

I compute the PV potential for a neighbourhood in Rotterdam

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What am I going to learn?



How I configure and run the PV potential module.



How I check and view my results in the mapping tool.



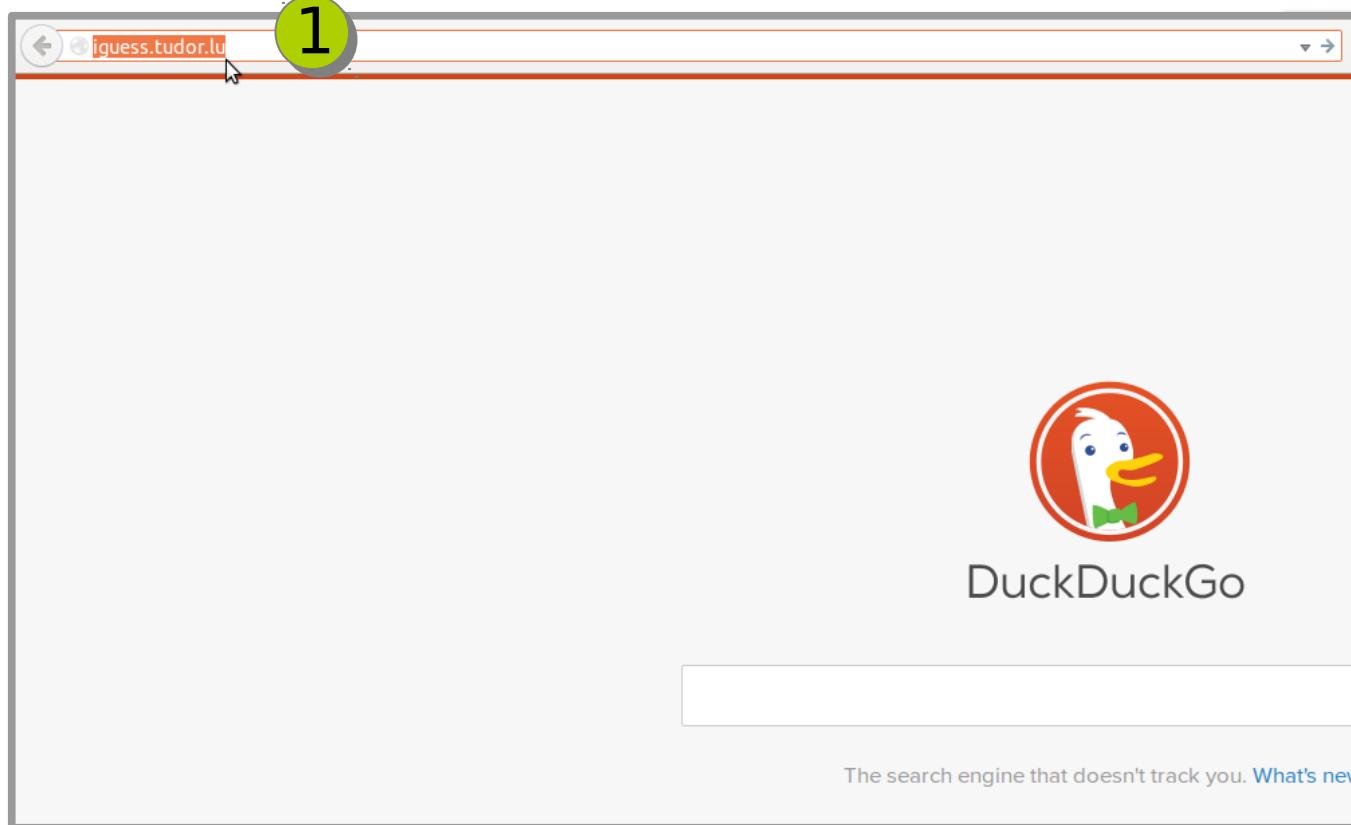
How I use the Slider tool to take decision based on costs and optimal potential.

The iGUESS tool is accessible from your browser with the limitation that that iGUESS properly works only with Firefox .



1

I type ***iguess.tudor.lu*** in the url line. And I type enter



I access the Home page of iGUESS!

- 1 In order to register data I need to be logged in. On the right hand of the menu bar I click on **Login**.

The screenshot shows the iGUESS home page with a green header. On the left is the Tudor logo. In the center is the iGUESS logo with the subtitle "Integrated Geospatial Urban Energy Information and Support System". On the right are several logos: MUSIC, ERIC, and others. A navigation bar at the top includes links for Home, Modules, Scenarios, Maps, and About. To the right of the navigation bar is a "New User" link and a "Login" button, which is highlighted with a black rectangle and a large green circle containing the number 1. Below the header, the text "understand your options..." and "plan your future." is displayed. A large central box contains the heading "View your data or register new datasets" and sub-links: "View Some Data", "Run Calculation Module", and "Check Running Module". To the right of this box is a large purple plus sign icon. Below the central box is the text "In order to access the maps of my city I click on maps!" followed by a decorative city skyline footer.

tudor

iGUESS
Integrated Geospatial Urban Energy Information and Support System

[New User] **Login**

understand your options...

plan your future.

View your data or register new datasets

iGUESS can show you any registered dataset on an interactive map of your city.

Explore maps of my city

See my datasets

Register new data

View Some Data

Run Calculation Module

Check Running Module

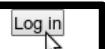
In order to access the maps of my city I click on maps!

