MAKING MUNICIPAL POWER WORK

MPOWER PROJECT: RESULTS AND IMPACTS

By Lavinia Steinfort
and James Angel

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COLOPHON

This report summarises the main results and impacts of the mPower project.

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The Transnational Institute (TNI) is an international research and advocacy institute committed to building a just, democratic and sustainable planet. For more than 40 years, TNI has served as a unique nexus between social movements, engaged scholars and policymakers. TNI has gained an international reputation for carrying out well researched and radical critiques. As a non-sectarian institute, TNI has also consistently advocated alternatives that are both just and pragmatic, for example providing support for the practical work of public services reform. Find out more: **https://www.tni.org/en**

mPower is an Horizon2020 project that has enabled an in-depth, wide-scale and systematic peer-to-peer learning programme among at least 100 local public authorities, in order to replicate innovative best practices in municipal energy, and developing ambitious energy transition plans. The project is run by a consortium of Glasgow University (UK), Platform (UK), Energy Cities (EU-wide), IPE (Croatia), Transnational Institute (Netherlands), University of the Basque Country, and Carbon Coop (UK). Find out moree: **https://municipalpower.org/**

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INTRODUCTION

The mPower project ran from May 2018 until October 2022, including an extension of six months. Its goal was to enable an in-depth, wide-scale and systematic peer-to-peer learning programme among at least 100 local public authorities, in order to replicate innovative best practices in municipal energy and developing ambitious energy transition plans. The project consisted of three learning streams, in-depth research, and resource production for public dissemination.

This report is divided into three parts. The first part features the research findings and their impact. The second part summarises the results of the bespoke and virtual learning streams as well as the resources that were produced to assist the participating local authorities and disseminate their energy transition stories among the project's target audiences. This part also reports the impact that the mPower learning streams had on the participants, leading to a number of key findings and the production of 21 replication plans. The third part summarises the best practice guides and the take-aways of the Municipal Manual, and features the four mPower Activate energy transition projects, which were designed and developed by six participating municipalities, with the support of consortium members.

PART 1 / Researching municipal energy transitions in Europe

mPower began with a period of preliminary research that generated a broad picture of the state of municipal energy transitions in Europe, including key challenges and opportunities. This research comprised a comprehensive survey of 96 municipalities and the collection of relevant municipal data, on the basis of which eight scientific papers were developed.

These academic outputs presented the state of play of municipal energy transitions across Europe for the first time, providing an invaluable resource for scholars and practitioners interested in advancing the issue in theory and on the ground. The results and impacts of this research are as follows:

RESULTS

On the basis of quantitative and qualitative research conducted by the University of Glasgow and the University of the Basque Country, eight academic reports have been produced:

- Gray, N. and Cumbers, A. (forthcoming) 'What kind of New Municipalism? Between Libertarian Municipalism and the Neoliberal Conjuncture' (working title). This paper will likely be submitted to the journal *Cities* or Elsevier.

- Villena U., Azurza O., Zuluaga N., Rodrigues L., Basurko I. and Barcena I. (forthcoming) 'Fostering municipal energy transition at continental level through cross-border, peer-to-peer, systematic learning programs: Case study in Europe'. This paper is being submitted to the journal *Energy Policy*.

- Traill, H. and Cumbers, A., (forthcoming) 'The limits to the urban within multi-scalar energy transition: agency, infrastructure and ownership in municipal energy transformations in the UK and Germany'. This paper has been submitted to the journal *Urban Studies* and be published in 2023.

- Traill, H. and Cumbers, A. (forthcoming) 'Creating local sustainability transitions:

Finance, citizen participation and the multi-scalar governance challenges of municipal energy transition'. In Arestis, P. and Sawyer, M. (eds.) (2022) *Prospects and policies for global sustainable recovery*. International Papers in Political Economy. Palgrave Macmillan: London.

- Traill, H. and Cumbers, A. (2022) 'The state of municipal energy transitions: Multi-scalar constraints and enablers of Europe's post-carbon energy ambitions'. *European Urban and Regional Studies*. 0(0). https://doi.org/10.1177/09697764221101740

- Azurza-Zubizarreta, O., Basurko Perez de Arenaza, I., Zelarain, E., Villamor, E., Akizu-Gardoki, O., Villena-Camarero, U., Campos-Celador, A. and Barcena Hinojal, I. (2021) 'Urban Energy Transitions in Europe, towards Low-Socio-Environmental Impact Cities'. *Sustainability*. 13(21): 11641. https://doi.org/10.3390/su132111641

- Cumbers, A. and Traill, H. (2021) 'Public ownership in the pursuit of economic democracy in a post-Neoliberal order'. In Arestis, P. and Sawyer, M. (eds) (2021) *Economic Policies for a Post-Neoliberal World*. Palgrave Macmillan: London. https://link.springer.com/chapter/10.1007/978-3-030-56735-4_6

- Villamor, E., Akizu-Gardoki, O., Azurza, O., Urkidi, L., Campos-Celador, A., Basurko, I. and Barcena Hinojal, I. (2020). 'European Cities in the Energy Transition: A Preliminary Analysis of 27 Cities'. *Energies* 13(6): 1315. https://doi.org/10.3390/en13061315

A detailed analysis of the data we collected generated the following results:

- There is strong political will across European municipalities for meaningful action on energy transition. It should be noted that municipalities were recruited to fill in our survey through mPower partners' networks, meaning that our findings emerge from municipalities with some degree of pre-existing interest in the issue. That said, emerging forms of collaboration across municipalities are suggestive of a widespread and growing desire for an increased role within the energy sector. Indeed, while European municipalities remain heavily dependent on fossil fuels — ranging from a 72 per pent to 98 per cent share of the total energy mix for the municipalities we surveyed — 92 per cent of the municipalities we surveyed are generating some of their own energy from renewable sources.

- Almost 80 per cent of the municipalities that responded to our survey cited carbon reduction as a very important motivating factor for engaging in energy transition, with the management of public assets the second highest factor cited.

- Given the importance of carbon reduction and managing public assets to municipal officials, increasing energy efficiency within municipal buildings emerged as a key avenue for municipal policy, cutting across these two motivating factors. Our research found that municipalities have had considerably more success in promoting energy efficiency measures within municipal buildings than privately owned buildings. Similarly, carbon reductions measures within municipally owned transport systems have proved far more

straightforward to implement than within private transport systems.

- Economic constraints are the biggest obstacle to municipal carbon reductions and municipal energy transition more broadly. The most important factor determining the quantity of total renewable energy generated locally is the number of employees working on energy transition within the municipality — with the number of employees available principally shaped by budgetary factors. Indeed, municipal officials cited financial difficulties as the most important challenge facing municipal energy transitions. Much of the money that is available over-emphasises novelty, prioritising pilot projects at the expense of long-term durable investment. Moreover, dominant market frameworks disadvantage municipalities who often lack the capacity and expertise to create complex economic models that demonstrate return on investment, and whose ability to explore alternative models of ownership is undermined by the EU's emphasis on private investment.

- As well as inhibiting municipalities' potential to invest in renewable generation, limited finances are also stopping municipalities developing the forms of citizen participation and democratic control that mPower seeks to foster. While municipalities expressed a widespread interest in new forms of democratic participation within the energy sector, many said that they lacked the resources to explore this kind of innovation. An important finding from our research is that the absence of citizen involvement undermines the potential of energy transitions to be built around an accurate understanding of people's energy needs.

- Uneven economic development across the continent is influencing the trajectory of municipal energy transitions. To discern which of the 96 municipalities surveyed should progress to the peer learning programme, mPower ranked municipalities ranked according to the following criteria:

  - Clear existence and experience of best energy practice / capacity
  - Commitment to democratisation / municipalisation
  - Renewable generation (experience, scale, ownership and type)
  - Energy efficiency, supply and organisation
  - Constraints / blockages to energy transition

The 38 municipalities selected to progress to the next stage of the project were categorised as 'leading', 'following' and 'aspiring', depending on their ranking. While a target of 30 per cent representation for municipalities from central and eastern European countries was adopted in the selection progress, all seven 'leading' municipalities came from northern and western Europe. Municipalities from central, eastern and southern Europe tend to be amongst the lower rankings.

- Comprehensive data on energy consumption and generation is vital for municipalities to plan and deliver energy transitions effectively. However, there is a worrying lack of data pertaining to energy transition at the municipal level, compromising municipal capacity to deliver on energy transition and undermining possibilities for citizen scrutiny and involvement.

IMPACTS

The impacts of our research are as follows:

- Our research provides an evidence base for municipalities seeking to obtain increased financial support for energy transitions. In demonstrating that economic constraints are undermining municipal energy transitions and that the democratisation of municipal energy systems can advance the transition, our research provides a valuable asset for municipalities, helping them to make the case for increased financial support at the national and European levels.

- Our research helps inform and improve municipal policy-making, providing evidence of a number of gaps in municipal energy policy that need to be addressed and a number of promising opportunities to be explored. For example:

    - Widespread success across Europe in enhancing the energy efficiency of municipal buildings and in reducing the carbon intensity of municipal transport systems illustrates the importance of municipally owned services and infrastructure for facilitating the low-carbon transition. This suggests there is a need to increase municipal ownership and control within and beyond buildings and transportation systems.

    - Conversely, widespread difficulties across Europe in implementing energy efficiency and carbon reduction measures within private buildings and private transportation systems highlight a need for municipalities to develop strategies and policies for more effective interventions within the private sector.

