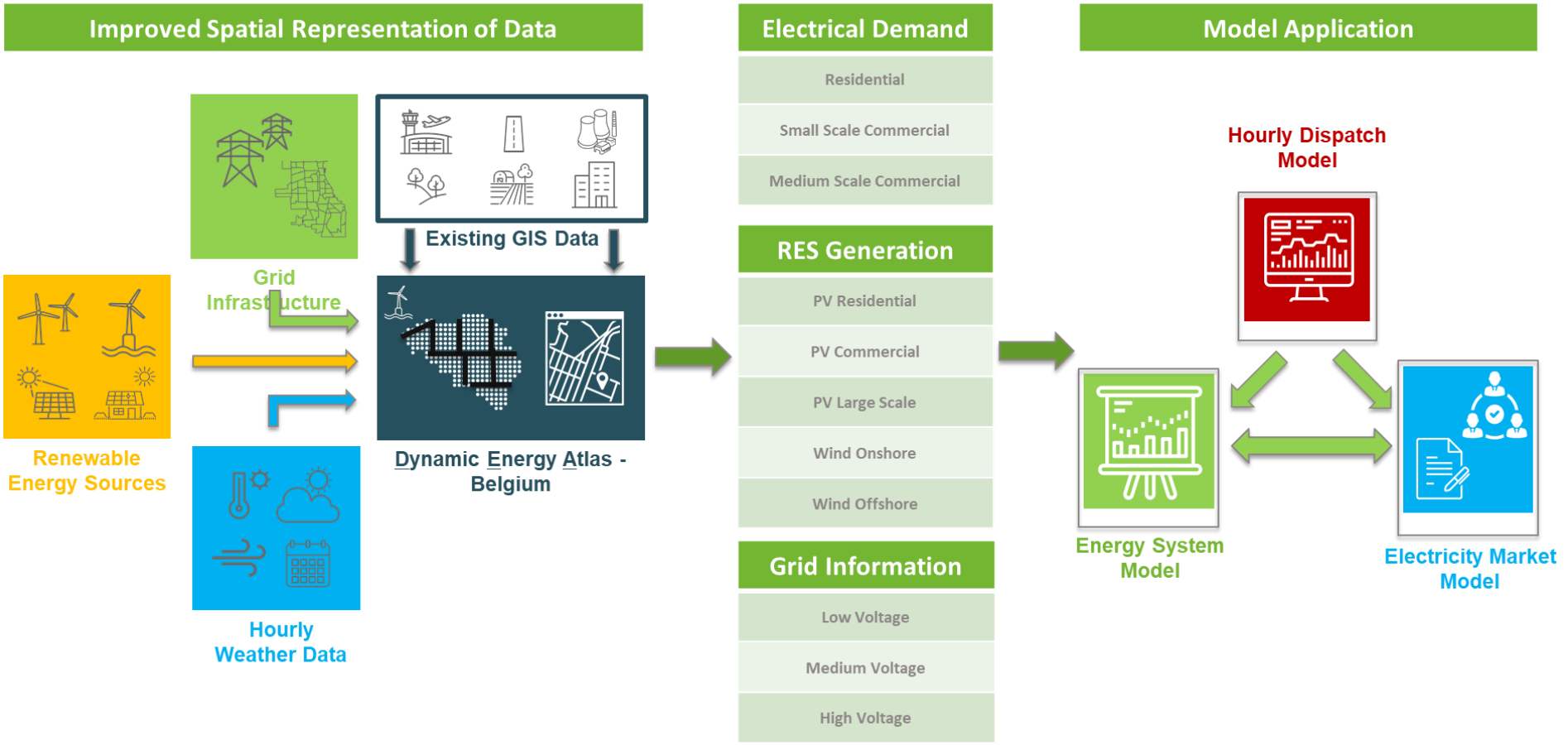
BREGILAB: BALANCING THE BELGIAN ELECTRICITY SYSTEM FOR MAXIMAL USE OF RENEWABLE ENERGY GENERATION BY A GRID INJECTION LIMIT ALGORITHM AND OPTIMAL BATTERY DEPLOYMENT



economie
FPS Economy, S.M.E.s, Self-employed and Energy

"Met de steun van het Energietransitiefonds"

