

## Citizen Participation for Solar Energy Development in the EU – Case Study from Vienna, Austria



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## Introduction

As a crucial part of transition towards sustainable energy systems, the European Union (EU) has been actively encouraging its citizens to participate in the uptake of solar energy. As a result, people-centred approaches, which put citizens at the heart of the energy transition process, have gained major momentum. By summarising the concept of citizen participation and presenting a best practice example from Vienna, Austria, this factsheet shows how important public involvement has become in the development of inclusive solar energy systems.

## Understanding Citizen Participation in Renewable Energy Systems

### What is citizen participation?

Citizen participation is a process through which ordinary people in the form of individuals, groups or organisations are given opportunities to participate in the decision-making process that will affect them and/or their communities.<sup>[1]</sup>

### Changes in perceptions of Citizen Participation

Historically, energy generation models were mostly owned and managed by private enterprises with the energy infrastructure being owned at the national level. Such ownership and management practices created historically centralised and private energy systems, which resulted in psychologically distanced energy communities.<sup>[3]</sup> This is the reason why authorities tried to limit active involvement of the public, which was eventually left out of renewable energy development processes.

However, in line with active environmental and energy citizenship, which has gained momentum over the past several decades, energy systems are being freed from such perceptions and citizen participation is becoming an essential component for renewable energy deployment.

In addition, recent public surveys, and polls<sup>1</sup> conducted in the EU show increased support<sup>2</sup> for solar and other renewable energy projects, which grew significantly after Russia's invasion of Ukraine.

### Why is citizen participation important for solar energy development?

Citizens have significant impact on advancing sustainable energy transition by shaping renewable energy infrastructure, making direct investments, prioritising energy suppliers and tariffs, and creating community-based energy projects.<sup>[2]</sup> Therefore, it is vital that they are involved in the stages of planning, funding, managing, governing and execution

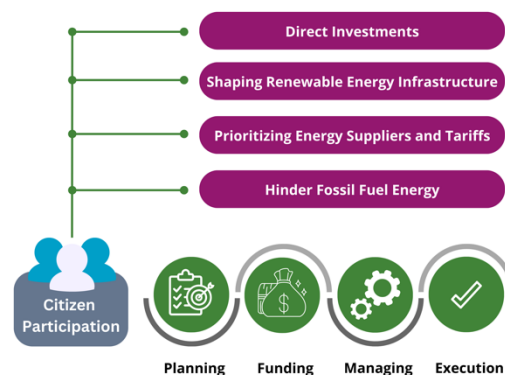


Figure 1. Model of Citizen Participation

<sup>1</sup> European Climate Foundation's *Cross EU Polling on Renewable Energy* conducted in 2021; European Commission's *Eurobarometer* conducted in 2022

<sup>2</sup> More than 80% of those questioned

## What does Citizen Participation offer?

Encouraging the bottom-up process of active citizen participation, i.e., perceiving the public as the owners of energy storage facilities and holders of the rights to initiate deployment of energy systems,<sup>[2]</sup> creates an effective governance tool for smoother transition.

Among many other benefits, citizen participation contributes to public **awareness raising** as well as provision of **cites and investments** essential for solar energy deployment. By addressing **social issues** related to fuel poverty and health, active energy citizenship increases **trust** between local community and government.<sup>[2]</sup>

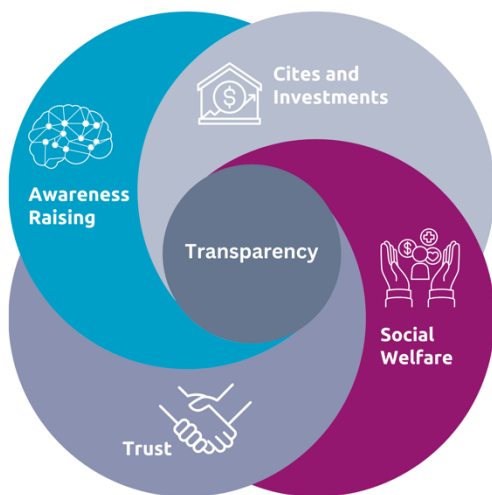


Figure 2. Benefits of Citizen Participation

## Motivations behind the uptake of solar energy

The public's readiness and motivation to uptake solar energy is affected by multiple factors, such as **age**: middle-aged individuals are more likely to adopt solar energy technologies, while younger consumers are less motivated to pay extra for more sustainable options; **level of education**: highly educated people are more likely to

support renewables; **sources of income**: an increase of monthly income and costs of electricity respectively boost motivation; **financial policy**: including tax deductions and energy subsidies; and **social norms**: because people are more likely to install renewable energy technologies if their family and friends encourage them to do so.<sup>[4]</sup>

