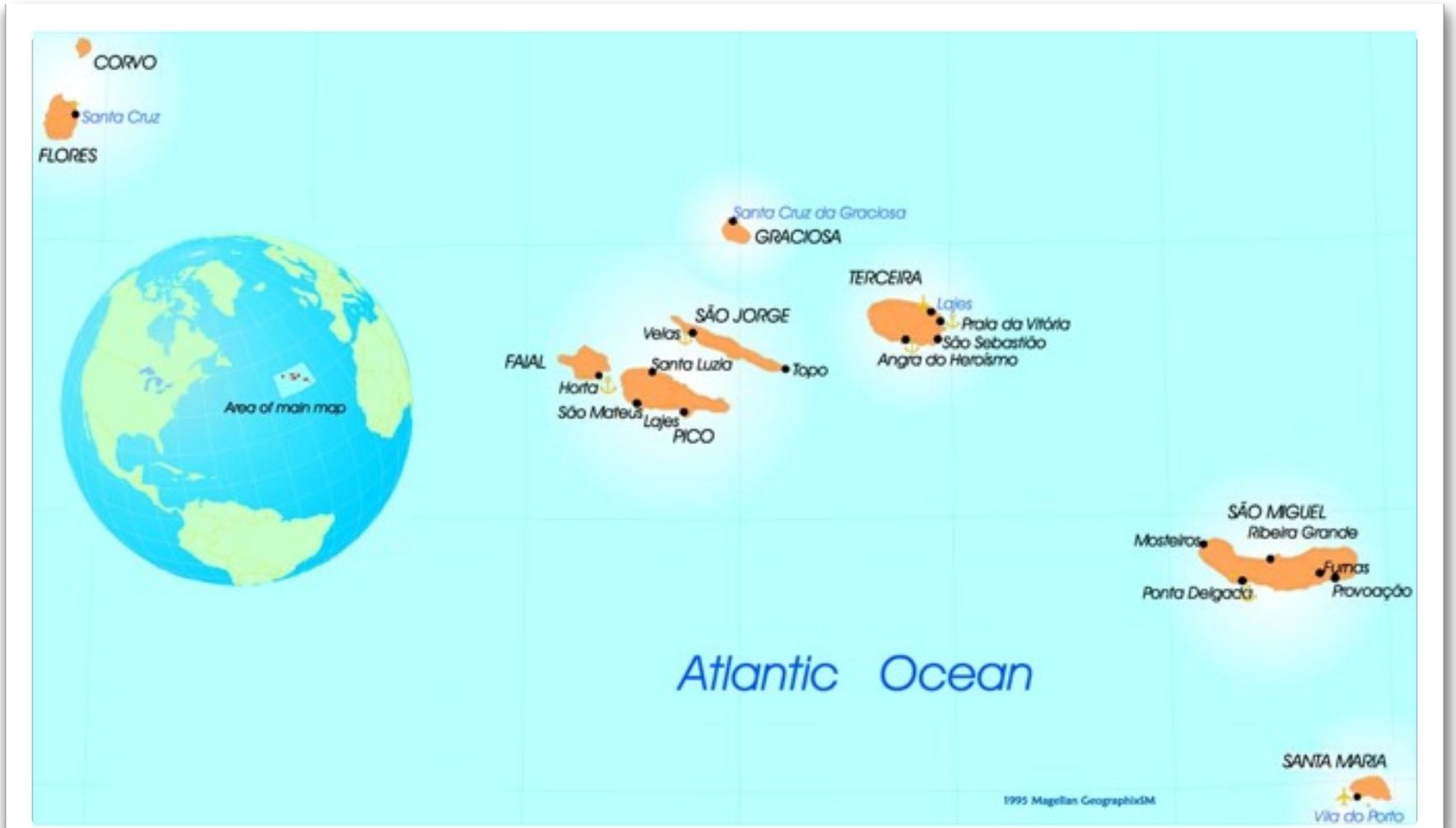