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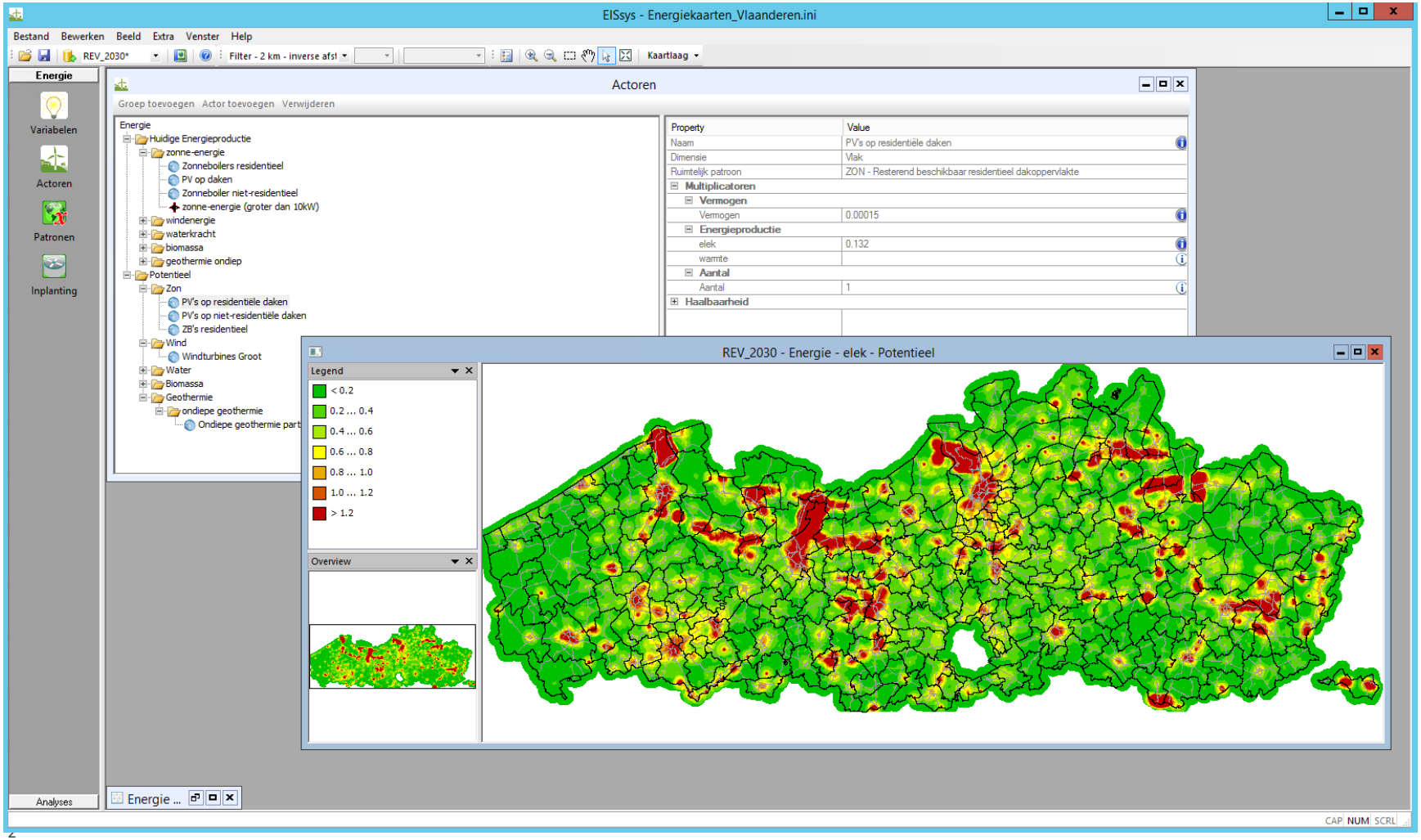
THE DYNAMIC ENERGY-ATLAS: SPATIAL INVENTORY & MODELLING SYSTEM FOR RE

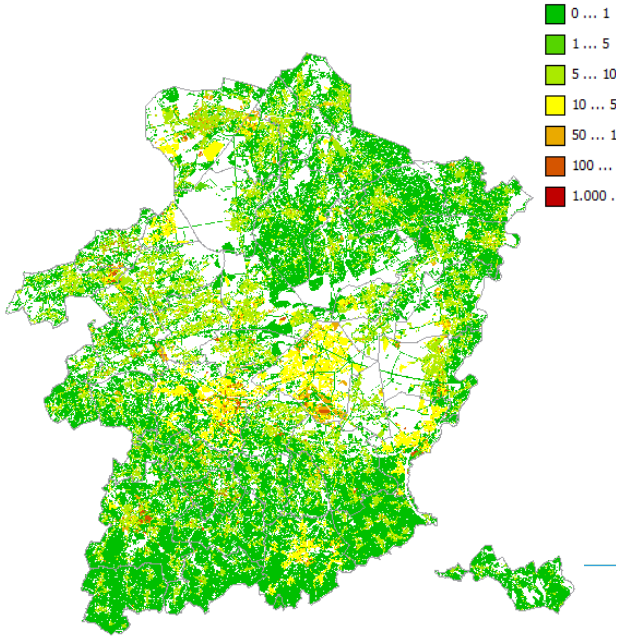
=> Policy support tool to develop RE strategies at national and regional level



