

ASSESSING PUBLIC POLICY SUPPORT TO WIND POWER GENERATION IN REUNION ISLAND

Fabrizio CARLEVARO

Emeritus professor

**Geneva School of Economics and
Management**



UNIVERSITÉ DE GENÈVE

Vincent DEODAT

PhD student

University of Réunion

**1st AIEE Energy Symposium
Milan, 11/10/13**



Summary

- 1) Electric power situation in Reunion
- 2) Wind power investment key aspects
- 3) Impact of the regulation
- 4) Evaluation of the wind potential
- 5) Assessing policy support

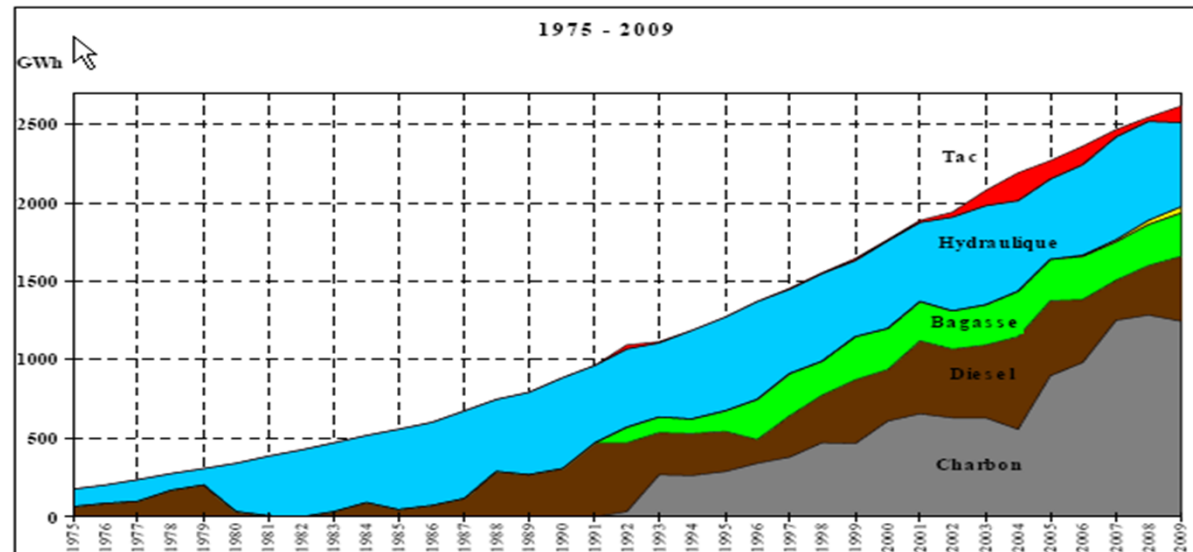


UNIVERSITÉ DE GENÈVE



Electric power situation in Reunion

- Sustained demand for electricity: on average 3.3% per year during last 15 years against 0.8% in mainland France
- Increasing weight of fossil fuels



- First greenhouses gases emitter (47% of the total)
- Importation of coal and diesel X 2 (89.6%) between 2000 et 2014

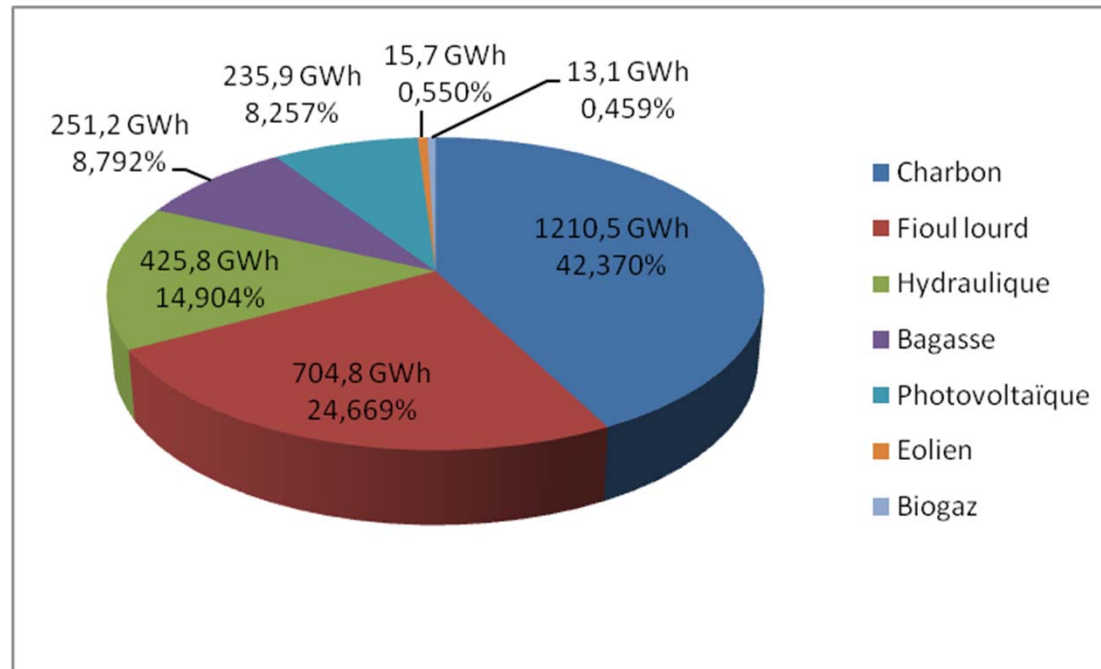


UNIVERSITÉ DE GENÈVE



- The Green Energy Revolution for Reunion Island (GERRI)
- Investment in renewable energy (218 MW installed between 2005 et 2014, 26.3% of the total installed power)