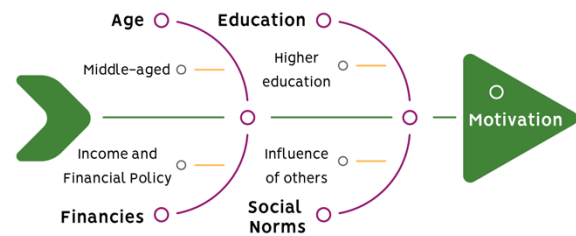


Figure 3. Motivations of Citizens to Uptake Renewables Illustrated by Fishbone Diagram

## Citizen-centred Solar Energy Development in the EU

Solar Energy is characterized with the rapidest growth among other renewable energy sources in the EU and is regulated by **directive 2009/28/EC**, also known as renewable energy directive (REDIII) with updated target of 45% renewables by 2030.<sup>[8]</sup>

In addition, through introduction of key policy frameworks, such as **REPowerEU Plan** and **EU Solar Energy Strategy**, ambition of solar energy has been increased by 43%,<sup>[9]</sup> citizen participation has given higher priority and placed at the centre of transitioning towards clean energy systems.

Noteworthy, many European cities are actively implementing innovative models that not only harness energy from the sun but contribute to citizen participation essential for creating inclusive renewable energy communities. Accordingly, one of such innovative and successful approaches can be found in Vienna, Austria.

## Citizen's Solar Power Plants in Vienna, Austria

As a capital of Austria and one of the sustainable cities in Europe, Vienna strives to be carbon neutral by 2040<sup>[10]</sup> and in addition to subsidising public and private photovoltaic facilities, it is actively encouraging citizens for planning and shaping its solar energy systems.

Vienna's project of Citizen's Solar Power Plants represents one of the successful cases not only in Austria, but in the whole region. It is based on an outstanding business model of people centered solar energy development, which introduces innovative approaches of partnership, finances, customer relationships and provision of key resources.

### Understanding The Business Model

#### *Initialization*

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Business model (Fig.4) offered by Wien Energie<sup>3</sup> allows citizens of Vienna to make direct investments in renewable energy by purchasing solar panels. Price of one panel amounts to **EUR 950** and number is limited to ten per person. Once the financial transaction is completed, official contract comes into force granting co-ownership status to the individual citizen and Wien Energie.<sup>[5]</sup>

#### *Implementation*

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After the contractual and administrative procedures are set, Wien Energie installs solar panels on rooftops of public buildings as well as beyond the urban area and continues to operate and maintain the plant.

Citizen then leases the panel back to Wien Energie and annually receives from 1,75% to 2.25% of invested remuneration (**sell-and-lease model**). Similar amount can also be received as a supermarket voucher under then collaboration with the supermarket network – SPAR (**voucher model**).

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<sup>3</sup> Regional energy provider owned by the city of Vienna

The duration of the contract is a minimum of five years to the lifespan of panel (approximately 25 years), however it can be terminated at earlier stages by paying additional fee of EUR 75.<sup>[5]</sup>

#### *Finalization*

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Once the panels reach the end of their lifespan, Wien Energie buys the photovoltaic module back, becomes an owner and the citizen is fully compensated.

### Results

The project started in 2012 and within five years Wien Energie managed to involve more than **10,000** people with investments amounting to **EUR 35 million**. Citizen's solar power plants produced **50,000 MWh** green energy, with savings around **17,000t CO<sub>2</sub>**.<sup>[5]</sup>

In 2017 Wien Energie replicated this model for Electric Vehicle (EV) charging stations emphasizing its uniqueness in developing citizen-centered renewable energy initiatives.

## Conclusion

Throughout the factsheet, it has been shown that citizen participation is pivotal for faster and effective transition towards renewable energy systems. General-to-specific approach of the document well demonstrates benefits of citizen participation and further supports it with success story from the EU.

