cyprus energy regulatory authority
ρυθμιστική αρχή ενέργειας κύπρου

CYPRUS ENERGY REGULATORY AUTHORITY

2019 National Report

to the European Commission for the year 2018

www.cera.org.cy

Table of Contents

List of tables

List of figures

List of abbreviations

CEER	**Council of European Energy Regulators**
CERA	**Cyprus Energy Regulatory Authority**
CRM	**Capacity Reserve Margin**
DAM	**Day Ahead Market**
DEFA	**Natural Gas Public Company Ltd**
DSO	**Distribution System Operator**
EAC	**Electricity Authority of Cyprus**
ETYFA	**Natural Gas Infrastructure Company Ltd**
FtM	**Front-of-the-Meter**
GO	**Guarantees of Origin**
ICE	**Internal Combustion Engines**
ISP	**Integrated Scheduling Process**
MECI	**Ministry of Energy, Commerce and Industry**
MO	**Market Operator**
NRA	**National Regulatory Authority**
OTC	**Over the Counter**
PSO	**Public Service Obligations**
RAG	**Regulatory Accounting Guidelines**
REMIT	**EU Regulation 1227/2011 on the integrity and transparency of wholesale energy market**
RES	**Renewable Energy Sources**
RES-E	**Renewable Energy Sources-Electricity**
SRA	**Separated Regulatory Accounts**
TSO	**Transmission System Operator**
TSOC	**Transmission System Operator of Cyprus**

1. Foreword

In 2018, the Cyprus Energy Regulatory Authority (CERA), within the framework of the European and National legislation, took a series of decisions aimed at shaping and developing the Cyprus energy market in conditions of healthy competition, consumer protection and encouragement of the use of Renewable Energy Sources (RES). Moreover, CERA has taken several important decisions aimed at harmonising the regulatory framework of our country on the basis of the provisions of the Energy Union.

CERA's main objective is to design and implement a comprehensive set of regulatory measures and actions that will prepare our country to participate in a smooth, organized and efficient way in the process of integrating the European Internal Energy Market. At the same time, it must safeguard the necessary security of energy supply in the country, both on a physical and an economic level, and to ensure energy costs accessible to the national economy and the consumer.

To this end, CERA proceeded in 2018 to issue a series of key regulatory decisions, as well as to undertake and implement relevant initiatives and actions, always within the competences prescribed by the national legislation and the European Law. Some of these key decisions and actions of CERA in the energy sector of our country concern:

- The regulatory accounting guidelines for the preparation of separate accounts of the Electricity Authority of Cyprus (EAC) from 2021 onwards,
- The implementation of a binding timetable for the mass installation and operation of Advanced Metering Infrastructure (AMI) system by the Distribution System Operator (DSO).

During 2018 CERA has also issued a draft Regulatory Decision for consultation on the installation of energy storage systems and has instructed the two Operators to redesign the power grid so as to become bi-directional in order to be able to accept high penetration of RES in combination with energy storage systems.

Regarding the adequacy of electricity supply, CERA, based on the competences provided by the law, has carried out three studies on the adequacy of the electricity power system of Cyprus for the next 10 years. The results have shown that between 2022 and 2024 there is a shortage of power in the electricity generation system and there is an urgent need for new conventional capacity of around 600 megawatts due to the annual increasing demand for electricity but mainly because of the imminent withdrawal of six steam turbines of the EAC power plant in Dhekelia. Today, the total conventional power generation licensed by CERA is expected to cover up to 620 megawatts by 2024, capable of solving the problem of power capacity generated in our country between 2022 and 2024.

Regarding the functional and accounting unbundling of EAC in the core regulated activities, namely generation, transmission, distribution and supply, it should be noted that the second audit has been performed while the final audit for the full compliance with the provisions of the functional unbundling of EAC, is expected to take place in the beginning of 2019. The new regulated tariffs of EAC, which today holds a dominant position, have been applied, where charges for monopolistic activities, namely those of transmission and distribution networks, have been distinguished from charges for competitive activities, namely those of generation and supply. Regulated tariffs are published so that the interested independent power producers are fully aware of the EAC's wholesale price as well as the interested suppliers to be aware of the EAC's retail tariffs. In this way, they can offer competitive prices to the benefit of the consumers.

The electricity market reform framework for the full commercial operation of the competitive electricity market in Cyprus is shaped in such a way that it is compatible with the target model of the European Union which has been adopted by most Member States of the European Union and has been established with CERA's Regulatory Decisions in previous years.

It is noted that despite the delays in the implementation of the competitive electricity market in Cyprus, which mainly concern the development of two software programs, prerequisites for the operation and

monitoring of the electricity market, based on the current data, CERA looks forward to the introduction of healthy competition on the Cyprus electricity market by 2021.

In order to cover the time until the full commercial operation of the new electricity market model, the relevant Regulatory Decision for the introduction of a transitory regulation in the electricity market, including detailed regulations, is in force since 2017. The transitory regulation of the electricity market concerns "Bilateral Contracts between Producers and Suppliers" and, it seems that the necessary impetus to start licensing independent suppliers, has already been given. Specifically, six independent suppliers were licensed during 2018, and an appropriate framework has been created to enable already licensed independent power producers to operate in the electricity sector.

Taking into consideration the above challenges, CERA has included in its strategic planning for the year 2019 both short-term and long-term actions, including the operation of the transitory regulation of the electricity market, the implementation of the new competitive electricity market model, the creation of a framework purchase of natural gas, completion of EAC's functional and accounting unbundling, installation of smart meters for all electricity consumers, upgrading the electrical network to a flexible and bi-directional network for massive admission of renewables beyond 2020 and the integration of energy storage systems.

CERA will continue to perform its work to develop a people-centred and fair energy regulation focused on the consumer.

Dr. Andreas Poullikkas
Chairman

2. Main developments in the gas and electricity markets

This Report covers the annual reporting obligation, required by the Article 37(1)(e) of the Directive 2009/72/EC on common rules for the internal market in electricity and Article 41(1)(e) of the Directive 2009/73/EC concerning common rules for the internal market in gas.

The Report concerns the calendar year 2018 and follows the reporting structure recommended by the Council of European Energy Regulators (CEER).

Due to the fact that there is no natural gas market in Cyprus, the report focuses mainly on the internal electricity market and covers this sector for the year 2018.

During the year under review CERA, taking into account the trends followed at European level and bearing in mind the needs of the energy system in Cyprus, had to take a series of important decisions in order to complete the regulatory framework in the energy sector, focusing on the security of supply, the consumer protection and ensuring fair competition through the development of an economically viable and efficient electricity market and the possibility of increasing the share of renewable energies in the competitive market.

The energy sector in Cyprus is undergoing fundamental transformations concerning its structure and organisation, its institutional framework and the diversification of its energy mix. The Cypriot electricity sector is today 100% covered on the supply side and more than 90% on the generation side, by the state-owned Electricity Authority of Cyprus (EAC). In an effort to open up the market to new participants, CERA has proposed the Net-Pool model as being the most appropriate trading arrangement approach for the Cyprus electricity market. The formulation of a net-pool incorporates both, a bilateral contracts market and a central Day Ahead Market (DAM). In the near future, an Intra-Day Market would be organized. The proposed design includes also a real time Balancing Mechanism that provides the Transmission System Operator (TSO) with the ability to purchase the required operational reserves, activate balancing services, and settle imbalances.

Due to the delays in the implementation of the competitive electricity market in Cyprus, which mainly concern the installation of two software programs, prerequisites for the operation and monitoring of the electricity market, CERA decided on transitory regulation of the electricity market in Cyprus prior the full implementation of the new electricity market model. The transitional period will be based on bilateral contracts between producers and suppliers for the supply of a standard quantity of electricity (kWh) on a monthly basis. The transitional period of the electricity market in Cyprus started on 1 September 2017 and will be in force until the full implementation of the new electricity market model.

During 2018, CERA proceeded with the publication of two (2) Regulatory Decisions and one (1) draft Regulatory Decision:

- Regulatory Decision no. 01/2018 on the regulatory accounting guidelines for the preparation of separate accounts of EAC from year 2021 onwards,
- Regulatory Decision no. 02/2018 on the implementation of a binding timetable for the mass installation and operation of Advanced Metering Infrastructure System, by the Distribution System Operator (DSO),
- Draft Regulatory Decision no. 03/2018 on the establishment of key principles for the operation of electricity storage facilities in-front of the meter (FtM).

At the same time CERA took a series of Decisions, the most important of which were:

- Approval of EAC's regulated tariffs for 2018,
- Fuel adjustment coefficients and the basic purchase prices of energy from Renewable Energy Sources (RES) for the year 2018,
- The long-term forecast of the annual maximum total electricity generation and total electricity generation for the 2018-2027 decade,

- Special domestic tariff for specific categories of vulnerable consumers - Public Service Obligations (PSO),
- Methodology for adjusting the permitted revenues and tariffs for the core regulated activities of EAC and TSO,
- Decommissioning part of the 132kV overhead transmission lines "Anatoliko-Hatzipashali" and "Moni-Vassiliko'',
- Network usage charges, ancillary services and other services to be charged for the implementation of the net-billing system, self-generation and net-metering using photovoltaic systems and / or biomass in industrial and / or commercial installations operated under the support schemes of the Ministry of Energy, Commerce and Industry (MECI),
- Fuel adjustment coefficients and the basic purchase prices of energy from RES for the period July 2018 – June 2019,
- Appointment of the members of the Licensing Body of Authorized Individuals of Independent Power Producers and Large Consumers for the period 18 October 2018 to 18 October 2021,
- Approval of the Ten-Year Transmission System Development Plan 2019 – 2028,
- Way of recovering the costs of installing Infrastructure for Smart Metering Systems,
- Setting threshold for conventional generation units and RES units to participate in the transitory regulation of the electricity market,
- Revise the organizational structure of the CERA Office based on best practices applicable to other European Energy Regulatory Authorities.

3. The electricity market

3.1. Network regulation

3.1.1. Unbundling

3.1.1.1. Development in TSO unbundling and Report on TSO certification

The third energy package provides for three basic models for unbundling: Ownership Unbundling (OU), the Independent System Operator (ISO) and the Independent Transmission Operator (ITO)**.** When implementing the unbundling rules of the third energy package Member States have to decide whether to implement exclusively the Ownership Unbundling model or leave to the TSO a choice between the different models. However, Cyprus, according to Article 44 (Derogations) of the Directive 2009/72/EC, has obtained an exemption from Article 9 on unbundling of transmission systems, therefore Cyprus has maintained its present regime on TSO unbundling.

As from previous directive, a TSO has been appointed and functions independently in terms of organisation and decision making from the Owner of the Transmission System and the Distribution System Owner and Operator (DSO) which is namely the EAC. Under current legislation, the TSO which is legally unbundled, acts independently from generation, distribution and supply activities in order to safeguard third party access onto the transmission network and equal treatment of all users of the network.

Furthermore, the TSOs' certification procedure does not apply for Cyprus due to the exemption from Article 43 of the above said directive.

Currently the Cyprus TSO is located separately from EAC. The TSO presents himself to customers as a separate entity with his own name, logo and website. Cyprus TSO is provided with all of its employees by the single vertically integrated utility, namely the EAC.

Towards the smooth implementation of the electricity market model, further legal arrangements were required to upgrade the legal unbundling of the TSO and to achieve an advanced independence. In this respect, MECI, in cooperation with CERA prepared a draft bill which was under public consultation between 25 February - 5 April 2019.

3.1.1.2. Development in DSO unbundling

The owner of the distribution system has also been nominated as the DSO and although it is not independent in the sense that the TSO is, it has the same duty of safeguarding third party access to the distribution network and the equal treatment of all users of the said network.

The function of the single DSO has remained within the Network Business Unit of EAC in agreement with the relevant clauses of the Electricity Directive and the approval of the Government of Cyprus.

Cyprus as a small and isolated system has decided, according to article 26 on the unbundling of distribution system operators of the 2009/72/EC Directive, not to apply the proposed unbundling regime of the DSO. In accordance with the Laws Regulating the Electricity Market of 2003 to 2018, EAC assigns an officer of EAC as the "Distribution System Operator Director" which is responsible for the management of the distribution system.

However, according to current legislation the Cyprus' DSO must establish a compliance programme, which sets out measures taken to ensure that discriminatory conduct is excluded, and ensure that observance of it, is adequately monitored. The compliance programme sets out the specific obligations of employees to meet that objective. An annual report, setting out the measures taken, shall be submitted to CERA for approval by the body responsible for monitoring the compliance programme.

In March 2018, a compliance programme was submitted to CERA by the DSO and following consultations, a revised compliance programme was submitted on December 2018. Even though 2019 decisions are not in the scope of our report, it should be mentioned that CERA with its decision 53/2019 dated 22 February 2019 has approved the compliance programme accompanied with some additional data provided from the DSO on 11 February 2019.

DSO is provided with all of its employees by the single vertically integrated utility, namely the EAC.

3.1.1.3. Accounting and Functional Unbundling

In August 2014, CERA issued the Accounting and Functional Unbundling Regulatory Decisions for EAC, as well as the Regulatory Accounting Guidelines (RAG) for the preparation of the Separated Regulatory Accounts (SRAs) of EAC. These decisions set the basis for the unbundling of the four regulated activities of generation, transmission, distribution and supply and the non-regulated activities of the organisation.

Accounting Unbundling

Regarding the accounting unbundling of EAC, Article 108(4) of the Law provides that EAC should maintain SRAs for each of its activities that were licensed by CERA according to Article 34, the generation, transmission, distribution and supply as well as the non-regulated activities.

The accounting unbundling has been completed and SRAs have been submitted to CERA for the years ended 31.12.2014, 31.12.2015, 31.12.2016 and 31.12.2017. The SRAs for the year ended 31.12.2018 will be submitted to CERA on 31.08.2019.

CERA considered that for reasons of transparency in the competitive electricity market, for ensuring that the electricity market provides the right signals for electricity generation and supply investments, for the timely information of the participants and / or potential entrants to join the competitive electricity market and for the provision of the basis for taking the investment decisions, the information included in the SRAs must be available earlier than the 31st of August of the following year. Therefore, with the publication of Regulatory Decision 01/2018, CERA decided that SRAs should be submitted by the competent authorities by the 31st of May of the year following the end of the financial reference year, both in hard copy and in electronic form. The Regulatory Decision 01/2018 will be applied from 2021 and thereafter.

At the same time, through the aforementioned Regulatory Decision, CERA, considering that the necessary time should be given to EAC to find an alternative solution and / or upgrade its accounting system for the preparation and control of the SRAs, decided to invite the EAC to submit quarterly progress reports. The first progress report was submitted on 30 September 2018.

