



Issues on Energy and Environmental Planning in El Salvador





Overview – Actions Fields



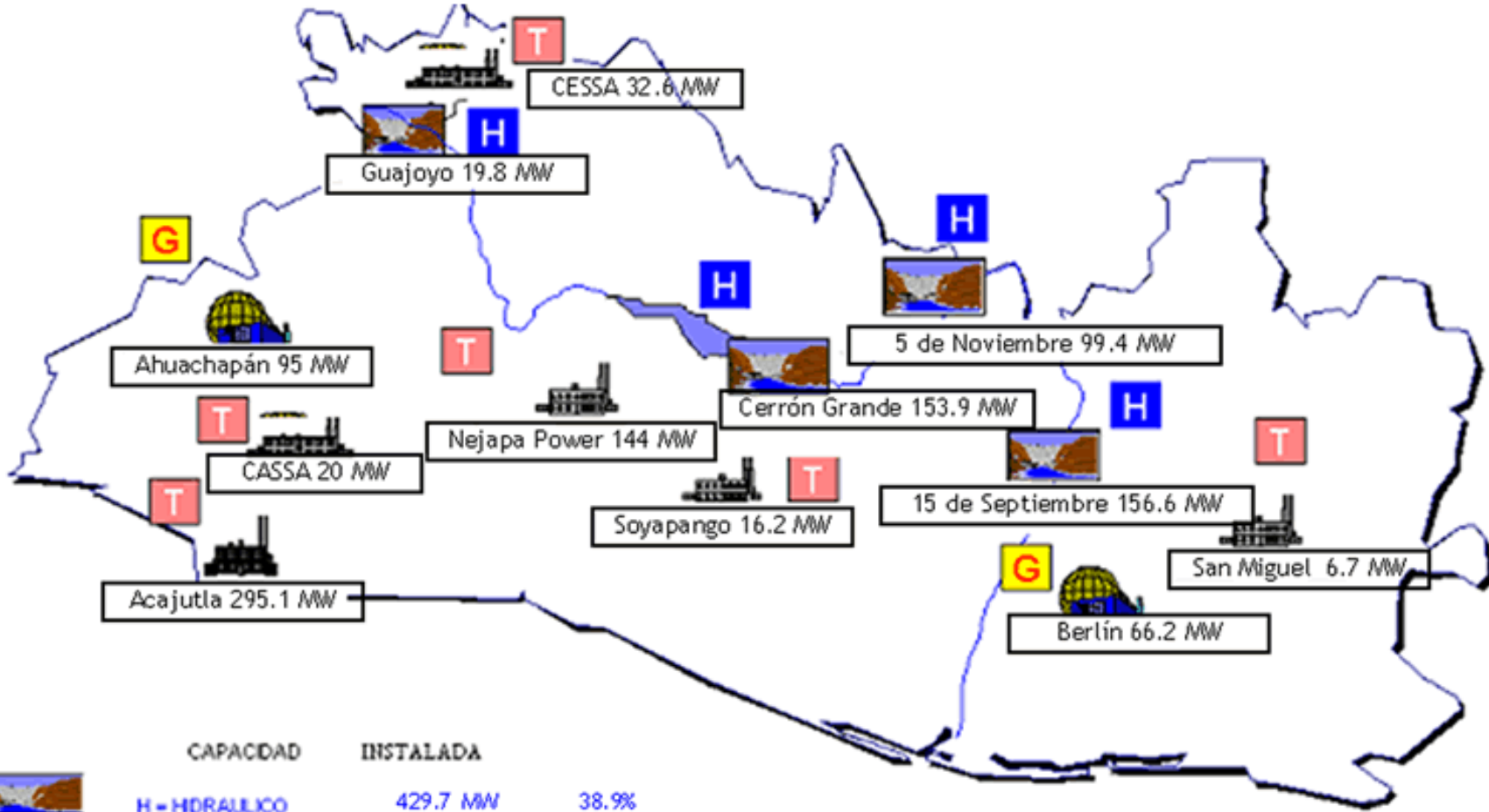
- **Renewable Energy**
 - Electricity Generation: Hydroelectric, Geothermal, Wind and Biomass Power Plants in big and small scale
 - Implementation of the CDM
 - Fuelwood: rural areas
 - Biofuels: Ethanol, Biodiesel (transportation sector)
- **Energy Efficiency**
 - Power Plants Upgrade
 - Public, Industrial, Commercial and Residential Sectors
 - Cogeneration



Power Generation Plants



UBICACION DE CENTRALES GENERADORAS EXISTENTES SISTEMA EL SALVADOR 2003



	CAPACIDAD	INSTALADA	
H = HIDRAULICO	429.7 MW	38.9%	
G = GEOTERMICO	161.2 MW	14.6%	
T = TERMICO	514.6 MW	46.5%	
	1105.5 MW	100.0%	



Electricity Generation



Energy policy oriented to the development of the renewable energy resources: Hydroelectric, Geothermal Power Plants

Main Activities:

- **Feasibility study of the hydroelectric project Chaparral: 60 MW (EPC Engineering Procurement and Construction Modality: 2006).**
- **Feasibility study of the hydroelectric project El Cimarrón: 243 MW (EPC 2007).**

OPEN ELECTRICITY MARKET

- **Investment in geothermal projects Italian company ENEL GREEN POWER as a strategic partner of LaGeo.**
- **Capacity expansion of geothermal resource: in 2006 increase of 44 MW (Berlin Plant).**



Electricity Generation



Financing Small-Scale renewable energy projects (hydroelectric, geothermal and cogeneration power plants):

- **Financial Mechanism: Investment Guaranty and Fixed electricity prices in Power Purchase Agreements PPAs – Sistema de Fomento de Energías Renovables (SIFER).**

Upgrade of power plants:

- **2003 – 2004 hydroelectric power plants of Guajoyo, 5 de Noviembre and Cerrón Grande – increased of installed capacity 40 MW,**
- **2005 – 2006 hydroelectric power plants of Cerrón Grande and 15 de Septiembre – increase of installed capacity 40 MW more**



Procedure of Evaluation and Endorsement:

- **Project preparation (project developers)**
- **Request of the letter of no objection (MARN)**
- **Revision of the project (MARN)**
- **Approval and Awarding of the letter of no objection (MARN)**
- **Elaboration of the project document**
- **Approval and Emission of the letter of Endorsement (MARN)**



Fuelwood Supply System



Modeling and policy based on an agro-ecological regional concept that use the process analysis approach

Main Aspects:

- Consideration of the specific ecological conditions and agriculture activities of the regions**
- Use of the Reference Energy System to modeling the whole fuelwood supply system and its interaction with agriculture an forestry**
- Processing of satellite images with a geographical information system in order to obtain precise and reliable data on different types of vegetation and land use**
- Analysis of different options (reforestation, substitution of fuelwood, introduction of efficient cooking technology) for specific strategies**



Answer to the high oil prices: Ethanol and Biodiesel for transport system

Agro-industry of sugar cane and Jatropha Curcas :

- **Studies of the impact of Legislation**
- **Pilot projects**
- **Law promulgation**

ACTORS

- **Private sector companies (local and international),**
- **Government: Ministries of Agriculture, Economy, Environment**



Main Activities:

- **Public sector**
- **Energy Labeling: Lighting in offices and public lighting**
- **Industrial and Trading Sector: Development of ESCOs**
- **Residential sector: Promotion and activities with the Regulator and Trading companies**



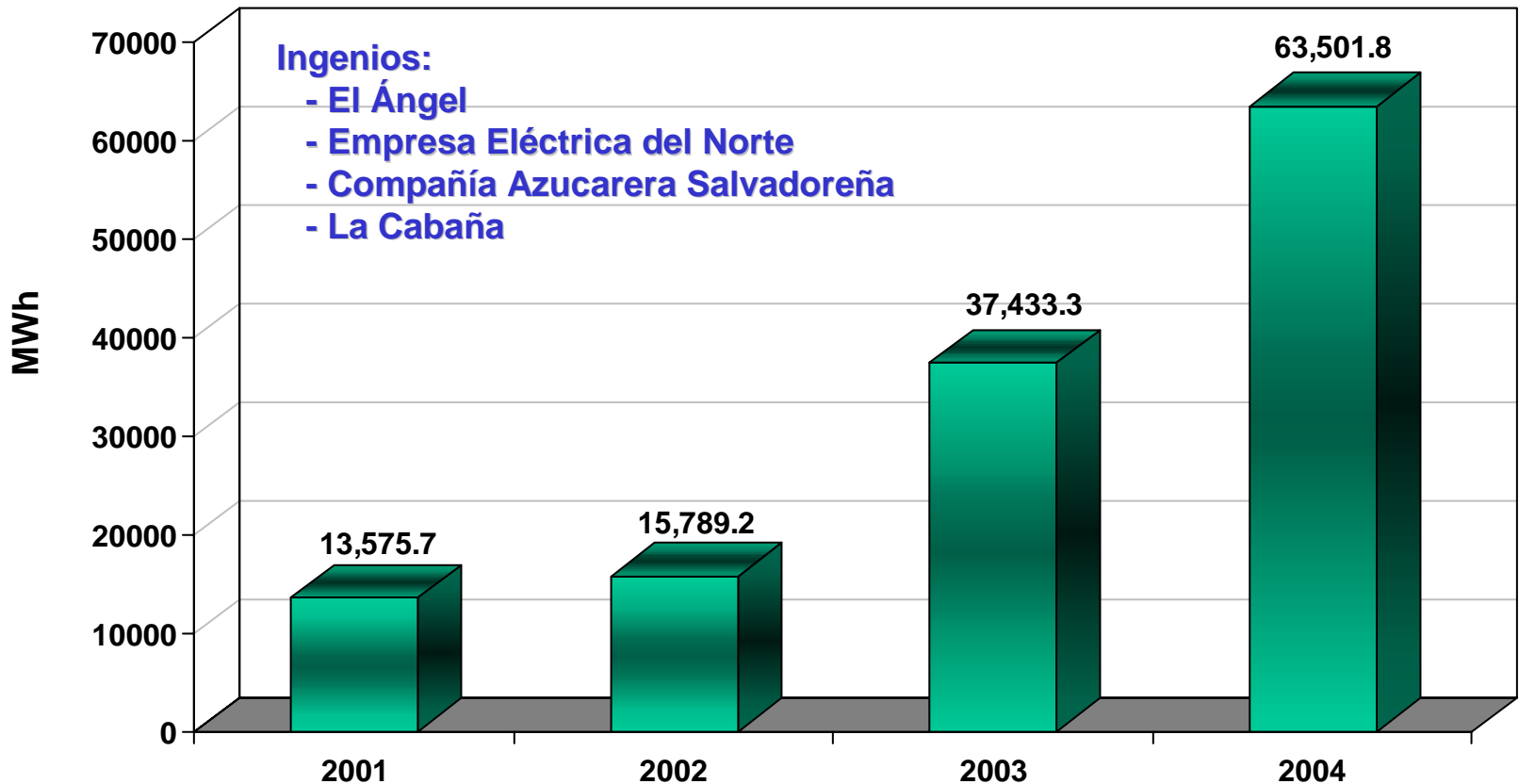
Cogeneration with Biomass



Development of Electricity Generation of Sugar Mills Deliver to the Grid

Generación de Ingenios de Azúcar entregada a la red electrica

2001 - 2004



THANK YOU