Electric power situation in Reunion

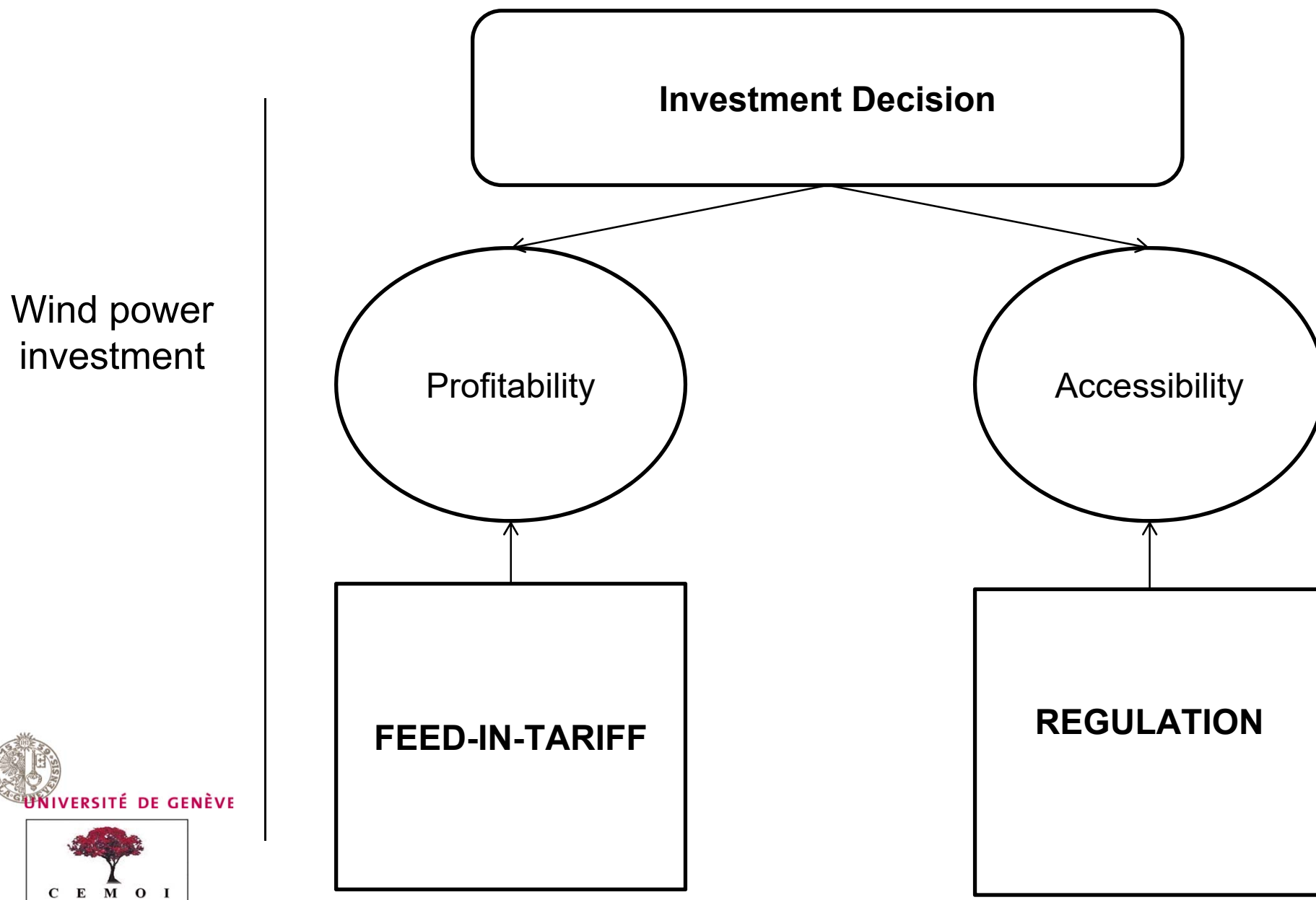


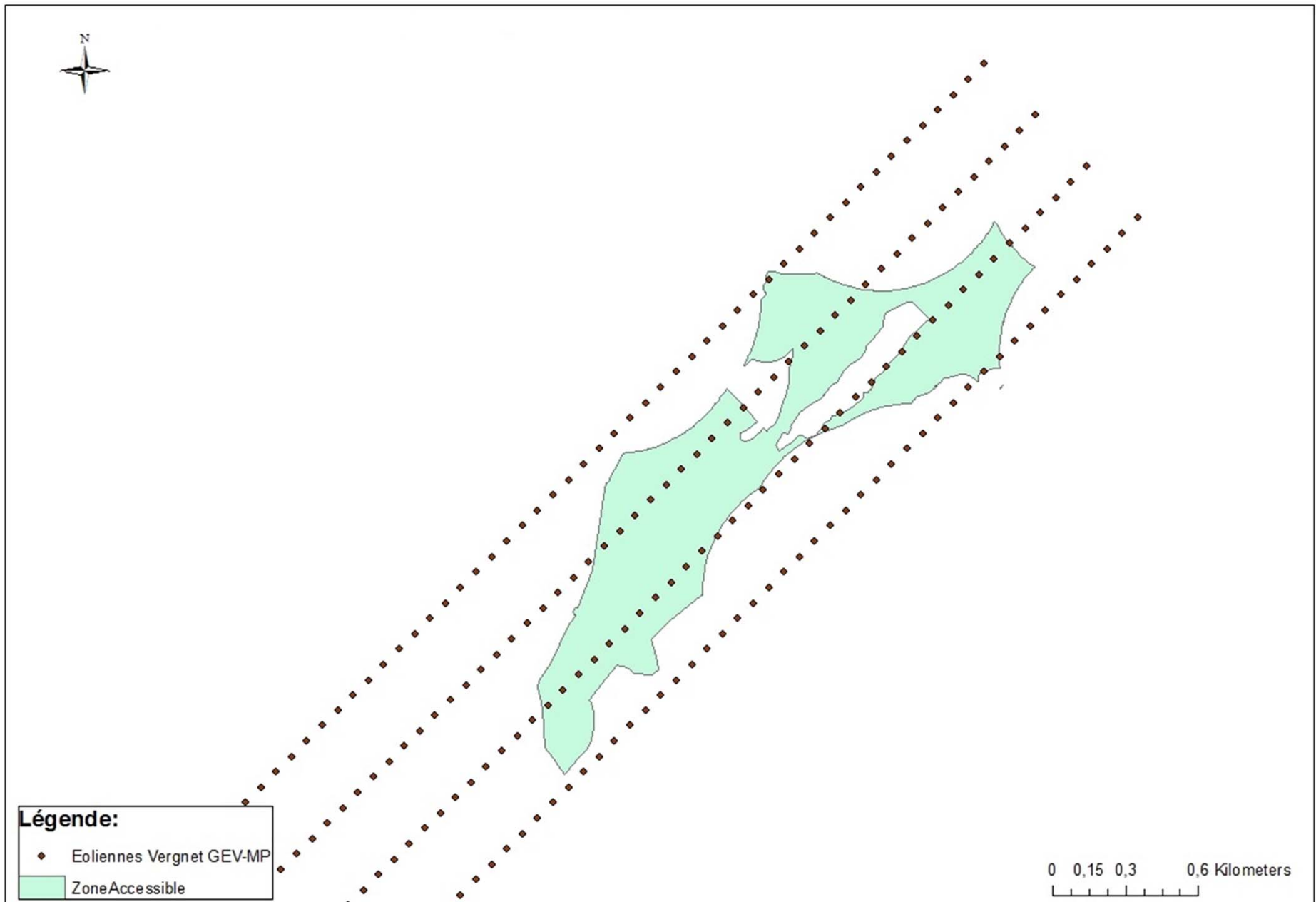
- Renewable share = 32.5
- Non Hydro = 17.6

