
SMALL HYDRO DEVELOPMENT IN MEXICO

October, 2010

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Motivation

- The Mexican Ministry of Energy has shown interest in pursuing the development of renewable energy projects to:
 - ✓ diversify Mexico's technology generation mix
 - ✓ reduce CO2 emissions
- Estimates show that Mexico's untapped small hydro potential is vast
- The recently published "Renewables Law" establishes mechanisms to promote renewable technologies.



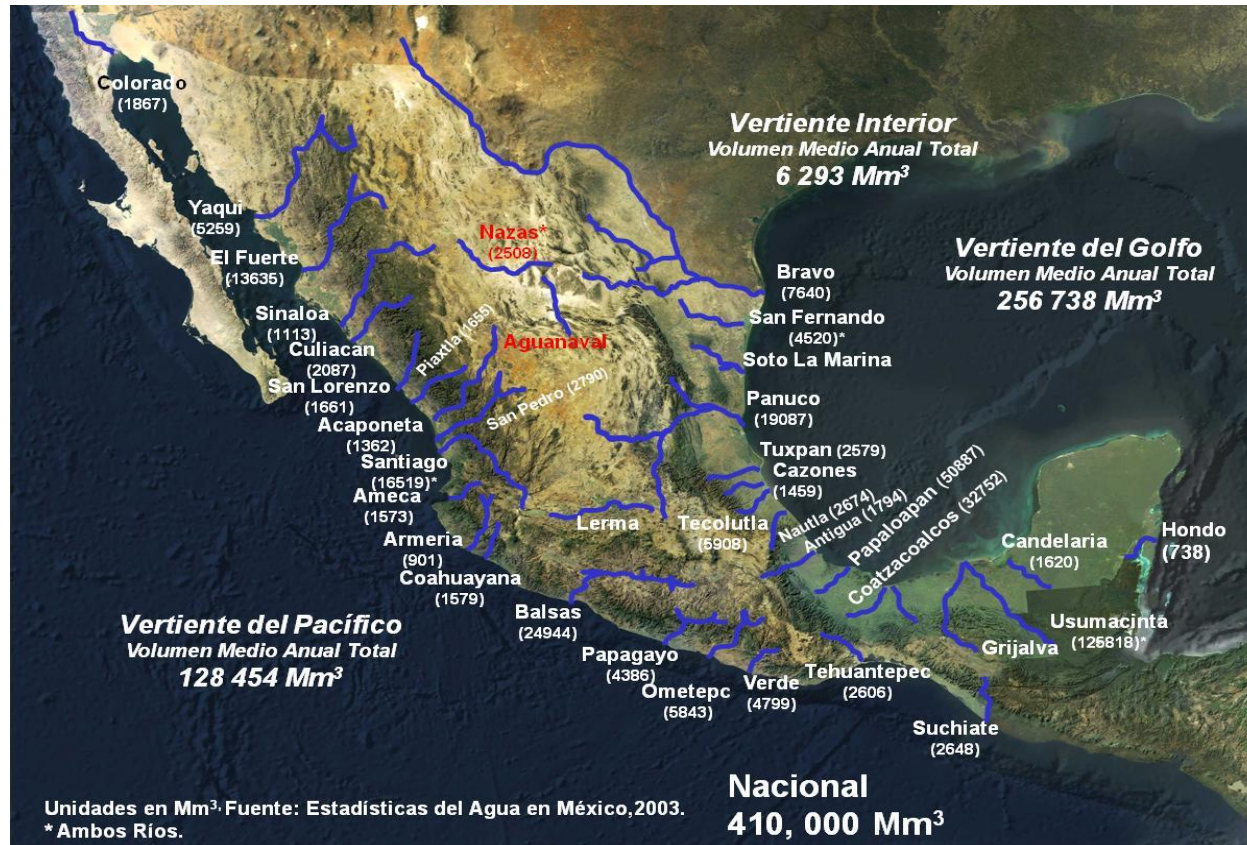
The Mexican energy sector is analyzing the potential development of small hydro

The Ministries of Energy and Environment, the National Commission of Waters and the CFE have agreed to study the potential development of small hydro

The objectives:

- **Identify the small hydro potential**
- **Analyze the institutional and legal framework to identify potential barriers**
- **Get feedback from potential private investors**

What is the small hydro potential in Mexico?



