

**S. COMPLEXUL ENERGETIC OLTENIA
S.A.- a dualist system company**

***PERFORMANT MANAGEMENT IN FULL
COMPLIANCE WITH THE
ENVIRONMENTAL REQUIREMENTS***

CE OLTENIA'S PROFILE

➤ Shareholders:

- Ministry of Economy- 77%;
- Fondul Proprietatea - 21.5%;
- Others - 1.5%.

➤ Object of activity :

- lignite – fired electricity and thermal power generation;
- lignite extraction and preparation.

➤ Objectives of the company's establishment:

- reducing production cost in order to maintain the market share;
- providing the financing sources for the environmental investments, modernization of the existing capacities and construction of new production capacities.

➤ Production capacities

a) Electricity generation – 11 power units with an installed capacity of 3240 MW, out of which:

- SE Rovinari - 3 power units x 330 MW / lignite / in condensation;
- SE Turceni - 4 power units x 330 MW / lignite / in condensation;
- SE Isalnita - 2 power units x 315 MW / lignite / in condensation;
- SE Craiova 2 - 2 power units x 150 MW / 160 Gcal / lignite / in cogeneration.

b) Mining exploitation - 3 Open Pits

-Rosia Rovinari open pit;

-Jilt open pit;

-Motru open pit.

- a production capacity of more than 25 million tones of lignite per year, distributed in 10 open pits with continuous extraction flow.

COMPANY'S IMPORTANCE

- **ENERGY SECURITY**
- it provides the security of supply to consumers under random operation of renewable energy producers;
- **SUSTAINABLE DEVELOPMENT**
- increased energy efficiency through power units rehabilitation programs;
- negative impact on the environment reduced by the implemented projects;
- - the only company owning flue gas desulphurization plants, and facilities for the discharge of slag and ash resulted from the combustion process using the dense slurry technology;
- - yearly program for restoring the lands affected by mining exploitations to their former conditions as forestry and agricultural lands.
- **MARKET SHARE**
- one of the most important players of the Romanian power sector;
- able to provide 30% of the electricity consumption in the National Power System (installed capacity = 3240 MW);
- **PROVIDING OVER 90% OF THE ROMANIAN LIGNITE PRODUCTION – approx. 25 million tones per year;**
- **POSITIVE SOCIAL IMPACT**
- providing jobs for approx. 13,000 employees.

CE OLTENIA- a company administered in a dualist system

- The company's administration in a dualist system by:
 - the Supervisory Board – 7 members;
 - the Board of Directors – 5 members – selected according to the provisions of the Government Emergency Ordinance No. 109/2011 concerning the corporate governance of state-owned enterprises.

ADVANTAGES OF THE CORPORATE GOVERNANCE FOR THE ADMINISTRATION OF THE COMPANY

- Increased level of responsibility;
- Collective decision-making of the Board of Directors;
- Representation of the company by double signature;
- Maximizing the sustainable capital creation;
- A governance bonus reflected in the management performance;
- A social responsibility bonus;
- Increased confidence of shareholders;
- Facilitating objective and informed decision-making;
- Promoting decision-making transparency.

PRINCIPLES OF CORPORATE GOVERNANCE WITHIN CE OLTENIA

- Liability;
- Responsibility;
- Openness (transparency);
- Fairness (impartiality, ethical behavior);
- Probity (honesty);
- Integrity (maintaining principles);
- Good standing;
- Independence (objectivity, lack of conflicts of interest);
- Share of the shareholders' interests.

INVESTMENT STRATEGY ON THE REDUCTION OF CO2 EMISSIONS

- In order to reach the ambitious target of reducing the CO2 emissions in 2020 by at least 40% compared to the '90's levels, which is also part of the commitment of the European Union under the Paris Agreement 2015, CE Oltenia has proposed a program concerning the withdrawal of some lignite-fired energy capacities and their replacement by gas fired generation capacities using modern technologies with low CO2 emissions.
- This program involves the following investments:
- A)
 - Defining Investment: Gas-fired power unit of 200 MW (+/-25%) CCGT with flexible operation within Craiova Thermal Power Plant Branch;
 - Investment Objective: A natural gas-fired power unit of high efficiency in order to supply thermal power to Craiova city, and to the economic operators (it shall replace the existing lignite-fired capacities, i.e. 2 x 150MW).
 - Investment Effects
- -contribution to the increase in energy efficiency;
- -contribution to the reduction of CO2 emissions; compared to the existing situation, the CO2 emissions shall be reduced by over 50%;
 - Investment Period: 2021-2024;
 - Investment Value, expressed in EUR: approx. EUR 140,000,000.