Functional Unbundling

According to the Regulatory Decision 04/2014 regarding the functional unbundling of EAC's activities, the latter is obliged to proceed with the organization of five distinct Business Units (BUs); **Generation, Supply, Transmission and Distribution** and another distinct unit for **"Other Activities"**. It calls for the discrete separation of the competencies between distribution and supply as well as the creation within the distribution BU, of a section for the operation of the distribution system. Within the distribution BU, it also calls for the creation of a ring-fenced "Metering" Section. The "Other Activities" Unit will include all the non-regulated EAC Activities such as inspection of electrical installations, desalination unit, street lighting maintenance, MRTC, third party supply and installation of PV Systems, third party telecommunications, contracting activities etc.

The Functional Unbundling of the regulated activities of EAC was officially enforced on the 1st of December 2016. CERA has appointed an external consultant to undertake the evaluation of the implementation of the Functional Unbundling regulation by EAC. This evaluation was performed in 3 stages. All three evaluations were completed. The purpose of each evaluation was to ensure compliance with the relevant Regulatory Decisions of CERA, detect any deviations from the Regulatory Decision and enforce corrective measures.

Based on the results of the first and second evaluations which were carried out during 2017 and 2018 respectively, it was found that EAC put a lot of effort to comply with the provisions of the Functional Unbundling regulation, and that effort was considered to be without any doubt as a remarkable development. However, a number of deviations from the provisions of the regulation were identified. CERA pointed out the corresponding deviations to EAC, and informed EAC that there should be no further delays, both in dealing with the deviations and the full implementation of the commitments of the EAC in areas that were excluded from the first evaluation.

It should be noted that during 2019, CERA has concluded the third-final evaluation. Based on the results of the third evaluation, it was found that EAC has made great effort to respond according to the provisions of the Regulatory Decisions. Despite of some delays that were encountered, the compliance of EAC is at an advanced stage and has practically achieved the largest part of the necessary changes. Yet, there are few pending issues which CERA identified and must be completed by EAC until 30 November 2019.

3.1.2. Technical functioning

3.1.2.1. Balancing Services

According to the Laws Regulating the Electricity Market of 2003 to 2018 in Cyprus, CERA is responsible for fixing and/or approving methodologies for the provision of balancing services which shall be performed in the most economic manner possible and provide appropriate incentives for network users to balance their inputs and off-takes. CERA ensures that the balancing services shall be provided in a fair and non-discriminatory manner and be based on objective criteria.

Moreover, CERA shall ensure that Cyprus TSO and DSO, are granted appropriate incentive, over both short and long term, to increase efficiencies, foster market integration and security of supply and support the related research activities.

In that extend, CERA instructed the Cyprus TSO to draft the Trading and Settlement Rules, which enable the Cyprus TSO to fulfil its obligations under the Law, regulate the means by which participants may trade energy, allow the calculation and settlement of payments in respect of Energy and specify the way in which settlement and billing shall be carried out. The Trading and Settlement Rules provide all necessary information concerning the operation of the electricity market in the country. The balancing arrangements are also described in these.

According to the Trading and Settlement Rules, the Balancing Market concerns all the institutional, commercial and operational arrangements that establish the balancing of the system through the market. These are two distinct processes, the Integrated Scheduling Process (ISP) (a programming tool) and the Real-Time Balancing Market. The main objective of the Cyprus TSO, who is the Market Operator, is to enter into contracts or auctions with Balancing Service Providers and to activate Balancing Energy Offers in order to balance the total supply and demand in real time.

The energy balance is achieved primarily by the participants who contribute to the delivery of energy for the expected consumption of the consumers through bilateral contracts and by buying or selling energy through the DAM. Such energy transactions relate to the delivery of specified amounts of energy for each clearing period.

When the Cyprus TSO believes that net generation is not equal to net demand, then it is contracted to buy or sell balancing energy to bring the two into balance for each clearing period.

The main tool used by the Cyprus TSO to achieve the balance in real time is the Balancing Market. Participants submit Balancing Energy Offers and Reserve Capacity Offers in the Balancing Market for the Balancing Service Providers they represent.

The TSO will prepare a schedule of activities (schedule of the Integrated Scheduling Process) governing the actions required to resolve the Integrated Scheduling Process. The timetable will be published on the TSO's website and will be updated from time to time, after reasonable notice from the participants.

In the year under review, the TSO, taking into account the comments of the Advisory Committee of the Trading and Settlement Rules, dated 27 November 2018, submitted to CERA for approval a proposed new version 2.0.1 of the Trading and Settlement Rules. CERA with its decision 01/2019 dated 4th of January 2019 approved a revised Trading and Settlement Rules (Version 2.0.1) In accordance with the Law Regulating the Electricity Market 2003 to2018, CERA shall decide in a later stage the enforcement of the Trading and Settlement Rules upon their publication to the Government Gazette.

Pursuant to the provisions of the Laws Regulating the Electricity Market of 2003 to 2018 and in particular article 80, until the publication of the revision and the amendments of the Trading and Settlement Rules in the Official Gazette of the Republic of Cyprus, the provisions of the Regulatory Decision No. 04/2017 (Act 223/2017) “On the implementation of a transitory regulation in the electricity market in Cyprus before the full implementation of the new electricity market model” are in force and the Regulations of transitory regulation in the electricity market which came into force by CERA’s Decision No. 118/2017.

3.1.2.2. Security and Reliability Standards, Quality of Service and Supply

CERA monitors the compliance with and reviews the past performance of network security and reliability rules and sets or approves standards and requirements for quality of service and supply.

Under the Laws Regulating the Electricity Market of 2003 to 2018, CERA, by a Regulatory Decision, gives instructions to the Cyprus TSO and the DSO to prepare and issue technical rules, which are subject to CERA’s approval, on the operation of the Transmission System and the Distribution System, respectively.

In general, the Transmission and Distribution Rules are designed to achieve the development, the maintenance and the operation of an efficient, coordinated and economically viable Transmission and Distribution System whilst facilitating competition in generation and supply of electricity.

The Rules:

- govern the technical requirements and constraints that will apply wherever licence holders wish to connect to the transmission system and/or distribution system or use the transmission system or distribution system for the transmission of electricity,
- ensure that the technical conditions that apply to licence holders who wish to connect to or use the transmission system or distribution system do not result in them being subject to undue discrimination,
- foster efficiency, reliability, and economy in the use and development of the transmission system and the distribution system.

Version 4.0.2 - November 2017 is the latest amending issue of the Transmission and Distribution Rules which is in force.

During the year under review, taking into account the comments of the Regulatory Committee on Transmission and Distribution Rules, dated 6 November 2018, the proposed Version 5.0.0 of the Transmission and Distribution Rules was submitted by the TSO for approval.

3.1.2.3. Monitoring time taken to connect and repair

CERA monitors the time taken by the TSO and EAC, to make connections and repairs. Each year the TSO has to report to CERA through its annual report regarding this issue. In general, CERA monitors the number of disconnections due to repair and the duration of these disconnections.

According to the Regulating the electricity market (Performance Indicators) Regulations of 2005 – Act. 571/2005, Performance Indicators are defined as the indicators for the supply of electricity and include the obligations of the supplier and DSO, consumer rights, performance standards and minimum levels of performance as well as the fines automatically imposed in cases of the supplier's and/or the DSO's failure to comply. More information is given in Chapter 5.

A total of twenty-seven (27) generation disturbances occurred in 2018, of which nine (9) at Vasilikos power generating station, eleven (11) at the Dhekelia power generating station, one (1) at Moni power generating station and six (6) at power generating stations of the system within the occupied areas.

In five (5) cases the forced outage of generation units, was accompanied by load disconnection.

In 2018, a total of twenty-two (22) faults in the transmission system occurred:

- Twelve (12) failures due to malfunction of the equipment (55%).
- Nine (9) failure due to bad weather (41%).
- One (1) failure due to humidity (4%).

In thirteen (13) out of twenty-two (22) cases, the fault was accompanied by disconnection of consumers (load loss). All faults were fully restored.

The total number of transmission system faults (22) in 2018 has increased by 47% compared to 2017 (15). The number of faults, due to malfunction of the equipment, decreased by 25%, while the number of damage due to high humidity decreased by 9%. It is also worth noting that the number of bad weather faults increased by 34% comparing to 2017.

3.1.2.4. Monitoring Safeguard Measures

In accordance with the Article 70(A) of the Laws Regulating the Electricity Market of 2003 to 2018 in Cyprus, when the Minister of Energy, Commerce and Industry or CERA decides that a sudden crisis in

the energy market is presented, the Minister, after consultation with CERA, issues a Decree under which declares the energy market under sudden crisis and determines the beginning of the energy crisis.

When the Minister or CERA decide that the reasons for which the energy market was declared under sudden crisis, have ceased, the Minister, after consultation with CERA, issues a Decree under which declares the end of the sudden crisis in the energy market and determines how to restore the normal situation.

Furthermore, CERA has to issue a Regulatory Decision in order to establish the following:

- Preventive/pro-active Action Plan of the measures required to eliminate or mitigate risks and
- Emergency Plan of the measures to be taken to eliminate or mitigate the impact of a sudden crisis in the energy market.

The above plans must cause the least possible disturbance in the functioning of the internal market and must not be wider in scope than is strictly necessary to remedy the sudden difficulties which have arisen.

During the year under review no sudden crisis incident occurred.

3.1.2.5. RES regulatory framework

Provided security and quality of supply requirements are met, RES-E producers have priority dispatch over conventional ones. According to the Trading and Settlement Rules generators are self-dispatched. Existing RES generators (currently only RES energy under feed-in tariff regime, is injected to the system) provide their forecast to the TSO on the day-ahead on a half hour basis and are not liable for any imbalances.

Furthermore, according to the New Market Model to be implemented in the coming years, new RES generators with installed capacity above 1 MW may either directly participate into the market on a per plant basis or be represented by an aggregator. Operators of such plants may choose to bilaterally trade their output or trade it through the DAM or both. Participation to the DAM will be possible through priced Orders (Offers). New RES generators with installed capacity below 1 MW as they cannot offer energy quantities, on a half hourly basis, greater than 0,5 MWh shall be represented by an aggregator.

With respect to RES generators under the feed-in-tariff support scheme EAC will include these under its demand portfolio (independently of their size) in which case EAC would have to forecast the total of their input and handle them as negative load.

On 25 June 2018, the MECI announced a new support scheme concerning the generation of electricity from RES-E for own consumption. This scheme includes the following categories:

- Net-metering PV systems up to 10kW for all consumers.
- Net-billing RES-E systems from 10kW up to 10MW for commercial and industrial consumers.
- Autonomous PV systems for all consumers.

By Decision 180/2018 issued on 7 September 2018, CERA decided the revision of network usage, ancillary services and others which will be imposed for the implementation of net-billing, self-generation and net-metering using photovoltaic systems and / or biomass in domestic, and / or industrial and / or commercial facilities, respectively, operating within the framework of the support schemes of MECI.

3.1.3. Network tariffs for connection and access

3.1.3.1. Report on New tariff regulation provisions

CERA, as the regulator, has the duty and the authority to approve the methodologies used to calculate the connection fees and the network use charges, and establish the terms and conditions for connection and access to the transmission and distribution system. The regulator may also require from the TSO and DSO to change the tariffs or methodologies used for determining the transmission and distribution tariffs to ensure that these are proportional and non-discriminatory.

The methodology developed and followed concerning network tariffs is based on the following principles:

- Unbundling of EAC accounts under the following broad categories:
  - Generation
  - Transmission Network
  - Transmission System Operator
  - Distribution
  - Supply
  - Non-regulated activities
- Identification of ancillary services and cost valuation of each one separately.
- Identification of PSOs.
- Benchmarking of various activities with reference to published performance indices of European Utilities.

CERA has been vested through the Law with the responsibility of approving tariff methodologies and actual tariffs and charges of the monopoly sectors of the industry and all activities of the dominant participant in the electricity market (generation and supply of electricity), namely EAC.

On 12 December 2017, CERA issued the Decision 265/2017, by which the tariffs for the four regulated activities of the EAC and the Cyprus TSO for the year 2018 were approved.

The charges for the use of network for the year 2016 - 2018, as approved by CERA are shown in Table 1.

Table 1. Charges for the use of networks and other operational expenses

CHARGES FOR THE USE OF NETWORKS AND OTHER OPERATIONAL EXPENSES		2016 €cents/kWh	2017 €cents/kWh	2018 €cents/kWh
Use of Transmission System Tariff (T-NH) for consumers connected to:	**High Voltage**	0.86	0.54	0.55
	Medium Voltage	0.86	0.86	0.87
	Low Voltage	0.86	0.88	0.88
Use of Distribution System Tariff (T-NM) for consumers connected to:	**High Voltage**	-	-	-
	Medium Voltage	1.33	1.00	1.01
	Low Voltage	1.33	1.02	1.03
Use of Distribution System Tariff (Low Voltage) (T-NL) for consumers connected to:	**High Voltage**	-	-	-
	Medium Voltage	-	-	-
	Low Voltage	1.47	1.14	1.15

Tariff for the recovery of expenses of the Cyprus TSO (T-TSO)		0.09	0.09	0.15
Tariff for the provision of Ancillary Services and long-term reserve (T-AS) for consumers connected to:	**High Voltage**	0.65	0.65	0.65
	Medium Voltage	0.67	0.67	0.66
	Low Voltage	0.67	0.67	0.67

Fuel Adjustment Clause coefficients

By Decisions 30/2018 and 127/2018, CERA decided to approve the coefficients for the fuel adjustment clause and the following basic purchase prices of RES energy for 2018, setting, however, limits on the quantities of each fuel that can be used to recover fuel costs through fuel price adjustment by the EAC. The fuel clause coefficients and base prices, are summarised in the following table:

Table 2. Fuel clause coefficients and base prices, for 2018

	Jan – Jun 2018	Jul – Dec 2018
Coefficients for fuel adjustment clause for consumers		
	€c/kWh/1€c	**€c/kWh/1€c**
Low voltage	0.00024438	0.00025557
Medium voltage	0.00023933	0.00024971
High voltage	0.00023503	0.00023911
Coefficients for fuel adjustment clause for electricity from RES		
	€c/kWh/1€c	**€c/kWh/1€c**
Low voltage	0.00023933	0.00024971
Medium voltage	0.00023503	0.00023911
High voltage	0.00023074	0.00023464
Basic purchase prices of RES energy		
	€c/kWh	**€c/kWh**
Low voltage	7.393	7.725
Medium voltage	7.264	7.407
High voltage	7.135	7.273

3.1.3.2. Prevention of cross-subsidies

One of the main objectives of the Regulatory Decision No. 02/2015 “Statement of Regulatory Practice and Electricity Tariffs Methodology” is the prevention of cost subsidies between regulated activities.

