

*Regional Validation Workshop on the use of
Geographical Information Systems in the energy sector
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Energy and Rural Electrification Planning in Cape Verde

Jaqueline Pina
General Direction of Energy



Ministério da Economia
e Emprego



Index

- 1 – Introduction;
- 2 – Energy Planning;
- 3 – GIS Implementation;
- 4 - Energy Information Systems

Introduction – Country Profile

- **Area:** 4.033 km²
- **Region:** West Africa
- **Population 2015:** ~ 525 000 (source: www.ine.cv)
- **GDP 2015:** 6,210.5 (source: www.undp.org)
- **Indigenous Energy Resources:** Solar, Wind and Biomass
- **Cape Verde consists of 10 islands, 9 inhabited.**



9 micro energetic systems



Introduction – Energy Profile

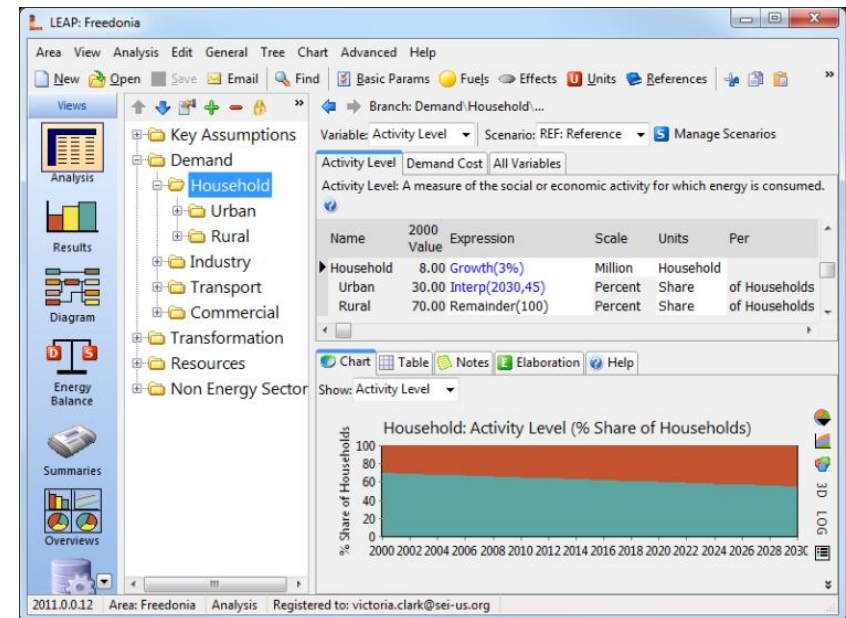
- **Total Energy Supply (2015): 196 ktep** (source: DGE)
 1. Oil: 80%
 2. Biomass – 17%
 3. Solar/Wind – 3%
- **Total Net Production 2014:** ~ 408 GWh - 17% is renewable (solar and Wind)
- **Total Installed Capacity 2015:** ~ 192 MW ; 17% is renewable (solar and wind)
- **Electricity access 2015:** 86% (source: www.ine.cv)
 1. Urban – 90%
 2. Rural – 78%
- **Electrification rate 2015:** ~ 95% (source: DGE)
 1. Urban – 98%
 2. Rural – 78%

