



**Interreg**   
2 Seas Mers Zeeën  
**SOLARISE**

European Regional Development Fund

## Minutes Solarise panel discussion

**Middelburg, October 14, 2019**

Ad Breukel

Menno van der Donker

15:30

16:15

### Panel/Short interactive session

Chair Ad van Breukel – Avans University of applied and sciences and observer partner in Solarise

### Less information

We give the floor to 4 stakeholders involved in historical surroundings from different perspective such Fire Department, Regional Energy Strategy, Government Department for Cultural Heritage and architects.

### Questions and reflections

### Introduction panel session

Shaping the energy transition in a historic city center is a challenge. This task is an answer tot the UN Sustainable Development Goals

<https://sustainabledevelopment.un.org/sdgs>

- Goal 7. Ensure access to affordable, reliable, sustainable and modern energy for all  
Example: increase the share of renewable energy in the global energy mix.  
Middelburg: increasing the level of solar energy.
- Goal 11. Make cities and human settlements inclusive, safe, resilient and sustainable  
Example: safeguard the world's cultural and natural heritage on each level of government, type of expenditure and type of private funding  
Middelburg: urban investments in historic buildings, together with other local stakeholders (civilians-citizens, businesses, education& research).
- Goal 13. Take urgent action to combat climate change and its impacts  
Example: improve education, awareness-raising on climate change mitigation  
Middelburg: communicate meaning of solar projects by making them attractive.

Central question: Which factors play a role in making the right investment decisions in Solar Energy in historical city centers?

This question is dealt with in two Solarise study results for the municipality of Middelburg:

- Market study
- Feasibility analysis

This panel has been organized to provide the audience several practical suggestions that they can take home.

Experts in this field explain how we can deal with this, addressing barriers such as solar panel visibility and grid integration in a historical setting.

- Fire brigade: Edwin de Maat, Specialist in Operational Preparation at Fire Brigade Zeeland. Advisor on hazardous substances / Coordinator of reconnaissance units / Advisor nuclear issues at the Zeeland Fire Brigade.
- Cultural Heritage Management: Hans de Witte, Sustainable Heritage Specialist, Ministry of Education, Culture and Science, Cultural Heritage Agency of the Netherlands.
- Province: Mathieu van Woerkom, Energy Transition Programme Manager at the Province of Zeeland.
- Architect: Ben Westenburger, Architect/Partner at Rothuizen Architects
- Chair Ad Breukel - Avans University of applied and sciences and observer partner in Solarise

Q1: Which barriers are perceived in investment decisions in historical centers?

- Mr de Witte: Aesthetics are an important factor. If panels are not visible it is approved. Put PV panels as flat as possible on a flat roof. On pitched roofs, put it on the 'inside' or 'backside' roof surfaces.
- Mr de Moor (Avans researcher in the Solarise project). Should we not use the opportunity to improve monuments with PV? Mr de Witte: Maybe, but it is better to start with industrial design, and not with cities/monuments. Perhaps, in the course of time, we will get more used to the sight of solar panels and will gradually start to allow the panels.
- Someone from audience: Grid distribution is a problem. There are a lot of countries outside Europe where it is forbidden to feed in any electricity.
- Mr Breukel: this is one of the reasons for the search to storage capacity (batteries, fuel cells)

