



KINGDOM OF MOROCCO

MOROCCAN MITIGATION STRATEGY

**KEYNOTE SPEECH OF DR. AMINA BENKHADRA
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COPENHAGEN SUMMIT ON CLIMAT CHANGE
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OUTLINE

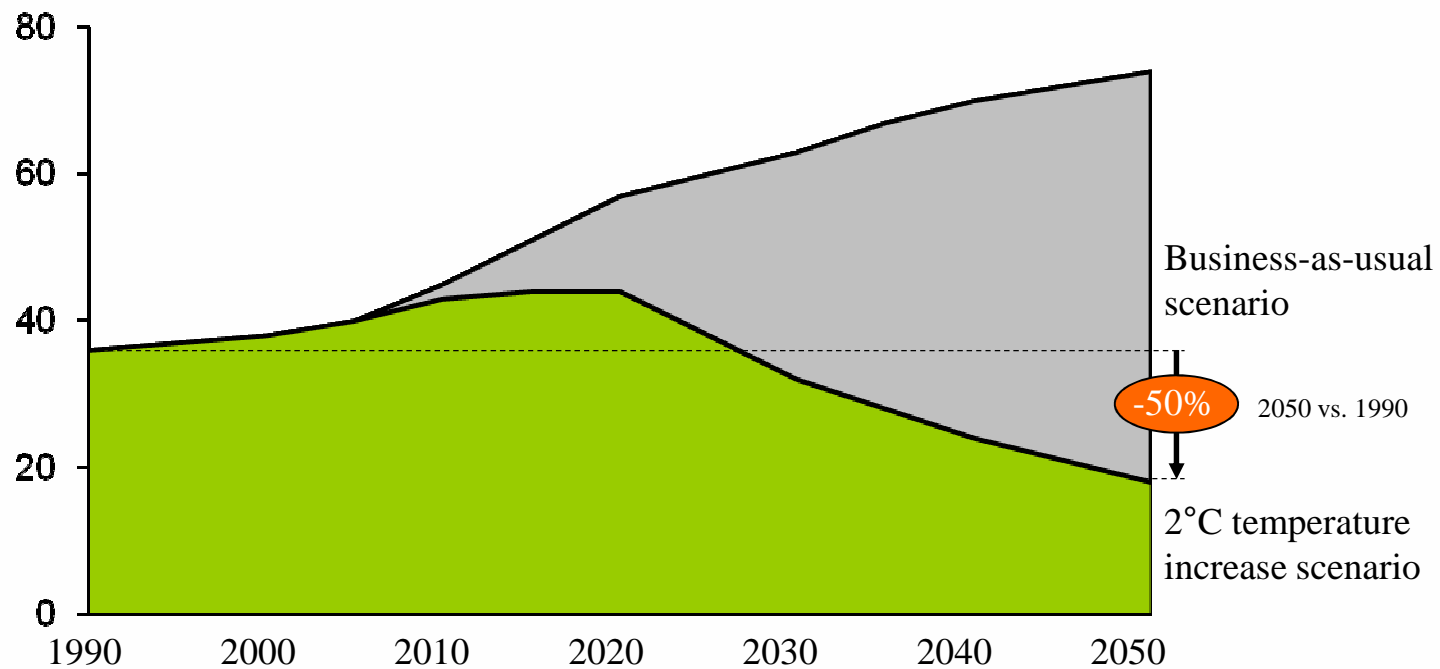
- I** MAJOR CHALLENGES FOR A GLOBAL WORLD
- II** NATIONAL PLAN AGAINST GLOBAL WARMING
- III** MITIGATION PLAN
- IV** HUMAN AT THE HEART OF SUSTAINABLE DEVELOPMENT IN MOROCCO

CLIMATE CHANGE EFFECTS



CARBON EMISSIONS MUST BE CUT BY HALF TO LIMIT CLIMATE CHANGE

World greenhouse gas emissions per year



No MIRACULOUS SOLUTION !

Challenge: to produce more energy but less CO₂

How can we accomplish this?

