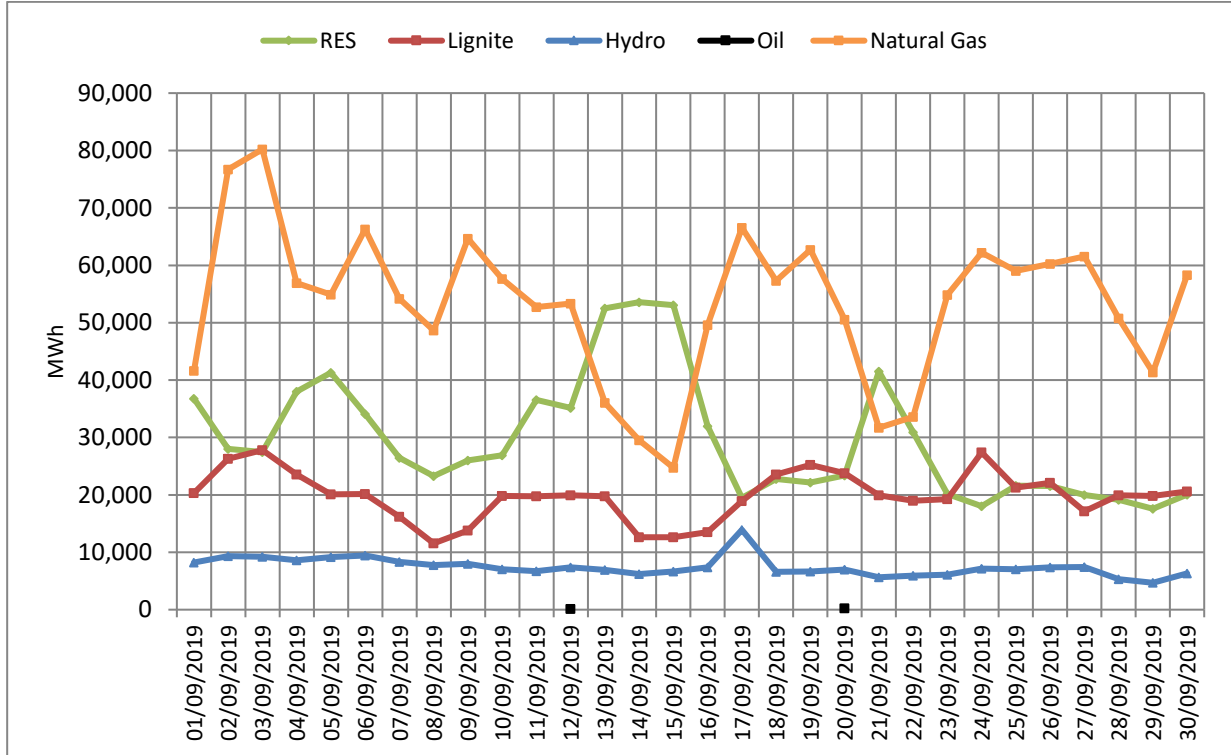


Figure 12: Daily production per fuel type

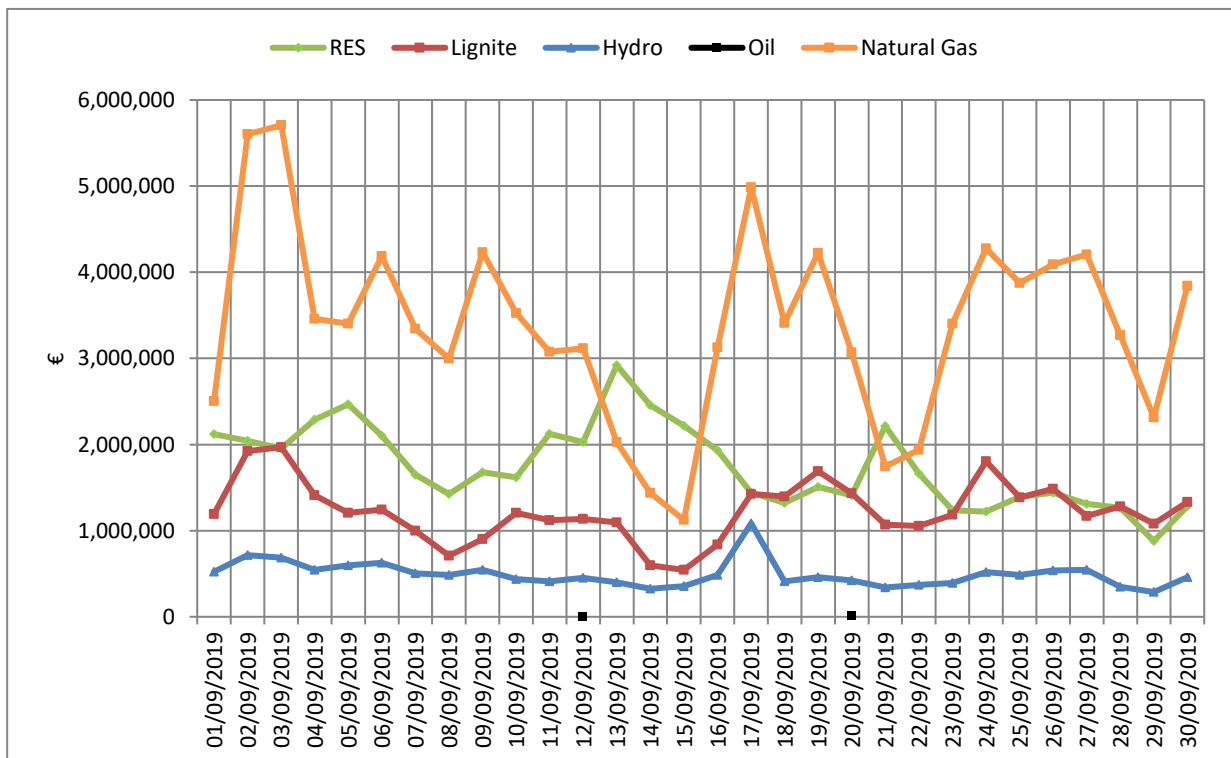


Figure 13: Daily production credit per fuel type

MONTHLY DAS TRADING SYSTEM REPORT SEPTEMBER 2019

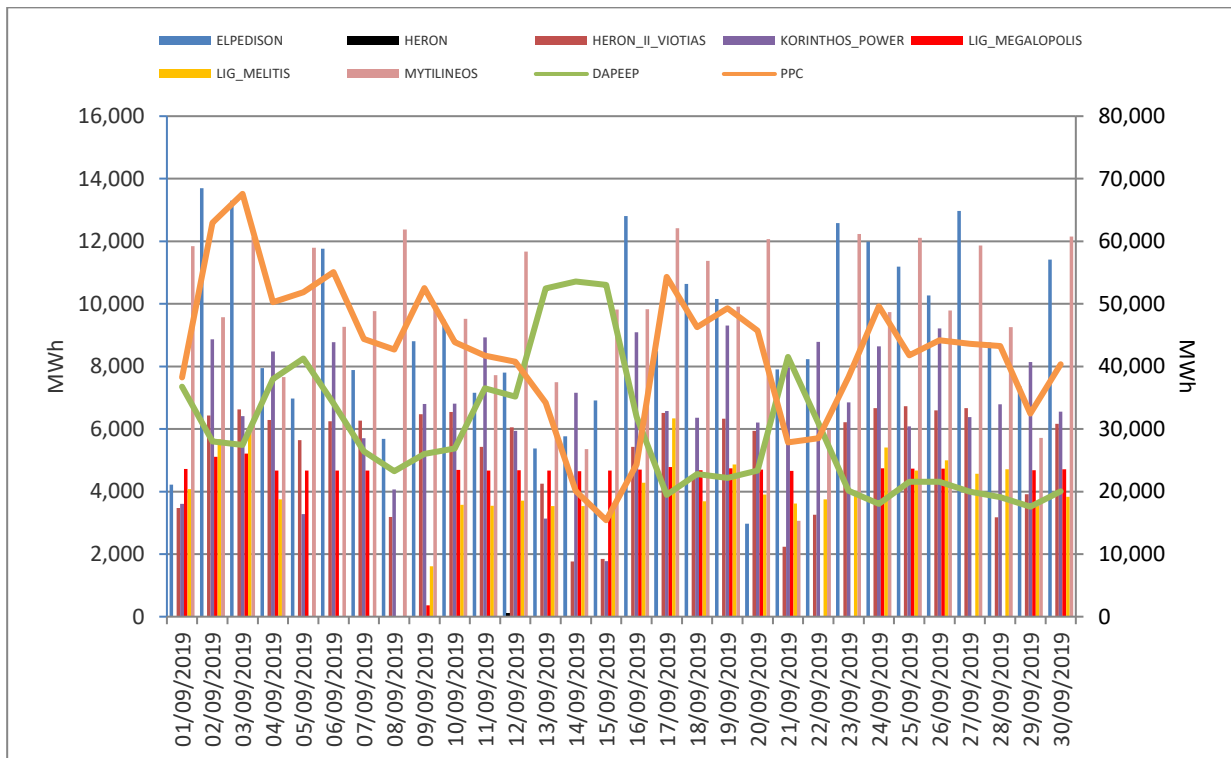


Figure 14: Daily production per Participant (the right axis represents the production of PPC and DAPEEP)