With the issue of Decisions No. 97/2017 and 265/2017, CERA approved the tariffs for the four regulated activities of the EAC and the TSO for the years 2017 until 2021. CERA approved the cost-reflective electricity tariffs for all customer groups, with the exception of high voltage, public lighting, water pumping, off-peak and industrial use tariffs, which presented an increase based on cost-reflectivity. CERA decided to approve EAC's proposal to maintain the above tariffs at current levels for energy charges for up to the operation of the new electricity market or four years after the new tariffs are applied, whichever is the sooner. The reduced revenues that the EAC will incur from the implementation of the above tariffs will not be passed on the consumers, and EAC will bear the reduced revenues.

3.1.4. Cross-border issues

At present, the electricity system of Cyprus operates without cross-border links. On 24 November 2017, the European Commission adopted the third list of 173 key energy infrastructure projects (Projects of

Common Interest (PCIs)). In the Union list, the project “EuroAsia Interconnector” is included, which concerns Cyprus.

The EuroAsia Interconnector was proposed for the electricity interconnection between Israel, Cyprus and Greece. It was approved by the European Commission and was included in EU list as a Cluster consisting of three distinct projects: Israel - Cyprus, Cyprus - Crete and Crete - Attica. The project consists of a DC subsea cable (HVDC) 600 kV with a total capacity of 2000 MW, and the required electrical equipment, i.e. power plants to convert the electrical current from DC to alternating current (AC) and vice versa, and for its transmission from and to the countries concerned. The total length of the submarine cable is estimated at around 820 nautical miles/ about 1518 km (329 miles between Cyprus and Israel, 879 km between Cyprus and Crete, and 310 km between Crete and Attica). It is estimated that the laying of the cable on the seabed in some places between Cyprus and Israel will exceed the depth of 2000 meters and 2500 meters between Cyprus and Greece.

With the implementation of this project, Cyprus will cease to be a system isolated from the European network, which is one of the main pillars set by the EU. It is also expected to contribute positively to the achievement of EU goals for the integration of the internal electricity market, security of supply, energy efficiency and better backup supply in emergencies.

The project promoter submitted an investment request to the Regulatory Authorities of Cyprus and Greece on 5 September 2017 for the first stage of the “Interconnection between Kofinou (CY) and Korakia, Crete (EL)" with a total capacity of 1000 MW and for the first stage of the "Internal line between Korakia, Crete and Attica region (EL)" with a total capacity of 1000 MW. Following consultations between CERA and RAE, an agreement was reached on 10 October 2017 on the cross-border cost allocation (CBCA).

CERA proceeded to issue the Decision 216/2017, on 10 October 2017, in which it adopted and decided the following:

- that PCIs No. 3.10.2 "Interconnection between Kofinou (CY) and Korakia, Crete (EL)" and 3.10.3 "Internal line between Korakia, Crete and Attica region (EL)" have reached a sufficient degree of maturity,
- that the CBCA of the two Member States is reasonable and well documented and there is a net positive impact from project outcomes on the parties involved,
- that for Step 2 (Crete-Attica) of Project No. 3.10.3 “Internal line between Korakia, Crete and Attica region (EL)”, Greece is the only one of the two Member States involved and will bear any investment and operating costs associated with the implementation of the project, while Cyprus will have zero (0) costs, and
- that for the Step 3 (Cyprus-Crete) of Project No. 3.10.2 “Interconnection between Kofinou (CY) and Korakia, Crete (EL)”, Cyprus will bear 63% of the cost of the implementation of the project and Greece 37%, provided that the project will be subsidized at 50% by third parties.

3.1.5. Compliance

Ensuring compliance with binding decisions of the Agency and the Commission, and with the Guidelines

Under the Third Package, NRAs are required to ensure compliance with and implement binding decisions of ACER and of the European Commission. In order to enable CERA to do this, the Laws Regulating the Electricity Market of 2003 to 2018 have been amended so as to provide the Authority with the necessary powers to carry out its functions in the manner that it considers is best calculated to implement or ensure compliance with any binding decision of ACER or of the European Commission.

Compliance of transmission and distribution companies, system owners and electricity undertakings with relevant Community legislation, including cross-border issues

CERA has the power to investigate compliance of transmission and distribution, electricity undertakings with relevant Community legislation. If a breach is found, CERA has the power to impose penalties. Furthermore, Cyprus has obtained an exemption from article 9 of the new Directive on the unbundling of transmission systems, therefore TSOs' certification compliance does not apply.

3.2. Promoting Competition

3.2.1. Wholesale markets

The Electricity Market was liberalised by 35% with effect from 1st of May 2004 and was further liberalised by approximately 65% in total with effect from January 2009, to include all "non-domestic" consumers which are able to select their Supplier according to what is in their best interest. From 1st of January 2014 the market is fully liberalised and all consumers of electrical energy are able to choose their Supplier. However, currently there is no other active Supplier in Cyprus apart from EAC.

After public consultation, CERA decided to adopt a study, which was prepared by an external consultant of CERA titled "The New Electricity Market Arrangements in Cyprus" concerning the detailed design of the Electricity Market in Cyprus and published the Regulatory Decision 01/2015 whose content was the actual study. The study proposes a design regarding the new electricity market arrangements in Cyprus based on the decision for implementing a Net-Pool Model as being the most appropriate trading arrangement approach for the Cyprus electricity market and which was fully compliant with the EU target Model.

Moreover, CERA decided that by 1 July 2017, to initiate the implementation of the timetable, as proposed by the Cyprus TSO, and complete within 24 months for the full commercial operation of the new electricity market model. Even though CERA with its Regulatory Decision 01/2017 had set the 1st of July 2019 as the latest date that the new electricity market model to be fully operated, due to complications in the tender of the TSO for the provision of the MMS software the EU Electricity Target Model is expected to take place at the end of 2021.

By Regulatory Decision 04/2017, on 26 June 2017, CERA decided on the implementation of transitory regulation of the electricity market in Cyprus prior the full implementation of the new electricity market model. The transitional period is based on bilateral contracts between producers and suppliers for the supply of a standard quantity of electricity (kWh) on a monthly basis. The implementation and operation of transitory regulation do not require a Market software, due to the fact that the related tasks are relatively simple and can be implemented with simple spreadsheets.

The transitory regulation of the electricity market in Cyprus started at 1 September 2017 and will be in force until the full implementation of the new electricity market model where the work of all market participants, EAC-Generation and EAC-Supply will be transferred to the new electricity market. The commencement of the application of the Trading & Settlement Rules in line with the EU Electricity Target Model is expected to take place at the end of 2021 deviating from the timetable foreseen in Regulatory Decision 01/2017.

Furthermore, CERA with its Regulatory Decision No. 05/2017, dated 6th of October 2017, decided the immediate implementation of a binding timetable by the DSO, to strictly implement a schedule for full installation and operation of the software MDMS (Meter Data Management System), with a binding target on 1 April 2019. Problems faced during the tendering procedure by the DSO have delayed the implementation of the MDMS with the expected date estimated to be in 2020.

By Decisions 120/2017 and 121/2017, 26 June 2017, CERA decided respectively, that the threshold for participation in the transitory regulation of the electricity market for producers with either generation units or RES Units would be above 4.5 MW and the threshold for contracts for the supply of energy to consumers, with a total agreed capacity, to participate in the transitory regulation of the electricity market for suppliers would be above 10 MW.

By Decision 234/2018, CERA decided to amend Decision 120/2017 on the threshold for participation in the transitory regulation of the electricity market for producers either with conventional generation units or with RES units and to set a new threshold at 1MW for production licence for the net rated power station they represent.

Furthermore, in the year under review, CERA issued the draft Regulatory Decision 03/2018 for establishing key principles of the electricity storage facility regulatory framework in Front-of-the-Meter (FtM). With the above-mentioned draft Regulatory Decision, CERA launched a public consultation on the conditions for the participation of electricity storage facilities in FtM in the electricity market and electricity storage facilities in FtM in the transmission system and distribution system. In addition, it has set a timetable inviting the TSO to proceed with all necessary actions to modify, where necessary, the Transmission and Distribution Rules and the Trading and Settlement Rules and submit to CERA for approval a final proposal to amend the Rules by the 31st of July 2020. It should be noted that CERA taking into account the results of the public consultation, has issued on 5 July 2019 its final Regulatory Decision 3/2019 on the issue.

3.2.1.1. Monitoring the level of prices, the level of transparency, the level and effectiveness of market opening and competition

By Regulatory Decision, the Members of CERA decided, on 7 October 2016, to apply provisions prohibiting abusive practices affecting the wholesale energy markets, which are in line with the rules applicable to the financial markets and the proper functioning of those wholesale energy markets, taking into account at the same time their specific characteristics.

In particular, this Regulatory Decision introduces more specific legislative and regulatory arrangements that are deemed necessary for the issues related to Regulation (EU) No. 1227/2011 on the prohibition of insider trading, the obligation to publish inside information, the prohibition of market manipulation, implementation of prohibitions against market abuse and the imposition of related sanctions.

3.2.2. Retail market

As already pointed out, Cyprus has opened the Electricity Market on the 1st of May 2004 for the 35% of the annual consumption, on the 1st of January 2009 extended up to 67% and finally on the 1st of January 2014 the market is fully liberalized and each customer is able to choose his own supplier. Currently EAC is the only active supplier of electricity, however, in 2018, ten (10) applications for the supply of electricity to end customers were submitted for the period of validity of the transitory regulation and six (6) licences for the supply of electricity to final customers were issued for the period of validity of the transitory regulation of the electricity market.

The total consumption of customers and the average consumption by type of consumer is given in Table 3 below

Table 3. Consumers, total and average sales

CONSUMERS, TOTAL & AVERAGE SALES						
As at 31 December	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**
NUMBER OF CONSUMERS						
Domestic	428,616	433,072	437,577	442,293	444,895	450,318
Commercial	84,695	85,188	85,525	86,494	87,065	88,152
Industrial	10,222	9,836	9,712	9,596	9,760	9,975
Agricultural	15,280	15,536	15,748	15,886	15,902	16,194
Public Lighting	10,635	10,942	11,138	11,287	10,878	11,584
TOTAL	**549,448**	**554,574**	**559,700**	**565,556**	**568,500**	**576,223**

SALES TO CONSUMERS (MWh)						
Domestic	1,435,231	1,407,656	1,475,972	1,567,312	1,641,033	1,622,544
Commercial	1,655,761	1,630,789	1,659,588	1,728,200	1,755,094	1,816,143
Industrial	581,860	656,097	685,864	819,693	856,422	883,962
Agricultural	129,129	135,680	129,447	155,638	156,453	154,878
Public Lighting	87,807	85,257	85,211	87,648	86,578	91,137
TOTAL	**3,889,788**	**3,915,479**	**4,036,082**	**4,358,491**	**4,495,580**	**4,568,664**
AVERAGE SALES PER CONSUMER (kWh)						
Domestic	3,349	3,250	3,373	3,544	3,689	3,603
Commercial	19,550	19,143	19,405	19,981	20,158	20,602
Industrial	56,922	66,703	70,620	85,240	87,748	88,618
Agricultural	8,451	8,733	8,220	9,797	9,839	9,564
Public Lighting	8,256	7,792	7,650	7,765	7,959	7,867

As there is only one supplier operating at present, switching procedures for customers to change suppliers are not possible. However, CERA with its Decision 145/2017 dated 17 July 2017 has approved the process of switching supplier as submitted by the DSO.

As a general assessment to whether the market is seen to be active, it could be said that the market seems to become active. By considering the above conditions under which Cyprus has to act, i.e. small isolated system, the progressively opening of the electricity market where it constitutes a contemporary activity for the island, the above situation can be justified.

3.2.2.1. Monitoring the level of prices, the level of transparency, the level and effectiveness of market opening and competition

The determination of the allowed revenues of each regulated activity and the new, cost-oriented tariffs contribute to greater transparency and set the benchmark on which stakeholders interested in participating in the electricity market will be based.

Figure 1 shows the average electricity price per kWh sold, excluding the RES levy and the VAT, for the years 2015 to 2018:

- 01: Single Rate Domestic Use Tariff
- 10: Bi-monthly Low Voltage Single Rate Commercial Use Tariff
- 20: Bi-monthly Low Voltage Single Rate Industrial Use Tariff
- 30: Monthly Low Voltage Seasonal Two-Rate Commercial and Industrial Use Tariff
- 40: Monthly Medium Voltage Seasonal Two-Rate Commercial and Industrial Use Tariff
- 50: Monthly High Voltage Seasonal Two-Rate Commercial and Industrial Use Tariff

Figure 1 shows that the 01, 10 and 20 code prices (domestic, commercial low voltage and industrial low voltage, respectively) are higher than other tariffs, while the 30, 40 and 50, which are Seasonal Time of Day (STOD) prices (low, medium and high voltage commercial and industrial respectively) are at a lower level. For years prior to 2017, where more than one old pricing codes have been included in a new pricing code, the average value of the old code's pricing has been considered.

The increase in the average price of 2018 tariffs is due to the increase in fuel prices.

