Electric power transformers production and repair

Apart from its main electric power distribution activity one of RED-Nord S.A. subdivisions is producing a variety of power transformers *(on oil)* for internal market:
- Three-phase of transformers **10, 25, 40**, and **63 kVA** capacity;
- One-phase transformers of **10 kVA** capacity;
- Welding transformers of **220/380V** capacity;
- Step-down transformers of **380/36V**;
- Electric fuses;

RED-Nord S.A. is also providing services on electric power transformers overhaul.

Profiles of the companies designated for privatisation by the government of the Republic of Moldova in 2017

invest in MOLDOVA

RED Nord S.A.

is a state-owned electric power distribution company founded in 1997 as a result of reorganization of "Moldenergo" state-owned enterprise. RED Nord S.A. distributes electricity to nine rayons *(districts)* of the northern part of the Republic of Moldova. The company is based in Balti municipality of the Republic of Moldova and is the second largest of the three electric power distributors in Moldova. The electric power distribution service is a regulated activity based on distribution tariffs adopted by ANRE – the National Energy Regulatory Agency of the Republic of Moldova.

Electro-technical subdivision of RED Nord S.A. is producing the power transformers of different capacities for the local market and provides repair services for electric machinery.

RED-Nord BĂLȚI

General Information about RED Nord

Amount of electrical energy distributed, 2015 – **588,402,000 kWh**
Total length of grids – **12,564.5 km**

Consumers

No. of consumers served = **297,116**
Including households = **287,713**
Monthly average consumption per household - **97 kWh**
Main industrial consumers: *S.A. "Lactis" Rîşcani, S.A. „Incomlac" Bălți, SRL „Verisvin" Sîngerei, S.A. „Mărculeşti Combi" Floreşti, SRL „Produse Grup" Bălți*

Networks

Length of low-voltage networks *(0.4 kV)*:
Overhead electric power line – **7771.808 km**
Ground electric power line – **336.002 km**
Length of medium-voltage networks *(6-35 kV)*:
Overhead electric power line – **4021.746 km**
Ground electric power line – **434.988 km**
Total number and total capacity (kVA) of transformers:
3536 units of the total capacity of **645,084 kVA**
Average length of a low-voltage feeder – **1.2 km**

Investments

OPEX / km of grid served:
De facto – **19,020 MDL/km (965 USD)**
Recognized in tariffs - **17,050 MDL/km (865 USD)**
OPEX / kVA of transformation capacity
De facto - **370 MDL/kVA (18,8 USD)**
Recognized in tariffs - **330 MDL/kVA (16,7 USD)**
CAPEX / km of newly constructed grid, during 2014-2016 years:
2014: **9,441,500 MDL / 56.4 km (479,020 USD)**
2015: **51,489,400 MDL / 189.9 km (2,613,675 USD)**
2016: **47,729,052 MDL / 168.403 km (2,421,565 USD)**

Why invest?

- Constantly growing energy consumption;
- Government commitment to create conditions for opening the electricity market in Moldova and further pan-European integration;
- Stimulatory approach to distribution activity: Base Cost x (I-x) + RAB x WACC;

Key Facts about Moldova

Population	**3.55 million**
Area	**33,846 km²**
GDP per capita at PPP, 2015	**€ 4,514**
GDP current prices, 2015	**€ 5.78 billion**
Inflation rate, 2015	**9.7%**
Local currency	**Moldovan Leu (MDL)**

Moldova is a member of the Energy Community Treaty since 2010. In less than 6 years Moldova implemented Energy Package 2 and is currently implementing Energy Package 3

Background Information

Electricity distribution

In 1997, as a result of unbundling the State owned company "Moldenergo", five electric power distribution companies were created, namely: RED Chisinau S.A., RED Nord S.A., RED Nord-Vest S.A., RED Centru S.A., RED Sud S.A. In 1999, the privatization process of the distribution companies and other important energy facilities started. In 2000 the Spanish group Union Fenosa privatized four state-owned electric power distribution companies RED Chisinau S.A., RED Sud S.A., and RED Centru S.A., which constitutes 70% of the total electric power market of the country *(RED Union Fenosa S.A.)*.
Thus, the three distribution system operators in Moldova are the state-owned RED Nord S.A., RED Nord-Vest S.A. and RED Union Fenosa S.A., owned by the Spanish company Gas Natural Fenosa.

The RED Nord-Vest S.A. and RED Nord S.A. are on the list of state-owned objects that are subject to privatization.

