

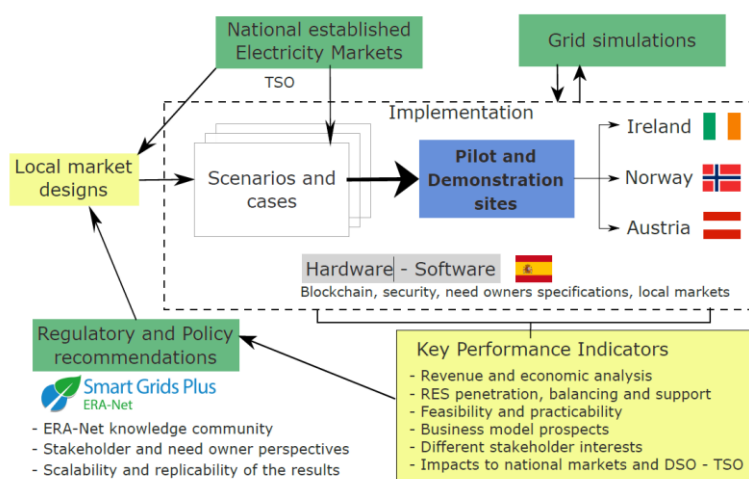
# BEYOND

<https://beyond-project.eu/>

## Blockchain based Electricity trading for the integration Of National and Decentralized local markets

*Digitalization is opening new ecosystems and business models that will enable the development of local electricity markets and beyond!*

The BEYOND project is based on a local energy system approach with a strong focus on the participation of all stakeholders. To this end, BEYOND will demonstrate market designs for the integration of local 'smart grids' into centralized grids (transmission system). Blockchain technologies will open new paradigms to design customer sized business models for the integration of local energy and flexibility markets based on Peer-to-Peer (P2P) and aggregated trading. Current and future market-regulatory frameworks to incentivize the local trading will be tested. A special focus lies on: the integration of distributed generation, the rules for local electricity prices, grid services, and the inclusion of digitalization tools to facilitate local trading in the integration to wholesale markets. To reach TRL 6-7, BEYOND will validate and demonstrate local market designs in four real-life pilots in Austria, Norway and Ireland.



### Project Duration

01-12-2019 - 30.11.2022

### Project Budget

Total Budget: € 1,331,441.-

Funding: € 1,962,130.-

### Project Coordinator

Norwegian University of Science and Technology (Norway)

### Project Partners

- SINTEF Energi AS (Norway)
- Svartlamoen boligstiftelse (Norway)
- Technische Universitaet Wien (Austria)
- best connect Unternehmensgemeinschaft GmbH (Austria)
- Forschung Burgenland GmbH (Austria)
- MOOSMOAR Energies OG (Austria)
- Sonnenplatz Großschönau GmbH (Austria)
- Fachhochschule Technikum Wien (Austria)
- ms.GIS Informationssysteme GmbH (Austria)
- University College Cork – IERC-Tyndall (Ireland).
- eFriends Energy GmbH (Austria).
- FlexiDAO S.E.S. (Spain)Project Website

### Contact

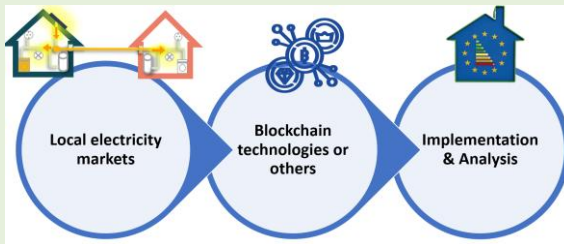
Dr. Pedro Crespo del Granado  
Senior Researcher  
[pedro@ntnu.no](mailto:pedro@ntnu.no)

### 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.

## Main Objectives

The BEYOND project integrates regional-local-prosumer electrical systems by implementing a secure, automatized and decentralise local market based on smart contracts and blockchain technologies. This will be validated and demonstrated based on the "need-owners" (market actors: include con-\ prosumers, aggregators, communities) along with stakeholder engagements (especially DSOs and market operators) activities.



- prove that blockchain-based technologies (or others) are a viable technology to setup a trading platform
- setup bidirectional communication platform between electricity markets and a community of con-\ prosumers that engage in P2P trading but also provide (sell) aggregated flexibility.
- establish business models for P2P trading and local-to-regional system integration in order to stimulate the adoption of renewables beyond feed-in-tariffs schemes
- quantify cost-benefits of local-regional-to-national market collaboration to include con-\ prosumers as part of existing electricity markets (i.e. day-ahead/intraday operations)

## Expected Main Results

- Development of local and regional market design considering currently existing regulation, code, standard and legal frameworks.
- Development of user-centred solutions for digital, integrated local and regional energy systems, including approaches that allow for high shares of renewables, up to 100% together with relevant stakeholders (initially with users).
- Testing of a local energy market as an overarching, coordinating instance to ensure local optimization considering trans-regional implications (e.g. long-term and short-term flexibility requirements). This will demonstrate new (blockchain based) smart energy services for the dynamic management of the energy systems and integrate end-users.
- Enable people, communities, districts, cities and regions to be actors in the future sustainable energy supply; establish new cooperative partnerships and stakeholders including con-\ prosumers in the innovation process.

To achieve these objectives, the project has four development stages: i) proposition of market designs tailored to the country and pilot features, ii) active deployment, validation and testing in real-life pilots, iii) analysis of results and verification of potential business models, and iv) stakeholder discussion and regulatory recommendations.

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

[www.eranet-smartenergysystems.eu](http://www.eranet-smartenergysystems.eu)



<https://beyond-project.eu/>