1

Log in

Login
Enter your username or email address

Password

 Remember me[Sign up](#) [Forgot your password?](#)

1

2

3



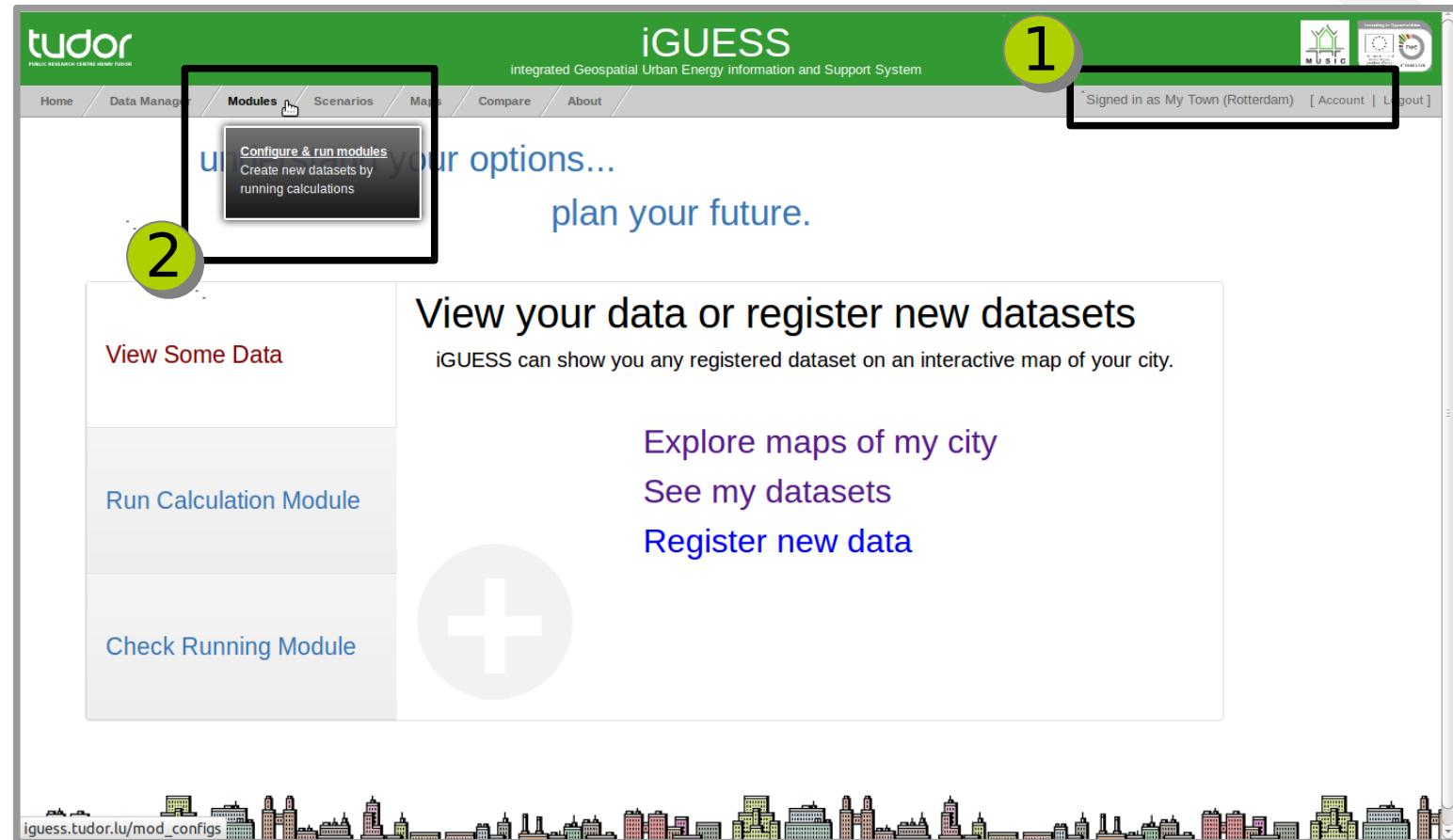
I arrive on the Log in page.

In zone 1 I type my login email and my password.

2 I can tick **Remember me** if I want iGUESS to recognise me user account next time you access the web platform.

Then I click on 3 the **Log in** button.

- Once I am back to the Home page of iGUESS, I can check that I am signed as it is written accordingly.
- In order to access the Data manager of iGUESS I click on **Modules** in the menu bar.



I automatically arrive at the list of **Configured Modules**!

- 1 In the column “status” I can see that not all modules reached the same status.
- 2 If I want to configure a new module, I click on the tab **Module Catalog** in order to access the full list of modules.

