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LECo

Local Energy Communities



**LECo factsheet:
Accelerate community
energy transition**



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The project LECO – Local Energy Communities - supports small municipalities and communities in the partner regions of Finland, Ireland, Norway and Sweden to implement energy initiatives. This handbook intends to guide energy initiatives from the idea to conclusion. It includes links to important sources and recommendations for citizen engagement with policy development.

This information has been developed by LECO project partner LTU (Lulea University of Technology). Adaptations for Norway have been made by project partner UIT (Universitetet i Tromsø – Norges arktiske universitet).

MAKE YOUR PROJECT WORK

Energy efficiency and small-scale renewable energy projects are typically started by an association of energy users or producers in a community in order to either save energy or provide energy that involves lower and stable energy costs and the possibility of additional future income.

A common feature of these initiatives is that they somehow favor the community and create economic cycles where the money does not unilaterally flow out of the area.

Get your project started

Linking your energy efficiency or renewable energy project idea with energy strategies of the country and region will ease permitting and funding procedures. A clear vision on how your project benefits households, local enterprises and the community increases interest and ensures active participation of community members. Engaging members with activities including public meetings, interviews of and discussions with key people in the community and visiting similar initiatives of other communities can lay the foundation for a new community owned and led organization, which in Norway could take the form of a cooperative (*samvirkeforetak*).

The **Norwegian Co-operative Centre** (*Samvirke-senteret*) (www.samvirke.org) provides information and advice to cooperatives.

Once community members and all stakeholders are on board and organized and the acceptance of the general public is attained, the idea can be launched. Aims and objectives must also be agreed upon. This will involve clarification of expectations, delegation of roles and responsibilities within the organization and in the project management. The next step is to make the project work.

Companies, cooperatives and private persons can seek advice, support and funding for a wide range of energy initiatives from **Enova** (www.enova.no).

Planning, permissions and land use

Acquiring regulatory consents, such as building permission, grid connection permit or environmental impact assessment (EIA), can be exhausting, time-consuming and costly. Enova's energy advisors are the first point of contact for concept assessments in the early project phase. Depending on the chosen technology, capacity, visual design and other factors the energy advisor can determine which regulations apply and which permissions are to be attained. Advice for further development of project documents is provided and finally funding for the project can be applied for at Enova.

The municipalities, including the county municipalities, receive guidance and support for climate and energy planning at *Miljøkommune* (www.miljokommune.no). They are obliged to follow the Government planning guidelines for climate and energy planning in the municipalities.

In Norway most changes on existing buildings, including insulation and replacing heating systems, do not require building permits. Significant changes of the building's appearance – including rooftop solar systems require permission.

Energy projects are subject to a license or concession. NVE is the national authority, which handles such concessions (licenses, permits, etc).

NVE - Energiforsyning og konsesjon: <https://www.nve.no/energiforsyning-og-konsesjon/>

To obtain a concession, the Energy Act, the Planning and Building Act, the Pollution Act, the Nature Diversity Act and a number of other laws and regulations are followed and fulfilled.

Small-scale wind power projects (<500 kW) are exempt from the concession requirement. The municipalities handle applications for small wind turbines.

The term "small-scale hydropower" encompasses power plants up to 10 MW, and can be divided into micro power plants (up to 100 kW), mini power plants (100-1000 kW) and small power plants (1-10 MW). It is not primarily the size of a hydropower plant that determines if it is subject to concession, but rather the possible damage or disadvantages for the public interest in the water resource. For power plants above 1 MW, the licensing authority is the Norwegian Energy and Water Resources Directorate (NVE), while the municipality is responsible for smaller plants.

Solar photovoltaic (PV) systems on a building are covered by the so-called plus-customer scheme (*Plusskundeordningen*). The power injected to the grid shall at no point exceed 100 kW. The grid owner is obliged to accept surplus energy, although they are not obliged to pay for it. A plus customer does not need to pay the network tariff for power injected to the grid, and can select a power provider that is willing to pay for the injected power. From 2019, power injection above 100 kW will also be accepted, although the plus customer will have to pay an input tariff (*innmatningstariff*) for power above the threshold.