### Q2: What's the experience with fire & safety?

- Mr de Maat: There is experience at the fire brigade, but solar panels are not yet implemented in the training of new firemen. Especially under-trained staff or volunteers are afraid to put water on the PV system for fear of being electrocuted. There are different reports on fire safety:
  - Report Fraunhofer:
    - <https://www.ise.fraunhofer.de/content/dam/ise/en/documents/publications/studies/recent-facts-about-photovoltaics-in-germany.pdf>
  - Report TNO
    - TNO: <https://www.rvo.nl/sites/default/files/2019/04/Brandincidenten%20met%20fotovoltaische%20PV%20systemen%20in%20Nederland.pdf>
  - Report Task 12 IEA - PVPS
    - [http://www.iea-pvps.org/index.php?id=369&eID=dam\\_frontend\\_push&docID=4044](http://www.iea-pvps.org/index.php?id=369&eID=dam_frontend_push&docID=4044)
- Historic buildings in the city center are difficult to reach, there are a lot of people around, the fire is hard to find (you can't see where the fire is) and it's harder to extinguish it (the solar panels block the water). We assume that with solar panels you may have a bigger fire, which is more difficult to extinguish and causes more damage. The commander on the spot makes the decisions. If there is uncertainty, additional knowledge is not yet available online. Necessary knowledge could be collected and included in training courses.
- Someone from the audience: Could the problem of shocks be prevented by electronics? Mr de Maat: There is no risk of shocks if you are 5 meters away.
- Someone from the audience: Is there a problem with fire insurance? Mr de Maat: We don't know, we are not involved.

### Q3: Which stakeholders should be motivated and how can they motivate other stakeholders themselves?

- Mr Westerberger: As an architect, you have to try to stay involved from start to finish, to continue to influence the practical choices that are made during the process.
- Mr Breukel: Here we see a life cycle / total costs of ownership approach
- Mr Bosch (architect in the audience): We obtain most assignments not through architects, but through building owners that want to improve on sustainability. Architects (in general) are mostly interested in aesthetics and functionality, and are not really interested in sustainability. The new generation of architects is educated in a different way.
- Mr Westerberger: Sunroof tiles have a strange aspect. Regular roof tiles last 100 years and solar panels only 20 years. After 20 years, the solar panels may be replaced and the other tiles are still present. From the point of recycling, it is a waste not to use the regular tiles.
- Someone from audience: Housing corporations and tenants are not really interested aesthetics. Energy bills and comfort are much more important. Housing corporations are very anxious about the 'human interface' .

#### Q4: What factors influence investment decisions?

- Mr van Woerkom: We try to break down the energy transition into smaller, manageable steps. Our target for 2030 is 1 GWp of solar PV. Are these smaller, complicated projects worth the effort? Only 3% of our buildings are historical. Larger steps can be made by focusing on free land and big roofs.
- Mr de Moor: There should be more focus on quality. Tenders on lowest price are not necessarily the best choice.
- The Solarise partner in Heerhugowaard: The initiative for the 5 MWp plant in Heerhugowaard was not made by the municipality.
- Someone from audience: We use locally sourced 'forest waste' wood chips to power wood boilers.
- Someone from Solarise partner Brighton: We first reduce energy use, second electrify everything, third apply sustainable energy.
- Mr Westerberger: The government has decided to stop using gas for heating within 30 years.
- Someone from audience: there are experiments to use water to produce H<sub>2</sub> and O<sub>2</sub> in energy-neutral town of 60 houses in Overijssel.
- Mr Breukel: this issues is part of the power to gas discussion in the Netherlands – we need lots of (over capacity) in order to be cost effective. Advantages are using the present gas net, and CO<sub>2</sub> reduction.

#### Q5: Questions from audience?

- Someone from the audience: hoe to develop collective initiatives for inner-city solar parks. Is this also possible with 'collective storage'? Because flammable Li-Ion batteries in the attic may pose a problem.
- Mr Breukel: collective approach come up more often: at industrial zones, in neighbourhoods, including for heat networks. One of the Solarise partners has a collective approach, but only with solar, not with other renewables.
- Someone from audience: Amsterdam Arena has Nissan Leaf 2nd hand batteries.
- Someone from audience: Should be switch from 220V AC to 12V DC?
- Mr de Moor: There has been discussions on DC grids for 20 years. A 48V DC grid might be a possibility, but the problem is safety (if you switch you get DC arcs). The problem is that there is no standard voltage. The larger the power the more voltage you need. Boats 12V, cars 48V, electric vehicles 800V.
- Mr Breukel: the various factors such as cost, environment and experience (comfort, aesthetics) can also be used for the evaluation of the project.
- Mr Becarra (Solarise partner) from the audience: We have developed decision tree with four parameters. Everybody can use this tool in one way or another.

End of session.