The screenshot shows the iGUESS web application interface. At the top, there's a green header bar with the Tudor logo on the left and the text "iGUESS integrated Geospatial Urban Energy information and Support System" on the right. Below the header is a navigation bar with links: Home, Data Manager, Modules, Scenarios, Maps, Compare, and About. The main content area has a title "Modules". On the left, there's a sidebar with an info icon and two bullet points: "Users can create Modules from a Module Template specifying all inputs and outputs that template requires." and "A list of Module Templates can be found in the Catalog.". Below this is a button labeled "Module Catalog" with a cursor icon over it, enclosed in a black rectangle. To the right of the sidebar, the text "These are the calculation modules that have been configured." is displayed above a table. The table has columns: Name, Based on, Status, and Notes. The "Status" column is highlighted with a yellow background and a callout bubble labeled "1" pointing to it. The table contains the following data:

Name	Based on	Status	Notes
01_lijn_solar	Solar irradiation	Run Completed	
01_tiny_solar_irra	Solar irradiation	Running	
02_bospolder_pv_potential	PV Potential with user based input	Run Completed	
02_lijn_pv_potential	PV Potential with user based input	Run Completed	
02_tiny_pv_potential	PV Potential with user based input	Run Completed	
03_tiny_greenroofs	Green roofs	Run Completed	
04_lijn_aggregation_solar_irra	Aggregation service with support for slider tool	Run Completed	
04_tiny_aggregation_pvpot	Aggregation service with support for slider tool	Ready	
05_rotterdam_UHI	Unknown process	Ready	
Process not found on server -- It is either offline or has been deleted or renamed			
<input checked="" type="checkbox"/> Delete Module			

[Home](#)[Data Manager](#)[Modules](#)[Scenarios](#)[Maps](#)[Compare](#)[About](#)

Modules



- Users can create Modules from a Module Template by specifying all inputs and outputs that template requires.
- A list of Module Templates can be found in the Module Catalog.

[Configured Modules](#) [Module Catalog](#)

[Aggregation service with support for slider tool](#)

[Building stock energy consumption and savings](#)

[Geothermal cadastre](#)

[Green roofs](#)

[PV Potential with user based input](#)

[Solar Irradiation](#)

[Urban Heat Island characterisation](#)



A large green circle with the number 2 inside it is overlaid on the "PV Potential with user based input" link, indicating the step being described.

I get access to the module catalog which is the full list of configurable modules in iGUESS.

2

I want to configure the “**PV potential with user based input**” and I click on the corresponding line to select a new configuration.

1

The details about the module develops under the line I have just been clicking on. I can see the list of most **Model Inputs**.

2

In order to lauch a new configuration for this module, I scroll down with the mouse or the right hand side button.

iGUESS

iguess.tudor.lu/mod_configs

tudor

iGUESS

Integrated Geospatial Urban Energy Information and Support System

Signed in as My Town (Rotterdam) [Account | Logout]

Home Data Manager Modules Scenarios Maps Compare About

Modules

PV Potential with user based input

Aggregation service with support for slider tool

Building stock energy consumption and savings

Geothermal cadastre

Green roofs

This process calculates the electrical potential on roof tops based on different inputs of economical parameters of PV panel technologies. Inputs are spatial data sets from solar irradiation module and economic parameters given by the user.

Identifier: `pv_potential_user`

Hosted by: MUSIC PyWPS Server

Model Inputs

Parameter Name	Identifier	Description
Building footprints	[building_footprints]	A vector polygon data set which represents the building footprints. Except of feature geometries no other additional information is needed. If attribute data is attached it will be ignored during import process.
Economic panel life time in years	[econ_lifetime]	Envisioned economic panel life time in years [a].
Panel cost in Euro	[panel_cost]	Panel costs in Euro per square meter. Usually in a range from 1500 to 2000 Euro/m ² . Typical values for amorph, multi- or mono-crystalline panels would be 1500, 1800 or 2000 Euro/m ² respectively.
Panel efficiency	[panel_efficiency]	Panel efficiency in percent defined by the user. Usually in a range of 8 to 20 percent. Typical values for amorph, multi- or mono-crystalline panels would be 8, 14 or 16 percent respectively.

I can see now the **Model Outputs**!

- 1 In order to create a new configuration of the Solar Irradiation module I click on the line



The image shows the "Model Outputs" section of the iGUESS interface. It displays a table with columns for Parameter Name, Identifier, and Description. The table contains one row for PV potential. Below the table is a list of services: Solar irradiation and Urban Heat Island characterisation. At the bottom of the screen, there is a decorative illustration of a city skyline.

Parameter Name	Identifier	Description
PV potential	[pv_potential]	PV potential generated by roof patches. This result can be used as input for the 'slider application'

Solar irradiation
Urban Heat Island characterisation

I arrive at the **Configure a Module** window!

For each new configuration I need to fill in the following fields:

1 First I give a **name** to my configuration.

2 I confirm with the selection button the type of module I want to configure.

3 I give a specific **description** to my new configuration.

4 I select with the button **Area of Interest** the area to which I want to limit my configuration. In my case I select “**Lijnbaan clipping**”.

The screenshot shows the 'Configure a Module' interface for the 'tudor' project in the iGUESS system. The top navigation bar includes 'Home', 'Data Manager', 'Modules', 'Scenarios', 'Maps', 'Compare', and 'About'. A user is signed in as 'My Town (Rotterdam)'. The main section is titled 'Configure a Module' with a help message: 'You are configuring a new module. Provide a unique name, a description, and specify any datasets you can. You will have the chance to provide any missing data for this module in subsequent steps.' There are four numbered steps overlaid on the interface:

- 1: 'Name' field containing 'Configuration PV potential training'.
- 2: 'Module Type' dropdown set to 'PV Potential with user based input'.
- 3: 'Description' text area with the placeholder 'This is the configuration of the PV potential calculation in Rotterdam.'
- 4: 'Area of Interest' dropdown menu open, showing options like 'Do not use an Area of Interest', 'All Rotterdam building footprints', 'All Rotterdam buildings', 'Bospolder clipping', 'Building footprints', 'Lijnbaan clipping', and 'Tiny test region clipping'. The 'Tiny test region clipping' option is highlighted with a red box.

