



# Innovations empowering consumers and energy secure communities

## Case Studies



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# Energy Community value streams

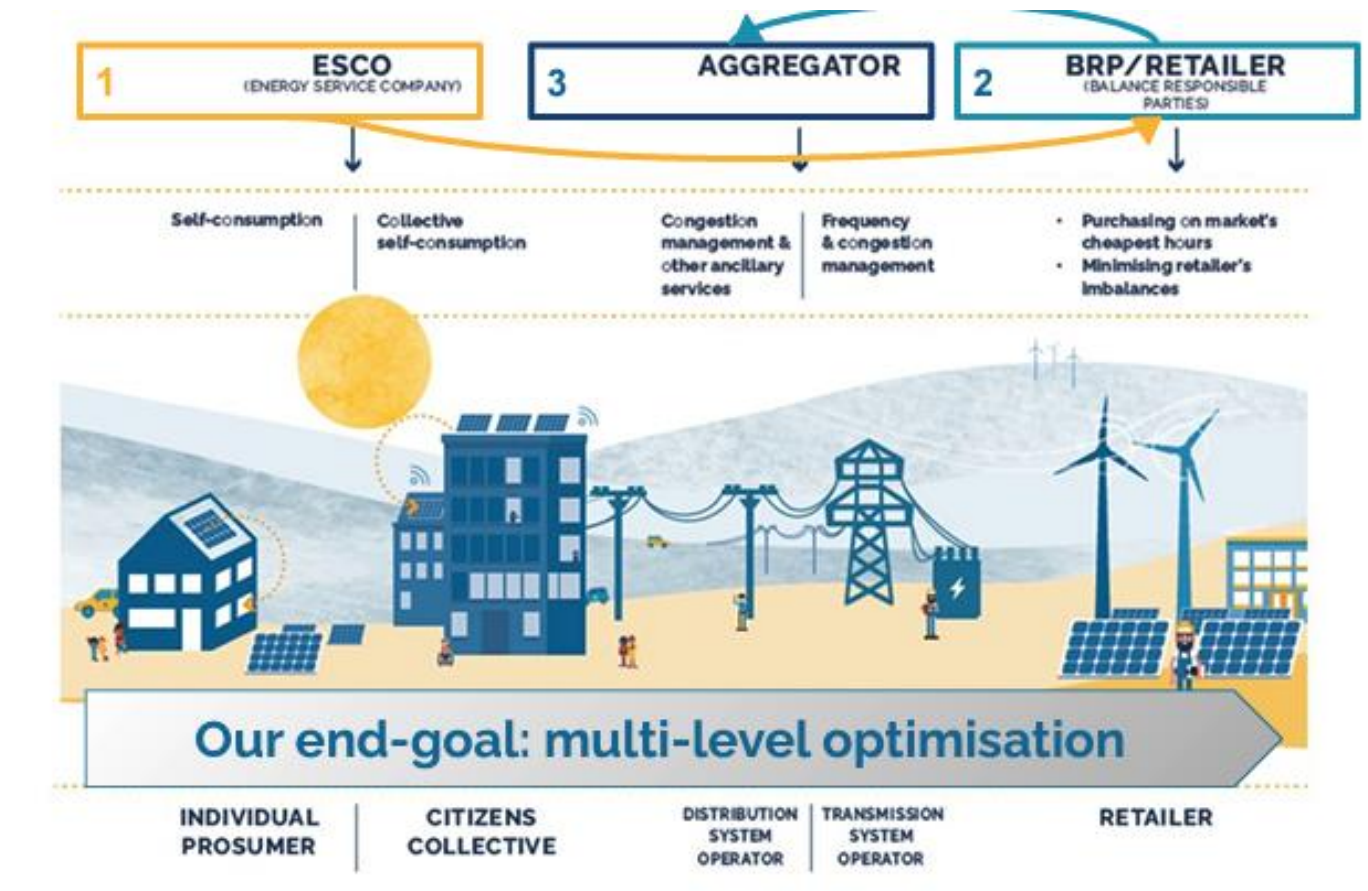
- Energy savings from energy efficient buildings and electrification
- Electric vehicle charging infrastructure coordination
- Local renewable generation providing energy savings at the community level
- Flexibility from local generation, energy storage and demand management to support both the distribution grid and wholesale markets
- Enhanced resilience through microgrids that take advantage of local resources



Over 900 communities in Ireland already working with SEAI on community energy goals and engagement

# Example – Energy Communities providing flexibility services (REScoop VPP)

- Increased self-consumption by Bürgerwerke (DE)
- Peak shaving, Increased self-consumption, Dynamic pricing by Energent + Ecopower (BE)
- Increased self-consumption, Dynamic pricing & Consumer info by Som Energia (ES)
- Aggregation by the Carbon Co-op (GB)
- Retailer portfolio optimisation by Enercoop (FR)





# Example – Residential Community Microgrid (Shadow Mountain, California)

- 200 all-electric homes
- Solar and battery storage at individual homes
- Heat pump HVAC and water heaters
- Electric appliances
- 2 MW Community battery (control during microgrid operation)



# Research projects focused on energy communities



Use of a common energy hub concept to balance supply and demand dynamically from multiple energy carriers.



Enhance customer awareness and confidence in next-generation energy services and tools, including incorporation of AI. (Irish demo with SSE Airtricity and DCSix Technologies)



Design, develop, and demonstrate a variety of social sciences and humanities-driven methodologies, tools, and services for a consumer-centric energy system. Irish demo with MaREI, Dingle Hub, DCSix Technologies and ESB Networks will focus on Dingle agricultural community.



Renewable Energy Valleys – develop business sandbox and blueprints, digital twin approaches for management and data driven community services. Apply these tools in Dingle.

# ENABLING A SHARED ENERGY ECONOMY

Innovation Needs:

## Regulatory

Investments  
in shared  
customer  
resources  
benefit all



## Grid Operations & Planning

Integrated,  
system-level  
approach



## Customer Engagement

Greater choice,  
comfort,  
convenience,  
control



## Affinity Partnership

From tech  
companies to the  
environmental  
justice  
community



## Integrated Grid

Ubiquitous  
communication  
and DERMS  
integration







TOGETHER...SHAPING THE FUTURE OF ENERGY®