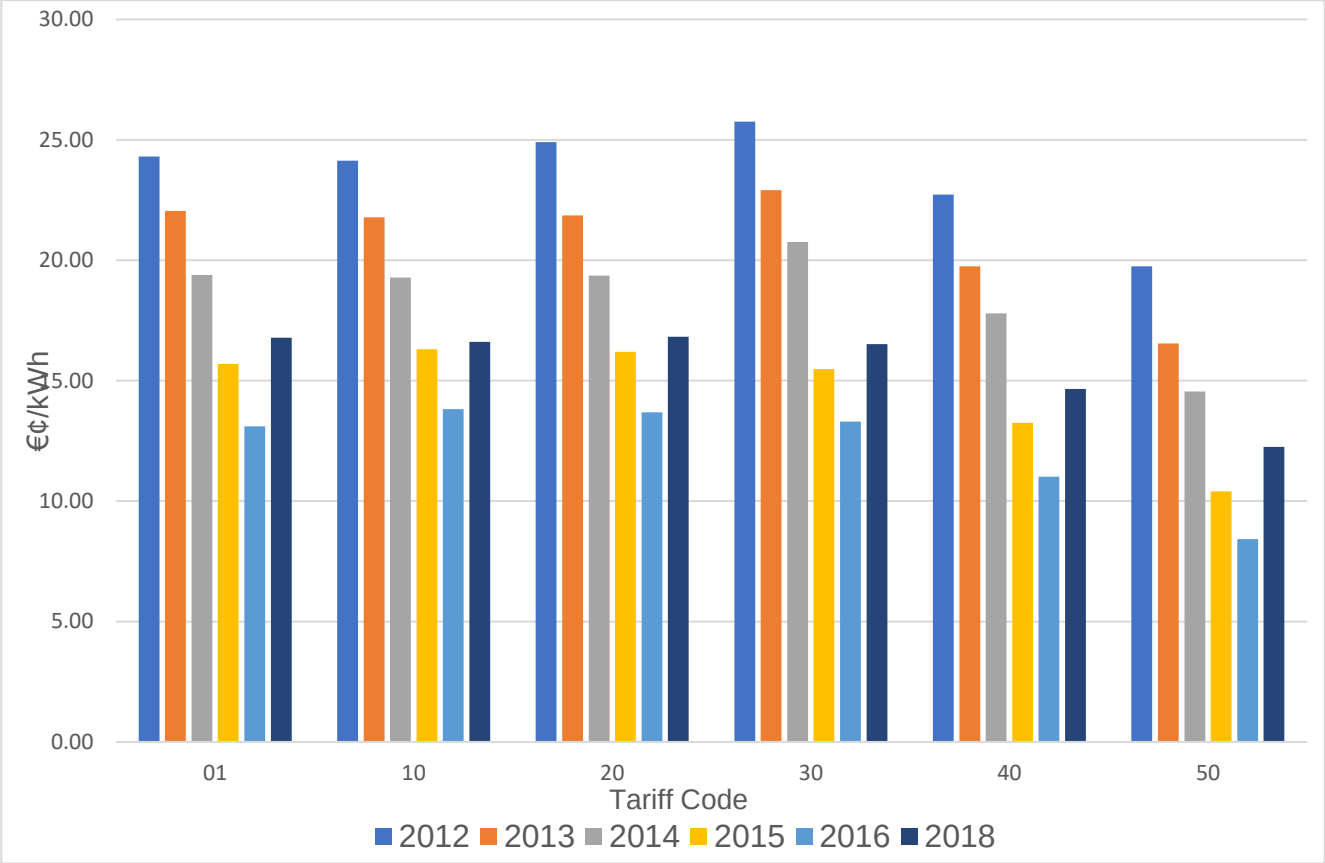


Figure 1. Average Tariff Rate

Figure 2 below illustrates the total electricity cost (€/kWh) of a household consumer from December 2012 until December 2018. From January 2018 onwards the orange line shows the new household tariff (code 01) as it was charged to consumers. The blue dotted line shows what the average cost of the tariff that previously applied for household consumers (code 05) would have been.

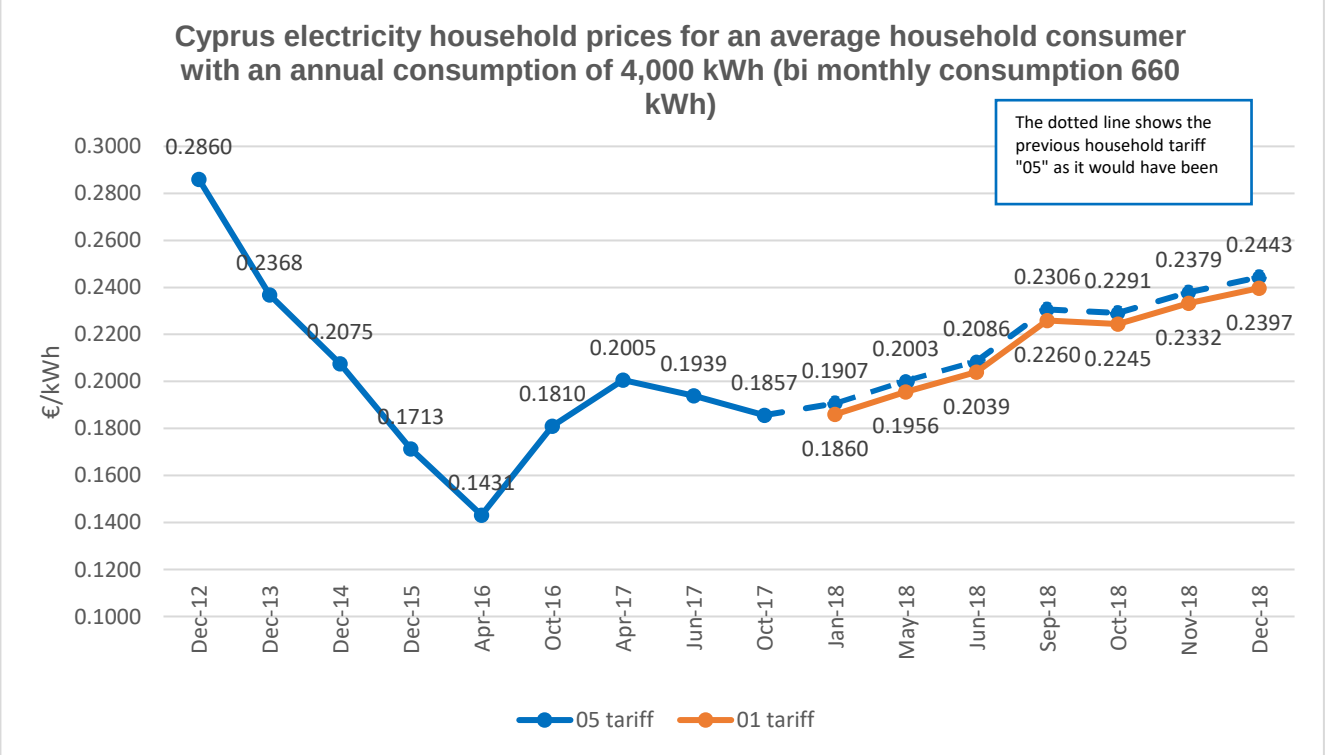


Figure 2. Movement of average cost of household electricity tariff

Figure 3 shows the breakdown of the new invoice per billing category for a typical household consumer with a consumption of 600 kWh in December 2018.

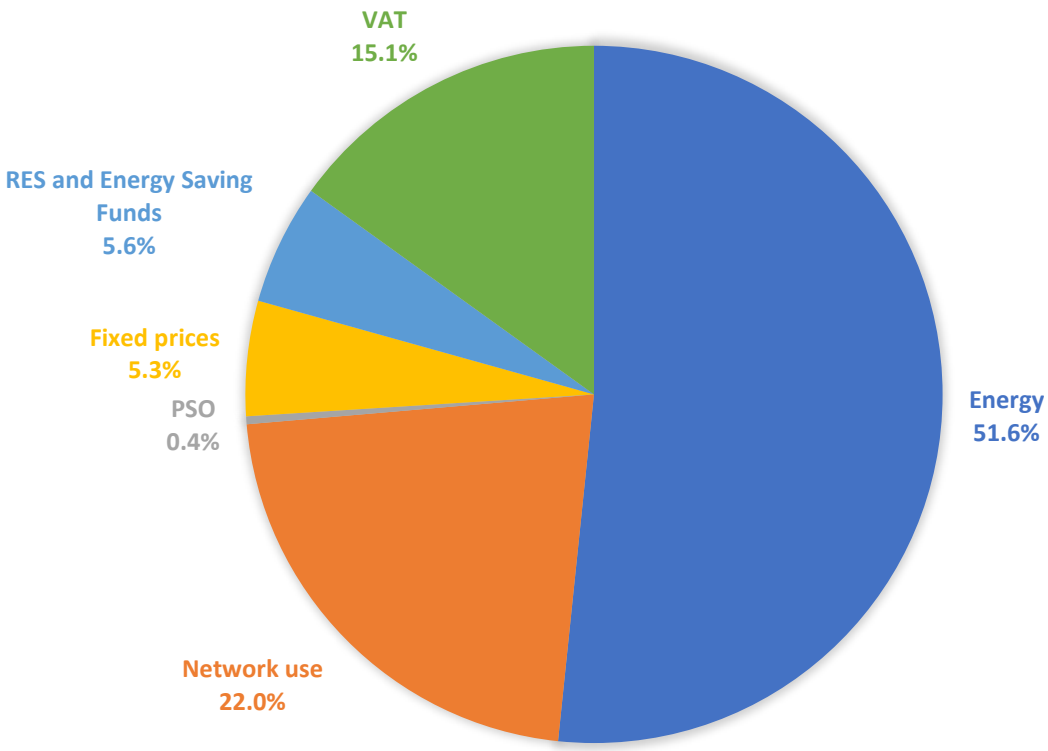


Figure 3. Breakdown of the EAC Supply invoice for 2018

CERA by its decision 12/2018 dated 16 January 2018 has approved the EAC Supply Tariff plans for the year 2018.

Smart Metering

According to the Laws Regulating the Electricity Market in Cyprus of 2003 to 2018, CERA ensures the implementation of smart metering systems, if economically feasible, which help to actively engage consumers in the electricity market. The implementation of these systems may be subject to an economic assessment of all the long-term cost and benefit elements of the market and the individual consumers. CERA also sets the timeframe in which the spread of systems is feasible.

By the Regulatory Decision 02/2018 (Act 259/2018) CERA invited the DSO to proceed with the appropriate actions to initiate the required procedures for the complete and massive installation of smart metering systems by setting the date of commencement of operations the 1 January 2019 and completion within eight (8) years, which includes individual actions with the ultimate goal of installing 400,000 smart meters.

3.3. Security of supply

3.3.1. Monitoring balance of supply and demand

CERA in accordance with the Laws on Regulating the Electricity Market of 2003 to 2018, has the responsibility, for the adequacy of electricity supply in Cyprus, the reliability and security of the generation, transmission and distribution system and the quality of electricity supply.

CERA systematically monitors the adequacy, quality and reliability of supply and whenever it ascertains possible shortfalls informs the Minister of Energy, Commerce and Industry, who after consulting with CERA, takes the indicated corrective measures.

As shown in Figure 4, during the year under review, security of supply is at a sufficiently high level.

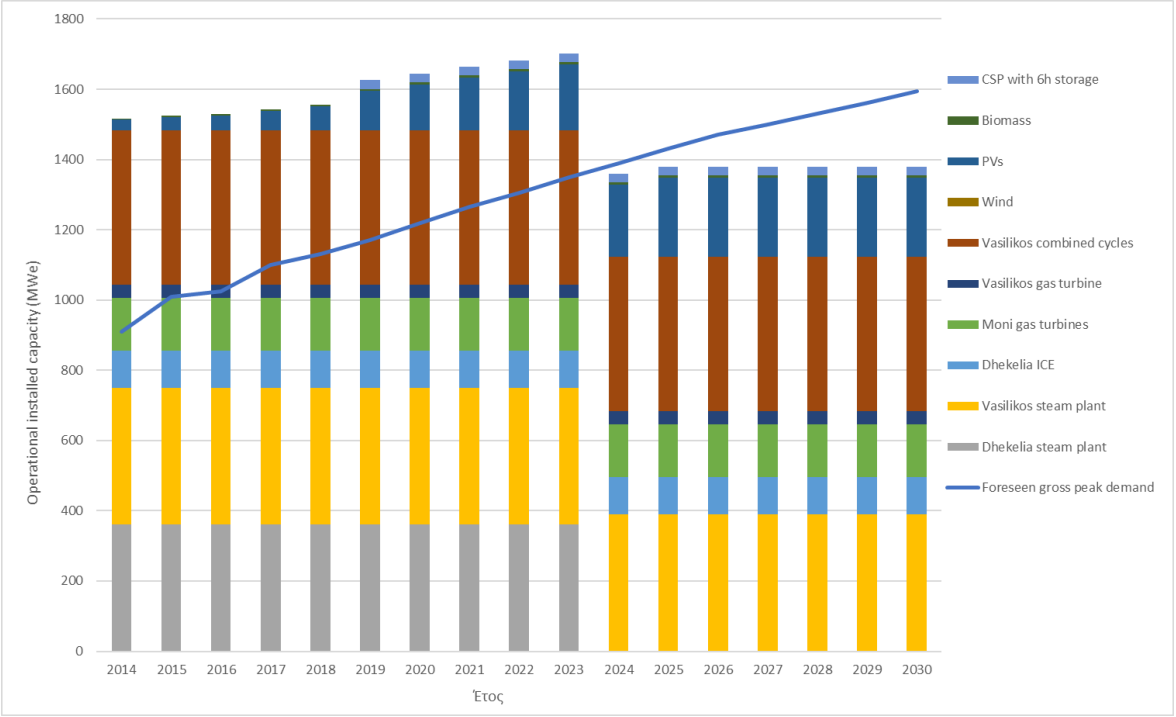


Figure 4. Installed Operational Capacity (MWe) for the period 2014 - 2030

The maximum demand for 2018 was recorded on Monday 23 July 2018, at 14:30 hours, when the maximum total power rose to 1074 MW.

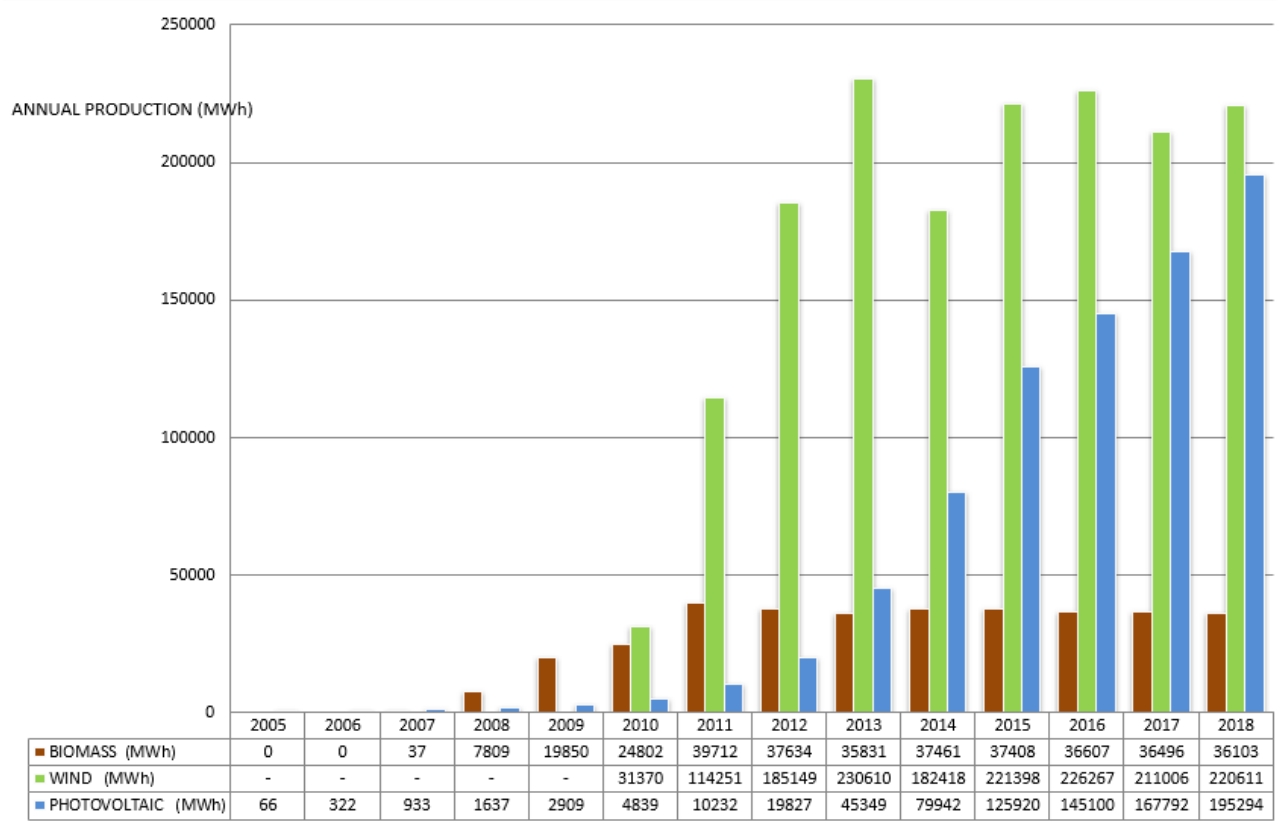
The following important records concern the recorded total electrical energy generated during 2018:

- EAC contributed with 4,574,978 MWh.
- RES producers generated 452,008 MWh.
- EAC generating stations produced 233,286 MWh, for their local needs.
- The energy sent out to the transmission system from the EAC power stations reached 4,341,692 MWh.
- The energy sent out to the distribution system from EAC sub-stations reached 4,544,202 MWh.
- Recorded energy losses in the transmission system amounted to 62,226 MWh or 1.35% of energy sent out to the transmission system.
- Recorded energy losses in the distribution system amounted to 96,400 MWh, or 2.1% of energy sent out to the distribution system.

