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TOWARDS SUSTAINABLE ENERGY

Cabo Verde

Energy situation & trends

WWW.ECREEE.ORG

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Cabo Verde overview



Area: 4,033 km²

Population: ~ 500 000

GDP per capita: ~ 3,800 US\$

10 islands, 9 inhabited – 9 Energy Systems

Production: ~400 GWh, **20% from Renewables**

Installed Capacity: ~150 MW of which **35 MW**

Renewables (~23%)

Access to Electricity: ~95%

Access to Modern Energy for Cooking: ~65%

Life Expectancy: 76 years

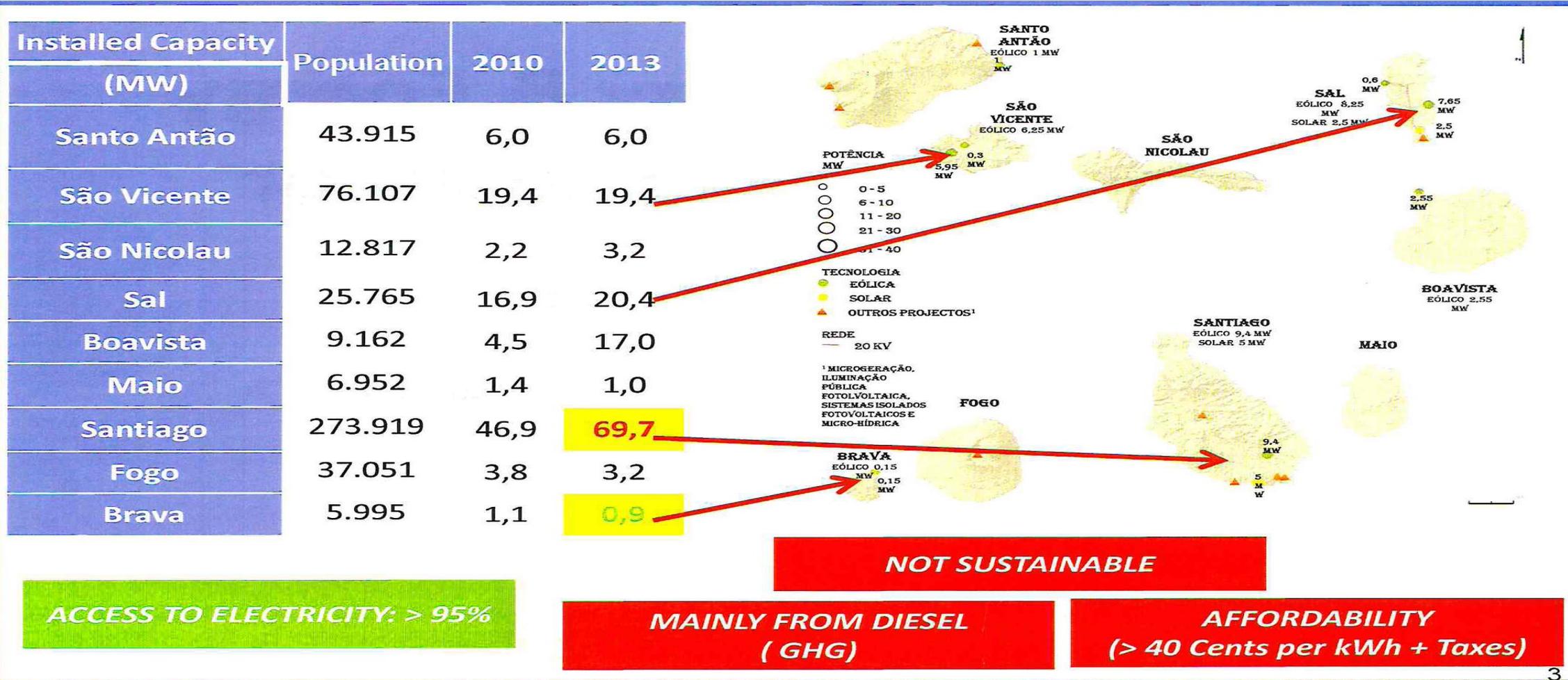
Literacy Rate: 87% for adults, 99% for young