Financing the project

A project plan, a functioning organization structure and project management, references from previous successful projects are important elements in a funding application.

Enova SF is owned by the Ministry of Climate and Environment and is mandated to contribute to reduced greenhouse gas emissions, development of energy and climate technology and a strengthened security of supply. Enova offers a wide range of advice, support and funding opportunities that make it easier for Norwegian citizens, companies and public enterprises to create viable change.

ENOVA – support for Norwegian companies: <https://www.enova.no/Bedrift/>

ENOVA – support for Norwegian citizens: <https://www.enova.no/privat/>

Implementing and completing the project

Once all permissions and declaration requirements are fulfilled, a suitably qualified installer is procured; the project contract can be awarded. They will deliver and competently install the system. Ideally, they will also provide comprehensive documentation of the system, training for operation and maintenance, which can be carried out by community members. The system is tested and commissioned. Evidence

of completion is submitted to the funding providers. Milestones and finalization have to be demonstrated, reported and communicated.

The project and all the experiences with it are evaluated and documented in a final project report; this includes highlighting lessons learned; expected and unexpected problems and benefits; achievements hopefully other mostly positive experiences. This is important for the community and the members of the cooperative. After successful implementation of the first project, new ideas will evolve and new projects will follow.

ORGANISATION FORMS FOR SMALL-SCALE ENERGY PROJECTS

Municipal, county and central authorities own about 90 % of Norway's electricity production capacity. Most grid companies are wholly or partly owned by one or more municipalities. Licenses may also be awarded to companies that are partly owned by state-owned enterprises or one or more municipalities or county authorities, provided that the public sector holds at least two-thirds of the capital and the votes in the company, and the organisation clearly indicates genuine public ownership. In other words, private actors may own up to one-third of a company.

Private energy enterprises with the organizational form of a cooperative (*samvirkeforetak*) are not yet common in Norway. They may own power and heat generation facilities that do not require a license under the Industrial Licensing Act, such as some wind and solar power installations and some small-scale hydropower installations.

Information on cooperatives: Altinn – Samvirkeforetak: <https://www.altinn.no/starte-og-drive/starte/valg-av-organisasjonsform/samvirkeforetak/>

TECHNOLOGIES AND PROJECT TYPES

Table: Projects for energy efficiency, renewable electricity and heat, bioenergy supply:

Renewable electricity	Renewable heating/cooling	Renewable fuels	Energy efficiency
Wind energy (onshore)	Domestic solar thermal heat (hot water and heating)	Biodiesel	Improving building envelopes
Wave and tidal energy	Large solar thermal heat integrated with DH	Bioethanol	Applying advanced building standards
Small (domestic rooftop) solar PV or small ground-mounted.	Solar thermal cooling	Plant oil	Residential buildings
Large solar PV (roof- or ground-mounted)	Ground source heat-pumps and floor heating systems	Forestry residues; wood-chips; Pellets; waste-wood (returflis)	Public buildings Commercial buildings Apartment buildings
Small hydropower	Water heat-pumps (lakes, rivers, ocean)	Peat for District Heating boilers; peat for residential use.	
Biogas electricity or CHP.	Air heat-pumps		Street lighting
Wood-fired micro CHP.	Wood-fired boilers Peat-fired boilers		
Local district heating CHPs: <ul style="list-style-type: none"> • Biogas-CHP • Wood-fired-CHP • Peat co-fired-CHP 	Biogas, biodiesel-fired boilers	Transport sector: Focus on walking, cycling, and public transport. Innovative local transport systems as shared taxis, minibusses instead of big busses etc. Energy efficiency vehicles. Biogas for busses, etc. Electric vehicles, charging stations, ...	
Micro-grid and electricity storage: <ul style="list-style-type: none"> • Behind the meter • On the grid 	(Small scale) Local district heating boilers: <ul style="list-style-type: none"> • Biogas • Wood-fired • Peat co-fired 		

Improving building envelopes and replacing heating systems.

