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# CLEAN ENERGY PROGRAM IN COLOMBIA

Global Workshop on Clean Energy Development  
Washington D.C.  
December 5, 2012



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1. COUNTRY ENERGY OVERVIEW
2. RENEWABLE ENERGY EFFORTS
3. TECHNOLOGIES
4. ENERGY EFFICIENCY
5. INCENTIVES AND POLICIES

## Slide 2

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LJ(2)

Policies

Lee, James (BOGOTA/CLE), 11/30/2012

LJ(3)

Since this is an international and development oriented audience, would you want to have a slide on Foreign Direct Investment in the energy sector (priorities on extractive; supporting regional interconnection, for example) and perhaps on international development organizations who are at work in Colombia (IFC/World Bank, Clean Technology Fund, BID, and other bilateral donors such as GIZ, Dutch, swiss, USAID)

Lee, James (BOGOTA/CLE), 11/30/2012



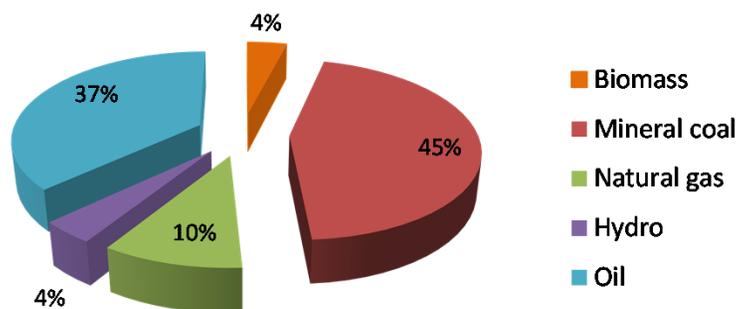
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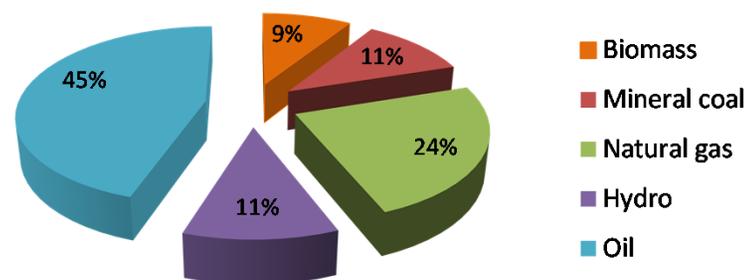
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# COUNTRY ENERGY OVERVIEW