    - In showing the importance of energy consumption and generation of data for planning and delivering municipal energy transitions — and in uncovering the lack of this data across the continent — our research highlights the need for municipalities to devise strategies to access and analyse this data more effectively.

- Our research helps inform and improve policy-making at the national and European scales, supporting policy-makers outside municipalities to identify measures that can help incubate and support municipal energy transitions. For example:

    - Our research demonstrates that the free-market policy agendas that dominate across national and EU arenas are inhibiting municipal energy transitions, undermining opportunities for funding, rendering energy data inaccessible and producing inequalities between European countries that leave municipal energy transitions in eastern and southern Europe disadvantaged.

    - Our research shows that national and European funding mechanisms are inadequate for meaningful energy agency at the municipal level. Funding streams need to be enhanced and revised, fostering long-term and sustainable investment rather than short-term ‘pilot projects’ and moving towards a public goods approach rather than seeking to stimulate private investment.

- Our research helps shape ongoing public debates around the role of municipalities in the low-carbon energy transition. In providing a comprehensive analysis of municipal energy transitions across Europe for the first time, we have demonstrated the potential of municipalities to lead on this issue, while simultaneously showing that this leadership is contingent on fundamental changes in policy and political outlook at scales beyond the municipality, from the national to the global. This conclusion will be of interest to civil society actors and broader publics interested in energy transition, 'New Municipalism' [1] and their intersection.

1 — 'New Municipalism' is the name given to the nascent movement of activists and political parties experimenting with the scale of the city as a space for the creation of progressive political projects, often focused around economic democracy.

PART 2 / Peer learning to exchange and develop local energy transition

Our peer learning programme comprised of a bespoke peer learning pathway, three digital courses, six group study visits and five regional learning events, resulting in an innovative incubator programme that supported the creation of four public partnerships. The programme enabled over 100 local authorities to exchange practical knowledge and expertise, ultimately helping to increase the effectiveness of new and existing energy projects. The results and impacts of the peer learning programme are as follows:

RESULTS

- Each participating municipality in the bespoke pathway (mPower Exchange) was allocated to one of five peer learning groups, depending on their particular context and interests. These groups were organised around the following themes:

1) Renewable generation
2) Energy efficiency for 'large' cities (population above 150,000 people)
3) Energy efficiency for 'small' cities (population below 150,000 people)
4) Local energy communities for 'large' cities (population above 150,000 people)
5) Local energy communities for 'small' cities (population below 150,000 people)

These peer learning groups provided a valuable platform for municipalities to share best practice and to develop productive working relationships and partnerships, and will continue beyond the lifetime of the project.

- Each of the peer learning groups benefited from a study visit to a leading municipality. The site visits were as follows:

- Renewable generation: This group visited Barcelona (Spain), to learn about the municipality's recent experiences of setting up a municipal energy generation and supply company.

- Energy efficiency (large cities): This group visited Plymouth (UK), to learn about the municipality's work on household energy efficiency audits and fuel poverty.

- Energy efficiency (small cities): This group visited Frederikshavn (Denmark), to learn about the ways in which the municipality is facilitating energy efficiency measures and encouraging active citizen participation in the process.

- Local Energy Communities (large cities and small cities): Both local energy communities groups visited Ghent and Leuven (Belgium), two municipalities that have established pioneering schemes for citizen participation and cooperative partnerships within the energy system.

The study visits allowed for in-depth exploration of each group's chosen topic, encouraging municipalities to reflect on how these best practice examples could be adapted and deployed within their own contexts. Each participant benefited from a debrief meeting after the study visit, to identify additional educational needs and to discuss potential ideas for best practice replication.

- We arranged five regional learning events bringing neighbouring municipalities together to share experiences and knowledge. The learning events were as follows, each of them resulting in one or more videos that can be accessed via the weblinks:

- September 2020: 12 Spanish municipalities met to discuss the question of how cities can show leadership in democratic and just energy transitions. The discussion was framed around three topics: energy efficiency, publicly owned energy and citizen participation. The group of cities decided to continue working together to compare notes and share information and models for replication. This will be actively supported by mPower partner Energy Cities as a network facilitator. Click here for more information.

- April 2021: Municipalities from the Balkans met to discuss retrofits, renewable energy and energy communities. During the event, the political leaders of the City of Nis (Serbia) and the City of Burgas (Bulgaria) made their new partnership official. By cooperating, both cities demonstrate their strong political commitment to achieving the objectives of the European Green Deal. Click here for more information.

- November 2021: Municipalities from across Portugal met to discuss the ways in which municipalities and citizens can work together to co-create energy communities. Attendees heard presentations from pioneering examples of energy communities in Ghent and Leuven, to inspire similar plans in their own contexts. Examples from across Portugal will also be discussed and reflected on. Click here for more information.

- December 2021: Plymouth and Nottingham councils hosted municipalities from across the UK to discuss person-centred approaches to retrofit and fuel poverty. The event heard

from Dr Alice Jones, whose research demonstrates the value of person-centred approaches to understanding who is most vulnerable and how these people can best be helped. The event also heard from Eleanor Radcliffe, senior researcher at the Centre for Local Economic Strategies, on the importance of local anchor networks as a means of facilitating partnerships between municipalities and community institutions. Click here more information.

- May 2022: Hosted by eight local municipalities in partnership with mPower, the regional event in Kronenberg brought together local municipalities, local citizen groups like EnergieKronenberg, and local businesses (installers, supply companies, digital platforms for energy, etc.). The keynote speaker was Frans Timmermans (Vice President of the European Commission). It was the first event of its kind bringing together these various stakeholders in the energy transition. Click here for more information.

- The bespoke pathway laid the foundations for mPOWER Digital, a series of three online courses on best practice examples for municipal energy leadership that took place between April 2020 and May 2021. The courses covered the following topics: democratic public ownership; reducing energy use in tackling energy poverty; local renewable energy generation with citizens; innovation, infrastructure and smart solutions; mainstream and alternative forms of financing; and building local partnerships to maximise public benefits. Sessions were dynamic and interesting, with smaller breakout discussions proving fruitful. Guest speakers offered fresh perspectives and the guiding questions that we provided led to interesting reflections and plans for municipal actors attending the course. In total, 102 individuals and 76 local authorities participated in the three courses. Ghent, Dublin, Meath County, Navarra, Santorso and Valencia took part in more than one.

- The content of the three courses is now featured on a specially created website so that other local authorities can learn from the many energy transition resources that were developed for mPower participants: https://mpowerlearn.co.uk/, as well as widening our dissemination reach to members of the public and policy makers.

- In October 2020, we organised a two-day online celebration event for the municipalities involved in the bespoke peer learning stream. This inspiring event gave participants the chance to share experiences and insights from their respective projects in greater depth. Multiple participants gave examples of new policies and initiatives directly inspired by what they had learned through the peer learning experience. For instance, inspired by an exchange visit to Leuven, the city of Križevci (Croatia), established its own energy cooperative called KLIK and launched a crowdfunding campaign for a solar roof top project earlier this year. Meanwhile, Zenica (Bosnia) has been developing a one-stop-shop for insulation advice and guidance, inspired by other cities such as Ghent. The project is characterised by an innovative funding idea that other cities found very interesting:

it is financed through pollution taxes and car licensing fees which go to the municipality. Click here for more information.

- All municipal employees who completed the bespoke peer learning pathway, as well as the most active participants in the digital course, were supported to write blog posts discussing pioneering energy initiatives from their cities. Pioneering initiatives from across Europe were covered, cutting across a range of energy issues from retrofit to street lighting, renewable generation to the creation of new municipal supply companies. The 30 blogs explore the strengths, limitations, opportunities and barriers pertaining to the schemes in question, giving municipal employees an important opportunity to reflect on their energy policy-making and to learn from the best practices of other municipalities. To access the 30 blog posts, click on the hyperlinks below:

1 — BLOG POST BY JUSTIN BEAR, PLYMOUTH MUNICIPALITY (UNITED KINGDOM)

The municipality of Plymouth facilitated the creation of the citizen organisation Plymouth Energy Community (PEC). PEC has helped more than 20,000 households to save over £1 million €1,156,000 on their energy bills and cleared over £26,000 (€30,000) of small debts. Their energy efficiency team has installed 15,000 LED light bulbs in 1,000 homes and fitted over a mile of draught proofing to reduce carbon emissions and fight fuel poverty at the same time. Rooftop arrays and a solar farm on contaminated land supply 6MW of clean energy, enough to provide electricity for 2,000 homes, and saving 72,500 tons of CO_2 over the 20 years of the project's lifetime. Profits of nearly £1.5 million (€1,735,000) will support PEC further in its carbon and fuel poverty reduction projects.

2 — BLOG POST BY ELENA ANASTASOVA, DOBRICH MUNICIPALITY (BULGARIA)

The municipality of Dobrich renewed its streetlighting by replacing 1,500 old light bulbs with energy-efficient LED units and renovated 41 buildings in consultation with the tenants, which led to savings of 30-60 per cent on the energy bill and more comfortable living for 2,400 households. Dobrich also contracted an Energy Saving Company in which the private company is obliged to deliver an energy and/or financial savings.

3 — BLOG POST BY BAHRAM DEHGHAN, FREDERIKSHAVN MUNICIPALITY (DENMARK)

The municipality of Frederikshavn is planning a biogas plant with a production capacity of 11 GWh/year. This includes organising farmers who will supply the biomass into a suppliers' association and overseeing negotiations with the investor. Frederikshavn is also advocating for national-level policies that would provide affordable loans to low-income households to retrofit their homes and its public utility company provides energy advice to residents free of charge. Finally, it set up a forum for citizens to discuss their visions of energy generation and a youth climate council that focuses on educational activities.