Energy Planning

- Now:
We use **Excel** for energy planning

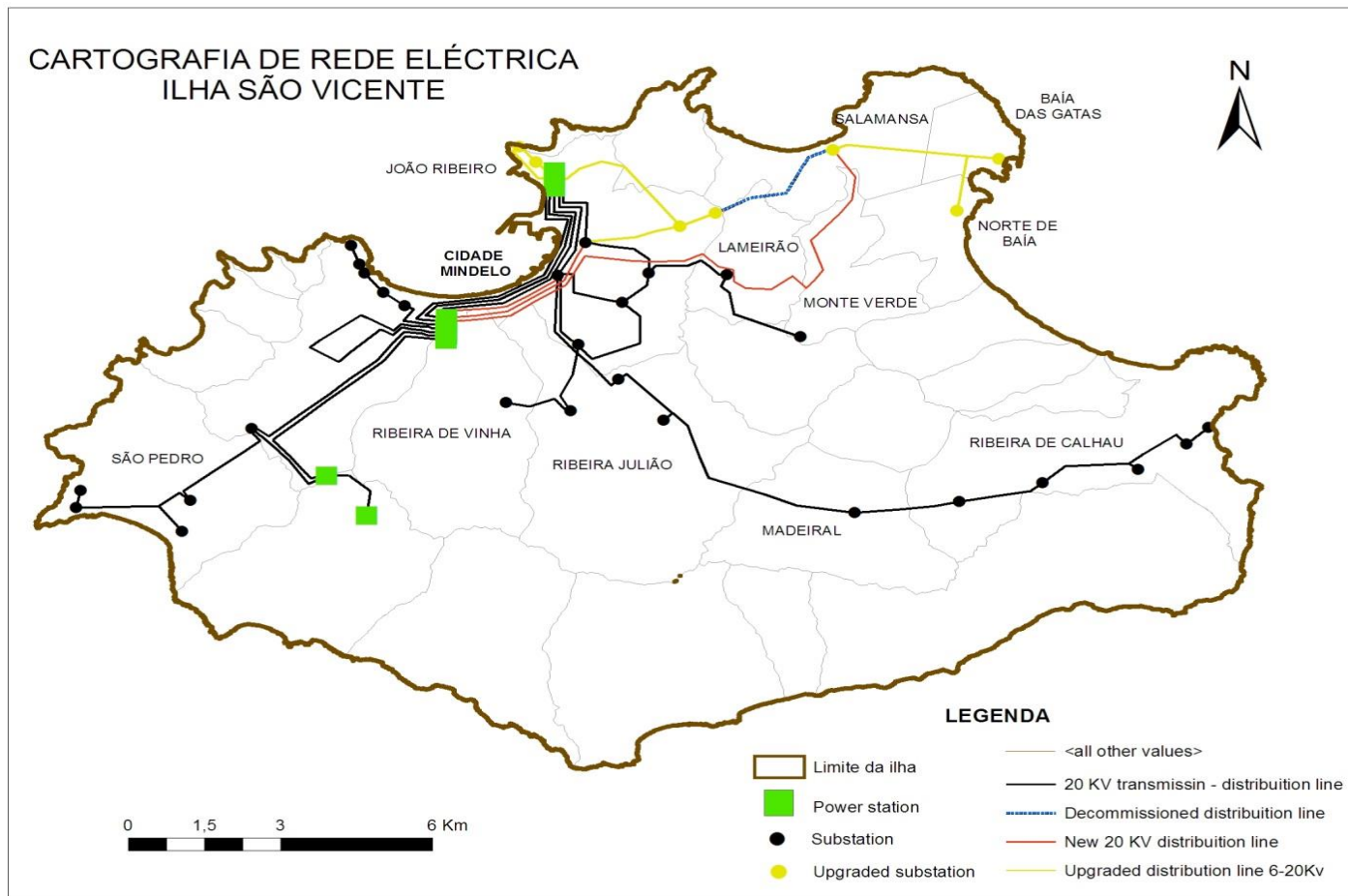


- In the Future:
Use **LEAP** (Long range Energy Alternatives Planning)



GIS Implementation

In Cape Verde we use Quantun GIS (QGIS) to:



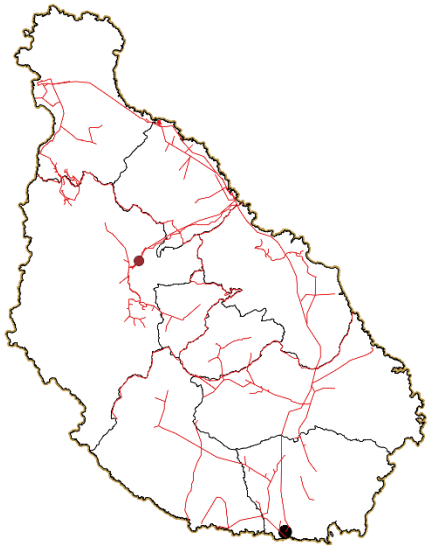
1 -Design electric networks

Source: DGE, 2012

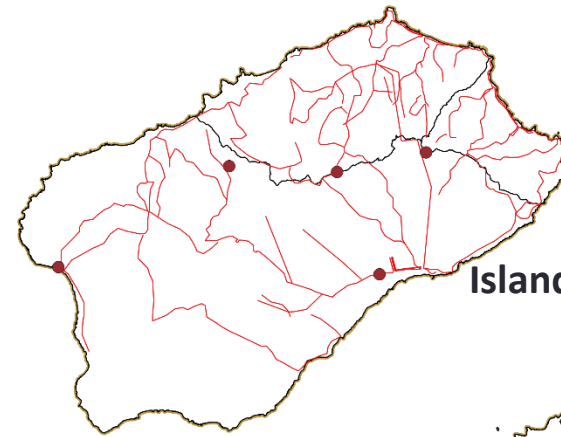
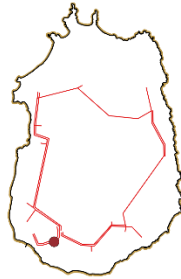
GIS Implementation