The right side of the interface displays a table for parameter configuration:

Parameter Tag	Selected Dataset or Value
[building_footprints]	Building footprints subset
[econ_lifetime]	Integer value
[panel_cost]	Float value
Panel efficiency	Float value
Payback price	Float value
Roof patches with suitable area for PV installations	[rooft_patches] 01_tiny_roof_patches

- 1 In the **Inputs** table zone I am invited to select the datasets corresponding to the right **Parameter Name**. The datasets you select must have been previously tagged for the module.
- 2 There is a helper button  to explain the meaning of each parameter and potential values.

Module Type: PV Potential with user based input

This process calculates the electrical potential on roof tops based on different inputs of economical parameters of PV panel technologies. Inputs are spatial data sets from solar irradiation module and economic parameters given by the user.

Description: This is the configuration of the PV potential calculation in Rotterdam.

Area of Interest		Tiny test region clipping	
Inputs	Parameter Name	Parameter Tag	Selected Dataset or Value
	Building footprints 	[building_footprints]	Building footprints subset 
	Economic panel life time in years 	[econ_lifetime]	Integer value
	Panel cost in Euro 	[panel_efficiency]	Envisioned economic panel life time in years [a].
	Panel efficiency 	[payback_price]	Float value
	Payback price 	[roof_patches]	Float value
	Roof patches with suitable area for PV installations 	[solar_irradiation]	01_tiny_roof_patches 
	Solar Irradiation 		Solar irradiation (RO-Lijnbaan) (kWh/m ² a)
Outputs	Parameter Name	Output Dataset Identifier	
	PV potential 	Output dataset name	

[Cancel](#) [Create New Configuration](#)



- 1 In the **Inputs** table zone I select the datasets corresponding to the right **Parameter Name** and I inform the right values for parameters.
- 2 In the **Outputs** table zone I write the desired name for both parameters **Solar irradiation** and **Suitable roof patches**.

Module Type PV Potential with user based input

This process calculates the electrical potential on roof tops based on different inputs of economical parameters of PV panel technologies. Inputs are spatial data sets from solar irradiation module and economic parameters given by the user.

Description This is the configuration of the PV potential calculation in Rotterdam.

Area of Interest Tiny test region clipping

Inputs	Parameter Name	Parameter Tag	Selected Dataset or Value
	Building footprints	[building_footprints]	Building footprints subset 20 1800 14 0.249 01_tiny_roof_patches Solar irradiation (RO-Liinbaan) (kWh/m ² a)
	Economic panel life time in years	[econ_lifetime]	
	Panel cost in Euro	[panel_cost]	
	Panel efficiency	[panel_efficiency]	
	Payback price	[payback_price]	
	Roof patches with suitable area for PV installations	[roof_patches]	
	Solar Irradiation	[solar_irradiation]	

Outputs	Parameter Name	Output Dataset Identifier
	PV potential	PV_potential_training

[Create New Configuration](#)

- 3 I create the new configuration by clicking on the button

- The next screen confirms that the new module configuration is ready to be run.
- To run the module now I click on the button “Run Module”.

Mod config was successfully created.

Module Configuration

1 This module has all its data and is ready to run. Click the Run button to start the process.

1 MODULE STATUS: Ready

Name Configuration PV potential training [Click to edit]

Based on PV Potential with user based input

Details This process calculates the electrical potential on roof tops based on different inputs of economical parameters of PV panel technologies. Inputs are spatial data sets from solar irradiation module and economic parameters given by the user.

Note This is the configuration of the PV potential calculation in Rotterdam. [Click to edit]

Area of Interest Tiny test region clipping

Inputs	Parameter Name	Parameter Tag	Selected Dataset or Value
Building footprints	[building_footprints]	Building footprints subset	
Economic panel life time in years	[econ_lifetime]	20	
Panel cost in Euro	[panel_cost]	1800	
Panel efficiency	[panel_efficiency]	14	
Payback price	[payback_price]	0.249	
Roof patches with suitable area for PV installations	[roof_patches]	01_tiny_roof_patches	
Solar Irradiation	[solar_irradiation]	Solar irradiation (RO-Lijnbaan) (kWh/m ² a)	

Outputs	Parameter Name	Output Dataset Identifier
PV potential		PV_potential_training

2 View Module List **Run Module >>** Delete This Module

1

The module is running!! This is shown by the orange thin zone at the top of the page and in the **MODULE STATUS** on the right hand side. The percentage completed of the module run is also indicated until the **Run** is **completed** and orange turns into green (**2**).

1



Mod config was successfully created.

Module Configuration

This module is currently running. You can refresh this page, or check back later to monitor the module's progress, but you cannot change dataset information while the module is running.

