

# ISLAMIC REPUBLIC OF MAURITANIA

## Electricity Sector

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RCREEE meeting, Nouakchott September 6th



# General Overview

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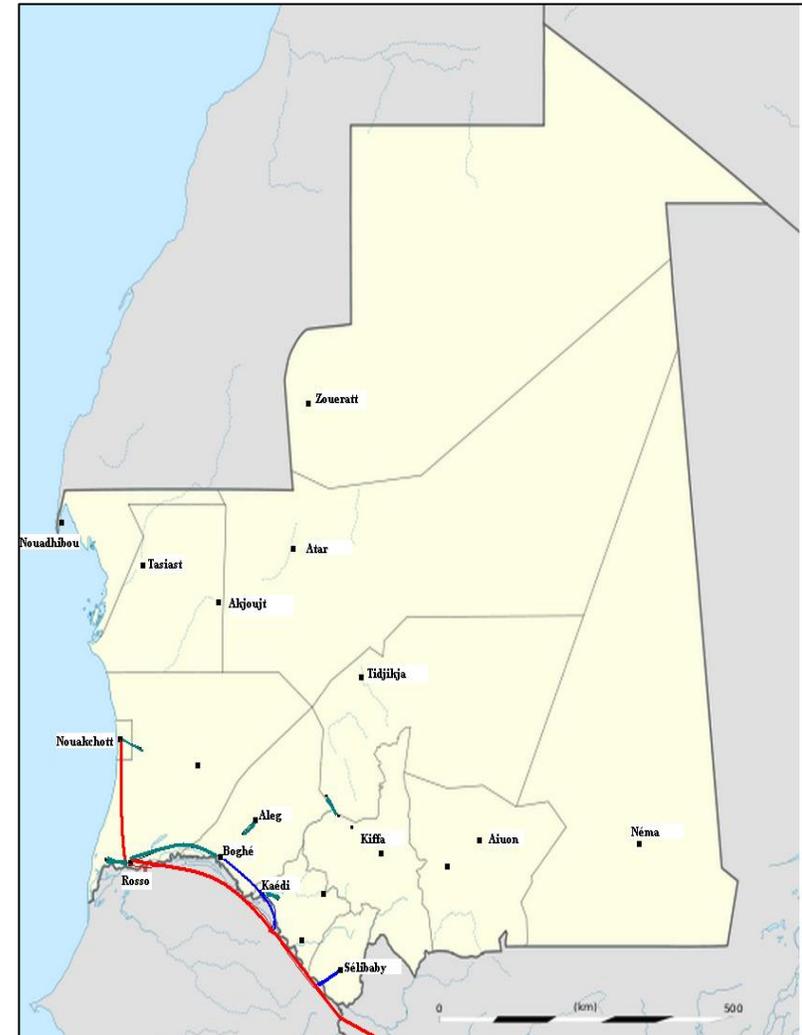


# Overview



## ■ Main facts :

- Vast and sparsely populated country :
  - 1 030 700 sq km
  - 3,5 million inhabitants
- 10% per year growth of electricity demand
- Low electrification rate :
  - 72% urban
  - 6 % in rural
- High Production Costs due to high hydrocarbons costs
- Annual subsidy to the national electricity company to mitigate fluctuations of oil price (till 2014)
- Limited interconnected grid (expensive isolated plants)





## ■ Sector Strategy :

- Add production capacity from local resource (mainly gas and hydroelectricity);
- Develop grid and interconnection with neighboring counties ;
- Enhance part of renewable energies in the energy mix
- Implement solutions tailored for communities in remoted areas

## ■ Main documents :

- 2030 Master Plan for Production and Transmission
- Renewable Readiness Assessment
- Gas to Power feasibility Study
- ...