Control demand for energy



> Renewable energy



Sequester CO₂

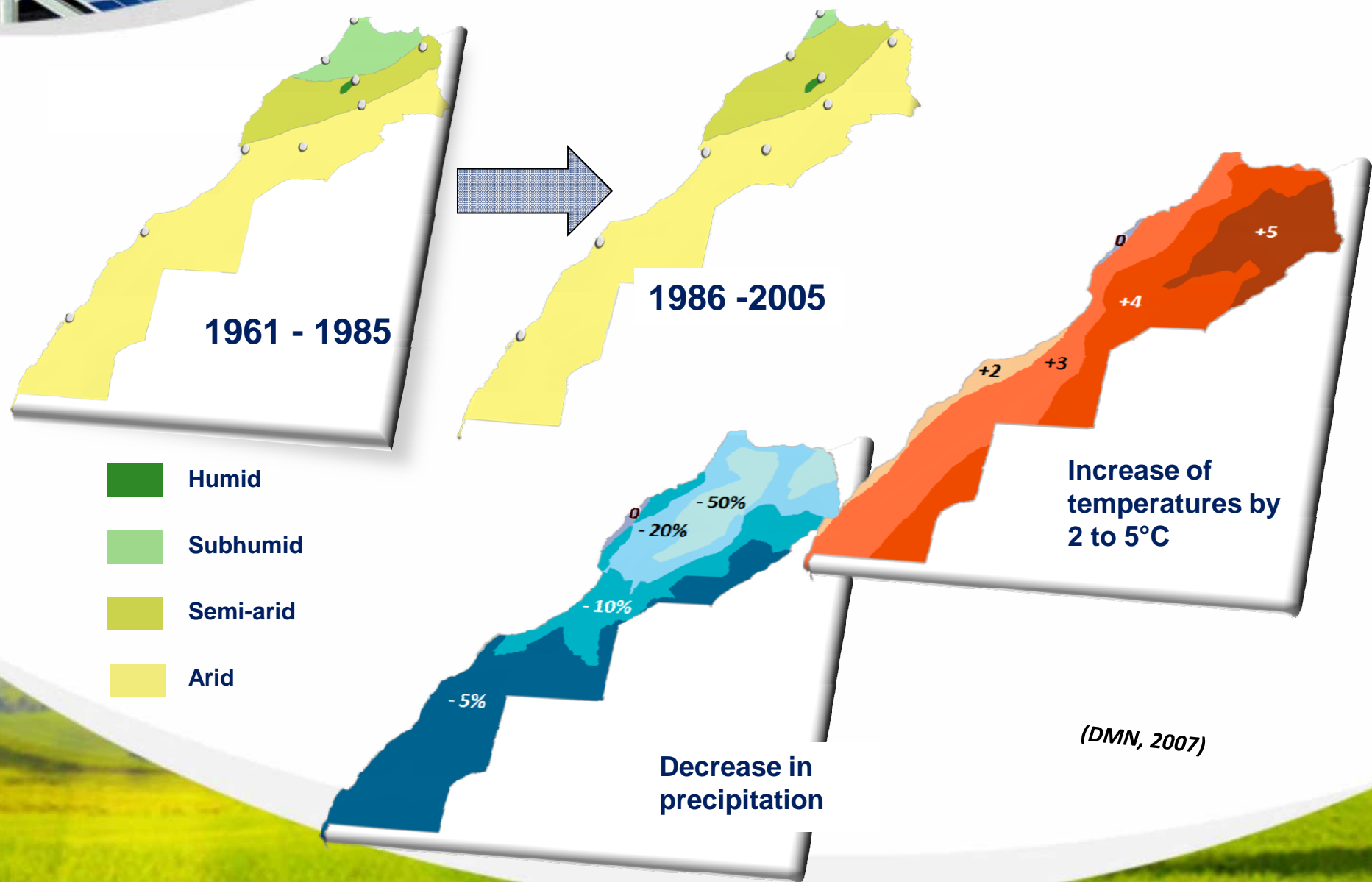




OUTLINE

- I MAJOR CHALLENGES FOR A GLOBAL WORLD
- I **NATIONAL PLAN AGAINST GLOBAL WARMING**
- II MITIGATION PLAN
- III MOROCCO, AN EMERGING COUNTRY

Forecast for impacts of Climate change in Morocco





NATIONAL PLAN AGAINST GLOBAL WARMING

MOROCCO PART OF THE GROUP G77 + CHINA
MOROCCAN POLICY : 2 AXIS-STRATEGY



Mitigation

**Reduction of GHG
emissions**



Adaptation

**Reduction of Moroccan
vulnerabilities**



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MITIGATION STRATEGY

IPCC : GHG emissions are the main cause of global warming

Morocco is a low GHG emitter

Total mitigation potential of the Moroccan strategy : 52.9 million ton-equivalent CO₂ per year by 2030