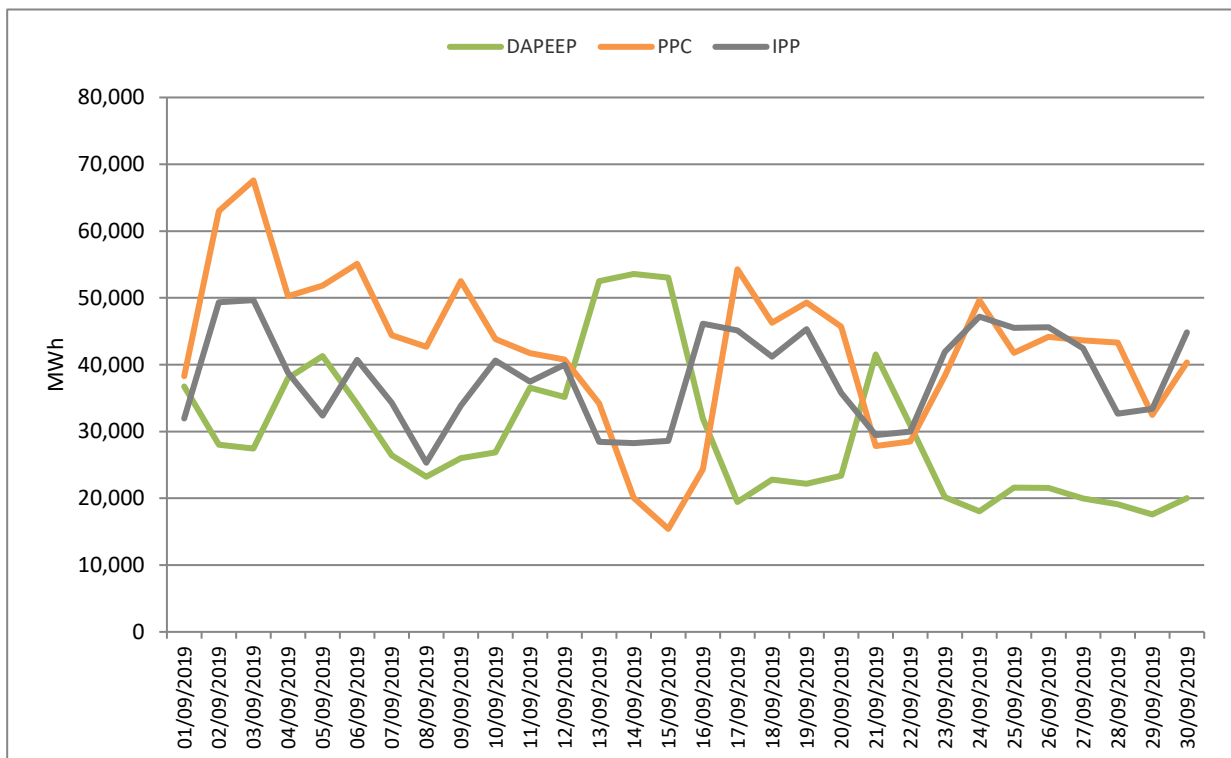


Figure14a: Daily production for PPC, DAPEEP and Independent Power Producers

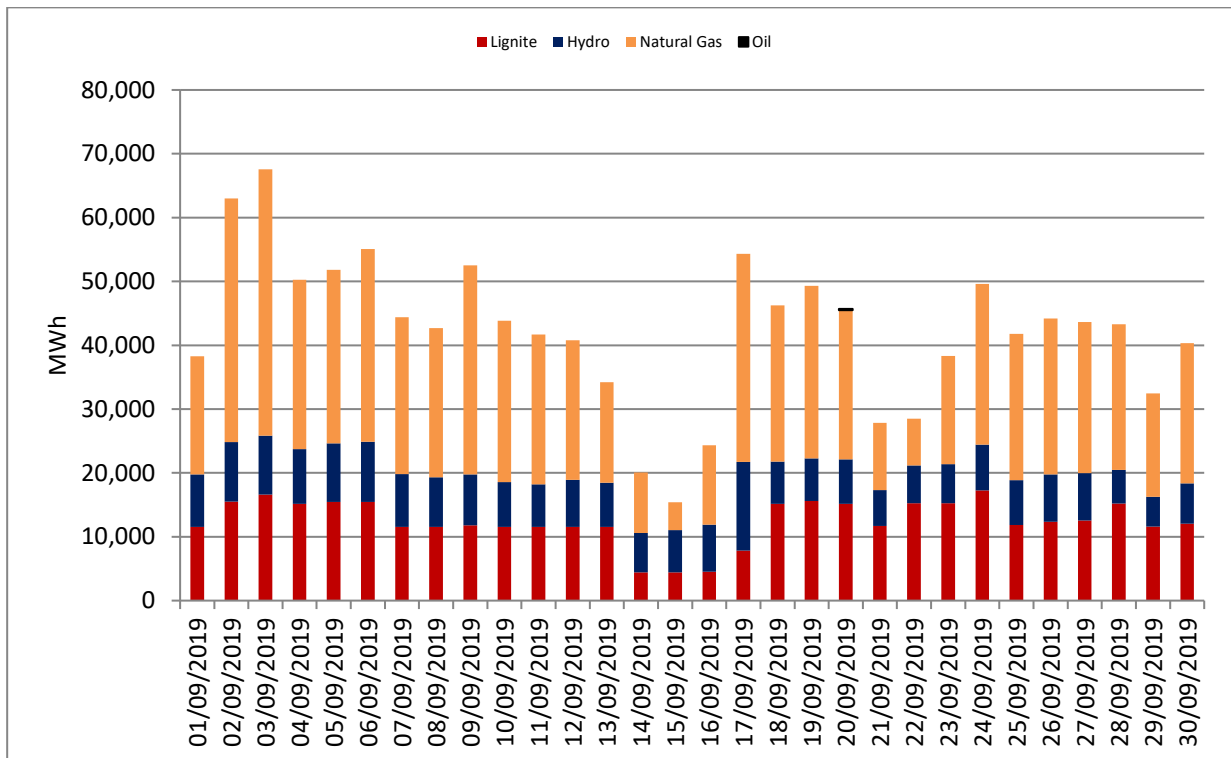


Figure 15: Daily production of PPC units per fuel type

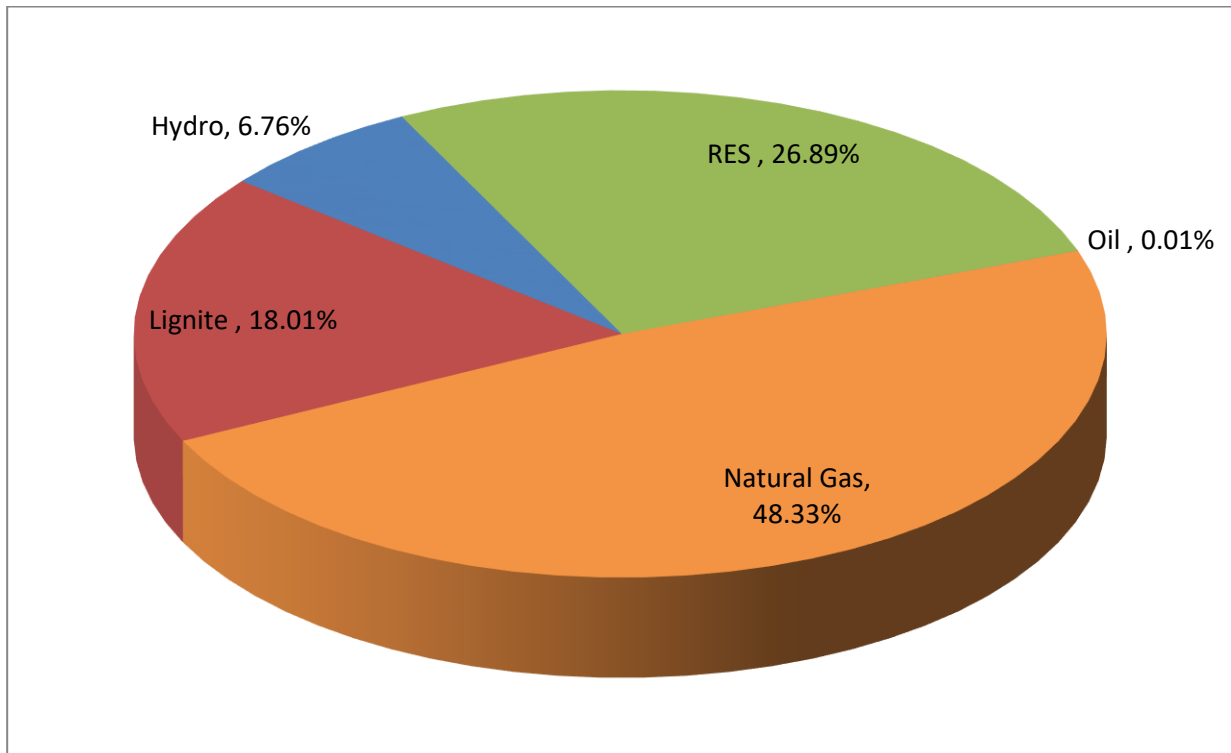


Figure 16: Percentage (%) of total Monthly Production per fuel type

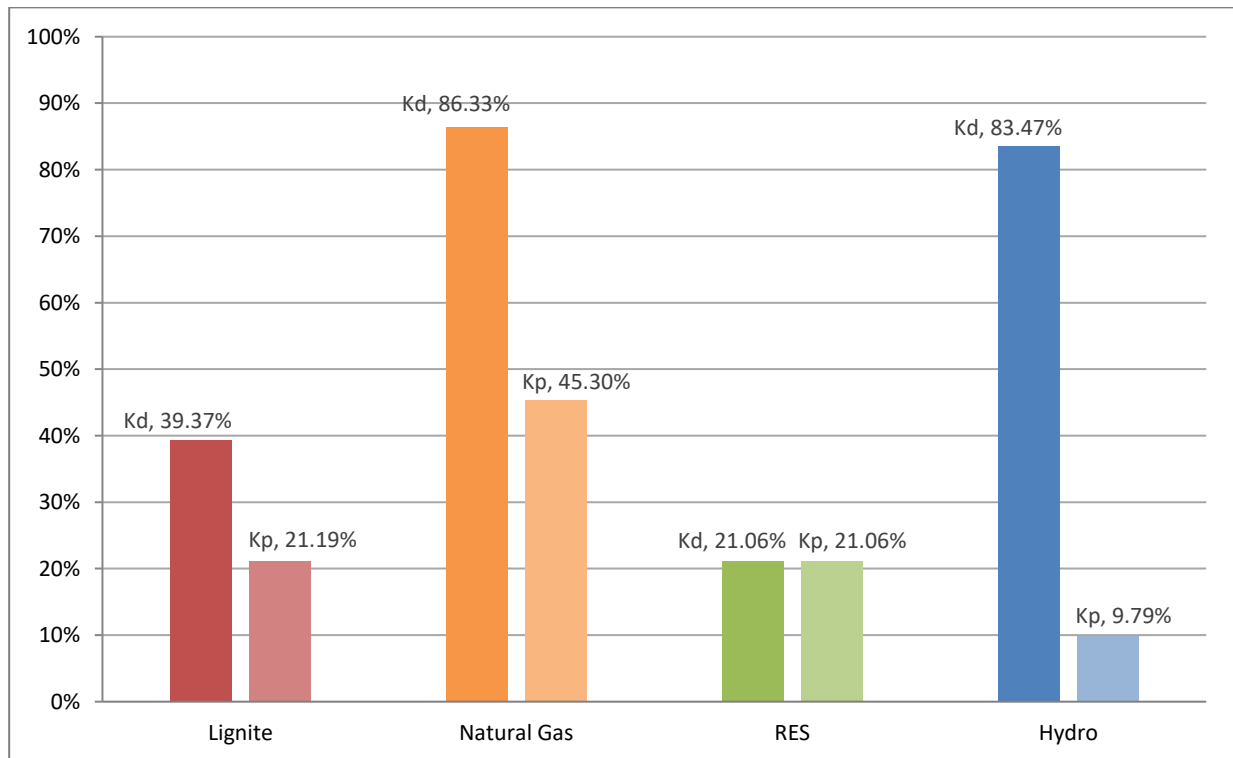


Figure 16a: Availability factor (Kd)\* and production factor (Kp)\*\* per fuel type at monthly level

\* Availability factor (Kd) per fuel type is defined as the ratio of the energy that could have been produced by the available capacity of all units per fuel type for a period of time to the energy that would have been produced by the same units and same period of time at full capacity.

\*\* Production factor (Kp) per fuel type is defined as the ratio of the energy produced by all units per fuel type during a given period of time to the energy that would have been produced by the same units and same period of time at full capacity.