# Renewable Energies Potential

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## ■ Wind Energy :

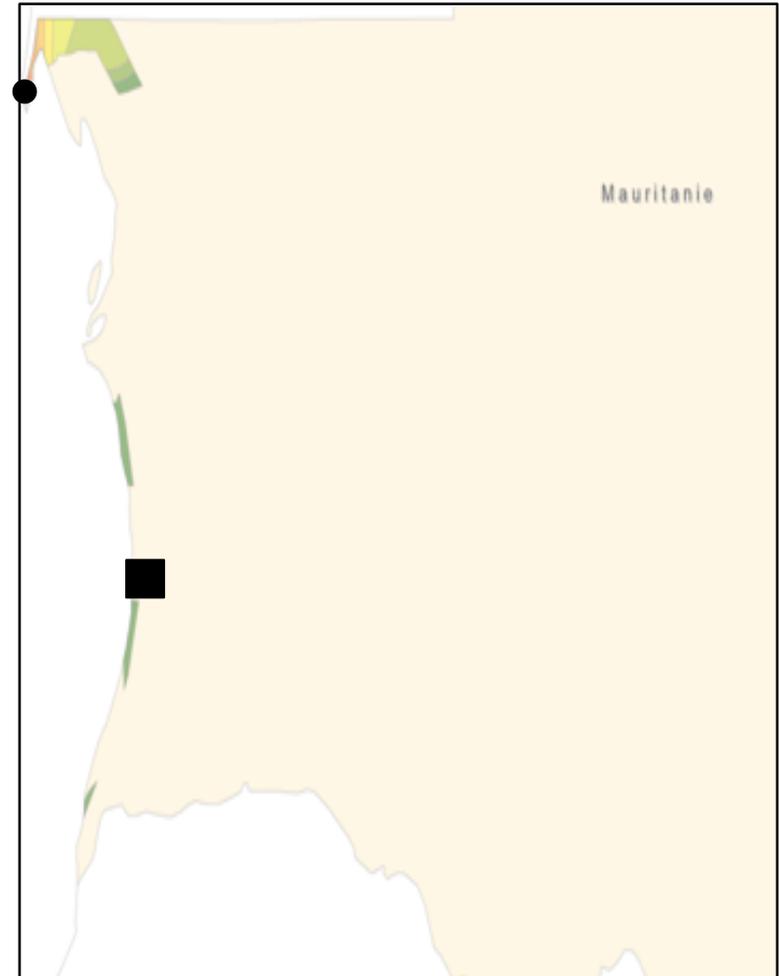
- Winds mainly determined by “Alizés” winds and thermal effects
- Dominant directions North and North-East
- Strongest winds in the northern coastal regions, tapering green south and inland.

## ■ Measures have indicated a potential of:

- ✓ Nouakchott 7,5 m/s (60m);
- ✓ Nouadhibou 8,6 m/s (40m)

## ■ Implemented Projects:

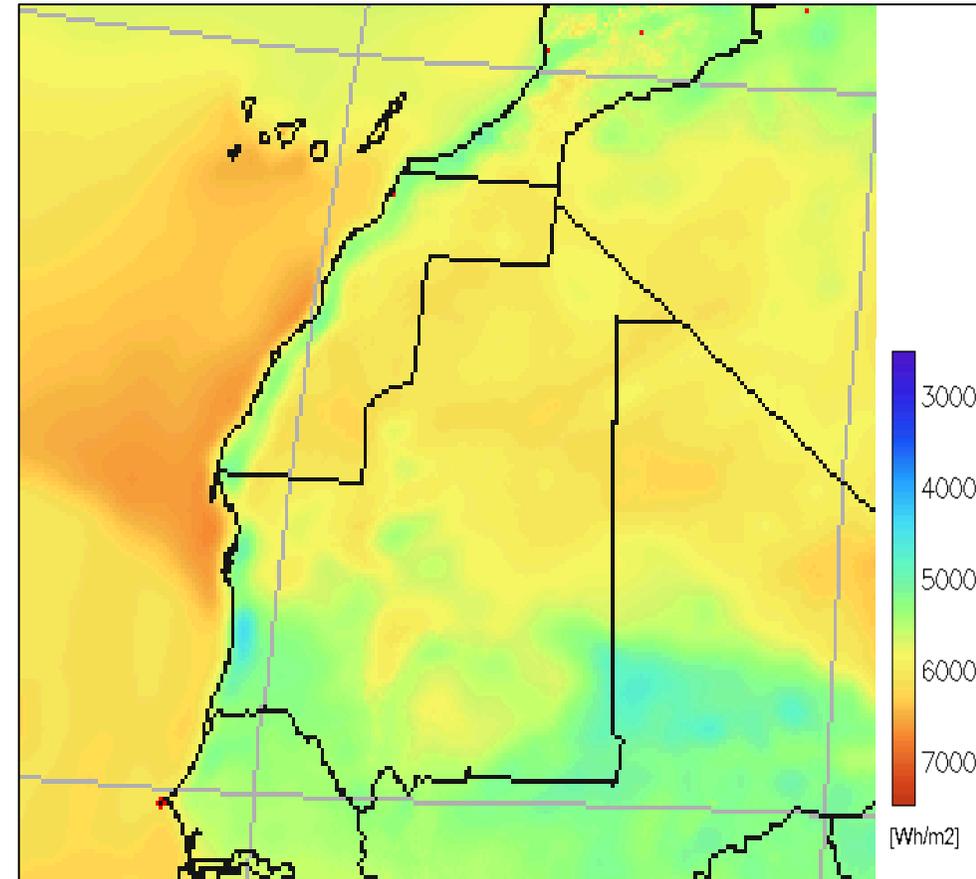
- 30 MW plant in Nouakchott
- 4,4 MW plant in Nouadhibou