The Load Factor of conventional generating stations was 53.4% in 2018 compared to the Load Factor for the year 2017 which was 52.1%.

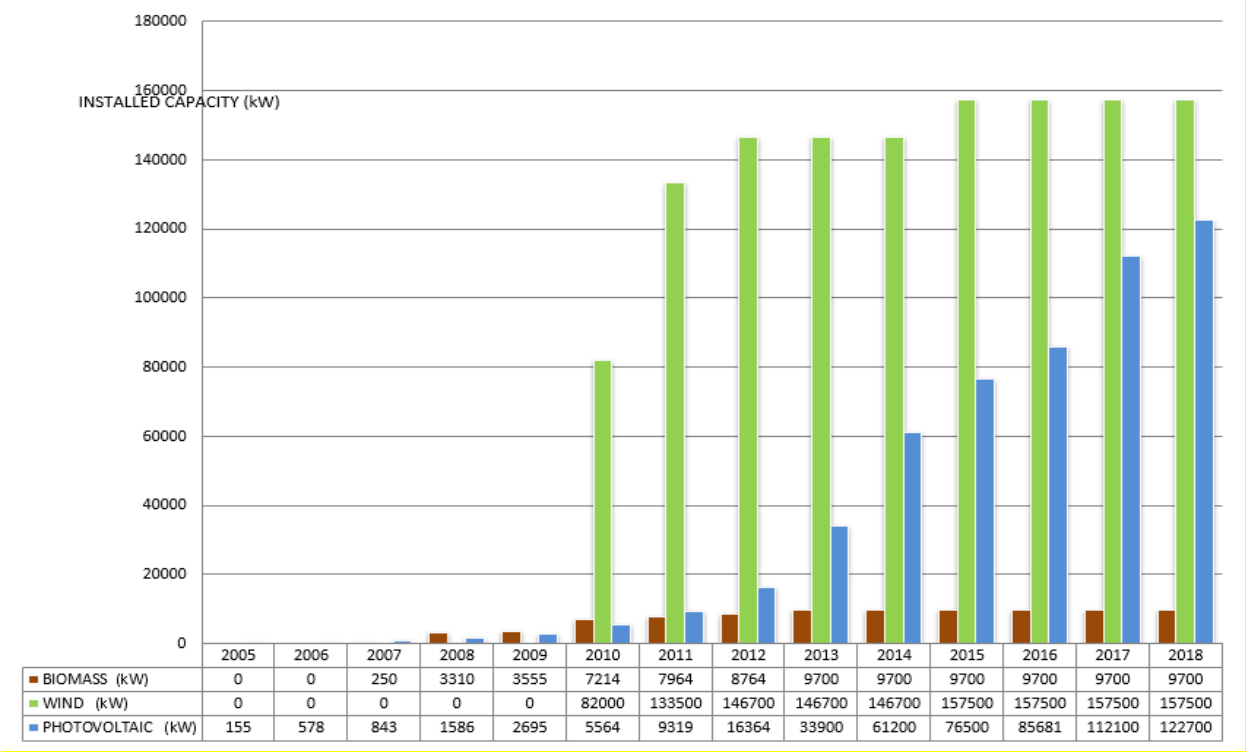
Figure 5 below shows the annual generation produced from each type of RES for the period 2005-2018:

Figure 5. Annual RES generation (MWh) 2005-2018



	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
BIOMASS (MWh)	0	0	37	7809	19850	24802	39712	37634	35831	37461	37408	36607	36496	36103
WIND (MWh)	-	-	-	-	-	31370	114251	185149	230610	182418	221398	226267	211006	220611
PHOTOVOLTAIC (MWh)	66	322	933	1637	2909	4839	10232	19827	45349	79942	125920	145100	167792	195294

Figure 6 shows the total installed capacity of each type of RES-E for the period 2005-2018:



	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
BIOMASS (kW)	0	0	250	3310	3555	7214	7964	8764	9700	9700	9700	9700	9700	9700
WIND (kW)	0	0	0	0	0	82000	133500	146700	146700	146700	157500	157500	157500	157500
PHOTOVOLTAIC (kW)	155	578	843	1586	2695	5564	9319	16364	33900	61200	76500	85681	112100	122700

Figure 6. Annual Installed Capacity (kW) RES 2005-2018

Figure 7 shows the total electrical energy production in 2018:

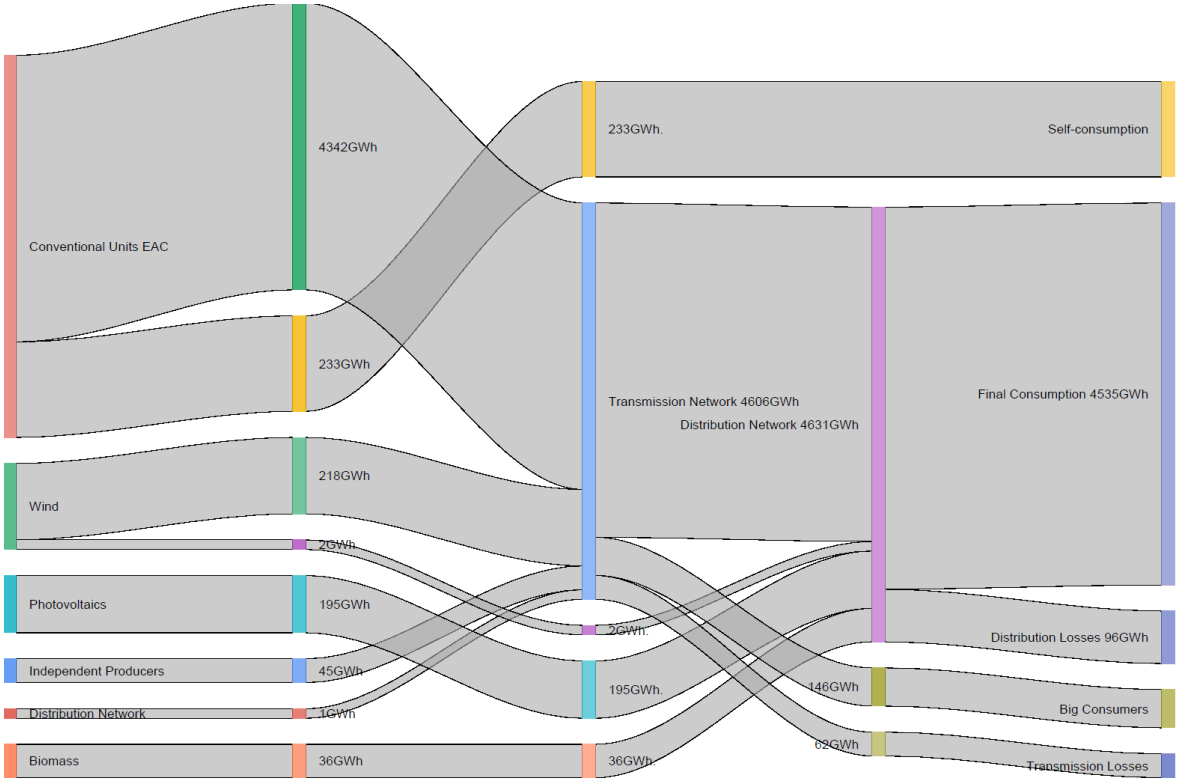


Figure 7. Sankey Diagram for overall electricity production in 2018

Figure 8 gives the RES penetration levels into the Cyprus electrical system for the year 2018. The average RES penetration reached 9% of the total generation in Cyprus for 2018:

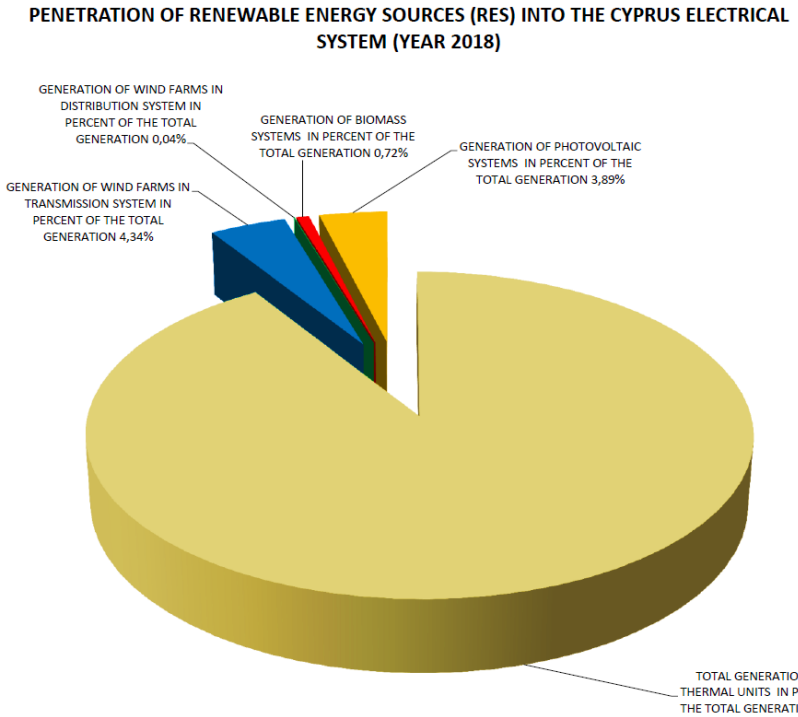


Figure 8. RES penetration levels into the Cyprus electrical system for the year 2018

Cost reflective market prices and transparent market mechanisms operated by independent operators under rules and regulations of an independent regulator should provide relevant signals for investors to

timely respond to such needs. However, the combination of a small system size, without interconnections and natural gas availability, as in the case of Cyprus, reduces the margins for the effective response to such market signals to critical levels.

In line with the spirit of the Directive, the Law assigns priority to the market in offering the appropriate signals to investors to construct the most appropriate type and size of generation capacity, in order to meet the various needs of the market. To that effect, the Law adopts and prescribes an authorisation procedure, implemented through licences issued by CERA to interested prospective investors, subject to various criteria which are only supposed to safeguard participants rather than prescribe specific solutions.

Moreover, recognising the specificities of electricity and its importance for the economy, the Law introduces a safety valve, in the form of a tendering process, by which CERA may justifiably intervene when the authorisation process appears to be unable to timely bring about the needed generation capacity. For the specification of the need based on which the tendering process may be initiated the Law refers to the mandate of CERA to act so as to ensure security, continuity, quality and reliability of electricity supply. CERA is thus enabled to require from the TSO timely information on the expected needs of the system, and may provide the appropriate regulatory signals, where necessary; or, CERA may commence the tendering process described by the Law where CERA considers that despite such signals, or due to unforeseen circumstances, the market is unable or unwilling to bring about the needed investment. Clearly, the process should be directed to resolve the specific problem identified by the TSO, which the market cannot address in a timely manner, i.e. it should specify characteristics of new generation corresponding to the requirements of the TSO.

3.3.2. Monitoring investment in generation capacities in relation to SoS

3.3.2.1. Operational Network Security

The Table 4 below shows the total installed capacity of conventional units for 2018. Currently the sole owner of conventional generations units is EAC.

Table 4. Total Installed Capacity of Conventional Units (MW)

Total Installed Capacity of EACs' Conventional Units (MW)					
Power Station	**CCGT units (MW)**	**Steam units (MW)**	**Gas Turbines (MW)**	**Internal Combustion Units (ICE) (MW)**	**Installed Capacity per Station (MW)**
Moni	-	-	4x37.5=150	-	150
Dhekelia	-	6x60=360	-	2x50=100	460
Vassilikos	2x220=440	3x130=390	1x38=38	-	868
Installed Capacity per type of unit	**440**	**750**	**188**	**100**	**1478**

Conventional Units for commercial use

In 2018, two (2) applications for a licence for the construction of power plants for commercial use of a total power of 164.5MWe were submitted and one (1) application for licence for operation of a commercial power plant of a total power output of 4.5MWe. In 2018, two (2) licences for the construction and operation of a power plant for commercial use of a total power of 21.99MWe have been granted.

Conventional units for own use

In 2018, three (3) applications for the construction and operation of power generating plants for their own use, self-generation, with Internal Combustion Engines (ICE) were submitted for a total generating capacity of 4.39MWe and two (2) licences were issued for the construction and operation of power

generating plants for their own use, self-generation, with ICE, for a total generating capacity of 3.34MWe.

Wind farms

In 2018 no licences have been issued for the construction and operation of wind farms. The installed capacity has not changed in the year 2018 and remains the same as in the previous year.

Biomass / Biogas

In 2018 no licences have been issued for the construction and operation of power stations using biomass / biogas. The installed capacity has not changed in the year 2018 and remains the same as in the previous year.

Photovoltaic systems

In 2018, seven (7) licences were issued for the construction of power stations for commercial use, with a total power of 52MWe.

Solar Thermal Stations – NER300

Under the EU's NER300 program to fund demonstration projects for innovative renewable energy technologies from RES that are suitable for demonstration but are not yet commercially implemented, two Cypriot power generating projects have been approved by the EU. The Council of Ministers has approved for each of the two projects an individual support scheme.

In 2018, CERA revoked the one licence for the construction of a solar thermal park with Sterling engines, with power generating capacity of 50.76MWe.

Figures 9 and 10 below show the geographical distribution of EAC's licensed conventional generating stations and power plants using RES with a capacity of more than 20 KWp.