Name	Configuration PV potential training [Click to edit]	MODULE STATUS: Running									
Based on	PV Potential with user based input										
Details	This process calculates the electrical potential on roof tops based on different inputs of economical parameters of PV panel technologies. Inputs are spatial data sets from solar irradiation module and economic parameters given by the user.										
Note	This is the configuration of PV potential for training. [Click to edit]										
Area of Interest	Tiny test region clipping										
Inputs	<table border="1"> <thead> <tr> <th>Parameter Name</th> <th>Parameter Tag</th> <th>Selected Dataset or Value</th> </tr> </thead> <tbody> <tr> <td>Building footprints </td> <td>[building_footprints]</td> <td>Building footprints subset</td> </tr> <tr> <td>Economic panel life time in years </td> <td>[econ_lifetime]</td> <td>20</td> </tr> </tbody> </table>		Parameter Name	Parameter Tag	Selected Dataset or Value	Building footprints	[building_footprints]	Building footprints subset	Economic panel life time in years	[econ_lifetime]	20
Parameter Name	Parameter Tag	Selected Dataset or Value									
Building footprints	[building_footprints]	Building footprints subset									
Economic panel life time in years	[econ_lifetime]	20									

2

Mod config was successfully created.

Module Configuration

This module has been successfully run. You can now view the outputs in the Data Manager.

Name	Configuration PV potential training [Click to edit]	MODULE STATUS: Run Completed
Based on	PV Potential with user based input	
Details	This process calculates the electrical potential on roof tops based on different inputs of economical	



The run of the module in its new configuration is completed!

1

I can check and view the results by clicking the button

Maps

1

Mod config was successfully created.

Module Configuration

This module has been successfully run. You can now view the outputs in the Data Manager.

Name: Configuration PV potential training [Click to edit]
Based on: PV Potential with user based input
Details: This process calculates the electrical potential on roof tops based on different inputs of economical parameters of PV panel technologies. Inputs are spatial data sets from solar irradiation module and economic parameters given by the user.
Note: This is the configuration of PV potential for training. [Click to edit]

MODULE STATUS: Run Completed

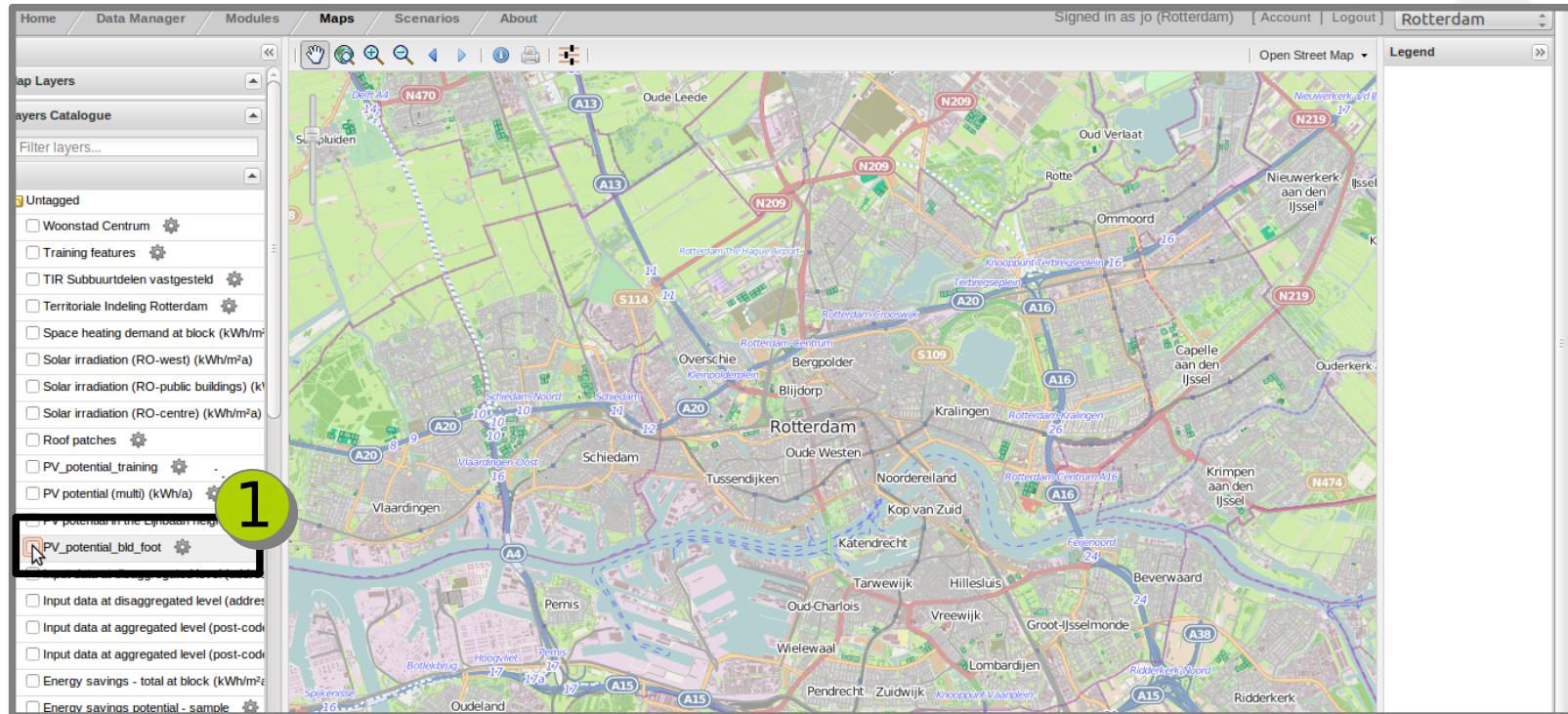
Area of Interest: Tiny test region clipping