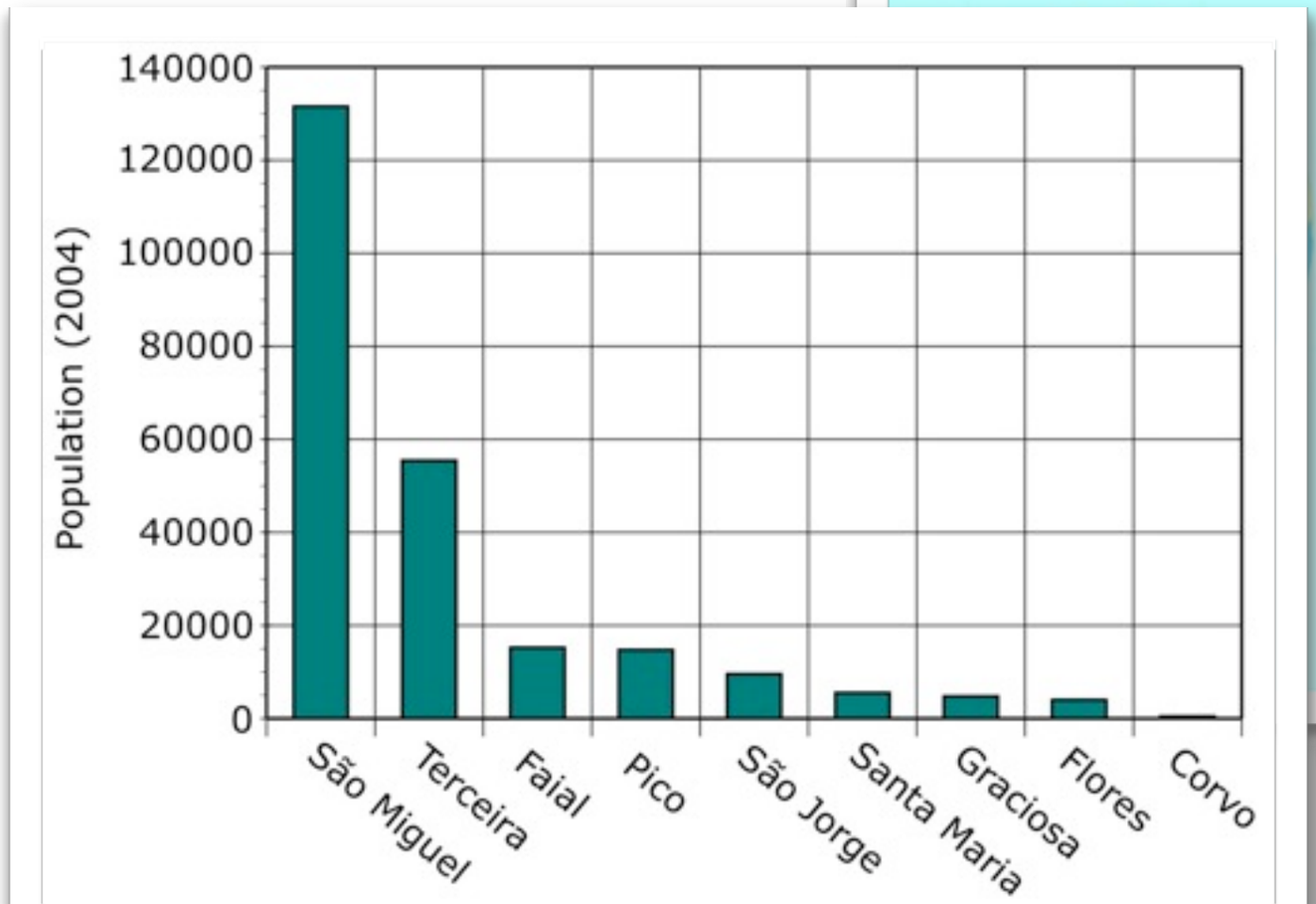
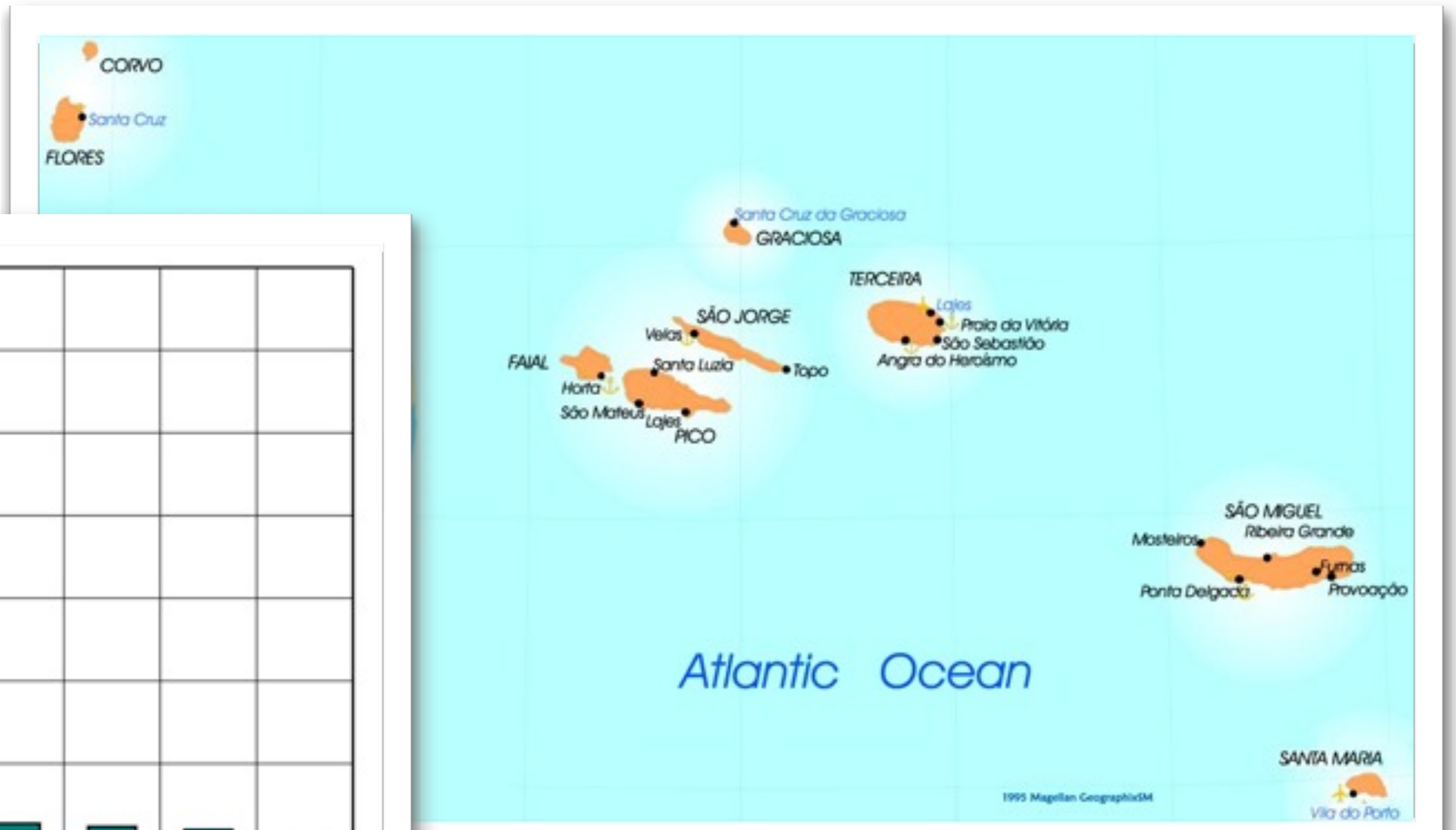
Green Islands Project:
Research Integration Workshop