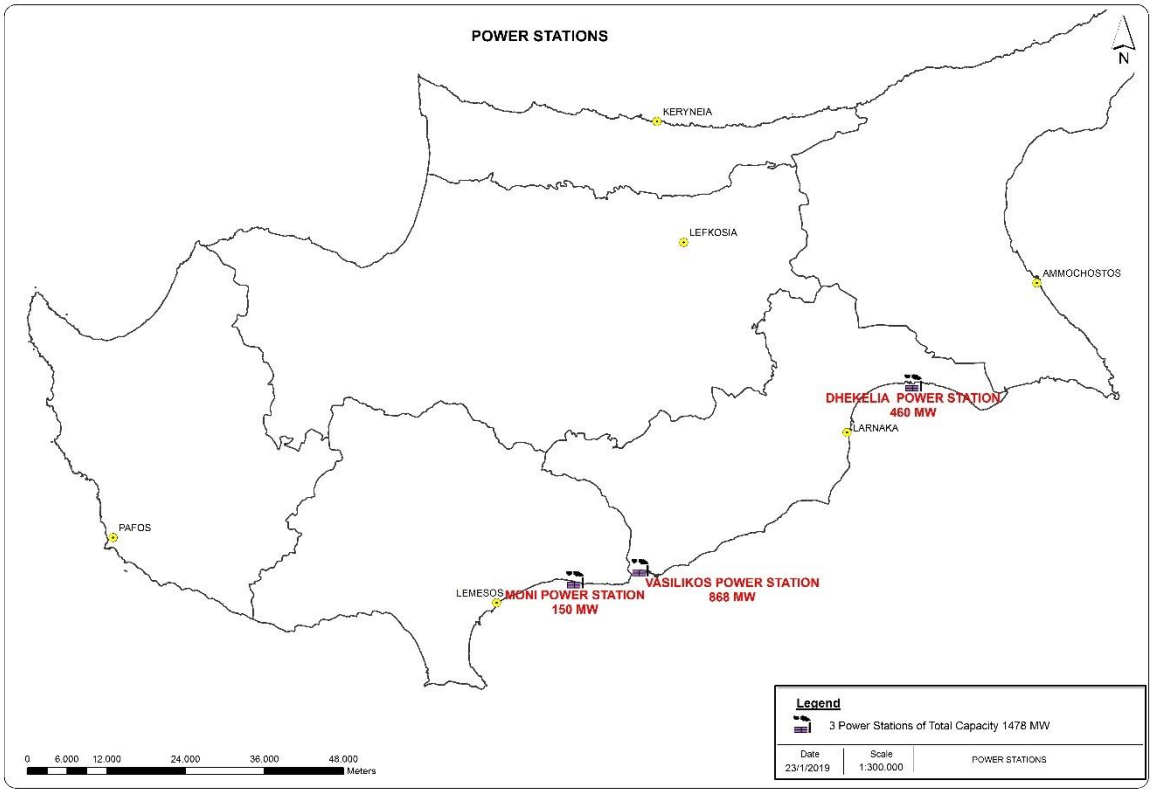


Figure 9. Presentation and geographical distribution of EAC's licences for conventional generating stations up to 2018

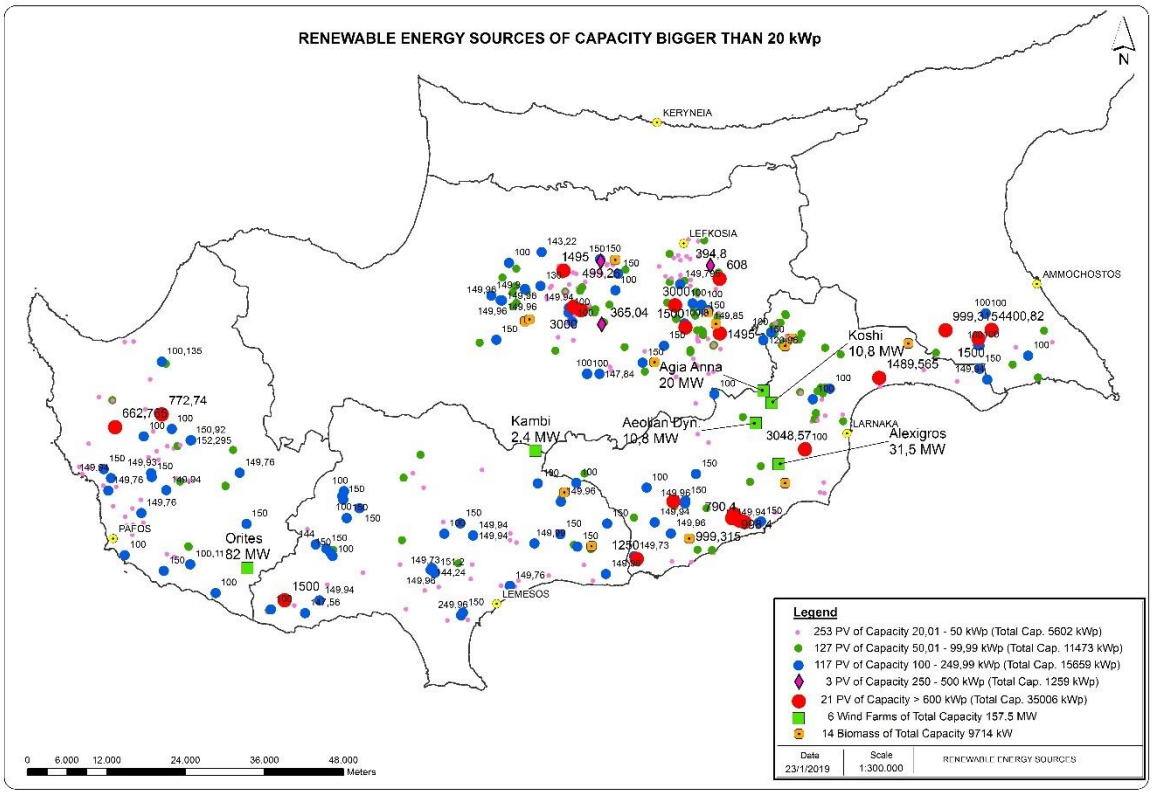


Figure 10. Presentation and geographical distribution of installed RES Units with a power output of more than 20kWp by 2018

3.3.2.2. Investment in Interconnection capacity for the next 5 years or more

As mentioned in Chapter 3.1.4, the electricity system of Cyprus operates without cross-border links. The “EuroAsia Interconnector Project” is currently under study, which is promoted as a PCI.

3.3.2.3. Expected future demand and envisaged capacity for the next 5 years and 5-15 years

According to the Laws Regulating the Electricity Market of 2003 to 2018, Long Term Forecast of Annual Total Generated Energy (GWh) and Long-Term Forecast of Annual Maximum Generation (MW) for the Years 2018 – 2027 were prepared by the Cyprus TSO and approved by CERA on the 27th of February 2018.

The results of the Long-Term Forecast of Annual Total Generated Energy (GWh) and Long-Term Forecast of Annual Maximum Generation (MW) for the Years 2018 – 2027, along with the recorded generation from 2005 until today, are shown below:

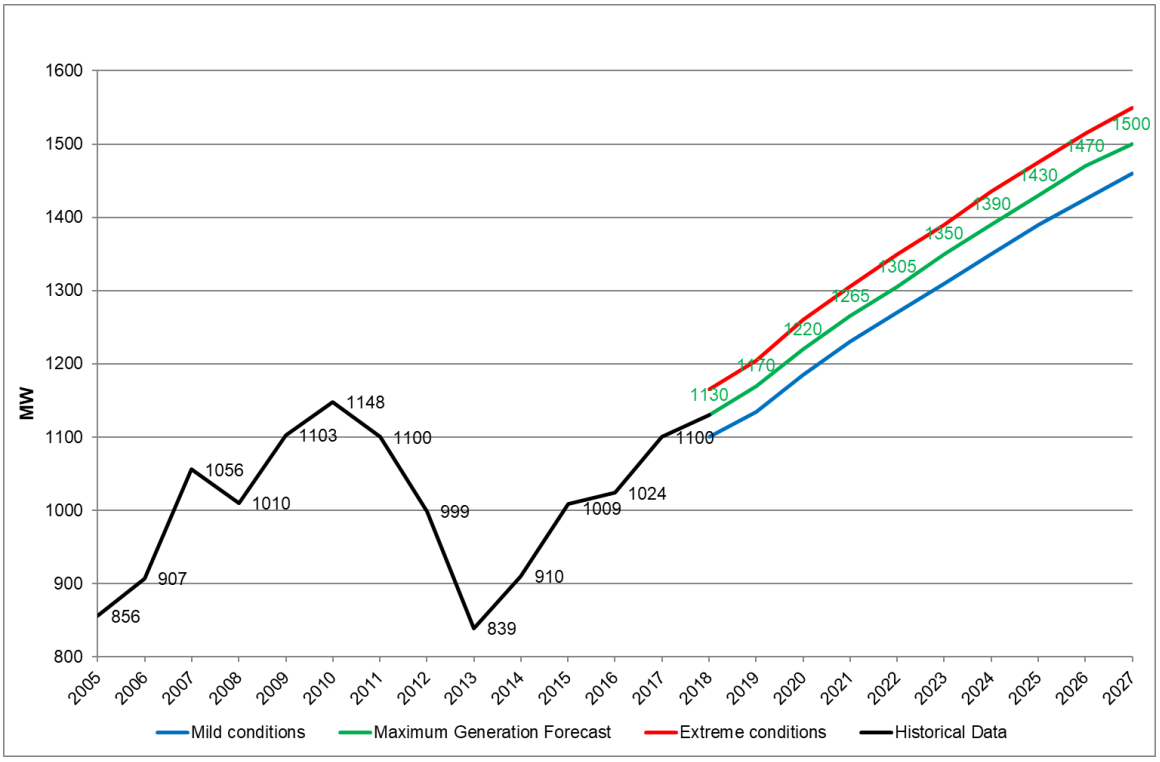


Figure 11. Expected future maximum generation

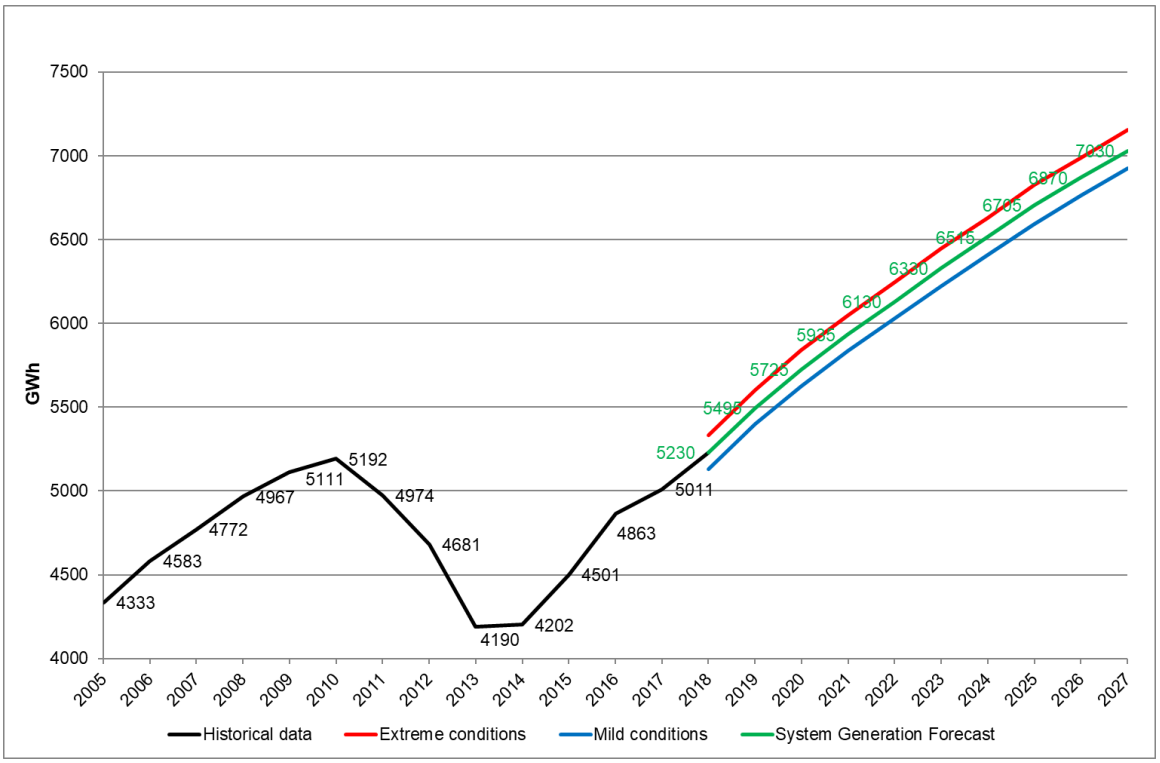


Figure 12. Expected future total generated energy

Cyprus has an obligation to reach 13% contribution from renewable energy sources in the final use of energy by 2020. The National Renewable Energy Action Plan submitted by the Government projected that by 2018 the electricity generation capacity from renewable energy sources would reach 425MW. This capacity is expected to reach 21.7% share of renewable energy in the gross energy consumption.

Table 5. National RES Plan provisions

	Estimation of total contribution expected from each RES technology in Cyprus			
RES Technology	**2017**	**2018**	**2019**	**2020**
Onshore Wind	210	210	260	300
Photovoltaic	75	125	145	192
Concentrated Solar Power	75	75	75	75
Biomass	15	15	17	17
Total Installed Capacity (MW)	375	425	497	584
Total Gross Electricity Generation (GWh)	820	900	1033	1175

Capacity Reserve Margin Study for the period 2018 – 2027

In the electrical system of Cyprus, as an isolated system, it is very important to ensure adequacy with the operation of new power generating units, when required. Important parameters for attracting new investment in the electricity sector and the inclusion of new generation capacity in energy mix of Cyprus, is the full function of the new competitive electricity market.

For this reason, CERA every year carries out a rolling ten-year study in which the adequacy of electric power system of Cyprus is examined, in order to identify any need in new generating capacity and subsequently to determine the appropriate regulatory intervention to ensure the adequacy of power for the safe operation of the electrical system. The study determines the yearly Capacity Reserve Margin (CRM) which is defined as the level of the additional power which is readily available during the peak period of demand, so that it covers, for example, the probability of loss due to outage of a power plant and/or an unforeseen increase in demand due to abnormally high temperature etc.

Cyprus being an isolated power system a CRM between 20%-40% is required in order to maintain high reliability of the electrical system as per CERA's Decision 144/2017.

The above threshold of the CRM is a compromise between cost and reliability. For values below 20% reliability is at unacceptable levels while values of over 40% implies increased costs.