Inputs	Parameter Name	Parameter Tag	Selected Dataset or Value
	Building footprints	[building_footprints]	Building footprints subset
	Economic panel life time in years	[econ_lifetime]	20

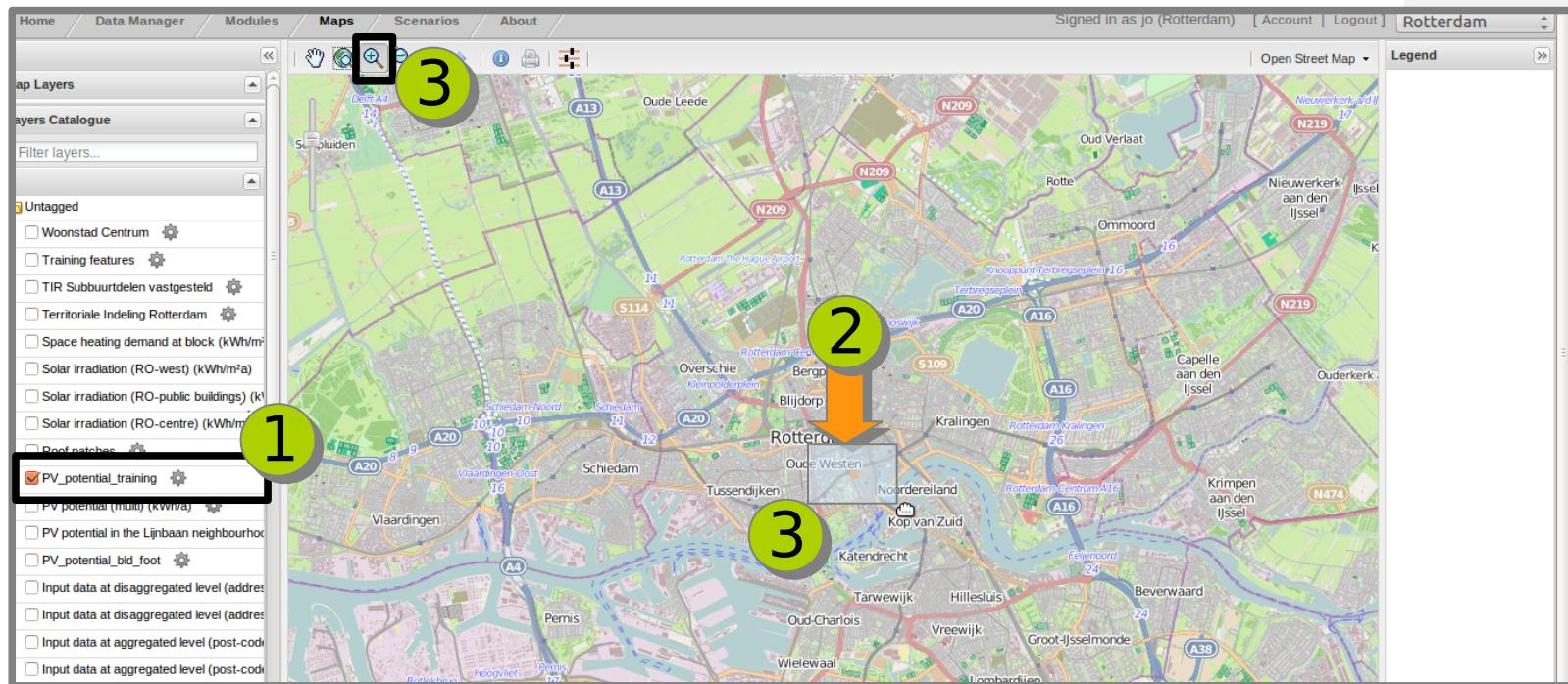
I arrive in the **map viewer** environment.

1 I can check that the output of the Module I ran appears in the list of the layers of my city.

I click on the line to make it appearing on the map.



- 1 The output named PV_potential_training covers...
- 2 ...only a very small zone of roof patches.
- 3 I click on the **Zoom in** tool and I select the zone to zoom in with the cursor.

