



100%
RENEWABLES
CITIES & REGIONS
ROADMAP

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100% RENEWABLES SOLUTIONS PACKAGE

Community-owned renewable energy



This solution is part of a package of solutions meant to guide local and regional governments in implementing a local renewable energy transition by providing guidance on mechanisms, applications or technologies that can help accelerate their climate and energy action.

It was produced as part of the 100% Renewables Cities and Regions Roadmap project, which supports nine cities and regions across Argentina, Indonesia and Kenya to develop bankable renewable energy projects and in-depth local strategy and action plans to achieve one hundred percent renewable energy. The 100% Renewables Cities and Regions Roadmap project is implemented by ICLEI – Local Governments for Sustainability and funded through the International Climate Initiative (IKI), which is implemented by the Federal Ministry for Economic Affairs and Climate Action (BMWK) in close cooperation with the Federal Ministry for the Environment, Nature Conservation, Nuclear Safety and Consumer Protection (BMUV) and the Federal Foreign Office (AA).

DISCLAIMER

All cities are unique. The Solutions Gateway has been developed as an advanced knowledge catalogue to provide an overview of possible Low Emissions Development Solutions. The Solutions and Packages it contains provide guidance on general conditions, which may not correspond to the existing conditions in your city or jurisdiction. The consultation and use of the Solutions Gateway does not waive the need for the Local Government to assess the feasibility of a Solution or Package in the local context in its city or jurisdiction, prior to implementation. Please note that the impacts, benefits and co-benefits indicated are generally valid but may not materialize in particular circumstances.

ABOUT SOLUTIONS GATEWAY

[Solutions Gateway](#) is an online resource platform for Local Governments where they will be able to find possible Low Emissions Development (LED) Solutions for their cities.

In the context of the Solutions Gateway, Solutions are processes, or groups of actions, which Local Governments can implement to deliver climate change mitigation results and enhance local sustainable development. Taking an integrated approach, and focusing on Local Governments usual responsibilities and roles, Solutions include core actions as well as enabling and multiplying actions essential to maximize their effectiveness and efficiency. These include policy, regulatory, governance, capacity building, awareness raising, stakeholder engagement, etc.

ABOUT ICLEI – LOCAL GOVERNMENTS FOR SUSTAINABILITY

ICLEI – Local Governments for Sustainability is a global network working with more than 2,500 local and regional governments committed to sustainable urban development. Active in 125+ countries, ICLEI influences sustainability policy and drives local action for low emission, nature-based, equitable, resilient and circular development. ICLEI's Members and team of experts work together through peer exchange, partnerships and capacity building to create systemic change for urban sustainability.

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1. INTRODUCTION

Community-owned renewable energy installations are projects in which a community of people is involved in initiating, developing, operating and/or benefiting from a renewable energy development to generate electricity. Through cost-sharing, community-ownership models enable individual participants to own assets with lower levels of investment.

Community owned renewable energy projects are diverse, catering to various needs and the available resources of the local community, ranging from solar PV on a community hall to a four-turbine wind farm on the edge of town, to a small hydro system.

Community energy covers aspects of collective action to reduce, purchase, manage and generate energy and emphasize local engagement, leadership and control and the distribution of benefits locally. Community-led action can often tackle challenging issues around energy, with community groups well placed to understand their local areas and to bring people together with common purpose.

1.1 RELEVANCE

As the energy transition impacts our patterns of economic activity globally, the way that people relate to energy is also changing. With growing awareness-raising, people are more conscious of where their energy comes from, how they use it, and its impacts on the climate. People are also seeking ways to keep their energy expenditures low, and also to find ways to benefit their local communities. While individual and household-level action is the first step, communities are now keen to see what they can do together in ways that are more efficient and empowering. Community-owned renewable energy projects create social, political, environmental, economic and technological benefits by:

- strengthening local economies;
- building community participation, and enhancing resilience & empowerment;
- educating people about renewable energy and involving them in creating a sustainable low carbon future;
- directly and significantly reducing a community's carbon footprint;
- developing renewable energy industries, technology, jobs and training.



