

**Latin America Thematic Network on Bioenergy -
LAMNET
3rd Project Workshop - Brazil**

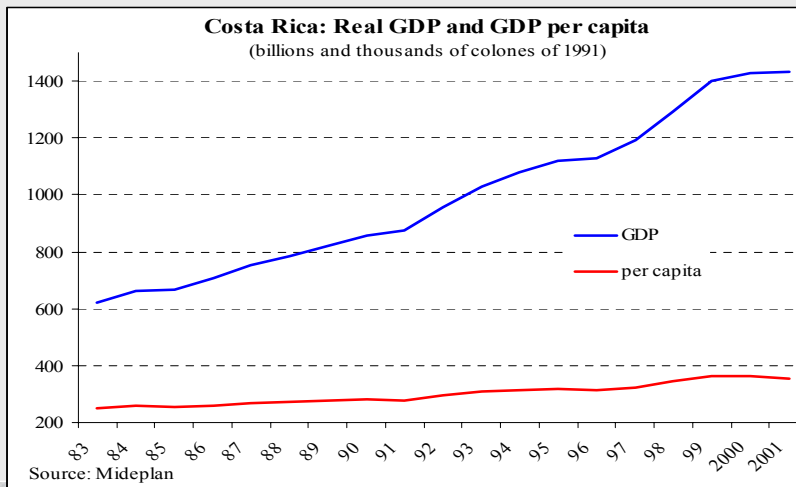
Ethanol Potential in Costa Rica

Prof. Leiner Vargas
CINPE-UNA; November, 2000
www.cinpe.una.ac.cr/ecomap

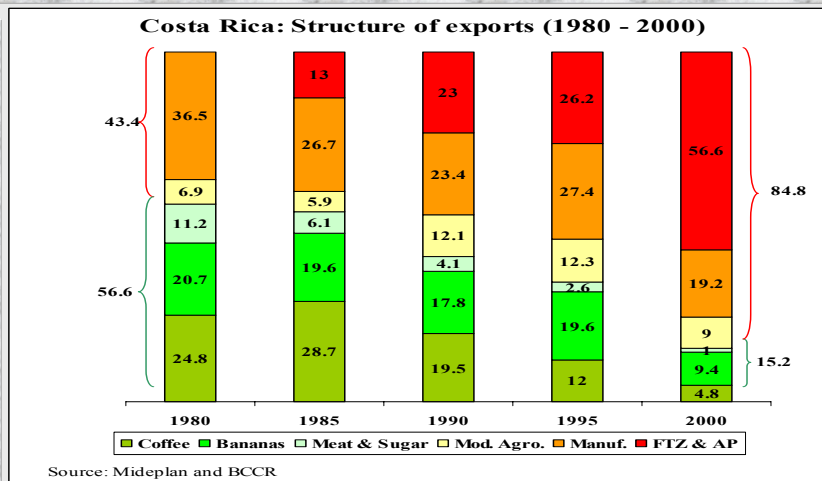
Structure of presentation

- General economic figures
- Energy sector structure
- Energy reforms and sustainable fuels
- Ethanol potential in Costa Rica
- Some general conclusions