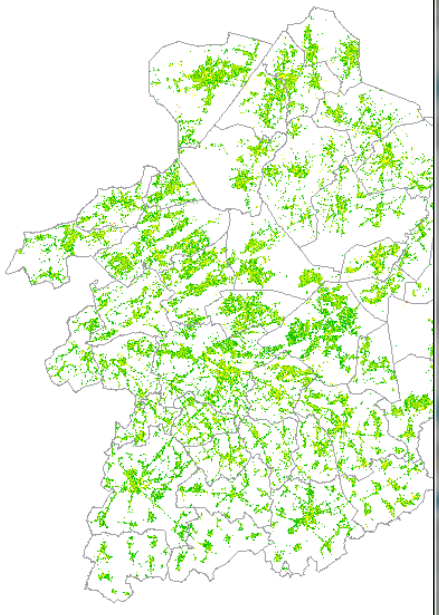
TERRAENERGY THE ALTERNATIVE SOLUTION EnergyVille vito

FUNCTIONALITIES

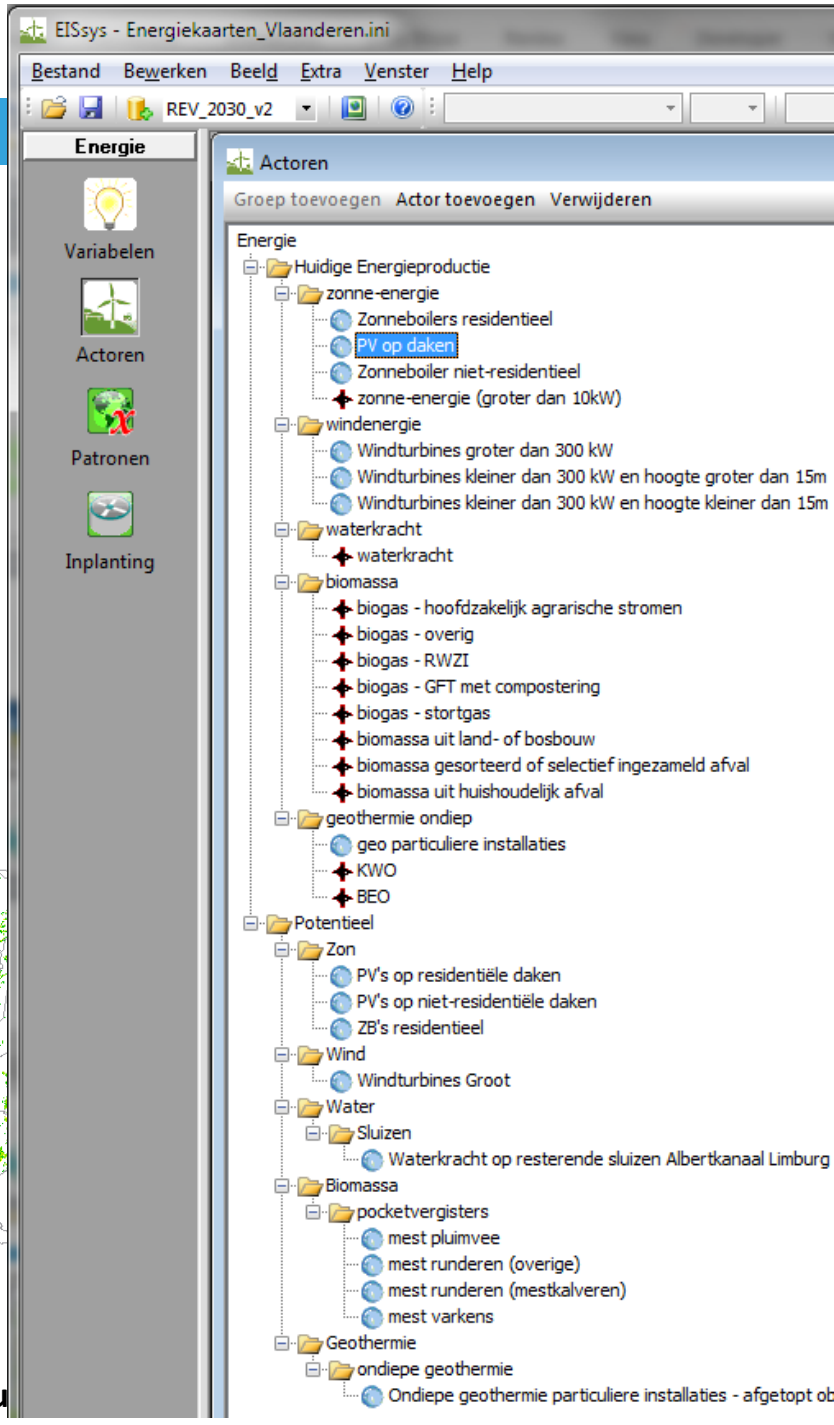
- The software allows to **calculate and map**
  - **present** energy **demand**
  - **present** energy **production**
  - **potential future** energy **production**
    - For a set of sectors/technologies
  - *present **grid** infrastructure*