1.2 MAIN IMPACTS

LOCAL ECONOMIC IMPACT

- Possibility of lower-cost electricity and earnings
- Economies of scale; community-scale renewables are less expensive.
- Helps keep money invested in the local economy
- Job creation in the host community
- Adds new technical skills to the community skill base
- Reduces local economic dependence on fossil fuels
- Enables the uptake of other cleaner energy solutions e.g. electric vehicles

ENVIRONMENTAL IMPACT

- Reduce levels of local pollution due to fossil fuel use
- Helps reduce greenhouse gas emissions and related climate change impacts
- Increases energy efficiency and minimizes loss of electricity through long distance transmission
- Increases community awareness of energy use and its localized impacts
- Greater engagement with the energy system can lead to more sustainable energy use
- Reduces impacts of extractive energy industry, by decreasing or eliminating fossil fuel energy use

SOCIAL IMPACT

- Gives community members the opportunity to take control of the planning, development, and maintenance of energy, making them active participants
- Ensures that energy systems are designed to maximize public and community benefit
- Improves community resiliency and gives the community information and control over their own energy production and distribution
- Increases energy accessibility
- Advances community self-determination and allows community members to advocate on their own behalf
- Improved democratic and governance processes due to active engagement



1.3 BENEFITS

GREATER GRID FLEXIBILITY

Community-owned projects, either individual projects or projects bundled around a mini-grid, are primarily used for community applications. However, if these projects are connected to the main grid, they can provide power and other ancillary services to the main grid. For the electricity injected into the main grid, the community-owned projects would be remunerated in accordance with the regulation in place, either through direct trade on the wholesale market, feed-in tariffs, net metering or net billing. This could increase flexibility in the main grid while providing additional income for the community members.

INCREASED GRID RESILIENCE

The main system of large, centralized power plants is vulnerable to massive outages from natural disasters and acts of terrorism. Incorporating smaller, decentralized local renewables systems diversifies the energy supply and reduces the risk of widespread power outages, especially in power systems with a history of outages. Distributed generators and micro-grids could enable islanded operation, thus improving resilience against extreme events.

INCREASED DEPLOYMENT OF DISTRIBUTED RENEWABLE GENERATION

When decentralized energy systems are implemented by a local community, the size of the project is larger than when implemented by an individual, benefiting from economies of scale. Community-ownership models can enable aggregation of demand for energy-related assets and negotiation of better prices with installers, project developers and equipment suppliers, thus lowering the upfront investments needed from community members. Owing to better economic viability, the use of community-ownership models can lead to a higher and more rapid deployment of distributed renewable generation assets that is not possible with individually owned systems.

IMPROVED ACCESS TO ENERGY

Increased deployment of decentralized energy resources contributes to local decarbonization goals and provides socio-economic benefits, such as creating new jobs and energy access. In areas where the electricity access is poor, the lower upfront investments required by community energy projects can enable local development of renewable energy projects. Besides providing energy access to the community, such projects can improve livelihoods by enabling productive uses, such as agro-processing, cold storage, irrigation and desalination, or other micro-enterprises. In these regions, community-ownership models can be implemented together with flexible payment methods, such as pay-as-you-go models, to enable vulnerable populations to gain access to electricity.

LOWER ENERGY COSTS FOR THE COMMUNITY

Community-ownership projects can also lead to significantly lower cost energy for the community. First, the costs for electricity produced from locally deployed renewable energy plants may be cheaper than electricity offered to the community by other retailers. Demand (also called “peak”) charges are an important component of electricity bills and are generally based on the highest electricity usage requirement (in kW). On-site battery storage systems can be used to manage peak loads and reduce demand charges. In addition, for the electricity injected into the main grid, the community-owned projects would be remunerated in accordance with the regulation in place.

SOCIO-ECONOMIC BENEFITS

One major benefit of community ownership models is that communities are less reluctant for larger devices such as wind turbines to be installed. Opposition is strongly reduced, and the “not in my backyard (NIMBY)” effect is

diminished as communities become part of and actively involved in the project. This creates a sense of ownership that in turn can empower a community greatly: members are more prone to do other (non-energy-related) projects as a community and feel a bigger sense of attachment to the place because of their active involvement. Especially in rural areas, this attachment—together with potential job creation (from technical to managerial jobs)—can play a crucial role in particularly young people’s decision to stay or return to places with otherwise declining and aging populations. This can have huge effects on the future of rural settlements. Another important social benefit of community ownership is the energy and environmental consciousness that is created among a community, which can lead to more sustainable energy use and behaviours overall.