Electricity production

Electricity production in Moldova relies on a dominant electricity producer, the gas-fired thermal power plant Cuciurgani-Moldavskaya GRES *(2,520 MW installed capacity)* located in the region of Transnistria. The purchased from this power plant and potential imports from Ukraine meet up to 80% of the overall demand. The remaining 20% is covered by gas-fired combined heat and power generation and one hydropower plant in Moldova.

Electricity supply

The two state-owned distribution companies have been legally separated from supply activities since August 2015. A single state-owned supply company FEE Nord S.A. *(also subject to privatization)* has received the supply license and supplies electricity to the final consumers connected to the two state-owned distribution companies *(RED Nord-Vest S.A. and RED Nord S.A.)*.
In the same year Gas Natural Fenosa Furnizare Energie Ltd was established as a supply company legally separated from distribution activities of RED Union Fenosa S.A.

MIEPO

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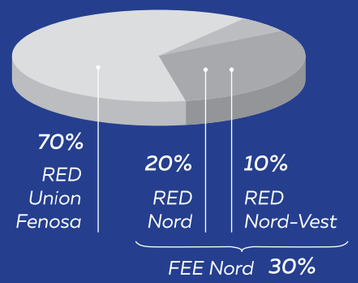
Electricity distribution country coverage:



Electricity quantitaive indicators*,
Moldova 2015

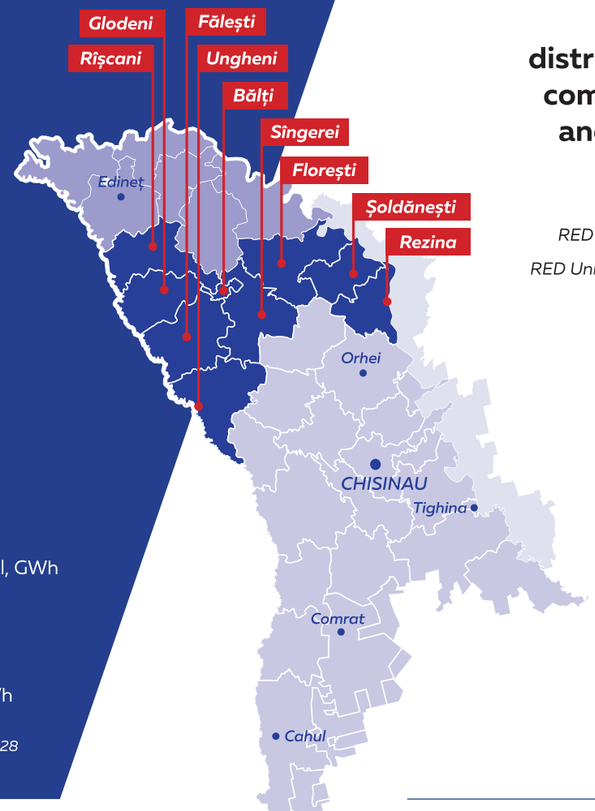
939
Electricity production data, GWh

4254
Distributed electricity – total, GWh

1670
Distributed electricity to residential sector, GWh

393
Loses in distribution, GWh

** Source: http://www.statistica.md/category.php?l=ro&idc=128*



Map of distribution companies and areas

- *RED Nord*
- *RED Nord-Vest*
- *RED Union Fenosa*

General Overview RED Nord S.A.

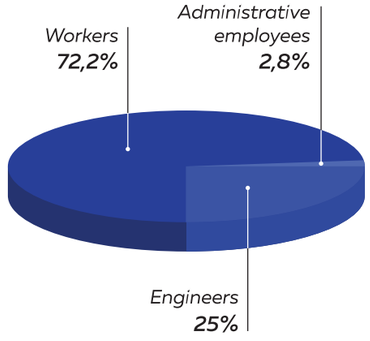
Type of activity	**Electric power distribution through the power grid; Electric power transformers production**
Legal address	**MD 3100; Balti municipality, 180 „A" ,Ştefan cel Mare avenue**
Foundation year	**1997**
Working capital	**181 589 240 lei (9,213,051 USD)***
State share	**100,00%** *(9 079 462 shares)*
Representatives	**9** *(Bălți, Fălești, Ungheni, Sîngerei, Rîșcani, Glodeni, Florești, Rezina, Șoldănești)*
The total area of the premises	**41,921 m²**
Adjaced land surface	**9.1 ha**
Total number of employees	**1 089 persons**