8 key sectors for mitigation

AGRICULTURE

ENERGY

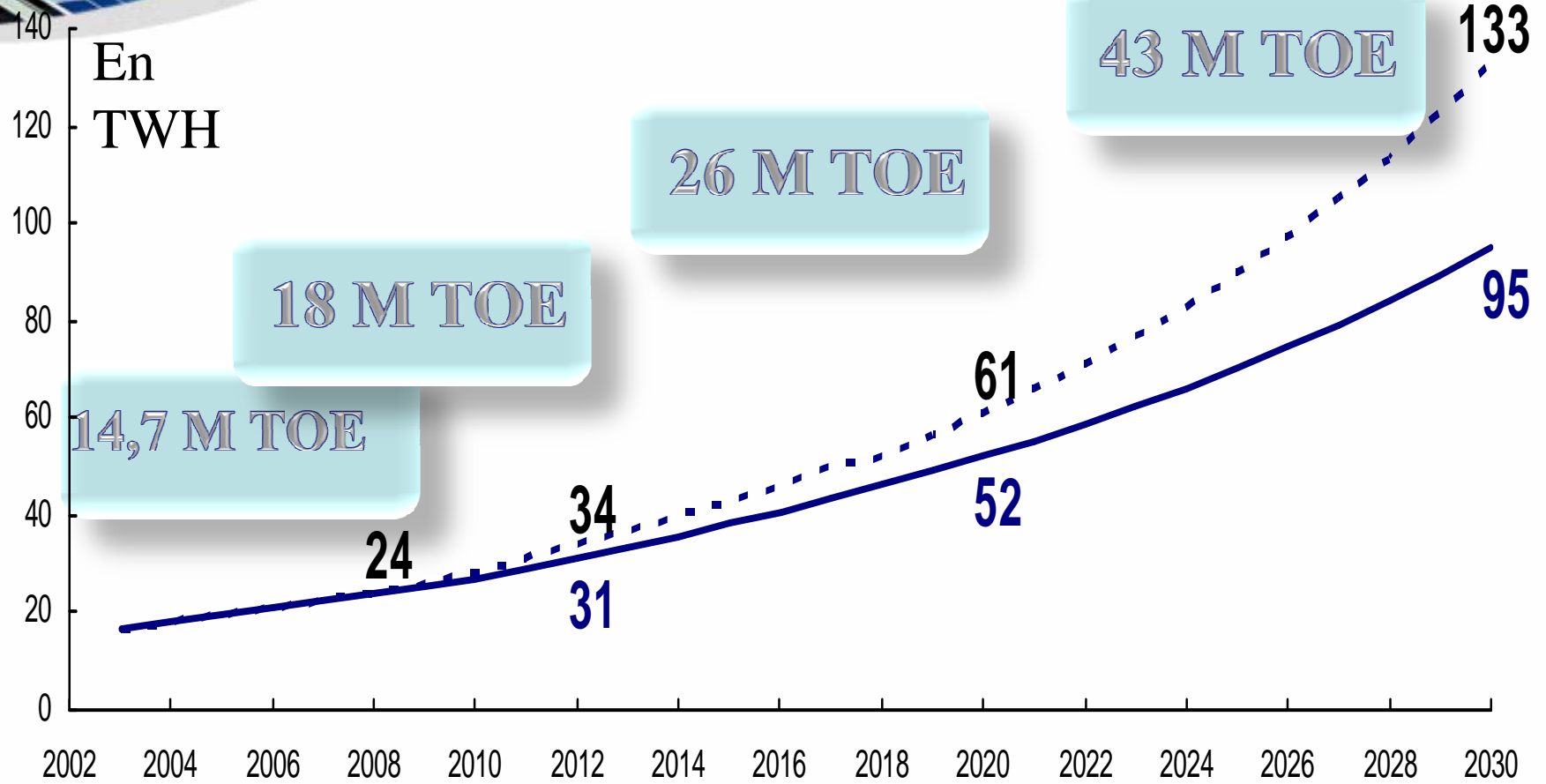
TRANSPORTATION

HOUSING

INDUSTRY

FORESTRY

Increasing moroccan energy demand



- Primary Energy primaire
- Electricity: reference Scenario
- Electricité: high Scenario