Active Population with Medium/Higher

Education: ~ 15%

Poverty Rate: ~25%

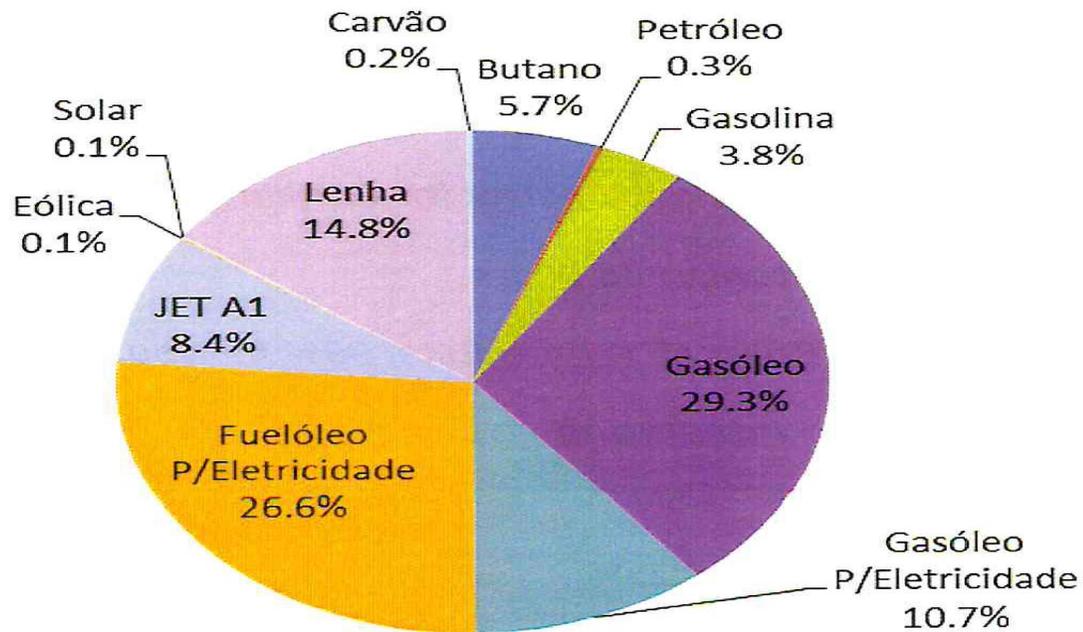
Energy systems in Cabo Verde power sector



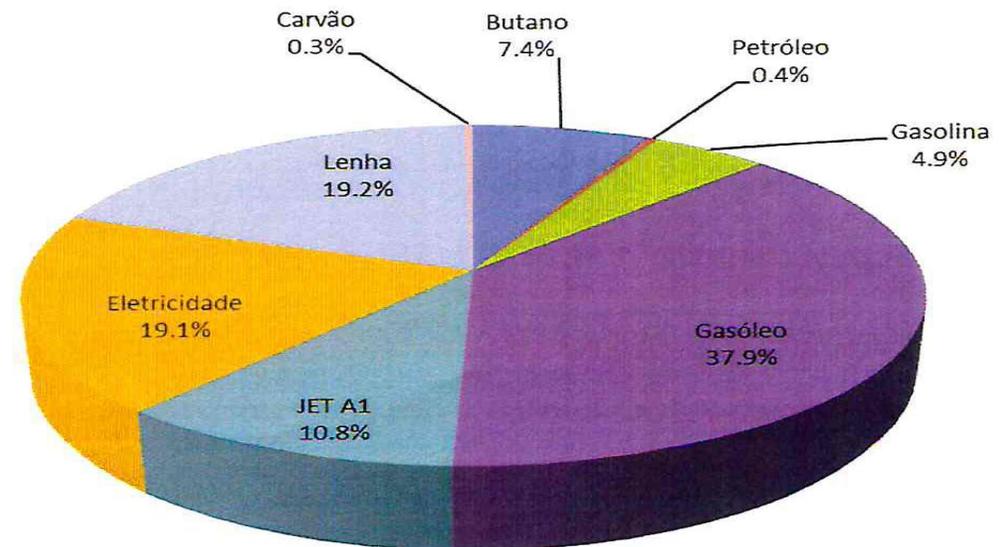
Energy in Cabo Verde: gross energy consumption – evolution GWh

Year	Butane	Kerosene	Gasoline	Gasoil	Fuel oil	JET A1	Wind	Solar	Wood fuel	Gross Energy
2010	134,0	7,5	87,8	936,8	621,0	195,7	2,0	2,1	348,9	2.335,8
2013	134,2	5,7	84,1	804,8	615,5	208,6	70,7	7,3	373,3	2.304,2