4 — BLOG POST BY JON GASTAÑARES AND IKER MARDARAS LARRAÑAGA, DONOSTIA-SAN SEBASTIÁN MUNICIPALITY (SPAIN)

The municipality of Donostia-San Sebastián has an 'energy sovereignty' vision that

connects the need for a local transition to the notion of shared global responsibility for a clean and just energy transition.
Its municipal ordinance has obliged refurbishments to be carried out according to energy efficiency standards that are higher than those mandated at the national level. By 2018, the ordinance resulted in 1,169 completed retrofitting works.

5 — BLOG POST BY JAKUTA IMŠIROVIĆ, ZENICA MUNICIPALITY (BOSNIA AND HERZEGOVINA)

The municipality of Zenica initiated a project to reconstruct and modernise public lighting in urban areas and suburban areas (including 65 villages), leading to CO_2 emission reduction of 1,255 tonnes. Its flagship project is Toplana Zenica, an energy-efficient power plant which will replace the coal-based energy plant with modern units that use gases recovered from the steelworks, topped up with fossil gas. The project is expected to deliver dramatic reductions in air pollutant emissions of around 90 per cent. The municipality is also planning to renew and extend the district heating network by creating a new public enterprise.

6 — BLOG POST BY BOJAN GAJIĆ, NIŠ MUNICIPALITY (SERBIA)

#When the municipality of Niš switched its district heating billing system from being based on property size to monthly consumption, many people objected, especially low-income households with poorly insulated homes as the change led to higher costs. As a result, the administration enabled a citizens' organisation that represents city dwellers to be represented in a commission for price change approval, gave the organisation a seat on the supervisory board of the heating company, and took citizens' needs into account to improve the billing system.

7 — BLOG POST BY NATHALIE VAN LOON, AMSTERDAM MUNICIPALITY (NETHERLANDS)

The municipality of Amsterdam created a €150 million Climate Fund for transition initiatives. Building construction is now required to be mostly energy neutral and existing buildings will be switched from fossil gas to renewable energy sources. Projects in three neighborhoods have begun to develop alternative systems. The city worked together with 18 schools to install 6,000 solar panels on their roofs, meeting half of their annual energy consumption. It also invested €11.2 million in a future heating grid that will allow 1,650 homes to switch away from fossil gas and use the residual heat from servers in data centres instead.

8 — BLOG POST BY PANAYIOTIS MICHAEL, ARADIPPOU MUNICIPALITY (GREEK CYPRUS)

The municipality of Aradippou is experienced in implementing photovoltaic plants and is currently developing two solar parks which are expected to produce 3MW each within a few years. Aradippou cooperates with the Electricity Authority of Cyprus, and aims to establish a 'smart grid', connecting the main industrial zones and the airport with residential areas, in order to monitor overall energy use and balance demand. It also designed an innovative 'soft loan' scheme specifically intended to encourage solar energy production, which has secured a pilot budget of €1 million. Each new loan is set up in consultation with municipal employees and can be adjusted based on citizens' feedback.

9 — BLOG POST BY IVAYLO TRENDAFILOV, BURGAS MUNICIPALITY (BULGARIA)

The municipality of Burgas introduced innovative street lighting and a retrofitting programme for public and residential buildings. Over 300 buildings have been retrofitted. To apply, apartment block residents had to create an association of owners and Burgas supported and communicated with these throughout the application and implementation process. The retrofittings decreased emissions and reduced residents' energy bills up to 30 per cent. The city also replaced 1,200 conventional lampposts with LED units, leading to more than 50 per cent energy savings. 328 of these are 'smart lampposts' that gather data on pollution and provide WiFi connections. Burgas created a new public company to coordinate the entire upgrade in collaboration with companies from the region.

10 — BLOG POST BY RAFAEL MORENO PÉREZ, BARCELONA MUNICIPALITY (SPAIN)

The municipality of Barcelona and its energy agency created Barcelona Energía (BE) in 2018. This municipal retailer purchases energy from producers and distributes it to citizens, seeking to break away from the Spanish energy oligopoly. BE advocates for universal access to clean and renewable energy and the equitable distribution of energy as a basic right. It also created a Council of Users, consisting of consumers with voting rights and neighbourhood associations, that can put strategic proposals to the municipal company and participate in strategic decision-making. BE supports new photovoltaic installations, covering up to 50 per cent of the initial costs, and the municipality offers public grants and subsidies for energy-related renovations.

11 — BLOG POST BY FLORIAN UNGER, FRANKFURT MUNICIPALITY (GERMANY)

In Frankfurt am Main, the city's energy supplier has invested €65 million to connect three combined heat and power stations with each other through the district heating grid. This means that both heat and power can be distributed better, waste avoided, and emissions lowered. The municipality's Energy and Climate Protection Agency is consulted before new public construction takes place and building bought or constructed by the municipality should meet the 'passive house' standard. According to an initiative that informs residents about installing solar panels on their roofs, the number of solar panels in the region increased by 2,500 to 17,700 from 2015 to 2018. The 'Frankfurt Saves Power' initiative rewards residents financially when they've reduced their electricity consumption compared to the previous year. For ongoing exchange with residents, the city has also launched an app called *Frankfurt Fragt Mich* (Frankfurt asks me) in which citizens can directly connect to the municipality.

12 — BLOG POST BY JAVIER ZARDOYA ILLANA, PAMPLONA MUNICIPALITY (SPAIN)

In 2019 the city council of Pamplona declared a climate emergency, launching a sectoral participation tool and observatory lab for citizens to plan and participate in action on the environment and climate change. The city has installed 24 photovoltaic plants that feed electricity into the network. The administration also enables 'self-consumption' systems, where energy is not fed into the grid but used in the home where it is generated, as well as passive building constructions in both private and

municipal dwellings. So far, five self-consumption solar installations have been completed. Due to the provincial large-scale renovation programme, 600 households in the under-invested Txantrea district benefit from these renovations, as residential energy bills have been reduced, on average, by €560 annually, and households' energy consumption went down by 70 per cent compared to 2014 levels.

13 — BLOG POST BY ALBA DEL CAMPO, CÁDIZ MUNICIPALITY (SPAIN)

The municipality of Cádiz created an open Energy Transition Committee (MTEC), where civil society organisations, specialists and employees from the municipal energy company Eléctrica de Cádiz, academics and energy cooperatives work together to foster a just and democratic transition for citizens and create green jobs for workers. Since 2017, Eléctrica de Cádiz has been supplying 100 per cent certified renewable energy, due to the efforts of the MTEC. The Committee against Energy Poverty was founded to tackle energy poverty in Cádiz. It includes people affected by energy, political party representatives and staff of the social affairs department, among others. Moreover, in 2016 and 2017 alone, Cádiz allocated €500,000 to subsidise the electricity bills of families who cannot afford to pay. The city also hired and trained eight unemployed people as energy advisers. As a direct result, 548 families received advice during home visits, and an additional 1,400 people took part in public energy workshops. Subsequently, 1,057 families had their contracts modified, enabling savings.

14 — BLOG POST BY HERBERT HEMIS, VIENNA MUNICIPALITY (AUSTRIA)

The city of Vienna and its municipally owned energy provider are testing a range of participatory approaches to meet the city's decarbonisation goals. Through its 2019 Energy Zoning Planning Concept, the city introduced energy zoning plans. Just like land use zoning or building regulation plans, the energy zoning plans set out the energy solutions for heating and hot water supply for defined zones. Vienna's municipality owns 220,000 apartments, many of which are now being remodelled to become more energy efficient. All new buildings constructed under the subsidised housing programme, as well as all new school buildings, will run on 100 per cent renewable energy. For many years, the municipality has enabled citizens to buy a share in a solar and/or wind power plant. In return, the owners receive interest every year, which they can redeem at the supermarket or use to pay their electricity bill. Once the panels reach the end of their lifetime, the city-owned energy provider Wien Energie will buy them back for the original amount invested. To combat energy poverty, Wien Energie appointed an ombudsman to assist people who are unable to pay their energy bills or heat their homes. Since 2011, this programme has helped around 20,000 residents.

15 — BLOG POST BY JAROSLAV KLUSAK, LITOMĚŘICE MUNICIPALITY (CZECH REPUBLIC)

The Litoměřice municipality began its energy transition in 2000 with a subsidy scheme for solar water heaters in private homes. In 2014, the municipality introduced an innovative funding tool: an energy-saving fund that is directly rein-

vested into renewable energy projects. When an institution, for example the local high school, reduces its energy consumption, the money saved is added to the fund and reinvested in the same institution. Litoměřice is also working on switching to renewable energy production. In 2018, an area of 3,700 m^2 in the city was covered with solar panels, whose capacity was 1.3 megawatt peak (MWp) on private houses and 0.15MWp on public buildings, which is expected to rise to 1.5 MWp soon. The project is implemented together with 250 households, who are co-owners of the panels.

16 — BLOG POST BY DIMOS ISPIKOUDIS, KOMITINI MUNICIPALITY (GREECE)

Legislative change at the national level enabled the city of Komitini to explore the potential for different renewable energy options and their funding opportunities. If successful, some form of renewable energy generation might soon be constructed. The municipality is also planning to invite residents to invest in decentralised clean energy sources and to start renovating and retrofitting public buildings. Komitini already applied to national and regional funding programmes for two projects. The first is the retrofitting of a school complex (two high schools with about 600 students and one gym) and the second is the retrofitting of the city's main indoor sports arena. Already a €3 million project has been approved to retrofit municipally owned buildings used by the local university. The municipality is preparing for similar projects in other large school complexes.