1.4 SUGGESTED INDICATORS FOR MONITORING RESULTS

- Reduction in annual greenhouse gas (GHG) emissions (t CO₂e/year)
- Increased employment rate in the community (percentage)
- Comparison of the savings in electricity bills, before and after of implementing the community energy project (currency/year)
- Net metering to identify the generated electricity from the community energy project (no. of households using net-metering)
- Annual cash flows coming from the community energy project (currency/year)
- Increased economic growth of the community (percentage)
- Number of community-ownership initiatives
- Total installed capacity of community-ownership projects (MW)
- Electricity generated from community energy projects (MWh/year)

1.5 TYPICAL LOCAL GOVERNMENT ROLES

- | | |
|----------------|-----------------------|
| • Policy maker | • Role model |
| • Regulator | • Financial Supporter |
| • Advocate | • Co-ordinator |
| • Planner | • Service provider |

2. INTEGRATED SOLUTION OVERVIEW

	Enabler Actions	Required Actions	Multiplier Actions
Policy	<ul style="list-style-type: none"> • Introduction of feed-in tariffs/ other favorable rates for electricity generated from community-owned energy projects • Introduction of subsidies/ incentives for the construction of community energy projects • Enable new energy supply and trade arrangements, such as third-party sale or peer-to-peer energy trading, for community-owned projects • Allow participation of community-ownership projects in the energy market by adjusting the minimum capacity requirements or allowing aggregation of DERs (distributed energy resources) • Policies to encourage public-private partnerships (PPPs) in setting up community-owned projects at the local level 	<ul style="list-style-type: none"> • Support programmes (technical/financial capacity building) focusing on community-based planning and ownership • Framework for community participation through the provision of pathways and financial support for communities to participate in renewable energy projects • Simplify and increase the transparency of administrative and permitting processes for community ownership projects, making this information easily accessible 	<ul style="list-style-type: none"> • Setting a pre-requisite for the private sector projects seeking support, to offer the community an investment opportunity and take ownership of a portion of the renewable projects in their area • Align community energy with other energy or socio-economic goals, such as access to clean cooking or mobility
Stakeholders and Awareness	<ul style="list-style-type: none"> • Identify the relevant stakeholders (local communities, NGOs, investors, land owners, grid operators, technical experts) and develop an engagement plan • Advertisement of the schemes, addressing the common crowd • Develop communication and information campaigns • Identify 'first-movers' who are keen on taking a leadership role, at the community level 	<ul style="list-style-type: none"> • Promotion of energy community development and the decentralization of the power system • Search for households and local communities to give advice, training and mentoring on setting up a community-ownership project • Promote awareness of the return in investment, including monetary or other benefits • Conduct public consultations about the interest and feasibility of community energy projects, and develop a community vision and shared objectives 	<ul style="list-style-type: none"> • Building a uniform platform to keep a track of the implemented projects and with the help of social media, publishing the annual profits to attract more investments and encouraging more of such projects • Collaborate with other communities to share best practices, and advocate for an improved policy framework at higher levels of government

	Enabler Actions	Required Actions	Multiplier Actions
Governance	<ul style="list-style-type: none"> • Effective mechanisms for collaboration and coordination among various stakeholders, including communities, energy developers, local governments etc. 	<ul style="list-style-type: none"> • Ensure effective oversight and delivery of community action projects through transparent processes • Ensure all key partners are represented, with buy-in through consultations • Provide the necessary resources centrally, deal with potential barriers, particularly in relation to asset transfer projects (contracting and legal issues, health and safety, risk management and planning) 	<ul style="list-style-type: none"> • Building plans so that everyone gets access to energy • Adopt a target to increase the number of community energy projects and the installed capacity
Capacity Building	<ul style="list-style-type: none"> • Provide technical and managerial training to the local community • Provide access to information within the members of the community • Create online toolkits and guidance documents (technical assistance, funds or grants, administrative procedure and regulations) • Conduct a capacity assessment of municipal staff and interested community members 	<ul style="list-style-type: none"> • Building a platform of local community experts, who provides advice, training and mentoring on setting up community projects by connecting them to other groups that have implemented similar projects • Hiring relevant experts in the local government body to help facilitate community energy projects • Prepare guidance documents (technical assistance, funds or grants, administrative procedure and regulations) • Conducting workshops and seminars for training 	<ul style="list-style-type: none"> • A dedicated city unit to provide technical training, consulting services and financing opportunities