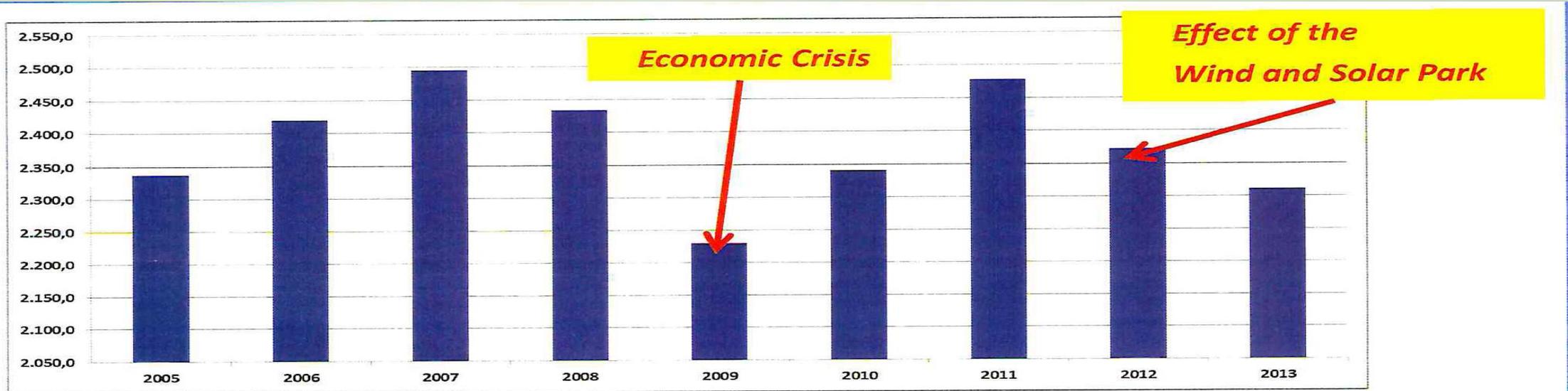
Gross Energy Supply



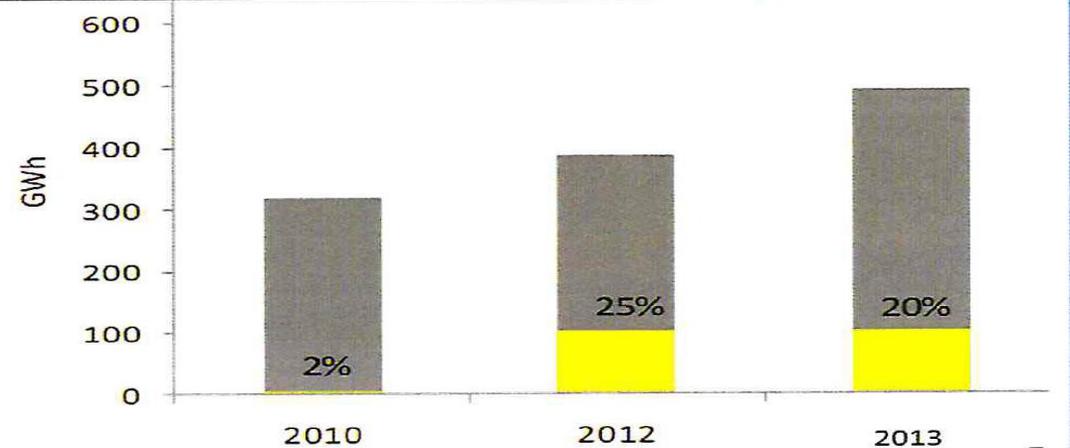
Net Energy Demand



Energy in Cabo Verde: gross energy consumption – evolution GWh



Average 20% Renewable Energy Penetration on the Grid
More than 30% in São Vicente and Sal Islands



Cabo Verde energy future: Vision

Cabo Verde Energy Strategy focuses around two main axes:

1. **Universal Access to Electricity produced 100% from Renewable Energy Sources in 2020;**
2. **Elimination of Three Stone Stoves for cooking by 2020 and to make the use of Firewood a Choice in 2030.**

The ambitious goal of 100% RE with a strong component of Energy Efficiency is also a means of **Economic and Societal transformation** toward a more **Sustainable Behavior and of Development Path.**

Having tourism as main economic resources the Energy Sector will be the main instrument for creating a **GREEN ISLANDS Brandt.**

Renewable Energy Cluster
Cabo Verde as a provider of Energy Services
Tourism based on Green and Efficient Hotels