In 2018 CERA carried out a study of the CRM for the period 2018 – 2027. For the calculation of the CRM the projected peak power demand was used (MWe per year). Also, apart from the conventional units, the RES-E units contribute to the calculation of the CRM based on a certain specified percentage of their nominal capacity per technology. It is therefore important to consider different scenarios of RES-E penetration in conjunction with three different scenarios (mild, normal, extreme conditions) of power demand forecast.

Based on the above, nine (9) different scenarios (S) were investigated for the calculation of the CRM and afterwards the calculation of the required new generating capacity. In all scenarios it was considered that by 2020 the penetration of RES-E in the Cypriot electrical system is in accordance with the National Action Plan for RES:

S.1 Normal weather conditions, stable production of RES-after 2020.
S.2 Normal weather conditions, installation of 40MW/year PV systems after 2020.
S.3 Normal weather conditions, installation of 80MW/year PV systems after 2020.

S.4 Extreme weather conditions, stable production of RES-after 2020.
S.5 Extreme weather conditions, installation of 40MW/year PV systems after 2020.
S.6 Extreme weather conditions, installation of 80MW/year PV systems after 2020.
S.7 Mild weather conditions, stable production of RES-after 2020.
S.8 Mild weather conditions, installation of 40MW/year PV systems after 2020.
S.9 Mild weather conditions, installation of 80MW/year PV systems after 2020.

The results concerning the calculation of the CRM for the above scenarios are presented in the table 6 below.

Table 6. CRM Calculation for period 2018-2027

Year	Capacity Reserve Margin (%)								
	Scenarios								
	S.1	S.2	S.3	S.4	S.5	S.6	S.7	S.8	S.9
2018	33.6	33.6	33.6	29.5	29.5	29.5	37.2	37.2	37.2
2019	34.4	34.4	34.4	30.5	30.5	30.5	38.6	38.6	38.6
2020	32.3	32.3	32.3	28.1	28.1	28.1	36.2	36.2	36.2
2021	27.6	29.2	30.8	23.7	25.2	26.8	31.2	32.9	34.5
2022	23.7	26.8	29.8	19.6	22.5	25.5	27.1	30.2	33.4
2023	19.6	24.0	28.5	16.1	20.4	24.8	23.2	27.8	32.4
2024	-9.8	-4.0	1.7	-12.6	-7.0	-1.5	-7.1	-1.2	4.8
2025	-12.3	-5.3	1.7	-15.0	-8.2	-1.4	-9.8	-2.6	4.6
2026	-14.7	-6.5	1.6	-17.2	-9.3	-1.4	-12.0	-3.6	4.9
2027	-16.4	-7.1	2.3	-19.1	-10.1	-1.0	-14.1	-4.5	5.1

Based on the above results, with blue color are marked the years in which the CRM was calculated under the allowable limit of 20%. In all these cases it is necessary to admission of new production capacity in power system to ensure the adequacy of power.

The results concerning the required new production capacity for all considered scenarios are shown in the table 7 below.

Table 7. New production capacity in MW for all considered scenarios for the period 2018-2027

Year	Capacity (MW)								
	Scenarios								
	S.1	S.2	S.3	S.4	S.5	S.6	S.7	S.8	S.9
2018	0	0	0	0	0	0	0	0	0
2019	0	0	0	0	0	0	0	0	0
2020	0	0	0	0	0	0	0	0	0
2021	0	0	0	0	0	0	0	0	0
2022	0	0	0	50	0	0	0	0	0
2023	50	0	0	100	50	0	0	0	0
2024	450	350	350	500	450	400	400	350	300
2025	500	400	350	550	450	400	450	350	300
2026	550	450	350	600	500	400	500	400	300
2027	550	450	350	650	500	400	500	400	300

The above analysis shows that the need for addition of new capacity in the system is divided in 2 chronically distinct phases, namely the need for capacity between 0 MW and 100 MW by the year 2022 up to 2023 and between 300 MW and 500 MW by the year 2024 and after.

3.3.3. Measures to cover peak demand or shortfalls of suppliers

CERA, during the energy crisis in 2011 and 2012 has taken immediate and effective steps to alleviate interruption of suppliers and to terminate shortfalls at the shortest possible time and at the same time at the lowest possible cost. Details are given in paragraph 3.1.2.4. “Monitoring Safeguard Measures” above.

4. The gas market

4.1. Network regulation

4.1.1. Unbundling

Currently, the natural gas market in Cyprus is non-existent since natural gas is not yet available in the country’s energy mix. This has adverse effects on the cost of electricity generation, causing a lack of energy source diversity for the country in general. Moreover, the environmental cost associated with the extensive use of heavy fuel oil for power generation is significant, as the county’s ability to meet emission targets and limits laid down by EU legislation is affected.

The in-force Laws Regulating the Natural Gas Market of 2004 to 2018, which adopt the important provisions of the Third Energy Package, provide for the regulation of the gas market in the Republic of Cyprus and among other things, set the rules for transmission, distribution, supply and storage of natural gas. In addition, they define the rules on the organization and operation of the gas sector, market access, use of the networks and the criteria and procedures for issuing licences for the transmission, distribution, supply and storage of natural gas and LNG undertakings. They also fully define the role and duties and responsibilities of CERA.

It should be noted that the Laws Regulating the Natural Gas Market of 2004 to 2018 contain the key provisions in view of the introduction of natural gas in the energy mix of Cyprus, but do not specify the market model and organisational framework to be applied. Furthermore, the Laws provide the possibility of derogating from the application of certain provisions of the Directive, following a decision of the Council of Ministers.

More specifically, the Laws Regulating the Natural Gas Market of 2004 to 2018, provide that Cyprus may deviate from some specific articles of Directive 2009/73/EC, as it can be regarded either as an isolated or emerging market. The declared intention of the Government is to declare the market emergent and thus in this case, it is possible to deviate from applying competition in the supply of natural gas as long as the Cyprus natural gas market is deemed to be emergent and not to separate the activities of the natural gas operators (transmission, distribution, storage and LNG) from the activities of generation and supply, in the manner prescribed in the Directive.

It is not mandatory to apply all the derogations provided for in the Laws in the case of emergent market. The only derogations to be applied should be the ones ensuring the smooth operation of the market during the initial period, as well as the smooth transition to the regime of a fully liberalised market when the derogations will stop being applicable. In any case, applying derogations should not hinder the effective monitoring and regulation of the gas market and the undertakings operating in it.

4.1.2. Technical functioning

Currently, natural gas is not available in the island, therefore is not applicable as yet.

4.1.3. Network and LNG tariffs for connection and access

CERA has issued in June 2019 a Regulatory Decision 01/2019 for the Regulatory Practice Statement and Methodology of Gas Pricing.

4.1.4. Cross-border issues

Currently, there are no cross - border gas interconnections in Cyprus, however specific interconnection projects are promoted as PCIs. The European Commission has declared several energy projects, which are of strategic importance for Cyprus and Greece, as potential PCIs. The projects which concern Cyprus and have been included in the Union list in the cluster of natural gas and related equipment for the transmission of gas from new sources from offshore Eastern Mediterranean deposits are the following:

- "EastMed Pipeline" - A pipeline from offshore Cyprus to Greece mainland via Crete
- "CyprusGas2EU" - Ending the isolation in Cyprus in order to allow the transmission of gas to the Eastern Mediterranean region.

The CyprusGas2EU project, is a PCI project that ends the energy isolation of an EU Member State and it is necessary for the Southern Gas Corridor (SGC). The project is included in the latest TYNDP of ENTSOG (TRA-N-1146) and in the 3rd PCI list (No. 7.5).

The project is promoted by the Ministry of Energy, Commerce and Industry of the Republic of Cyprus (MECI).

The project promoter submitted a request for investment to the Energy Regulators of Cyprus (CERA) and of Greece (RAE) on 28 August 2017. Following consultations between CERA and RAE, an agreement on the cross-border cost-allocation was reached on 9 October 2017.

CERA issued a decision on 10 October 2017 by which it was adopted that the project reached a sufficient degree of maturity for decision-making purposes, that the sharing of costs between the two Member States is reasonable and well documented, that there is a net positive impact on the parties involved, and that Cyprus is the only one of the two Member States involved to bear any investment and operating costs related to the implementation of the project while Greece will have zero (0) costs.

According to the European Commission, on 25 January 2018, Member States agreed to invest €873m overall in energy infrastructure, including around €200m in natural gas projects. CyprusGas2EU was awarded by the Connecting Europe Facility (CEF) program with €101m, which represents 40 per cent of its total cost.

The Eastern Mediterranean (EastMed) pipeline project relates to an offshore/onshore natural gas pipeline. This PCI's importance is especially focused on creating a direct and permanent connection of newly discovered gas reserves in the Levantine basin (Cyprus and Israel) with European markets, through other diversified routes (such as Poseidon Pipeline and IGI). The project is included in the latest TYNDP of ENTSOG (TRA-N-330) and in the 3rd PCI list (No. 7.3.1).

The project is promoted and operated by the Natural Gas Submarine Interconnector Greece-Italy Poseidon S.A.

The project was awarded in 2015 with European grants of €2m through the CEF program necessary for the co-finance of the Pre-FEED activities. Moreover, the project was awarded, in January 2018, with €34.5m to carry out the studies required to provide the necessary technical inputs for starting the implementation phase. The studies will build on the results of the Pre-FEED analysis and include the main remaining steps, leading to the Final Investment Decision.

4.1.5. Compliance

Ensuring compliance with binding decisions of the Agency and the Commission, and with the Guidelines
Under the Third Package NRAs are required to ensure compliance with and implement binding decisions of ACER and of the European Commission. In order to enable CERA to do this, the Gas Act has been amended so as to provide the Authority with the necessary powers to carry out its functions in the manner that it considers is best calculated to implement or ensure compliance with any binding decision of ACER or of the European Commission.

Compliance of transmission and distribution companies, system owners and natural gas undertakings with relevant Community legislation, including cross-border issues
CERA has the power to investigate compliance of transmission and distribution, natural gas undertakings with relevant Community legislation. If a breach is found, CERA has the power to impose fines.

4.2. Promoting Competition

4.2.1. Wholesale markets

In June 2016, following the report submitted by CERA on the options for the development of the natural gas market in Cyprus, a decision was taken by the Council of Ministers on the arrival of LNG in Cyprus as soon as possible and before the 2020. LNG would initially be the exclusive supply option of the internal market with gas and then, after supplying the market from Cypriot gas deposits, it would be an alternative option to ensure the security of supply. It should be noted that CERA did not so far issued any license to any interested party.

Further to the study carried out by the Natural Gas Public Company Ltd (DEFA Ltd) on the development of the natural gas market in Cyprus, in order to exploit the most suitable solution for the import of LNG by 2020 at the latest, a Decision of the Council of Ministers assigned DEFA Ltd in June 2017 to announce two tenders for long-term LNG supply and for the development of the necessary infrastructure for the importation offloading, and re-gasification of LNG .

Following a Decision of the Council of Ministers in April 2018, a Special Purpose Vehicle (SPV) was established under the name of Natural Gas Infrastructure Company Ltd (ETYFA Ltd), which will implement the necessary infrastructure for the import of LNG.

DEFA Ltd, acting on behalf of ETYFA, published in October 2018 a tender for the design, construction and operation of the LNG import facilities in the Vassilikos area. Currently the tenders submitted are under evaluation. In addition, DEFA in June 2019 has announced a Request for Expression of Interest for LNG Supply.

4.2.1.1. Monitoring the level of prices, the level of transparency, the level and effectiveness of market opening and competition

By the last amendment of the Law Regulating the Natural Gas Market N.148(I)/2018 new provisions were introduced in order to comply with the Regulation (EU) No. 1227/2011 and especially on the prohibition of insider trading, the obligation to publish inside information, the prohibition of market manipulation, implementation of prohibitions against market abuse and the imposition of related sanctions. CERA was appointed as the competent body for safeguarding the implementation of the said Regulation.

In addition, by Decision 128/2017, CERA decided to lay down the basic principles of the tariff methodology for Liquefied Natural Gas (LNG) facilities to be used in the setting of the regulated tariffs for the use of LNG facilities.

Furthermore, based on the declared intention of the government to declare the market emergent and establish monopoly in the supply of natural gas where the sole supplier will be responsible for all import contracts for natural gas, including LNG, and for all gas supply contracts to all final customers, CERA has issued in June 2019 a Regulatory Decision 01/2019 for the Regulatory Practice Statement and Methodology of Gas Pricing.

4.2.2. Retail market

Currently, natural gas is not available in the island, therefore is not applicable as yet.

4.2.2.1. Monitoring the level of prices, the level of transparency, the level and effectiveness of market opening and competition

Currently, natural gas is not available in the island, therefore is not applicable as yet.

4.2.3. Recommendations on supply prices, investigations and measures to promote effective competition

Currently, natural gas is not available in the island, therefore is not applicable as yet.

4.3. Security of supply

Regarding the security of natural gas supply, CERA according to the Laws Regulating the Natural Gas Market of 2004 to 2018, is appointed as the competent authority to ensure implementation of the measures laid down in Regulation (EU) No 2017/1938, concerning measures to safeguard security of gas supply, which will be applicable when natural gas will be introduced in the country's energy mix and there will be a gas market operating, in this respect any implementing measures are not yet required.

4.3.1. Monitoring balance of supply and demand

Currently, natural gas is not available in the island, therefore is not applicable as yet.

4.3.2. Expected future demand and available supplies as well as envisaged additional capacity

Currently, natural gas is not available in the island, therefore is not applicable as yet.

4.3.3. Measures to cover peak demand or shortfalls of suppliers

Currently, natural gas is not available in the island, therefore is not applicable as yet.

5. Consumer protection and dispute settlement in electricity and gas

5.1. Consumer protection

The **consumer protection measures**, including those set out in Annex I of the Directives 2009/72/EC and 2009/73/EC, are **effective and enforced** through the Laws Regulating the Electricity Market of 2003 to 2018 and the Laws Regulating the Natural Gas Market of 2004 to 2018 respectively, which transposed the provisions of the said directives.

CERA has also been granted the power to contribute to ensuring high standards of universal and public service in compliance with market opening, to the protection of vulnerable customers, and to the full effectiveness of consumer protection measures.

CERA ensures that consumers are provided with all necessary information concerning their rights, current legislation and the means of dispute settlement available to them in the event of a dispute.

CERA has prepared and issued in electronic and hard copy format all the information needed regarding consumer's rights. This information is available at CERA's Premises, at Citizens Service Centre and at the local district offices of the MECI. The Office of CERA, the Citizens Service Centre and the MECI shall constitute the **single points of contact** for consumer information purposes.