	Enabler Actions	Required Actions	Multiplier Actions
Technical	<ul style="list-style-type: none"> • Grid upgrades required to connect DERs with the existing grid would need collaboration with the local utilities • Assess the need for external expertise and support 	<ul style="list-style-type: none"> • Conduct feasibility assessments for the project (demand, resource, cash flow, cost-benefit, risks etc.) • Conduct an environmental assessment for the project • Procure suitable contractors/ developers to construct the project through a transparent process 	<ul style="list-style-type: none"> • Upscaling the survey and research and guidance for more renewable energy technologies • Building a platform where rapid technical assistance is available e.g. to report outages • Promote the creation of a value chain to handle upgrades, repairs etc.
Finance	<ul style="list-style-type: none"> • Review existing lending/ investment procedures and sources of finance e.g. own sources of revenue • Partnership with local businesses or developers to fill the funding gaps in case of small community energy projects • Providing microcredit to communities can also be used as a mechanism to kick start community energy projects 	<ul style="list-style-type: none"> • Fundraising activities to attract investment from individuals or companies • Hire experts if necessary to create a solid business proposal to ensure investors are drawn to the project • Financial incentives such as tax credits, low-cost loans and grant funding for community-owned projects 	<ul style="list-style-type: none"> • Develop strategies to promote more private-public partnerships • Explore the potential for alternate financing sources such as carbon markets



3. WORKFLOW /PROCESS PHASES

ICLEI's GreenClimateCities Handbook for Local Governments presents the Measuring, Reporting, Verification (MRV) tool which can be useful for a solid workflow [6]. It is a 9 step process in 3 phases (Analyze-Act-Accelerate) outlining how climate risks and vulnerabilities can be assessed and options to achieve low-to-zero emissions development and climate adaptive development can be identified and integrated into urban development policies, plans, and processes. For the community energy project, these 9 processes could be adopted.

3.1 COMMIT AND MOBILIZE

- Local governments should commit to increasing the uptake of renewable energy and mitigate their communities' impacts on the climate, beginning with target-setting
- Set up an institutional unit to facilitate work
- Identify relevant local stakeholders (local communities, NGOs, investors, land owners, grid operators, technical experts) and start an clear and transparent engagement process

3.2 RESEARCH AND ASSESS

- Assess the existing policy environment for the promotion of renewable energy and community ownership and find any gaps
- Assess the needs of the community and find out the local issues with respect to the socio-economic status, demography, municipal services, energy consumption—electricity and fuel—within the LRG boundaries which should be prioritized
- Assess the human resources that the government will need to implement the project and the need to hire experts or train the existing staff
- Assess the financial resources that the government already has available and look into new possibilities to help the communities guide towards the finance of the project

3.3 SET BASELINE

- Outline priorities of the proposed policy/projects, and what is to be achieved from them
- Develop a GHG inventory and map energy use of the community in order to be able to measure the efficacy of community energy down the line
- Publish the results from the baseline assessment for transparency and clear goals

3.4 DEVELOP STRATEGY

- A major workshop needs to take place involving all relevant line functions and departments, and key stakeholders in order to set priorities, using the Baseline Report as input to form the basis of the discussion
- Involve relevant stakeholders since the beginning of the process to understand everyone's needs and expectations, create ownership and avoid potential reluctance to undertake the measures
- Perform a SWOT (Strength, Weakness, Opportunities and Threats) and identify the cross-cutting areas linked with the project
- Set targets and goals to be achieved in terms of carbon emission reduction, energy targets and the improvement of the socio-economic condition
- Determine processes to initiate work and to monitor progress and re-evaluate if necessary
- Harmonize the strategy with other relevant areas of policy e.g. governance, energy access, mobility etc.