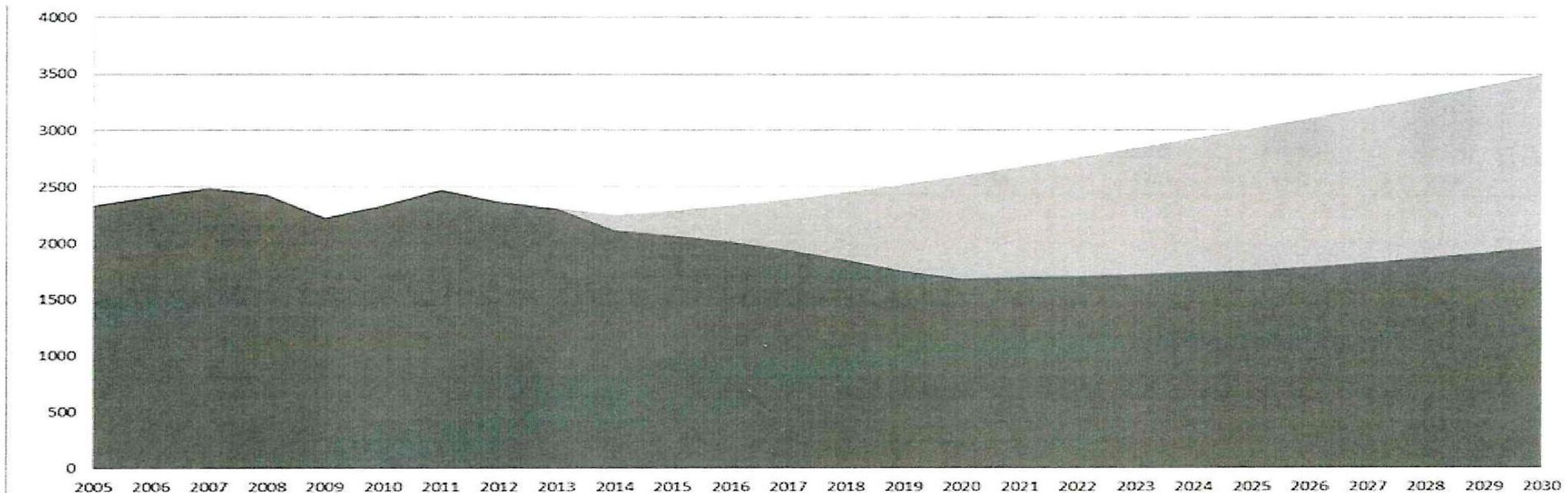
Energy Efficient Economy
Energy Efficient Society
Energy Efficient Families
Renewable Energy Production

Healthier Families
Gender Friendly Society

Cabo Verde national energy targets

Baseline Scenario until 2030

Targets defined according to the Baseline Scenario



Cabo Verde national energy targets

ENERGY ACCESS

1. To achieve **100% Electricity Access** by 2017 (from more than 95%)!
Grid Extension
Renewable micro-grids
Individuals Energy Systems (Solar Homes Systems)
2. To achieve **100% Access to Sustainable Cooking Services**
Eradicate Use of Three Stones + Universalization of Improved Stoves
Promotion of Butane Gas

ENERGY EFFICIENCY

1. **Efficient Electricity Distribution Grid: distribution losses reduced to 8%**
More than 30% of Distributed Electricity (15% technical+15% Commercial)
2. **Petroleum Products (excepts Butane): 10% reduction/Baseline**
3. **Final Electricity Consumption: 15% reduction/Baseline**
Promoting Energy Efficient Building
Energy Standards and Labelling for Appliance and Equipment's
Promoting Energy Efficient Intensive Consumers (like Hotels)

RENEWABLE ENERGY

1. **100% Electricity from Renewables in 2020!**
2. New buildings: **Mandatory use Solar Water Heaters** (link to Energy Efficient Building)