According to the National Commission on Energy Efficiency the estimated potential is **3,250 MW**

Existing and future capacity

EXISTING VS PLANNED CAPACITY (MW)



- Gap between existing capacity and target will be probably filled by the private sector

Barriers to small hydro development



Main Barriers

FINANCIAL

- Are small hydro projects financially viable?

REGULATION & INSTITUTIONAL

- What is the situation on administrative procedures, rights-of-way, water rights, and community intervention?

TECHNICAL

- Is there enough information and expertise?

FINANCIAL Barriers to small hydro development

Small hydropower has not been financially viable:

Tariffs

- **Payment** is done based on the volume of water used and not on the amount of electricity generated

Costs

- Projects **financial viability decreases** significantly after considering the additional costs regarding transmission and interconnection
- Private investor tend to favor projects that build up on exiting infrastructure. **Greenfield projects** are not financially viable (on average, 70% of the total cost on a NEW project is related to building the infrastructure while 30% is for the electro mechanic equipment)

Financing

- Limited access to **long term financing**



REGULATION Barriers to small hydro development

Water rights

- **Water rights difficulties** have been cited as impeding the development of projects.
 - ✓ This issue could be addressed by setting up new, more effective regulations for authorization of water use.



Rights-of-way

- Similarly, many issues that have arisen from **rights-of-way** could be settled by requiring a **social assessment** for all hydro projects.
 - ✓ The regulations must contain the necessary requirements and process to obtain, the necessary temporary and definitive concessions that grant the use of the land to develop a hydropower project.

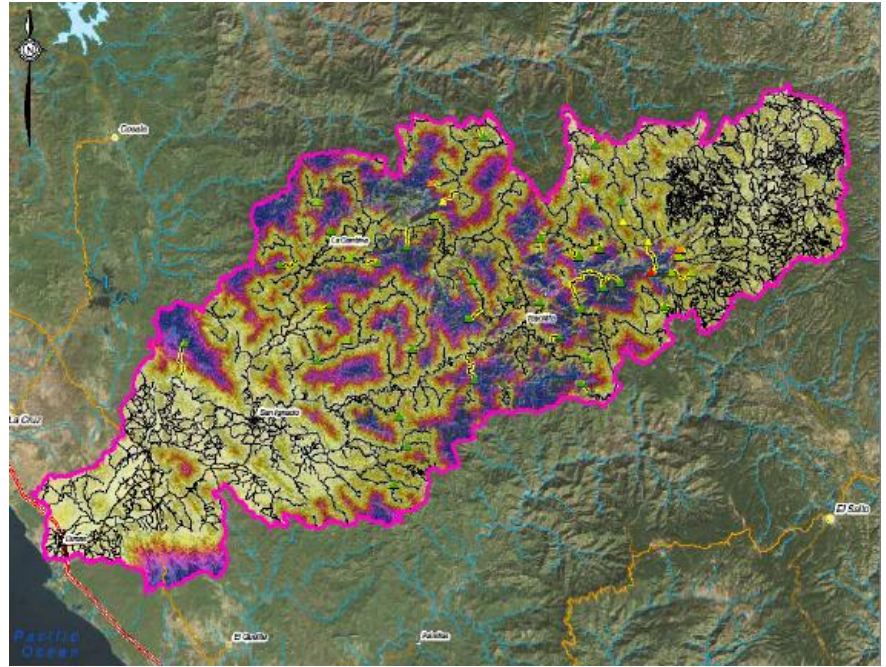
Admin. procedures

- No procedures in place to facilitate the use of existing infrastructure
- Administrative procedures seem long and difficult
- Different requirements at local and federal jurisdictions make administrative procedures more difficult

TECHNICAL Barriers to small hydro development

Access to Information

- Insufficient HYDRO information
- Deficient information that leads to over/sub estimating the benefits of projects



Expertise

- Not enough expertise on the development of small hydro projects

STUDY AREA



NEXT STEPS

- Establish mechanisms to allow coordination between governmental authorities
- Make procedures easier and more efficient:
 - Concessions
 - Water rights
 - Legal regularization of old public centrals to allow reutilization
- Establish financial incentives:
 - Competitive tariffs
 - Access to long term finance
- Access to quality hydrological information for decision making