3.5 DETAIL AND FINANCE PROJECTS

- Identify or hire experts
- Conduct a techno-economic feasibility analysis as to leverage private sector finance, the LRG should demonstrate the financial attractiveness of the proposed project (i.e. high return on investment –or Rate of Interest for short – and low risk)
- Identify regional and national level sources of finance for promoting local energy projects and initiatives
- Identify resources available to help develop bankable projects, such as project preparation facilities (Eg: ICLEI's TAP initiative)
- Publish examples of business models as guidance

3.6 IMPLEMENT AND MONITOR

- Prepare, approve and implement policies to support programmes focusing on community-based planning and ownership
- Develop and implement a framework for community participation through the provision of pathways and financial support for communities to participate in renewable energy projects
- Simplify and increase the transparency of administrative and permitting processes for community ownership projects
- Conduct trainings, seminars and workshops for capacity building of the local community to successfully manage the community energy power plant, depending on the type of involvement



- Develop and publish the guidance handbook on technical and financial assistance for setting up and installing the community energy power plant
- Develop and finalize indicators to monitor the progress of the project and its resulting benefits

3.7 INTEGRATE AND COLLABORATE

- Collaborate and integrate horizontally among communities and other neighboring LRGs to benefit from the bulk procurement of technologies, sharing lessons learnt and meeting common climate and environmental goals more efficiently. Collectively advocating for more enabling policies at higher levels of government can also help.
- Collaborate and integrate vertically. This can open up opportunities for the LRG to address issues around enabling framework conditions and accessing external financing. It may also provide additional technical, financial, and political support for LRGs testing innovative strategies, technologies, systems, and practices.
- Join city networks or associations within a country, region, or internationally. Networking can create opportunities to share information, knowledge, and resources on ways to tackle common challenges and on finding suitable solutions.
- Networking can also create opportunities for LRGs to position themselves as leaders in a specific field (eg: community energy power plant), which can further generate visibility and attract resources.

3.8 REVIEW AND UPSCALE

- Conduct an assessment of the initial strategy, targets, and goals against the achieved results of the implemented project in accordance with the developed monitoring indicators
- Review the baseline assessment regularly on an annual basis
- Identify successes, challenges, and barriers and the degree to which the process has integrated into the LRG planning
- Identify the scope of improvement and update the strategies to incorporate the necessary changes. Also identify future opportunities of up-scaling and sectoral priorities.
- Replicate and upscale successful approaches

3.9 ADVOCATE AND INSPIRE

- Build a uniform platform to keep a track of the implemented projects and with the help of social media, publishing the annual updates to gain visibility.
- With the support of city and regional networks, as well as global initiatives, the LRG might be nominated for relevant national and/or international awards, become renowned for its climate leadership, and inspire others.
- Globally report the best practice of LRG achievements, as it contributes to global climate advocacy efforts. This visibility helps advocate for the central role of LRGs in global climate action and sustainable development processes and for direct access to finance for LRG integrated climate actions.

4. REALITY-CHECK

This solution is applicable where the local communities are willing to set up their own community energy power plants (decentralized) for electricity generation and also in the areas where energy access is not possible from the national grid due to geographical constraints or due to the low capacity of the national grid.

4.1 REQUIRED PRE-CONDITIONS

- Local and national policies supporting the successful installation and operation of the community energy power plant
- Availability of the renewable energy resources and technologies in the area
- Access to finance for the installation of the community power plant
- Availability of technical skills for installation and maintenance

4.2 SUCCESS FACTORS

SOCIO-CULTURAL FACTORS

- Civic engagement and effective governance processes, and trust in institutions
- Social capital to enable the spread and adoption of community energy approaches
- Level of income and education, as high levels of income and education correlates with high levels of participation in community energy projects
- Pre-existing tradition of social enterprise/cooperatives can provide an effective base for other community-based approaches
- Awareness of the benefits of renewable and community energy, including environmental, economic etc.