17 — BLOG POST BY JOÃO ENCARNAÇÃO, PORTO METROPOLITAN AREA (PORTUGAL)

The metropolitan area of Porto consists of 17 municipalities, who work together with local agencies to initiate an energy transition steered by public institutions. Vila Nova de Gaia and six other municipalities in the area work with Energaia, the Energy Agency for the South of the Porto Metropolitan Area. Over the last 10 years, Energaia has encouraged sustainable construction of buildings by offering tax reductions, which has led to savings of 224 tonnes of CO_2 equivalent per year. Additionally, the municipality produces electricity by recovering landfill biogas and heat from the motor generator exhausts at a waste management plant. Vila Nova de Gaia municipality, the municipality of Santa Maria de Feira, and a waste recovery company co-own the enterprise that operates the plant, which generates 4 per cent of the total electricity consumption of Vila Nova de Gaia. Vila D'Este, Vila Nova de Gaia's social housing refurbishment project, was the largest of its kind in Europe, improving indoor comfort levels while reducing energy costs for a target group of less affluent residents through the implementation of energy efficiency measures. The project involved a total investment of €15 million and led to energy savings with a payback time under 10 years.

18 — BLOG POST BY JONATHAN WARD, NOTTINGHAM MUNICIPALITY (UNITED KINGDOM)

In January 2020, Nottingham City Council declared a climate and ecological emergency, and set a nationally leading target to reach sustainable carbon neutrality by 2028, 22 years before the nationwide goal. To reach this ambitious target, the city organ-

ised a public consultation on Nottingham's 2028 Carbon Neutral Action Plan. Over an eight-week period, almost 1,000 people and businesses responded, which informed the final Action Plan that was adopted in June 2020. As a result, the Council introduced a levy on workplace parking spaces to help fund the expansion of a low-carbon tram network, continues to engage citizens in a year of carbon neutral thinking, and is committed to planting 50,000 new trees. The city itself is also producing local low-carbon energy. 5,000 homes and more than 100 businesses are being powered by energy created from the city's waste via one of the country's largest district heating networks. Additionally, the municipality is becoming a role model by equipping publicly owned buildings and homes with solar panels: 4,000 so far and counting, which has contributed to a substantial reduction in energy consumption.

19 — BLOG POST BY RADMILA JOVANOVIĆ, RIJEKA MUNICIPALITY (CROATIA)

Rijeka has seen the largest number of renovations of apartment buildings in Croatia: the programme is under way and at least 123 apartment buildings will be retrofitted, with the help of EU funds (60 per cent grant rate). While there is an increase in energy consumption due to newly built facilities, there will be an overall reduction in CO_2 emissions. Rijeka's first priority in the housing sector is the renovation of public buildings, which will lead to estimated energy savings of 50-70 per cent per year. Measures planned include energy certification, renovation of city-owned buildings, and the installation of solar panels on rooftops. In order to introduce renewable energy generation, the city administration supports PV micro power plants and household installations. In cooperation with the regional energy agency, Kvarner, the city is implementing a project called Green Energy in My Home to encourage the use of renewable energy in households.

20 — BLOG POST BY LUCIJA GUDIĆ AND DANIJEL ŠAŠKO, KRIŽEVCI MUNICIPALITY (CROATIA)

in 2018, Križevci inaugurated a fully crowdfunded solar power plant, the first Croatian city to do so. The energy cooperative Zelena Energetska Zadruga (ZEZ) came up with the idea and led the project throughout the process, providing expertise and the solar equipment on lease. ZEZ worked closely with Križevci's municipal administration, who held two public information sessions for residents and actively communicated the project in the local media. Due to the high enthusiasm for renewable energy among Križevci's residents, it took only 10 days to crowdfund the necessary €30,000. After 20 years, the power plant will be fully owned by the municipality. In the first half of 2019, Križevci's municipality built another solar power plant, on the roof of the public library. Learning from ZEZ, Križevci has now created its own energy cooperative, KLIK, which, among other projects, will connect Križevci's solar roofs to a micro-network based on blockchain technology. The administration has also trained 13 long-term unemployed residents as energy advisors, who visit households struggling with energy poverty. This lowered the energy bills of 508 households and led to an annually reduction of 16,519 tonnes of CO_2.

21 — BLOG POST BY SUVI HOLM, TAMPERE MUNICIPALITY (FINLAND)

The Finnish city Tampere aspires to be carbon-neutral by 2030. Due to the high levels of heating required in this cold region, the city is engaging a variety of stakeholders to renovate residential buildings to improve energy efficiency. It has already managed to connect almost all buildings to the district heating network and some to the district cooling network. The system is powered by several power plants, with almost 50 per cent of heat being generated by biomass plants fuelled by wood from nearby forests. The CO_2 emissions of all activities inside the city limits have already reduced by 26 per cent in total and 45 per cent per capita since 1990, mainly due to big investments in renewables by the municipal energy company. Furthermore, Tampere's energy agency EcoFellows is planning to set up cooperatively owned and operated biogas plants in the region to produce sustainable energy, involving farmers and local citizens. Finally, the EU-funded project Low Carbon Housing Tampere Plus (TARMO+) has trained representatives from 250 housing cooperatives and 50 energy service companies that are active in the city.

22 — BLOG POST BY SEAN OWEN, GREATER MANCHESTER REGION (UNITED KINGDOM)

The city-region of Greater Manchester is made up of 10 local councils. Between 1990 and 2015, Greater Manchester's total carbon footprint fell by 39 per cent. Now it aims to be carbon neutral by 2038, a full twelve years before the national deadline, and has already halved its emissions since the 2009–10 baseline. Greater Manchester's biggest strength is integrated planning and translating national requirements to the local landscape, with carbon budgeting being one of the main tools applied by the city. A pioneering project, Unlocking Clean Energy, will develop 10 renewable schemes across the city including solar PV, battery storage and electric vehicle charging. To make it easier for residents to switch to renewable providers, the Greater Manchester Combined Authority introduced the Greater Manchester Energy Switching Scheme, which supports residents in finding 100 per cent renewable and significantly cheaper energy and gas options. This also helps the fight against energy poverty. As another step to tackling that issue, the municipality set up the Warm Homes Fund in 2018, for 500 households to get a new central heating system fitted for free.

23 — BLOG POST BY CAROLINE CORRIGAN AND DAVID GILROY, MEATH COUNTY (IRELAND)

Sustainable Energy Communities (SEC), run through the Sustainable Energy Authority of Ireland, offer communities the opportunity to become more energy conscious and energy efficient. Once a steering group is established, the next step is to develop an Energy Master Plan (EMP) for the community. A grant is available to pay a consultant to do this work. In 2018, Meath County entered into partnership with the rural village Batterstown to support them with personnel and finance to develop an EMP. The partnership is mutually beneficial. The SEC benefits from the council's expertise and procurement skills, ensuring correct procedures are followed, and the worry of funding the EMP is removed. For the council, it connects it to a group of willing people to engage with its climate work

and enhances its reputation. From a national perspective, the mutually beneficial arrangement aligns with the government's Climate Action Plan To Tackle Climate Breakdown 2019 and a recent programme which seeks to establish 1,500-plus Sustainable Energy Communities nationally. The EMP was delivered in early 2020.

24 — BLOG POST BY MICHELA AUFIERO, PALMA CAMPANIA, SAN GIUSEPPE VESUVIANO AND STRIANO MUNICIPALITIES (ITALY)

Three municipalities in southern Italy– are proving that local authorities can engage citizens meaningfully and make them key actors in the transition to a low carbon economy. This is demonstrated by the municipalities' joint 2030 strategy. The plan was developed by the Shared Office for Sustainability, UCSA, which coordinates the municipalities' work on environment, energy and climate change. The municipalities are working on a tender procedure which bundles public lighting and renovation of public buildings together. Furthermore, they plan to set up energy communities to promote the benefits of local renewable energy generation and energy efficiency measures. In 2020, UCSA organised a hackathon, challenging groups of young people to devise circular economy services to reduce food waste, prevent waste production and extend the lifespan of goods.

25 — BLOG POST BY JOÃO CLETO, PEDRO GOMES AND SÍLVIA REMÉDIOS ALMADA MUNICIPALITY(PORTUGAL)

Almada City Council is one of 18 municipalities within the Lisbon Metropolitan Area. Almada's Local Strategy for Climate Change contained a number of measures targeted at reducing the energy consumption of buildings and the transport sector. To support these, the innovative Almada Less Carbon Climate Fund was created in 2009, supported by a specific budget line for energy efficiency and renewable energy investments based on an evaluation of the CO_2 emissions from municipal activities the previous year. Almada is a front runner in Portugal in the use of efficient public lighting telemanagement systems. This system has been introduced gradually and now encompasses 5 per cent of the total public lighting system, with the potential for expansion to cover the whole system. Almada is also working to develop a local energy community. The PLAC (Local Climate Platform for Almada) is a voluntary participation forum in which stakeholders discuss, share and disseminate information and knowledge to support local action to contribute to decarbonisation.