present energy demand

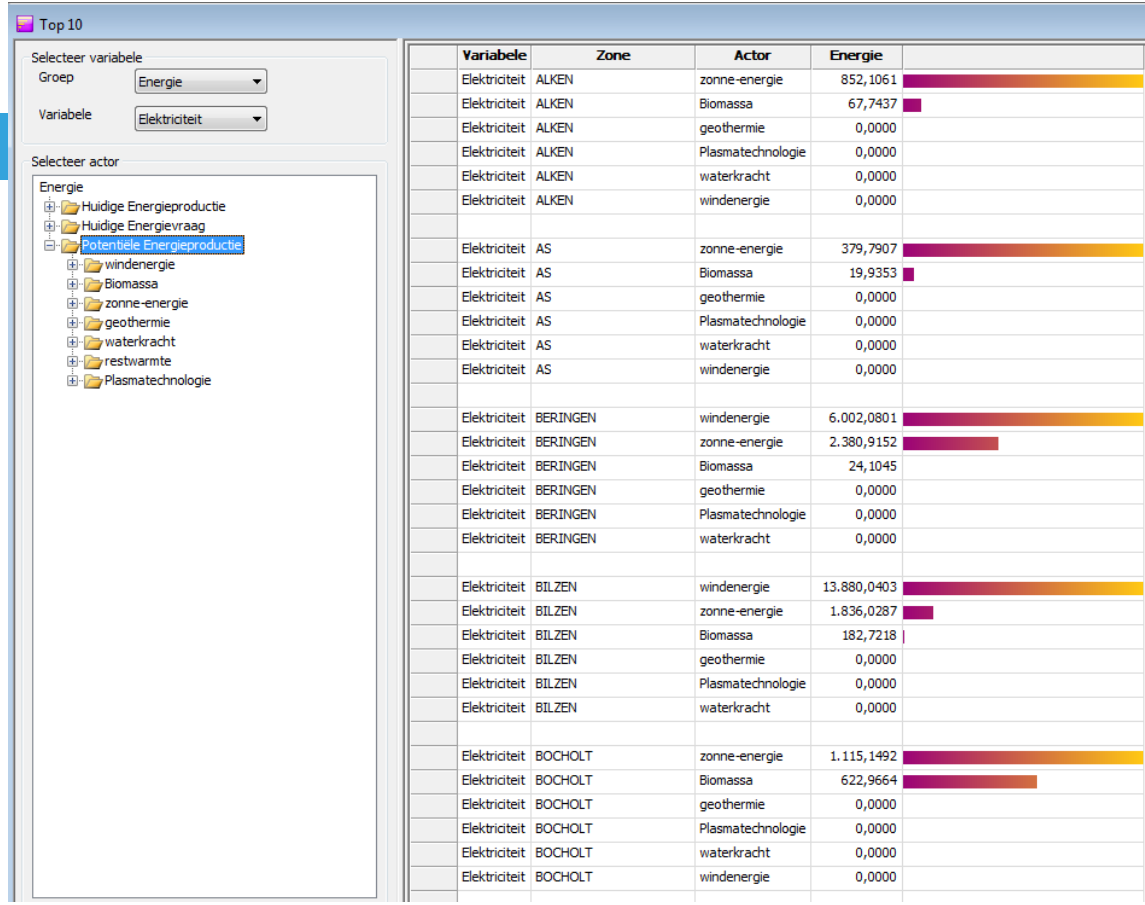


present energy produ



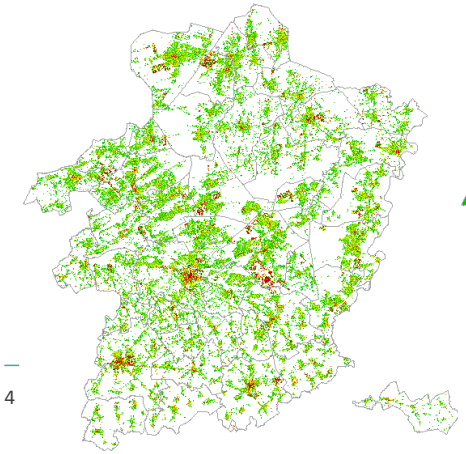
FUNCTIONALITIES

- The software allows to **calculate and map**
  - Spatial: 100x100m
  - Temporal:
    - PV/Wind: Hourly
    - Other: Annual