CLEAN TECHNOLOGIES FOR FOSSIL FUELS

**CHARBON
PROPRE**

**CYCLE
COMBINE**

REFINERY

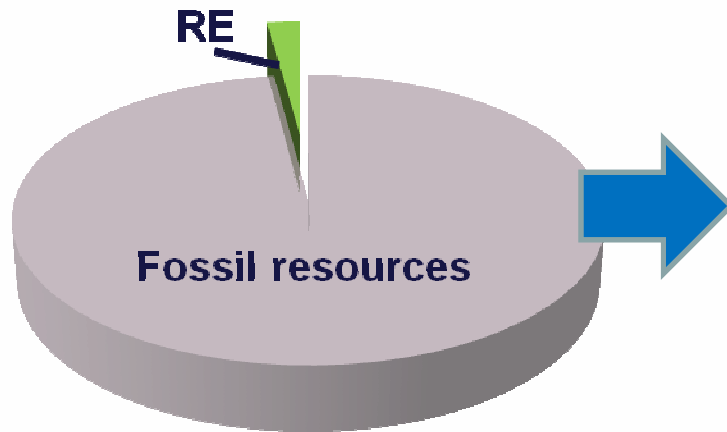


OBJECTIVES FOR RENEWABLE ENERGY

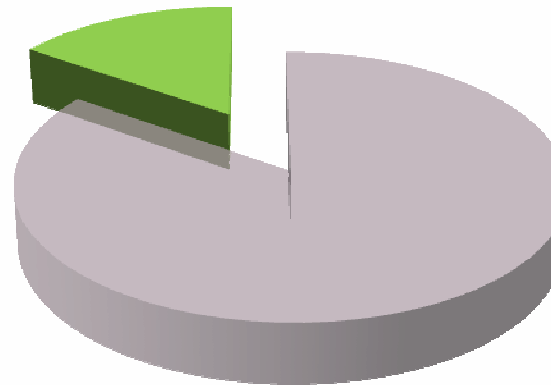
2008 Primary energy :
14,7 million toe

2020 Primary energy :
26 million toe

2030 Primary energy:
43 million toe



2.1% of RE



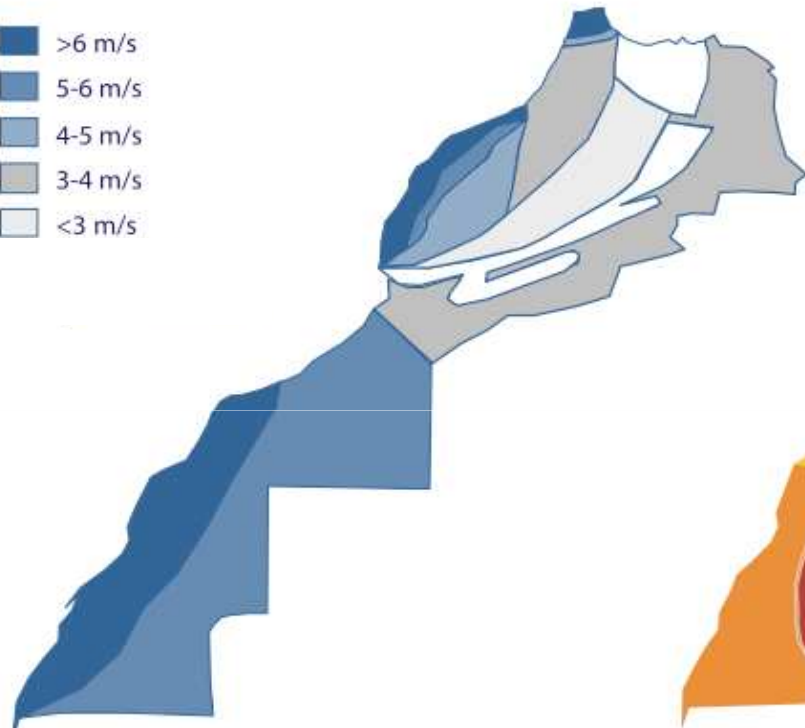
12 % of RE