## 4.2 Production and Credits per Participant

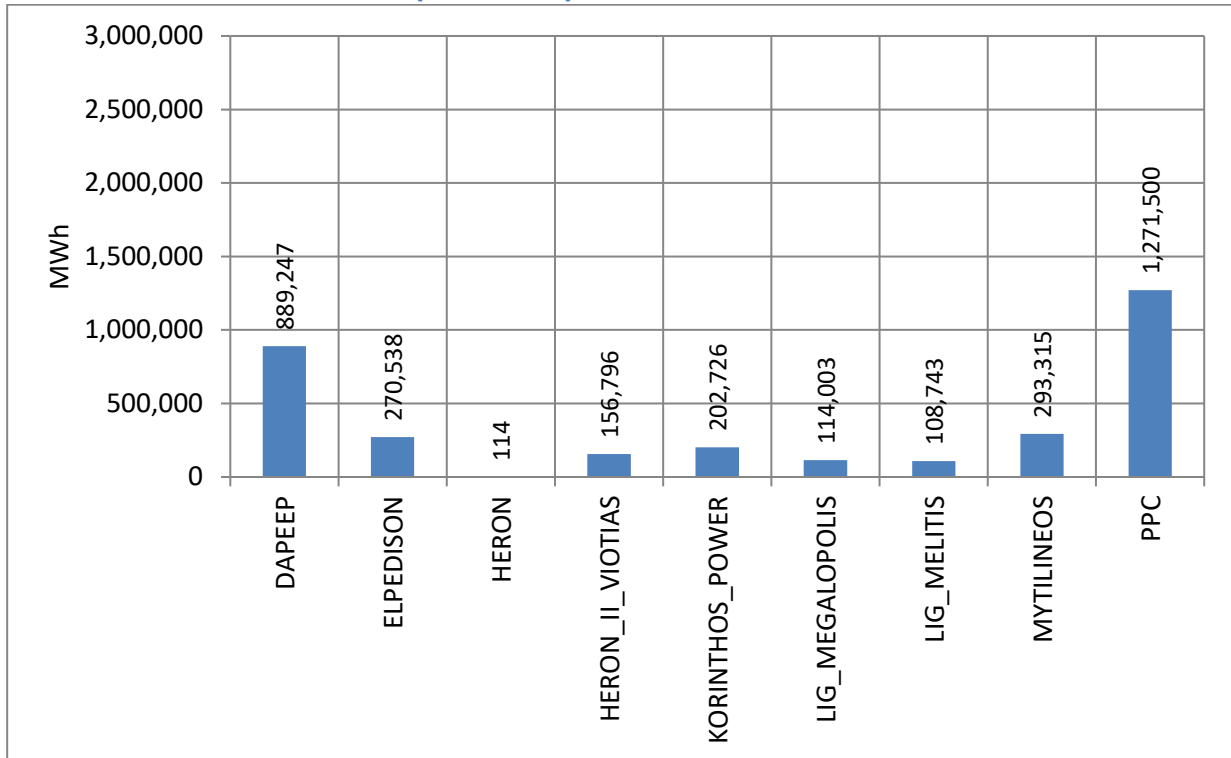


Figure 17: Monthly Production per Participant

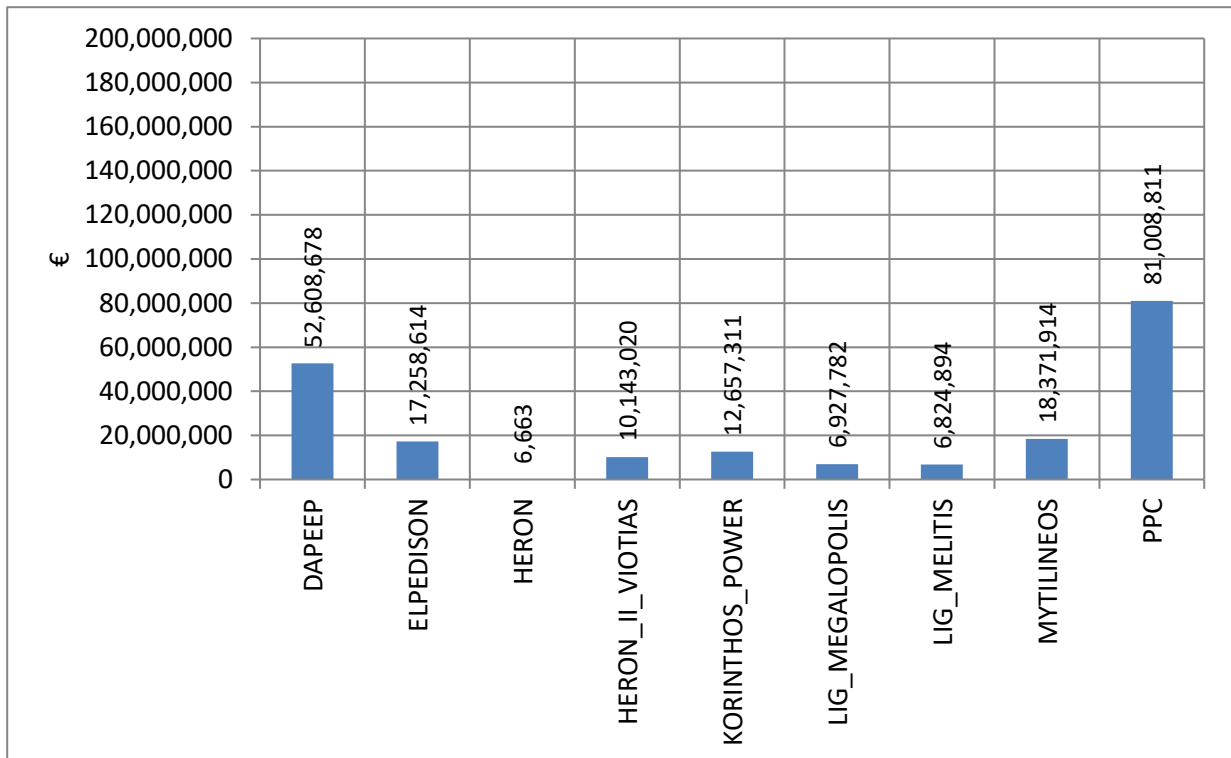


Figure 18: Monthly Production Credits per Participant

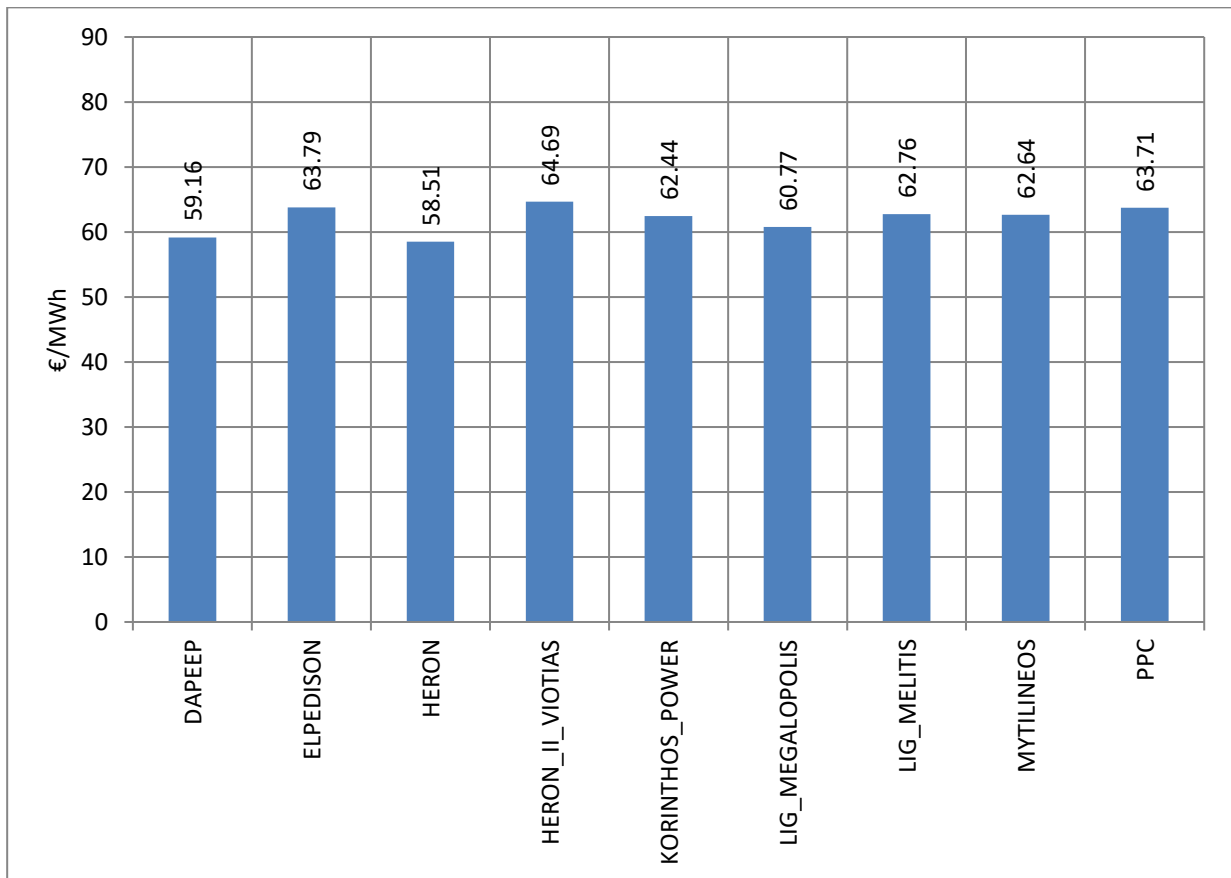


Figure 19: Monthly Credits / Monthly Production in €/MWh per Participant

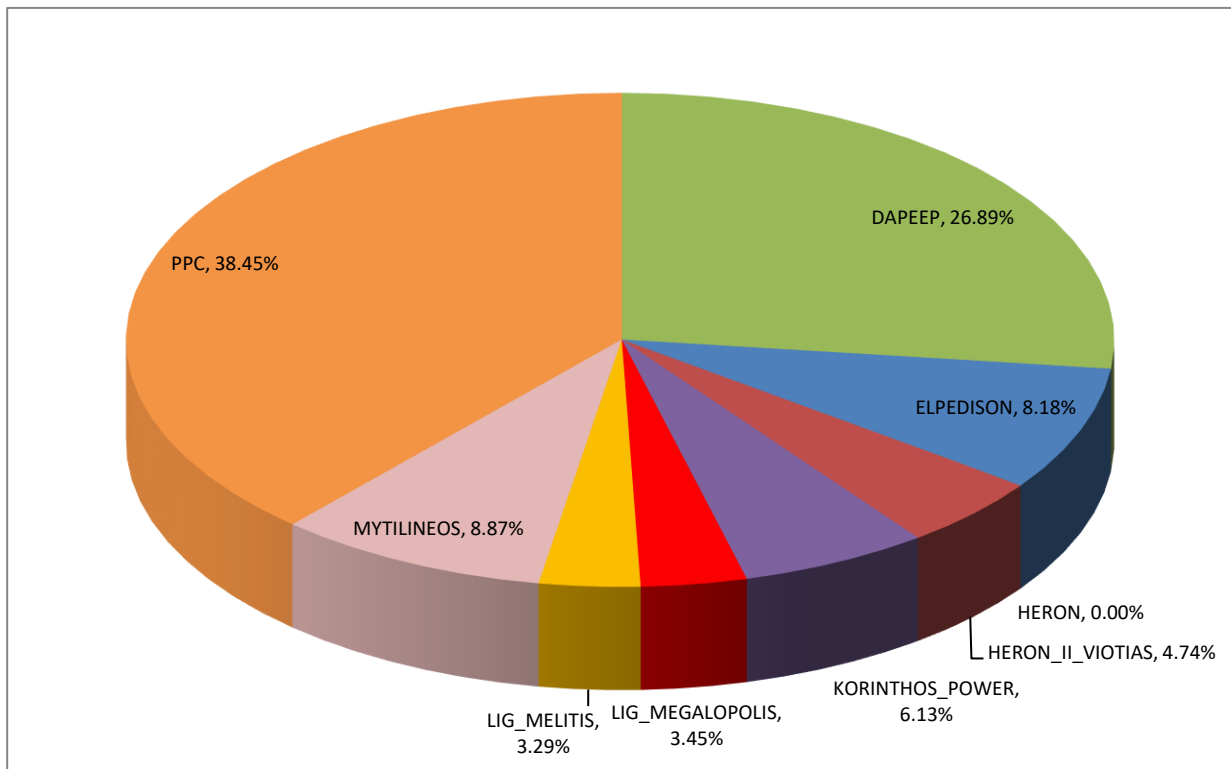


Figure 20: Percentage (%) of Total Monthly Production per Participant

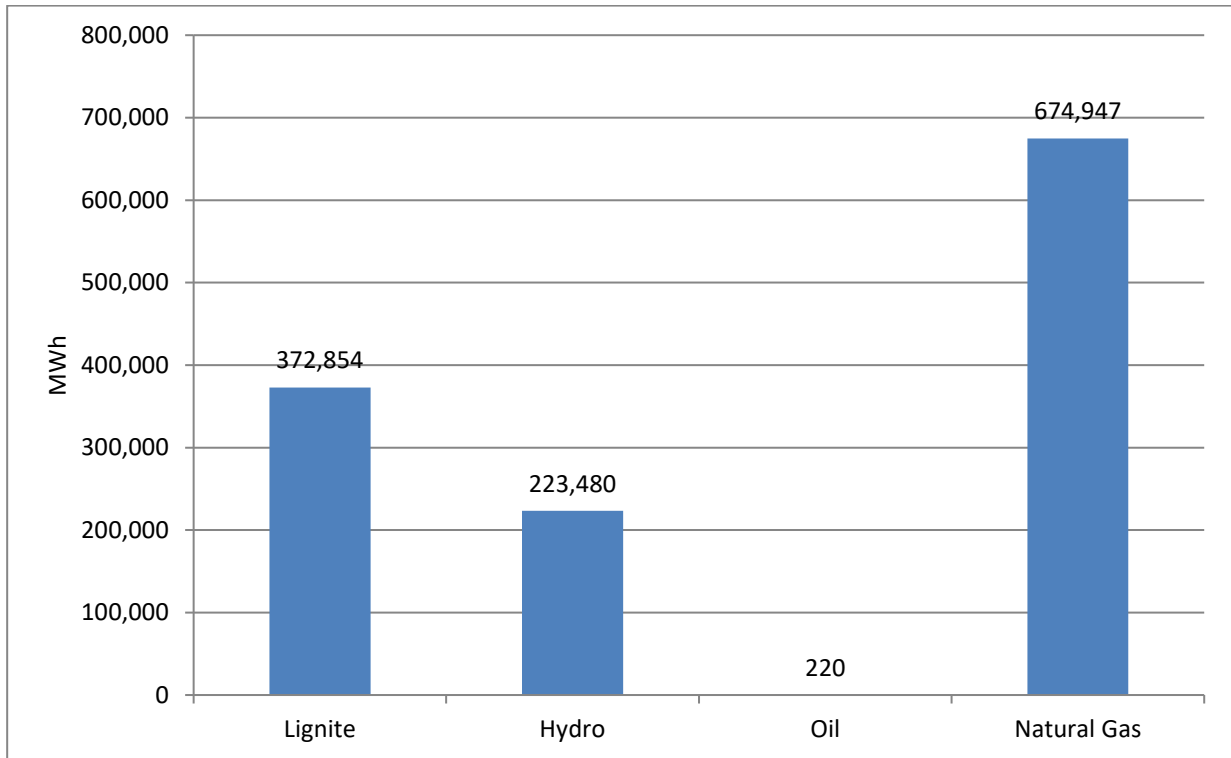


Figure 21: Monthly Production of PPC per fuel type

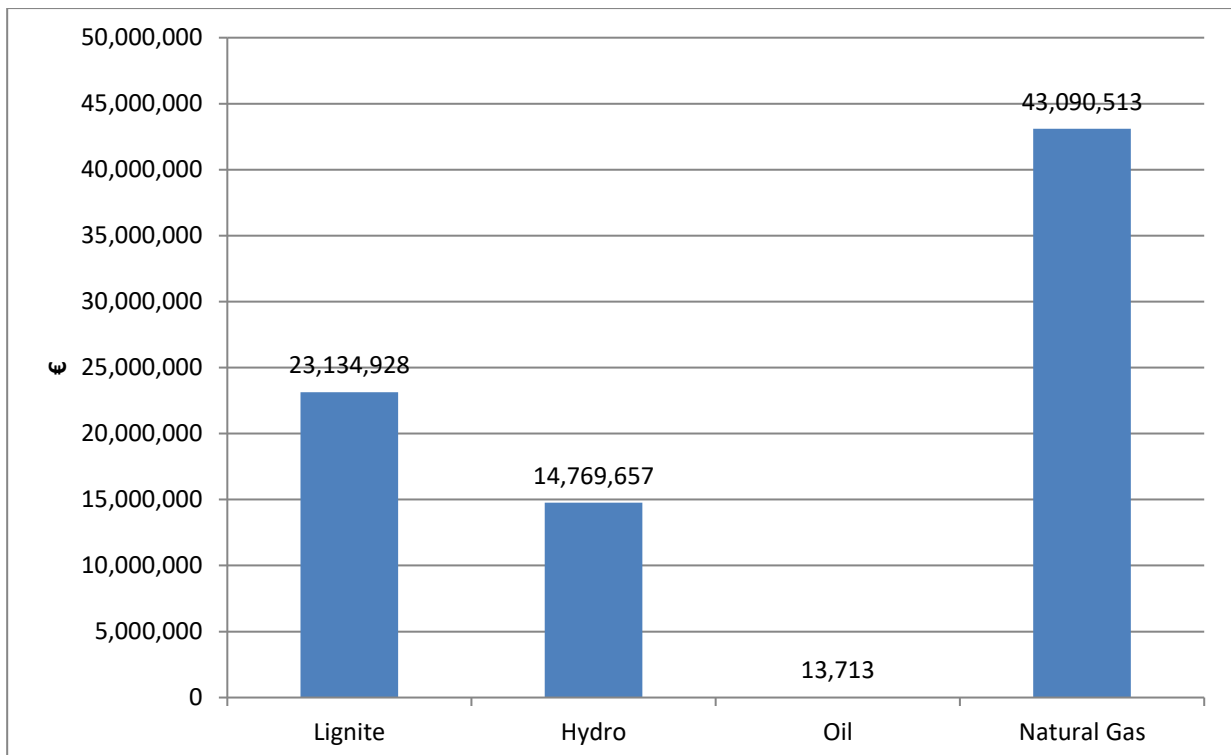


Figure 22: Monthly Credits of PPC per fuel type



### 4.3 Production per Participant, fuel type and operation status

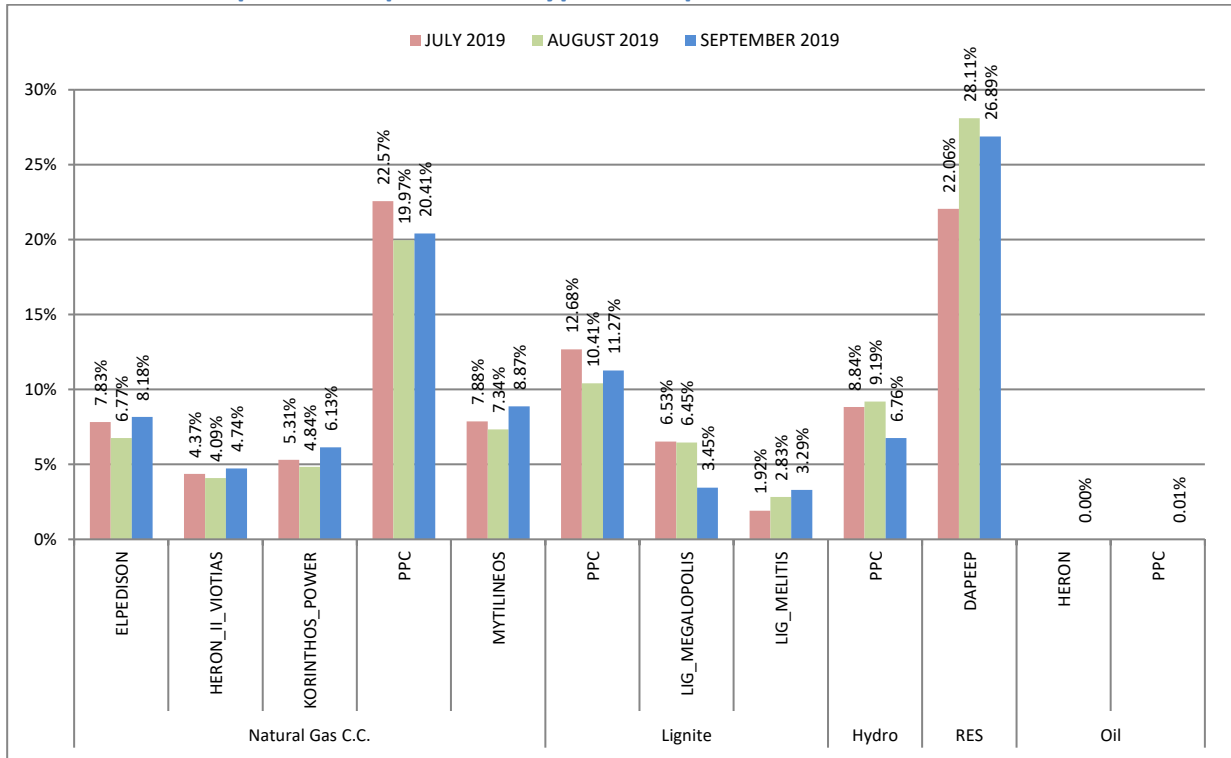


Figure 23: Percentage (%) of total Monthly Production per Participant and fuel type, in comparison to the previous months.

