

## **ENLENS: Energy Transition Through the Lens of SDGs**

### **1. Title:**

Digital infrastructures and geoeconomic competition through the lens of the energy transition

### **2. Name main applicant and co-applicants (with contact info, position and faculty)**

Milan Babic, Associate Professor at the Department of Political Science at FMG (main applicant)

Niels ten Oever, Assistant Professor at the Department of European Studies at FGW (main applicant)

Fieke Jansen, Postdoctoral Research at the Department of Media Studies at FGW (co-applicant)

### **3. Societal case**

The digitalization of Europe is seen as a crucial driver supporting the energy transition (SDG7) and decarbonization by 2050 (SDG 13). However, while much debate focuses on its potential, the increased energy demand for the production and operations of our digital infrastructures are neglected. In Ireland, data centers consume 20% of the total electricity consumption; in the Netherlands, their electricity consumption doubled within 5 years to 3.3% (SDG 12).

Data infrastructures have become (geo-)politically contested as they disproportionately lay claim to (newly added) renewable energy (SDG 8, 10). Submarine cable systems are a central part of these energy-hungry data infrastructure ecosystems and key to their politics: the high concentrations of digital infrastructure clusters, such as in Ireland and the Netherlands, are not accidental but emerge near the landing spots of important submarine cables and other digital infrastructures (SDG 9).

Competition for these clusters is hence both a question of geopolitics as well as of the prospects of a rapid and just energy transition. Our project for the first time employs interdisciplinary insights from digitalization, energy transition and geopolitical rivalries to better understand how the competition for submarine network dominance and landing stations affects the European energy transition.

### **4. Scientific case**

Submarine cable networks are a crucial global infrastructure, carrying 99% of internet traffic (SDG 9). They also uphold an energy-hungry ecosystem of landing stations and data centers, which are a strain on thin-stretched energy systems, e.g. in Europe (SDG 7). Recent geopolitical tensions around the construction and operation of cable systems introduce pressures on energy systems through possible infrastructure and capacity buildout (SDG 12).

We ask how this geoeconomic competition around the submarine cable ecosystem affects Europe's energy transition. We first map the landscape of geoeconomic conflicts shaping this ecosystem. We draw on openly available data for cable ownership and operator information as well as financial data on the involved firms from the ORBIS database. Second, we develop a case study of landing stations in the Netherlands and Ireland that illustrate our argument.

The project creates interdisciplinary synergy by combining political economy, critical infrastructure and transition studies to understand the (geo-)politics surrounding submarine cable ecosystems. The intended output of the project is an event bringing together academics, activists and societal experts

on digital infrastructure and energy consumption; as well as a paper on the geoeconomic competition and energy dimension of submarine cables to be submitted to a peer-reviewed journal.

## **5. Contribution to the aims and success indicators of ENLENS**

### **A. Project evolution after the research activity**

Our project aims to build a cross-faculty community at the UvA and beyond that is interested in the nexus of digital infrastructure (competition) and energy consumption. The planned event will bring academics and other stakeholders together who work on how infrastructure shapes societal outcomes from an interdisciplinary angle. We aim to (individually) submit grant proposals in the next two years that will partly build on our project. MB is planning to submit a VENI proposal in 2025 on geoeconomic competition and energy transitions. The critical infrastructure lab plans submitting a grant proposal on sustainability politics in the internet infrastructure stack.

### **B. Contribution to interdisciplinary UvA-research and ENLENS**

The project establishes a collaboration between the Humanities and the Social Sciences Faculty at the UvA and involves participants from different career stages. We advance interdisciplinary knowledge on an understudied aspect of the energy transition by combining technical aspects of cable systems, economic aspects of ownership and control and political aspects of infrastructure development in one project. The project covers several energy-related SDG topics from affordable and clean energy to infrastructure and climate action (SDGs 7-10, 12, 13). Two participants are part of the critical infrastructure lab at the UvA, which is a hub for interdisciplinary research and which has so far not been involved in ENLENS.

### **C. Broadening the project beyond the PI's**

The envisioned end-of-project event bringing together academics, activists and societal experts will broaden the project issues towards civil society and non-academic stakeholders (C1 and C3). Part of the research for this project will be carried out by student/research assistants that will participate and learn how to collect and process data in a research project (C2). Finally, the combination of a public event as well as an academic paper as project outputs will ensure that outreach and dissemination will be broad-based and not only target a limited audience (C3).

## **6. Budget**

We like to request 30k € to be split evenly across the two involved faculties (15k€ per faculty). In the case of FMG, 12k€ of the total will be used to hire a student/research assistant for data collection and preparation for the project (from Open Telecom Data and BvD's ORBIS database, available at the UvA). The remaining 3k€ will be used to organize a stakeholder event and pay a student assistant for the preparation of this event (reaching out to participants, organize sessions, taking care of the logistics etc.). The event would take place in either late 2025 or early 2026 in collaboration with ENLENS and the critical infrastructure lab. In the case of FGw, the money will be used for funding the research time of the participating researchers. We like to request an additional 5k€ to pay for setting up a website presenting the results of the project in an open access way and in collaboration with societal stakeholders. The normal budgets we have do not grant us the possibility to host an event or hire student assistants for the data collection/cleaning and the website preparation. Furthermore, it will allow FJ to increase her Postdoc hours in 2025 to be able to work on the project.