



ENLENS: Energy Transition Through the Lens of SDGs

1. **Title:** Hydrogen across borders?

2. **Main applicant:** Marija Bartl (M.Bartl@uva.nl), professor, FdR)

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3. **Societal case**

Hydrogen is a promising key energy carrier for the energy transition ([1]; SDG7). If produced by electrolyzing water with solar electricity, 'renewable hydrogen' constitutes a carbon-neutral form of energy (SDG13). Because of higher solar irradiation levels in Northern Africa, it could be beneficial to produce renewable hydrogen there and import it rather than producing it at higher costs in Europe. If institutionalized properly and equitably, Northern Africa's hydrogen production can also support developmental goals in the region, for example, by helping to reduce poverty, improve health and education, and provide affordable energy (SDG 1-4, 7). This may in turn reduce migration pressures, which IPCC assumes to grow as a consequence of climate change. However, if the benefits of cooperation are not distributed in a fair manner at local, regional and global levels - thanks to costs of needed infrastructure, or capture of economic benefits by (economic actors) in the Global North - the largescale developmental potential of such a cooperation will not be reaped.

By studying this specific case and its interrelated interdisciplinary dimensions, this project exposes the potential synergies and trade-offs of cross-boundary multi-actor partnerships with an eye to generating useful insights for policymakers and practitioners (SDG 17).

4. **Scientific case**

We study how renewable hydrogen can be made of use for the energy transition in the Netherlands/Europe if imported from Northern Africa, and particularly which trade-offs and synergies are at play, framed in terms of the SDGs. While some analysts claim that hydrogen will inevitably turn into a bridge between Africa and Europe [2], and there are attempts to quantify costs and benefits from establishing import-export links [3], an integrated assessment accounting for the associated intra- and extra-European institutional, distributional and technological aspects and the key local, national and international actors involved is missing. This project aims to do so, building on our joint background in international political economy, experience in sustainable energy transition and transformative change research, and distinct disciplinary expertise in technology, business, law and governance. We start by collecting and weighting a range of emerging conceptualizations (including trade-offs, tensions, win-wins, paradoxes, nexus thinking, e.g. [4, 5, 6]), none of which have been applied empirically for such complex cross-border dynamics. Interacting with policy/practice partners, we subsequently operationalize different dimensions of our concrete case as explicit input for proper assessment, decision-making, wider application and other uses.

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

A. How will your project evolve after the research/activity. What is the long-term goal? (ENLENS aims at initializing new activities that may carry on thereafter (seed-money))



This highly innovative and inter-disciplinary project contributes to ENLENS by articulating the linkages between the energy transition, on the one hand, and many societal challenges on the other (SDGs 1-4,7,8,16,17), across the boundaries between the 'Global North' and 'South'. Given the highly explorative nature of the research, we deem it appropriate to start off in this current small-scale manner. However, and building on the seed work performed by the three applicants and the students they involve, we intend to acquire further research funding in order to finance additional research on this subject matter, ideally by hiring a full-time researcher (see C).

B. Why and how does your project contribute to the UvA-community of interdisciplinary research, and ENLENS more specifically?

This project contributes to genuine interdisciplinary research by literally doing it, with three researchers experienced in and keen at collaborating across faculty boundaries. As foundational project for ENLENS, we collaborate with the post-doc and governing board members to develop the thematic conceptually, methodologically and empirically, and to carry over insights and experiences to subsequent ENLENS projects and network.

C. ENLENS aims at broadening the community beyond the group of project PIs.

Describe how your project will contribute to this goal

One of our main deliverables will be a joint academic publication, with shorter policy/practice spinoffs where feasible, including for teaching/educational purposes (hydrogen as case study). We will contribute to the ENLENS website and the Future of Energy seminar series, and involve colleagues from our respective research groups as well. We will communicate about our work with IRENA, with whom one of the co-applicants has well-established contacts (as part-time professor, he has direct links to policy and practice more generally). We expect that IRENA is keen on receiving our analysis, and hope that collaboration and/or assignments are follow-ups. We also aim to reach out to other parties, notably in the Netherlands, among which the province of North Holland and the Amsterdam Metropolitan Area (AMA), for whom this work bears direct relevance.

6. Budget

The PIs from the three involved faculties (FdR, FEB and FNWI) each request an amount of 15 k€, to be used as follows. For FdR and FEB it will be employed for funding research time of the involved researchers. For FNWI it is utilized for paying student research assistance to aid in collecting materials for publishing the envisaged academic paper and the project itself. While the project starts at the onset of ENLENS in 2022, it will effectively be spread over two years, since the development of the analytical framework, collection of empirical materials and publication will take time; phasing of spending may be slightly different for the three PIs depending on work and expertise needed, but there will be commitment to the project throughout by all. The innovative and exploratory nature and peculiar set-up, within the context of the starting RPA to which it will be instrumental makes it difficult to find funding from 'normal budgets.



References

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