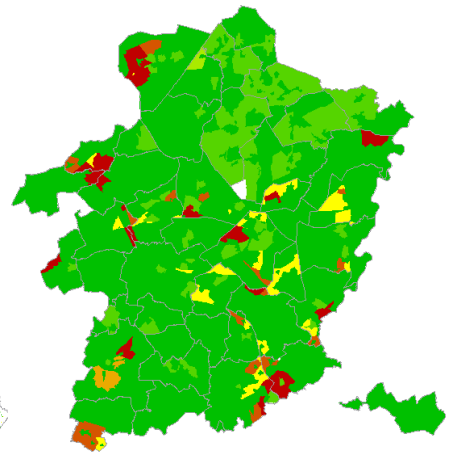


Variabele	Zone	Actor	Energie
Elektriciteit	ALKEN	zonne-energie	852,1061
Elektriciteit	ALKEN	Biomassa	67,7437
Elektriciteit	ALKEN	geothermie	0,0000
Elektriciteit	ALKEN	Plasmatechnologie	0,0000
Elektriciteit	ALKEN	waterkracht	0,0000
Elektriciteit	ALKEN	windenergie	0,0000
Elektriciteit	AS	zonne-energie	379,7907
Elektriciteit	AS	Biomassa	19,9353
Elektriciteit	AS	geothermie	0,0000
Elektriciteit	AS	Plasmatechnologie	0,0000
Elektriciteit	AS	waterkracht	0,0000
Elektriciteit	AS	windenergie	0,0000
Elektriciteit	BERINGEN	windenergie	6.002,0801
Elektriciteit	BERINGEN	zonne-energie	2.380,9152
Elektriciteit	BERINGEN	Biomassa	24,1045
Elektriciteit	BERINGEN	geothermie	0,0000
Elektriciteit	BERINGEN	Plasmatechnologie	0,0000
Elektriciteit	BERINGEN	waterkracht	0,0000
Elektriciteit	BILZEN	windenergie	13.880,0403
Elektriciteit	BILZEN	zonne-energie	1.836,0287
Elektriciteit	BILZEN	Biomassa	182,7218
Elektriciteit	BILZEN	geothermie	0,0000
Elektriciteit	BILZEN	Plasmatechnologie	0,0000
Elektriciteit	BILZEN	waterkracht	0,0000
Elektriciteit	BOCHOLT	zonne-energie	1.115,1492
Elektriciteit	BOCHOLT	Biomassa	622,9664
Elektriciteit	BOCHOLT	geothermie	0,0000
Elektriciteit	BOCHOLT	Plasmatechnologie	0,0000
Elektriciteit	BOCHOLT	waterkracht	0,0000
Elektriciteit	BOCHOLT	windenergie	0,0000