POLITICAL ECONOMY STRUCTURE

- Municipal autonomy for energy systems and planning/decision-making
- Regional and national financial and technical support
- An enabling national policy framework for community projects

ENERGY POLICY

- Accurate energy prices can help the financial viability/business case for a community energy project. Higher returns due to high energy prices are one of the main drivers for community energy projects
- Support for small-scale energy production: introduction of feed-in tariffs, grants and loan schemes and tax incentives

PROJECT SETUP AND MANAGEMENT

- Transparent ownership structure
- Access to various sources of funding, increasing the possibility of securing investment
- Engagement with the rest of the community at an early stage through consultations
- Ownership share offer of the project by developers to the local community

4.3 FOLLOW-UP NEEDED AND/OR RECOMMENDED

- Define a robust Monitoring and Evaluation (M&E) mechanism and disseminate the successes (or failures) of the community energy project
- Continue efforts to increase the share of electricity generation from the community energy power plants in collaboration with utilities
- Continue to foster relationships with key stakeholder groups by using different channels: meetings, social media, customer services, educational activities in schools, public hearings, workshops, etc.
- Continue developing alternate methods of financing projects, such as public-private partnerships to bring in more investments
- Continue to engage in peer exchanges with other communities/localities to learn about best practices and how to avoid/overcome challenges

4.4 BARRIERS

- The costs, delays and uncertainty associated with connection to the grid represents a major barrier for community groups in developing community energy projects. Hiring experts and ensuring transparency can help counter this.
- Raising sufficient capital for investment can be a challenge, and so various financing methods and sources should be explored, including crowdfunding, PPPs, national subsidies etc.
- Lack of familiarity with RE and technical skills/knowledge can be an issue, so possible collaboration with educational and training institutes could help tackle this
- Navigating the bureaucratic procedures (e.g. permitting procedures, certification or other local rules for setting up community energy projects) can be challenging, so efforts should be made to facilitate this such as single-window clearance
- Cultural and operational differences between community and commercial organizations can be difficult to overcome. Consultations and transparent engagement can help.
- Delays due to consultations can create their own set of challenges, and so an effective consultation and stakeholder engagement plan should be developed in advance

4.5 RISKS

- Poor performance of the community energy power plant due to technical faults, which can be mitigated by ensuring adequate O&M services
- Pay-back period exceeding the one anticipated at the start of the project
- Natural calamities that damage installations
- Change of the local government with different priorities other than climate action in between the implementation of the project



5. CLIMATE CHANGE MITIGATION POTENTIAL

According to the International Renewable Energy Agency (IRENA) and other agencies, two thirds of greenhouse gas (GHG) emissions originate from the energy sector. Another report [7], estimates that meeting the objectives of the Paris Agreement would require an increase in the share of renewables in the energy matrix. Thus, renewables would need to comprise at least two-thirds of the total final energy supply by 2050. At the same time, the share of renewable energy in the power sector would need to increase from 25% in 2017 to 86% in 2050. Large scale RE projects are the primary means to achieve this, however the possibility of renewable electricity to be generated in a decentralized fashion should also be taken advantage of for greater system flexibility and resilience, which become increasingly important as the share of RE in power generation increases. Community engagement is also critical as these changes would require active participation and changes in consumption behavior. Community energy projects can be especially beneficial to remote or underserved communities that are still reliant on traditional energy sources, which are responsible for a high level of emissions and pollutants.

6. NATIONAL – SUBNATIONAL INTEGRATION IN THE CONTEXT OF THIS SOLUTION

6.1 BENEFITS TO LOCAL GOVERNMENT

- Pioneering cities can showcase their achievements at a national level
- Advocating of successful approaches and setting best-practice examples at national and international levels, attracting finance, expertise etc.
- Contributing to national and international climate action plans

6.2 BENEFITS TO OTHER LEVELS OF GOVERNMENT

- The experience of a local government can be used by other levels of government to help to raise awareness, encouraging higher levels of governments and international institutions to invest and scale up successful solutions
- A municipality can collaborate and integrate with neighboring municipalities to exchange lessons learnt, and help scale up the solution
- Local action contributes to national level climate action plans, as well as other goals such as decentralization, energy security, energy access etc.
- Greater integration and interaction of local government perspectives in national level policy making, leading to more responsive and effective policies in the energy and climate sectors

7. RESOURCES/SUPPORT

7.1 CASE STUDIES

EIGG ELECTRIC, EIGG ISLAND, SCOTLAND

Eigg Electric is a community-owned, managed and maintained company that provides electricity for all island residents from renewable sources, comprising 110 kW hydro projects, 24 kW wind turbines and a 20 kW solar PV plant, totalling 184 kW. Renewable sources have provided around 95% of the island's electricity since the scheme was first switched on in 2008.