26 — BLOG POST BY JOEY REEDIJK AND ANNE DE COSTER, THE DRECHTSTEDEN MUNICIPALITY (NETHERLANDS)

The Dutch government aims to reduce greenhouse gas emissions by 49 per cent compared to 1990 by 2030. This includes the objective to get 1.5 million households off the natural gas grid. The responsibility for this has been allocated to the municipalities. The Drechtsteden, with just short of 300,000 residents, is a small region of seven cooperating municipalities. In order to reduce households' dependence on fossil gas, several municipalities have begun to construct heat networks using waste incineration, geothermal and aquathermal energy. The region sees the phase-out of gas as multi-faceted: it also entails the need for well-insulat-

ed homes, the potential to create jobs, and the importance of looking beyond 2030. About one third of the housing stock is social housing, and 40 per cent of the households in the region are low-income. It is thus very important that residents are not financially burdened by the transition. The Drechtsteden is conducting a large-scale online participation process to enable people to actively participate in the decision-making process.

27 — BLOG POST BY SARA ROWBOTHAM, ROCHDALE MUNICIPALITY (UNITED KINGDOM)

Rochdale is one of the 10 boroughs of the Greater Manchester city region and its city council joined a growing number of UK local authorities in declaring a climate emergency in July 2019. The city has set itself an ambitious target to work towards becoming carbon neutral by 2038, in line with the Mayor of Greater Manchester's ambition for the city region, and 12 years ahead of the UK government's own target. Rochdale is establishing a Climate Emergency Working Group involving the main political parties, local businesses, the community and voluntary sector, young people, and strategic and public sector partners covering health, education, leisure and housing, to drive forward a programme of local actions to tackle climate change. The city secured funding through the European Regional Development Fund to build a 5MW solar farm on the site of a former urban farm. It will produce enough energy to power 1,250 homes.

28 — BLOG POST BY SONJA COOLEN, HORST AAN DE MAAS MUNICIPALITY (NETHERLANDS)

In 2020, Horst aan de Maas it adopted a new local sustainability policy with four main goals: Horst aan de Maas aims to be a fully *climate neutral*, *climate proof*, *circular* and *nature-friendly* town by 2050. Horst aan de Maas started its circular economy efforts with a project centred around waste reduction in 2010. Thanks to the enthusiastic commitment of its residents, the municipality had the smallest amount of residual waste per household in the Netherlands for seven years in a row (2012–2018). It also has the highest recycling rate: over 95 per cent of all household waste is recycled. In order to meet Dutch national goals, the administration is aiming at financial participation of at least 50 per cent by residents in renewable energy projects. Horst aan de Maas already has a renewable energy cooperative, called Reindonk Energie, which is led by local people and aims to develop locally owned energy projects. Furthermore, in the 450-household village of Kronenberg, residents founded the ambitious project 'EnergieKronenberg', aiming to make the whole village energy neutral by 2030.

29 — BLOG POST BY JULIA LE MAÎTRE, CORK CITY (IRELAND)

The small city of Cork has committed to reducing its CO_2 emissions by 40 per cent by 2030, compared to the baseline of 2016, and aims for net-zero emissions by 2050. Cork City Council declared a climate emergency in 2019, establishing a Climate Action Committee to serve as a watchdog across all other activities carried out by the municipality alongside specialised initiatives on climate and biodiversity remediation. A project undertaken to curb emis-

sions is the expansion of public transport services to alleviate reliance on private vehicles. Cork is also exploring other avenues towards becoming a sustainable and healthy city: thinktanks and collaboration such as Cork Healthy Cities frequently host public events to promote sustainable initiatives including circularity drives and 'Doughnut Economics' thinking to benchmark Cork's impacts with respect to planetary boundaries and social and climate justice. Community consultation and public engagement are central to decision-making for new initiatives.

30 — BLOG POST BY SABRINA HOFFMANN AND VIKTORIA REITH, MANNHEIM MUNICIPALITY (GERMANY)

The city of Mannheim has committed to becoming climate-neutral by 2050 and is currently looking into whether this goal can be achieved even sooner. In cooperation with the City of Mannheim, the Climate Action Agency provides free advice on energy and climate protection issues. It also manages the city-financed funding programmes and provides advice about attaining funding from municipal, national and EU sources. To research how these social innovations can support the energy transition, Mannheim established a City Lab with a focus on developing and testing new organisational governance and participation processes so that local stakeholders can get involved in decision-making processes and receive support from the City of Mannheim. Finally, Mannheim's Local Green New Deal describes and designs concrete local implementation along the eight thematic action areas for the European Green Deal, initiating, activating and bundling specific agreements for a green, clean and healthy city.

- 16 podcast episodes were produced, including interviews with municipal employees, energy cooperatives and academics. As with the blogs, these podcasts allowed practitioners, policymakers and scholars to reflect on their work and share key municipal transition lessons and learning with others — as well as providing an accessible format for members of the public to learn from the mPower experience. The podcast episodes and blog pieces were core to the curriculum of the three digital courses. To listen to the episodes, you can click on the hyperlinks below.

EPISODE 1
SOFIE VERHOEVEN FROM GHENT

For the premiere of the podcast, we meet Sofie Verhoeven in her office in the city hall of Ghent. Sofie is in charge of citizen participation in this beautiful and vibrant city in the Flemish part of Belgium. Ghent counts over 500 local initiatives, including one of the most pioneering renewable community neighbourhoods. Sofie told listeners how they manage to have such an active local community. In our conversation, Sofie talks about the city's DNA, how she networks with citizens, how she nudges them and why even conflicts cannot stop her from being thrilled with her job.

EPISODE 2
SUVI HOLM FROM TAMPERE

In this episode we speak with Suvi Holm from the Finnish city of Tampere. Suvi is CEO of the non-profit environmental company Ekofellows (Ekokumppanit Oy). Ekofellows is owned by the municipality and advises citizens and companies

on energy efficient measures and renewable energy. Tampere is dubbed the 'Manchester of Finland' for its industrial past as the former centre of Finnish industry. In this episode, Suvi gives insights into the Finnish soul and how that relates to the political culture in place. She also talks about the city's efforts to make the city carbon-neutral by 2030.

EPISODE 3
ALBA DEL CAMPO FROM CADIZ

For this episode, we meet Alba del Campo. Alba is a Spanish journalist and activist fighting for more energy democracy. She is also advisor to the local authority of Cadiz since 2015. A new local government was elected in 2015 and re-elected in 2019. Since then, the city opened energy politics to its citizens. This was a first radical step. And there are many more to come. Alba explains why and how they managed to make affordable and sustainable energy such a key topic. And to what extent did the fact that Cadiz also hosts Electrica de Cadiz, Spain's biggest local energy company, have an impact on this new energy policy culture?

EPISODE 4
LUCIJA TOPIC AND ZORAN KORDIC FROM CROATIA

For this episode, we meet two very committed people from Croatia: Zoran and Lucija. Zoran Kordic works for ZEZ, a green energy cooperative in Croatia. Lucija Topic is spatial planner in the city of Krizevci, which recently became a playground for crowd-investing in renewables. They are drivers in spreading the 'energy community virus' with solar roofs across their country. Hear the story about this collaboration between the city and a cooperative, especially around crowd-investing in solar energy. Listeners will learn how, through joint efforts, they bring local answers to the climate emergency and bring people closer together through activities in the public space.

EPISODE 5
GEERT VANHOREBEEK FROM LEUVEN

Geert tells the story of how solar energy was boosted in Leuven through a strategic partnership with the energy cooperative EcoPower. The city's ambition is to become climate-neutral by 2030. Coordinated efforts between all stakeholders of the community, businesses, knowledge institutes, semi-public organisations and the local government itself are considerable. The city is now committed to shifting from 'doing what can be achieved' to 'doing what must be achieved'. The success of community energy in Leuven shows that these aren't empty words.

EPISODE 6
TINE DE MOOR, RESEARCHER ON COLLECTIVE ACTIONS

Belgian academic historian Professor Tine de Moor explains why we should cooperate and the challenges she has identified for cooperatives through her research work. She also advocates for public-collective partnerships in order to fully recognise everybody's role in local transition processes: energy is an incredibly important resource and Tine de Moor believes that participation in this field is crucial. People need to be involved in making the rules they have to follow and that's why she sees cooperatives as schools for democracy.

EPISODE 7
AMSTERDAM'S COMMONS MANAGER NATHALIE DE LOON

Nathalie van Loon is the commons coordinator at the city council of Amsterdam. In Spring 2020, Amsterdam made the news when it became the first city in the world to officially adopt the famous 'doughnut' model developed by Kate Raworth. Nathalie tells us what the doughnut means for people in Amsterdam and for energy democracy in particular. Her job mission focuses very much on stimulating the 'do democracy'. Nathalie gives insights into her work around the commons and takes us to a few heat and solar cooperatives in her city. As Nathalie and her team wanted to make Amsterdam's commons better known, she asked an artist to produce the city's very first commons catalogue.

EPISODE 8
DIMOS ISPIKOUDIS FROM KOMOTINI ON LOCALLY-OWNED RENEWABLES

Since 2018, new Greek legislation allows local authorities to be energy producers. In this episode, we have a look at how much this legislation was a gamechanger for Komotini, a local government with few resources but great will to control its energy. Dimos Ispikoudis works for the city of Komotini, at the very northeastern edge of Greece. He is the special advisor to the Mayor, particularly on urban planning and EU co-funded public works projects. Dimos gives us a sense of his city's ambitions to produce its own renewable energy and describes how they try to overcome challenges like lack of human and financial resources. Different options are envisaged in Komotini to make sure the local community is involved in renewable energy projects and benefits from their revenues.