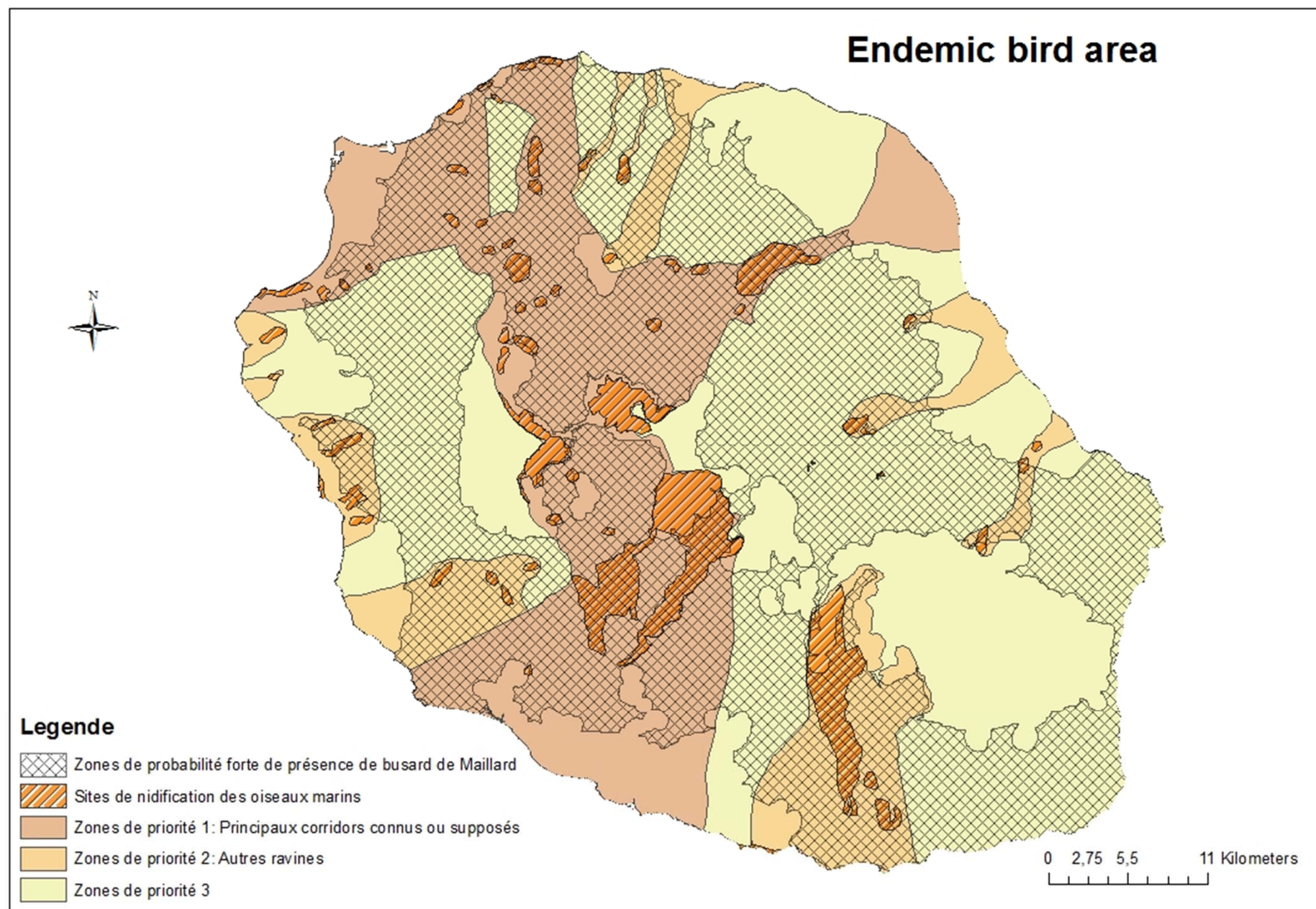


UNIVERSITÉ DE GENÈVE

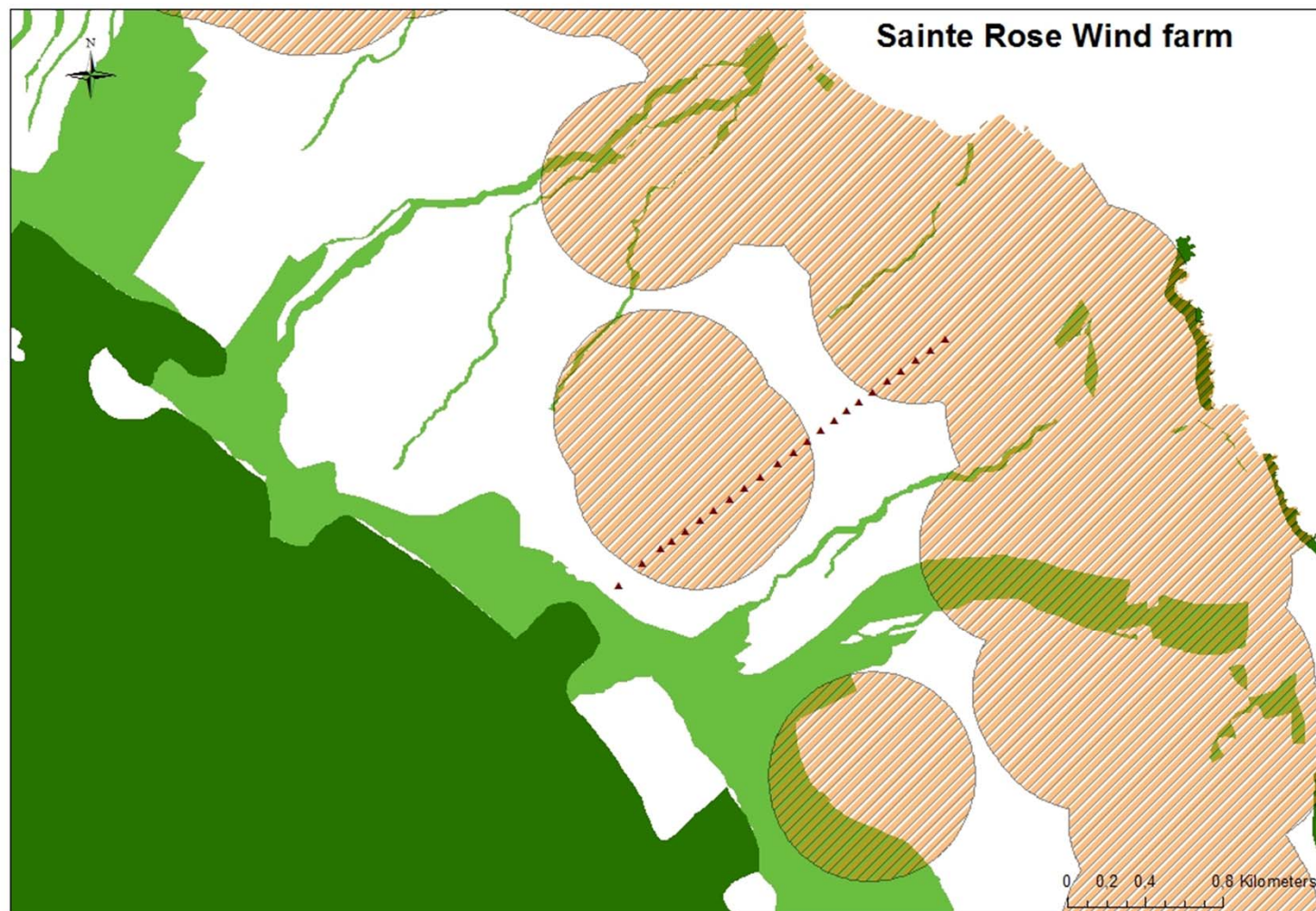








Regulation



Source: IGN

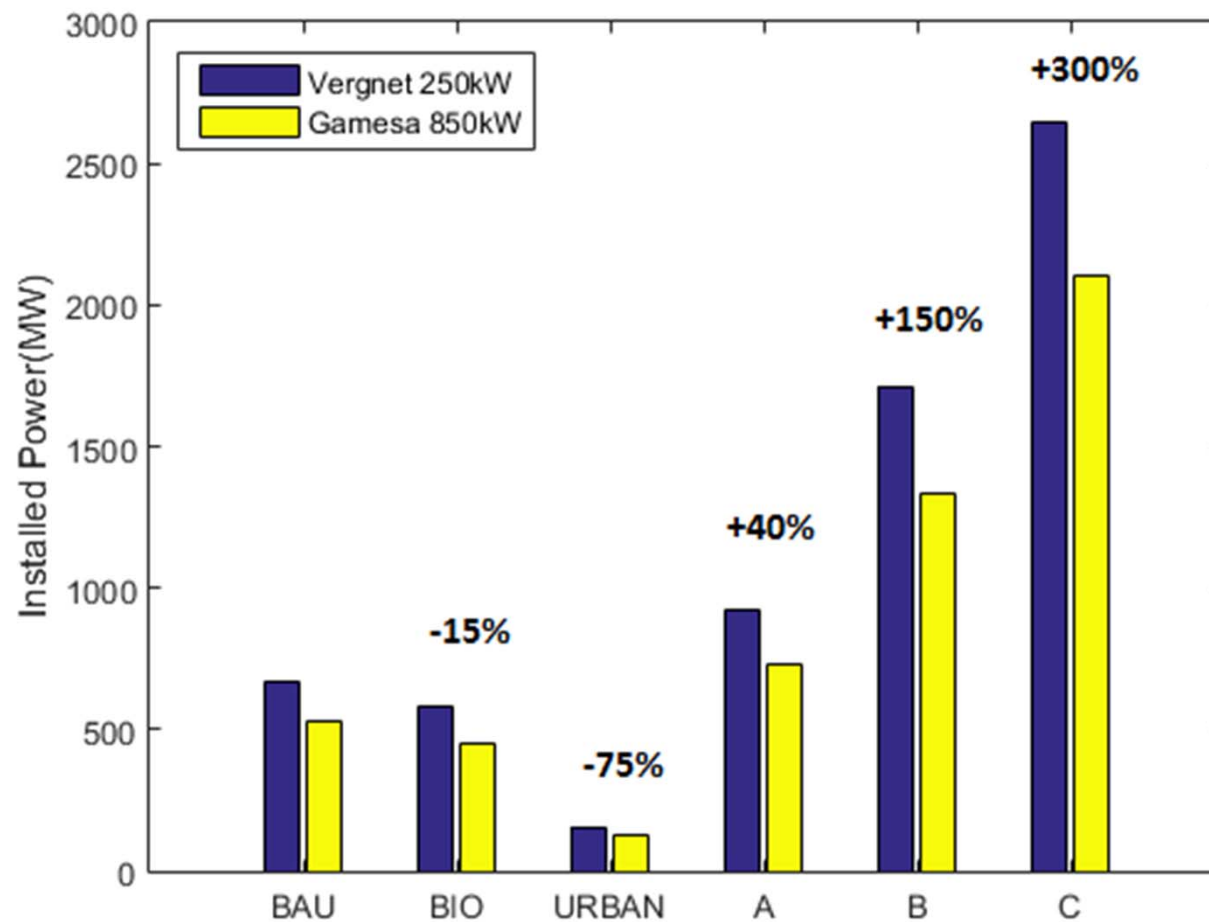


UNIVERSITÉ DE GENÈVE



