Should we fund green hydrogen?[1]

In 2024, Triodos Belgium was approached by GreenHydro, a young company specializing in the production of green hydrogen, to fund its expansion. Green hydrogen – hydrogen produced from renewable energy - was understood to be a necessary part of the energy transition. Yet, the bank hesitated. A first analysis of the file suggested that hydrogen was mostly used in sectors that Triodos would typically not fund.

Triodos Bank

Triodos was set up in the Netherlands in 1980 with the goal of managing money in a way that benefitted people and the environment. By 2024, it served close to 750,000 clients in five European countries (Belgium, Germany, Spain, the Netherlands, and the United Kingdom), with always the same value proposition: make your money work for positive social, environmental, and cultural change. This promise relied on a clear vision of what positive change meant, strong criteria for lending and investment, and full transparency about the projects and organisations funded by their customers' savings (**Exhibit 1**).

Triodos had identified five major transitions needed to realign the economy with society and the planet (**Exhibit 2**): a shift from a predominantly extractive food system to regenerative agriculture, a more circular economy, the transformation of the current fossil-based energy system to one based on renewable energy and energy efficiency, a cultural shift to a society based on solidarity and collaboration, and a more holistic approach to individual well-being. A dedicated impact team at Triodos' headquarters carried out in-depth analyses of the sectors involved in these transitions and supported credit analysts at Triodos' local branches to identify projects and organisations effectively contributing to these transitions.

Triodos' approach to lending and investing: impact, risk and return

Triodos stood out among other banks by the way they integrated impact into their lending and investment decisions. Impact came first. Risk and return were only assessed for projects and activities that could demonstrate a positive impact.

Operationally, this translated into minimum standards and strict criteria for positive impact. Triodos' minimum standards sought to avoid that the bank encouraged, directly or indirectly, products and activities that were harmful to people or the planet. Applying Triodos' minimum standards could result in the exclusion of some sectors or companies, or maximum thresholds that the unsustainable activity could represent in the business' portfolio. For example, Triodos would not finance a tobacco producer but could invest in a supermarket selling small amounts of cigarettes. Likewise, Triodos would not lend to a personal care company that tested their products on animals, but could invest in a pharmaceutical company that had a comprehensive policy on animal testing, transparent reporting on the number and type of animals used, and ethical review procedures to regulate animal testing and ensure animal

[1] Date: April 2025. This case was prepared by Prof. Estelle Cantillon as a basis for discussion at the fourth UCB-SBSEM "Business and Society" symposium in May 2025 to illustrate the use of decision frameworks in the context of difficult decisions. The case is based on actual events, but some names, dates, and numbers have been altered to protect the protagonists' privacy or commercially sensitive information.

welfare. Businesses operating in industries subject to sustainability risks had to demonstrate the existence of policies and data monitoring systems to prevent these risks. This request for due diligence extended to their supply chain.

When it came to positive impact, Triodos sought to identify activities that contributed to the five transformations in their theory of change (**Exhibit 2**). Emphasis was placed, during the assessment, on the long-term transformative impact of the funded activity. Such impact could be direct, or indirect, through the changes that the funded activity could facilitate in their supply chain.

Despite its international scale, Triodos was small relative to other banks in Europe. It was therefore critical to lend their money wisely. For this reason, the bank accounted for the additionality of their loan when evaluating impact and asked whether the activity would be funded by another bank if they did not fund it. A positive answer indicated low additionality.

The First Assessment Committee

The First Assessment Committee (FAC) played a central role in Triodos' lending decisions. The FAC was a consultative committee comprised of volunteers from the entire organisation. They could be called upon, in case of doubt, by either the relationship manager handling a new credit application, or the credit committee taking a decision on such credit application (**Exhibit 3**). In practice, they were involved in around 5% of credit applications.

Members of the FAC were asked to assess the long-term impact of the requested credit on "Mankind, Nature, and (social) Profit". Depending on the project, further questions were asked. For example, in the case of a new technology with environmental benefits, the FAC would be asked to assess the tangibility of these benefits, the associated risks, and the transformational impact of the investment on the sector. The FAC advice was included in the credit file, as input for the final decision. Decisions by the credit committee were taken unanimously. In case of disagreement, the decision was taken by the executive committee of the bank.