EPISODE 9
JACQUI CULLEN AND GERARD POL GILI ON STRASBURG'S FIRST ENERGY COMMUNITY

This episode helps us understand how a very young energy community in Strasburg, in the North-East of France, came into being. Jacqui Cullen, an Irish-born cooperative member, and Gerard Pol Gili, a Spaniard who heads the renewables department of Strasburg City and Metropolitan area, tell us their story: the first contact between cooperative and local administration, the business development and collective learning process, their personal excitement and the remaining administrative procedures.

EPISODE 10
JUAN EGUIDAZU AND JAVIER ZARDOYA FROM PAMPLONA ON RENEWABLES AND COVID–19

For almost 20 years, the region of Navarra in the north of Spain has pioneereed wind and increasingly solar energy. Now, building an energy community with the regional capital Pamplona as a partner means getting to the next level. This energy community is part of the local government's climate change strategy for 2030. This episode provides a very personal and honest insight into the creation process thanks to Juan Eguidazu and Javier Zardoya. One is a cooperative member and the other works at the city energy agency. One story, two perspectives.

EPISODE 11
SARA CAPUZZO AND CLAUDIA CARANI FROM MODENA ON LOCAL ENERGY COMMUNITIES

Our interviewees in this episode are Sara and Claudia: Sara Capuzzo is the President of enostra, a major Italian renewables cooperative. For a new energy community project, she recently teamed up with Claudia Carani, who works as a senior expert for the Energy and Sustainable Development Agency in Modena. Sara and Claudia describe Modena's renewables targets and explain how the next energy community will contribute to them. They also talk about the right political triggers for renewables in Italy, the place of women in the sector, and what 'ethical energy' means.

EPISODE 12
BRITT JURGENSEN AND LAURA WILLIAMS FROM CARBON COOP ON NEW NARRATIVES

In this episode we talk with mPower partners Laura Williams and Britt Jurgensen from Carbon Co-op: one is a trained theatre practitioner, the other a political activist. Can we empower people more easily by merging art and activism? In this conversation we focus on the energy and climate challenge, which is so big that it requires everybody to be involved. New ways of communicating are needed. Laura and Britt share their experience on the best means to shape new narratives: those that make people want to engage in changing the energy system.

EPISODE 13
DONNA GARTLAND FROM CODEMA ON DUBLIN'S BIG TRANSITION

We talk with Donna Gartland who heads the Dublin energy agency CODEMA with a staff of 16 people. She explains what changes can be expected in the city and describes how she and her team trigger conversations with citizens around topics such as district heating using waste heat from data centres. The challenge is huge: How do you decarbonise a capital city that is very much driven by the fast-growing digital economy?

EPISODE 14
DR LUCIE MIDDLEMISS ABOUT ENERGY POVERTY IN CITIES

In this episode we talk with Lucie Middlemiss, Professor of Environment and Society at the School of Earth and Environment at the University of Leeds, about who the energy poor are in Leeds (and elsewhere), why they should be involved in finding the right answers, but also how she thinks research can help improve energy poverty policies in cities in the UK and Europe. Lucie has an impressive track record of research on energy poverty with a particular focus on what is called the 'lived experience' approach.

EPISODE 15
JAKUTA IMŠIROVIĆ FROM ZENICA ON JUST TRANSITION STRATEGIES IN THE BALKANS

The city of Zenica, a coal and steel producer, lies right in the centre of Bosnia and Herzegovina. Jakuta talks us through the local government's various projects to increase energy efficiency, including the

Toplana Zenica power plant. She proudly presents the city's ambitions, but she also mentions issues regarding the lack of knowledge around new energy practices at the local and national political levels and the sometimes difficult role of the city. Join us in the Western Balkans and let's have a look into the culture shift underway in Zenica to transform the city into a more energy efficient, healthy and just place.

EPISODE 16
PAU BALCELLS ON THE DATA CULTURE IN THE CITY OF BARCELONA

In this episode we sit down with Pau Balcells from the Barcelona Data Office and dive into the role of data to design, feed and assess innovative and sustainable policies. The city of Barcelona is leveraging data for better decision-making and to become a smarter and fairer place. Pau shares why big data has become the issue of our time. He also talks about the Data-City initiative that will contribute to the city's amazing objective of erasing energy poverty in the next eight years.

- We produced three documentaries on leading municipal energy case studies, providing detailed insights for other municipalities to learn from. The case studies were as follows:

  - Brussels: This documentary showed Brussels' pioneering work on sustainable construction, achieved via a new alliance established by the municipality including industry, unions and unemployed people. The documentary also highlighted the municipality's work to increase the sustainability of public buildings through PV installations and energy efficiency measures. Finally, it discussed the municipality's schemes to provide financial support and advice for households pursuing domestic retrofit and PV installations. You can watch the documentary here.

  - Burgas: This documentary focused on Burgas's inspiring work on energy efficiency: an EU-funded programme has secured retrofits in 300 buildings, positioning Burgas as the city with the most retrofits in Bulgaria. Crucially, the documentary foregrounded the importance of citizen participation within this programme, discussing a big promotional campaign, the support mechanisms available for citizens interested in retrofits, and the role of citizen associations within the retrofit process. You can watch the documentary here.

  - Niš: This documentary focused on the city's district heating network. In response to citizen unrest around high heating prices for those connected to the district heating network, the municipality changed its policy, moving to consumption based billing and foregrounding citizen participation in the future of the network. Citizen representatives were invited onto boards for pricing and complaints offering the city's inhabitants more voice and control. The documentary also illustrated Niš's valuable work on domestic energy efficiency financing, retrofits in schools and moves to renewable power for municipal buildings. To watch the documentary here.

IMPACTS

- Each of the municipalities that completed mPower Exchange, the bespoke peer learning stream, produced a replication plan setting out a detailed vision for how the best practice examples they had learned about could be adapted and implemented within their own unique context. These replication plans identified their inspiration from elsewhere before setting out new policy programmes including costings, timelines, key activities, key resources, potential partners and expected impacts. The replication plan format encouraged municipalities to put their learning into plans and practice, and provided the seeds for a number of pioneering energy initiatives that other European local authorities could in turn replicate. 17 of the 21 replications plans were implemented.

The replications plans[2] are as follows:

- Tampere, Finland: A regional biogas system based on circular economy principles
- Porto, Portugal: A new local energy community for the 17 municipalities within the metropolitan area
- Nottingham, United Kingdom: A joint research project with the municipality of Plymouth that aims to develop a retrofit programme for young family households
- Plymouth, United Kingdom: New forms of advice and support for household retrofit
- Manchester, United Kingdom: A public-civic partnership to enable and accelerate the delivery of renewable energy in citizen ownership at scale
- Horst aan de Maas, the Netherlands: Public education, research and citizen collaboration. With the aim of transitioning the town of Kronenberg to energy neutrality
- Burgas, Bulgaria: New measures to increase the deployment of PV and smart meters in the city
- Dobrich, Bulgaria: Development of a network of citizen volunteers that will help to envision, develop and deliver new city development initiatives, including those concerning low-carbon infrastructure
- Litoměřice, Czech Republic: Three pilot energy cooperatives focused on the development of new solar PV
- Velika Gorica, Croatia: Funding for at least 20 new solar PV projects and public polling to gauge interest in the establishment of a new renewable energy cooperative
- Križevci, Croatia: The establishment of new supportive connections with a newly established energy cooperative
- Niš, Serbia: Establishment of the foundations of a householder-facing

2 — The replications plans are not hyperlinked, unlike the other resources, because they are not a public deliverable.

'one stop shop' for energy efficiency advice and support

- Zenica, Bosnia and Herzegovina: Public awareness campaigns and advice around household energy efficiency

- Komotini, Greece: A new municipal energy company with citizen and stakeholder participation, aiming to help the city produce its own energy and achieve net zero

- Cadiz, Spain: Two PV self-consumption projects in which the city council, municipal electricity company and workers participate

- Donostia–San Sebastián, Spain: A new office offering citizens advice and support with retrofit, reducing energy use and energy bills

- Pamplona, Spain: A new participatory energy strategy designed by politicians, workers and citizens

- Barcelona, Spain: Involvement of the industrial sector in renewable energy generation

- Frederikshavn, Denmark: Educating consumers, businesses and public bodies on how their behaviour affects energy consumption and what they can do to reduce energy use

- Frankfurt, Germany: New measures to expand solar PV in the commercial sector

- Vienna, Vienna: Support for the roll out of solar energy in public spaces owned by the city.

- Three articles were published, condensing key findings from the peer exchange programme across the topics of energy efficiency, local energy communities and renewable generation. These articles provide a valuable resource for municipalities seeking to implement new policies across these important domains, summarising the best practices that emerged and offering constructive reflections on how opportunities can be realised and barriers overcome. For example:

- Frequently deployed national subsidies for renewable generation, such as feed-in tariffs, often prevent local support being targeted where it is most needed. Alternative approaches to supporting renewable generation, such as locally implemented tax bonuses and direct marketing, awareness raising and education to households and companies have proved productive. Click here for more findings.

- Municipalities can support the establishment of local energy communities in various ways, for example through long-term planning and targets, financial support and incentives, the provision of land, generation of relevant data, and commissioning and tendering policies that reward social value and citizen participation. Click here for more findings.

- Four building blocks for developing a municipal domestic retrofit strategy were identified: a householder-centred approach, ambitious carbon savings, quality, accessible funding and local economy benefits. Click here for more findings.

- Municipalities who attended the mPower Exchange Peer learning programme gave very positive feedback on their experiences:

  - Participants were asked the extent to which the programme had met their aspirations. Rating their answer from 1 = not at all met to 5 = entirely met, 53% of participants gave a rating of 4 and 37% of participants gave a rating of 5.