Regulation

- Installed power by scenario



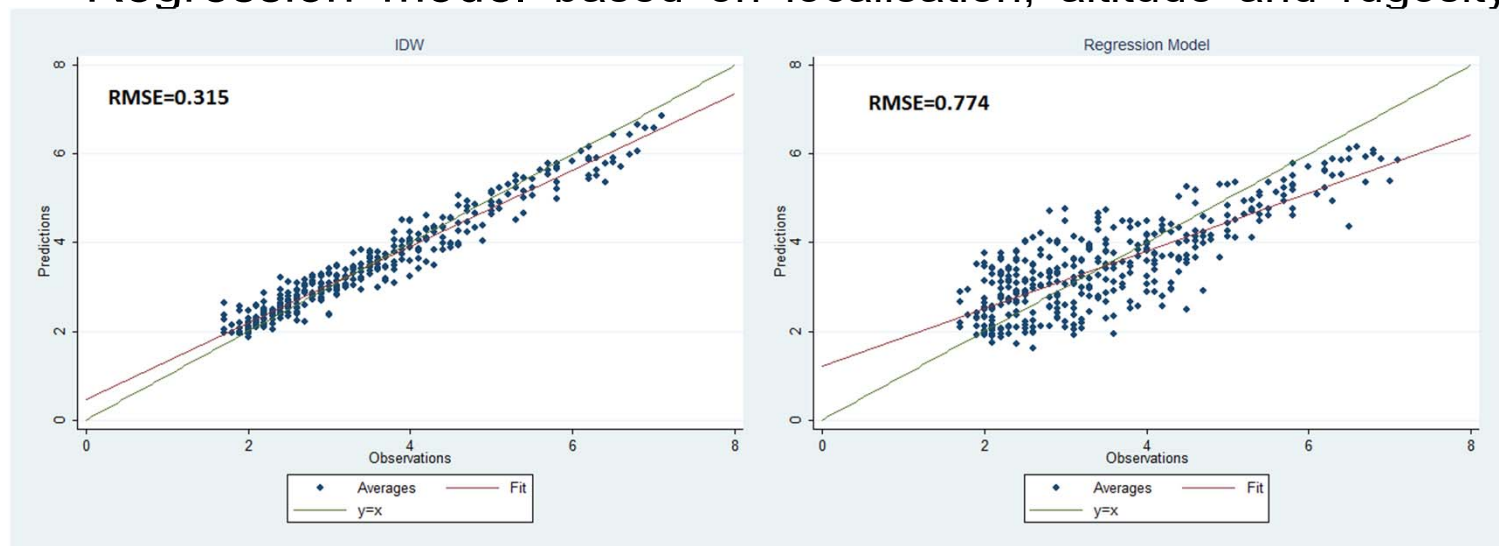
UNIVERSITÉ DE GENÈVE



Expected
annual
electricity
production
by
scenario

Spatial prediction of the resource

- Data
 - 24 Meteorological stations
 - Output from meso-scale numerical model from Météo-France (2.5 x 2.5 km meso-grid)
- Spatial Model
 - Inverse Distance Weighting
 - Regression model based on localisation, altitude and rugosity