INVESTMENT STRATEGY ON THE REDUCTION OF CO2 EMISSIONS

- **Defining Investment: Power unit of 300 MW, CCGT, within Turceni Thermal Power Plant Branch;**
- **Investment Objective: A power unit of high efficiency with flexible operation (2 gas turbines and recovery boiler + steam turbine) which shall replace an existing lignite-fired capacity of 330 MW within Turceni Thermal Power Plant Branch;**
- **Investment Effects**
- **-contribution to the increase in energy efficiency;**
- **-contribution to the reduction of CO2 emissions compared to the emissions related to an existing lignite-fired power unit; they shall be reduced by over 50%;**
 - **Investment Period: 2022-2025;**
 - **Investment Value, expressed in EUR: EUR 210,000,000.**

INVESTMENT STRATEGY ON THE REDUCTION OF CO2 EMISSIONS

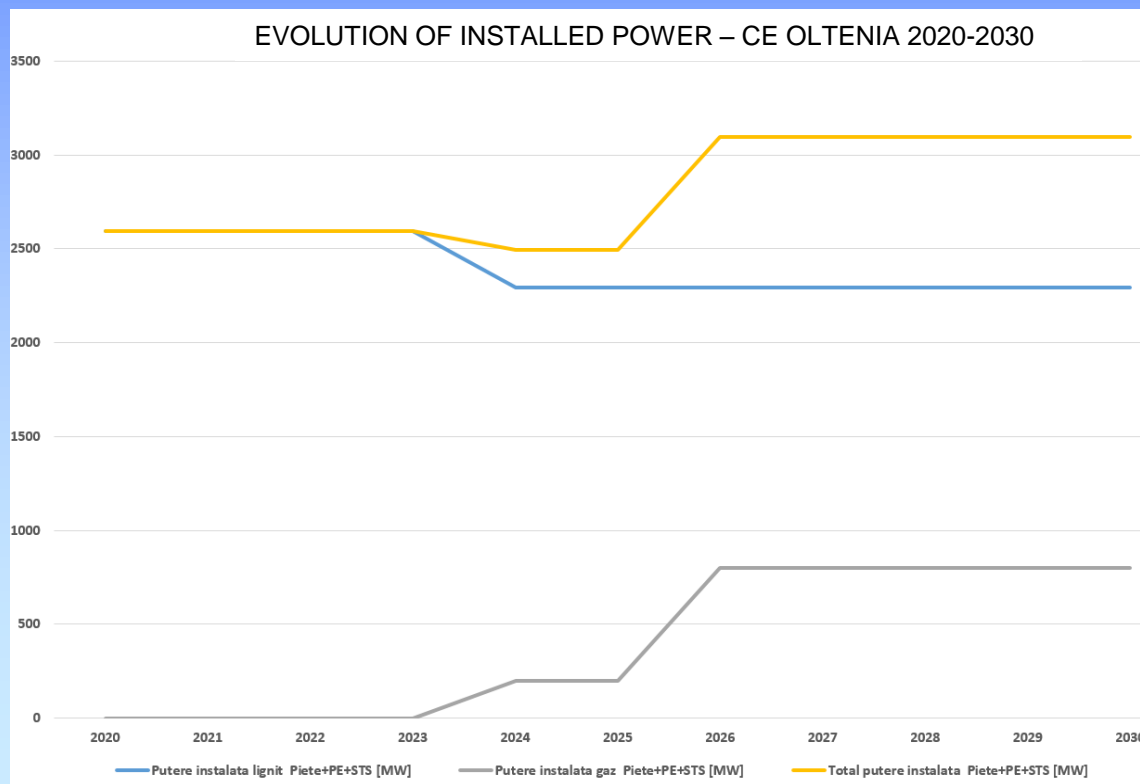
- **Defining Investment: New 300 MW power unit with CCGT technology within Isalnita Thermal Power Plant Branch**
- **Investment Objective: Realizarea unui bloc cu eficienta ridicata, functionare flexibila(2 turbine pe gaz si cazan recuperator + turbina abur) care va inlocui o capacitate existenta de 315 MW pe lignit la SE Isalnita A power unit of high efficiency, flexible operation (2 gas turbines and recovery boiler + steam boiler) replacing an existing lignite-fired existing capacity of 315 MW within Isalnita Thermal Power Plant Branch**
- **Investment Effects**
 - **-contribution to the increase in the energy efficiency;**
 - **-contribution to the reduction of CO2 emissions compared to the emissions related to an existing lignite-fired power unit; they shall be reduced by over 50%;**
 - **Investment Period: 2022-2025;**
 - **Investment Value, expressed in EUR: EUR 210,000,000.**