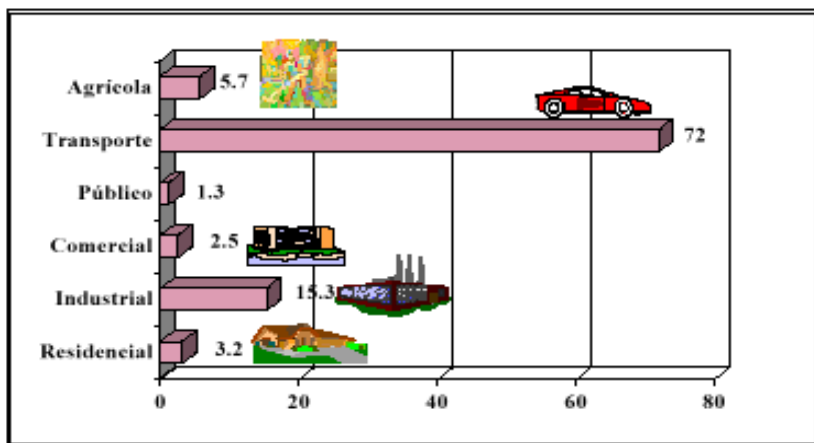
Costa Rican an economy on transition



Exports structure have changed under the last two decades

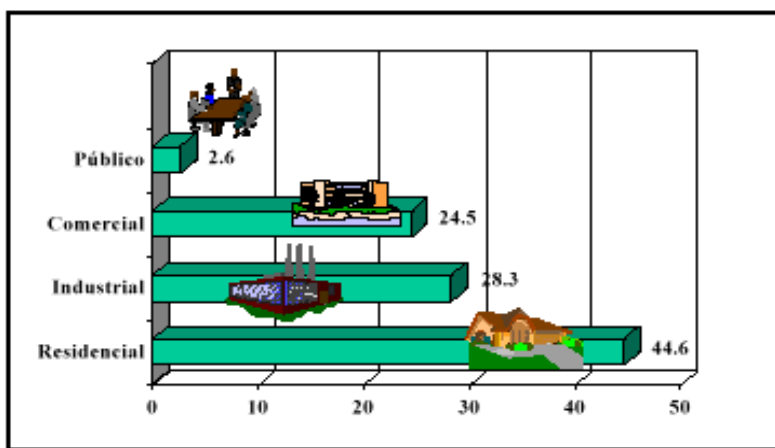


Costa Rica: Consumo de Derivados del Petróleo por Sectores Año 1999



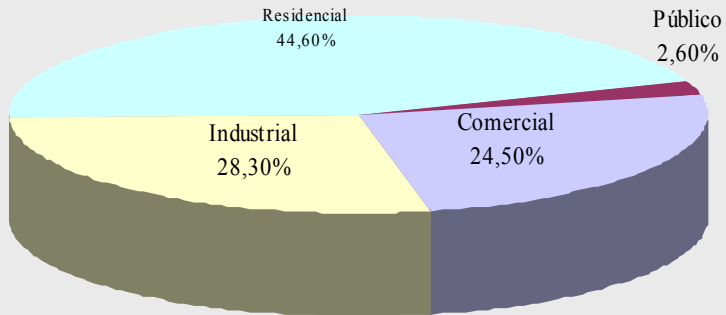
Fuente: DSE, Balance Energético Nacional, 1999, preliminar

Costa Rica: Consumo de Electricidad por Sectores Año 1999

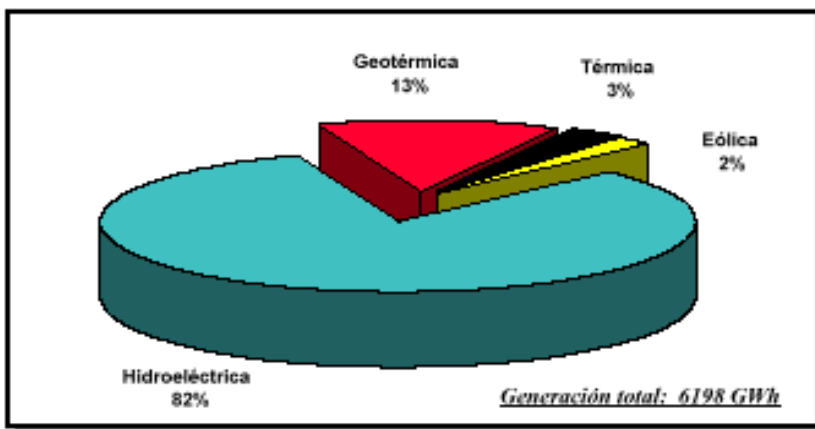


Fuente: DSE, Balance Energético Nacional, 1999, preliminar

Costa Rica: Electricity consumption by sector



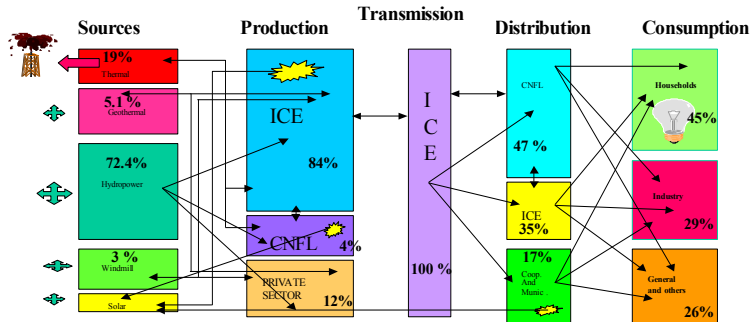
Costa Rica: Producción de electricidad por fuente Año 1999



