

**UN HABITAT Environmental Technology Expert Group Meeting II**  
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in the Asia Pacific Region”*  
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# UTILIZATION OF POTENTIAL ENERGY RESOURCES FOR SORSOGON CITY'S SUSTAINABLE DEVELOPMENT

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Sorsogon City, Philippines



MAP OF SORSOGON CITY

**History:**

Created in 2000, through the merger of the municipalities of Sorsogon and Bacon

**Land Area:** 31,292 has.

**Population:** 160,000

**Growth Rate:** 1.78%

**Economy:** Agriculture, Fishing, Trade, and Services

**Poverty situation:** 23% live below poverty threshold

**Governance:** Decentralized

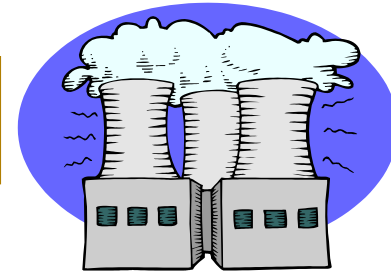
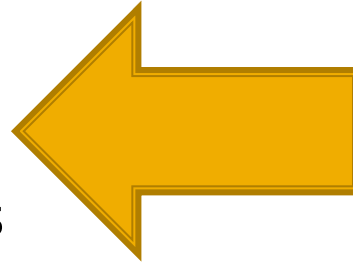
**Role in the Province:** Administrative, Commercial and Educational Center

**Annual budget:** ₱ 870 M  
 \$ 10.3 M  
 P 466 M

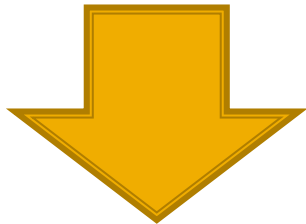
# Power supply



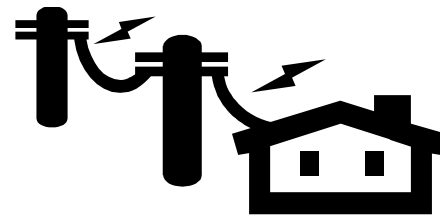
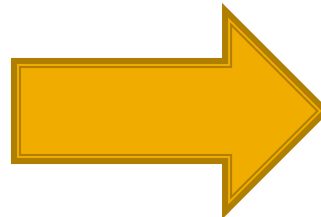
National Grid  
Corporation  
of the Philippines



Energy Development  
Corporation

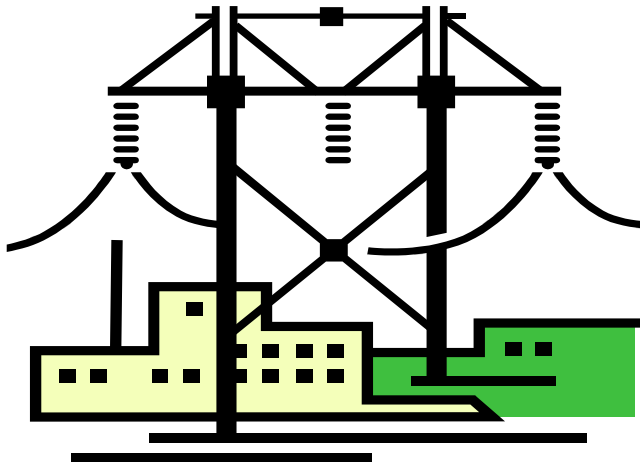


SORECO 2



Consumers

# Rates



## Power Rates (per kwh)

- Residential use – ¥22.82(\$0.27)
- Commercial use – ¥18.79(\$0.22)
- Industrial use – ¥18.79(\$0.22)