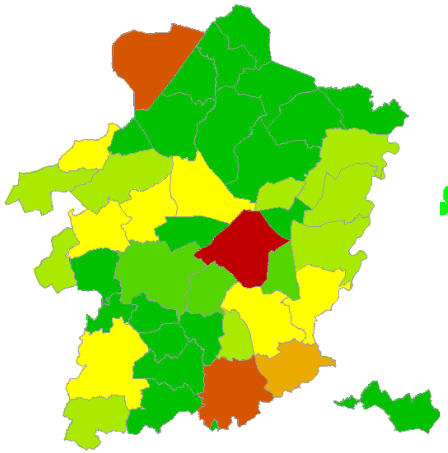
Potential electricity production



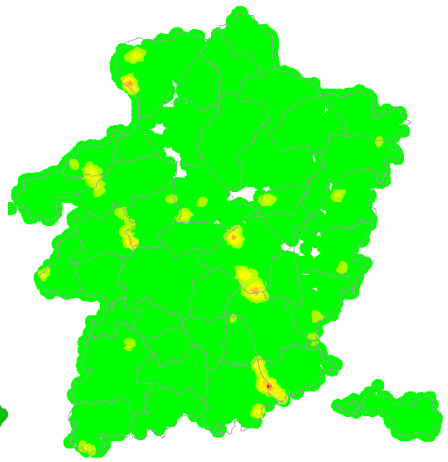
100 x 100 m



local sectors

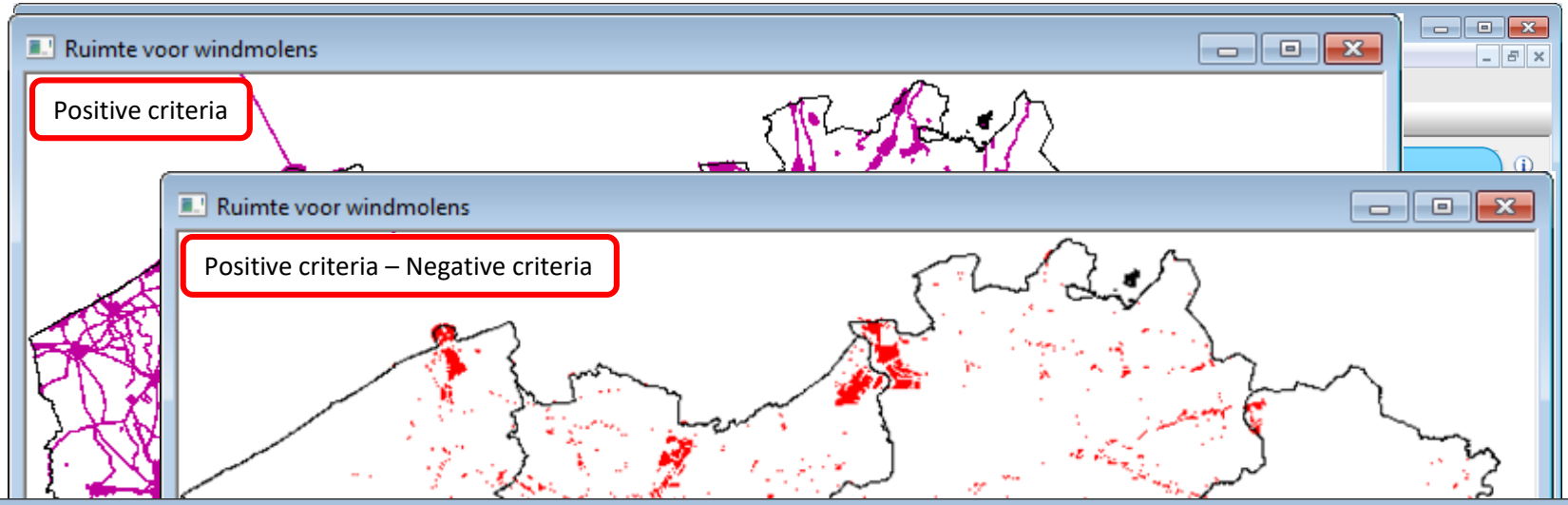


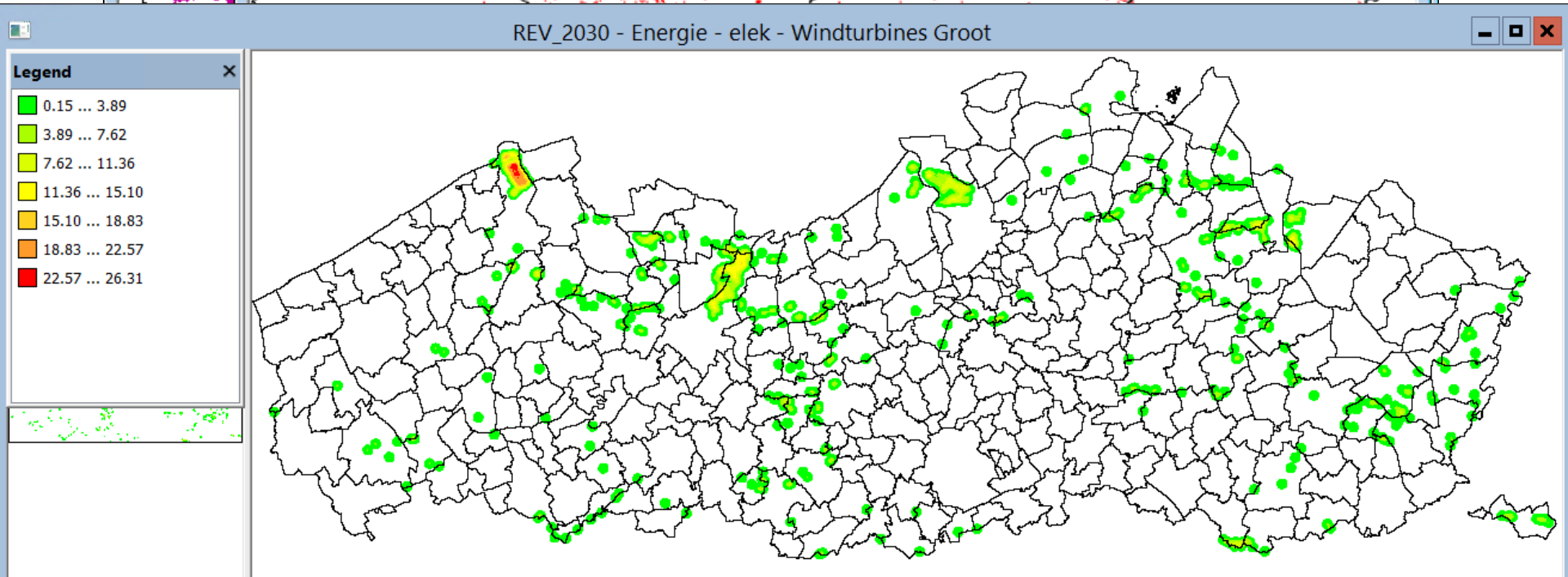
municipalities



'hotspot' maps (1 km average)

