

# Task 2.3 – Collective Flexibility Preferences

# **Experiment : Understanding preferences for energy community governance structures**

# Survey Design

## Context

- When installing solar panels, you're introduced to Energy Communities (ECs).
- ECs can take various forms, requiring your input on how they operate and who can join.
- Participation involves a time commitment—hours per week over several months.
- Your decisions will shape the community's governance and membership.
- This experiment seeks to understand your preferences regarding the governance and organization of Energy Communities.

# Survey Design

## Attribute Table

Attribute	Attribute Levels				
<b>Solar Panel Ownership</b>	Individual	Community			
<b>Member Types</b>	Only Households	Micro and Small Enterprises	Medium Enterprises	Local Government and Community Services	Open to All
<b>Geographic Limits</b>	Immediate Neighbours	Local Energy Network	Municipality	Country	
<b>Decision-making Responsibility</b>	Members Majority Voting	Board of Directors and Member Forums	Board of Directors		
<b>Primary Benefit</b>	Energy Pricing	Energy Pricing and Community Investment	Energy Pricing and Individual Payouts		
<b>Minimum Membership Length</b>	No Minimum	Yes, decided within community			
<b>Time Investment</b>	<i>Month Investment</i> <ul style="list-style-type: none"> <li>6 to 12 Months</li> <li>12 to 18 Months</li> </ul>	<i>Time Investment</i> <ul style="list-style-type: none"> <li>2 to 3 Hours per Month</li> <li>5 to 7 Hours per Month</li> <li>9 to 12 Hours per Month</li> </ul>			

# Survey Design

## Choice Card

	Community 1	Community 2	Individual Consumption
<b>Solar Panel Ownership</b> ?	Individuals	Individuals	You do not share your energy with others, and you only consume what you produce and from the grid
<b>Member Types</b> ?	Local Government and Community Services	Medium Enterprise	
<b>Geographic Limit</b> ?	Country	Country	
<b>Decision Making and Responsibility</b> ?	Members Majority Voting	Board of Directors with Member Forums	
<b>Primary Benefits</b> ?	Electricity Pricing	Electricity Pricing and Individual Payouts	
<b>Minimum Membership Length</b> ?	No Minimum Membership Length	No Minimum Membership Length	
<b>Time Investment</b> ?	6 to 12 Months 2 to 3 Hours per Month	12 to 18 Months 5 to 7 Hours per Month	
	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

# Survey Design

## Choice Card

	Community 1	Community 2	Individual Consumption
Solar Panel Ownership ?	Individuals	Individuals	You do not share your energy with others, and you only consume what you produce from the grid
Member Types ?	Local Government and Community Services	Medium Enterprise	
Geographic Limit ?	Country	Country	
Decision Making and Responsibility ?	Members Majority Voting	Board of Directors with Member Forums	
Primary	- Members Majority voting - All decisions about the functioning of the community are made by majority vote of the members		
Minimum	- Board of Directors and Member Forums - An elected board of directors makes all decisions, after required input of members through a forum		
Time	- Board of Directors - The elected board of directors makes all decisions about the community independently		
	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

## **Experiment 2: Understanding of Member Preferences for Demand-side Flexibility**

# Survey Design

## **Focus of the Experiment:**

- Decision to engage in Load Shifting Demand Side Management (DSM).

## **Split Sample Design:**

- Two different contexts: Individual engagement vs. Community engagement.
- Same choice scenarios and attributes across both contexts.

## **Impact of Choice Context:**

- Testing how the context (individual vs. community) influences the choice outcome.
- Assessing the effects of collective thinking and benefits on the decision to provide Load Shifting services.

## **Implications for Grid Engagement:**

- Understanding how communities might engage with the grid as aggregated flexibility providers.
- Determining if there is a significant difference between individual and community choices.



# Survey Design

## Survey Context

### *Individual*

**Scenario:** Shift personal energy use to balance the grid.

**Incentives:** Receive individual remuneration based on flexibility.

**Focus:** Decide when/how to shift energy and opt-out conditions.

### *Community*

**Scenario:** Community-wide energy shifts for grid stability.

**Incentives:** Collective remuneration shared among members.

**Choice Focus:** Decide on community participation frequency and opt-out conditions.

# Survey Design

## Attribute Table

Attribute	Levels	Source
<b>Remuneration per Year</b>	<ul style="list-style-type: none"><li>• 0€, 20€, 50€, 90€, 140€, 200€</li></ul>	Ruokamo et al., 2019 Broberg et al., 2016 Kim et al., 2023
<b>Time of Engagement</b>	<ul style="list-style-type: none"><li>• 7 a.m.–10 a.m.</li><li>• 10 a.m.–1 p.m.</li><li>• 1 p.m.– 4 p.m.</li><li>• 5 p.m.– 8 p.m.</li></ul>	Kim et al., 2023
<b>Frequency of Participation</b>	<ul style="list-style-type: none"><li>• Rarely (Once a month)</li><li>• Occasionally (Once a week)</li><li>• Frequently (Several times a week)</li></ul>	
<b>Load Reduction Level</b>	<ul style="list-style-type: none"><li>• 5%</li><li>• 10%</li><li>• 15%</li><li>• 20%</li></ul>	
<b>Grid Emission Reduction</b>	<ul style="list-style-type: none"><li>• 0%</li><li>• 10%</li><li>• 30%</li></ul>	Ruokamo et al., 2019
<b>Participation Opt-out</b>	<ul style="list-style-type: none"><li>• No Opt-out Option</li><li>• Daily window of 1 hour</li><li>• Daily window of 2 hours</li></ul> <p><i>Or (both?)</i></p> <ul style="list-style-type: none"><li>• 1 Call per Month</li><li>• 3 Calls per Month</li></ul>	Bender et al., 2014

# Survey Design

## Choice Card

Attribute	Option 1	Option 2	Status Quo
Time of Engagement	5 p.m.– 8 p.m.	10 a.m.–1 p.m.	No engagement in Load Shifting Contracts
Frequency	Occasionally (Once a week)	Frequently (Several times a week)	
Load Reduction	15%	20%	
Grid Emission Reduction	10%	10%	
Participation Opt-out	Daily window of 1 hours	Daily window of 2 hours	
Remuneration per Year	150€	40€	
	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>



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