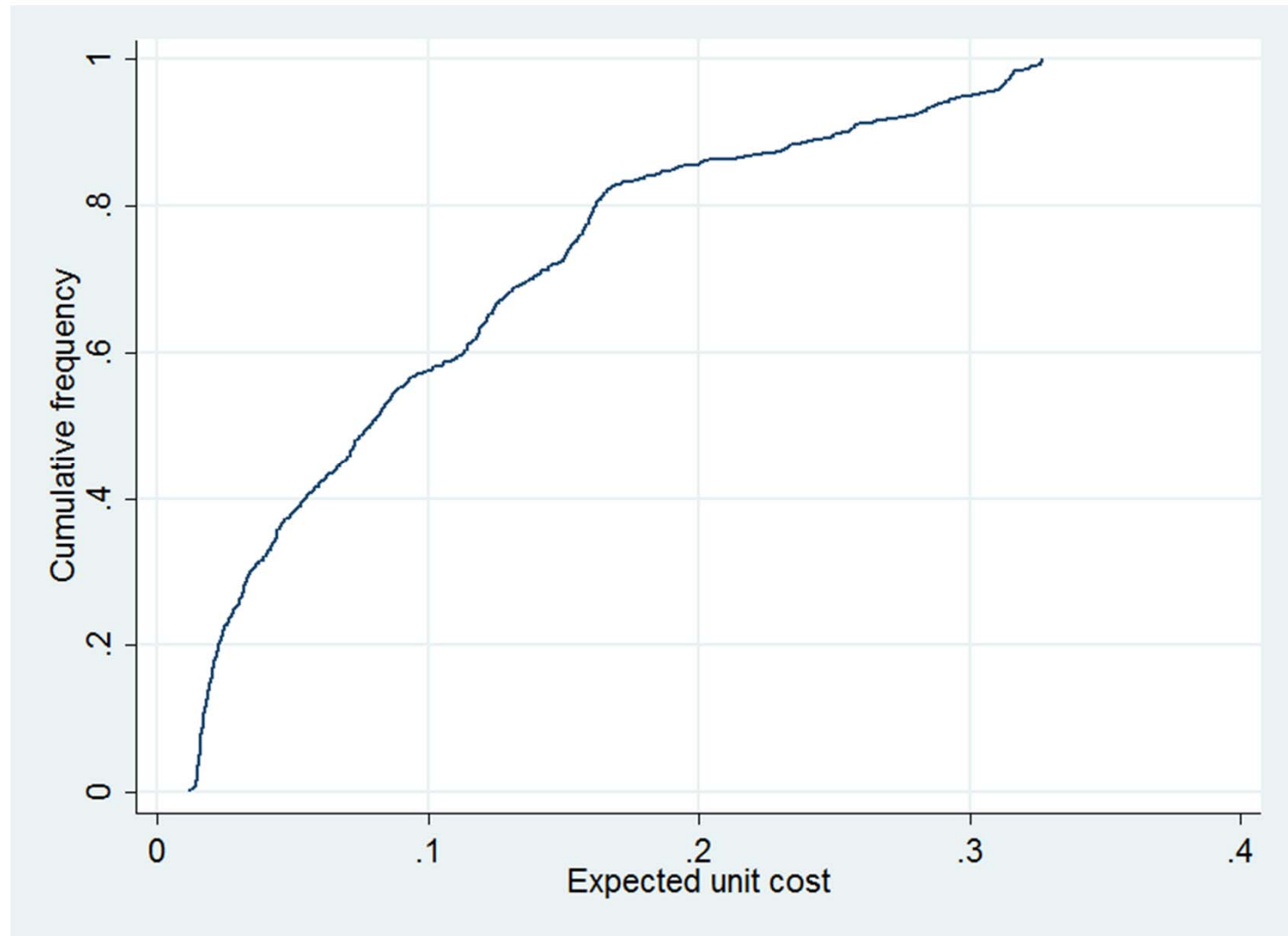


UNIVERSITÉ DE GENÈVE



$$c \pi_{Eol} = aIP + H^P P \quad [€]$$