Fuente: ICE, Resumen Anual 1999, Sistema Eléctrico Nacional

Electricity product chain

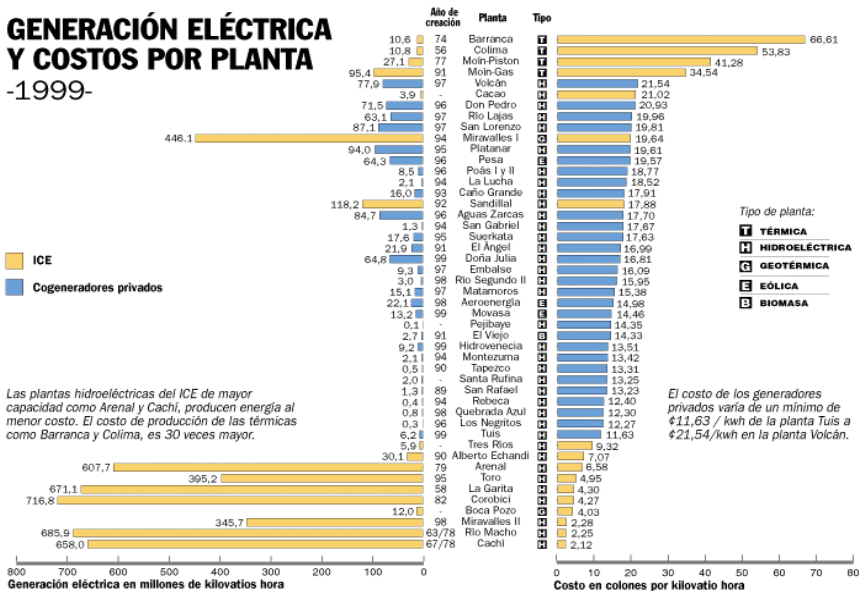
Figure 2.5. Costa Rican Electricity Chain in 1999



Source: Original, with data on the sector in 1998.

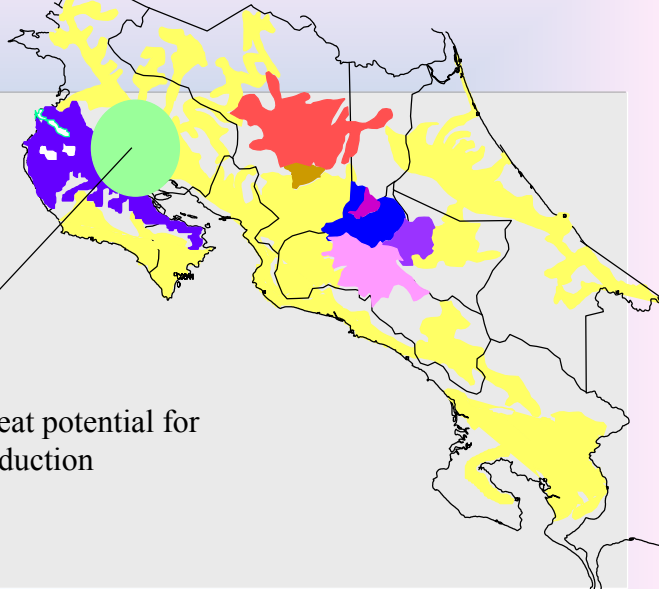
GENERACIÓN ELÉCTRICA Y COSTOS POR PLANTA

-1999-



FUENTE: Unidad Estratégica de Producción de Electricidad, ICE.

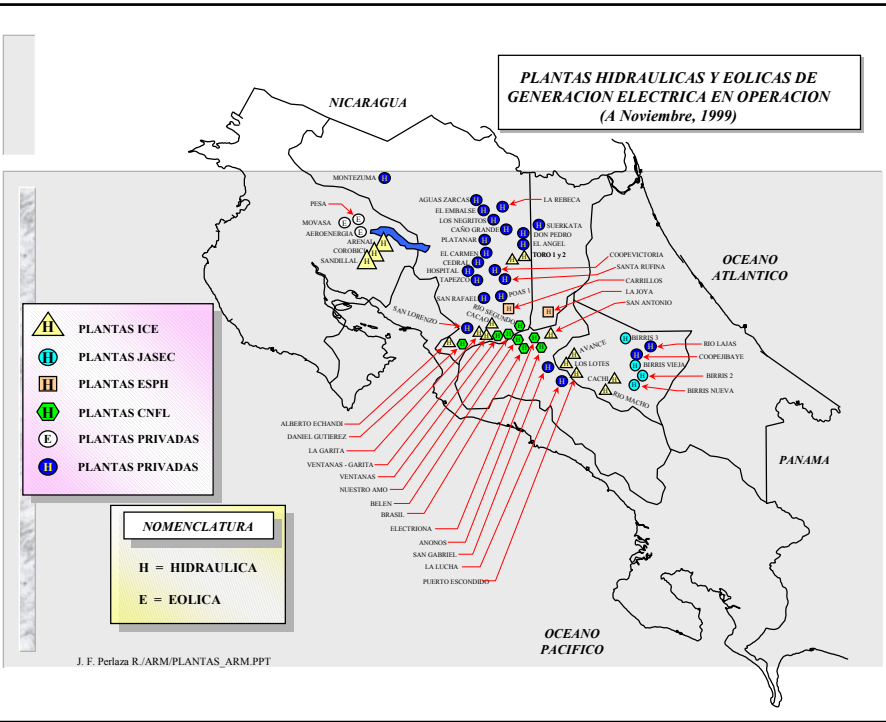
Costa Rican regions by electricity company