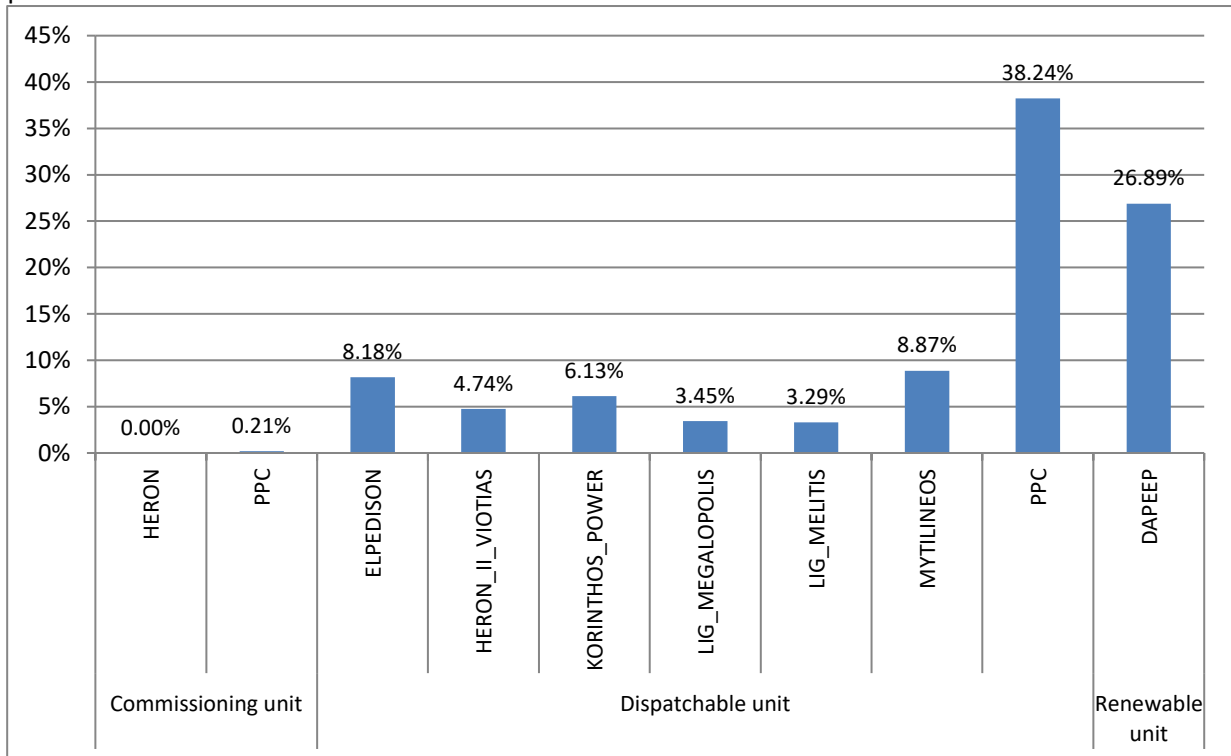


Figure 24: Percentage (%) of Total Production per Participant and operation status (testing operation, dispatchable unit, RES)

#### 4.4 Production and Credits per Unit

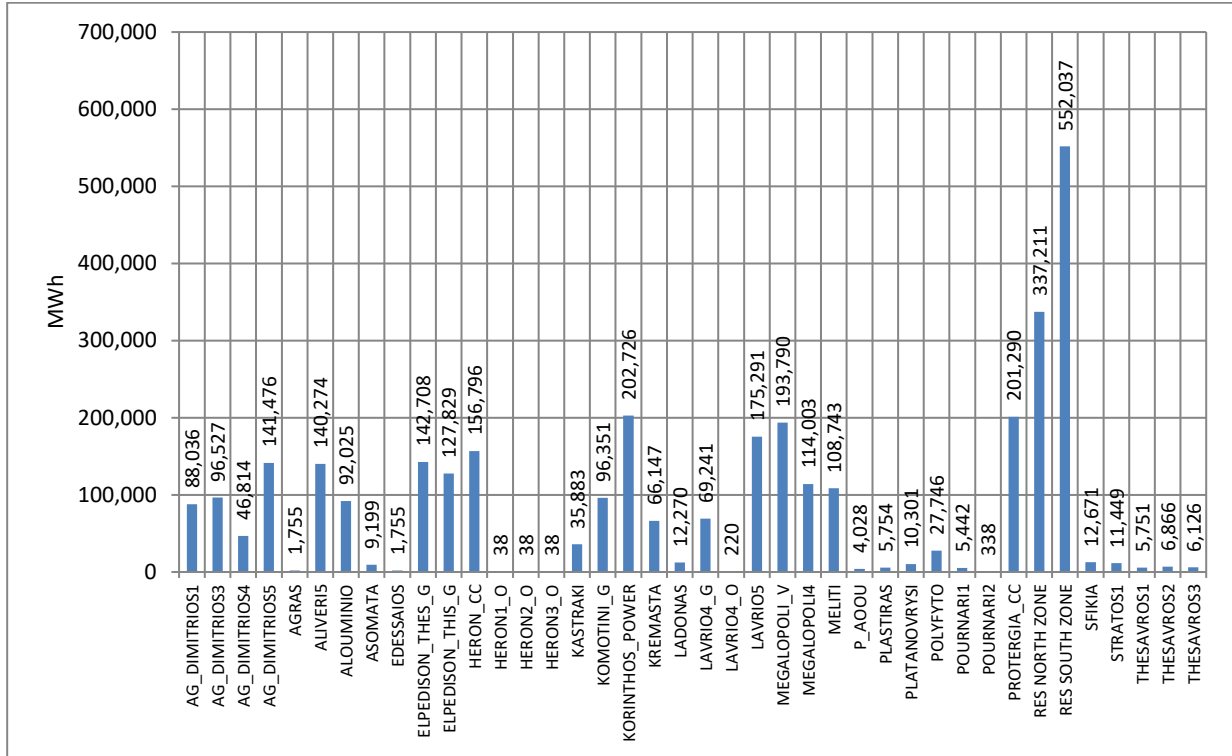


Figure 25: Monthly Energy per Unit

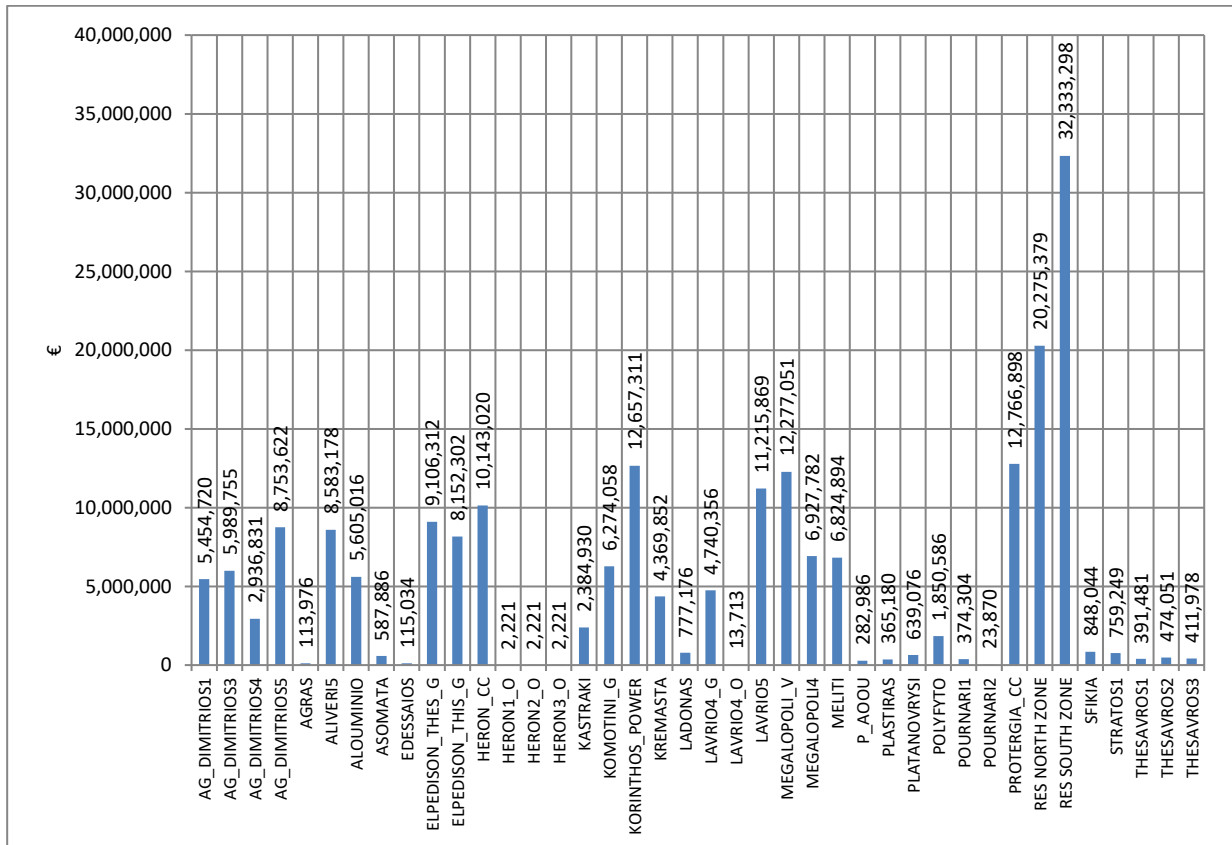


Figure 26: Monthly Credits per Unit

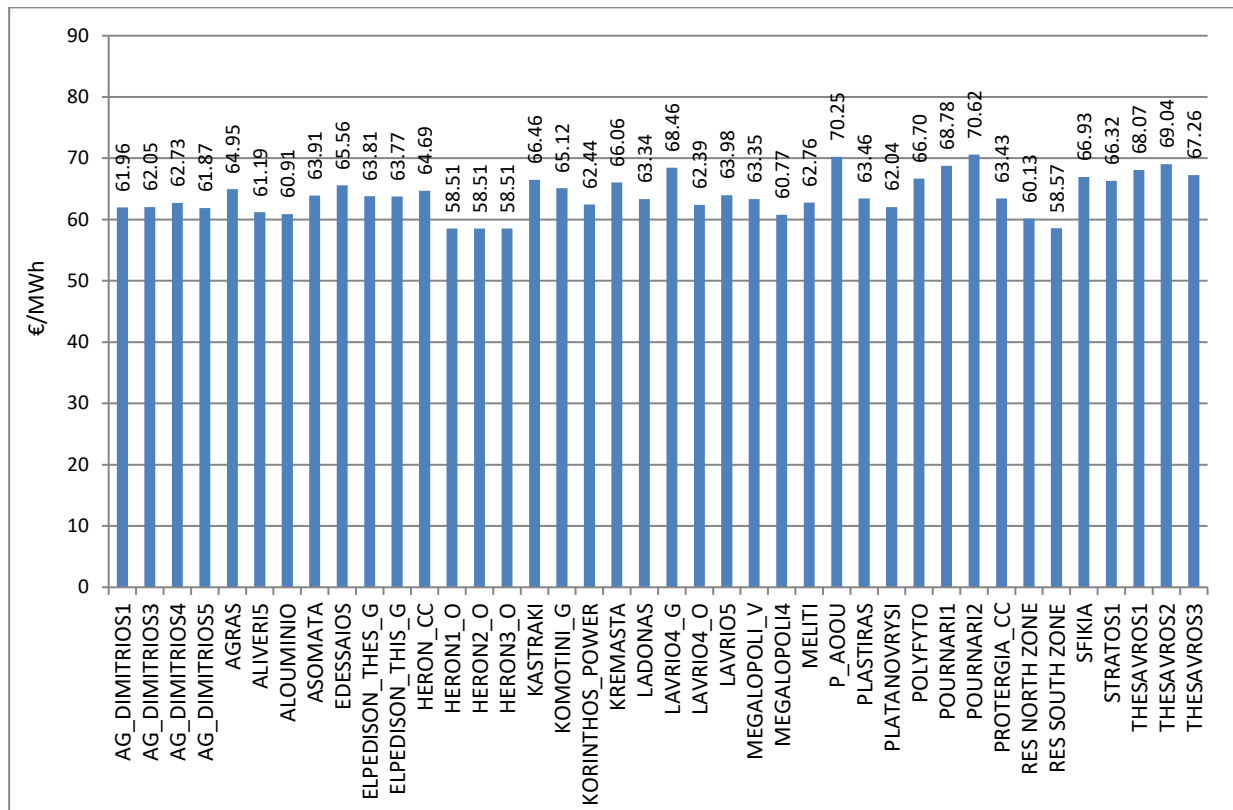


Figure 27: Monthly Credits/Monthly Production in €/MWh per Unit

## 5. Supply of Electricity

### 5.1 Load Declarations and Debits

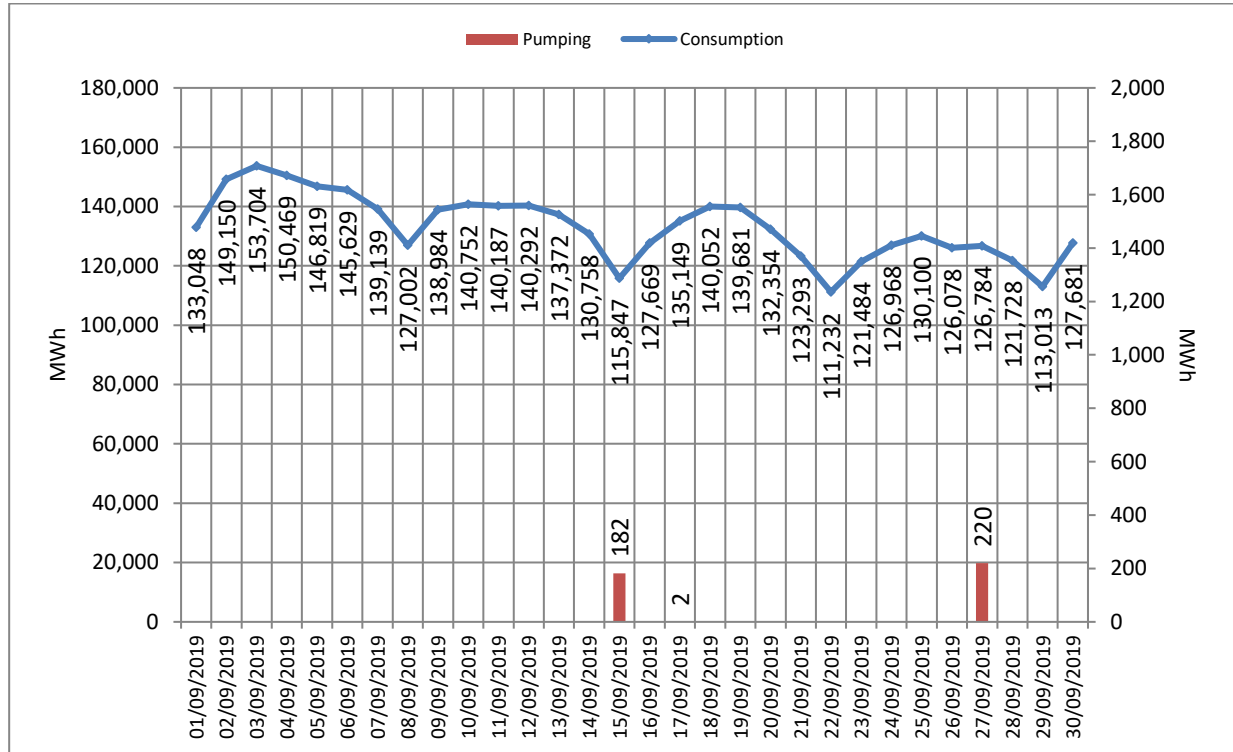


Figure 28: Daily Load Declarations and Pumping (MWh) (right axis represents pumping operation)

