

## **ICS PhD Project 3: Plugged in? Effects of network embeddedness of Community energy initiatives on their success**

### **Aim**

The project has the following goals.

1. Examine the role of sociometric integration of Community Energy Initiatives CEIs on CEI success and community participation.
2. Advise CEIs in the northern Netherlands on how to better embed themselves and spread participation, through SNA and network-based interventions.
3. Examine network changes due to the CEIs.
4. Compare different CEI in terms of success, community characteristic, network structure and inclusivity.
5. Investigate the relationship between initiators perceived network (position) and empirically measured community networks.
6. Use existing survey and network data to develop empirically calibrated ABMs.

### **Theoretical background**

While the EU describes community energy as a means to a successful and inclusive energy transition (Directorate-General for Energy (European Commission), 2019), current findings indicate that Community Energy Initiatives (CEIs) are failing to attract enough members to reach their sustainability goals and that participation is biased towards citizens from higher socioeconomic backgrounds (Catney et al., 2014; Germes et al., 2021; Stewart, 2021; Walsh, 2021). This implies that participation dynamics are not yet understood well enough to design successful and just CEIs. While researchers and policy makers focused mainly on individual and community level characteristics as common indicators of CEI participation, it is still unclear why some communities reach high or diverse participation while others fail. To address this gap researchers adopted a social structural perspective and argued that differences in participation might be explained by the structure of social relations in a community (Goedkoop, Dijkstra, et al., 2022; Hargreaves & Middlemiss, 2020). Therefore, this PhD project aims to develop a novel approach that integrates Social Network Analysis (SNA) with research methods commonly applied to CEIs. We use a community-centered approach in which the degree of social integration of the CEI initiators and other community members in the local community, and the extent to which community members identify with their local communities are hypothesized to be important drivers of CEI participation.

### **Research design**

Based on previous research by the project initiators social network data of CEIs in eight communities in the north of the Netherlands are available (Goedkoop et al., 2022). Data in four additional communities will be collected for this project. Data collection makes use of previously developed questionnaires adapted to the communities in collaboration with LEI initiators. After two years the measurement will be repeated to examine network change. A network intervention will be developed in collaboration with CEI initiators and will be based on the prior analysis of the effects of embeddedness of CEIs in the local community. Further, the research team will initiate learning communities with CEIs in the province of Groningen to collect survey data and data on CEI initiator perceived networks. All data from the previous and this project might be used to calibrate ABMs with the aim to model network changes and participation dynamics after the introduction of interventions.

## References

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