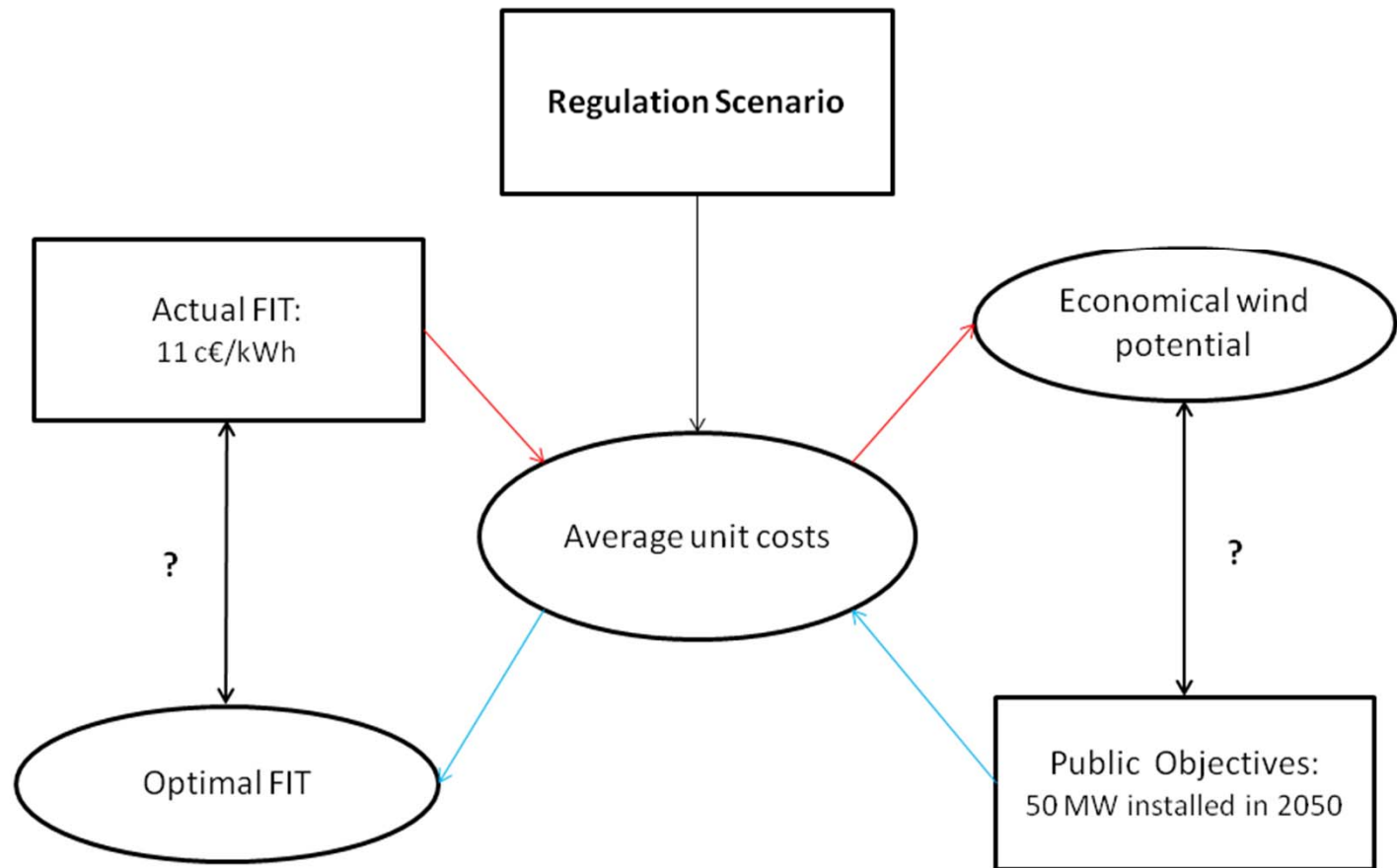
Expected
annual
electricity
production
by
scenario



