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# TOP-UP

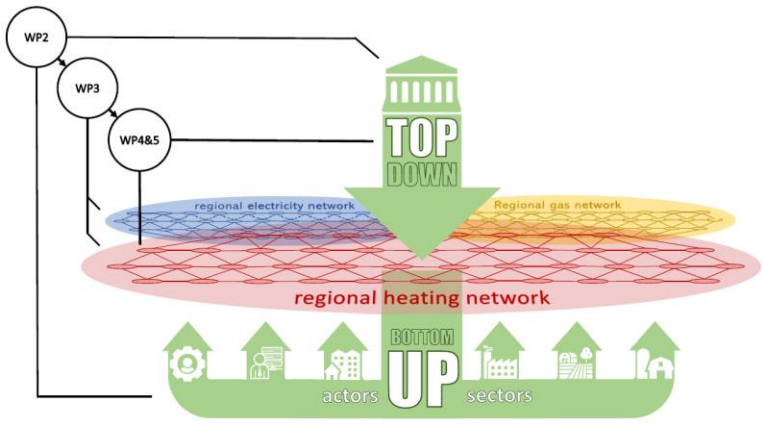
## TOP-down energy projects as catalysts for bottom-UP local energy initiatives.

> *By integrating expertise in social and technical sciences, we optimizeheating and electricity grids."*

TOP-UP studies how TOP-down initiated heat networks can play a central role in integrated regional energy systems, and investigates how these top-down actions can empower bottom-UP participation among local actors and sectors, as to achieve the regions ambitious energy targets.

TOP-UP incorporates expertise in modelling, automation, social sciences and practice to optimize regional energy systems. It focuses on the integration of heat and electricity networks, and identifies and fosters optimal levels of local actor/sector participation. TOP-UP aims to satisfy actors/sectors needs and preferences, and to optimize regional energy system performance.

TOP-UP develops tailored solutions for the Groningen (NL) and Copenhagen (DK) energy systems – which prioritize changes to their heat networks due to unique regional challenges – and studies how these solutions can be scaled and customized to other regions, making best use of local renewables and reducing the dependency on fossil fuels.




**Project Duration**

01.12.2020 - 13.12.2022

**Project Budget**

Total Budget: € 1,215,701.-

Funding: € 963,233.-

**Project coordinator**

University of Groningen (NL)

**Project Partners**

- University of Groningen (NL)
- Technical University Denmark (DK)
- Høje Taastrup Municipality (DK)
- Høje Taastrup District Heathing (DK)
- Center Denmark (DK)
- Municipality of Groningen (NL)
- Buurkracht (NL)
- PowerChainger (NL)

**Project Website**

www.top-up.info

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**ERA-Net Smart Energy Systems**

Smart Energy Systems ERA-Net

**ERA-Net Smart Energy Systems Joint Call 2018**

This project has been awarded funding within the ERA-Net SES Joint Call 2018 for transnational research, development and demonstration projects. EUR 33.4 Mio of funding have been granted to 23 projects from 16 regions and countries.

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**Joint Programming for Flourishing Innovation from Local and Regional Trials towards a Transnational Knowledge Community**

**www.eranet-smartenergysystems.eu**

## Main Objectives

The main goal of TOP-UP is to optimize top-down initiated changes to the regional heat network and, thereby, increase the effective use of renewables, reduce the dependency on fossil fuels and foster active bottom-up participation among local actors. To achieve this, we have established an interdisciplinary consortium with key expertise on physical, technical, social and practical aspects of energy systems.

## Expected Main Results

Our main objective will results in the following main outcomes:

1. The design of robust control algorithms for regional energy systems that will reduce the dependency on fossil fuels (e.g., gas), maximize the share of renewable energies and facilitate sector coupling and actor participation. Critically, these control algorithms will incorporate technical, physical and psycho-social aspects of local energy systems

2. Develop top-down initiated district heating solutions that can function as a platform/foundation for local participation, cooperation and bottom-up initiatives. Specifically, together with local actors, we identify opportunities for participation and design energy systems in ways that enable participation.

3. Empower and engage local actors and sectors to actively participate in the regional energy system. For this, we specifically focus on key motivations behind participation, covering personal, social, and economic motives, and how these could be translated into incentives and policy.

4. Make our developed solutions customizable, scalable and replicable at the wider European level. We test our solutions in different real contexts and regions, in which we pay specific attention to identifying general - next to the region-specific - principles and lessons learned.