## ■ Solar Energy:

- Geography characterized by :
  - ✓ A northern hot desert region crossed by the Tropic of Cancer
  - ✓ A southern region near the Senegal River with a hot and humid climate and rainfall up to 400 mm / year
- Radiation GHI range from :
  - ✓ 2100 to 2300 kWh/m<sup>2</sup>/year
- Implemented projects:
  - ✓ 15 MW PV plant in Nouakchott
  - ✓ 3 MW PV plant in Nouadhibou



# Renewable Energies Potential



## ■ Hydro Power :

- Mauritania, Senegal, Mali, and Guinea members River Senegal Organisation (OMVS).
- Shared power production
- Manantali hydroelectric dam 200 MW (2002)
- Felou hydroelectric dam 60 MW (2012)
- Gouina hydroelectric dam 140 MW (expected 2018)



River Senegal Basin

# Key achievements 2010-2016

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# Key achievements



- **Adopted and Implemented a strategy**
- **On Generation :**
  - Secured capacity to cover the national demand
  - 358 MW additional capacity for generation;
    - 35 MW Wind ;
    - 18 MW Solar PV;
    - 18 MW hydroelectricity.
- **On Distribution :**
  - 1500 km Low Voltage lines
  - 750 km Medium Voltage lines
  - 115 newly electrified cities

