

FinEst Centre
for Smart Cities

SMART CITY CHALLENGE 2024

City Challenge

Max 3 pages

send to smartcity@taltech.ee by May 15, 2024

Challenge Title – Efficient street lightening and energy cooperatives

City/county and country – Kuressaare/Saaremaa/Estonia

Main contact from your city/county – Sulev Alajõe, Islands Energy Agency, manager, sulev@eisea.org, 5112878

1. What is the future urban challenge that would need a solution to?

- Please describe the challenge of your city / county neighboring a city?

Street lightening has been changed from luminaries to led, but it consumes energy also at times nobody uses it. Light posts are monofunctionally used only for lightening and supplied by distribution system operator, while the electricity could be generated locally both by the tops' attached solar panels and adjacent bigger capacity renewable plants, including wind sourced. This entails an opportunity to engage residents from their districts to organize into energy cooperatives and provide the renewable energy on behalf of stronger local interest. Islands Energy Agency can help facilitating the initiative and engage grants to empower locals limited financial capacity. In addition, lightening posts with integrated renewable electricity would suit to serve as EV charging stations at suitable for parking spots. Local energy cooperatives provided solution enables to improve the project's feasibility by offering the charging service to island visitors, particularly at summer touristic season. At times of grid outages, the described system serves as a reserve capacity, supported by storages in bigger centers of the Estonian biggest island.

- Why is it important for your city to solve it? How big priority it is for you and why?

Saaremaa has set targets to save energy and by 2030 have all consumption based on renewables. Every step towards it is important. Sparsely populated island cannot afford carrying on with the big number of public bus lines, hence social care transport in combination with demand-based system decarbonized by EVs is the future solution, needing smart technical and financial solutions.

- Is this a unique challenge/problem of your city, why or is this by your knowledge a challenge/problem that many cities have – which kind of other cities?

The problems described are location specific, but in the essence similar to many cities/regions. Importance in the approach is for more rural regions with lower density of residents.



REPUBLIC OF ESTONIA
MINISTRY OF EDUCATION
AND RESEARCH

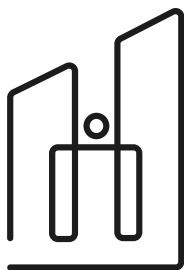


REPUBLIC OF ESTONIA
MINISTRY OF ECONOMIC AFFAIRS
AND COMMUNICATIONS

**FORUM
VIRIUM
HELSINKI**

**TAL
TECH**

A!
Aalto University



FinEst Centre
for Smart Cities

2. Innovation.

- How have you solved that issue so far? Why aren't the present solutions good enough? Are there legal obstacles, which ones?

So far not enough knowledge and resources to implement more advanced solutions. But the disappointment about the situation and too slow adoption of novel technological solutions is growing. There are no legal obstacles.

- What should be the main features, characteristics of the future solution to be potentially best for that challenge or problem?

The lightening posts should become an example of smart energy performance contracting, showing many positive impacts at once – reducing unnecessary energy consumption, utilizing renewables and storage, helping to bring in usage more EVs, cutting the burdening expenditure for public bus lines, serving as a crises local network for independent power charging.

3. Expected impact of your pilot solution.

- What is the expected impact to your city environment you expect to see if the challenge gets solved?

The municipality needs to pay less for the street lightening, residents will be motivated to establish energy cooperatives, bigger number of renewables will be harvested for the local practical use, conversion from fossil fuels to clean energy in transport accelerated.

- What is the expected impact to your citizens you expect to see if the challenge gets solved?

Citizens appreciate community's efforts to save energy, provide more local smart solutions, improving EVs charging possibilities both location and price wise, step towards more resilient economic structures with viable business plans. It gives islanders lots of new opportunities to be engaged in activities, become from consumer to prosumer,

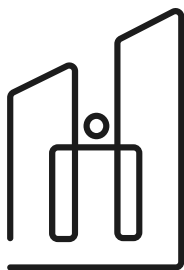
- What is the expected impact to your city governance you expect to see if the challenge gets solved?

The municipality has established energy agency to see innovations happening, new knowledge brought in, financial capacity increased. Positive developments will encourage the local authority to follow this path in the future, collaborate more with universities, be open to learning from other cities' best practices. Business as usual needs disruption by brave interventions, combining academic potential with local resources.

4. Piloting

- Would you be interested to become a piloting partner of a proposed solution? Why? Describe shortly your capability to participate.





FinEst Centre
for Smart Cities

Now, when Islands Energy Agency has been set up, the Estonian archipelago led by Saaremaa has a team of consultants aiming to showcase the sustainable development forward, and islanders will make their living system wealthier place to live, work, and attract capital. Entrepreneurs' spirit is there, waiting to be filled in with good advice and market expansion. Saaremaa has the only unique entrepreneurs' association willing to collaborate in development projects, easing building supply chains necessary for new undertakings. We'd be delighted to become a piloting partner.



REPUBLIC OF ESTONIA
MINISTRY OF EDUCATION
AND RESEARCH



REPUBLIC OF ESTONIA
MINISTRY OF ECONOMIC AFFAIRS
AND COMMUNICATIONS

**FORUM
VIRIUM
HELSINKI**

**TAL
TECH**

A!
Aalto University