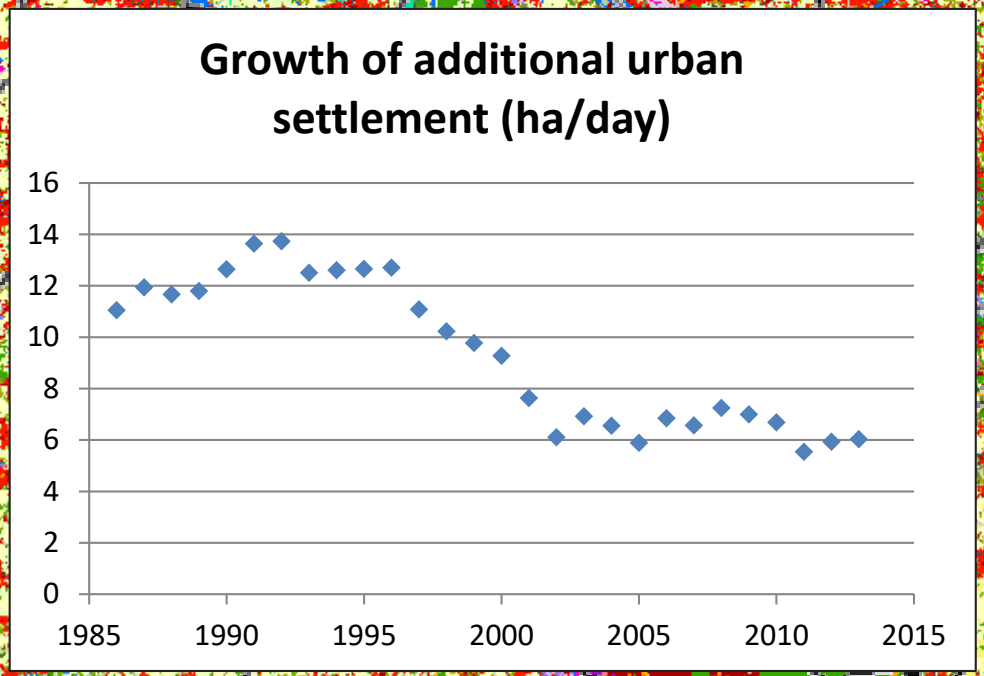
SCENARIO MODELLING: SPATIAL PATTERN





2010

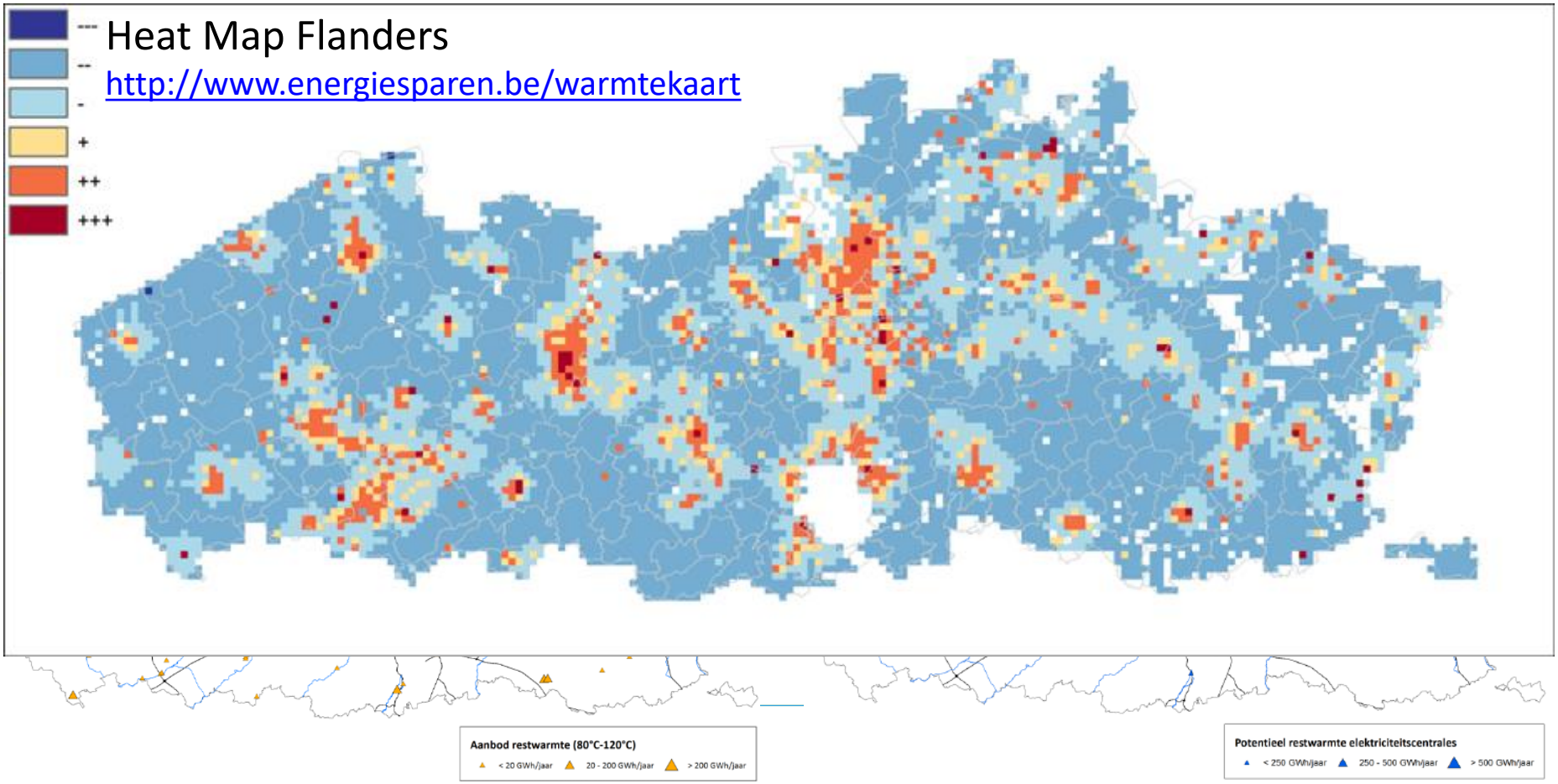
RuimteModel Vlaanderen: Land use simulations 2010 – 2050 BAU