Green hydrogen

Hydrogen (H2) was a gas produced using water and energy. The most common approach to producing hydrogen was a process called reforming, during which hydrocarbons and water were set in reaction. The process was energy-intensive and released CO2. Hydrogen could also be produced through electrolysis, a process that used electricity to separate water into hydrogen and oxygen. When the electricity used in the electrolysis was generated from renewable sources, the result was referred to as "green hydrogen". As of 2023, green hydrogen accounted for less than 0.5% of total hydrogen production capacity in Europe (**Exhibit 4**).

Hydrogen had long been used for the production of ammonia (used in fertilizers), the production of methanol for the chemical industry, and for oil refining, but, more recently, the European Union had identified a role for green hydrogen, as a complement to electricity from renewable sources, to decarbonize the EU energy mix.[2] In 2020, the European Commission published a roadmap for hydrogen, envisioning that by 2050, hydrogen would make up 13 to 14% of Europe's energy mix (up from less than 2%).[3] As of 2023, these new emerging applications, including mobility, steel production, and other e-fuels, still represented less than 0.1% of the market, however (**Exhibit 4**).

[2] The combustion of hydrogen produced energy and water as a by-product (no CO2 emissions).

[3] A Hydrogen Strategy for a Climate-Neutral Europe, COM(2020), 301 final, available at: https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:52020DC0301 (accessed April 4, 2025)

Is funding GreenHydro aligned with Triodos' mission ?

In 2024, GreenHydro approached Triodos Belgium for a loan. GreenHydro was a new player in the energy sector that specialized in the production of green hydrogen. It already operated two industrial-scale green hydrogen production plants and now wanted to develop five more production sites. The new investment would multiply their total production capacity by a factor of five, but would still represent a tiny fraction of the market.

This was the first credit application in hydrogen for Triodos, and Jérôme Toubon, the relationship manager in charge of the file, could therefore not rely on internal expertise to evaluate it. He was aware that green hydrogen represented a tiny portion of hydrogen production, and that most of the current uses of hydrogen were in industries that Triodos would typically not fund. Hence, he called on the First Assessment Committee (FAC) to evaluate the alignment of the credit with Triodos' mission. The FAC's fact-finding work involved a visit to GreenHydro's existing production plant and a thorough analysis of the hydrogen market, the regulatory environment, and GreenHydro's business model.

GreenHydro did not own renewable electricity generation assets, but it had entered contractual arrangements with several renewable electricity generators near its production sites and had the technology to scale up and down production according to the availability of electricity from these renewable sources. This ensured that they were already in compliance with the upcoming EU regulation for the certification of green hydrogen.

The company differed from most existing hydrogen producers by its decentralized model. In the traditional fossil-based hydrogen production model, production plants were large and co-located or connected through pipelines to their clients. Instead, GreenHydro operated much smaller production sites, strategically located close to sources of renewable electricity and water (on the supply side) and to consumption sites. The hydrogen production was distributed through trucks, contributing to the deployment of hydrogen-based solutions on the entire territory.

GreenHydro had already secured contracts for supplying fuel stations for trucks and buses. It was also in advanced discussions with potential industrial clients whose names it did not want to disclose at this stage, though it was clear that some of these clients would fall outside of Triodos' funding scope. Overall, mobility uses were expected to account for about 70% of GreenHydro's sales volume. The FAC weighed the pros and cons of the decentralized business model. One advantage was the diversification of the client base and the flexibility, given the truck delivery, to add new clients. A disadvantage was that clients were not committed for a long period of time. Some would leave; others would join. Triodos could not expect ever to have a full picture of GreenHydro's client base.

In Europe, green hydrogen was understood to cost around twice as much as fossil-based hydrogen to produce.[4] Capital expenditures and electricity costs were the two main cost drivers. As the technology matured, further cost decreases were expected. Still, GreenHydro would need to rely on clients willing to pay a premium for using clean fuel.