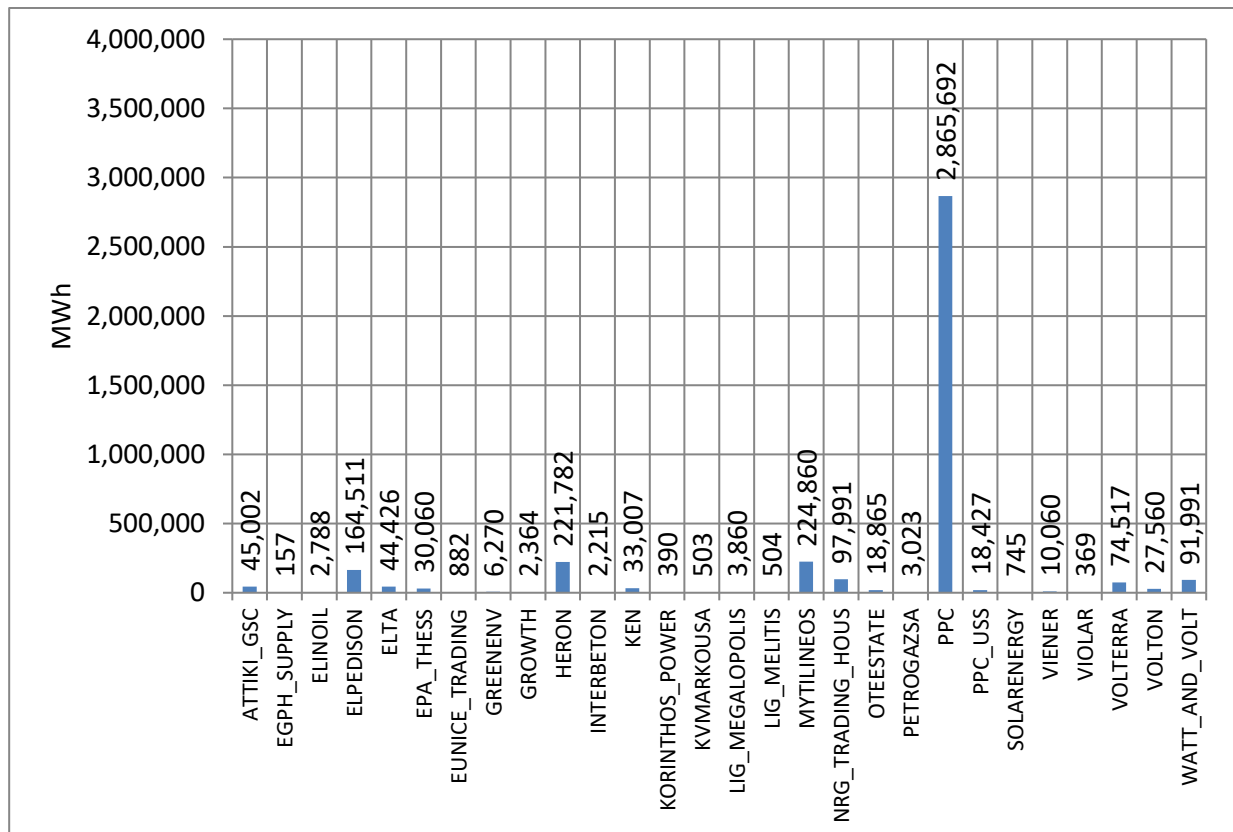


Figure 29: Monthly Supply per Participant

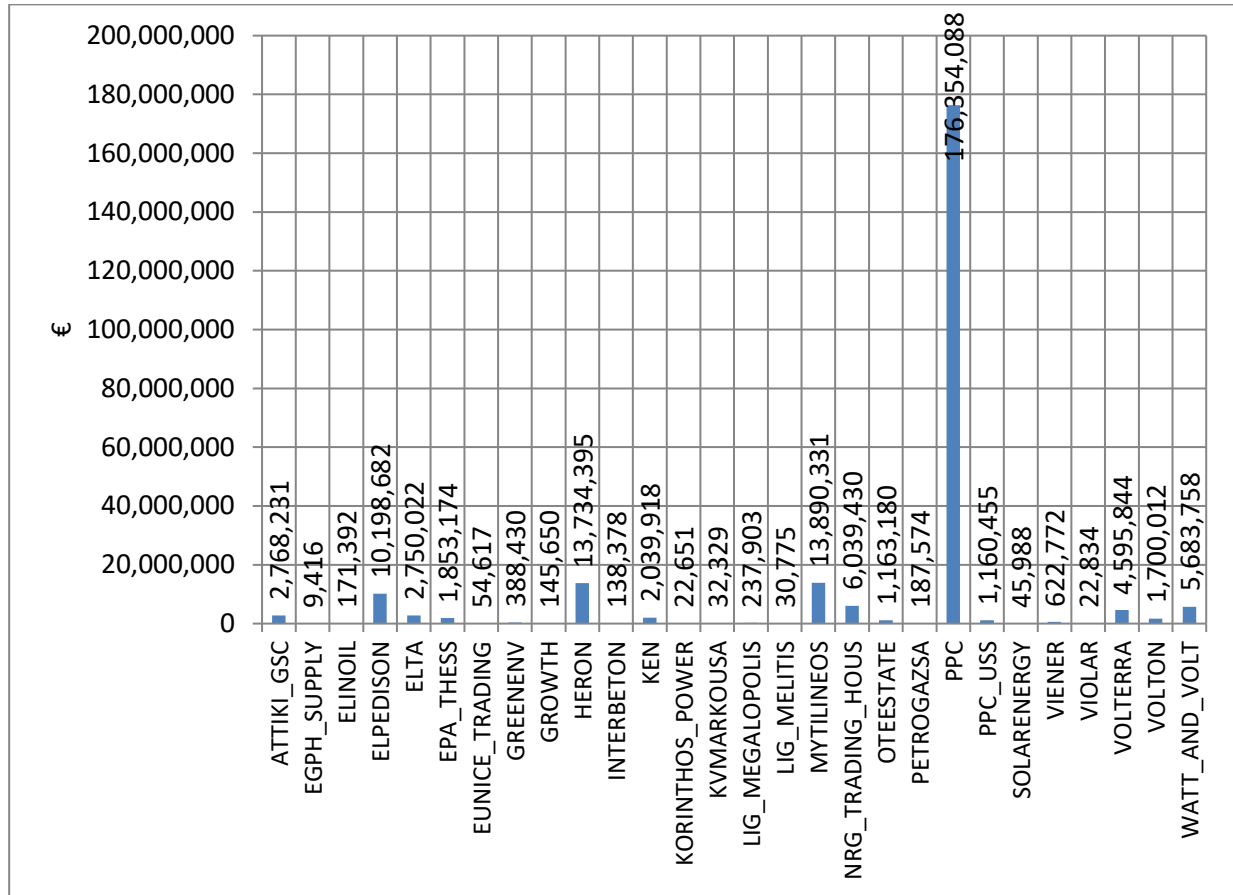


Figure 30: Monthly Supply Debits per Participant

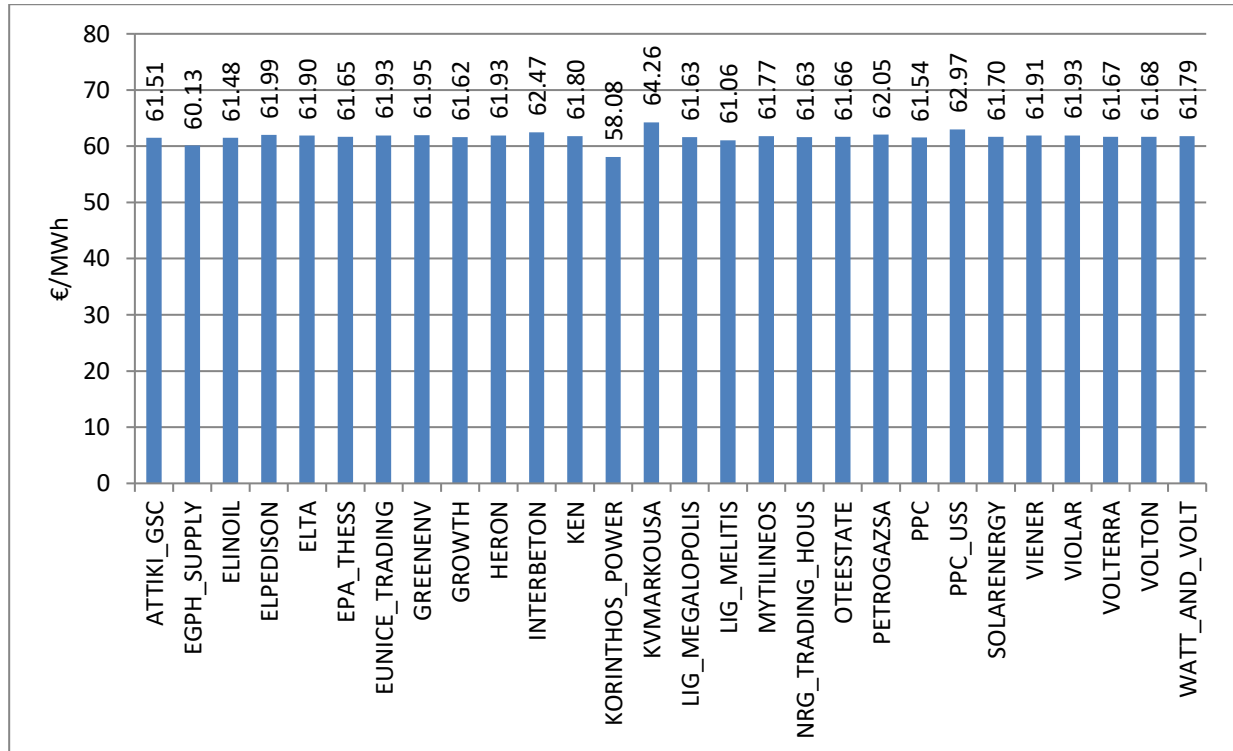


Figure 31: Monthly Debits / Monthly Supply in €/MWh per Participant

## 5.2 Analysis on Supply per Participant, Load Zone and Voltage Level

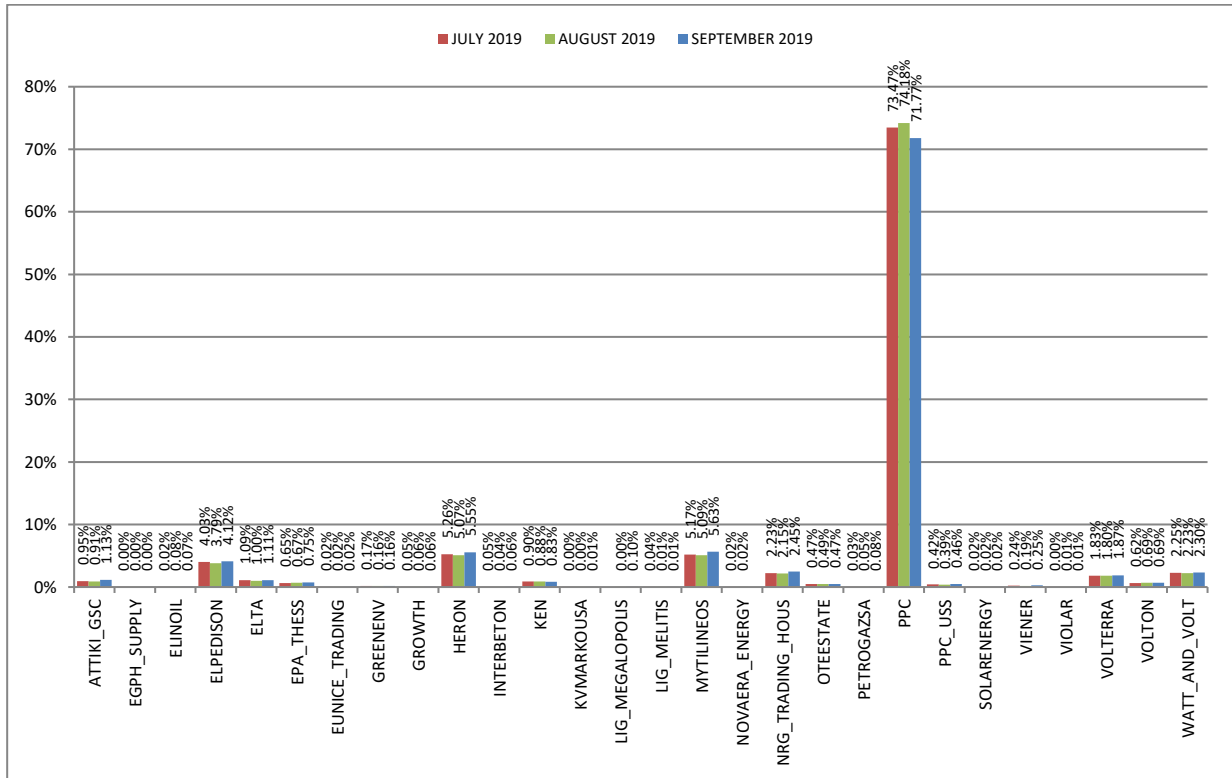


Figure 32: Percentage (%) of Total Monthly Supply per Participant in comparison with the two last months

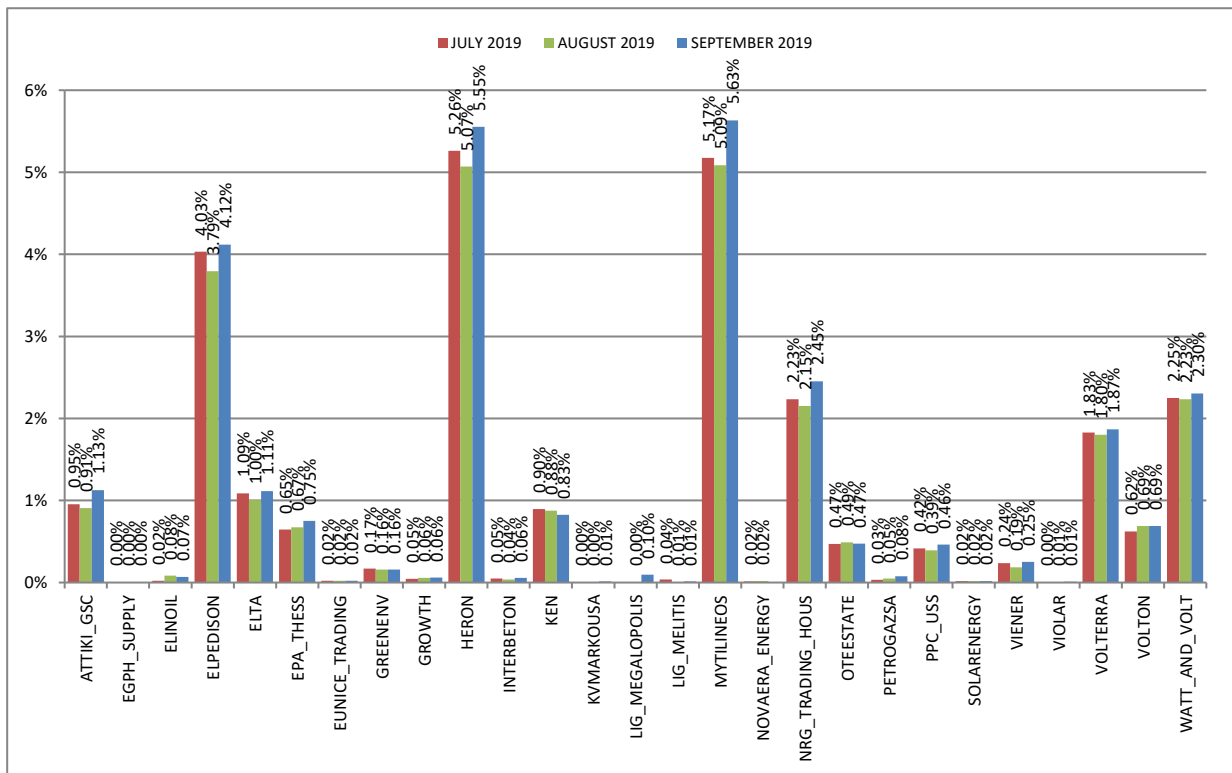


Figure 32a: Percentage (%) of Total Monthly Supply per Participant (without PPC) in comparison with the two last months.