These investments shall be supplemented by an investment plan amounting to EUR 36 million considered by CE Oltenia with respect to:

- **-Photovoltaic power station x 10 MW on the surface of the slag and ash deposit closed – Rovinari Thermal Power Plant Branch;**
- **-Photovoltaic power station x 10 MW on the surface of the slag and ash deposit closed – Turceni Thermal Power Plant Branch;**
- **-Photovoltaic power station x 10 MW on the surface of the slag and ash deposit closed – Isalnita Thermal Power Plant Branch.**

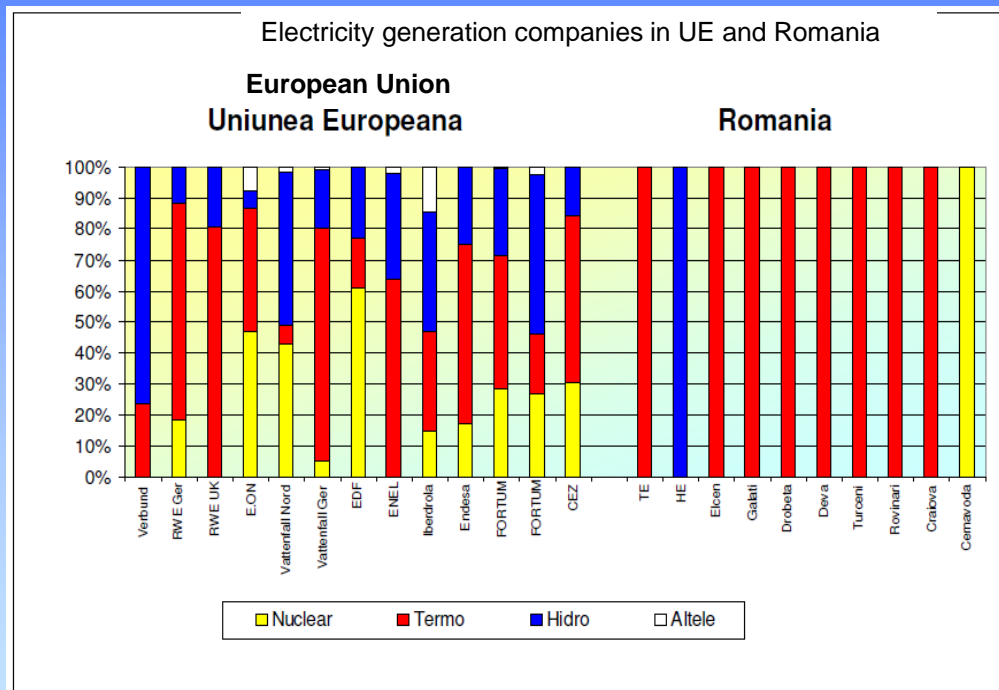
INVESTMENT STRATEGY ON REDUCING CO2 EMISSIONS

- **The implementation of the CO2 emissions reduction program could only be achieved if CE Oltenia shall not be a company in difficulty (insolvency, bankruptcy), and therefore it shall implicitly benefit from state aid.**
- **Under such conditions, the CO2 specific emission of the installed power ranges from 0,91 tCO2/MWh in 2019 to 0,775 tCO2/MWh in 2030.**
- **The evolution of the installed power within CE Oltenia for 2020-2030 period is shown below:**



GENERATION STRUCTURE OF THE NATIONAL POWER SYSTEM

- The structure of the electricity generation sector in Romania compared to the other European countries shows without any doubt the great difference between the Romanian companies of mono-fuel type, and multi-fuel European companies:

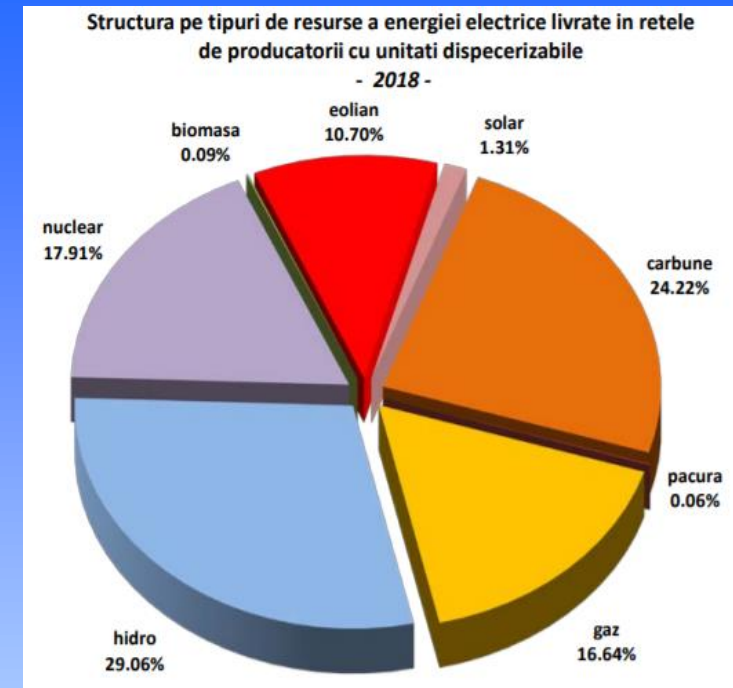


- All power units within CE Oltenia are in compliance with the European environmental laws.

II IMPACT OF THE ROMANIAN ENERGY MARKET ON THE ELECTRICITY PRODUCERS AND IMPLICITLY ON THE NATIONAL POWER SYSTEM

In accordance with the provisions of Art. IV of Law No. 184/2018 “2 or more renewable energy producers, regardless of the technology used..., can participate in the competitive energy market together as one single entity” so that there are currently 5 large categories of mono-fuel electricity producers with balanced market shares:

- Hidroelectrica ~29 %;
- CE Oltenia ~24%;
- Nuclearelectrica ~17%;
- Natural gas producers (OMV Petrom, ELCEN and ROMGAZ) ~16%;
- Potential renewable energy entities ~12%.



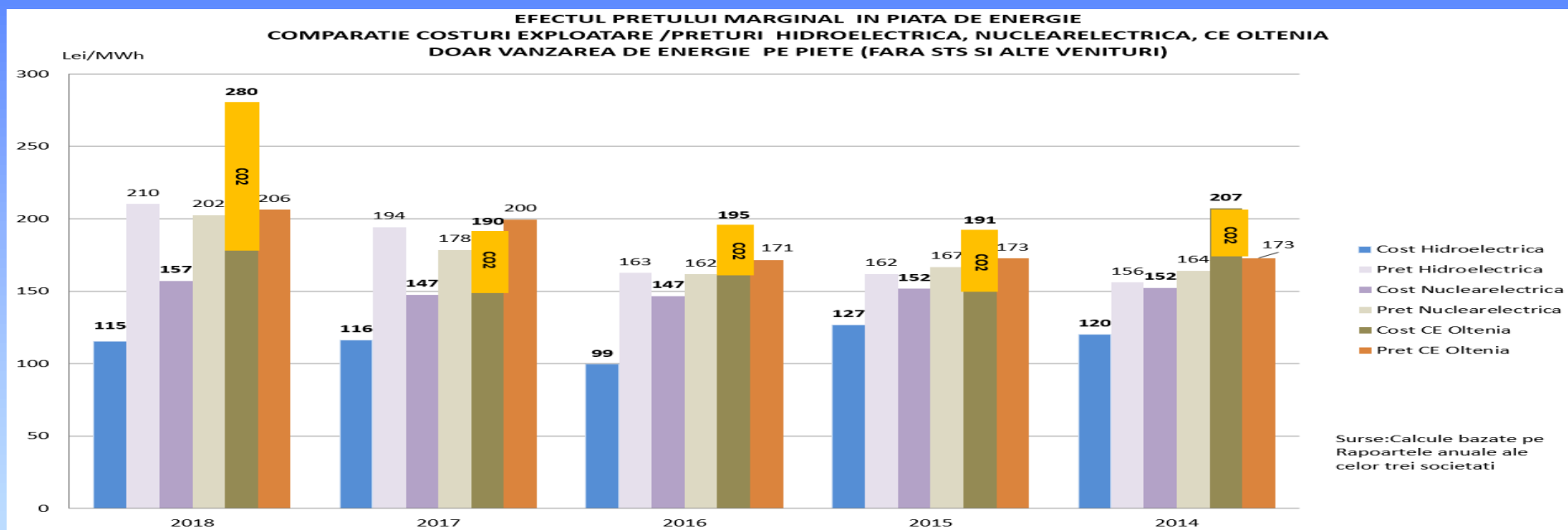
Under the conditions of a liberalized market where the electricity producers are mono-fuel and own balanced market shares, the real completion does not exist. The Competition Council indicates in the last “**Report on the results of the sector investigation on the electricity market**”, as follows:

“...considering the strong influence manifested by the type of technology in portfolio (including the production marginal cost of the units in portfolio) on the commercial policy adopted...there is a suspicion that...there may exist distortions of competition.

...it was found that the structure of the electricity generation market in Romania is atypical compared to the structure of the electricity markets in the Member States. Unlike the Romanian producers, the groups of energy companies operating in the Member States have in their portfolio a mix of technologies, considering that this matter allows them to manage their resources more efficiently and to cover their risks in a better way.”

II IMPACT OF THE ROMANIAN ENERGY MARKET ON THE ELECTRICITY PRODUCERS AND IMPLICITLY ON THE NATIONAL POWER SYSTEM

The electricity market mechanism is based on the “marginal cost”, so that the producer with the highest cost/price always ensures a substantial profit margin to the producers with lower costs who always offer a little below the marginal price so that the “marginal” producer shall have to choose between the option to sell its electricity at prices above the cost of production, but not in quantities sufficient to ensure its required revenues or vice versa, in larger quantities, but at prices below the cost of production. **In both cases, the producer with marginal cost shall be at loss.**



- ❑ The mono-fuel structure of the producers leads to the fact and HIDROELECTRICA and NUCLEARELECTRICA accumulate yearly “artificial” profits to the detriments of the losses accumulated by CE Oltenia.
- ❑ Due to the fact that there is no energy mix at the producer, and the market shall always be ordered according to the marginal price in the absence of the real competition, as CO2 certificates shall record increasing prices proportionally, and the electricity price in Romania shall increase accordingly, on short and medium term reaching levels that cannot be supported by both the domestic and industrial consumers with high influences on the inflation and on the development level of the country.

ENVIRONMENTAL INVESTMENTS ACHIEVED BY CE OLTENIA IN ORDER TO COMPLY WITH THE EMISSIONS VALUES – DIRECTIVE NO. 75/2010

Investments	U.M.	Amount
TOTAL INVESTMENT – CE OLTENIA	EUR	798.000.000
TOTAL INVESTMENT – ROVINARI THERMAL POWER PLANT BRANCH, out of which:	EUR	208.500.000
Flue gas desulphurization plants (FGDs) (3 power units)	EUR	142.000.000
Facilities for the discharge of slag and ash using the dense slurry system	EUR	44.500.000
Rehabilitation of electrostatic precipitators to reduce dust emissions	EUR	20.000.000
Non-catalytic system to reduce NOx emissions for 1 power unit (Power Unit 6)	EUR	2.000.000
TOTAL INVESTMENT – TURCENI THERMAL POWER PLANT BRANCH, out of which:	EUR	355.200.000
Flue gas desulphurization plants (FGDs) (4 power units + limestone preparation plants)	EUR	226.000.000
Facilities for the discharge of slag and ash using the dense slurry system	EUR	100.000.000
Rehabilitation of electrostatic precipitators to reduce dust emissions	EUR	25.000.000
Non-catalytic system to reduce NOx emissions for 2 power units (Power Units 5 and 7)	EUR	4.200.000
TOTAL INVESTMENT – ISALNITA THERMAL POWER PLANT BRANCH, out of which:	EUR	136.600.000
Flue gas desulphurization plants (FGDs) (2 power units)	EUR	76.600.000
Rehabilitation of electrostatic precipitators to reduce dust emissions	EUR	15.000.000
Facilities for the discharge of slag and ash using the dense slurry system	EUR	45.000.000
TOTAL INVESTMENT – CRAIOVA II THERMAL POWER PLANT BRANCH, out of which:	EUR	97.700.000
Flue gas desulphurization plants (FGDs) (2 power units)	EUR	49.200.000
Rehabilitation of electrostatic precipitators to reduce dust emissions	EUR	10.000.000
Facilities for the discharge of slag and ash using the dense slurry system	EUR	38.500.000