**Introduction
of
Oil shales
Nuclear
power**

Wind : 2280 MW
CSP & PV : 2000 MW
Biomass : 200 MW
Solarheater : 1,7 million m2

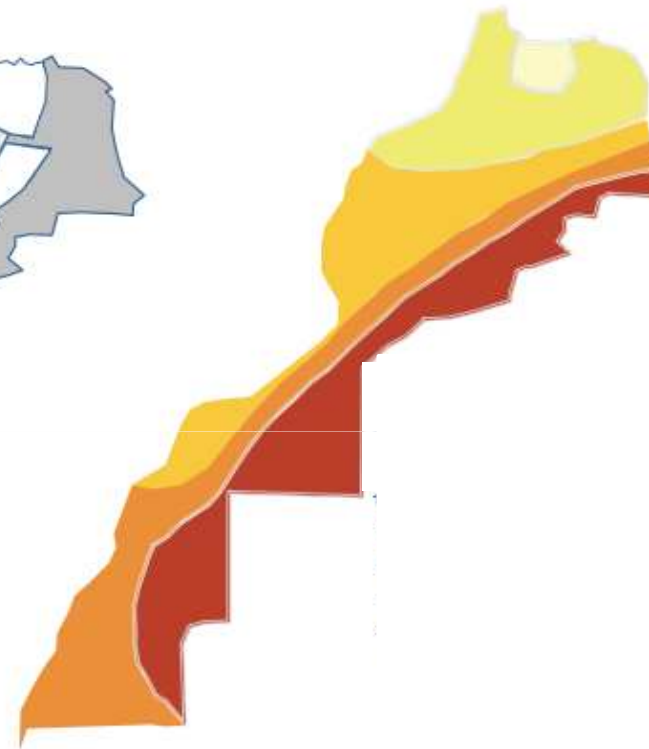
ENERGY : WORLD CLASS RENEWABLE RESOURCES

- >6 m/s
- 5-6 m/s
- 4-5 m/s
- 3-4 m/s
- <3 m/s



Wind Technical Potential :25,000 MW

- > 5,5 kWh/m²/day
- 5,3 to 5,5 kWh/m²/day
- 5 to 5,3 kWh/m²/day
- 4,7 to 5 kWh/m²/day