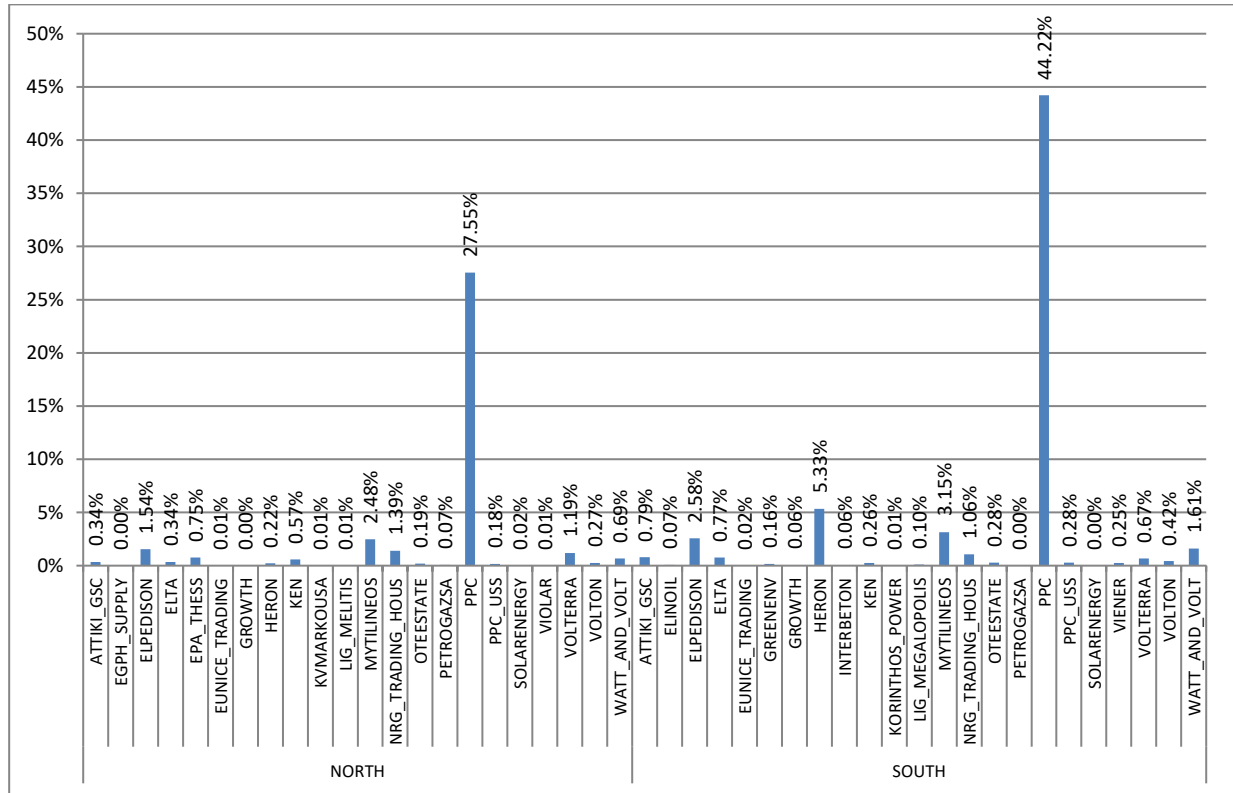


Figure 33: Percentage (%) of Total Monthly Supply per Participant and Zone

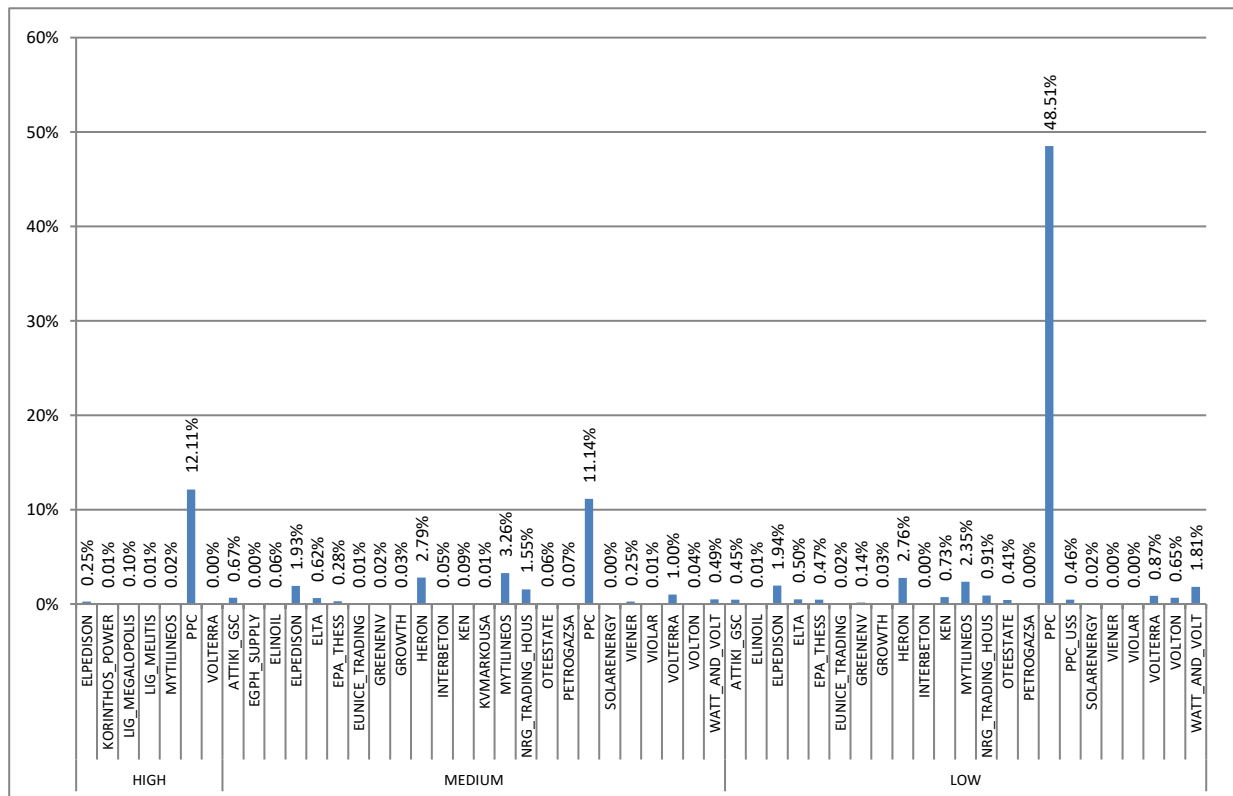


Figure 34: Percentage (%) of Total Monthly Supply per Participant and Voltage Level

## 6. Electricity Trading

### 6.1 Imports

	Total	Albania	Bulgaria	Italy	F.Y.R.O.M.	Turkey
Daily Average Imports	29,974	3,579	9,264	10,811	5,508	1,547
Total Monthly Imports	899,228	107,355	277,912	324,334	143,212	46,414

Table 4: Daily Average and Total Monthly Imports per Interconnection (MWh)

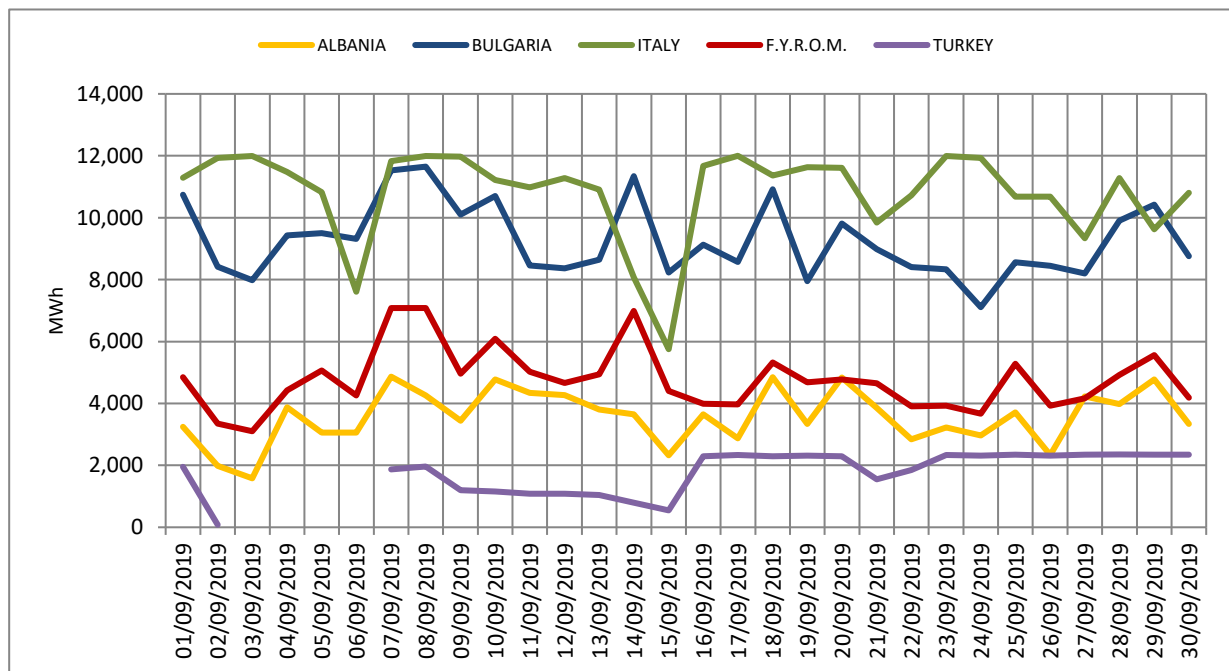


Figure 35: Daily Imports per Interconnection

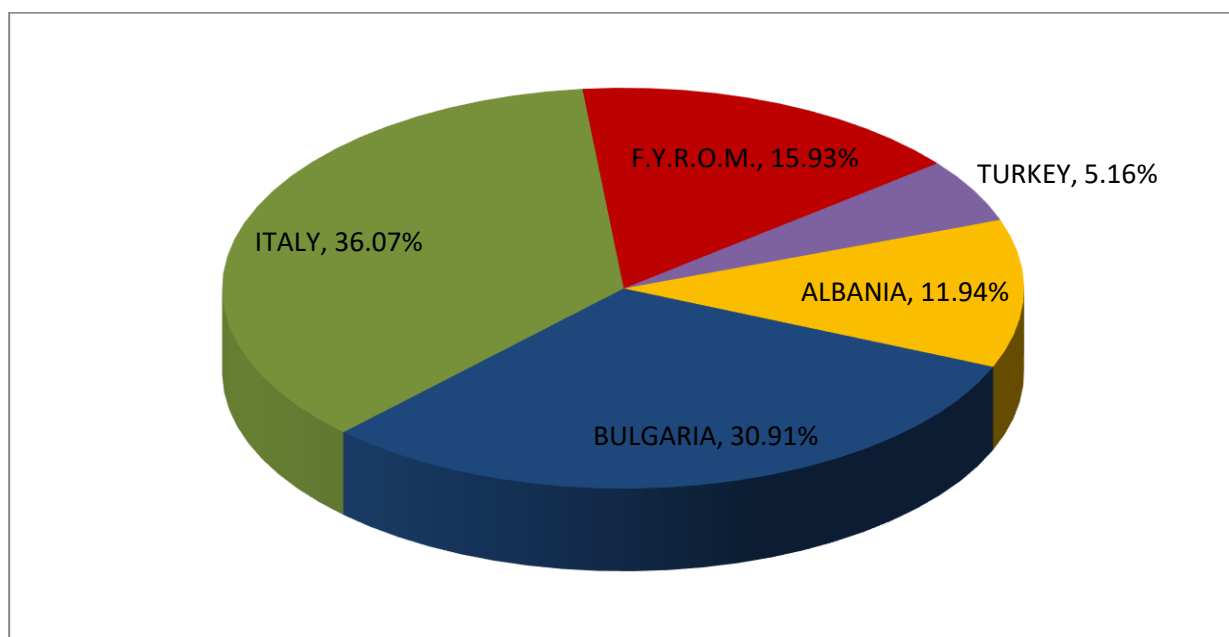


Figure 36: Percentage (%) of Monthly Imports per Interconnection



## 6.2 Exports

	Total	Albania	Bulgaria	Italy	F.Y.R.O.M.	Turkey
<b>Daily Average Exports</b>	7,113	2,133	2,499	202	8,140	87
<b>Total Monthly Exports</b>	213,392	63,989	67,476	6,065	73,262	2,599

Table 5: Daily Average and Total Monthly Exports per Interconnection (MWh)

