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# Why green energy credit now?

*Reap upside from current market dynamics and provide downside risk mitigation in a resilient sector with high growth potential*



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potential for debt-like risk, attractive returns in a rising rate environment and an intrinsic hedge to inflation.

## SUMMARY

- The European green energy transition is underway; however, to reach net zero by 2050 requires an acceleration of effort.
- While investors provided €550 billion of European green infrastructure financing between 2010 and 2020 the capital requirement continues to expand.<sup>1</sup>
- Approximately €5 trillion of financing is needed in the next seven years for green infrastructure in Europe alone.<sup>2</sup>
- Due to the inelastic demand associated with clean energy infrastructure, the sector has shown an incredible resilience throughout the worst economic periods including recession and COVID-related lockdowns.
- Investors can gain exposure to the long-term decarbonization trend with an innovative approach to green energy credit that offers the

## WHY GREEN ENERGY CREDIT NOW

The energy transition will drive the biggest economic reconfiguration the industrialized world has experienced. The capital requirement will be large and achieving net zero will take decades, thereby creating long-term investment opportunities.

Two fundamental drivers underpin the energy transition: climate change and energy security. Institutional investors have long supported climate change mitigation by investing in green power generation. Russia's invasion of Ukraine has focused investors, and governments, on the goal of energy security. European governments are looking at how they can decrease their dependency on other countries, which inevitably involves producing more power domestically. The war has shown that renewables are not just a nice to have, but a necessity for all European economies.

The transition covers everything related to decarbonizing economies. Firstly, this means increasing clean power generation from onshore

and offshore windfarms, solar PV installations, biomass generators and hydroelectric power plants. Secondly, it includes everything needed to service and assist clean energy generation, such as enhancing power grids to distribute energy to homes and factories. Thirdly, it means supporting electrification, for example by increasing the availability of battery storage for surplus green power. And finally, it requires decreasing the total amount of energy countries consume by enhancing energy efficiency, from industrial processes to residential buildings.

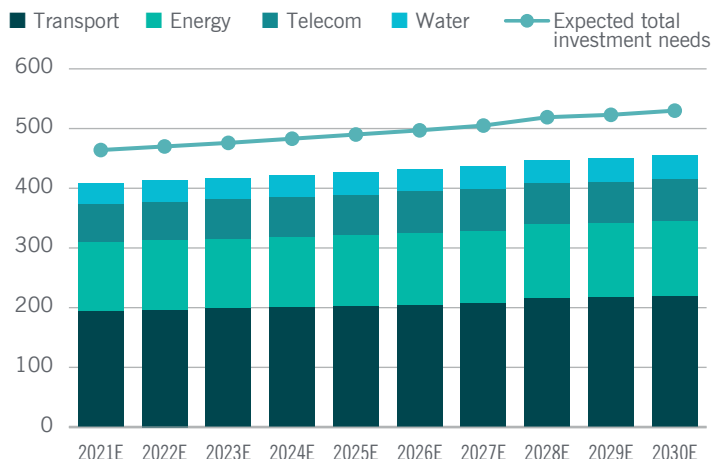
### HUGE CLEAN ENERGY INVESTMENT REQUIREMENT

The EU already generates approximately 40% of its electricity from green energy sources and the region’s target is to increase this to 80-90% by 2050. Despite the considerable amount of green energy financing taking place, there remains a substantial gap between expected total financing needs and expected investment based on current trends. Figure 1 shows that this gap is wide and set to expand gradually over the remainder of the decade, providing an opportunity for investors. Europe’s total infrastructure investment needs will be approximately €5 trillion until 2030, according to the G20. To meet the UN Sustainable Development Goals and regional infrastructure needs in transport and energy, investment would have to increase by 24% and 7% respectively.

### SUPPORTING DECARBONIZATION WITH SECONDARY LOANS

Debt is typically a significant portion of the capital structure of infrastructure development projects and plays a key role alongside equity. In addition to investing directly in project finance loans, there is also a deep market for green infrastructure secondary financing in Europe, as countries and investors recycle capital to new infrastructure projects to meet sustainability targets.

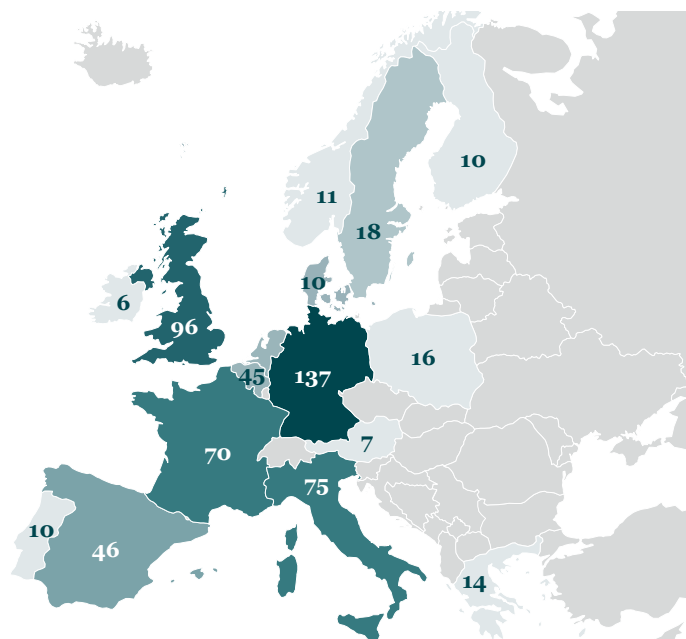
**Figure 1: Infrastructure investment needs in Europe by sector (2021– 2030)(€bn)**



Source: Global Infrastructure Outlook, Global Infrastructure Hub.

Figure 2 shows the green infrastructure financing supply for secondary loan purchases in Western Europe from 2010-2020. The biggest market was Germany (accounting for €137 billion) followed by Italy (€45 billion of renewables and €30 billion in infrastructure), France (€70 billion), and Iberia (€27 billion of renewables and €29 billion in infrastructure).

**Figure 2: Total green infrastructure estimated financing in Western Europe (€bn)**



Total financing estimates for select countries in Europe from 2010-2020 considering annual capacity increase and estimated total installed cost per MW for renewables and using an average LTV of 80%. Estimates for infrastructure from Thomson One Project Finance database. Sources: IRENA Renewable Power Generation Costs in 2020, IEA World Energy Investment 2021, Thomson One, Glenmont Partners analysis

## PROVIDING A HEDGE AGAINST INFLATION AND RISING RATES

The Russian invasion of Ukraine sent the prices of oil and gas soaring in 2022, which fed into inflation levels not seen in developed economies for several decades. Due to the impact on the cost of living and upward pressure on wages, inflation is likely to remain entrenched over the short to medium term. Green credit strategies can provide a hedge against inflation since infrastructure projects and cashflows are linked to end-user power prices.

Central banks, including the European Central Bank and Bank of England, have responded to elevated inflation by raising their base interest rates and the effect can be seen along sovereign and corporate debt yield curves. A rising rate cycle is a concern for investors; however, project finance loans are available with floating rate terms, so increasing rates can increase yields, and mitigate the risks of a rising rate environment. Green energy credit is generally floating rate, allowing investors to benefit from base rate increases.

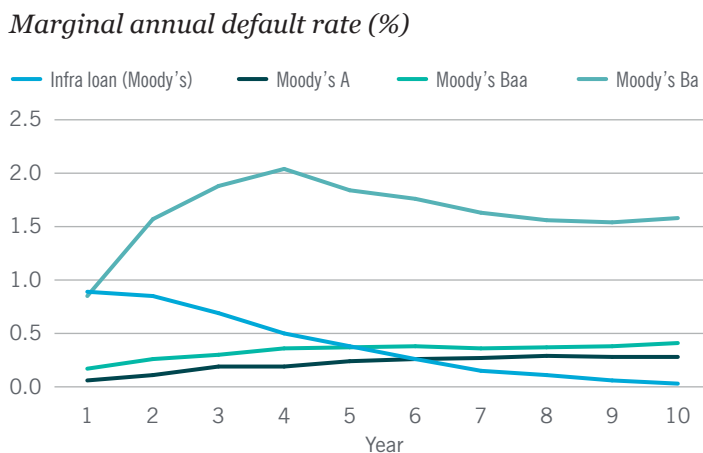
## DECLINING DEFAULT RISK

Default rates on infrastructure debt are lower compared to corporate loans, on a risk-adjusted basis. For corporate loans, the possibility of default tends to increase over time due to increasing uncertainty. By contrast, the potential for infrastructure loans to default generally declines over time. While the construction phase can contain a higher degree of risk, once the asset has been completed and is operational, for example, a solar farm with an offtake contract, revenues are typically predictable.