Cabo Verde renewable energy strategy

BASED ON THE CREATION OF A TRUSTFUL ENERGY MARKET

BASED ON PRUDENT AND SECURE STEPS

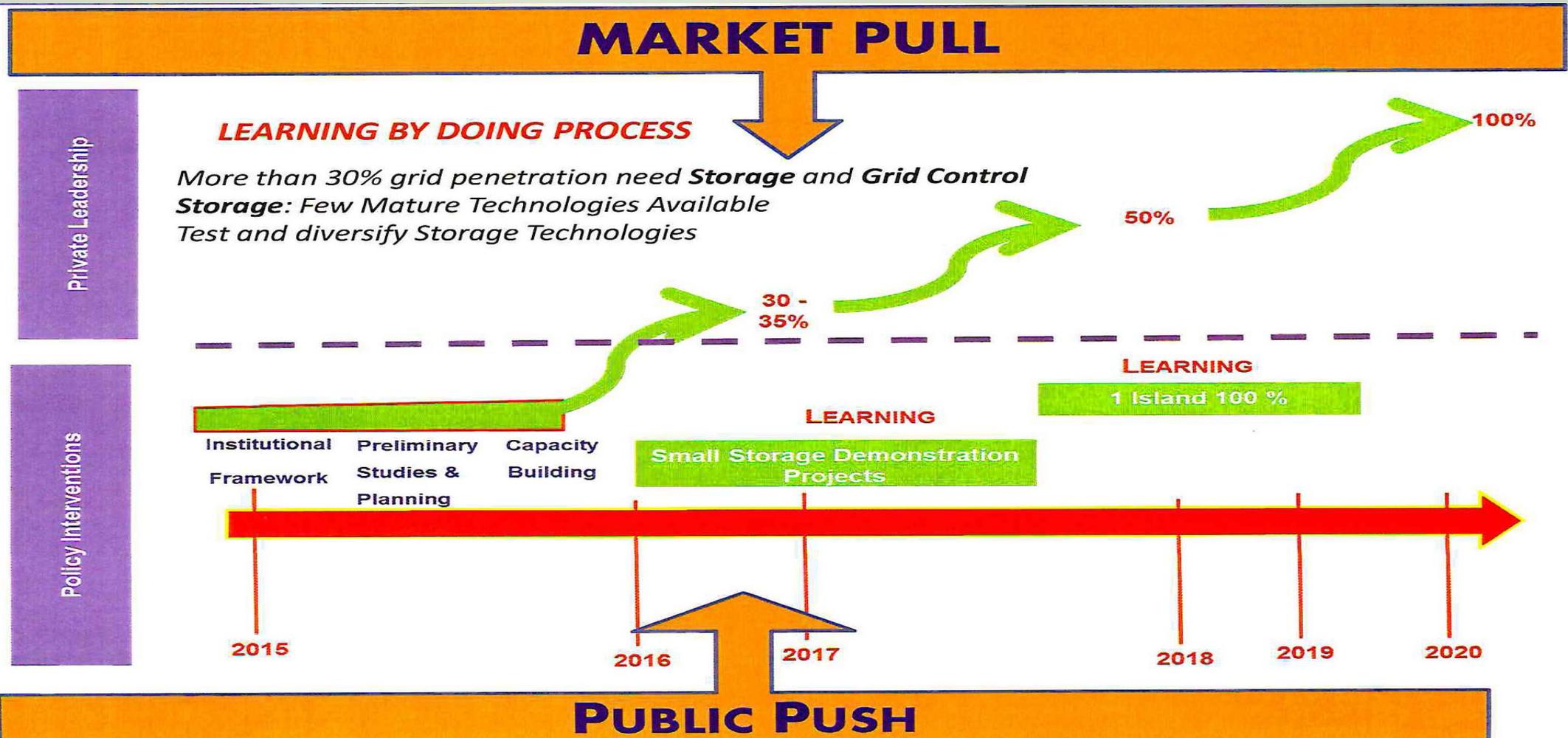
STRATEGY IN THREE STAGES

- I. 30/35% - 2016.
- II. 50% - 2018
- III. 100% - 2020

AND 6 PHASE

1. 30/35% in all islands (no storage needed);
2. Developing Small Scale Storage Demonstration projects for learning and practical experience;
3. 50% in one island for learning (need investment on the grid; need storage);
4. 50% in all islands;
5. 100% in one island for learning;
6. 100% in all islands.

Energy future: the road towards 100% electricity from Renewable Energy



Cabo Verde energy efficiency strategy

The Renewable Energy Strategies call for an huge effort in Energy Efficiency:

*Reduce **Grid Losses**;*

*Improve **grid Management***

*Improve **Public Lighting** Efficiency.*

Energy Efficiency Strategy based on Three Axes:

*1. Promoting Energy Efficiency in **Buildings***

*2. Promoting Energy Efficiency in **Appliance and Equipment's***

*3. Promoting Energy Efficiency for **Intensive Consumers***

*✓ Create a **National Certification System** for Buildings, Appliances and Equipment's;*

*✓ **Certification of Technicians and Installers**;*

*✓ Discourage **High Energy Consumption Appliances and Equipment's***

*✓ Mandatory **Solar Thermal Water Heating** in new Buildings and Hotel;*

Promoting ESCO: private leadership

Energy future: creating a dynamic and innovative market

Legal and Institutional Framework: Complete and Transparent; Clear Responsibilities, Duties and Rights;