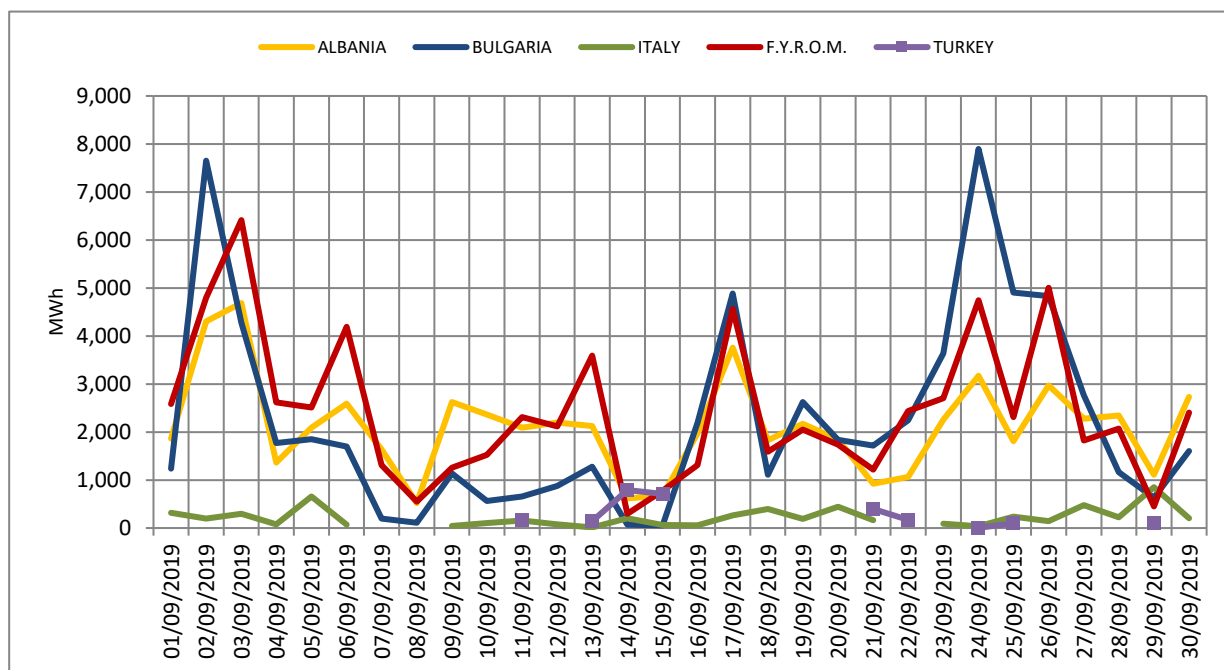


Figure 37: Daily Exports per Interconnection (MWh)

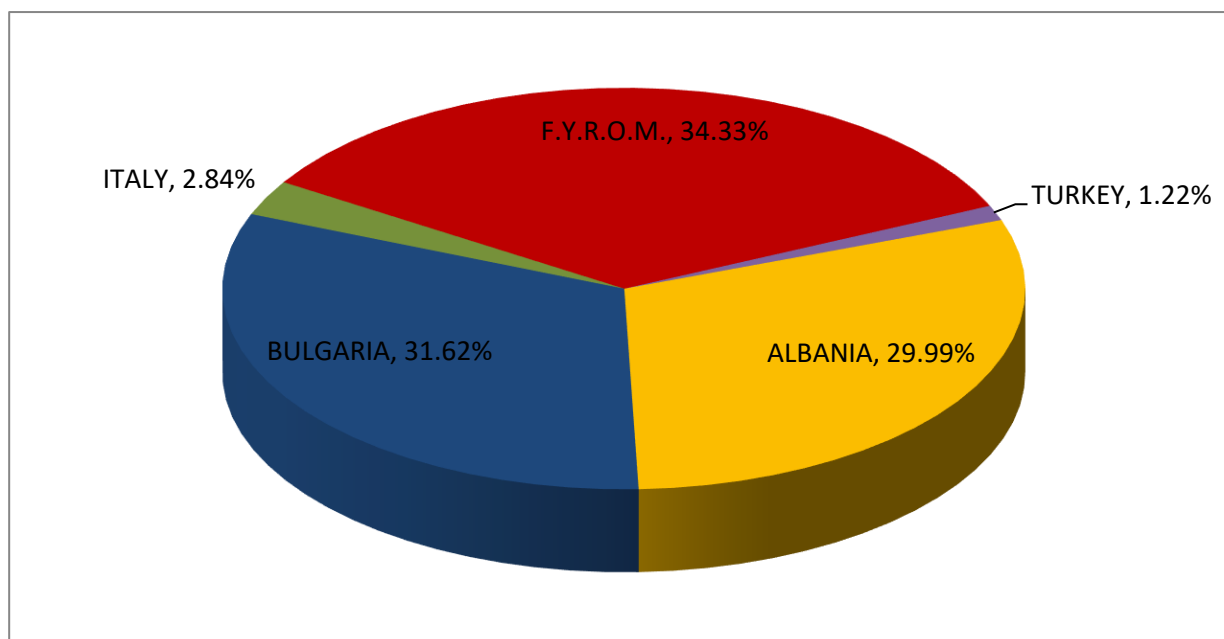


Figure 38: Percentage (%) of Monthly Electricity Exports per Interconnection

### 6.3 Electricity Transit

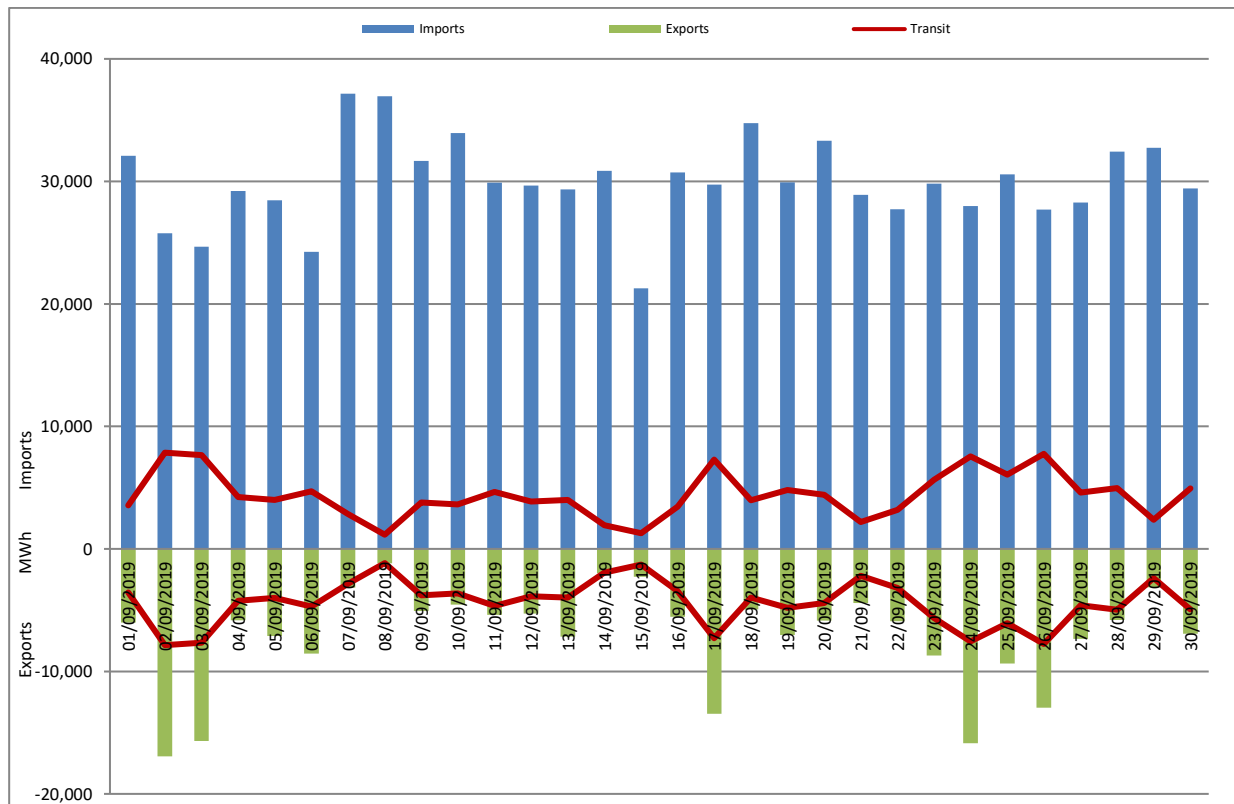


Figure 39: Daily Transit\*

\* Energy Transit shall mean the concurrent, namely during the same Dispatch Period, Import and Export of energy by the same participant, regardless of the capacity in which such Participant carries out such concurrent Import and Export. The energy quantity transited by a Participant during a Dispatch Period shall be calculated as the minimum between the absolute value of all Imports and the absolute value of all Exports performed by such Participant in the same Dispatch Period.

Source: Power Exchange Code for Electricity, Article 81

## 6.4 Net Position of Interconnections Balance

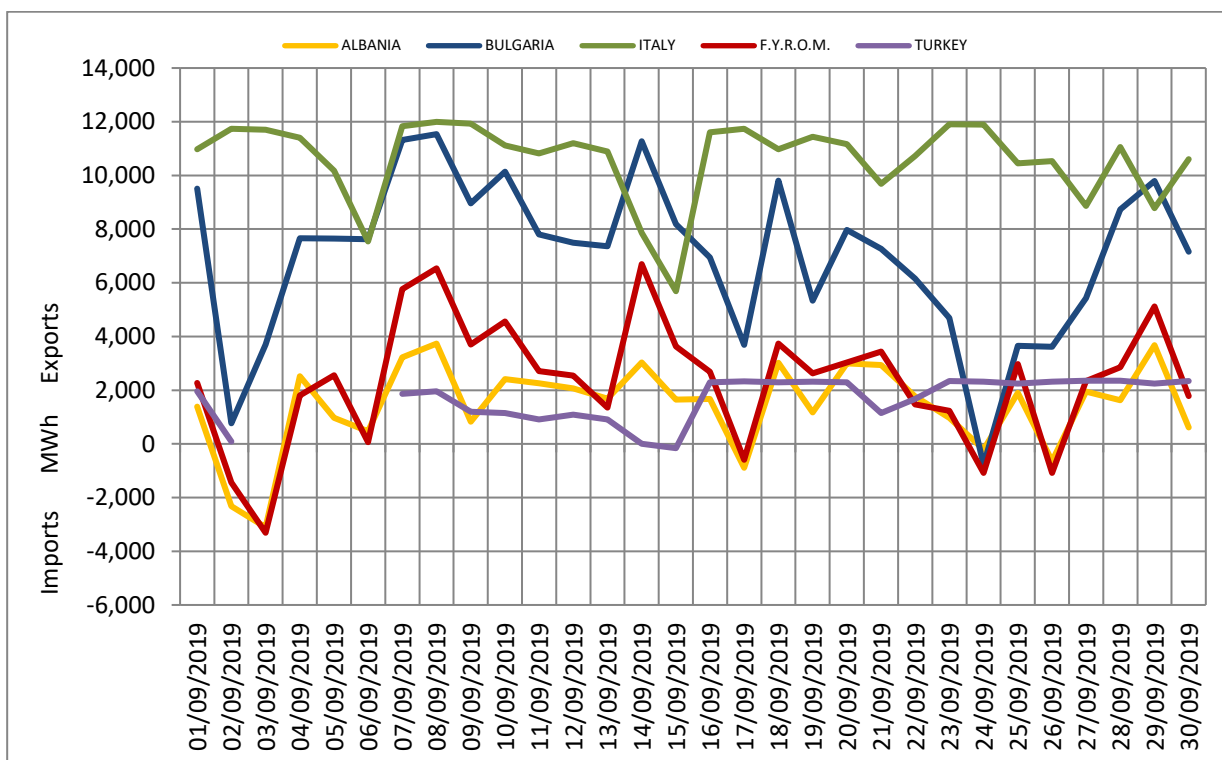


Figure 40: Daily Net Position of Interconnections (Imports-Exports), (positive values: more Imports, negative values: more Exports)

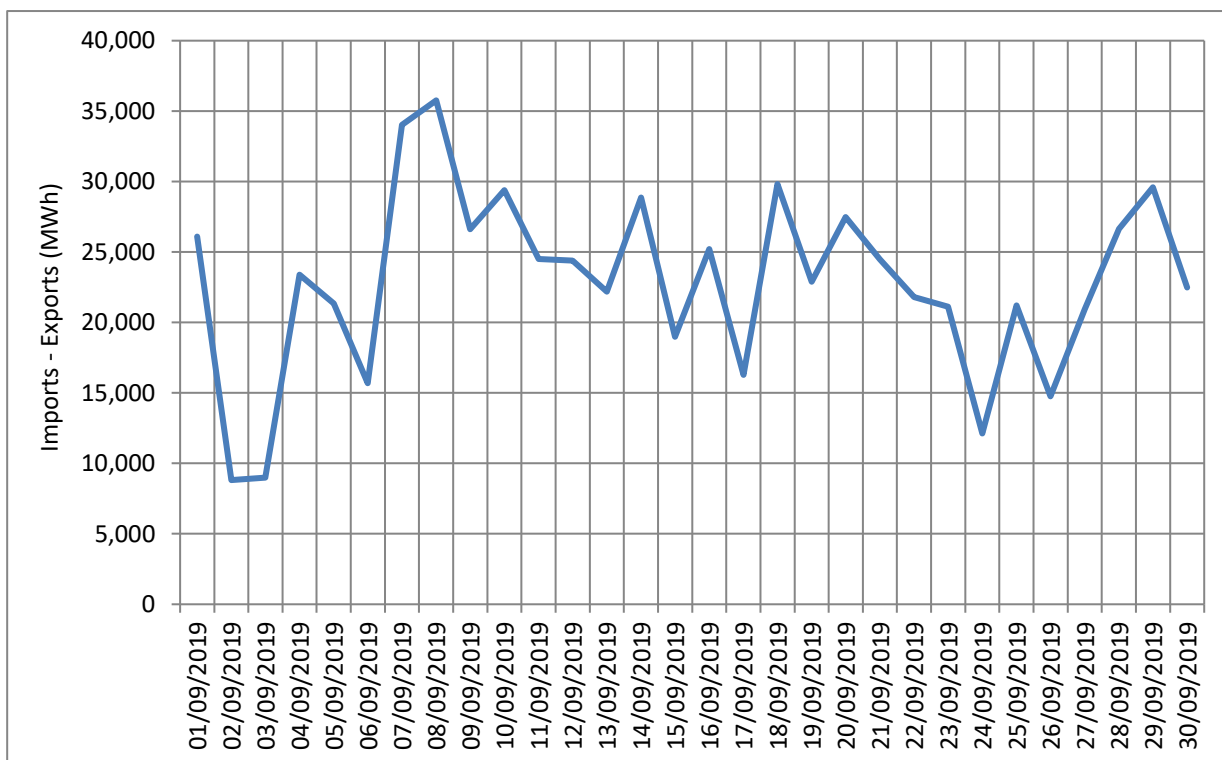


Figure 41: Daily Net Position of all Interconnections (Imports - Exports)