Can "Island Regions" Become the Test Bed for a "Fossil Free" Future?

Introducing the Azores





Nine Unique Islands

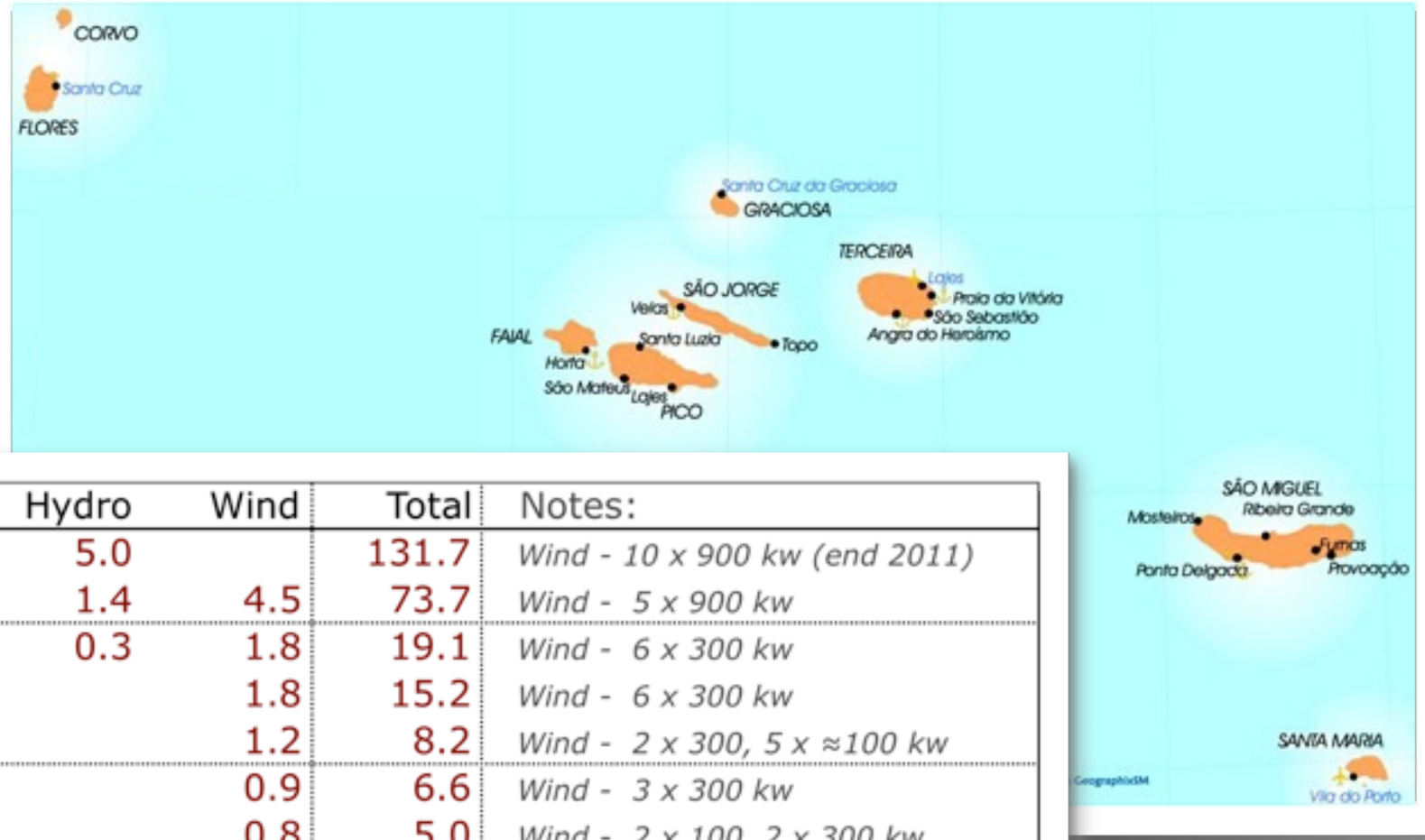
Population, Economy, Topography, Energy Demand, Renewable Resources

Renewable Energy Goals for 2018

- ***Electricity from Renewables***
  = 75% (of Total Final Energy)
- ***Renewables** as Proportion of*
  ***Total Primary Energy** = 40%*
- ***Electricity** as Proportion of*
  ***Total Primary Energy** = 50%*

(+ Dramatic Reduction in Fossil Fuel Imports)

Introducing the Azores



Existing Generation (MWs)

(End 2008)

	Diesel	Geoth.	Hydro	Wind	Total	Notes:
São Miguel	98.1	27.8	5.0		131.7	*Wind - 10 x 900 kw (end 2011)*
Terceria	67.8		1.4	4.5	73.7	*Wind - 5 x 900 kw*
Faial	17.0		0.3	1.8	19.1	*Wind - 6 x 300 kw*
Pico	13.4			1.8	15.2	*Wind - 6 x 300 kw*
São Jorge	7.0			1.2	8.2	*Wind - 2 x 300, 5 x ≈100 kw*
Santa Maria	5.7			0.9	6.6	*Wind - 3 x 300 kw*
Graciosa	4.2			0.8	5.0	*Wind - 2 x 100, 2 x 300 kw*
Flores	2.3		1.5	0.6	4.4	*Wind - 2 x 300 kw*
Corvo	1.0				1.0	
All Azores	216.5	27.8	8.2	11.6	264.9	