2 – Generators Energy – Conventional energy

Island Santiago



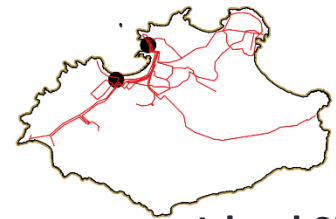
Island Maio



Island Santo Antão

Legenda

- Diesel
- HeavyFuel
- 20 KV - Transmission - Distribution Line

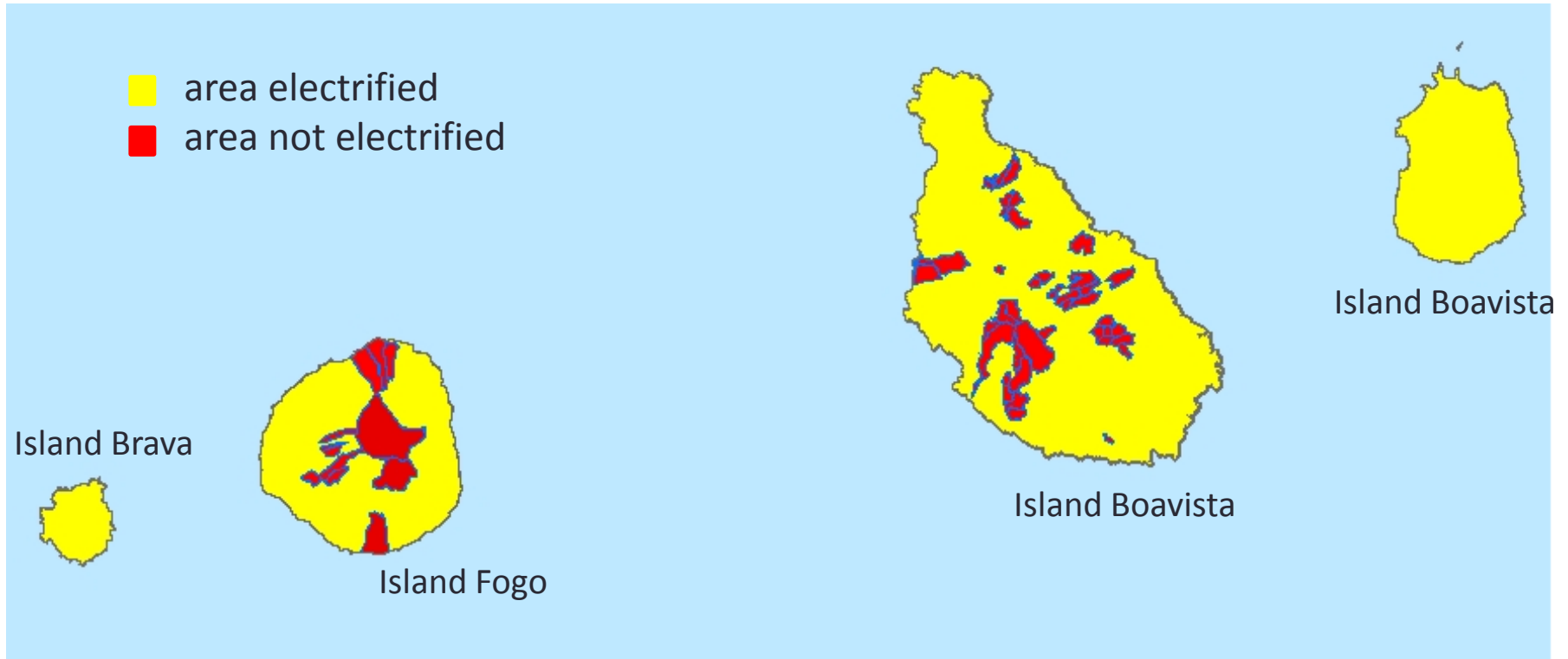


Island São Vicente

Source: DGE, 2015

GIS Implementation

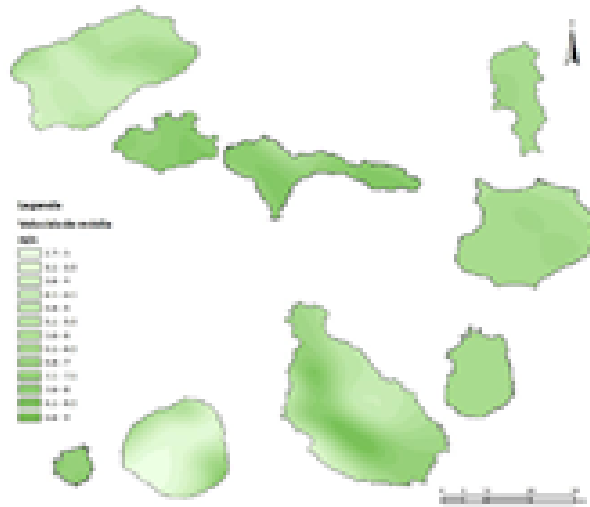
3 - Electrification – definition of electrified areas and not electrified;



Source: DGE, 2012

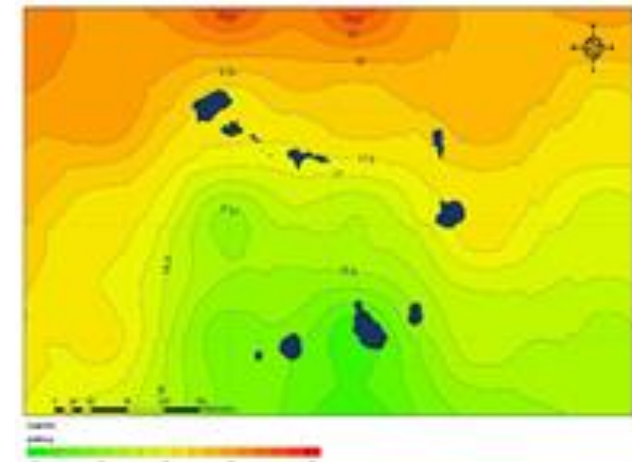
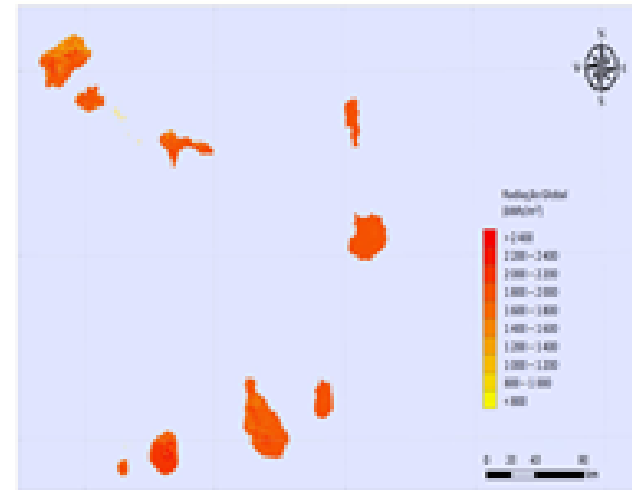
GIS Implementation

4 - Energy Resources;