In summary, the energy consumers' rights that are covered by national legislation and comply with relevant EU directive can be classified in six categories:

- Universal service (i.e. the right to be supplied with electricity/gas of certain quality and price)
- Customer Information Requirements
- Change of supplier without imposing any charges
- Complaints handling and out-of-court settlement of disputes
- Protection of vulnerable consumers
- Fair commercial practices and general consumer rights

Moreover, the Members of CERA, based on the Decision of the Minister of Energy, Commerce and Industry, issued a Regulatory Decision (03/2016), by which CERA imposed on all electricity supply licensees, PSOs with respect to specific vulnerable groups of consumers, by including them in the special tariff (code 08) of EAC, which compared to the normal domestic tariffs (codes 01 and 02) has reduced charges and their supply of electricity cannot be cut off due to no payment. They are also provided with financial incentives for participating in a plan for setting up a photovoltaic system at their house with the net-metering method. The amount of the grant will be € 900/kW, with a maximum amount of €2,700 per system and per beneficiary, even if the applicant chooses to install a system beyond 3kW.

The categories of vulnerable consumers defined in the Regulatory Decision are:

- The recipients of public assistance provided by the Social Welfare Services of the Ministry of Labour, Welfare and Social Insurance,
- The beneficiaries of guaranteed minimum income provided by the Welfare Benefits Administration Service of the Ministry of Labour, Welfare and Social Insurance,
- Families with more than 3 dependent children with an annual gross family income up to € 51.258. The income criterion of €51,258 for annual combined gross family income is increased by €5,126 for each additional child over the number of fourth,
- The Recipients of Severe motor disability allowance provided by the Department for Social Inclusion of Persons with Disabilities, Ministry of Labour, Welfare and Social Insurance,
- The recipients of care allowance in paraplegic individuals granted by the Department for Social Inclusion of Persons with Disabilities, Ministry of Labour, Welfare and Social Insurance,
- The recipients of care allowance in quadriplegic individuals granted by the Department for Social Inclusion of Persons with Disabilities, Ministry of Labour, Welfare and Social Insurance,
- The Recipients of the grant to blind granted by the Department for Social Inclusion of Persons with Disabilities, Ministry of Labour, Welfare and Social Insurance,
- Hemodialysis renal patients who receive a mobility allowance from the Department of Social Inclusion of Persons with Disabilities of the Ministry of Labour, Welfare and Social Insurance, and
- Individuals suffering from multiple sclerosis who are registered members of the Cyprus Multiple Sclerosis Association.

By Decision 91/2018, CERA decided to approve the tariff for the recovery of the expenses of PSO at €0.00083/kWh.

5.2. Dispute settlement

5.2.1. Electricity Market

CERA has the power to issue Regulations concerning the protection of the interests of the consumers of electricity requiring that any supplier of electricity and the DSO, within a prescribed time period, propose and implement procedures for the submission of complaints by consumers, which allow consumers to register complaints and prescribing how any supplier and the DSO shall respond to complaints received by consumers.

The Regulations may impose requirements on suppliers and the DSO relating but not limited to:

- Procedures for the submission and, where appropriate, re-submission of proposed complaints procedures for approval.
- The timetable for the implementation of the complaint's procedures.
- Fines for failure to comply with the consumer complaints Regulations relating to the preparation or implementation or review of complaint procedures.
- A requirement that suppliers and the DSO review their complaints procedures at intervals of not more than five years.
- Establishing procedures to deal with complaints from consumers that are not settled through complaint procedures to the satisfaction of consumers.

Specifically, the following Regulations relevant to the above mentioned were enacted:

- Regulating the electricity market (Complaint submission procedure) Regulations of 2005 – Act. 570/2005.
- Regulating the electricity market (Performance Indicators) Regulations of 2005 – Act. 571/2005. It should be noted that this regulation is currently under internal evaluation by CERA.

The first of the above-mentioned Regulations, determines the procedure for the submission of complaints by consumers in cases were suppliers of electricity and/or the DSO, are in breach of their obligations or duties and/or are acting outside the scope of their prescribed by the Law jurisdiction.

Specifically, the above-mentioned Regulations provide for the following, inter alia;

- Consumers' right to submit complaints to the suppliers and/or the DSO.
- The obligation of the supplier and/or DSO to respond to the complaints.
- The right to submit complaints to CERA and the procedure for examining complaints by CERA.
- The omission of the supplier and DSO to comply with CERA's' decisions.
- The fines provided for in the Regulations.

The second of the Regulations mentioned above, sets the minimum level of performance in relation to the performance indicators of the supply of electricity, which must be achieved by the supplier and the DSO. The Regulation sets the time limit within which a supplier and the DSO must respond, determines the fines, the procedure of payment and the time at which the fines are to be paid in cases where the supplier or the DSO fail to comply with the performance indicators set out therein.

By the implementation of these Regulations, the rights of the consumers are safeguarded, their protection is secured, the procedure for the submission of consumer complaints is regulated in the event that suppliers of electrical energy and/or the DSO are in breach of their obligations, competences and duties, the end result being the improvement of the services offered to consumers.

The following figures show the results from 2007 to 2018 of the fines (€) imposed to EAC as the DSO and as the supplier, for failure to comply with the customer complaints regulation relating to the preparation or implementation or review of complaints procedures.

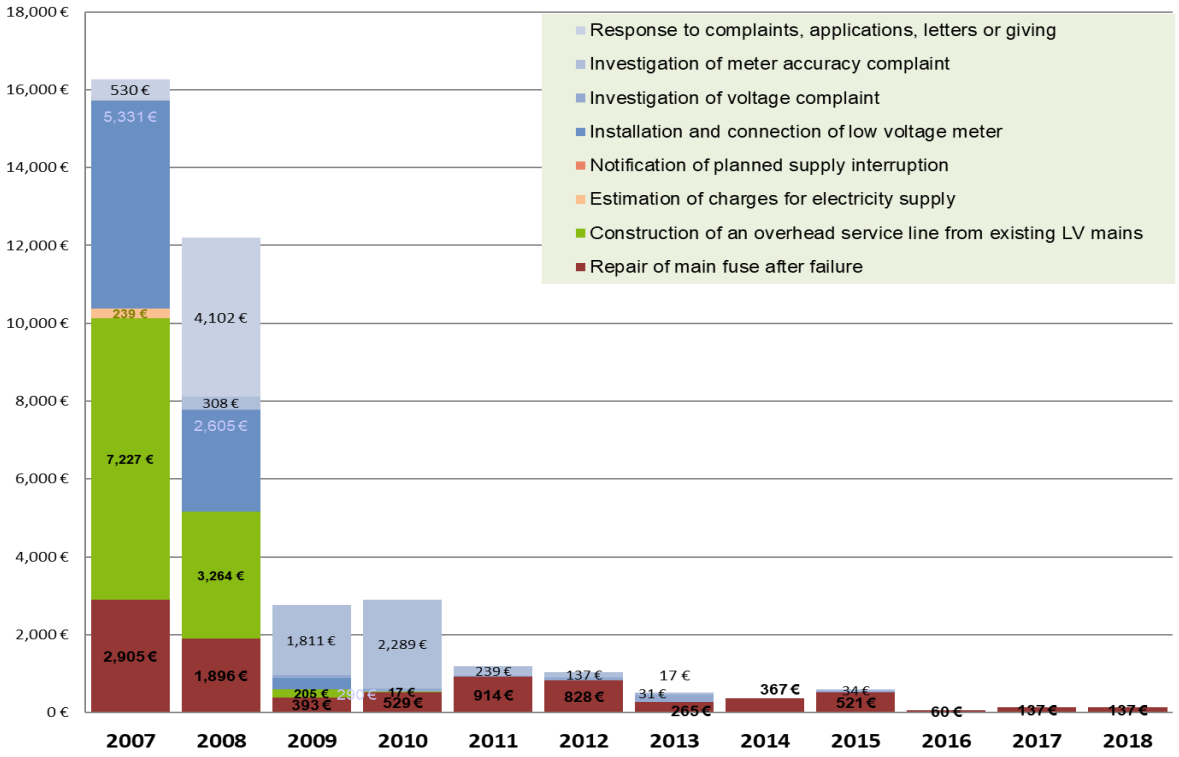


Figure 13. Performance Indicators of EAC as DSO

It is obvious from figure 13 that there is a major decrease in the total amount paid by the DSO in the last few years comparing with previous years, which may be considered quite satisfactory.

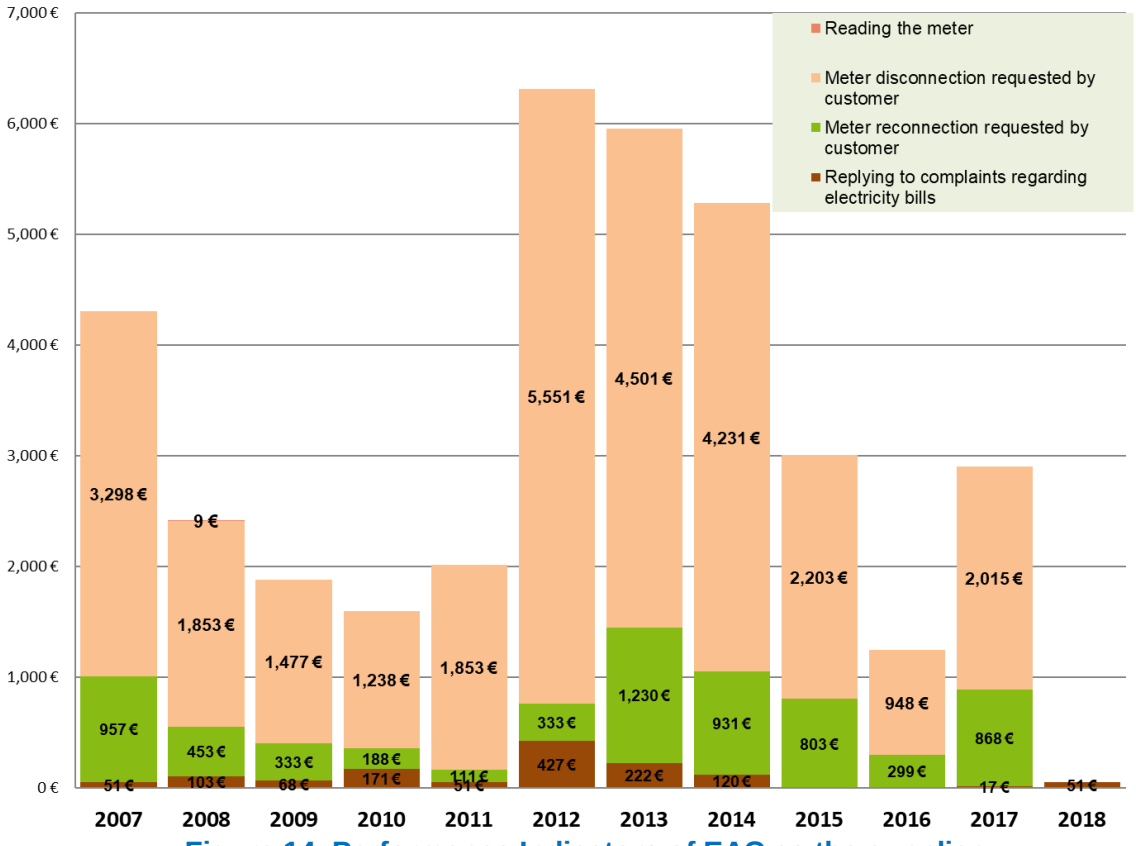


Figure 14. Performance Indicators of EAC as the supplier

Figure 14 indicates that there is a major decrease in the total amount paid by the supplier in 2018 comparing with the previous years.

Regarding consumer's complaints, which have been presented or formally submitted to CERA, it could be said that they were maintained within acceptable levels. Registered consumer complaints are shown in figure 15 below. The majority of the complaints were based on bill issues, connection to the grid and metering. CERA handled with care the complaints, with the collaboration of EAC and TSO, leaving the consumers in most cases satisfied.

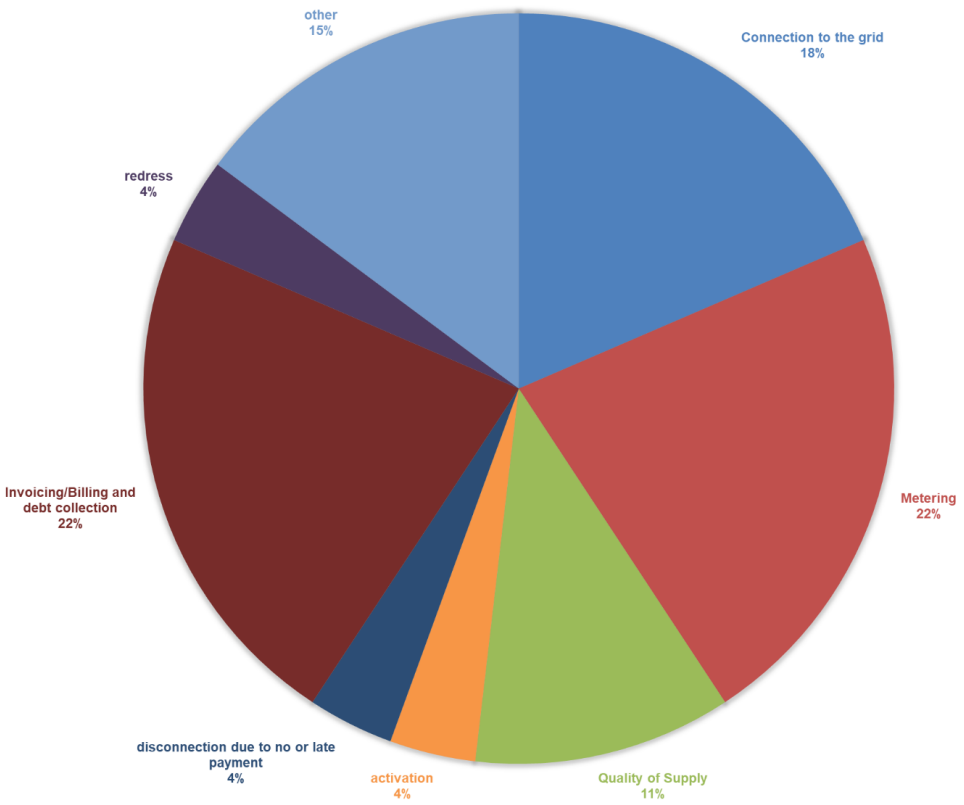


Figure 15. Complaints submitted to CERA in 2018

5.2.2. Gas Market

Even though currently there is no gas market in Cyprus, the provisions of the Directive 2009/73/EC regarding dispute settlement have been transposed to the national law. Therefore, any party having a complaint against a transmission, storage, LNG or distribution system operator in relation to that operator's obligations may refer the complaint to CERA which, according to the Laws Regulating the Natural Gas Market of 2004 to 2018, is designated as the body (energy ombudsman or consumer body) which acts as an independent mechanism in order to ensure efficient treatment of complaints and out-of-court dispute settlements.