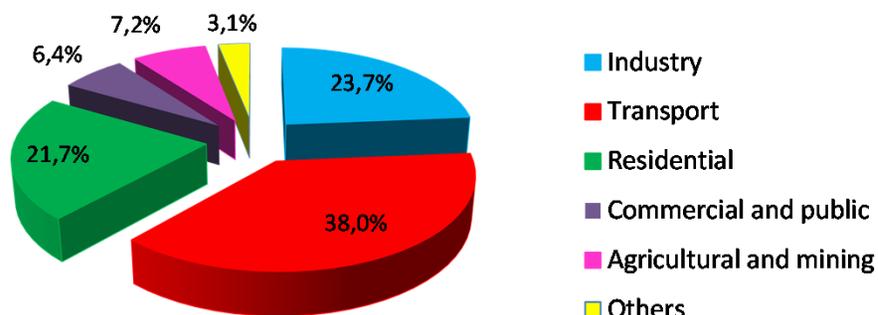
## PRIMARY ENERGY PRODUCTION



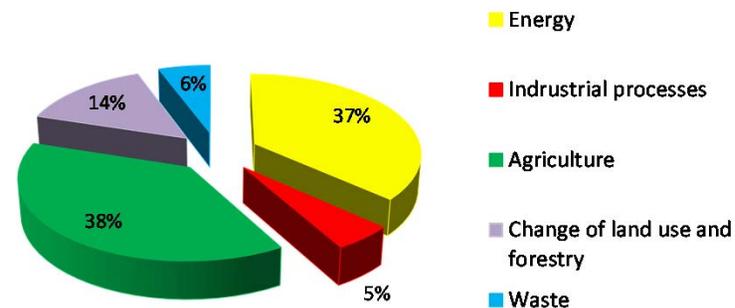
## DOMESTIC ENERGY SUPPLY



## ENERGY CONSUMPTION BY SECTOR



## GHG EMISSIONS INVENTORY 2004



SOURCE: UPME



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# COUNTRY ENERGY OVERVIEW

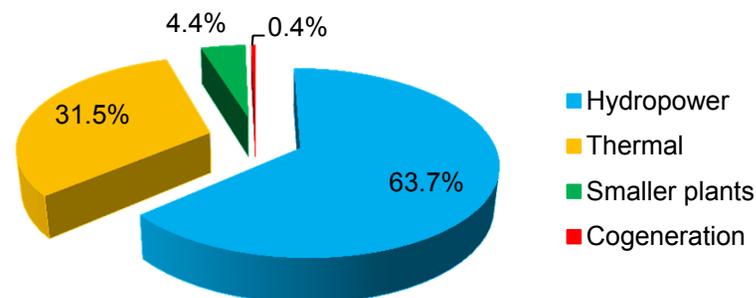


## ZNI

POPULATION ZNI	
WITH SERVICE	851.138
WITHOUT SERVICE	425.937
<b>TOTAL</b>	<b>1.277.075</b>

## SIN

### INSTALLED GENERATION CAPACITY. FEBRUARY 2012



**INSTALLED CAPACITY: 14.420 MW**  
**ENERGY DEMAND: 57.150 GWh**

SOURCE: IPSE- UPME



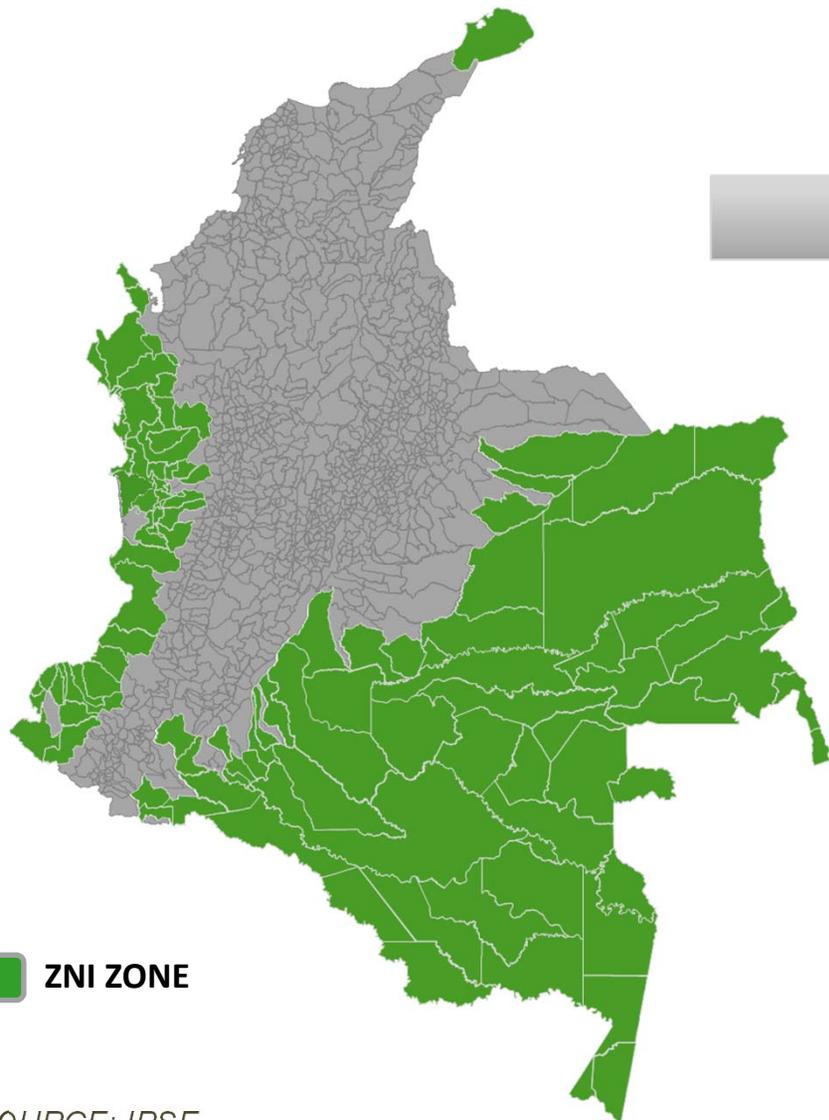
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# COUNTRY ENERGY OVERVIEW

 Non Interconnected Zones(ZNI)



 ZNI ZONE

*“For all purposes related to the provision of energy public services, it is understood that ZNI includes all municipalities, townships, towns, and hamlets not interconnected to the National Interconnected System (SIN)”  
Artículo 1º, Ley 855 de 2003.*