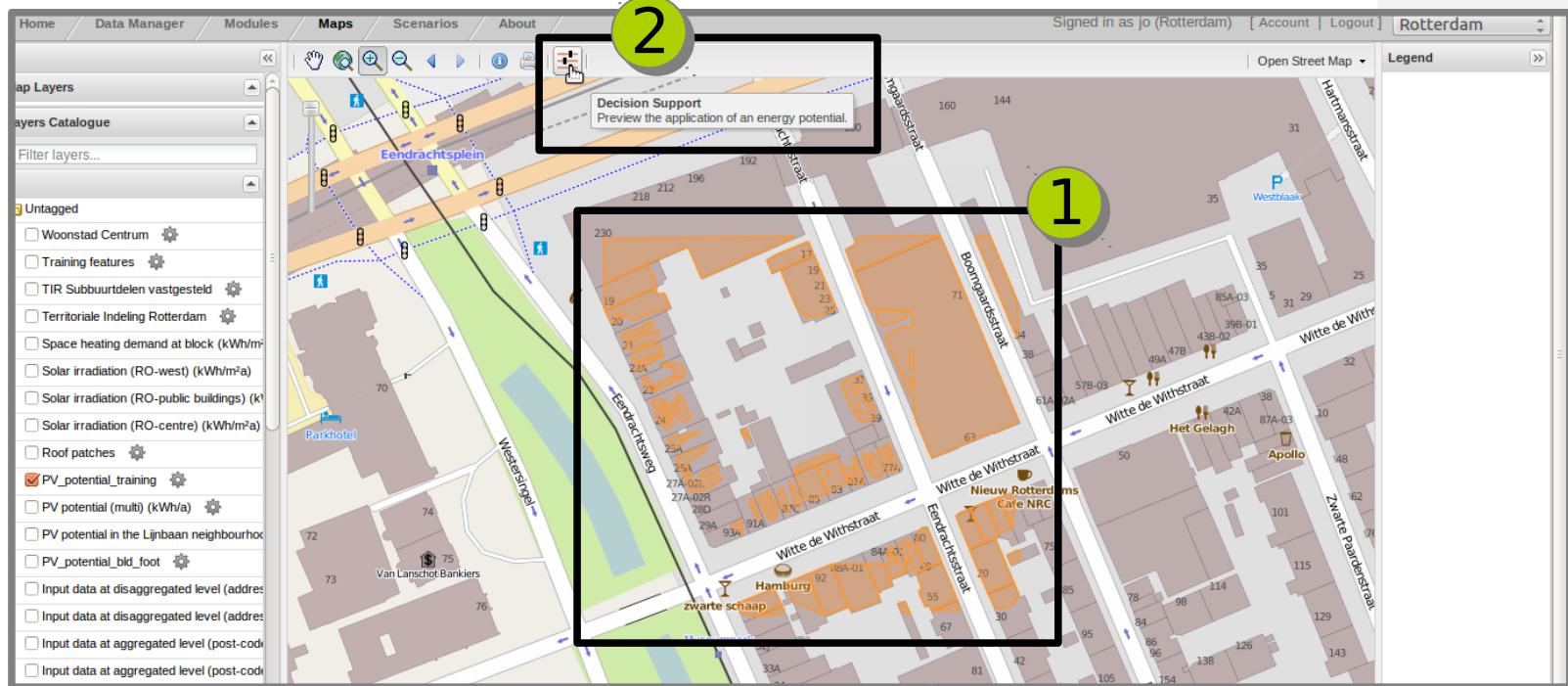
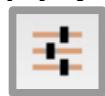


1

Now I can better observe the zone on which I am working!

2

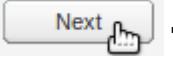
In order to observe the potential effect on decisions about the installation of PV panels on the selected zone, I click on the slider button .