  - Participants were asked the extent to which the programme had improved their confidence. Rating their answer from 1 = not at all met to 5 = entirely met, 53% of participants gave a rating of 4 and 37% of participants gave a rating of 5.

  - Participants were asked to rate the extent to which the programme increased their skills, knowledge and experience in relation to applying energy justice principles within their work. Rating their answer from 1 = no new skills, knowledge and experience to 5 = extensive new skills, knowledge and experience, 42% of participants gave a rating of 4 and 26% of participants a rating of 5.

  - Participants were asked to rate the extent to which the programme increased their skills, knowledge and experience in relation to identification, selection and prioritisation of sustainable energy projects. Rating their answer from 1 = no new skills, knowledge and experience to 5 = extensive new skills, knowledge and experience, 47% of participants gave a rating of 4 and 16% of participants a rating of 5.

  - Participants were asked to rate the extent to which the programme increased their skills, knowledge and experience in relation to administration, coordination and monitoring of sustainable energy projects. Rating their answer from 1 = no new skills, knowledge and experience to 5 = extensive new skills, knowledge and experience, 42% of participants gave a rating of 4 and 11% of participants a rating of 5.

  - Participants were asked to rate the extent to which the programme increased their skills, knowledge and experience in relation to obtaining finance for municipal energy projects. Rating their answer from 1 = no new skills, knowledge and experience to 5 = extensive new skills, knowledge and experience, 37% of participants gave a rating of 4 and 26% of participants a rating of 5.

  - Participants were asked to rate the extent to which the programme increased their skills, knowledge and experience in relation to governance and coordinating stakeholders engagement in energy transition projects. Rating their answer from 1 = no new skills, knowledge and experience to 5 = extensive new skills, knowledge and experience, 47% of participants gave a rating of 4 and 26% of participants a rating of 5.

  - Participants were asked to rate the extent to which the programme increased their skills, knowledge and experience in relation to communication, marketing and campaigns for stakeholders and citizens. Rating

their answer from 1 = no new skills, knowledge and experience to 5 = extensive new skills, knowledge and experience, 53% of participants gave a rating of 4 and 21% of participants a rating of 5.

- Participants were asked to rate the extent to which the programme increased their skills, knowledge and experience in relation to citizen engagement, ownership and participation. Rating their answer from 1 = no new skills, knowledge and experience to 5 = extensive new skills, knowledge and experience, 21% of participants gave a rating of 4 and 42% of participants a rating of 5.

- Our monitoring and evaluation work has demonstrated the significant impact of the mPower Digital courses. For example, 88 per cent of participants said that they found the majority of the content on the course new information that was relevant to their current work. Our facilitation of the courses attracted consistently excellent feedback — 100 per cent of Course 3 participants said that the facilitation was excellent. Feedback clearly showed that participants significantly increased their skills and confidence in implementing energy projects. What's more, many participants reported that the digital courses had helped them understand the value of democratic participation in the energy system and inspired them to incorporate increased citizen involvement in their future projects. The mailing list and Facebook group that were created for the mPower Digital participants to exchange relevant resources and developments with each other will continue beyond the lifetime of the project. All of the resources and materials for the courses were produced with Creative Commons licences, meaning that they can be easily replicated by others to increase the spread of important energy transition knowledge.

- In a survey addressing overall experiences of mPower, which was filled in by Exchange and Digital learning stream participants, around half of participants reported that the project provided inspiration for local energy transition plans. The overwhelming majority of respondents mentioned that they had either created or updated city-wide climate plans since participating in the project. Around half of respondents indicated that they had either created new community energy projects within their cities or had created new policies in order to support the growth of new community energy projects. Additionally, around a quarter of respondents indicated that they had either created plans to retrofit new buildings to make them more energy efficient or had established plans to do so within the near future.

- All in all, mPower Exchange and Digital enabled 135 individuals working in at least 100 different local authorities to exchange practical knowledge and expertise, leading to increased skills and competencies in municipal energy policies. This ultimately enhanced the effectiveness of 31 adapted and improved energy plans, and established 600 new relationships between public authorities. Finally, these learning streams resulted in seven new peer learning groups that will continue beyond the lifetime of the project.

PART 3 / Best practice, take-away learnings and activating municipalities

The most significant municipal transition practices that were shared and studied in the different yet integrated learning streams became the focus of four best practice guides, provided a base for developing the national policy briefing,[3] and were further synthesised in the Municipal Manual, concluding with 10 take-away learnings. These insights were applied by the mPower Activate programme which assisted in the design and development of four energy transition projects. The results and impacts are as follows.

RESULTS

- Our four best practice briefings produced the following conclusions:

1 — BEST PRACTICE GUIDE ON CO-CREATION WITH CITIZENS

- **ONE-OFF EVENTS**

One-off events can be used to foster citizen engagement and participation. For example, Brent council in London, United Kingdom, has used Citizen Assemblies to give citizens power over shaping local climate policy. The diversity of the local population was reflected by randomly selecting members in line with the profile of the area. Throughout the events, the members heard from a range of speakers who supported the group to define a series of recommendations. The recommendations presented by the Assembly

3 — The results of the national policy briefing couldn't be included in this report because this publication is still forthcoming.

were included in the Council's five-year climate strategy, with clear budgets assigned to first-year actions.

- **COUNCILS AND FORUMS**

Municipalities can establish councils and forums to allow different stakeholders, including experts and citizens, to co-create energy policy together. Cadiz, in Spain, has established an open Energy Transition Committee, where specialists and employees from the municipal energy company, academics and energy cooperative representatives work together. The Committee sets priorities which guide next steps for the council.

- **ONLINE TOOLS**

Online tools can be used as an additional means of garnering citizen input on energy policy. Barcelona, in Spain, has developed a participative platform, Decidim, where citizens can propose, debate and back new proposals in response to the big challenges facing the city. Through Decidim, residents were invited to submit proposals that they would like to see in Barcelona. A total of 10,860 submissions were put forward by 40,000 residents, with 8,142 approved. The proposals were then synthesised to find common themes. On climate and energy, calls to create a municipal energy retailer, improve walking and cycling infrastructure and improve air quality were among the ideas included in the final plan for the city to implement.

- **NEIGHBOURHOOD ENGAGEMENT**

Municipalities can focus on particular neighbourhoods to create localised participatory energy initiatives. Munich, Germany, has experimented with an innovative citizen co-creation model by turning the district of Neuaubing-Westkreuz/Frieburg into a site for discussion and experimentation on energy transition matters. A communications campaign was launched, with its own website, newspaper and social media presence. A former fitness centre was taken over as an information hub where residents could engage with the project team, hear about the project's data findings and collaborate on solutions. Over the course of four years, 25 workshops took place in the centre, with 4,000 people engaging.

- **PARTNERING WITH CITIZENS**

Partnerships between municipalities and citizens offer fertile platforms for co-creation. For example, Horst aan de Maas in the Netherlands has partnered with a group of citizens seeking to decarbonise the small village of Kronenberg. The municipality has backed citizen research projects and is currently co-designing a strategy to implement measures to electrify the village.

- **MUNICIPAL COMPANY BOARDS**

By integrating citizens within the governing boards of municipal energy companies, municipalities can increase citizen participation and control. In Wolfhagen, Germany, the cooperative that now owns a 25 per cent stake in the municipal energy company and contributes to strategic decision mak-ing. It does this through two cooperative representatives, who sit on the company's nine-member board.

2 — BEST PRACTICE GUIDE ON BUILDING ENERGY COMMUNITIES

- **INITIATING NEW ENERGY COMMUNITIES**

Municipalities can initiate new energy communities. For example, in Wolfhagen, Germany, the city council backed the creation of a citizen cooperative that now owns a 25 per cent stake in the municipal energy company. As a result of the partnership 6MW of new renewable energy generation has been financed and an energy-saving foundation has been created.

- **CREATING FAVOURABLE CONDITIONS**

Municipalities can create favourable conditions for the emergence of energy communities. For example, in Plymouth, United Kingdom, the city council transferred ownership of municipal land to a community land trust, so that a new energy community project could be sited there. Low-cost loans from the municipality and a bridging loan also supported the process.

- **WORKING IN PARTNERSHIP**

Partnerships between municipalities and energy cooperatives have proved very productive. For example, Aspropyrgos, Greece, is working alongside a local energy cooperative to develop a new energy community concept that will provide free energy to 250 vulnerable families while meeting the municipality's energy supply needs. In Ghent, Belgium, the municipality has coordinated a multi-stakeholder partnership including three energy cooperatives to build and invest in local energy infrastructure. The municipality supported overall management, made links with other initiatives in the city, and coordinated between the various partners, including resolving conflicts and issues. The cooperatives, meanwhile, helped facilitate citizen engagement.

3 — BEST PRACTICE GUIDE ON FUTURE FIT HOMES

- Creating favourable conditions

Donostia-San Sebastián, Spain, passed a new law mandating all new building refurbishment applications to include energy efficiency improvements higher than the national minimum standards. In Stuttgart, Germany, the municipality has developed a renovation standard to ensure high-quality, energy efficient and durable retrofits with optimum comfort and price performance.

- **LOW-COST FINANCE**

The regional government of Hauts-de-France offers homeowners interest-free loans to finance retrofits. In Zenica, Bosnia Herzegovina, the municipality provides 50 per cent match funding to any condominium willing and interested in investing in energy efficiency measures.