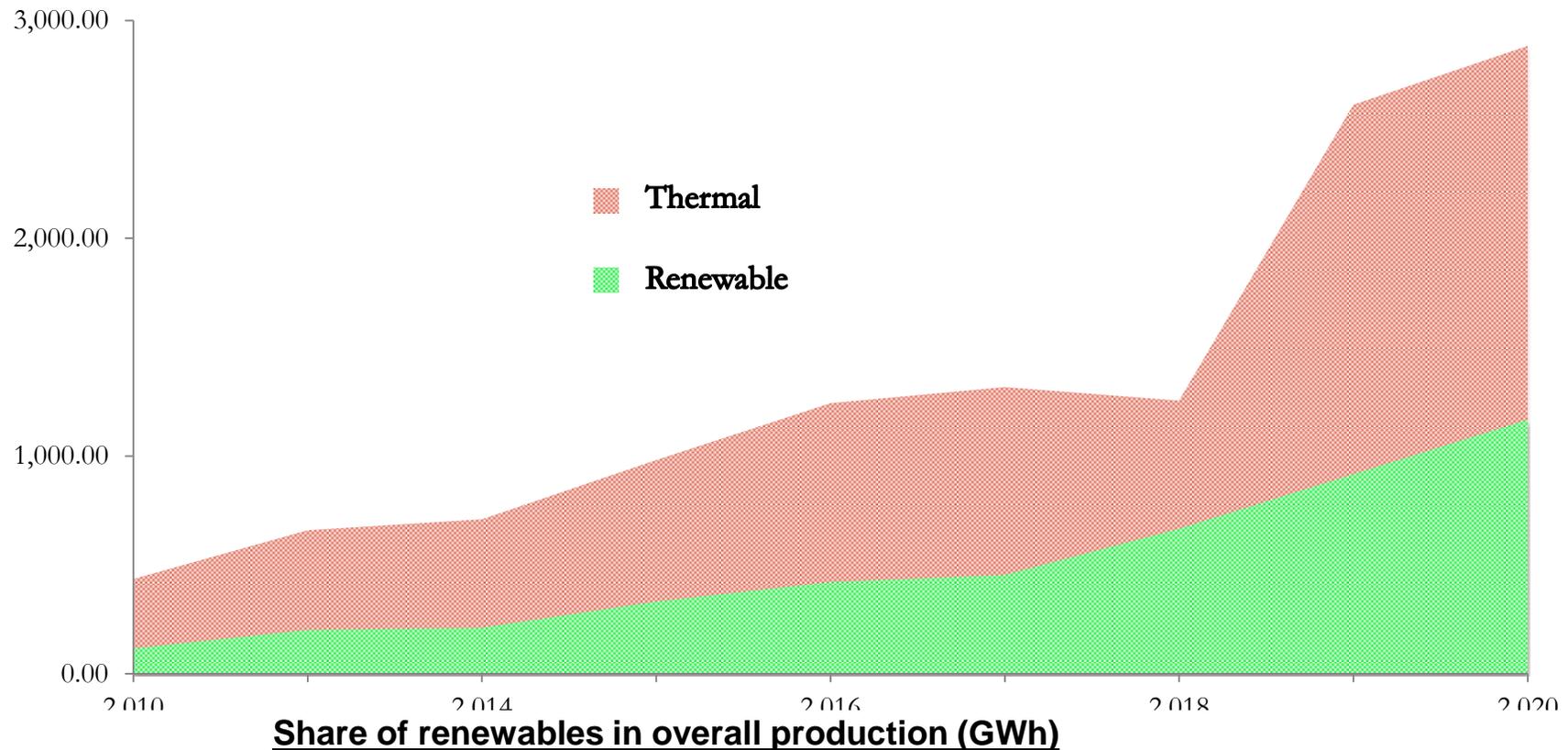


**Installed Capacity 2010-2015 (MW)**

# Renewable Energies Potential



The share of electricity produced from renewable energy has evolved from 27% in 2010 to 34 % in 2015 .



# Major projects in the pipeline 2016-2020

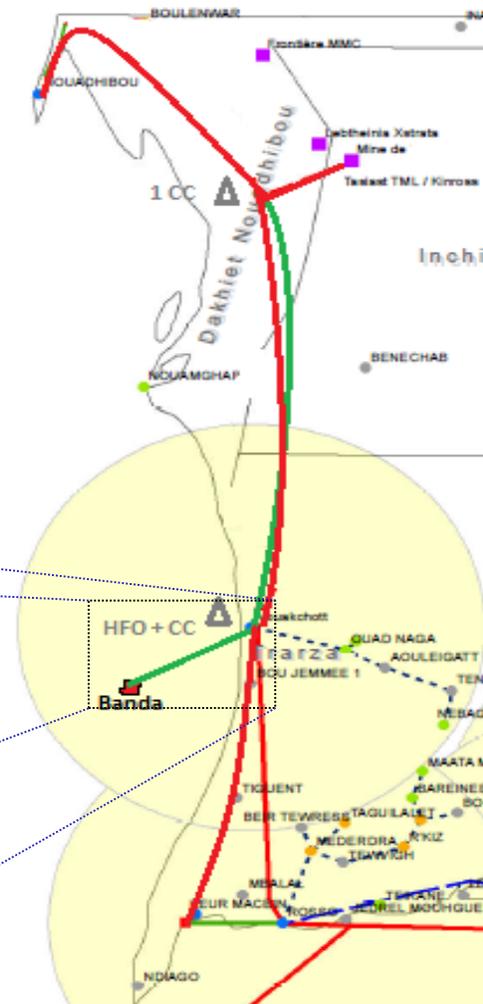
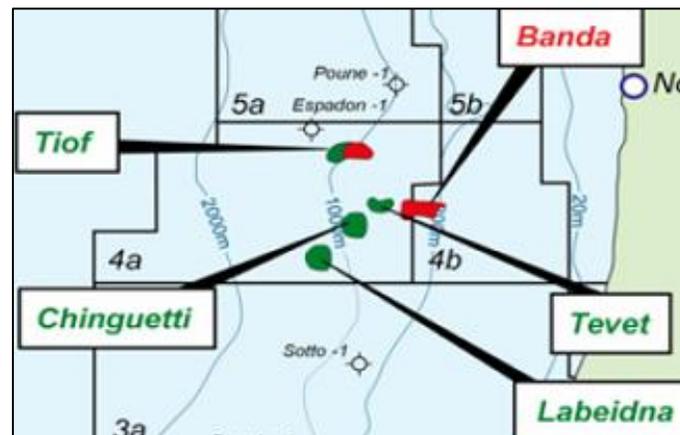
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# Gas to Power Project