UNIVERSITÉ DE GENÈVE



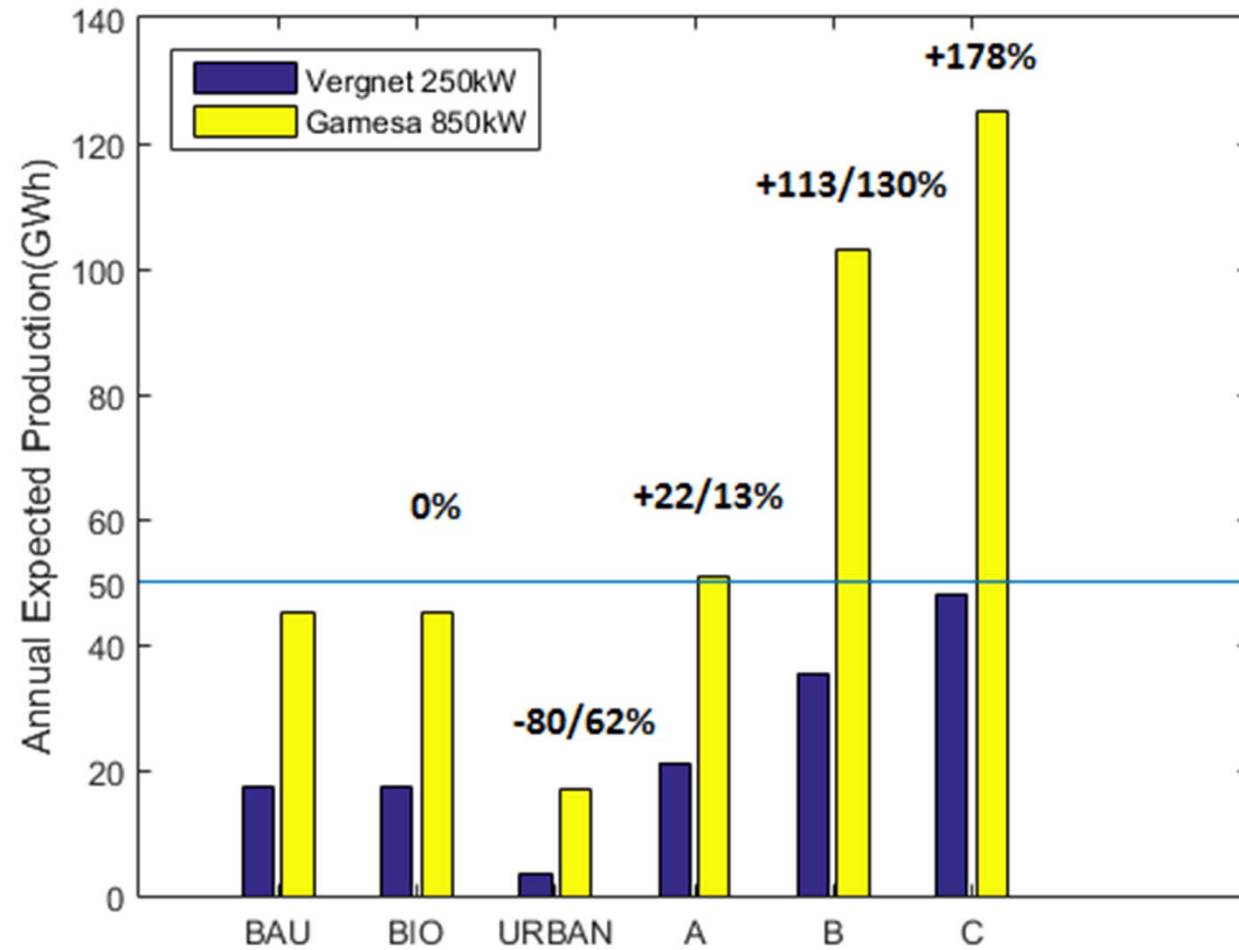
Assessing
Policy
Support



UNIVERSITÉ DE GENÈVE



Economical wind potential



Assessing
Policy
Support



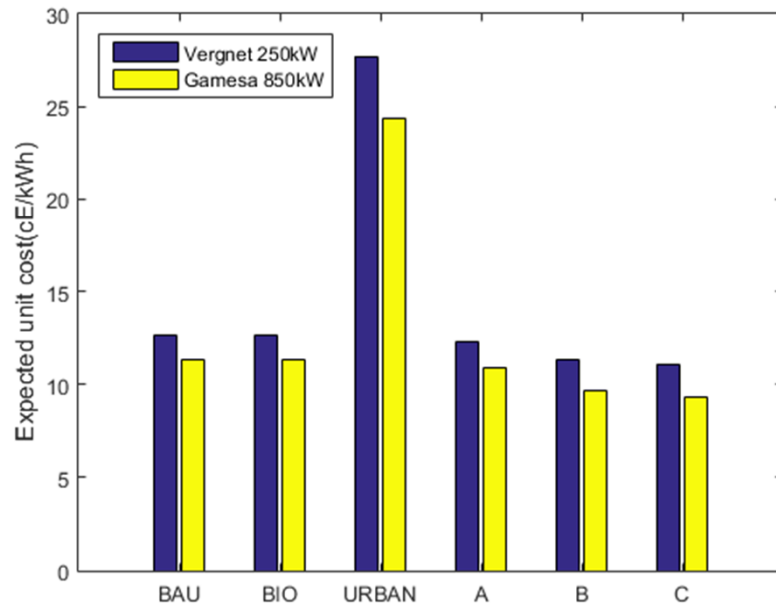
UNIVERSITÉ DE GENÈVE



Assessing Policy Support

Optimal FIT

☐		Tarif-de-rachat-☐	
		Technologie· Vergnet· GEV- MP·(en·c€/kWh)☐	Technologie· Gamesa· G58· (en·c€/kWh)☐
BAU☐		12.62☐	11.33☐
Biodiversité☐		12.62☐	11.33☐
Habitat☐		27.71☐	24.40☐
Eolien☐	A☐	12.25☐	10.93☐
	B☐	11.33☐	9.63☐
	C☐	11.07☐	9.30☐



- Necessary increase of the FIT
- BAU and BIO: +15%/+3%
- Habitat: +152%/122%
- Eolien A: +11%/-0.6%
- Eolien B: +3%/-12%
- Eolien C: +0.6%/-15%



UNIVERSITÉ DE GENÈVE



Conclusions

- Importance of technical change
- Trade off between lowering the regulation constraints and increasing the feed in tariffs



UNIVERSITÉ DE GENÈVE



Thanks for your attention



UNIVERSITÉ DE GENÈVE