Solar Potential :
More than 5kWh/m²/day

For information : One liter of oil = 10 kWh

MOROCCAN SOLAR PROJECT

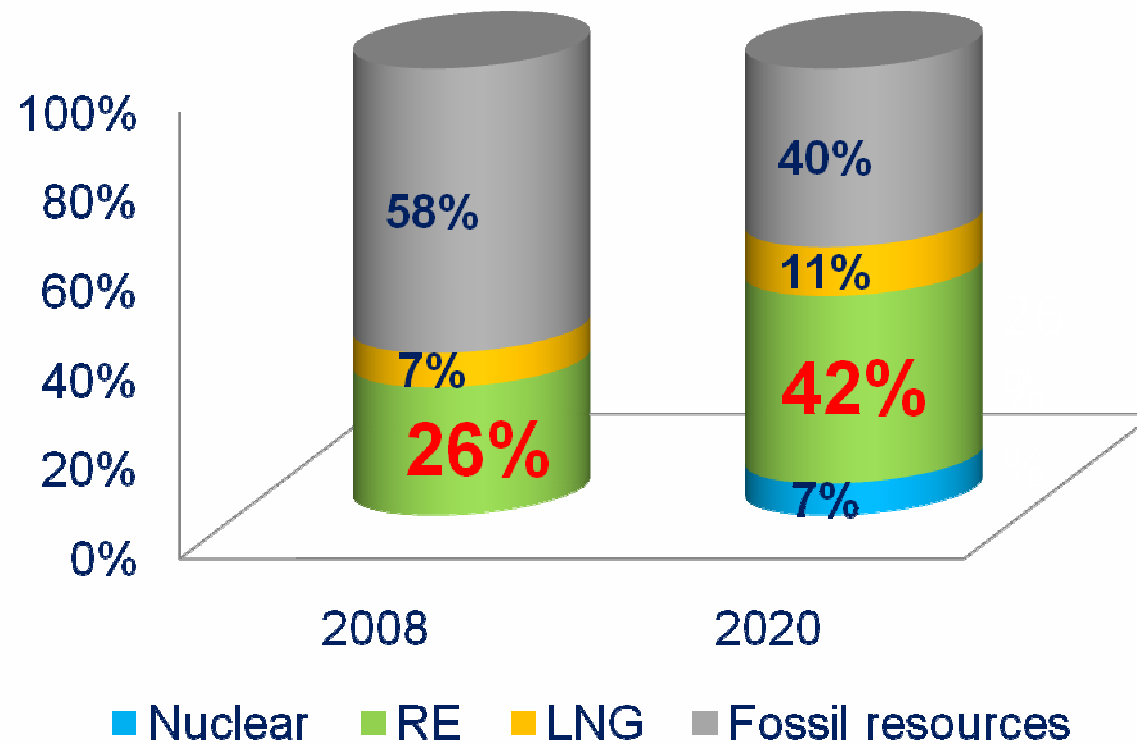
An investment of 9 billion USD by 2019

- **Installed Capacity : 2000 MW**
- **4500 GWh per year**
- **9 billion USD**
- **10 000 hectares dedicated**
- **5 dedicated sites**
- **First plant : Ouarzazate - 2015**



OVERVIEW OF THE RENEWABLE ENERGY STRATEGY

Share of RE in installed electric capacity in 2020: 42%



OTHER RENEWABLE ENERGY DEVELOPMENT

Photovoltaic



Solar Hot Water

Hydroelectricity



ENERGY EFFICIENCY POTENTIAL OF MITIGATION

Generalization of CFL
Mitigation power : 490
kte CO₂ : year



Agriculture and forestry :
Mitigation power : more
than 2.5 million ton
equivalent CO₂/year

**Improvement of
public lighting**



**Energy efficiency
in housing**



EE in industry
Mitigation power : more
than 2.5 million ton
equivalent CO₂/year



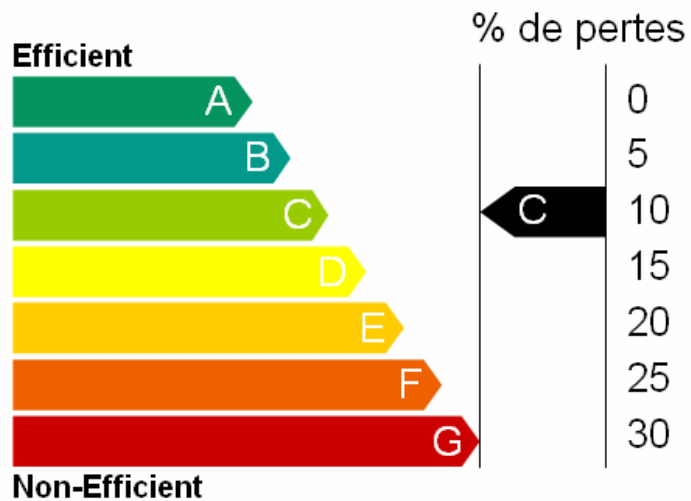
ENERGY EFFICIENCY POTENTIAL OF MITIGATION

Awareness
campaign



**PACTE
EFFICACITÉ
ÉNERGÉTIQUE**

Maîtrisons l'énergie pour notre avenir



EE in transportation
Mitigation power : more
than 2 million ton
equivalent CO₂/year





A SOUND INVESTMENT ENVIRONMENT FOR RENEWABLE ENERGIES AND ENERGY EFFICIENCY

NEW LAW FOR RENEWABLE ENERGY

Objectives

- Increase the share of Renewable Energies
- Promoting Investment for Export
- Assistance in site selections, permits and authorization
- Access to National Grid and Interconnections
- Access to Regional Markets (OMEL, MIBEL, POWERNEXT,...)
- Possible Equity partnership
- Promoting Investment in the field of Renewable Energies to meet local demand

LAW FOR MOROCCAN AGENCY FOR SOLAR ENERGY

- Conduct overall project (design, choice of operators, implementation, management)
- Coordinate and supervise others activities related to this program

NEW AGENCY FOR THE DEVELOPMENT OF RENEWABLE ENERGY AND ENERGY EFFICIENCY

- Law to be enacted soon
- Objective: development of renewable energies and Promotion of energy efficiency.