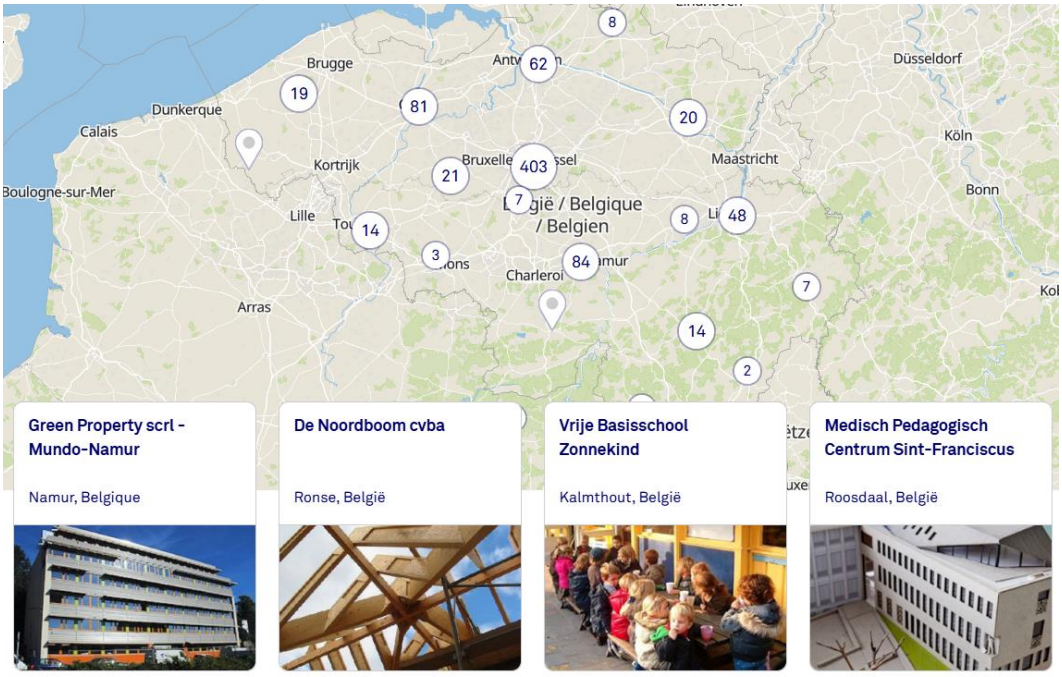
On a sunny day in the summer of 2024, the members of the FAC met to discuss the results of their fact-finding mission. Was funding GreenHydro aligned with Triodos' mission? Did it have the potential to contribute to the needed system change in energy? Depending on the answers to these questions, the file would move forward to the credit committee for a full assessment.

---

[4] https://observatory.clean-hydrogen.europa.eu/hydrogen-landscape/production-trade-and-cost/cost-hydrogen-production (accessed April 4, 2025).