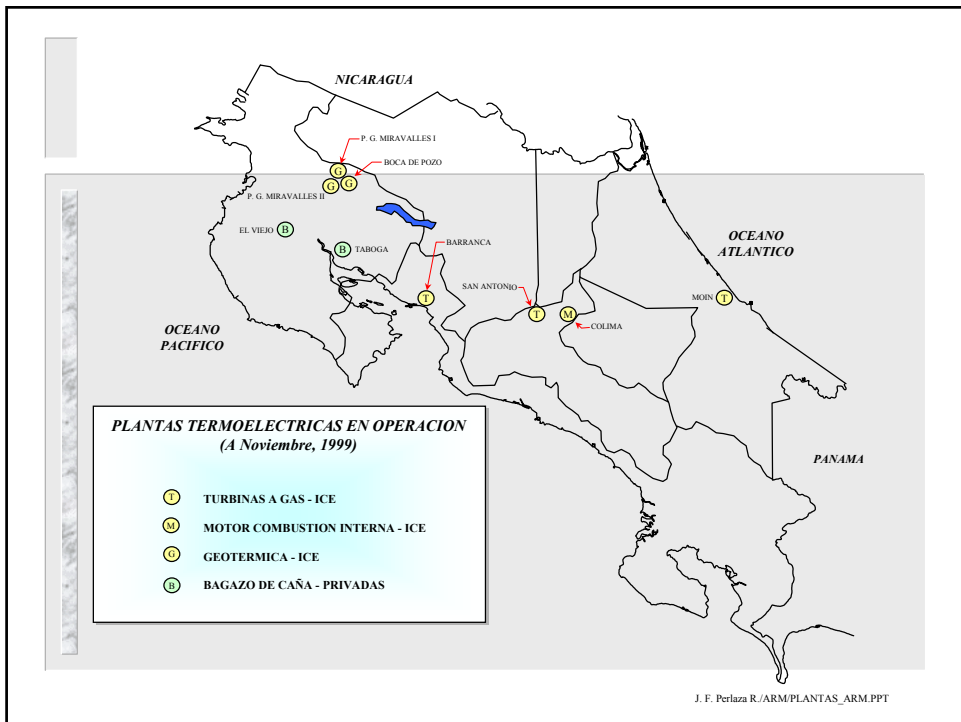
Areas of great potential for ethanol production

Fuente: Proyecciones de Demanda de Energía Eléctrica en C. R. (2000-2002).
Proceso Demanda Eléctrica. CENPE. ICE
Juan F. Perlaza R./MAPACOBÉ.99PPT.

PLANTAS HIDRAULICAS Y EOLICAS DE GENERACION ELECTRICA EN OPERACION (A Noviembre, 1999)



J. F. Perlaza R./ARM/PLANTAS_ARM.PPT



Matrix of ethanol opportunities in Costa Rica

Institutional and political

Positive factor in term of high priority in political terms

Social interest

Very high in term of diversify the industry and develop new relevant value added.
Strong power of environmental groups.

Economical

Low productivity and few modernized sector with an important number of small producers

Regulation

Very regulated economic activity under quotas and internal market structure. Possible for developing new interest groups and alternative pricing policies.

Source: Own description with experiences and interviews.

Energy subsectors in Costa Rica

Electricity

- ⌘ Oligopoly market dominated by public sector company ICE
- ⌘ High dependence on hydro-electric resources
- ⌘ High subsidies on consumption and rural areas
- ⌘ Clean energy cluster development, including co-generation using sugar industry.

Petrol

- Highly concentrated in public hands
- Growing demands for fuels in transportation sector
- Monopoly and oligopoly market conditions, regulated by public agency ARESEP
- Strong environmental discussion on exploration and exploitation of national resources
- Few substitution possibilities as for example ethanol.