ENVIRONMENTAL INVESTMENTS PLAN IN ORDER TO COMPLY WITH THE NEW EMISSIONS VALUES

ENVIRONMENTAL INVESTMENTS PLAN IN ORDER TO COMPLY WITH THE NEW EMISSIONS VALUES – UE DECISION 1442/2017

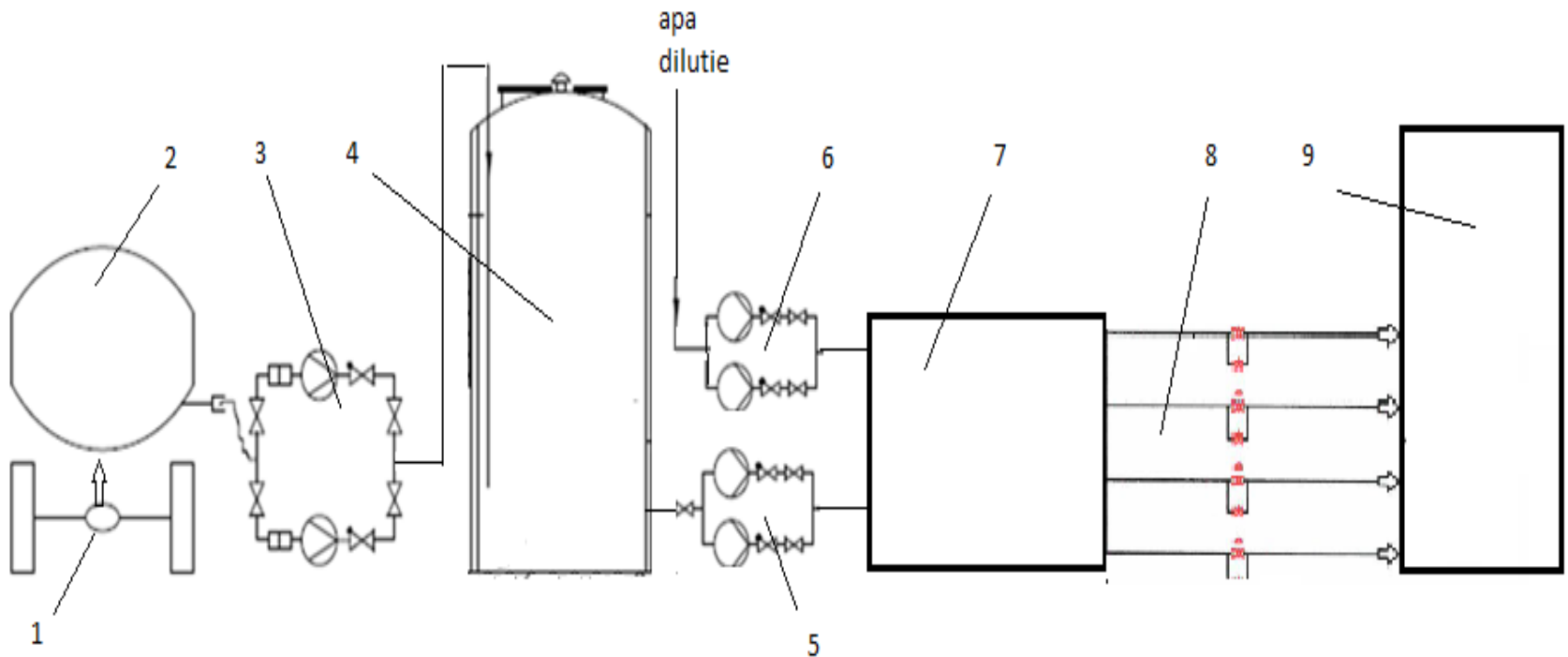
Investments	U.M.	Amount	Compliance date	Request for derogation
TOTAL INVESTMENT – CE OLTENIA	LEI	362.000.000		
TOTAL INVESTMENT – ROVINARI THERMAL POWER PLANT BRANCH, out of which:	LEI	56.500.000		
Non-catalytic system to reduce NOx emissions & OFA (over fire air) – air injection above the grate			3/31/2020	NO
Low NOx burners (not operated if SNCR achieves NOx emissions of 175 mg/Nm3)				NO
Flue gas recirculation (not operated if SNCR achieves NOx emissions of 175 mg/Nm3)			12/31/2021	YES
Rehabilitation of electrostatic precipitators to reduce dust emissions			9/30/2023	YES
TOTAL INVESTMENT – TURCENI THERMAL POWER PLANT BRANCH, out of which:	LEI	142.000.000		
Non-catalytic system to reduce NOx emissions & OFA (over fire air) – air injection above the grate			12/31/2019	NO
Low NOx burners (not operated if SNCR achieves NOx emissions of 175 mg/Nm3)				NO
Flue gas recirculation (not operated if SNCR achieves NOx emissions of 175 mg/Nm3)			9/30/2022	YES
Rehabilitation of electrostatic precipitators to reduce dust emissions			9/30/2022	YES
TOTAL INVESTMENT – ISALNITA THERMAL POWER PLANT BRANCH, out of which:	LEI	137.500.000		
Non-catalytic system to reduce NOx emissions & OFA (over fire air) – air injection above the grate			3/30/2020	NO
Low NOx burners (not operated if SNCR achieves NOx emissions of 175 mg/Nm3)				NO
Flue gas recirculation (not operated if SNCR achieves NOx emissions of 175 mg/Nm3)			6/30/2023	YES
Rehabilitation of electrostatic precipitators to reduce dust emissions			6/30/2025	YES
TOTAL INVESTMENT – CRAIOVA II THERMAL POWER PLANT BRANCH, out of which:	LEI	26.000.000		
Non-catalytic system to reduce NOx emissions			3/30/2020	NO
Low NOx burners (not operated if SNCR achieves NOx emissions of 175 mg/Nm3)			12/31/2021	YES