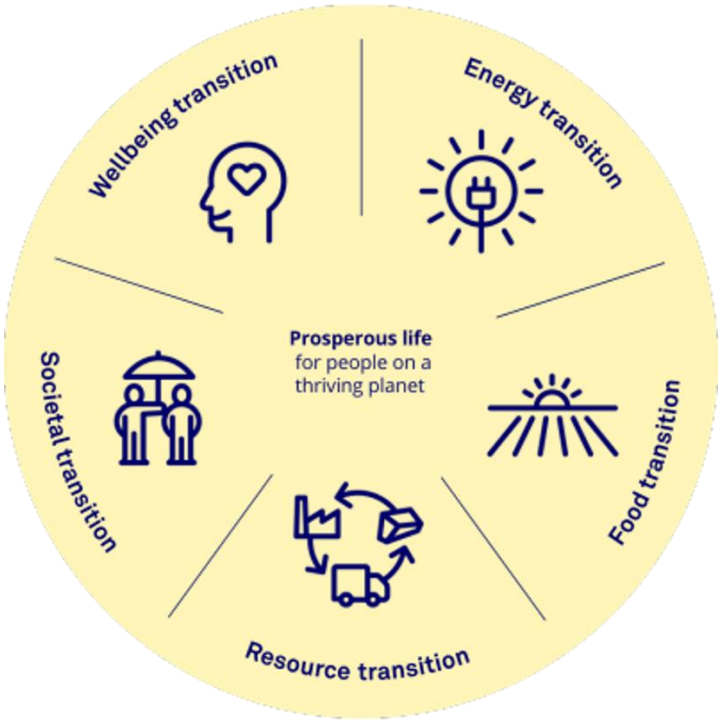
Exhibits

Exhibit 1: Transparency at Triodos: Know where your money goes



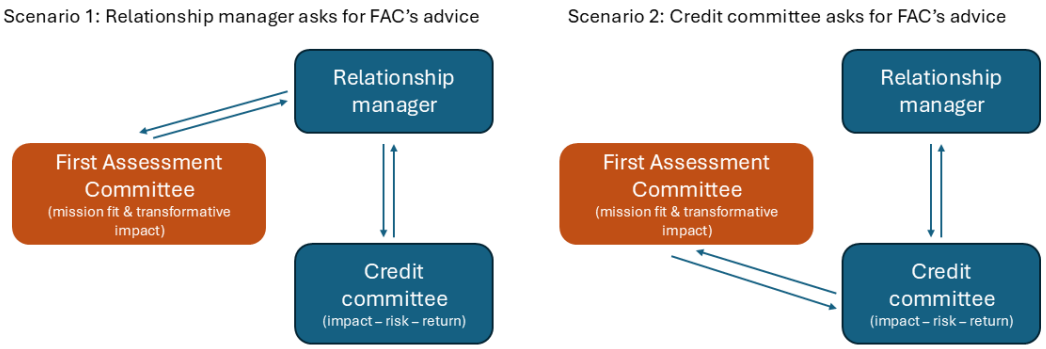
Source: Triodos website, https://www.triodos.be/fr/a-quoi-sert-votre-argent / https://www.triodos.be/nl/zie-wat-uw-geld-doet

Exhibit 2: Triodos' theory of change



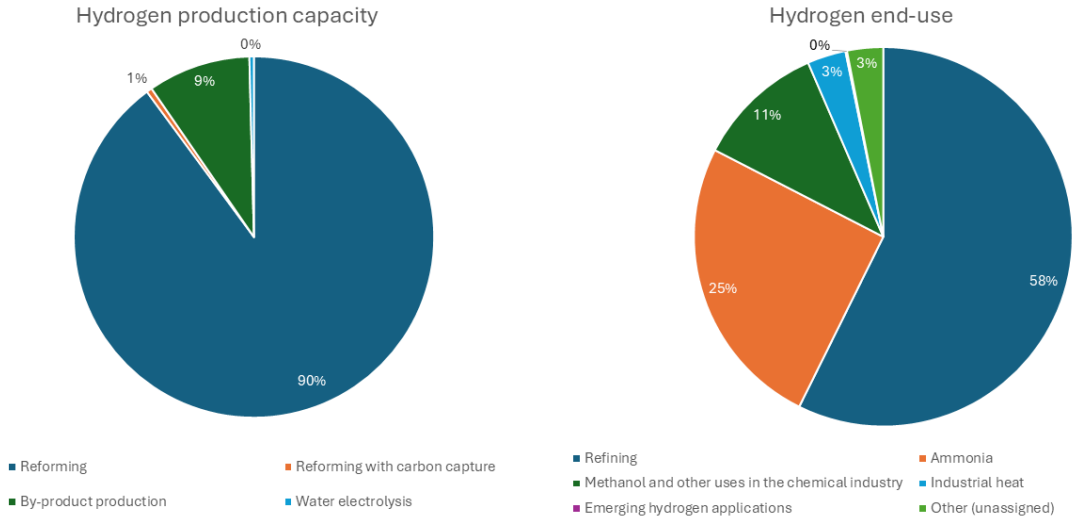
Source: https://www.triodos.co.uk/articles/2024/inside-sustainable-banking

Exhibit 3: Triodos' decision process for loan applications



Source: Author's elaboration.

Exhibit 4: Hydrogen production capacity and end-use in Europe in 2023



Source: European Hydrogen Observatory, https://observatory.clean-hydrogen.europa.eu/hydrogen-landscape/end-use/hydrogen-demand and https://observatory.clean-hydrogen.europa.eu/hydrogen-landscape/end-use/hydrogen-demand (accessed April 4, 2025). The category "other" includes hydrogen production that could not be allocated to an end-user.