## 6.5 Analysis on Trading per Participant and Interconnection

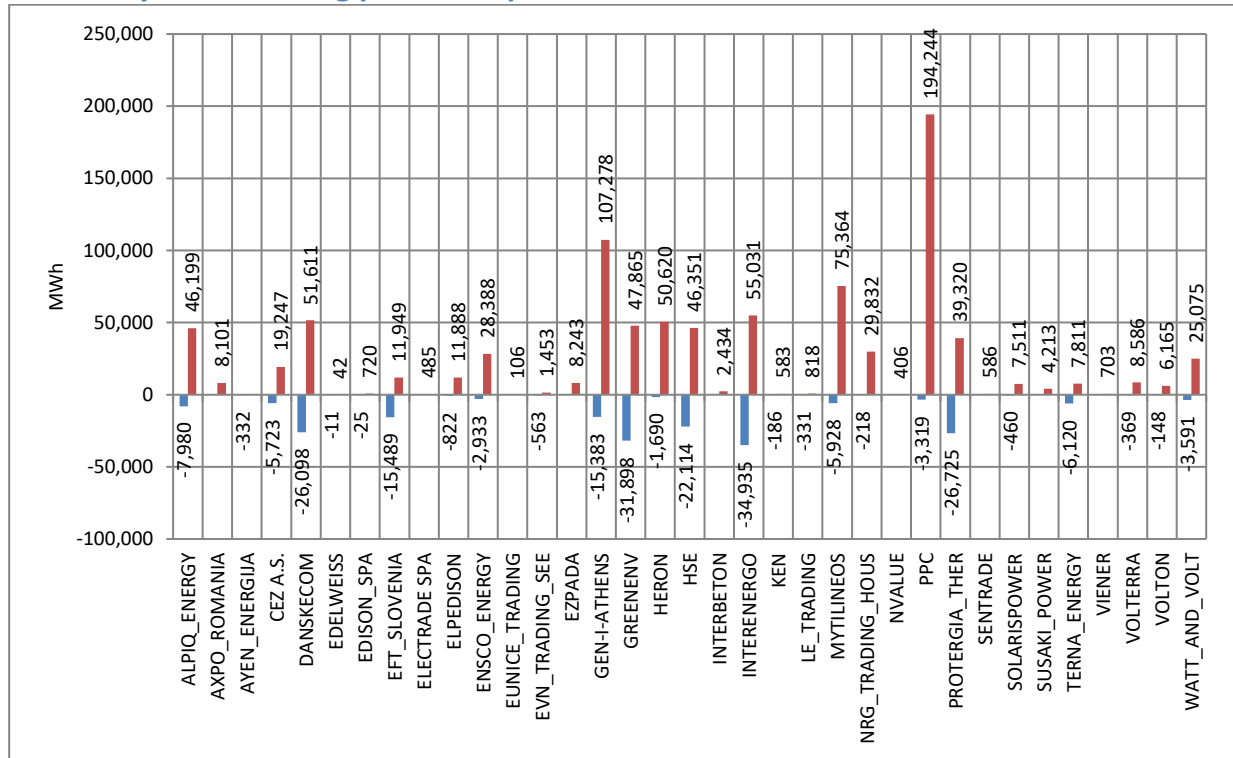


Figure 42: Monthly Trading per Participant and activity (positive values: Imports, negative values: Exports)

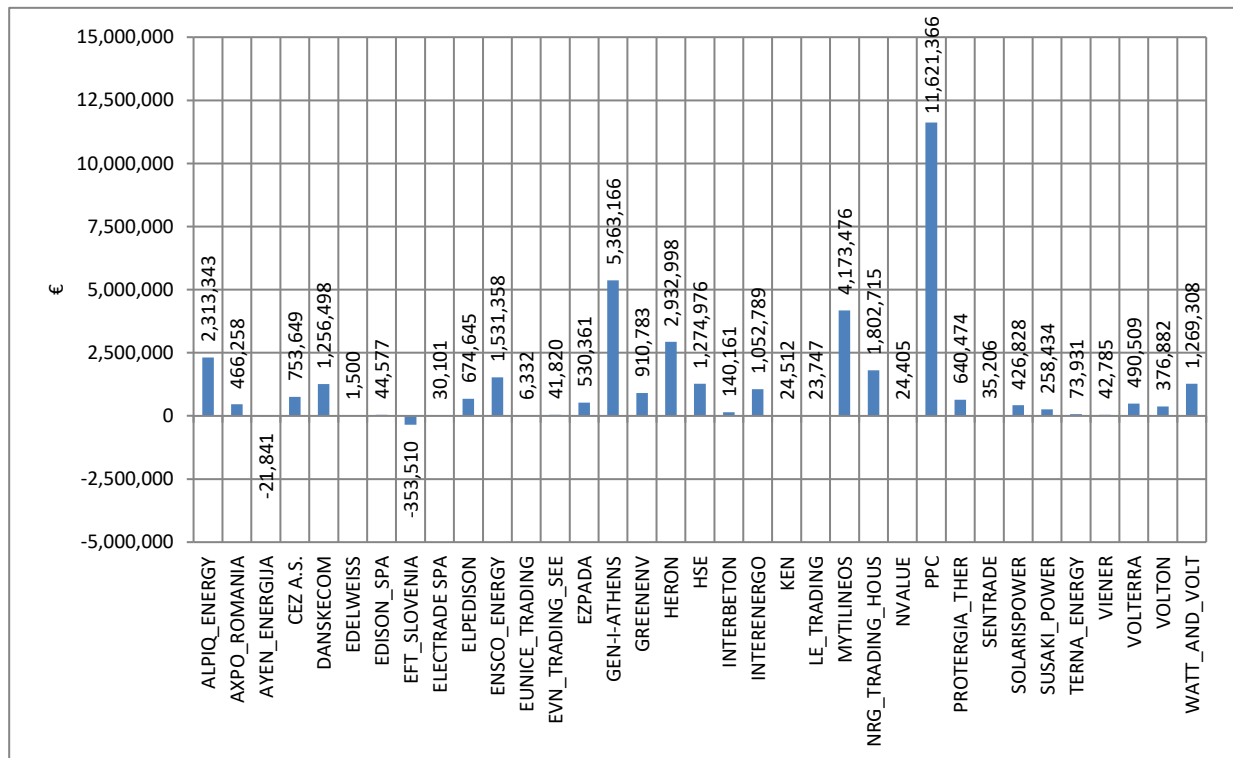


Figure 43: Trading Credits/Debits per Participant (positive values: Credits, negative values: Debits)

## 6.6 Wrong Direction Energy Flows

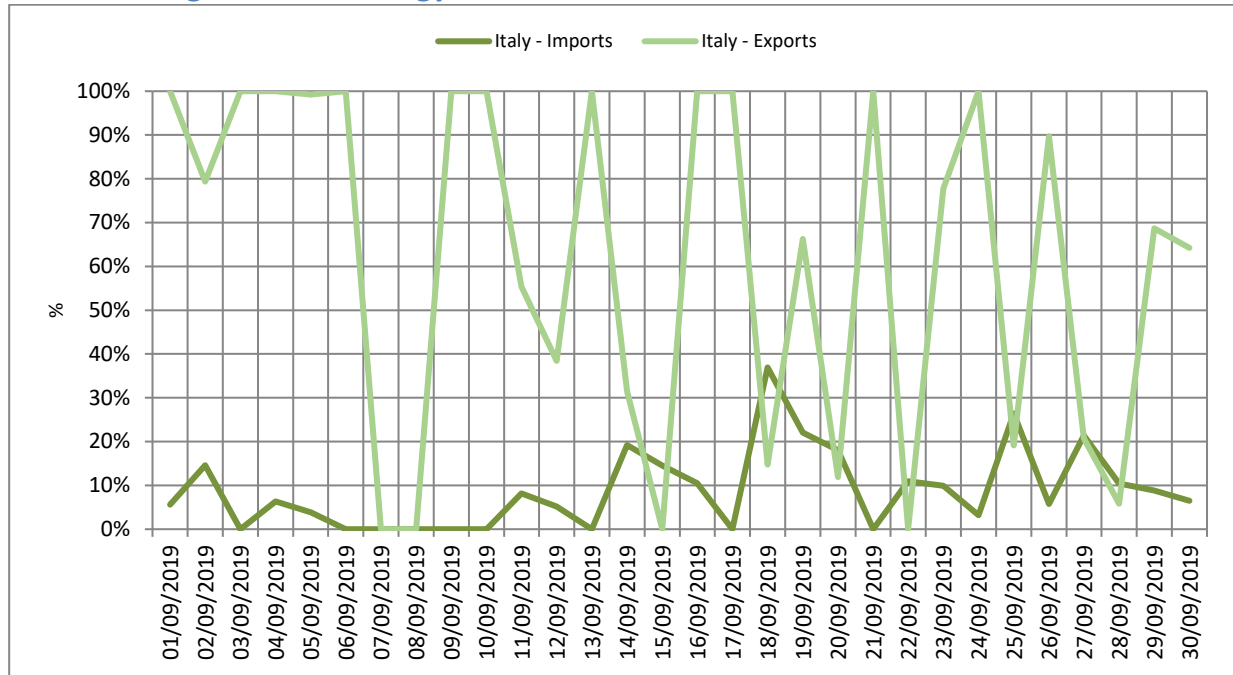


Figure 44: Daily percentage (%) of indicative wrong direction energy flows\* as part of the realized imports/exports for the interconnection of Greece-Italy, which would not get implemented under market coupling

\*As indicative wrong energy flows is defined the energy flow from a bidding zone with higher price to a bidding zone with lower price. The above values of energy trading are calculated based on the Short-Term Capacity Rights.

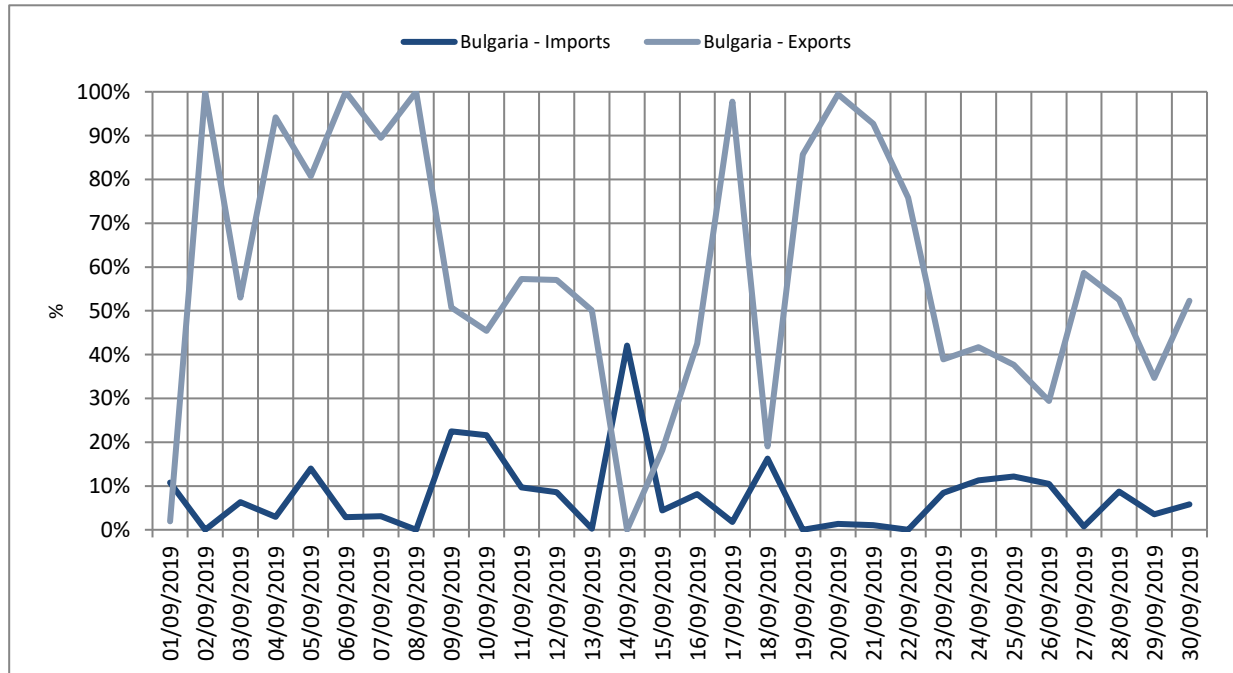


Figure 45: Daily percentage (%) of indicative wrong direction energy flows\* as part of the realized imports/exports for the interconnection of Greece-Bulgaria, which would not get implemented under market coupling

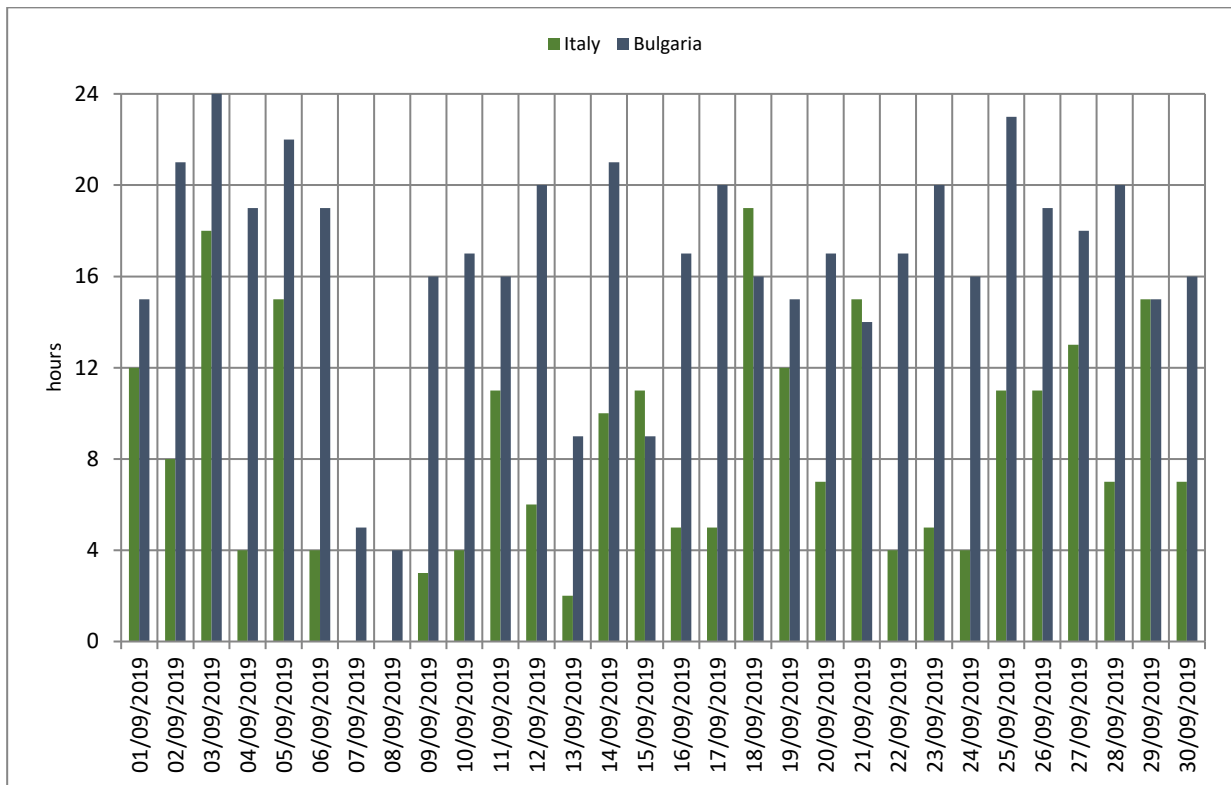


Figure 46: Hours per day with wrong direction energy flows