# Cooking energy



Residential houses use LPG, electricity, charcoal and firewood as cooking fuel

# Transportation



Transportation in the city relies on fossil fuels like gasoline and diesel

# City's geothermal plant

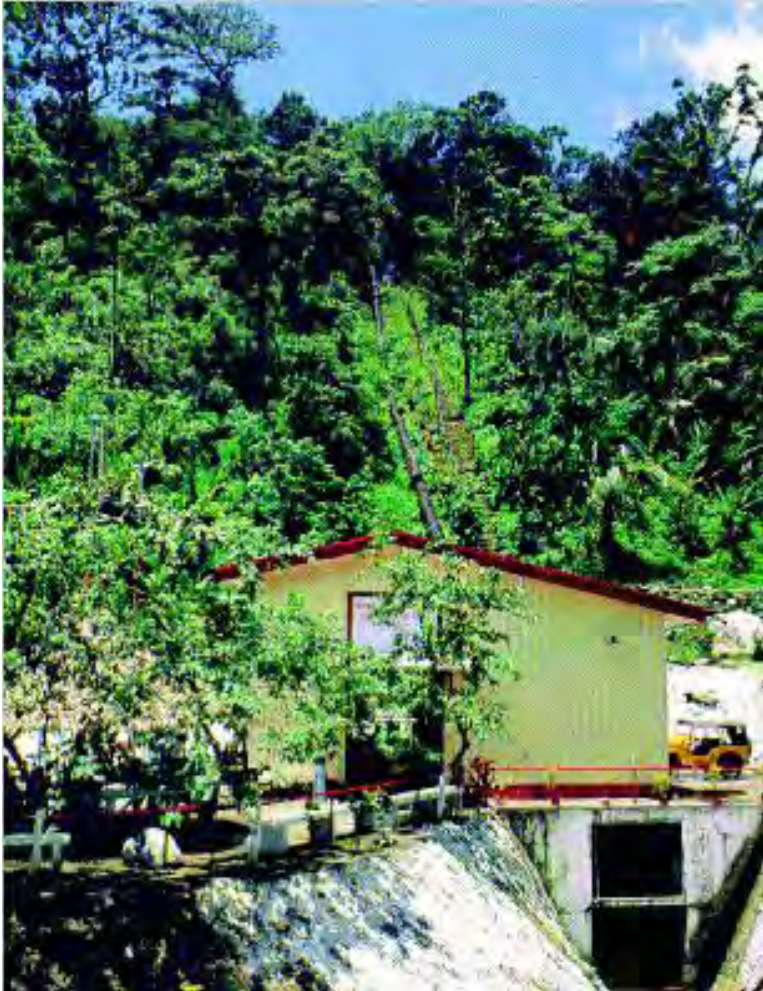


BACMAN geothermal power plant

- Operated by a private entity
- Generates 150 megawatts but directed to the national grid before its distribution to the consumers



# Existing mini hydro power plant



## Cawayan Hydro Electric Powerplant

- Generates only 160 to 180 kilowatts due to a damaged turbine from a typhoon.
- Rehabilitation and upgrading - can generate up to 1 megawatt



# Other potential energy resources



Barangays Osiao and San Juan

For hydro development

- Osiao River
- Rangas River
- Sibulan River

Existing Cawayan hydro

- Aggregate capacity of 2 to 3 MW.



# Solar energy potential



- Household level installation of solar panels can be practicable once commercialized
- Sorsogon City's climate – no pronounced dry season year round but the city experiences now 8 months of dry season with rainy days during months of November to February with the changing climate
- National weather agency projection – increased in temperature and precipitation in the next 50 years

# Wind energy potential



The city is a coastal city with a coastline of 75 kilometers on both sides.

# Biogas potential



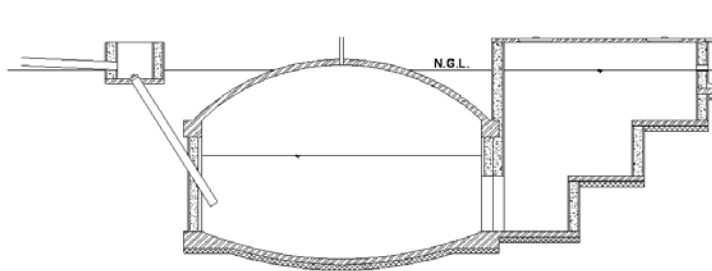
- The city generates 86 cubic meters of solid waste
- 2 sites for the solid waste disposal, not converted into a landfill yet
- A possible off-site biogas generation plant can also be a potential subject to the volume requirements.

# Biogas potential



## Proposed city slaughterhouse

- New site with new facilities.
- Wastewater treatment facility
- Biogas digester to demonstrate biogas harvesting for water heating



Valenzuela City Slaughterhouse Wastewater Treatment Facility with Biogas digester Model



## Sorsogon City hosted the summit for the Alliance of Geothermal Energy Producing LGUs (AGEPL).

- Taxation due to the local government units
- Possible preferential power rates for the host cities and municipalities to geothermal energy generation
- Future plans to include expansion of the group's concern to other renewable energies

# Issues and challenges

- Lack of technical capacity to assess viability of potential energy resources
- Ownership of Cawayan hydro electric plant with an external investor
- Implementation of solid waste management in the city – a challenge
- Exploring of a possibility of developing geothermal or other renewable energy resources for the City's power consumption

# Possible partnerships

Partnerships/cooperation can be undertaken on the technical and financial aspects

Investors can explore possibilities that would be beneficial for both the local government and the business partner either for demonstration or major projects.

Sorsogon City after all is looking forward to a sustainable environmental development



Maraming salamat po.