- **HOUSEHOLD MICROGENERATION**

Barcelona's newly established municipal energy company offers financial incentives to individuals and cooperatives seeking to install solar. Mouscron, Belgium, established a new energy co-op to promote domestic solar uptake. The co-op provides upfront finance to cover installation costs. They have so far installed solar panels on 100 households.

4. BEST PRACTICE GUIDE ON TACKLING ENERGY POVERTY

- **FOCUSING ON THE MOST VULNERABLE**

Plymouth and Nottingham, United Kingdom, and Cádiz, Spain, all benefited from a strategic focus on the citizens most vulnerable to energy poverty. In Cádiz, the municipality introduced a social discount on energy bills for vulnerable families. The process of doing so was coordinated by a participatory roundtable including all relevant stakeholders, organised through consensus decision-making.

- **INFORMATION AND ADVICE**

Barcelona and Valencia, Spain, established energy advice offices in the city as a free public service. Dublin Council's energy agency in Ireland produced household energy saving kits where were loaned to public libraries for citizens to borrow.

- **SOLAR**

Porto Torres, Italy, and Zaragoza, Spain, have created solar projects that generate electricity for low-income households at discounted rates.

- **RETROFIT**

In Portsmouth, United Kingdom, the council decided to renovate a block of council housing following residents' complaints about high energy bills. Bills fell by £700 (€810) per household per year as a result of the project. In Plymouth, experiences within the council's energy advice service were drawn on to develop a new funding stream to retrofit the homes of vulnerable households.

- **THE MUNICIPAL MANUAL** distilled the most important learnings from and related to the mPower project into 10 take-aways for building public power transitions across Europe.

1 — THE MARKET DOES NOT KNOW BEST: Profit- and growth-driven neoliberal models that focus on expansion rather than a transition inhibit the development of municipal and community-level solutions to the energy crisis. A public goods approach must challenge and replace harmful market policies to place social and environmental values at the core of the energy system and facilitate collective decision-making.

2 — DEMOCRATISING PUBLIC OWNERSHIP: Public ownership over assets and infrastructure alone is not enough to ensure democratic management and decision-making. For a just and democratic transition, citizen participation must be at the core of the democratic organisation — through participatory policy-making, roundtables, and tools for citizen engagement.

3 — A JUST TRANSITION, NOT JUST A TRANSITION: A truly just transition revolves around justice by effectively advancing the position of workers across the world, including precarious, unpaid, migrant, racialised, unemployed, and predominantly women domestic care workers.

4 — DEFENDING THE RIGHT TO ENERGY: The exclusion of vulnerable households from the energy system and the resulting energy

poverty are direct consequences of the commodification of a product everyone needs. To effectively eradicate energy poverty and ensure everyone can access the energy they need, an approach must be adopted that recognises energy use as a fundamental right and acts accordingly by re-organising ways in which energy is priced and distributed.

5 — AVOID THE LOCAL TRAP: De-centralised solutions for energy generation run the risk of excluding those without the necessary capital to invest from formal decision-making processes and financial benefits. To ensure our energy needs can be met and energy production and distribution is democratically owned and governed, public-public partnerships between democratised institutions are key to scaling energy generation.

6 — AGAINST GREEN EXTRACTIVISM: With the development of 'clean' energy technologies, such as wind turbines and solar panels, new forms of green extractivism arise that harm communities and workers at the frontlines of the exploitative mining industry. Solidarity with movements and communities in the Global South standing up against mining must go hand in hand with transitions to reduce energy demand within the North in an effort to reorientate production and consumption practices alongside the needs of people and ecosystems across borders.

7— REBUILDING PUBLIC CAPACITY: Although municipalities are key players in the energy transition, they often lack the capacities and resources required to plan and deliver energy transitions effectively. Municipalities need to regain political power and economic means to play a leading role in the energy transition.

8 — COLLABORATE! To build capacity and produce targeted energy policies, public bodies can collaborate with each other and with citizens and workers. Through collaboration, public bodies can gain new sources of knowledge and expertise that allow them to deliver energy transitions that are more responsive and more successful.

9 — RECLAIMING INFRASTRUCTURE: Ownership over key energy system infrastructures is essential for planning, coordination, and control over energy pricing. Public oversight and accountability over new smart infrastructures is crucial to avoid public-body dependency on big technology firms and private owners.

10 — ENERGY SOVEREIGNTY: Public power transitions should respect people's territorial sovereignty and should not be forced on rural and indigenous communities. Policy-makers must act to avoid creating extractive relationships between urban and rural areas and give rural communities the right to control and benefit from the land and energy developments in their surroundings.

IMPACTS

The mPower Activate programme allowed participants from municipalities, energy agencies and citizen collectives to work in depth on the ideas developed during the mPower Exchange programme and translate initiatives into innovative municipal energy transitions for their local context. mPower Activate fostered the participation of six cities that engaged in regular meetings with facilitators, study visits, expert meetings, and other events. Throughout the process, participants had the opportunity to meet face to face with individuals and organisations working on the energy transition and learn from their experiences. Among the drivers of the programme's success were the collective learning platform that mPower Activate created and the dedication of the facilitators who worked closely with the initiatives to encourage new ways of thinking and the forging of new alliances.

- The four projects that benefitted from mPower Activate are as follows:

  - **ENERGAIA ENERGY AGENCY — PORTO, PORTUGAL**
    In cooperation with Carbon Co-op and Energy Cities, Energaia Energy Agency successfully kickstarted its project to establish an interregional Renewable Energy Community within its coverage area of seven municipalities. A core project group consisting of two key staff members consulted 15 community energy experts over 1.5 years. Throughout the project phase, the participants leveraged the learning opportunities facilitated through mPower Activate and benefitted from the exchange with other initiatives to develop new ideas (mPower Exchange). By June 2022, the project group was able to secure €60,000 funding for the project from the European City Facility (EUCF) and obtain political commitments from six municipalities for the interregional Renewable Energy Community.

  - **WHOLE HOUSE RETROFIT — PLYMOUTH & NOTTINGHAM, UK**
    To build a sustainable financial approach to retrofitting owner-occupied and privately rented homes of people experiencing fuel poverty, Carbon Co-op worked together with the Plymouth and Nottingham City Councils. The group explored the three areas of finance, delivery models, and people, and held 15 internal and external meetings where they developed short papers to contextualise the issues. Throughout the process, the two cities developed strong links, shared ideas and expertise, and successfully networked with local authorities and larger regional groups. The key achievement of the project was the production of a groundbreaking piece of research on a person-centred approach to fuel poverty, which informed both councils approaches and inspired many other municipalities as well.

  - **PV ENERGY COMMUNITY — NIŠ, SERBIA, AND BURGAS, BULGARIA**
    Facing challenging local circumstances due to low energy literacy and civil society engagement, the cities of Burgas and Niš worked together with Energy Cities to initiate local energy communities. The permanent working group of four members

participated in over 20 events throughout the 14 months of the project, including one regional and two national events. At the start of the project, no local energy communities existed in the cities. A major success early in the project was securing the political engagement of the local municipalities through a joint meeting of the deputy mayors of Burgas and Niš. During the fourteen-month-long project, Burgas successfully identified an English school as a potential partner for a PV pilot project and will continue working on the project in collaboration with Gabrovo, another Bulgarian city, through a LIFE-2021-CET-ENERCOM project. Niš conducted an extensive educational campaign targeting stakeholders and citizens to raise awareness of the importance of energy cooperatives.

- **ENERGIEKRONENBERG — KRONENBERG, THE NETHERLANDS**

The citizens' collective EnergieKronenberg worked with and received support from TNI to facilitate the municipality's efforts of switching from natural gas to electricity as a source of heat by 2030. To do so, the project group focused on the indicators 'community', 'public discourse', 'services', and 'institutional power' to create a long-term strategy to foster local support for the undertaking. Through informal participatory brainstorming sessions and strategic communication capacity from TNI, the group strengthened its communications team and streamlined the movement-building process in Kronenberg. Among the main achievements of the project was the production of professional communication materials via three magazines and a public-facing website to increase the support provided to the local residents on energy-saving measures and the switch from gas to electricity.

CONCLUSION

The mPower project has been pivotal for numerous municipalities across Europe to learn from and develop relationships with other local authorities, increasing their capacities and confidence on energy transition matters. The mPower participants who filled in our final survey said that the project provided inspiration for local energy transition plans. The overwhelming majority of the respondents indicated that they had either created or updated city-wide climate plans since participating in the project. Around half of respondents mentioned that they had either created new community energy projects within their cities, or had created new policies in order to support the growth of new community energy projects. Additionally, around a quarter of respondents indicated that they had either created plans to retrofit new buildings to make them more energy efficient, or had established to do so in the near future.

In total, mPower Exchange, Digital and Activate supported 104 cities to reach their sustainable energy targets. At least 135 individual workers increased skills and competences in municipal energy policy. This resulted in the incubation of four new energy projects, 17 newly institutionalised energy policies aiming at best practice, and 31 adapted and improved energy plans. In total, the mPower project established 600 new relationships between public authorities and seven new peer-learning groups.

This report summarises the main results and impacts of the mPower project.

mPower is an Horizon2020 project that has enabled an in-depth, wide-scale and systematic peer-to-peer learning programme among at least 100 local public authorities, in order to replicate innovative best practices in municipal energy, and developing ambitious energy transition plans. The project is run by a consortium of Glasgow University (UK), Platform (UK), Energy Cities (EU-wide), IPE (Croatia), Transnational Institute (Netherlands), University of the Basque Country, and Carbon Coop (UK).

Find out more: ***https://municipalpower.org/***