SOURCE: IPSE-



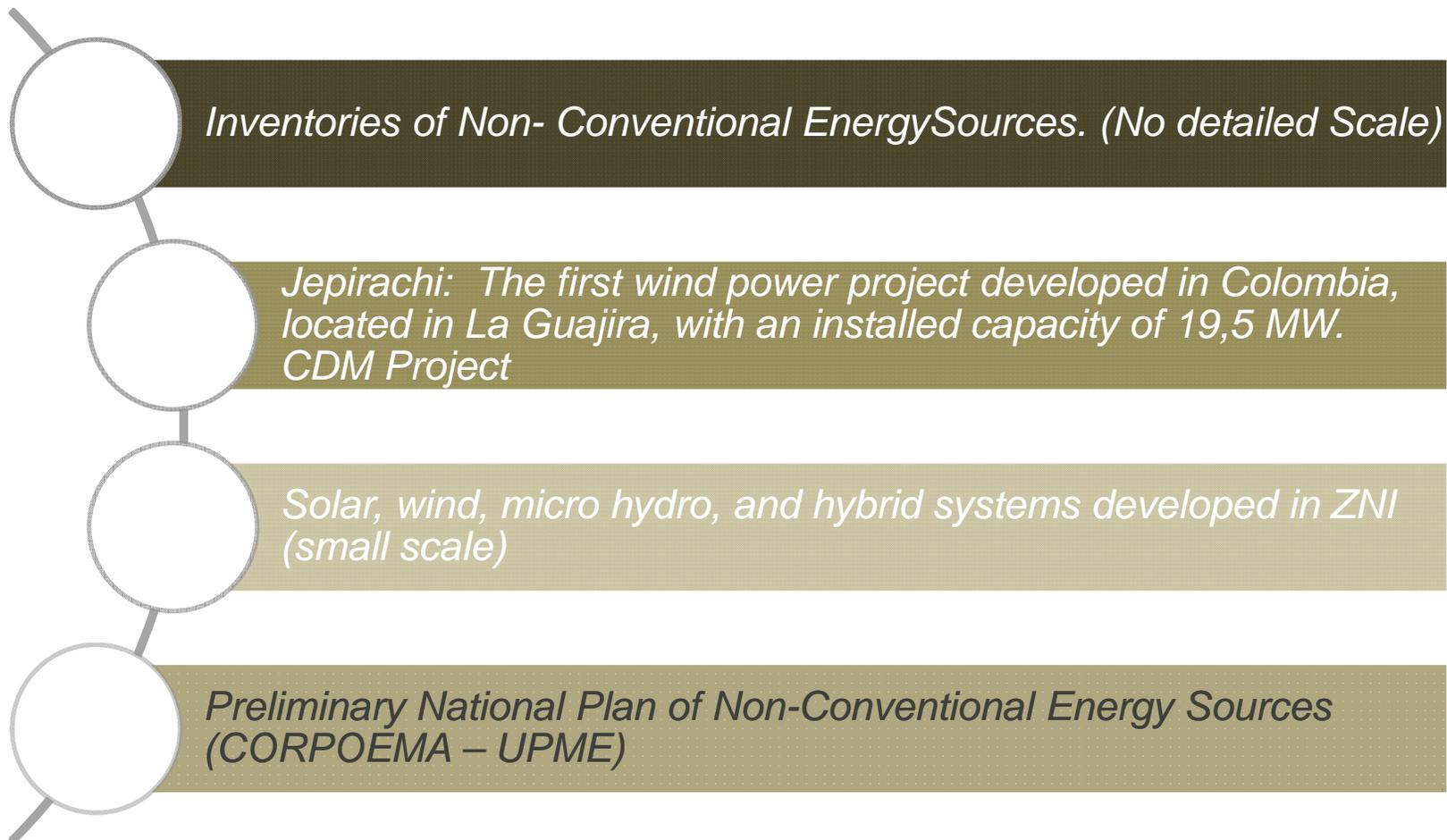
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## RENEWABLE ENERGY EFFORTS





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## RENEWABLE ENERGY EFFORTS

*Colombia is developing a NAMA in geothermal energy. Study, construction and commissioning of the first geothermal plant in Colombia with an estimated capacity of 50 MW.*

*Solar energy had a large market for water heating in the 80's and 90's that stopped after the entry of natural gas. Good opportunity for isolated systems.*