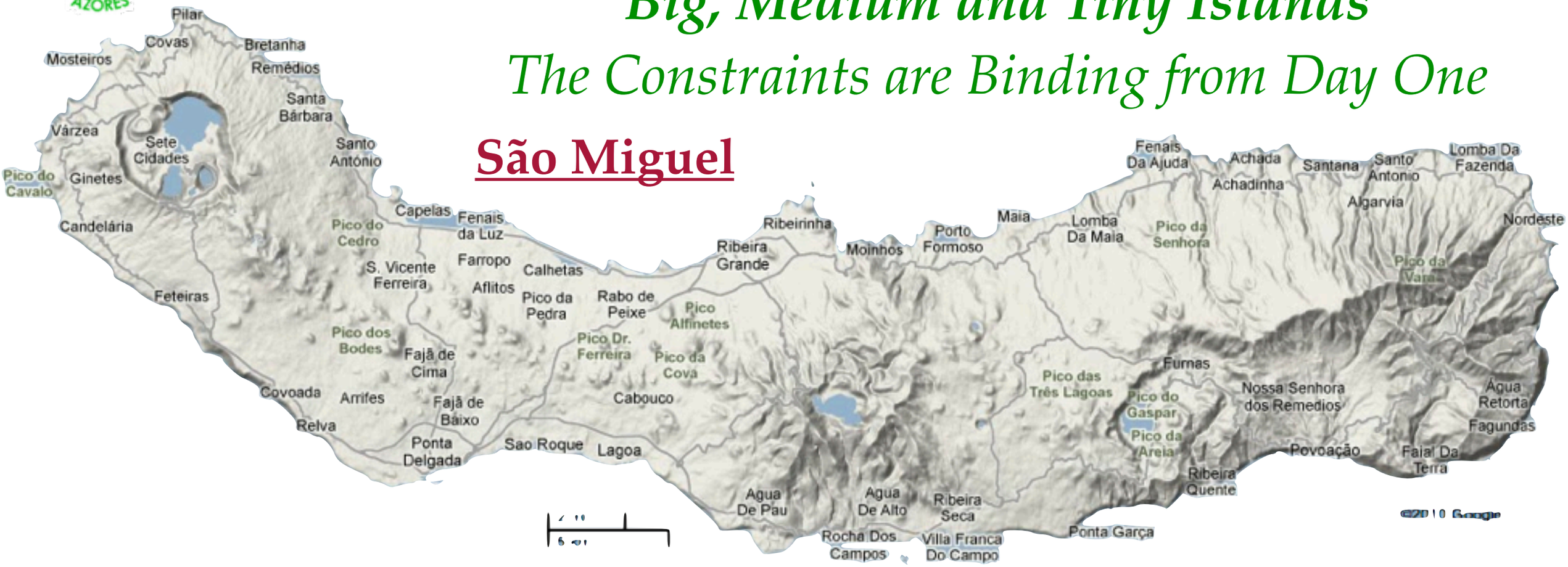
Nine Unique Islands

Population, Economy, Topography, Energy Demand, Renewable Resources

The Eastern Group

"Big, Medium and Tiny Islands"

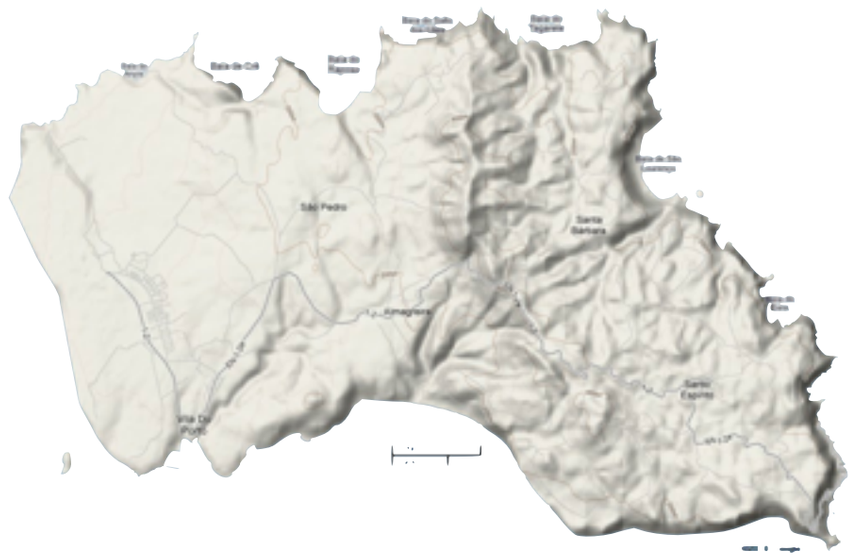
The Constraints are Binding from Day One