Financial data

Sales revenues	**381,513,209 MDL** *(19,356,327 USD)*
Net profit	**61,933,520 MDL** *(3,142,238 USD)*
Total assets	**954,867,592** *(48,445,844 USD)*
Net assets	**871,022,743 MDL** *(44,191,920 USD)*

** As of 20.03.2017 the exchange rate is 1 USD = 19,71 MDL*

*Employees structure – **total 1089 persons**, including:*



Regulatory framework

The electricity sector in Moldova is regulated under the Electricity Law of 2016 and Energy Law of 1998. Other relevant legislation includes the Law on Conducting Licensed Activities, the Law on Public Service, the Law on Basic Principles of Regulating Entrepreneurial Activity, the Law on Customer Protection, and the Concession Law.

Energy Regulator, ANRE, is an independent organization responsible for setting energy tariffs and financed by market participants through regulatory fees. ANRE implements state policy on energy sectors regulation, ensures regulation and monitoring of the efficient functioning of the energy market and performance of activities.

Regulatory approach to Distribution activity is stimulatory: Base Cost x *(I-x)* + RAB x WACC;

Base costs are approved once in 5 years;

WACC in 2016 - 13%;

In accordance with the Energy Community Treaty, unfair treatment of investors can be contested at the Energy Community Secretariat in Vienna;

Rates for electricity distribution service

ANRE adopted separate distribution tariffs for all three distribution companies in July 2015:

RED Nord:

- Through distribution networks of medium voltage *(6; 10 kV)* – **0.43 MDL/kWh** ***(0.02 USD)***
- Through distribution networks of low voltage *(0.4 kV)* – **0.79 MDL/kWh** ***(0.04 USD)***

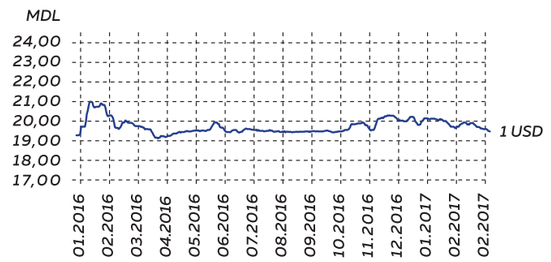
RED Nord-Vest:

- Through distribution networks of medium voltage *(6; 10 kV)* – **0.68 MDL/kWh** ***(0.03 USD USD)***
- Through distribution networks of low voltage *(0.4 kV)* – **0.91 MDL/kWh** ***(0.05 USD USD)***

RED Union Fenosa:

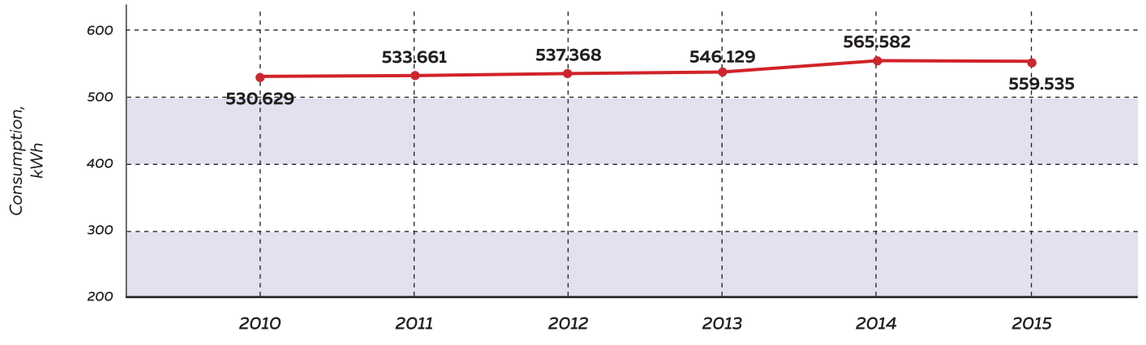
- Through distribution networks of high voltage *(35; 110 kV)* – **0.15 MDL/kWh** ***(0.01 USD)***
- Through distribution networks of medium voltage *(6; 10 kV)* – **0.43 MDL/kWh** ***(0.02 USD USD)***
- Through distribution networks of low voltage *(0.4 kV)* – **0.60 MDL/kWh** ***(0.03 USD USD)***

Relative stability of exchange rate*



** Source: National Bank of Moldova*

Dynamic data of distributed electric power:



Electric power losses data: