

# Can the renewable energy sector solve the climate crisis?

## Marc Schürch,

Head Renewable Energy, Swiss Life Asset Managers

The renewable energy sector has seen impressive growth rates in the past 20 years. According to the European Environment Agency, the share of renewables in total energy consumption more than doubled, increasing from below 10 percent to 22.5 percent in 2022.

The reason for this growth is attributable not only to subsidies, but also the competitive cost structure achieved in recent years. Assuming favourable resource conditions, all major renewable electricity generation technologies (solar PV, onshore and offshore wind, and hydro power) have levelled costs of electricity below current average power prices. However, this differs for newly built coal fired or nuclear power plants, which are significantly more expensive than current power prices.

This is an encouraging starting point and good news for the renewable energy sector. However, the recent flattening of the growth curve raises questions about the attractiveness of renewable investments. Four key factors contribute to undermining this:

- There is a growing concern regarding the future power price development, especially for volatile production such as solar and wind suffering cannibalisation effects. This means that in times of much wind and solar irradiation, low power prices are observed and in case of the “dark lull” we are seeing high power price combined with a lack of production.
- The administrative processes to get renewable projects approved still takes too long and entails a lot of uncertainty.
- There are insufficient designated areas for renewable energy and the phenomenon of “not-in-my-backyard” still hinders many projects.
- The grid is not prepared for the fundamental change in electricity flows, associated with the energy transition.

While the sector suggests a competitive advantage for the renewables, there is still need for significant intervention from policymakers to address the points mentioned above.

The European Union aims to be climate neutral by 2050, so the question is whether solving above challenges will be sufficient to achieve this goal? The answer is a clear “no.” Currently, electricity accounts for 23% of the European energy demand, while heating (41%) and fuels (36%) play more significant roles. And in these sectors the renewable component is much lower (24% and 5%). The key lies in decarbonising those sectors, which can be achieved through either bioenergy or non-biological sources. Bioenergy is very attractive; however, its potential is limited due to the availability of feedstock. If we want to scale up renewable energy, there is no way around the non-biological solutions.

Physically, the most efficient non-biological solution is direct electrification. Batteries have an efficiency of 80-90% which is much higher than other technologies and are thus on the way to increasingly substitute fossil fuels, in particular when it comes to cars, busses or smaller ships. Despite concerns about the resources needed for batteries, the biggest shortcoming of batteries is its low energy density and consequently its weight. Hence, it is unlikely that we will see long-haul airplanes or large container ships running solely on batteries. The focus thus needs to be on the renewable fuels from non-biological origin (“RFNBO”). De-facto we are talking about the electrification of fuels, in which electricity and water is used to produce hydrogen. This hydrogen can then be used directly to run a turbine, or it can be blended into natural gas. Alternatively, hydrogen can be combined with carbon dioxide (CO<sub>2</sub>) using the Fischer Tropsch procedure to produce petroleum-like fuels. Such fuel includes e-Diesel for trucks, e-Methanol for ships or sustainable aviation fuel (e-SAF) for airplanes. As a second alternative, hydrogen can be combined with the main element of air, Nitrogen, and produce ammonia by means of the Haber Bosch procedure. Those procedures have unlimited potential – given there is sufficient green electricity available. RFNBOs will therefore play a key role in the energy transition.

The question arises: will the sector foster RFNBOs and solve the energy transition problem? Unfortunately, the answer is “no,” as RFNBOs are still 1.5-4 times more expensive than fossil fuels. Market interventions become unavoidable, even when arguing from an economic perspective. In his 1968 article “The Tragedy of the Commons”, Garrett Hardin showed that goods that are limited, i.e., are scarce, and cannot be excluded from consumption, i.e., have no price, need to be regulated. Famous example is the overfishing of the oceans leading to irreversible consequences. The same logic applies to air pollution: if it has no price and anyone can pollute without consequence. Nobel prize winner Ronald Coase provided a solution for this problem by stating that we need well-defined property rights to overcome the problem of externalities. And this element is crucial. We require emission quotas that are in line with the goal of reaching net-zero by 2050. Once emission quota can be traded, this adds a price to pollution and the market aligns. If costs are sufficiently high, it will make RFNBOs competitive. And it will be the cheapest and most efficient RFNBOs winning the race.

The European Union and to a certain extent also the International Community have recognised this fact and started imposing binding targets. For instance, the International Maritime Organization (IMO) requires 5% of energy used in shipping to come from low-emission energy sources by 2030. The International Civil Aviation Organization (ICAO) is applying similar

goals and initially wants to stabilise 2020 levels of CO<sub>2</sub> emissions and aims for net-zero emissions by 2050. While the voluntary phase began in 2021, the mandatory phase begins in 2027. Such reduction quotas are increasingly necessary and the launched EU Emission Trading System (EU-ETS) is designed to ensure that emissions are reduced in the most cost-effective way within the European Union.

At Swiss Life Asset Managers, we conclude that net-zero goals is achievable if heating and fuels are considered alongside the electricity transition. Furthermore, RFNBO can only become competitive if there is a requirement imposed to use renewable fuels and if there is an appropriate pricing for pollution. The activities of the international community seem to go in the right direction. And while acknowledging this trend, we also need to understand that the current build out of renewable electricity is just a very small step compared to the leap that needs to follow. But with the right framework, the renewable energy sector will be well positioned to find the most efficient solution for the energy transition.

### For more information, please contact:

**Switzerland:** Rossitza Tzvetkova, Head of Sales Switzerland, Swiss Life Asset Managers, rossitza.tzvetkova@swisslife-am.com

**Germany:** Verena Pickhardt, Head of Sales Germany, Swiss Life Asset Managers, verena.pickhardt@swisslife-am.com

**France:** Aurélie Fouilleron, Head of Sales France, Swiss Life Asset Managers, aurelie.fouilleron@swisslife-am.com

**Norway:** Thor Mjor, Sales Norway, Swiss Life Asset Managers, thor.mjor@swisslife-am.com

**United Kingdom:** James Lucas, Head of Sales UK, Swiss Life Asset Managers, james.lucas@swisslife-am.com

**Southern Europe:** Antonio Iaquinta, Head of Sales Southern Europe, Swiss Life Asset Managers, antonio.iaquinta@swisslife-am.com

**Belgium & the Netherlands:** Eduardo Illitsch, Head Sales International, Swiss Life Asset Managers, eduardo.illitsch@swisslife-am.com

**Other countries:** Vincent Screene, Sales International, Swiss Life Asset Managers, vincent.screene@swisslife-am.com



This publication contains advertising. This document has been prepared with the greatest care and to the best of our knowledge and belief. However, we provide no guarantee with regard to its content and completeness and do not accept liability for losses which might arise from making use of this information. This publication constitutes neither an invitation nor a recommendation to buy or sell financial instruments but serves only for information and advertising purposes. This document contains “forward-looking statements”, which express our assessment and expectations at a certain point in time. Various risks, uncertainties and other factors could lead to actual developments and results differing significantly from our expectations. “Swiss Life Asset Managers” is the brand name for the asset management activities of the Swiss Life Group. More information is available at [www.swisslife-am.com](http://www.swisslife-am.com). Source: Swiss Life Asset Managers. All rights reserved.