São Miguel - 130k People – The BIG Metropolis

- Geothermal Generation
- Wind Under Construction

Santa Maria

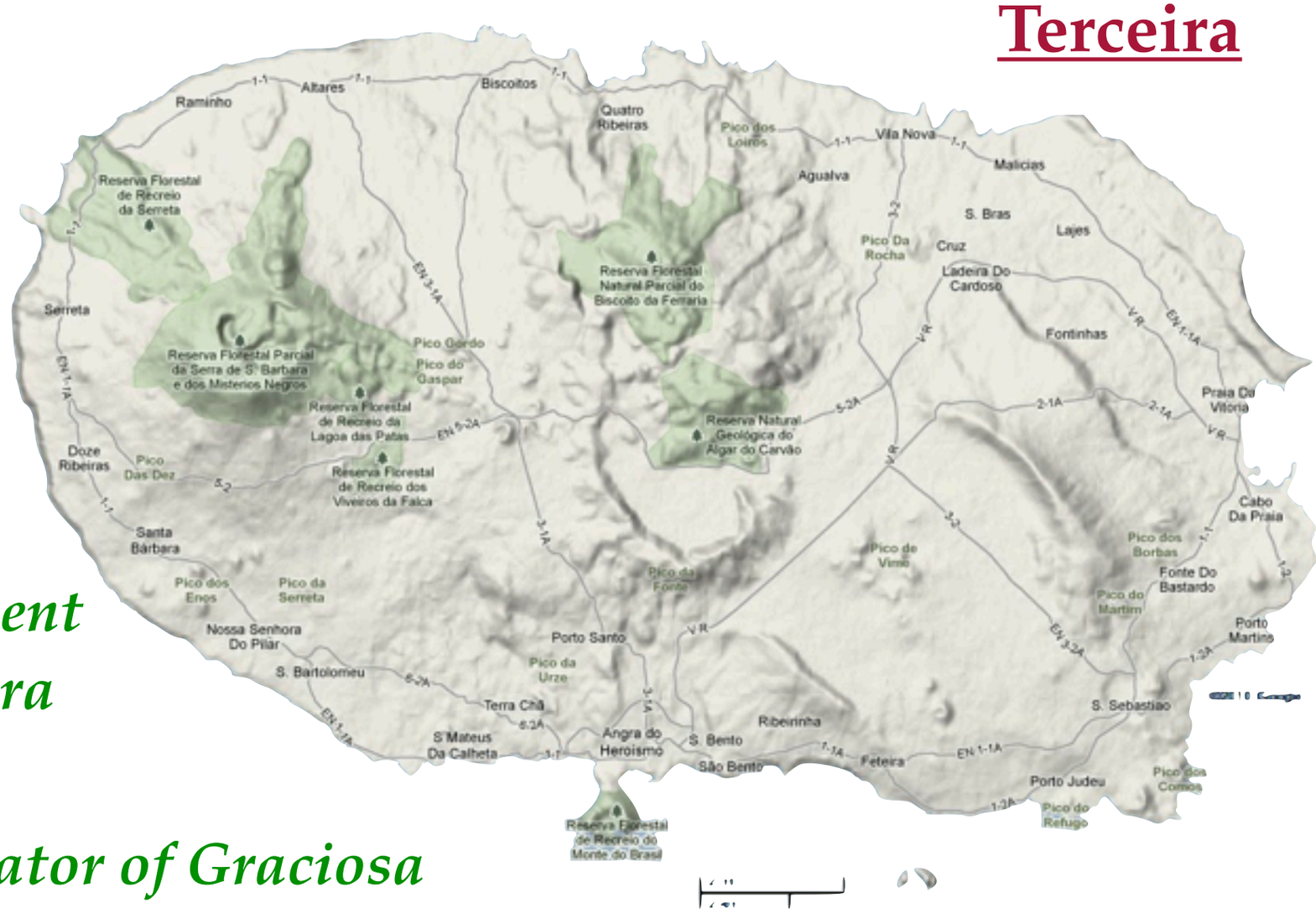


The Central Group-North

"Big, Medium and Tiny Islands"

The Constraints are Binding from Day One

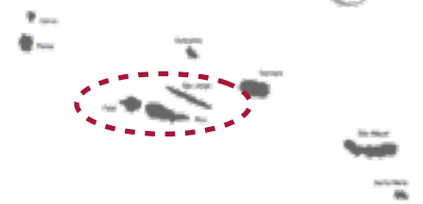
Graciosa



- *Geothermal Exploration on Terceira*
- *Electric Vehicle Deployment Demonstration on Terceira*
- *Flywheels on Graciosa*
- *Younicos Physical Simulator of Graciosa*