*Since the early 80's, the country has recognized the importance of non-conventional energies. Its development has been mainly in non interconnected areas through specific projects.*

*Rural sustainable energy pilot plan for the department of Nariño.*



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## TECHNOLOGIES

### **HYDRO (Large Scale)**

*Extraordinary hydrological sources, installed capacity 63%, 3500 GWh generated monthly.*

### **TIDAL**

*Good resource (two oceans), lack of studies of potential. No projects have been implemented.*

### **HYDRO (small)**

*About 170 MW installed of 25,000 estimated MW; good sources in ZNI, sometimes great volume of flow but small falls.*

### **SOLAR**

*Daily average multiannual insolation close to 4.5 kW/m<sup>2</sup>, RE Technology most implemented (FNCE).*

SOURCE: IPSE- UPME



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# TECHNOLOGIES

## **WIND**

*Great resource in the northern part of the country. Installed project of 19,5 MW (EPM) and a developing project of 32,5 MW (ISAGEN).*

## **GEOHERMAL**

*Thermal sources inventory. Prefeasibility studies for two large scale projects at the Ruiz Massif and the Ecuadorian borderline (ISAGEN).*

## **BIOMASS**

*Estimated residual biomass potential of 450 PJ/year. Developed projects: Sugar refineries and ZNI, direct combustion and gasification.*

SOURCE: IPSE- UPME



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## ENERGY EFFICIENCY

- ▶ *Standards and Technical Regulations*
  - *Mandatory use of the Energy Guide Label (RETIQ)*
  - *Lighting Technical Regulations and Public Lighting (RETILAP)*
  - *Boilers' Technical Regulations*
  - *RETIE*
  
- ▶ *Development of awareness campaigns, workshops, seminars, national and regional conferences*
  
- ▶ *Lighting: resolutions and massive programs for bulb replacement*
  
- ▶ *National program for domestic refrigerators' replacement*
  
- ▶ *Project to determine energy efficiency criteria in granting subsidies for the design and construction of social interest housing*



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## INCENTIVES AND POLICES

*Law 697/01 for promoting the Rational Use of Energy (URE) and non conventional energy sources. FNCE as crosscutting issue within the National Energy Plan - PEN*

*Policy of renewable energies and energy efficiency in Colombia is framed in the PROURE*

*Ministry of Environment and Sustainable development - MADS > Climate Change Division was created (implementation of NAMA's)*

*Colombian Strategy for Low Carbon Development (ECDBC)*

*New regulation in ZNI to promote the FNCE (CREG 2013)*

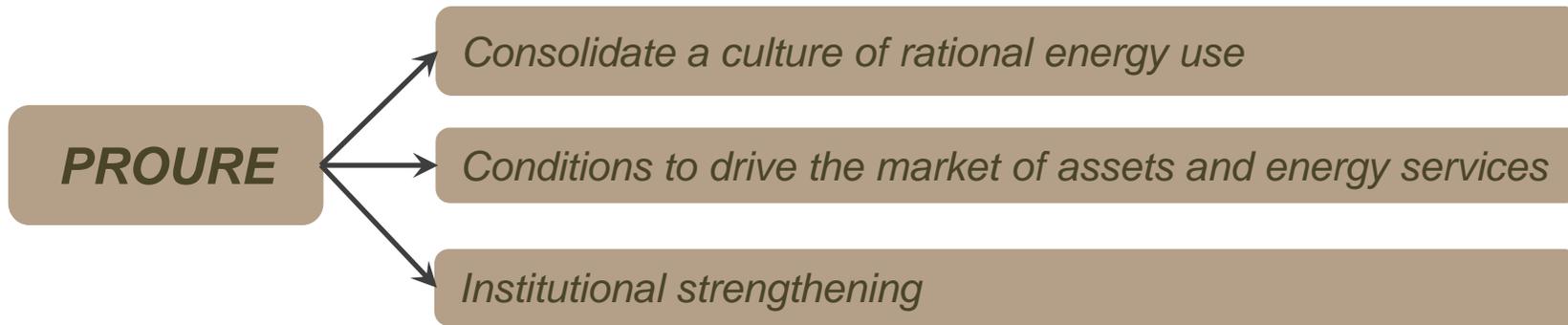


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# INCENTIVES AND POLICES



## INCENTIVES

*Excluding VAT tax and deduction of income tax from investments in monitoring and improving the environment, assets, components, equipment, and machinery for projects, programs, or activities for reduced energy consumption and/or energy efficiency related to the implementation or achievement of environmental goals.*



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# THANK YOU

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