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Citizen energy resilience in Finland

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10/10/2025 **VTT – beyond the obvious**

SUSTAINABLE PLACES 2025

Today's agenda

1. New conceptualizations of resilience terminology related to energy
2. Background: Preparedness in Finland and its significance
3. Citizen energy resilience in Finland—preliminary results
   - Empirical insights on the state of and main challenges for enhancing citizen energy resilience in Finland + policy suggestions for measures to tackle them
   - The role of NGOs in the resilience network

- Research methodology: desktop research on existing official documents and NGO interviews

Bridging resilience concepts

- Energy resilience (IEA): ”The capacity of the energy system and its components to cope with a hazardous event or trend, to respond in ways that maintain its essential functions, identity and structure as well as its capacity for adaptation, learning and transformation”
- Societal resilience: “The capacity of social systems—such as individuals, communities, and institutions—to absorb, adapt to, and transform in response to external stresses and disturbances, including political, economic, and environmental changes”
- Co-resilience: ” A coordinated and systematic multi-stakeholder approach to strengthening holistic energy resilience and multi-level preparedness among citizens”
  - Ø Socio-technical transition approach: an attempt to bridge the technical and societal sides of the resilience discourse

Citizen energy resilience — CER

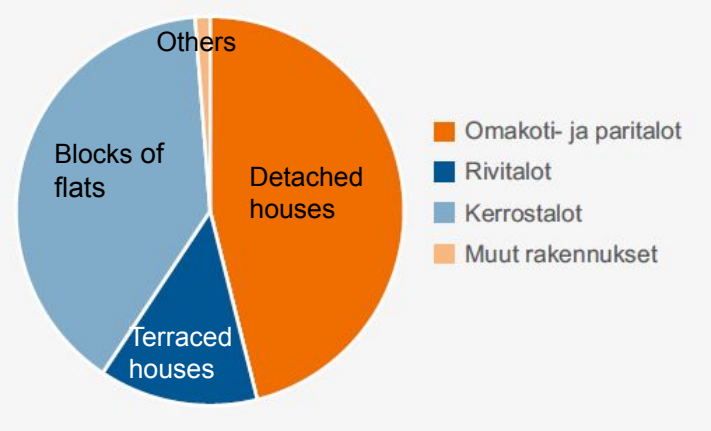
- CER is the **capacity to adapt to disruptions** in energy supply (both service interruptions and price spikes)
- CER is a **component of comprehensive security**, climate and energy policies
- CER is a **multidimensional construct**: includes technical, social and communal aspects.
  - However, it is not solely a technological matter nor an individual responsibility – it necessitates societal engagement and institutional support to enhance citizen-level participation
- **Co-resilience** and seamless cooperation between stakeholders is needed
- **Citizen awareness has increased** after 2022 and the subsequent energy price fluctuations, but **action is hindered by costs and systemic barriers**

Resilience, preparedness, Finland

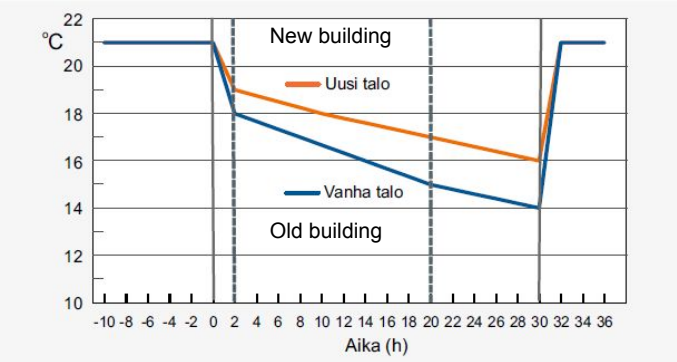
- Resilience in Finland:
  - strong national preparedness strategies but citizen-level energy resilience is less discussed
  - socio-political perspective: entails safeguarding critical societal functions under exceptional circumstances
- Multiple interrelated levels and drivers:
  - Security Strategy for Society (The Security Committee, Ministry of Defense, 2025)
  - Preparedness Union Strategy (European Commission, 2025)
  - NATO (Article 3: “Resilience is both a national responsibility and a collective commitment”)
- Importance: Cold climate and long distances increase risks during crises (e.g. geopolitical situation, climate change)

Energy resilience needs in cold climates (cf. -72h scenario)

- The distribution of Finnish residents across different types of buildings.



