Co2mmunity: Community Energy Projects

Community energy projects offer enhanced production of renewable energy from local sources (wind, solar, biomass, hydropower, geothermal) through active participation of local communities. Together, citizens co-finance, co-develop, and co-operate renewable energy plants, and foster sustainable energy distribution.

1. Title of the project *

Aurinkoamfi renewable energy project (AREP)

2. Country *

Finland

3. Location (city, village, etc.), address *

Tyrskyvuori 13, 02320 Espoo

4. Short description of the project (3-5 sentences) *

Transferring a housing company from primarily coal based district heating to renewable energy, that is locally produced. Geothermal heating, storage of surplus heat and re-usage of waste heat from air condition are in production since 3. July 2019. Other parts like solar energy in planning phase (autumn 2019)

5. Type of community

- (●) Urban
- ( ) Rural

6. Type of project *

- [x] Renewable electricity
- [x] Renewable heat source
- [x] Energy efficiency or energy saving (renovation of buildings etc.)
- [ ] New technology piloting
- [ ] Other:

7. Technologies *

- [ ] Bio CHP plant
- [ ] Biogas reactor
- [ ] Biomass boiler
- [ ] Central heating system
- [x] Demand response automation system
- [ ] District heating network
- [ ] Electric battery
- [ ] Electric vehicle charging station
- [ ] Energy efficient windows, insulation etc.
- [x] Heat pump for heating and/or cooling
- [ ] Internet application related to energy system or service
- [ ] Micro-grid
- [ ] Solar heat collectors
- [x] Solar PV system
- [x] Thermal storage
- [ ] Wind turbines
- [ ] Other: _____

8. System / service / outcome pictures (please write a link(s) to pictures)

to be completed

9. Ownership model

- (●) Fully financed and owned by a community
- ( ) Received financial support for investment and fully owned by a community
- ( ) Participation through buying shares
- ( ) Co-operative membership
- ( ) Participation through aggregator or other energy service provider (individual contract)
- ( ) Other: _____

10. Main stakeholders of the project

Flat owners in the housing company

11. How was the project funded? (several answers possible)

- [ ] Community funds
- [x] Bank loan
- [ ] Subsidies
- [ ] Government grant
- [ ] Municipal grant
- [ ] European funding
- [ ] Crowdfunding
- [ ] Other: _____

12. Type of benefits and investment motives

- [ ] Direct income from selling energy
- [x] Energy and cost savings
- [ ] Income from shares
- [x] Climate and environmental benefits
- [x] Adoption of new or smart technologies
- [x] Improvement of indoor air quality or other living conditions
- [ ] Improvement of local economy
- [ ] Increase of community resilience
- [ ] Other: _____

13. How was the rest of the community involved in the project? (several answers possible)

- [x] Participated in discussions
- [x] Opposed the project
- [x] Supported the project
- [x] Participated in the decision-making
- [ ] Received a revenue share
- [ ] Was not involved in any discussions

14. Did you receive help from any organisation, public institution or other similar project? If yes, from whom and how did they help you?

No help from public institutions. Permission to make bore holes received though easily without delay from the city of Espoo.

15. Lessons learnt (NIMBY, institutional barriers, financial barriers, regulative barriers, etc.). How the project became successful after all? Any advices for other community energy project managers?

So far, achieved energy savings have been much better (+25%) than predicted.

After completion habitants have almost without exceptions expressed their satisfaction with the outcome.

16. Website link

to be completed

17. Contact information *

uffe.sjogren@gmail.com

Technical and economic details

Technical and economic details of community renewable energy project.

TECHNICAL DETAILS: 1. System size or purchase volume (kW, MW, amount of units): *

Original heat consumption around 500 MWh. This is to be replaced by 144 MWh in purchased electricity. Real outcome expected to be even better

2. System installation or product adoption time: month/year *

07/2019

3. Expected system or service lifetime

Up to 30 years, with change of compressors around 15th year

4. Energy production or savings/year

66-85% (333 - 425 MWh)

5. Who is taking care of the Operation and Management?

The supplier of the equipment and its installation

ECONOMIC DETAILS: 1. Investment or purchase cost:

Approximately 300,000 euros

2. Operation and Management cost/year

First year free-of-charge. Validity of guarantee 6 years

3. Total amount of subsidies received

0

4. Economic feasibility: Internal Rate Of Return (IRR), Net Present Value (NPV), Payback Period

Payback 11-13 years, IRR 10-12%