Moody's research reveals that project finance for infrastructure projects is a resilient class of financing, across both OECD and non-OECD countries. Figure 3 shows that the marginal default rate (the likelihood that a borrower performing at the start of a year will default during that year), are equivalent to Ba-rated corporate loans in year one. However, within six years the marginal default rate of infrastructure loans falls steadily to below that of A-rated corporate loans and trends to zero over a 10-year period.

The recovery rate from projects is approximately 72% in the construction stage and 80% in the operational stage. In Western European countries, recovery rates are well above these averages.

**Figure 3: Global marginal default rates for infrastructure financing vs. corporate loans**



Source: Moody's – Default and recovery rates for project finance bank loans, 1983 – 2019.

## KEY ESG CONSIDERATIONS

Consideration of ESG (environmental, social and governance) factors is integral to the green energy financing process, from assessing compliance for the permitting and authorisation processes, to reviewing the project owner. Environmental analysis assesses the permit and planned measures to overcome associated risks, while governance issues are reviewed and flagged. Primary lenders receive periodic key project information reporting, allowing us to calculate the amount of clean energy generated and emissions avoided. One valuable and transparent assessment metric is to define the carbon intensity of the host country's grid, based on the mix of energy sources, and then calculate the greenhouse gas emissions savings achieved by the financed project.

## GREEN ENERGY CREDIT INVESTMENT EXAMPLES

### *First green significant risk transfer (SRT) trade ever in Europe*

Together with Italian banking group Intesa Sanpaolo, Nuveen Infrastructure completed Italy's first green significant risk transfer (SRT) transaction. It is structured around a pan-European renewable energy portfolio worth €1.7 billion, covering exposure to project finance loans in excess of 7GW of installed capacity in solar, wind, and bioenergy power plants. The landmark credit solution allowed the bank to reduce the capital charge from its renewable energy loan portfolio and optimize its balance sheet, increasing new lending capabilities. As the first green SRT transaction in Europe, it represents an innovative way of financing clean energy infrastructure.

### *Investing in Spain's solar market with one of the first solar asset-backed securitizations*

Nuveen Infrastructure issued a €36.1 million green asset-backed security (ABS) through our green energy credit platform. The underlying asset is a 20MW solar photovoltaic plant in Caceres, Spain. One of the first renewables ABS investments in the country, Nuveen Infrastructure originated, structured and invested in a specialized lending instrument. The transaction consists of €28.8 million of Class A asset-backed floating rate senior notes and €7.3 million Class B of asset-backed floating rate and variable return junior notes.

## CONCLUSION

*Green energy credit can provide* solutions to many of the challenges society faces on the road to net zero.

Investing in a European-focused green energy credit strategy can offer investors:

- Inflation protection and upside from interest rate increases.
- High levels of diversification, given the number of loans, countries and technologies.
- A long-term investment theme with substantial governmental support for energy independence and mitigating climate change, providing a long-term economic tailwind for green energy.
- Debt-like risk while offering equity-like returns due to the innovative ways of financing the energy transition in Europe.

**For more information, please visit our website, [nuveen.com/infrastructure](https://nuveen.com/infrastructure).**

#### Endnotes

1 Sources: Total Financing estimates for select countries in Europe from 2010-2020 considering annual capacity increase and estimated total installed cost per MW for renewables and using an average LTV of 80%. Estimates for infrastructure from Thomson One Project Finance database. Sources: IRENA Renewable Power Generation Costs in 2020, IEA World Energy Investment 2021, Thomson One.

2 Global Infrastructure Outlook. Global Infrastructure Hub.

3 Moody's – Default and recovery rates for project finance bank loans, 1983 – 2019.

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