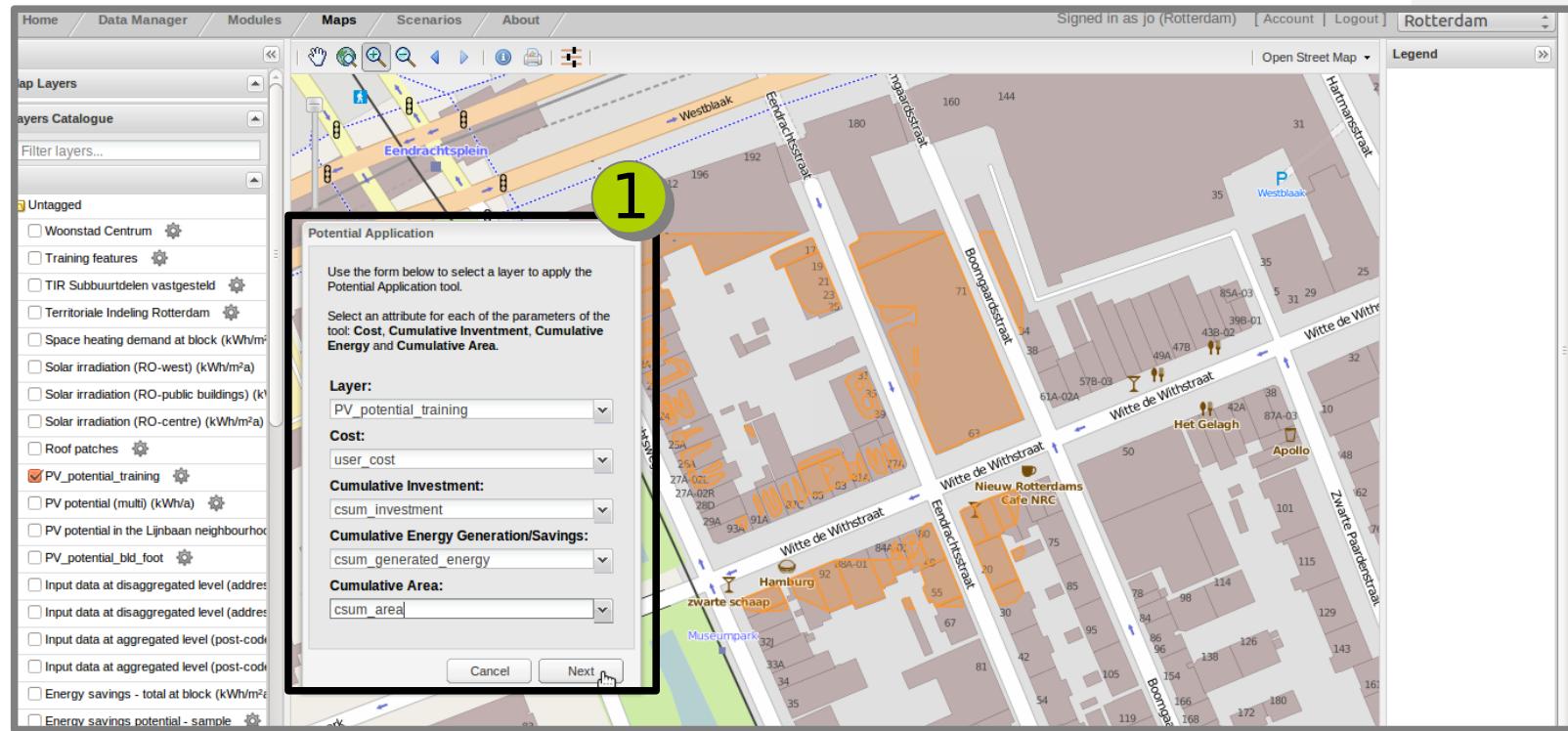


1

A dialogue window appears in which I need to inform about the right parameters to use the slider tool.

I select the layer on which I work and I choose the right parameters for Cost, Cumulative Investment, Cumulative Energy Generation/Savings and Cumulative Area.

Then I click on the button  .



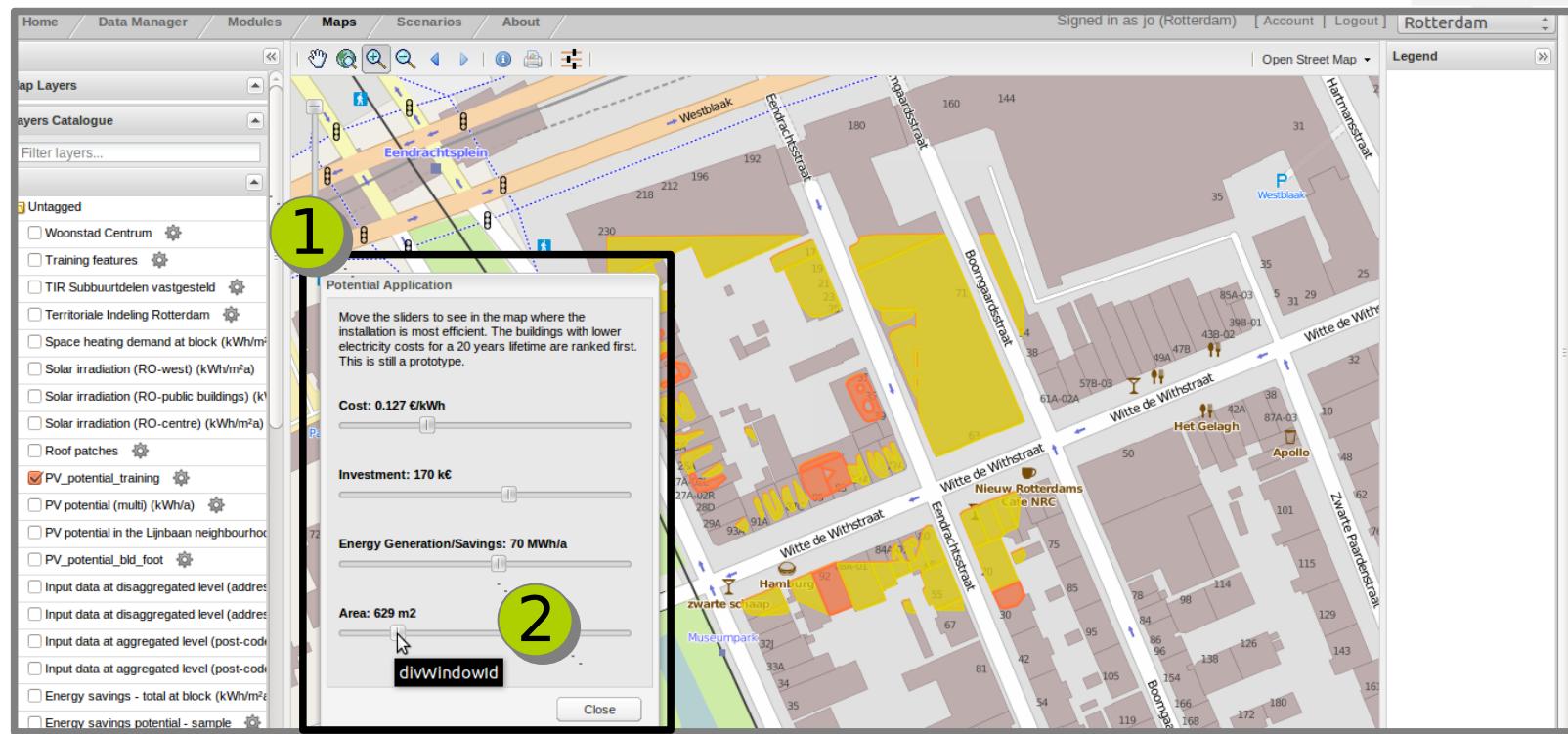
1

I finally access the slider tool!!



2

If I select the cursor “Area”, I can choose to see which roof patches should be chosen for an optimal installation of a given surface of PV panels. The other cursors slide automatically to indicate the cost, the investment needed and the energy generated.



Next steps

I defined a new configuration of PV potential calculation for a neighbourhood of Rotterdam. I ran this configuration and checked the results with the slider tool!!



I aggregate my results at a higher geographic level.