Yearly loss of 1% of space for wind energy !

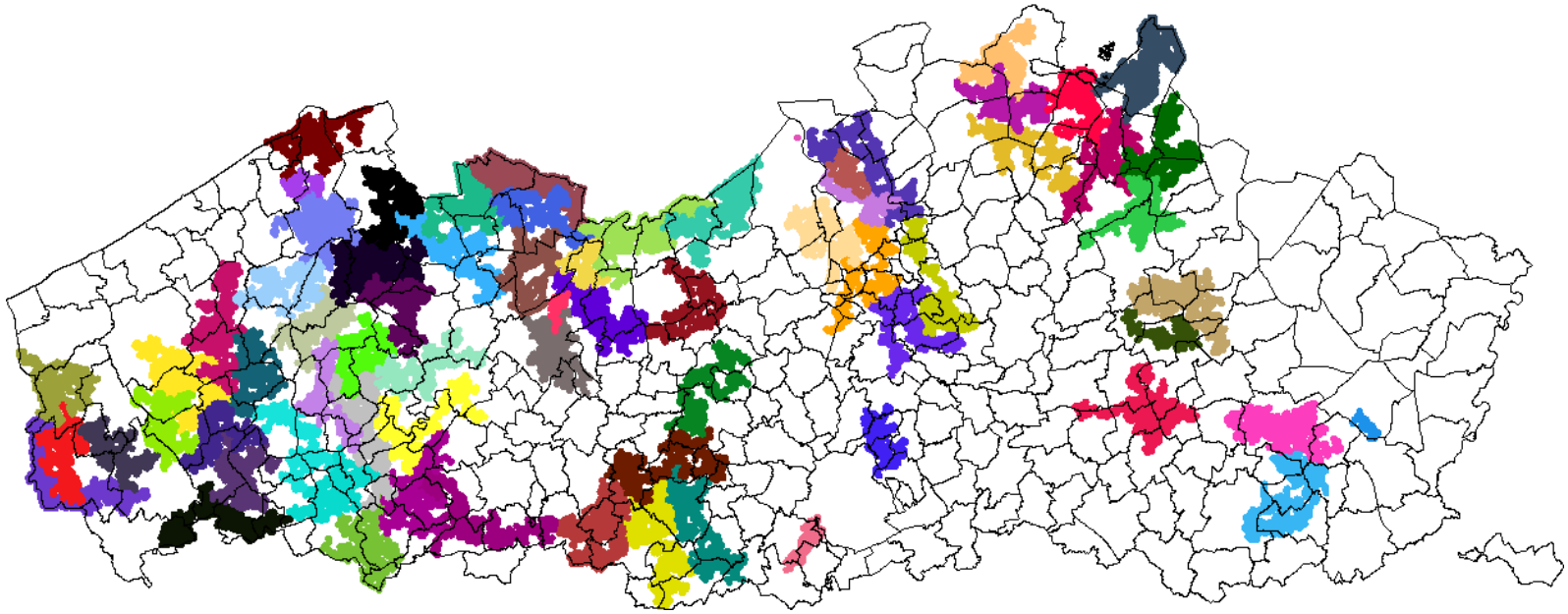
SPATIAL MATCH BETWEEN DEMAND & PRODUCTION

- Tool allows to carry out **spatial optimisations** to identify **hotspots for RE-installations**
  - e.g. for district heating
  - Considering spatial pattern of heat demand versus potential locations with residual heat



ANALYTICAL TOOL: DELINEATE ENERGY LANDSCAPES

- Optimal regions to produce RE in Flanders using boundary conditions:
  - Minimal (annual) production has to exceed threshold, e.g. x MW
  - Maximum occupied space by RE technologies, e.g. x m²
  - Maximum distance between RE technologies, e.g. x m



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