HVIDE SANDE COMMUNITY, DENMARK

The Hvide Sande Community installed three wind turbines of 3 MW on its shoreline. The board of the foundation has members from the local community, with around 400 shareholders. The expected return will be invested in the modernisation and development of the harbor, which is of great importance to the region.

ODANTHURAI PANCHAYAT, TAMIL NADU, INDIA

Odanthurai panchayat in the Coimbatore district of Tamil Nadu, India, implemented a 350 kW wind energy plant—the first ever community-owned power project in India. The generation from this plant is used to satisfy the electricity needs of the village; the excess is sold to the grid and used to pay the interest on the bank loans. Selling around 30% of the electricity generated to the grid brings a yearly revenue of approximately USD 27,000 (INR 2 million) to the community.

UNIVERSITY PARK COMMUNITY SOLAR LLC, MARYLAND, UNITED STATES

University Park Community Solar LLC comprises around 35 members, mainly residents of University Park. Each member pooled in an average of USD 4,000 to develop a 27.77 kW solar power system. The power from this system is sold to the University Park Church of Brethren, and the excess is fed back into the grid.

WILTSHIRE WILDLIFE COMMUNITY ENERGY (WWCE), SWINDON, UNITED KINGDOM

WWCE is a community benefit society set up by Wiltshire Wildlife Trust for the development of community-owned renewable energy projects. WWCE has implemented two solar PV projects of 1 MW and 9.1 MW. The projects were funded by the sale of shares in WWCE, allowing people to invest anywhere between USD 670 and USD 134 000. The projects earn revenue through feed-in tariff payments, and after payment to its members, 80% of the remaining money is allocated to WWCE's community benefit fund, with 20% being directly allocated to Wiltshire Wildlife Trust. WWCE has paid 7% dividends to its members, and the remaining profits are spent on local community development.

REFERENCES

- [1] Community Power Agency (New South Wales), n.d. "Community-owned renewable energy: a how-to guide". Available at: <https://www.environment.nsw.gov.au/resources/communities/cpa-community-energy-how-to.pdf>
- [2] NAACP, n.d. "Just Energy: Reducing Pollution, Creating Jobs Toolkit: Starting Community-Owned Clean Energy Projects". Available at: <https://naacp.org/resources/just-energy-reducing-pollution-creating-jobs-toolkit>
- [3] International Renewable Energy Agency (IRENA), 2020. "Community-ownership models". Available at: https://www.irena.org/-/media/Files/IRENA/Agency/Publication/2020/Jul/IRENA_Community_ownership_2020.pdf?la=en&hash=A14542D0C95F608026457B42001483B9B82D1828
- [4] Co2mmunity, 2019. "Developing a Joint Perspective on Community Energy: Best Practices and Challenges in the Baltic Sea Region". Available at: <http://co2mmunity.eu/wp-content/uploads/2019/03/Co2mmunity-working-paper-2.3.pdf>
- [5] European Community of the Regions (EU), 2018. "Models of Local Energy Ownership and the Role of Local Energy Communities in Energy Transition in Europe". Available at: <https://cor.europa.eu/en/engage/studies/Documents/local-energy-ownership.pdf>
- [6] ICLEI, 2019. "GreenClimateCities Handbook for Local Governments". Available at: https://e-lib.iclei.org/wp-content/uploads/2016/05/GCC_Handbook_final-web1.pdf
- [7] IRENA, 2019. "Climate change and renewable energy: National policies and the role of communities, cities and regions". Available at: https://www.irena.org/-/media/Files/IRENA/Agency/Publication/2019/Jun/IRENA_G20_climate_sustainability_2019.pdf
- [8] van der Waal, Ester C, 2019. "Local impact of community renewable energy: A case study of an Orcadian community-led wind scheme". Available at: <https://www.sciencedirect.com/science/article/pii/S0301421519307785>



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