Presentation of Selective Non-Catalytic NOx Reduction System (SNCR)

- The selective non-catalytic NOx reduction – SNCR is applied to reduce the concentration of nitrogen compounds (NOx) in flue gases resulted from fuel combustion in the boiler. The implementation of this technology is a part of the secondary measures to reduce the NOx concentration in flue gases to be discharged into the atmosphere. In principle, it consists of injection in flue gases (at a certain level of temperature) of a reactive solution pulverized in order to ensure the reduction reaction conditions.
- Urea and ammonia are usually used as reduction agents. Considering some advantages of the urea related to availability, transport and handling, it was chosen to be used as a reduction agent.

Presentation of Selective Non-Catalytic NOx Reduction System (SNCR)

Schema de principiu a unei instalatii SNCR



Presentation of Selective Non-Catalytic NOx Reduction System (SNCR)

1. Urea unloading and storage facility.
 2. Dissolution and preparation facility for urea solution.
 3. Pumping station.
 4. Storage tank.
 5. Pumping station for urea solution.
 6. Pumping station for dilution water.
 7. Dosage and mixing modules.
 8. Distribution modules and injection lances.
 9. Boiler.
 10. Command system.
- SNCR system is designed to operate in a thermal load range of boiler between 50% and 100%.
 - The SNCR installations have a DeNoxing efficiency of maximum 50%, but in combination with a performant system for monitoring and controlling the combustion in the boiler, in order for this to be optimized, they can reach an efficiency of up to 60%.

CE OLTENIA POSITION within the National Power System during 2019 – 2030 according to the ENERGY STRATEGY

- According to the data provided in the adequacy assessment of the National Power System, it can be stated that between 2020-2030 in Romania it is not foreseen any significant increase in the electricity production capacities, and the increases in the renewables covering only the presumed increase in the national electricity consumption that CNTEE Transelectrica has estimated in the mentioned assessment, during peak loads, of about 11% in 2030 compared to 2019.
- Under such conditions, considering also the risks regarding the possibility to ensure the electricity imports at the maximum levels of interconnections capacities, the maximum production CE Oltenia shall have to deliver to the National Power System and which shall be taken into account in the financial modelling of the support mechanism is the following:

	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Generated electricity [MWh]	13,104,378	14,000,000	15,000,000	15,000,000	15,000,000	15,000,000	15,000,000	15,000,000	15,000,000	15,000,000	15,000,000	15,000,000
Net electricity [MWh]	11,077,926	11,802,500	12,629,001	12,629,001	12,629,001	12,692,200	12,692,200	12,917,200	12,917,200	12,917,200	12,917,200	12,917,200

THANK YOU!

Sorinel Gheorghe BOZA
President of the Board of Directors
S. Complexul Energetic Oltenia S.A.