Terceira

The Central Group - South



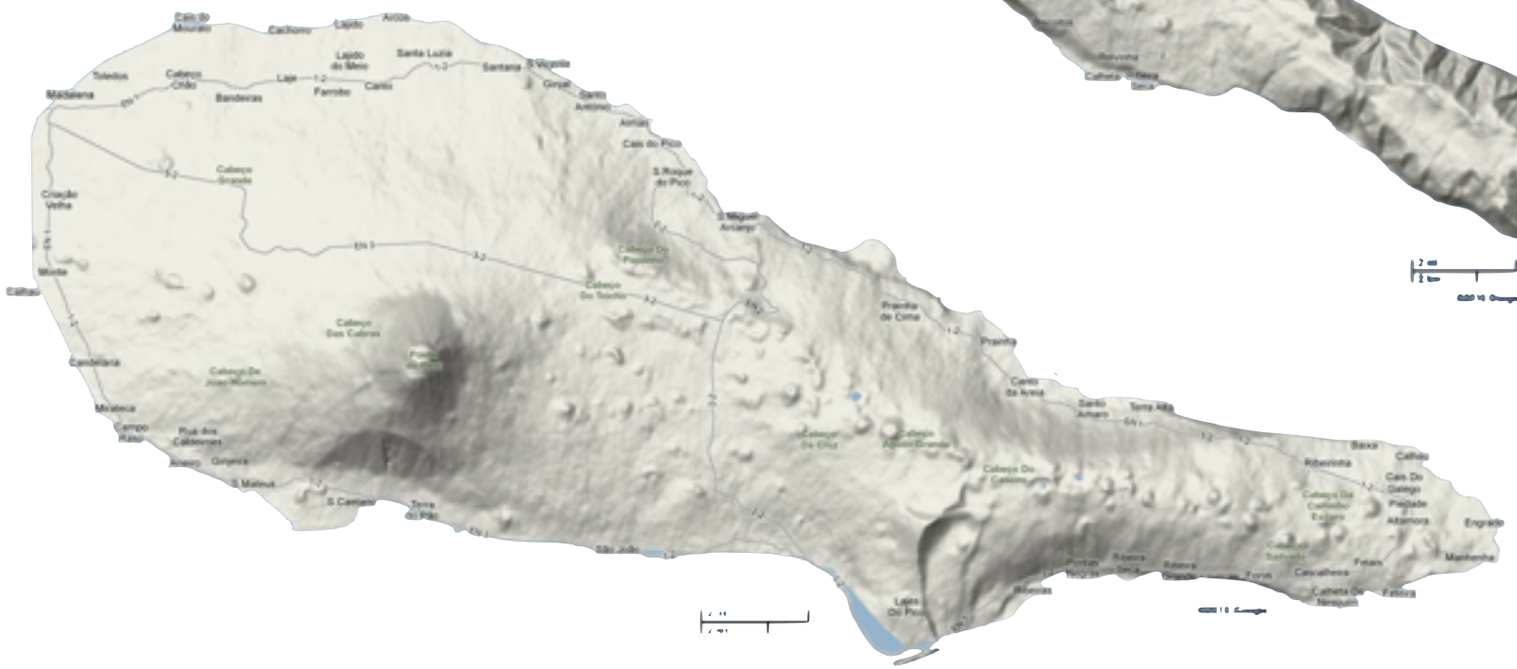
"Big, Medium and Tiny Islands"