Wind Energy Map

Solar Energy Map



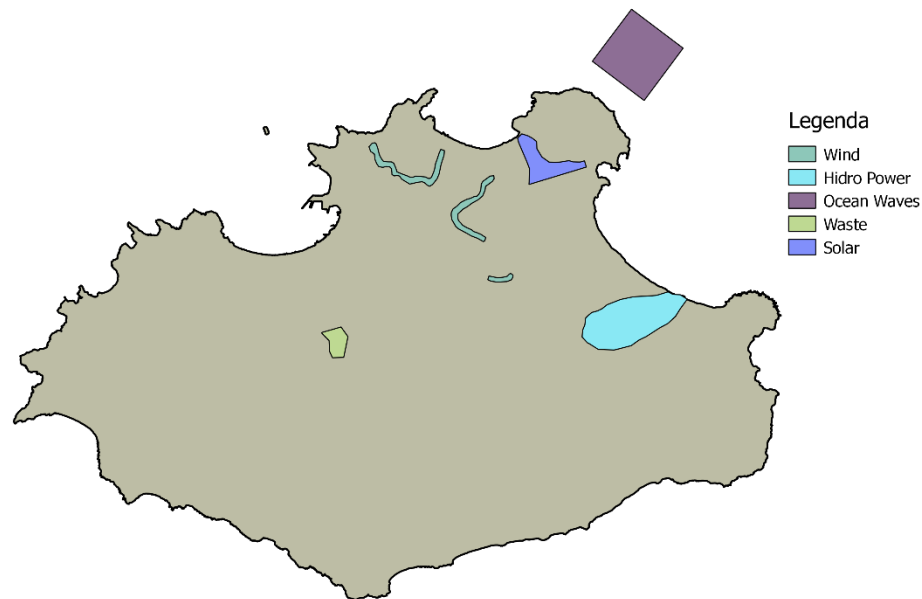
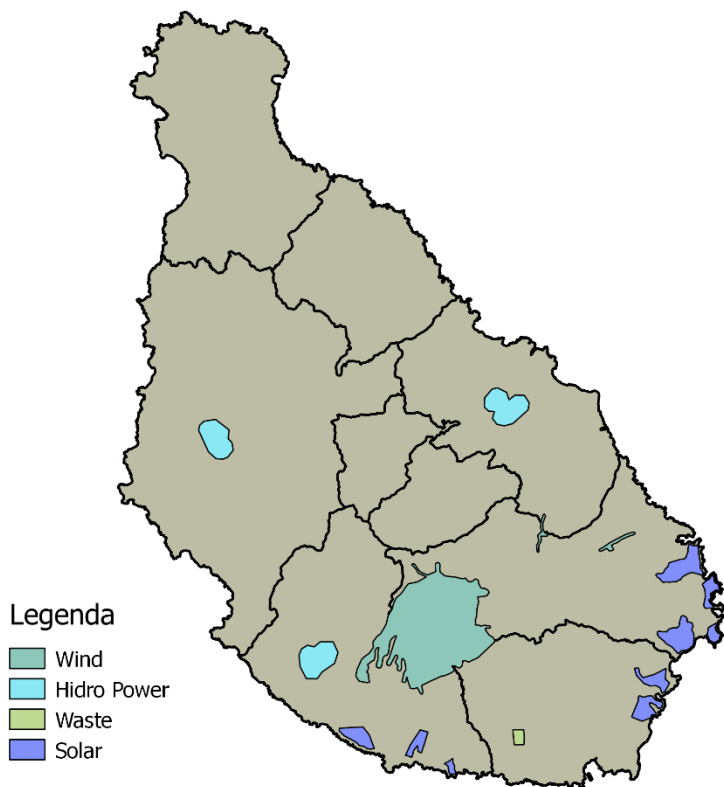
Ocean Waves Energy Map