- ENOVA - <https://www.enova.no/>
- NVE - Energimerking av bolig og bygg - <https://www.nve.no/energibruk-og-effektivisering/energimerking-av-bolig-og-bygg/>

Hydropower:

- NVE – Vannkraft - <https://www.nve.no/energiforsyning-og-konsesjon/vannkraft/>
- EnergiNorge – Vannkraft - <https://www.energinorge.no/fagomrader/fornybar-produksjon/vannkraft/>
- LVK - Landssamanslutninga av Vasskraftkommunar - <http://lvk.no/>
- Statkraft – Vannkraft - <https://www.statkraft.no/Energikilder/Vannkraft/>

Solar energy:

- NVE – Solenergi - <https://www.nve.no/energiforsyning-og-konsesjon/solenergi/>
- Norsk Solenergiforening - <https://www.solenergi.no/>
- Solkart.no - <https://solkart.no/>

Wind energy:

- NVE – Vindkraft - <https://www.nve.no/energiforsyning-og-konsesjon/vindkraft/>
- NVE Vindkraft (interactive map) - <https://gis3.nve.no/link/?link=vindkraftverk>

- NORWEA - <http://www.norwea.no/>
- Vindportalen.no - <https://www.vindportalen.no/>

Bioenergy:

- NOBIO – Norsk Bioenergiforening – <http://nobio.no/>
- Norsk Bioenergi - <http://www.norbioen.no/>

Biogas:

- NOBIO – Norsk Bioenergiforening – <http://nobio.no/>
- Avfall Norge – Biogass - <https://www.avfallnorge.no/>

District Heating and Cooling:

- ENOVA - Fjernvarme og fjernkjøling - <https://www.enova.no/bedrift/energisystem/fjernvarme-og-fjernkjoling/>
- Norsk Fjernvarme - <http://www.fjernvarme.no/>

CITIZEN ENGAGEMENT IN POLICY DEVELOPMENT

Within the context of a low carbon energy transition, new roles for local communities are emerging; transitioning them from passive consumers to active prosumers with local generation, demand response and energy efficiency measures is required. Community members with interest and enthusiasm for energy initiatives are encouraged to engage in national policymaking, regional and municipal development planning processes. Such

engagement include activities such as participation in public consultation, public hearings, seminars, road-shows, writing submissions to local and central authorities, writing letters to media and contributions in social media forums. As in all municipal planning, citizens can engage in the development and updates of local energy plans.

COMMUNITY ENERGY IN NORWAY – EXAMPLES:

Smart Energy Hvaler - www.smartenergihvaler.no:



Figure 1: Solar cells at Sandbakken waste recycling plant in Hvaler. Photo: Fredrik Aspheim/Tekniske nyheter.

Hurdal Ecovillage (Hurdal Økolandsby) - www.hurdalecovillage.no – Aktivhus:



Figure 2: Aktivhus i Hurdal Økolandsby . URL: <https://www.hurdalecovillage.no/aktivhus-1>.

OTHER INTERESTING LINKS:

- **Altinn – Samvirkeforetak:** <https://www.altinn.no/starte-og-drive/starte/valg-av-organisasjonsform/samvirkeforetak/>
- **Miljøkommune:** www.miljokommune.no
- **Energisenteret:** et opplevelsessenter om vannkraft og annen **fornybar energi**.: <https://eis.no/>
- **Future Built:** Klimavennlig arkitektur og byutvikling - <https://www.futurebuilt.no/>
- **FMEZEN - Research Centre on Zero Emission Neighbourhoods in Smart Cities:** <https://fmezen.no/>
- **ZERO - Zero Emission Resource Organisation:** <https://zero.no/>
- **Community Power:** www.communitypower.eu/en/
- **Covenant of Mayors:** www.covenantofmayors.eu/en/
- **REScoop.eu - the European federation of renewable energy cooperatives:** <https://www.rescoop.eu/>



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Project Partners

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Western Development Commission (Ireland), Luleå University of Technology (Sweden),
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The Gaeltacht Authority (Ireland), Lohtaja Energy Cooperative (Finland),
UiT – the Arctic University of Norway (Norway)

*Outside the NPA Programme area