The Constraints are Binding from Day One

Faial

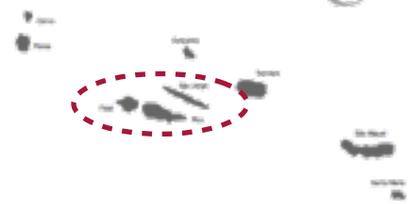
São Jorge

Pico



- *A Diversity of Topographies*

The Central Group - South

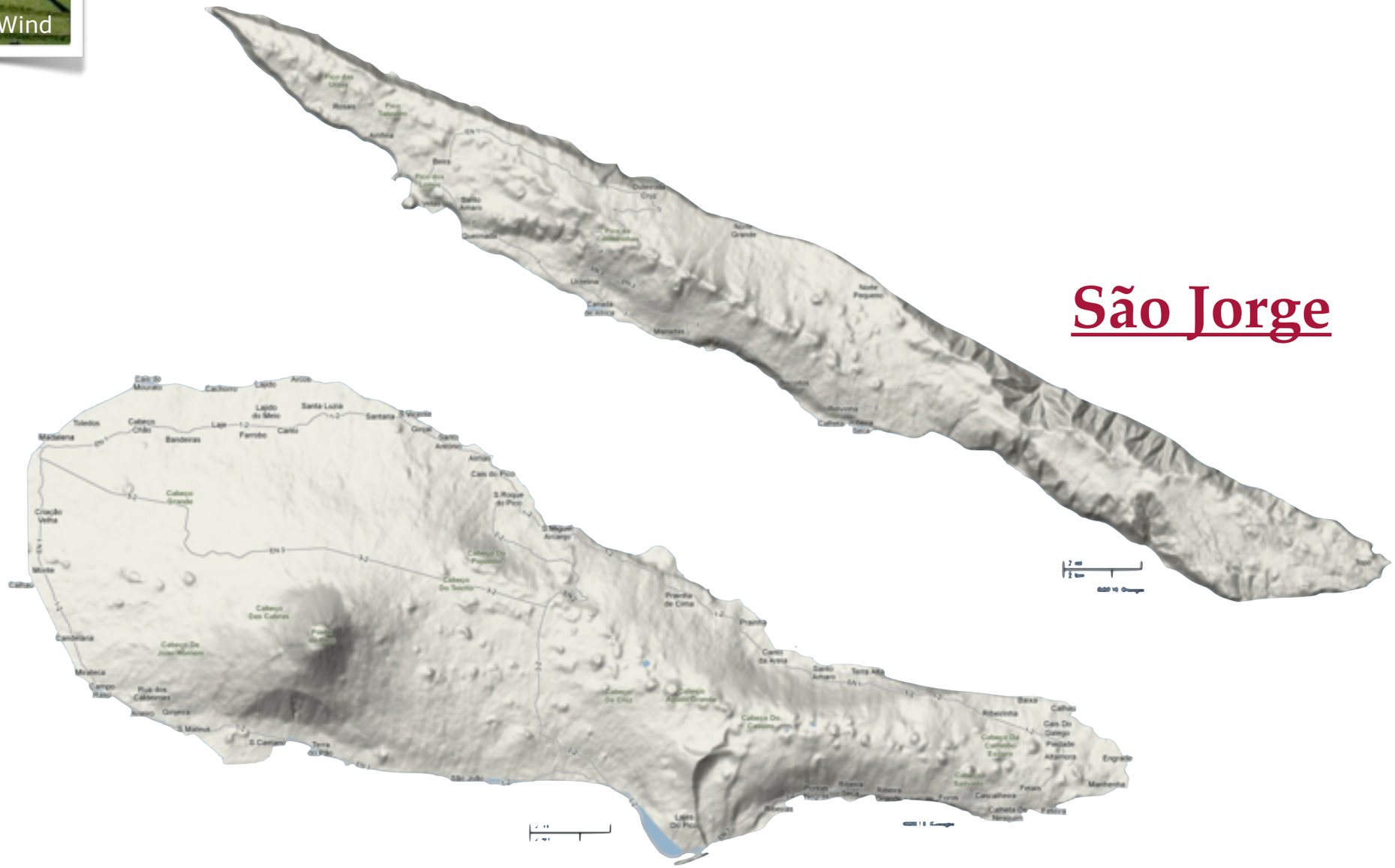


"Big, Medium and Tiny Islands"

The Constraints are Binding from Day One

Faial

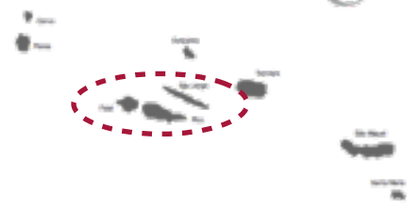
Pico



São Jorge

- *A Diversity of Topographies*

The Central Group - South



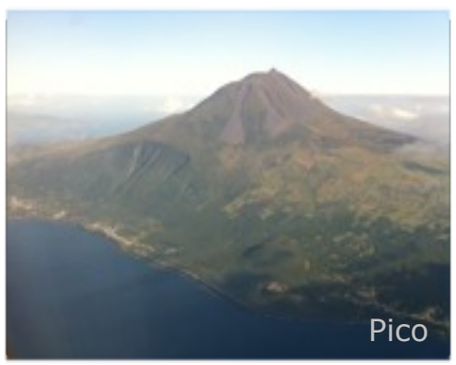
"Big, Medium and Tiny Islands"

The Constraints are Binding from Day One

Faial

São Jorge

Pico



- *A Diversity of Topographies*

The Western Group

"Big, Medium and Tiny Islands"

The Constraints are Binding from Day One

Corvo

Flores

- ***Corvo*** *– the Smallest, all Fossil (right now)*
  Fossil Free Corvo?
- ***Flores*** *– the "Most" Hydro*
  Flywheels on Flores

Workshop Overview

Wednesday - 25 May 2011

. Welcome/Introductions, etc.

- GIP Mobility Case Study
- Renewable Resource Dynamics
- Smart Island Grids

Thursday - 26 May 2011

. Day One Recap .

- GIP Buildings Research
- Smart End-Uses
- Electric Vehicles, Mobility and Emissions

Friday - 27 May 2011

. Day Two Recap .

- GIP Research/Demonstration Projects Overview
- Integrated Energy Planning
- Wrap-up

Terceira Wind Turbines

Steve's Workshop Goals

- ***Interesting*** Presentations and Discussions Surrounding ongoing research especially ***Insights*** from work to-date.
- ***Innovative Discussions*** about how to build upon current research/ activities into the future
- Suggestions/ Recommendations on how to make the Green Islands Project a ***World-Class Partnership*** among Industry, Academia, Government and Society in the area of Sustainable Energy Systems