By integrating innovative approaches of investments, ownership and public engagement, Citizen's Solar Power Plant overcomes major challenges related to finances, lack of physical space, centralized energy communities and insufficient technical expertise. In addition, it provides simple yet comprehensive and replicable model for the majority of cities.

# Citizen's Solar Power Plant

## Business Model

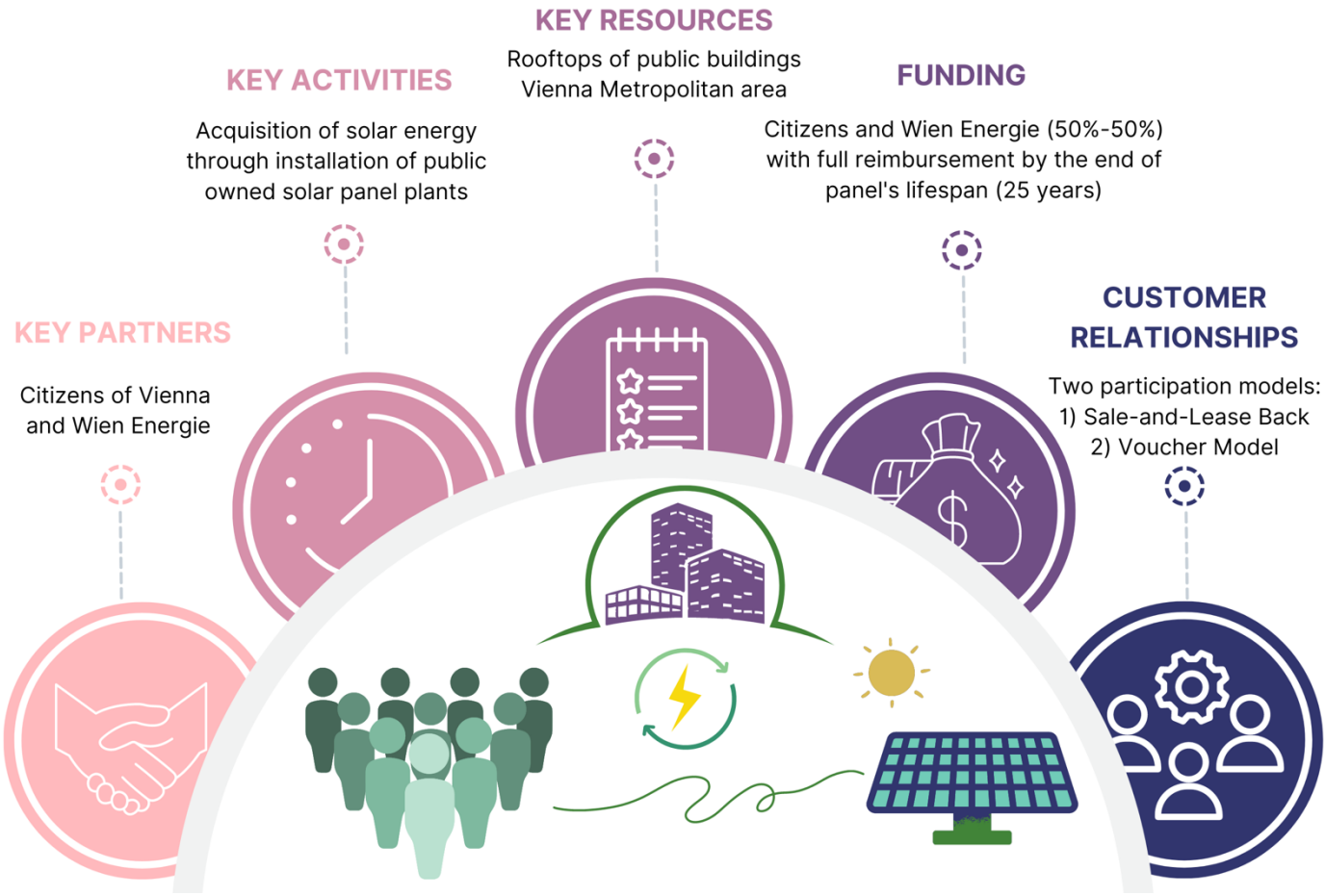


Figure 4. Business Model of Citizen's Solar Power Plant in Vienna, Austria

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