- Indoor temperature in old and new energy-efficient Finnish detached houses during a power outage with an outdoor temperature of -15°C.



People to be evacuated exceeds 1M people within a few days.

Energy resilience paradigms arising from the NGO interviews (thematic analysis)

Resilience as **agency and skills**	Psychological resilience	The **role of state and society** in preparedness	NGO **funding cuts**
Anticipating potential crises	The need for **communal preparedness spaces**	Crisis response, evacuation and resource management	Education and guidance
Household-level preparedness	**Increasing (energy) poverty**	Support structures for enhancing energy resilience	**Volunteering and tagible NGO networks**
Automation + electricity market functionality	**Justice issues** in the green/clean transition	**Cross-sectoral collaboration** and governance	Stress among small business owners
Energy efficiency renovations	**Diminished capacities weakening resilience**	**Communications** network	Project funding challenges
Community and collective resilience	Shift towards climate-conscious mindset	Need for emphasized communications	**Electrification** of transportation

Burial services

Key challenges

- **Socioeconomic inequality**: Not all citizens can afford energy-efficient renovations or alternative heating systems.
- **Geographical disparities**: Rural areas often have better technical preparedness (e.g., wood stoves, wells), but aging populations struggle with physical tasks. Urban areas and district heating.
- **Fragmented communication**: Information is scattered across organizations and is mostly digital, excluding some groups. Some voices are largely excluded.
- **Limited support structures**: Citizens are expected to prepare individually but lack coordinated community-level support.
- **Underutilized civil society**: NGOs are willing to help but lack clear roles, funding, and coordination.

Preliminary measures to tackle challenges (1/2)

- **Strengthened emphasis on building co-resilience**
  - Promote structured collaboration between municipalities, NGOs, citizens, and authorities
  - Establish local preparedness centers (e.g., village halls, churches) with backup energy solutions
- **Enhancing technological preparedness**:
  - Support decentralized energy systems (e.g., solar panels, battery storage)
  - Improve building energy efficiency to slow heat loss during outages
  - Encourage use of electric vehicles as backup power sources
- **Improving accessibility & equity**:
  - Increase financial support for energy renovations, especially for vulnerable groups
  - Ensure energy resilience measures are possible regardless of income or location

Preliminary measures to tackle challenges (2/2)

- **Boosting citizen energy skills & awareness**:
  - Develop national plans to teach “energy skills” (e.g., consumption timing, emergency preparedness)
  - Integrate resilience education into public outreach and school curricula
- **Enabling larger civil society participation**:
  - Systematically map NGO resources and clarify their roles in resilience efforts.
  - Reduce administrative burdens and ensure sustainable funding
- **Streamlining regulations**:
  - Simplify permit processes for energy renovations and decentralized energy installations
- **Continuing climate action**:
  - Mitigating climate change is the most effective long-term energy resilience strategy

NGOs as a part of the preparedness network

The role of NGOs in joint resilience actions and supporting energy resilience

- **Preparedness**
  - Teaching and advising on preparedness and energy skills
- **During crises**
  - Strengthening mental crisis endurance; maintaining familiarity of experiences and agency
  - Utilizing competence resources and networks

Four-layer model for engaging NGOs

- **1. Communication**
  "We call for genuine dialogue."
- **2. Smoothness of perational models**
  “Working together wasn’t that easy."
- **3. Increasing awareness**
  "I wish people would at least understand what kind of resources we have."
- **4. Funding and securing it**
  "The resilience of organizations has been severely weakened due to cuts."

Next steps for research

- Interviews with authorities and individuals responsible for municipal preparedness
- A questionnaire for municipalities and housing sector about citizen energy resilience (qualitative sampling)
- Media analysis on energy crisis news reporting in Finland (881 news articles) to explore the experiential aspect of energy vulnerability and resilience measures undertaken by both individual citizens and municipalities

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