Supporting Institutions and Agents : Promote and Strengthen the Necessary Institutions;

Promoting Independent Power Producer and ESCO: private leadership

Competitive Market for Independent Power Production

Competitive Market for Micro-Grids

Competitive Market for Energy Efficiency

Competitive Storage Market;

Create Confidence in the Energy Market

- Simplified Procedures for Licensing (one stop shop);***
- Public and competitive Auction based on least cost offer;***
- Standard Power Purchase Agreement;***
- Creation of a National Certification System for Buildings, Appliances and Equipment's;***
- Certification of Technicians and Installers;***

Energy future: renewable energy cluster

Supporting Framework

- Centre for Training and Certification
- Energy Agency
- Clean Energy Business Incubator
- Renewable Energy and Energy Efficiency Technological Park
- ESCOs

RENEWABLE ENERGY CLUSTER
Private leadership



Energy future: vision

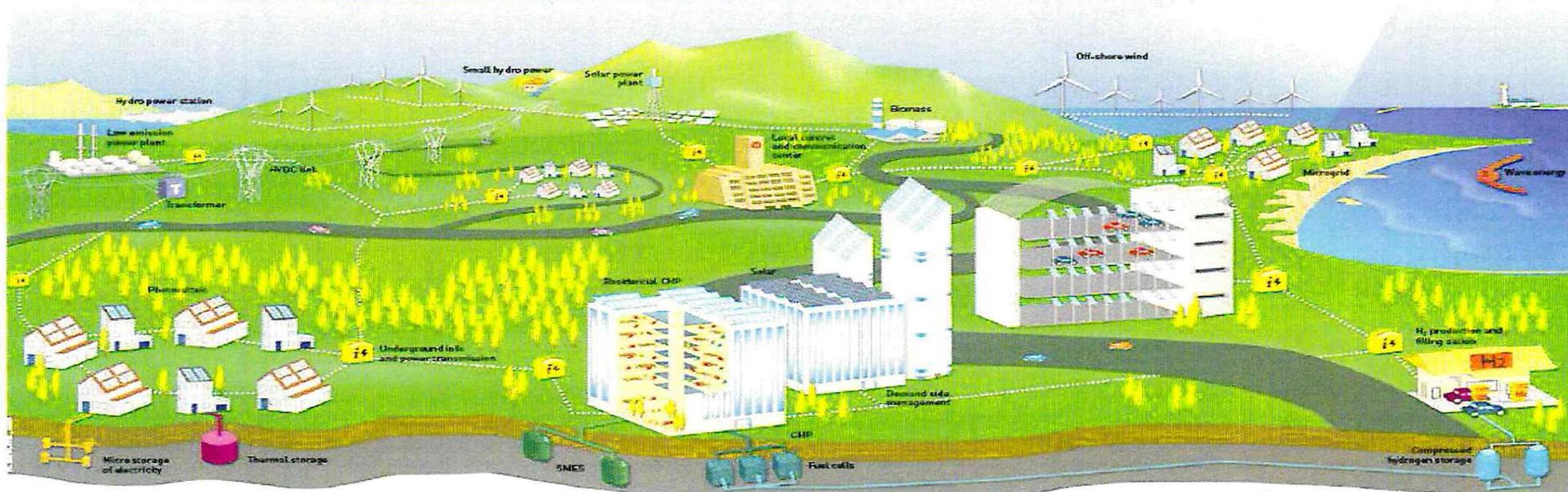
WE ALL ARE PRODUCERS



NOTHING IS LOST, EVERYTHING IS STORED
Grid Transport but also Store Energy

Buildings, condominiums and micro-grids are Consumers and Producers

Smart Grid with Load Control and Storage



CABO VERDE AS RENEWABLE ENERGY HUB TO ECOWAS

- The Government of Cabo Verde has set to achieve 100% of renewable energy penetration rate to 2020;
- Considerable experience regarding the use of renewable energy technologies;
- Cabo Verde are in position to export its experience and lessons learnt to the ECOWAS region (first PPA signed between the Government of Cabo Verde and Cabeolica);
- With the establishment of CERMI (Renewable Energy and Industrial Maintenance Centre), Cabo Verde can be a training centre to the region;



THANK YOU VERY MUCH! MERCI BEAUCOUP! MUITO OBRIGADO!

CORE



Austrian
Development Cooperation



NEW



INVESTMENT



TECHNICAL



OTHER