Source: DGE, Gesto; 2010

GIS Implementation

5- Defining areas for future projects of renewable energy

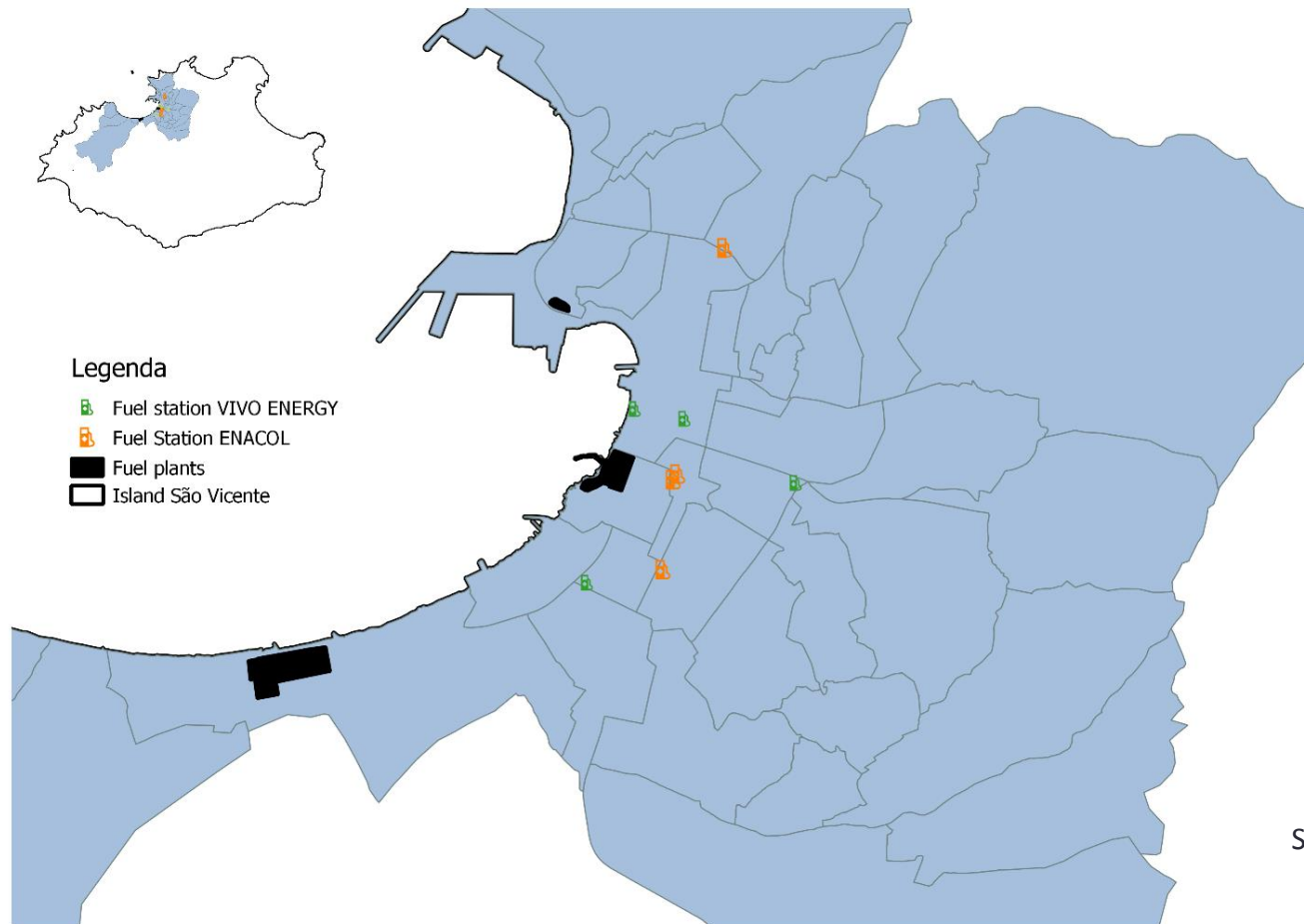
Island Santiago



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GIS Implementation

6 - Fuel infrastructure



Source: DGE 2015

Energy Information Systems (SIE)

- We do not have an energy information systems implemented in the country;
- DGE is responsible for the collection, processing, validation and dissemination of energy information;
- In the future:
 1. definition of the Energy Information System tools;
 2. Creation and training of the department responsible for energy statistics;
 3. Creating web platform for the delivery of data and documents energy.

Obrigado
Thank you
Merci

Jaqueline Pina
Jaqueline.pina@mtide.gov.cv