ENERGY EFFICIENCY

- Law under promulgation
- Improve energy efficiency

DEVELOPMENT ENERGY FUND

- 2 ways actions :
- Financial incentives for RE and EE programs
- Equity investments through the Energy Investment Company

Adapting to climate change





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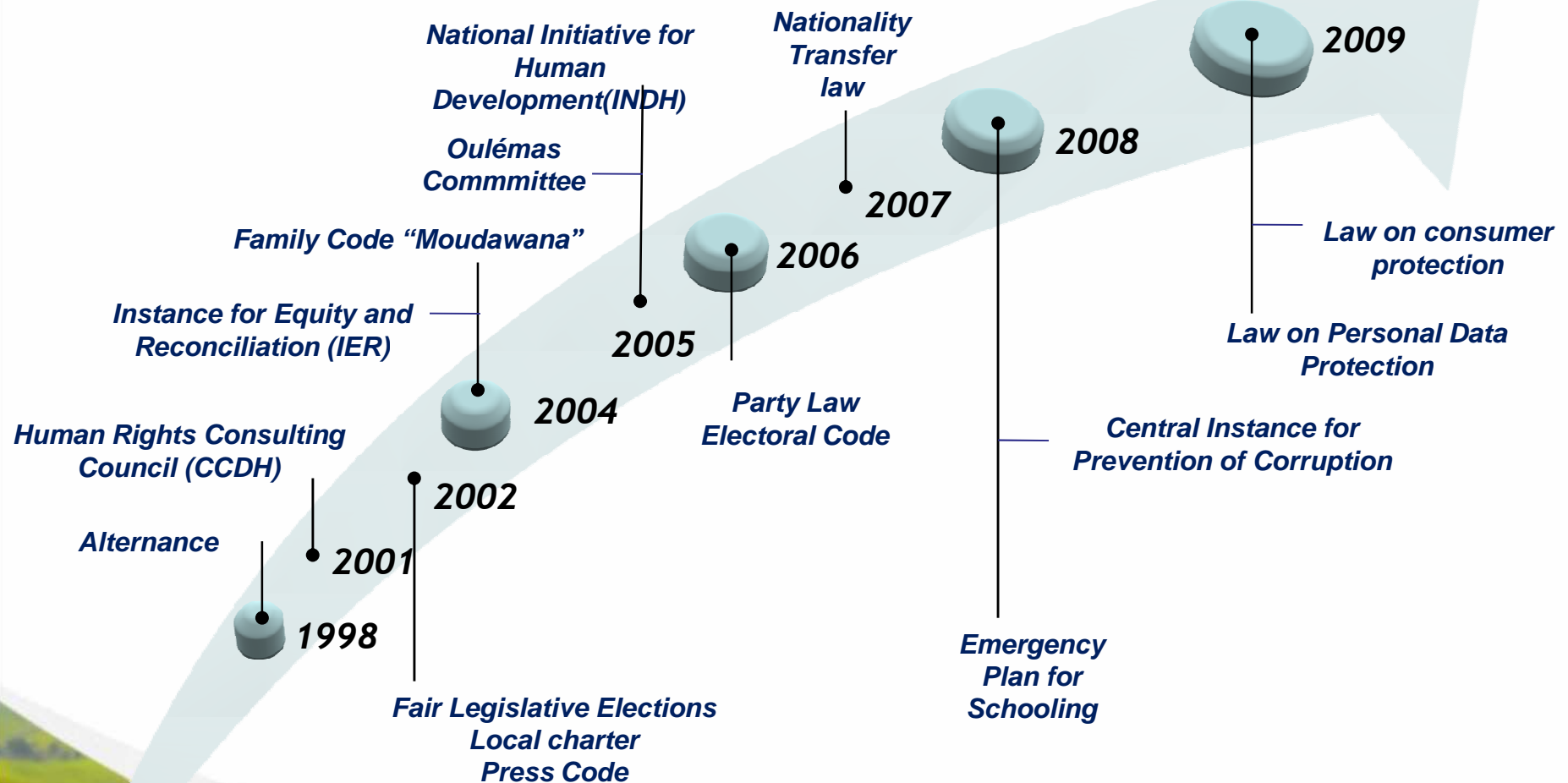
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MOROCCO: A FAVORABLE INSTITUTIONAL FRAMEWORK

- The second oldest Kingdom in the world (12 centuries)
- A constitutional monarchy, constantly revisited,
- Monarchy = high level of legitimacy, cement for the country, last recourse in terms of arbitration,
- A young King, very involved in fighting against poverty
- A coalition government in power, consisting of historic and legitimate parties



MOROCCO: ACCELERATED PROCESS OF DEMOCRATIZATION



MOROCCAN CHARTER FOR ENVIRONMENT AND SUSTAINABLE DEVELOPMENT





Thank you for your attention
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