- Gas off shore discovery 1,2 TCF
- Project under developpement since 2011
- Restructured in 2105 :
  - Meet national and regional demand
  - Up Stream : Tender for a gas operator in 2016
  - Down Stream :
    - 180 MW Dual Plant commissionned 2015
    - 120 MW CCGT with the first gas (2018)



## Major projects in the pipeline 2016-2020



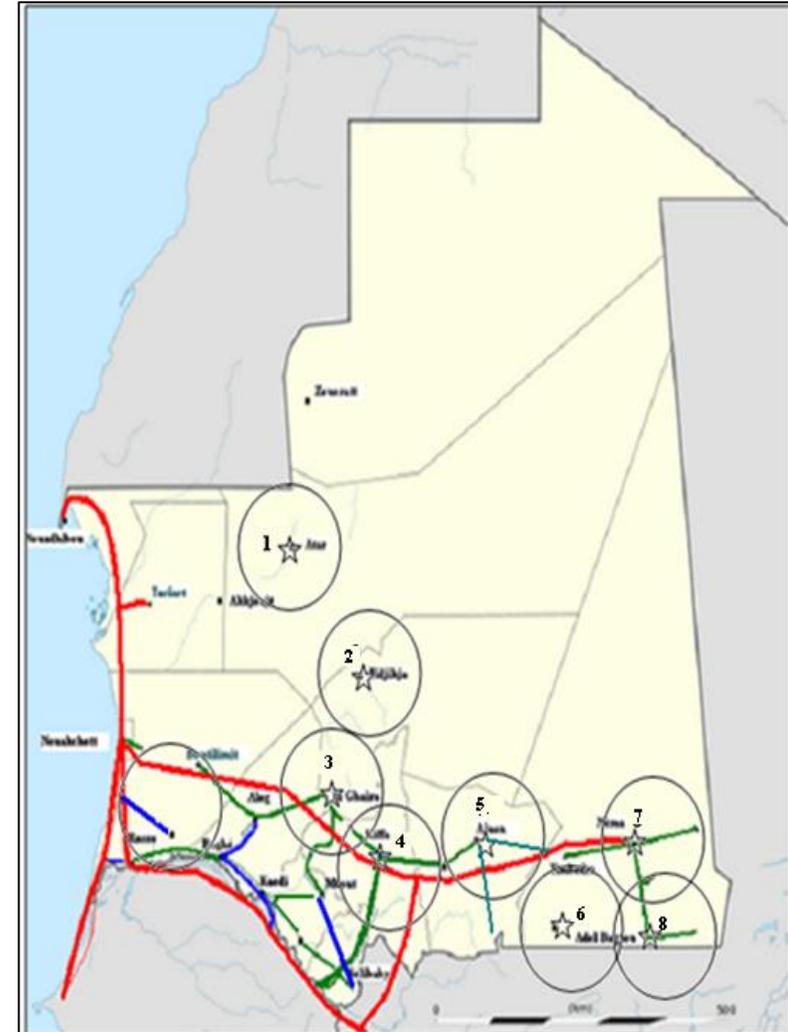
### ■ Generation :

- Installed capacity less 1 MW in isolated remoted areas:
  - ✓ 4 hybrid thermal/Wind plants (IRENA/ADFD 1)
  - ✓ 10 hybrid thermal/solar plants (IRENA/ADFD 2)
  - ✓ Hybridation of 7 plants (UAE)
  - ✓ 2 hybrid thermal/Solar (GoM)
  - ✓ ...
- Installed capacity between 1 and 10 MW with grid covering a range of 120 km:
  - ✓ 1 hybrid thermal/solar plant (French Development Agency)
  - ✓ 2 hybrid thermal/solar plant (AFESD)
  - ✓ ...
- Installed capacity over 10 MW on grid :
  - ✓ 120 MW CCGT in Nouakchott
  - ✓ 100 MW Wind in Boulanouar (AFESD)
  - ✓ 30 MW Solar PV in Nouakchott (AFESD)

# Major projects in the pipeline 2016-2020



- **HV Transmission lines :**
  - North-South backbone (700 km)
  - West – South Est bacbone (1600 km)
  - West – North Est backbone ( 700 km)
- **MV and LV lines:**
  - 2000 km of 33 kV
  - 1500 km of LV lines



Thank You

