JULY 2026

CLEANTECH
EUROPE

The Bankability Test:

Unlocking Bank Credit for European Cleantech

Author: Natasha **Chaudhary**

The Institute for Climate Economics (I4CE) is an independent, non-profit think tank that puts economic analysis at the service of climate action.

We work to translate climate objectives into public policies and economic decisions: setting priorities, guiding investments, and designing strategies to reduce dependence on fossil fuels and adapt to climate change. Our research aims to identify the levers of the transition, inform public debate on investment needs, and support decision-making that matches the scale of climate challenges.

It is grounded in ongoing dialogue with those who design, finance, and implement climate action—from local authorities to the national government, from the European level to international frameworks, as well as with businesses. Based on scientific rigor, independence, and transparency, our expertise helps strengthen the effectiveness, efficiency, and fairness of climate policies.

I4CE is a public-interest organisation, founded in 2015 by the Caisse des Dépôts and the French Development Agency.

I4CE receives support from a range of public and private funders, supporting specific projects, areas of work, or contributing to core funding. Our project based funding comes from French, European, or international public research grants, as well as from philanthropic foundations. Private compagnies contribute through unrestricted funding and the Caisse des Dépôts et Consignations is the main contributor to core funding.

I4CE has full programmatic and editorial independence. It is solely responsible for its publications, and the views expressed do not engage our funders. We thank them for their trust. For more information about our funding and our code of ethics, visit our website: i4ce.org.

ACKNOWLEDGEMENTS

The author is grateful for the valuable feedback shared by experts during the research interviews and peer review process. The author would like to thank I4CE colleagues for their support, particularly **Benoit Leguet**, **Ciaran Humphreys**, **Clara Calipel**, **Dorthe Nielsen**, **Elena Schneider**, **Louise Kessler** and **Michel Cardona**.

The author would like to thank external experts for sharing their useful insights during the research interviews and for their comments on the draft – **Alexandre Synadino**, Managing Consultant, Finalyse, **Frédéric Esteves**, Head of Legal, Structured Finance, La Banque Postale, **Matthieu Brun**, Deputy Head of Climate Risk, Bpifrance, **Victor Perret**, Financial Analyst, Oxan Energy, **Victor van Hoorn**, Director, Cleantech for Europe, **Vladimir Chuchkin**, Principal, Meridian Arc, **Xavier Sol**, Director for Sustainable Finance at Transport and Environment (T&E).

This research was carried out independently by I4CE. All views expressed in this paper reflect solely those of I4CE. This research was supported by the European Climate Foundation (ECF).

EXECUTIVE SUMMARY

On the cusp of the Age of Electricity, Europe is on a mission to both strengthen industrial competitiveness and accelerate decarbonisation. The European Commission's Clean Industrial Deal serves as the blueprint to deliver this ambition. Yet, its implementation necessitates unprecedented levels of private investment. I4CE estimates Europe's annual clean energy investment needs at €878 bn to meet the bloc's 2030 targets *(I4CE, 2026a)*. Europe's banks are central to footing that bill – bank loans are the driving force of the economy, accounting for over 90% of GDP *(ECB, 2026a)*. Despite sufficient bank lending capacity, many European cleantech scale-ups struggle to secure long-term bank loans. The barrier is not simply a shortage of capital, but a shortage of bankable projects.

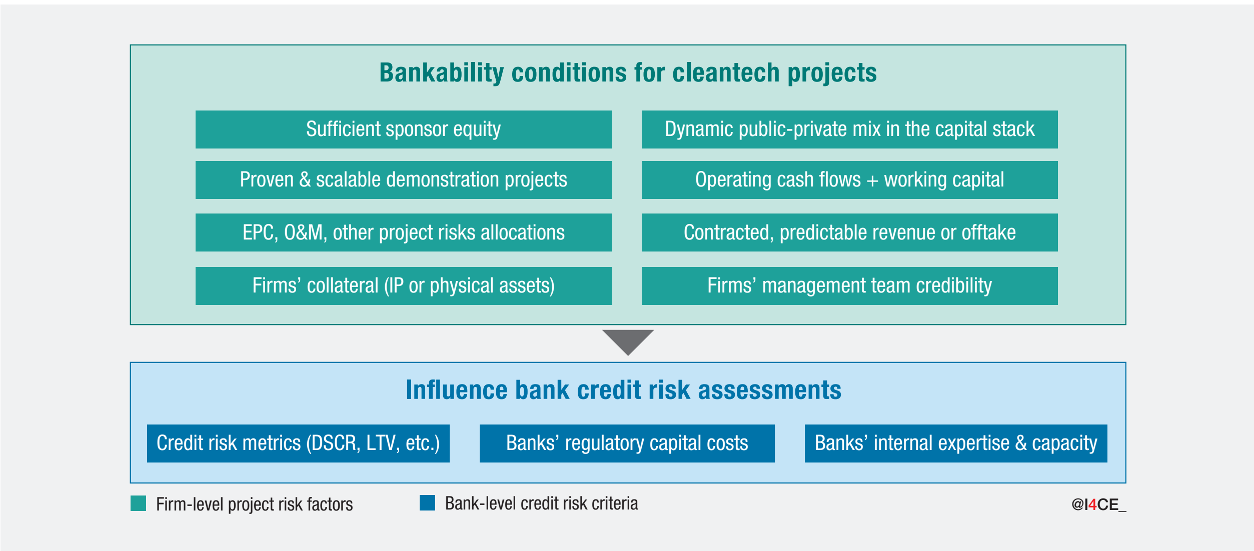
The financing gap is most acute during the growth stage, the so-called 'valley of death', where firms typically seek between €30 mn and €100 mn to fund development costs. Part of the problem is well-documented: only 20% of European climate tech funds focus on growth financing, leaving a real equity gap *(World Fund, 2026)*. But limited bank lending reflects weak project bankability. Banks are unwilling to lend before stable revenues are secured, as higher project risks also increase banks' regulatory capital costs. The result is that commercially promising technologies stall before they can scale.

Solving for bankability requires solving for project credit risk. Equity investors assess investability to finance growth based on expected returns over relatively short investment horizons. Banks, however, assess project bankability against a robust risk framework, including the offtake credibility, the equity capital stack, the collateral (if any), and the management team, among others (**Figure 1**). Successful cleantech firms that mitigate these risks before Final Investment Decision (FID) can better access bank project finance loans, which financed only 11% of European cleantech investments in 2024 *(World Fund, 2026)*. Treating cleantech scale-up financing as primarily a capital shortage problem masks the more fundamental challenge of unbankable project credit risks.

Prudential capital requirements are a real but secondary constraint. Capital relief for cleantech lending already exists under the Infrastructure Supporting Factor (IFS), which is used extensively by large banks. However, lending decisions are driven more by underlying project creditworthiness, which exceeds the benefit of capital incentives on banks' profitability. European banks' capital positions are already strong, with dividend payouts back to pre-pandemic levels. Policymakers should be cautious when treating renewed calls to reduce capital requirements on competitiveness grounds – it is likely to have little impact on boosting cleantech lending. Bank-level supervisory tools such as prudential transition plans and supervisory dialogues, if used proactively, could prove more useful in supporting bank practices towards European decarbonisation priorities.

The bank credit pipeline is flowing to the few bankable cleantech projects that overcome key risk hurdles. The policy task is to expand that pipeline. Drawing on the example of floating offshore wind, this research paper identifies the key conditions that improve cleantech bankability to access both short and long-term bank loans. Policymakers should respond with targeted early-stage public derisking tools, stronger equity support and local ecosystem clusters to help more projects reach bankability faster for the European clean industrial transition.

FIGURE 1. CLEANTECH BANKABILITY IS BASED ON SEVERAL UNDERLYING CONDITIONS THAT DETERMINE CREDITWORTHINESS



Source: I4CE.

CONTENTS

INTRODUCTION

Clean energy has rapidly become the technological frontier to strategic autonomy and competitiveness for tomorrow's industrial powers. Mario Draghi called it **'the new oil'** – an apt label as Europe confronts its second major energy supply shock in five years, this time compounded by converging clean energy supply chains *(Draghi, 2024)*. The European Commission's Clean Energy Investment Strategy provides part of the answer to meet Europe's growing annual clean energy investment needs – estimated at €878 bn *(European Commission, 2026; I4CE, 2026a)*. However, crowding-in private finance implies leveraging Europe's bank-based financial system to scale cleantech investments. Most cleantech scale-ups struggle to meet stringent bankability conditions to secure bank loans. Along with a shortage of growth equity capital, **project bankability remains a key constraint to bridge the gap for European clean energy competitiveness**.

Making the Clean Industrial Deal (CID) bankable requires effectively mobilising the backbone of the European financial market: private commercial banks. Latest ECB data confirms that **banks are the biggest lenders to the European real economy with 43% of the total loan stock as of Q3 2025** *(ECB, 2026b)*. Over 2023-2024, the energy sector saw the biggest increase in bank lending by 10% or €33 bn, combining both clean energy and fossil fuel investments *(EBA, 2025a)*. Banks not only lend to bankable cleantech firms, but also advise and support firms to boost bankability throughout the fundraising cycle.

Bankability, as a term, lacks a single, common definition within the regulatory framework, resulting in varying interpretations among cleantech firms, institutional investors, and policymakers. Bankability is not the outcome of a firm securing bank credit; it is the set of conditions against which lenders, public or private, assess a firm's debt repayment capacity. Lenders evaluate bankability through a strict credit risk lens, examining its 'composite risk value profile' in not only strong product offtakes but also risk mitigation that influences their risk-return outcomes *(Fuccaro, 2025)*.

Improving cleantech bankability requires some clarifications. First, bankability is not a condition confined to the late stage – the investment thesis builds on a cleantech firm's improving bankability throughout the fundraising cycle. Second, bank loans are conditional on cleantech firms sufficiently derisking key project risks and having around 40%-60% of equity capital; otherwise, they remain outside bank credit channels. Third, cleantech project credit risks can outweigh banks' regulatory capital costs, requiring guarantees and other public derisking tools to reduce credit risk.

Successful cleantech firms that raise late-stage capital score higher on bankability – a quality that improves as firms resolve project risks and advance through the fundraising cycle. Others stay stuck in the pipeline due to the infamous 'valley of death' of insufficient growth-stage finance, where firms fundraise for the development phase. Long-term bank loans remain out of reach during the pre-FID phase in part due to high regulatory capital costs.

The policy challenge is therefore not to make banks lend to projects they cannot prudently finance, whether through regulatory capital incentives or otherwise. It is to reinforce the enabling conditions under which more projects can meet those requirements faster, thus becoming bankable. This research paper analyses the key conditions (or gates) that cleantech firms must satisfy to access long-term bank project loans – the desired fundraising goal for scale-ups.

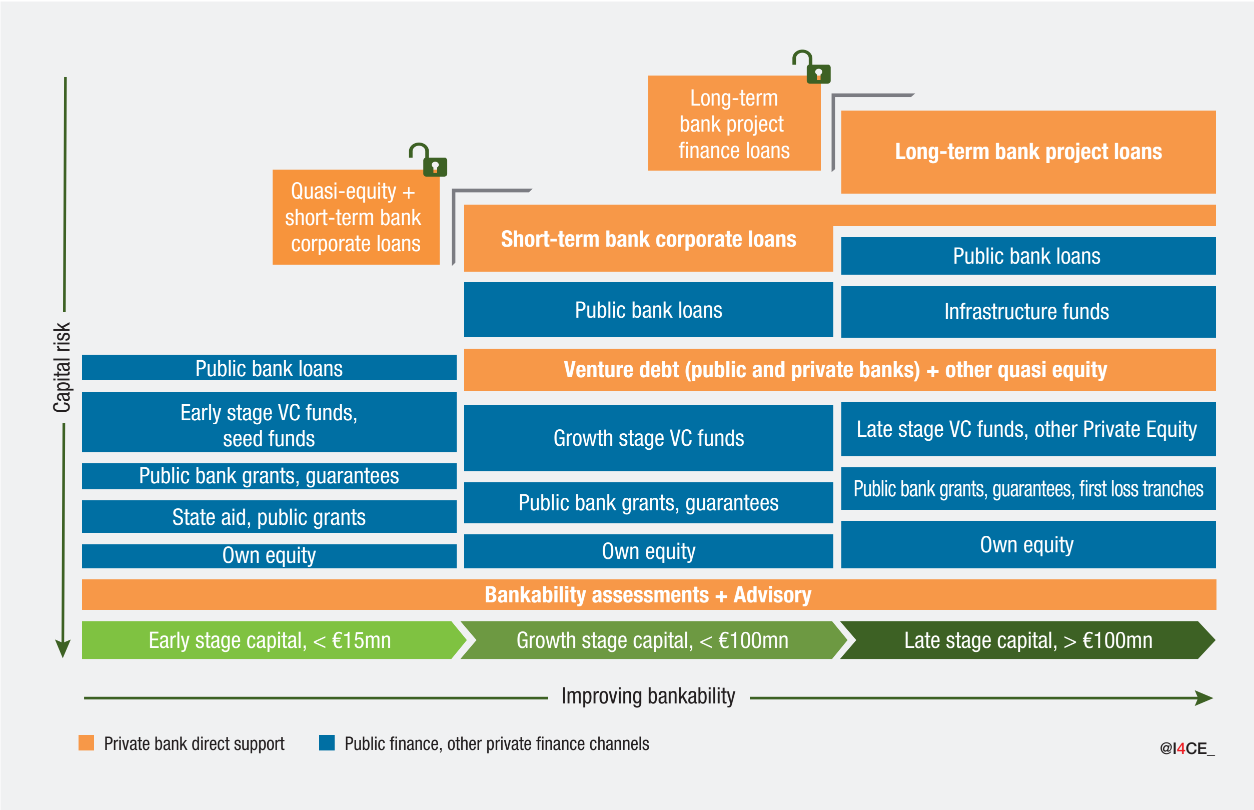
This research paper draws on insights from ten interviews with senior credit officers at large European banks, risk analysts and cleantech experts, as well as a desk literature review. The scope is limited to the key bank credit channels of long-term project finance loans and short-term corporate finance loans of large European private commercial banks (or G-SIBs). The research explores the broader European cleantech sector with a more detailed analysis of the bankability of the floating offshore wind sector. Projects in this sector range in Technology Readiness Levels (TRLs) of 6-9 and are not yet consistently bankable. Yet, given its technical and environmental advantages, floating offshore wind is gradually scaling up with 1 GW wind farms announced across some Member States. For the sake of confidentiality, quotes from interviews are anonymised.

The paper is organised into three chapters. **chapter 1** maps banks' role as advisers, indirect investors and lenders throughout the cleantech fundraising cycle. **chapter 2** analyses the underlying conditions to access bank credit through the lens of the floating offshore wind sector. **chapter 3** highlights the limited role of prudential regulation to directly mobilise bank credit for the cleantech sector. Lastly, the paper concludes with policy recommendations on initiatives and de-risking tools to improve cleantech bankability.

1. CHAPTER 1: BANKS PLAY AN ACTIVE ROLE THROUGHOUT THE CLEANTECH INVESTMENT LIFECYCLE

Private banks primarily finance cleantech projects via long-term loans at the late stage, once firms are bankable. On the path to bankability, banks select promising cleantech projects in the earlier stages through their advisory functions. For firms seeking growth-stage funding, banks also provide bridge finance support. This chapter examines banks' active role as advisors and financiers in supporting cleantech firms to improve bankability.

FIGURE 2. PRIVATE BANKS' DIRECT LENDING ROLE UNLOCKED AT EACH STAGE OF THE CLEANTECH FUNDRAISING CYCLE



Source: I4CE.

Note: This is a simplified view of cleantech firms' evolving capital stack across the fundraising cycle with an emphasis on private banks' direct support. Private banks lend directly to firms through loans, quasi-equity and advise firms throughout the cycle. Cleantech firms' bankability gradually improves through the cycle.

1.1. Banks act as advisors to assess and improve firms' bankability

Many successful cleantech firms that bridge the 'valley of death' to secure late-stage capital approach banks during early fundraising. In advising firms during the early stage, banks provide bankability assessments that firms leverage to attract equity investors (**Figure 1**). Not all cleantech firms benefit from banks' advisory services, including the bankability assessment report. Some firms may not be able to afford the cost: banks charge, on average, a monthly retainer of €25 k to €75 k for advisory services, plus an additional €50 k to €100 k for financial modelling. The bankability assessment report itself costs around €50 k to €100 k. Moreover, **banks have a selection bias by choosing firms that are likely to prove successful in securing future bank credit**. Banks are also constrained in advising every cleantech firm that approaches them, as it engages significant internal technical expertise on specific clean energy technologies. A large European bank could have fewer than 50 people for its entire project finance portfolio, including non-cleantech sectors.

Cleantech firms can be bankable in the late stage, but require strong public support, deep equity capital and bankability assessments during the earlier stages. Government grants and public schemes, along with early-stage VC and seed capital, are crucial to support promising cleantech firms in the early stage. In Europe, **early-stage capital is supported by a thriving cleantech VC landscape**, outpacing that of the US. During 2015-2024, European VC funds raised 36% more early-stage capital for climate tech startups (funding rounds of up to $15mn) at $21bn on average *(World Fund, 2026)*.

1.2. Banks finance cleantech projects both directly and indirectly

Banks are the key debt capital providers for bankable firms in the late-stage, while also supporting firms through smaller equity investments during earlier stages. Banks, along with pension funds, insurers and other institutional investors, invest equity capital as limited partners (LPs) into VC, PE funds and infrastructure funds. However, in Europe, institutional investors contribute to only 30% of VC financing for startups compared to 72% in the US *(Arnold et al., 2024)*. According to Invest Europe, **less than 5% of Europe's private equity investments come from banks** *(Invest Europe, 2024)*. Like banks, pension funds' VC investments are minuscule, representing only one one-hundredth of 1% of their assets annually *(CEPS, 2025)*. This stems from the structural design of the European capital market in which **firms seek finance primarily through bank loans rather than market-based financing channels** as favoured in the US. Moreover, fragmented capital markets limit the pooling of institutional capital on a pan-European level, which impedes building bigger VC funds. More equity capital can be mobilised by addressing these structural flaws through key initiatives such as the SIU (Savings and Investment Union) as proposed in the Letta report *(Letta, 2024)*.

The 'valley of death' is a consequence of structural flaws in the European capital market as private capital remains polarised at the early and late stages – only 20% of European climate tech funds focus on the growth stage *(World Fund', 2026)*. The 'missing' private capital pipeline stalls cleantech projects, especially at the growth stage (series B), where firms seek equity fundraising rounds of €30 mn to €100 mn. Between 2010 to 2020, only 15% of European cleantech firms transitioned from seed to series B compared with 25% in the US. On average, 90% of the series B funding gap in Europe can be explained by the polarisation of private capital at early and late stages: **more than 70% of active European climate tech funds focus exclusively on the early stage, while only 20% facilitate growth capital** *(World Fund, 2026)*. For the late stage, a recent global survey underlines growing investor interest in high-quality infrastructure projects supporting the energy transition, with around half of the respondents seeing attractive risk-return opportunities in this megatrend *(IFM, 2025)*. Private funds investing in real assets, such as infrastructure, make up 30% of total European impact investment funds categorised as Article 8 under the SFDR (Sustainable Finance Disclosure Regulation) *(Nerlich et al. et al. 2025)*.

For firms that are not yet bankable for long-term bank debt, banks can provide support through direct bridge financing channels. Bridging the valley of death requires a dynamic growth stage equity market and quasi-equity bridge finance to help firms become bankable for late-stage capital (**Figure 1**). Apart from advisory functions and indirect equity financing, banks directly finance firms predominantly through two channels of bridge finance: venture debt and short-term corporate loans (**Chapter 2**).

Venture debt[1] is a growing segment of the cleantech growth stage capital stack to help firms meet the conditions of bankability faster. It is usually issued

1 Venture debt is a short-term loan of less than 3 years that is granted to venture-backed, high-growth start-ups that are not yet bankable. It is considered a form of quasi-equity finance due to an embedded equity warrant option.

for a period of 3 years, serving as crucial capital to bridge the valley of death and 'extend the cash runways of companies that are waiting for valuations to pick up'*(Pitchbook, 2025)*. The EIB estimates that its **venture debt support to startups helps them grow 33% while crowding in 2.5 times more capital in later stages** *(EIB, 2022)*. On the other hand, short-term corporate finance loans are the dominant financing channel for European firms, including the non-cleantech sector.

1.3. Bankability is an evolving quality, not a checklist condition

Bankability is not a checklist condition; it is an evolving quality that underpins a cleantech project's success throughout the fundraising lifecycle. Bankability is the defining qualification for projects to attract late-stage debt capital, but it is cultivated from the early stages of a firm's investment lifecycle. Firms that successfully graduate from early to late-stage fundraising resolve technical, environmental and other project-related risks in a timely way at each iteration. One of the most important bankability conditions is the certainty of the project's cash flows to pay off bank debt and other payment obligations. Consequently, bank credit is only viable in the late-stage once firms meet bankability conditions (**Chapter 2**). **The absence of bank loans in the pre-FID phase is not a system failure — it reflects a categorical difference between investability and bankability**. A project is investable when its risk-adjusted returns are aligned with investors' risk appetite – equity investors accept uncertainty and are willing to absorb losses. Bankability demands a robust credit risk framework for lenders to protect their losses in case of failure.

Project bankability provides co-benefits beyond securing long-term bank debt. Timely bankability assessments boost investor confidence to inject equity capital, strengthen the bank-firm relationship for future project finance, and reassure governments and public banks that further financing is warranted. Most importantly, they provide cleantech firms with a structured diagnosis of what they must resolve from a lender's perspective, thus turning bankability into a risk mitigation roadmap. **Bankability and credit risk are directly related: the more risky a project is, the less bankable it is for lenders, even if it is attractive for some equity investors**. Timely derisking tools can offset risks and improve project bankability before it becomes a constraint to scaling growth.

Recommendation #1 Dynamic capital stack supported by selective public money to leverage bank credit

Cleantech firms with a strong and diverse equity base in their capital stack can better leverage cheaper bank debt. Boosting equity capital through timely public grants is essential in the early development stage when project risks are too high for private investors. It can be counterproductive to issue grants to firms stuck in the growth-stage where technical project risks require specific derisking tools to improve bankability, which grants cannot deliver. Moreover, grants should be proportionate in size to the project developers' own equity. Having a majority of 'free' public grants, despite being non-dilutive, can be negatively interpreted by banks as a project developer's lack of 'skin in the game'. This is especially true for SPV loans (**Chapter 2**) rather than loans issued to the parent firm (Holding Company or HoldCo), where grants are absorbed into an already bigger capital stack, having little impact.

On the capital supply side, the growth stage 'valley of death' hinders most European cleantech firms from accessing larger pools of equity capital. An evolving European VC market and policy initiatives such as the SIU could help gradually correct the supply deficit. However, on the capital demand side, cleantech projects face challenges in resolving project risks specific to each type of clean energy technology. Technology-specific bankability barriers require targeted public derisking tools – more private money will still not flow to unbankable projects. Public money can be more effective in crowding in private capital when 'more selectivity on the front end' targets high-quality cleantech projects. This implies bigger public firepower, bankrolling fewer projects to success rather than 'disbursing small sums evenly across projects'.

2. CHAPTER 2: CLEANTECH PROJECTS MUST MEET CREDIT CONDITIONS TO BECOME BANKABLE

Cleantech firms, like any other sector, must fulfil eligibility conditions to secure bank credit. Project finance loans are usually issued for approximately 20 years, requiring stricter conditions for issuance compared to short-term corporate loans. Those cleantech firms that fail to meet robust credit standards and risk thresholds rely on bridge financing channels, including short-term corporate loans. This chapter highlights the key conditions for bankability through the primary bank debt channels of project finance loans and corporate loans.

2.1. Project finance is the desired financing channel, albeit with strict eligibility conditions

The desired fundraising goal for a cleantech scale-up is to raise long-term project finance debt, but strict bankability conditions resulted in only 11% of project finance in European cleantech investments in 2024. *(World Fund, 2026)* Project finance is a form of non-recourse structured lending where a firm raises debt capital for a project ringfenced through a separate legal entity called a Special Purpose Vehicle (SPV).[2] This makes it particularly attractive for cleantech startups operating on weaker balance sheets than large enterprises. Institutional investors are increasingly investing in project finance for renewable energy infrastructure. In H1 2025, infrastructure funds raised €41 bn of equity capital or 91% of the average over the period 2020-2024, of which 60% was invested in renewable energy projects *(Invest Europe, 2025)*. However, most firms cannot secure project finance loans due to strict bankability conditions.

Project finance is essentially a risk allocation exercise in which cleantech projects must be sufficiently derisked before issuing the Final Investment Decision (FID) to access bank loans *(Dentons, 2018)*. Projects should meet all bankability conditions before issuing the FID to gain lenders' confidence to grant long-term project finance loans.

Imerys, a French minerals and mining company, is currently in the development phase of its Emili project in France to extract lithium deposits. The project aims to supply lithium to approximately 700,000 electric vehicles annually.[3] For the project to reach its FID around 2029-2030, it would need to mitigate high environmental costs and obtain legal agreements with local stakeholders, among other conditions. Failure to do so could delay FID or result in a smaller bank loan, driving up project costs.

2 In the classic project finance model, banks lend directly to the SPV or project, rather than to the firm, limiting recourse to the collateral of the SPV. In other words, in case of a default to repay, lenders can claim the project's assets rather than the balance sheet of the parent firm. This is the typical financing route for large-scale infrastructure projects. High operational and legal complexity raises project costs so that project finance is more suitable for firms seeking €100 mn or more in funding.

3 'EMILI: A Project for Energy Transition and European Sovereignty', https://emili.imerys.com/en.

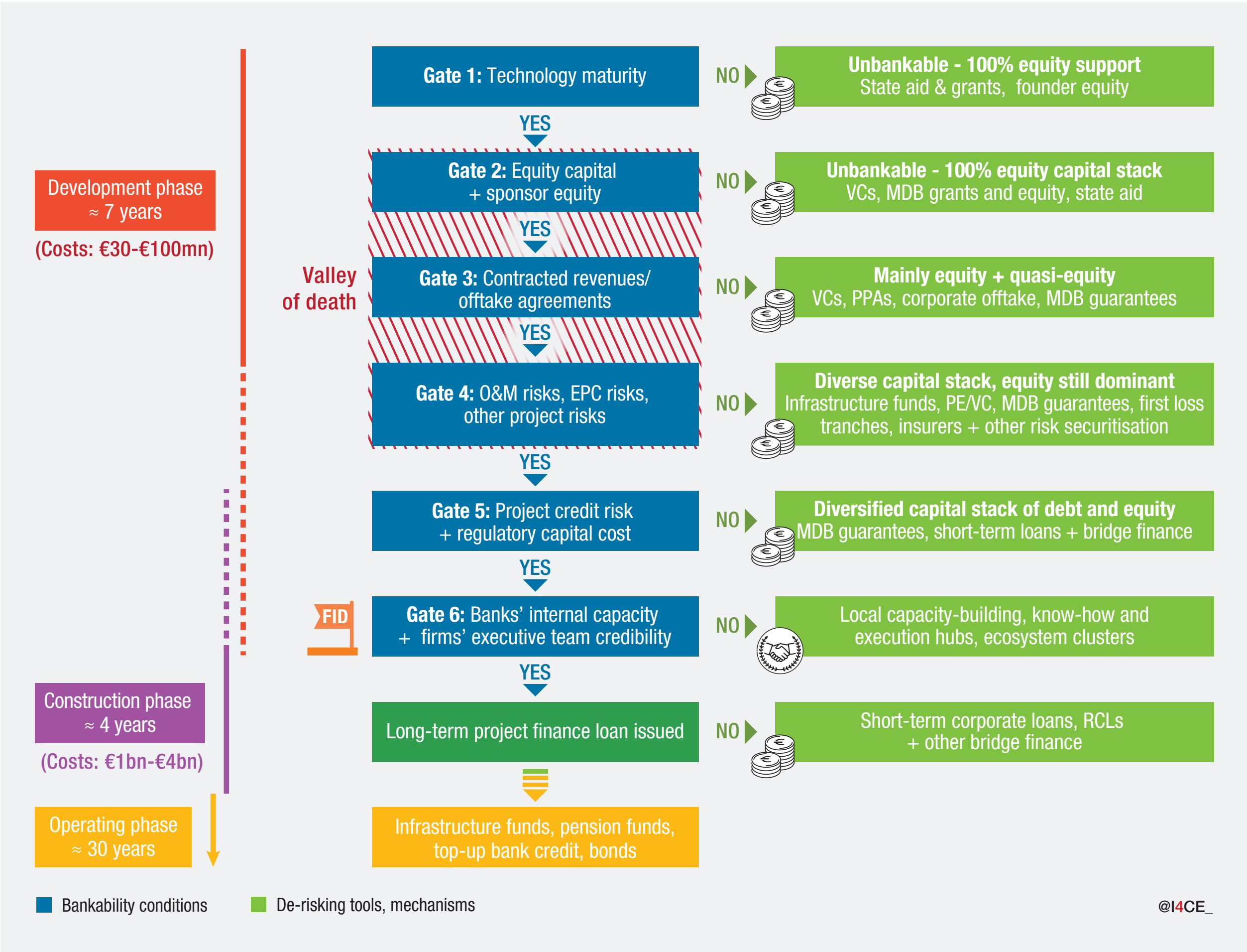
Illustration: A focus on the bankability of Floating Offshore Wind

Floating offshore wind is an emerging technology in the wind energy sector that has several technical and environmental advantages over conventional fixed-bottom structures. Floating offshore wind energy installations can be deployed in deeper waters than bottom-fixed turbines, increasing the marine space and wind resources available in Europe's vast deep waters. TRLs range between 6 and 9, depending on the specific floating structure, since no industry standard is established yet. The actual TRL on a project-level basis depends on the maturity of the developer. These projects are not yet systematically bankable, leading to their low deployment, further limiting their bankability. According to the Blue Economy Report 2025, only 29 MW of capacity is operational, with an additional 90 MW under construction in France. However, installed capacity is expected to grow to 3 GW by 2030 and over 40 GW by 2040 *(European Commission, 2025)*. This stems from recent government auctions (including planned future auctions) for large-scale farms of more than 1 GW in France, Norway, Greece, Italy and the UK.

A floating offshore wind farm could be unbankable if strict risk criteria during the development and construction phases are not fulfilled – even if it is otherwise investable. The success factor is not solely its FID, but rather how well the project continues to meet conditions to attract private capital. In other words, bankability does not guarantee success, but rather serves as a blueprint for the project's creditworthiness – constantly evolving with market and policy dynamics. The FID is not the end of the fundraising story.

This chapter illustrates these conditions through the floating offshore wind sector. These conditions also apply broadly to the cleantech sector. However, the bankability business case differs by sector, requiring appropriate derisking mechanisms to resolve sector-specific bottlenecks.

FIGURE 3. THE BANKABILITY PATHWAY FOR FLOATING OFFSHORE WIND



Source: I4CE.

Note: This represents the bankability pathway for a typical 1GW floating offshore wind project in Europe. Project-specific nuances can lead to overlaps between the development and construction phases (in dotted lines), where better capitalised projects may be able to move faster from pilot/demonstration to FOAKs/NOAKs despite not being fully derisked. Long-term bank project loans are granted after identified project risks are securitised or allocated to each relevant party of the capital stack.

CONDITION #1

Is the technology proven and commercial at scale?

Bankability improves when the technology's commercial scalability has been proven repeatedly across projects. This is the case for NOAK (nth-of-a-kind) projects but also for some large-scale FOAK (first-of-a-kind) projects, especially for floating offshore wind projects operating at higher TRLs. Typically, TRLs of 9 or above are suitable candidates for project finance, having resolved the technology risk barrier. However, this advantage is often available only to large corporates, running proven industrial projects at scale *(Cleantech for Europe, 2024)*. In Europe, three homegrown incumbents dominate 94.5% of the European market for wind turbines: the Nordex group, Vestas and Siemens Gamesa *(GWEC, 2026)*. New firms may struggle to compete on core hardware (turbines), but can run demonstration and design projects – if backed by a strong equity capital stack. **The valley of death is most crippling for demonstration projects, typically of 100 MW, where start-ups struggle to fund project costs of €30 mn to €100 mn** (**Figure 3**). Public aid in the form of grants is crucial to offset technology risk if projects are stuck in the pipeline. Moreover, high-risk equity capital, such as early-stage VCs, is essential at this stage.

CONDITION #2

Can the project sponsor provide sufficient equity capital to leverage debt?

Cleantech project sponsors must have sufficient equity capital, including own funds, to leverage bigger project finance loans. Banks typically finance between 60-80% of the project costs, requiring the rest to be funded in equity by the project sponsors and equity investors. **As project risk increases, banks tend to reduce the loan size**. This ensures that leverage is optimised while protecting lenders from taking on additional risk (including non-financial risk) that they are not suited for. The project sponsor's robustness has an important dual impact on bankability: both in terms of their experience and their ability to reinject equity capital in the event of project underperformance.

Lack of growth equity capital is a key bottleneck for European cleantech firms, where about 18% of European cleantech firms raise equity capital, compared to almost 40% of firms in the US *(EIB-EPO, 2024)*. While the potential SIU initiative could help harmonise and deepen European equity markets, public financing mechanisms from MDBs (Multilateral Development Banks) and other public bodies are imperative to bridge the equity gap. The EIB's Co-investment programme with an envelope of €500 mn covers equity shortfalls for large-scale projects.[4] The Scaleup Europe Fund is a promising €5 bn fund to support 'strategic tech areas', including clean energy.[5] The European Investment Fund's (EIF) second edition of the European Tech Champions Initiative (ETCI 2.0) aims to raise €15 bn from growth and late-stage private investors to unlock €80 bn in financing.[6] **Such initiatives should channel fresh equity financing towards solid, yet stalled, cleantech projects rather than simply aggregating supply to already bankable firms**.

CONDITION #3

Does the project generate standalone, predictable, contracted cash flows?

One of the most important conditions for bankability is the certainty of a cleantech project's cash flows – they must be sufficiently predictable and contracted for the entire loan horizon. A project finance loan that runs for approximately 20 years must have a sufficient revenue guarantee for the entire lending horizon; otherwise, lenders would consider it unbankable. Even so, given the positive market trend of the renewable energy sector, banks are now more willing to lend to projects with a higher revenue or market risk exposure than in previous years. Revenue risk is also technology-specific, as several clean energy technologies are still not competitive relative to conventional technologies based on Emission Trading System (ETS) pricing premiums. For example, green steel and eSAF remain highly dependent on Contracts for Difference (CfDs) *(I4CE, 2026b)*.

Cleantech scale-ups cannot solely rely on government offtake – revenue risk must be mitigated through a mix of long-term corporate offtake agreements and public PPAs to secure > 1 GW outputs. Lessons can be drawn from the AI (Artificial Intelligence) boom. Data centers are facing increased investor scrutiny on contracted offtakes to ensure returns hold over increasing land, power and operating costs *(KKR, 2025)*. French unicorn Mistral AI, through offtakes with Nvidia and ASML, raised project finance debt of €830 mn via a consortium of 7 banks with BpiFrance, after 3 years of fundraising.[7] Cleantech firms are no different as investors sharpen their scrutiny of project unit economics over headline figures of public support. Large-scale clean energy projects of sovereign importance require **partnerships between governments and corporates to secure offtakes – public budgets alone cannot procure 1 GW outputs**. French offshore wind developer, Oxan Energy, in a joint venture with Ingka Investments, IKEA's largest retailer, and supported by the Italian government, is developing 2 floating offshore wind projects in Italy with a potential capacity of 2.45 GW.[8]

Strong offtakes do not guarantee bank credit, as project creditworthiness plays a decisive factor in banks' risk perception. Risk perception between cleantech firms and banks can be mismatched. Cleantech project developers tend to focus mainly on securing offtake contracts, while banks assess the firm's creditworthiness to service debt and other project covenant costs.

4 'European Investment Bank (EIB), https://www.eib.org/en/projects/all/20150063.
5 European Innovation Council (EIC), https://eic.ec.europa.eu/eic-fund/scaleup-europe-fund_en.
6 'European Investment Fund (EIF), https://www.eif.org/flagship-initiatives/european-tech-champions-initiative/overview.
7 Financial Times, 'Mistral Raises $830mn to Build Nvidia-Powered AI Centres in Europe', 2026. https://www.ft.com/content/229f4f59-d518-4e00-abd6-5a5b727cd2aa?syn-25a6b1a6=1.
8 Oxan Energy, https://oxan.energy/ingka-investments-oxan-energy-and-avapa-energy-to-develop-offshore-wind-projects-in-italy/, 2025.

In the UK, a floating offshore wind developer won a government CfD auction to supply a firm 1 GW to offshore oil and gas rigs. Since wind generation is intermittent, the developer had to build out 3 GW of total capacity to reliably guarantee the 1 GW floor, leaving two-thirds of the farm's output uncontracted and exposed to merchant market prices. For banks, this uncontracted "overcapacity" is a source of high uncertainty, producing "wobbly" project economics despite the government's strong underlying offtake commitment.

CONDITION #4

Is the project's credit risk financially viable while meeting banks' capital requirements?

Bank credit assessments determine their lending decisions, including the size of the loan, aligned with their risk thresholds. Banks apply several financial ratios to assess creditworthiness, including the DSCR,[9] which influences the size of the project finance loan. The higher the uncertainty of cash flows, the higher the project's credit risk, the more conservative the DSCR, thereby reducing the size of the loan granted. Banks use complex risk models to evaluate future adverse scenarios that could impact the project's cash flows to derive prudent DSCRs – usually in the range of 1.2-1.7, although no industry standard exists. **If a bank assesses an EV battery gigafactory's offtake agreement to be weak, the DSCR could rise as high as 2.0, meaning the project must earn double the cash flows of the debt it needs to pay.** Such constraints are additionally challenging for struggling European battery gigafactories facing uncertain demand.

Bank credit is absent in the pre-FID phase in part due to high prudential capital costs – a result of high project risks. Bank credit is unavailable in the development phase as clean energy projects are high-risk and pre-revenue with little to no certainty of debt repayment capacities (**Chapter 3**). Additionally, banks' prudential costs are significant at the pre-operational phase. The CRR 3 regulation of the Basel 3 banking package[10] introduces new SA risk weights for project finance loans linked to the credit rating of the SPV, with risk weights between 20% and 150%. However, most SPVs are not externally rated, resulting in the use of a flat risk weight. **In the pre-operational phase, projects must be weighted at 130%, which reduces to 100% in the operational phase or further to 80% if the project is of high quality.**[11] Most large European banks use the IRB approach, which is more risk-sensitive through a slotting approach that allows banks to assign a weight between 70% to 250%.

The 'valley of death' is most prominent during a floating offshore wind project's development phase, where costs are lowest (< €100 mn) but project risks are highest. For floating offshore wind, the development phase can last up to 7 years, during which project developers rely on government aid, public finance and equity fundraising, including bridge capital (**Figure 3**). Large-scale projects of about 1 GW could cost, on average, €1 bn to 2 bn (with some projects going up to €4 bn depending on the engineering structure), where **costs associated with the development phase are relatively low at around €100 mn**. This phase is crucial as it determines future success – most projects fail not from the lack of bank credit (bank loans are unviable), but from insufficient derisking. The growth-stage funding gap is an added constraint, more for demonstration projects rather than large-scale gigawatt farms, as cleantech startups have weaker balance sheets than established players. The high credit risk of the development phase deters not only private banks but also public banks such as the EIB, which are almost absent. This critical gap must be addressed with timely public finance schemes such as FOAK premium tariffs and guarantees, to lower capital costs and boost bankability.

CONDITION #5

Are the project risks identified and allocated among the project stakeholders?

Floating offshore wind projects that are unable to derisk key factors cannot reach FID and remain stuck in the development phase. The risk allocation or mitigation exercise is essential to greenlight projects for long-term project loans. Since banks have limited or no recourse to the parent firm, they verify that every identified risk is optimally 'parked' with the appropriate investor or party in the firm's capital stack (apart from sponsors), competent to assume that risk *(Dentons, 2018)*. Typically, infrastructure funds derisk operational and technical risks, while banks take on maintenance risks. For floating offshore wind projects, the cost of debt capital ranges, on average, between 5-7%, meeting some banks' risk-adjusted returns. The cost of equity ranges between 10-12%, compensating equity investors (including developers) for their higher risk appetite. **An ideal project finance structure will have little to no residual risk left with the SPV once the FID is issued.** Projects that are unable to sufficiently derisk remain stranded in the development phase, as banks only grant project finance loans once projects reach FID to launch the construction phase.

Banks assess the credibility of each stakeholder of the cleantech firm's capital stack to absorb risks. The risk allocation exercise does not imply that cleantech projects are inherently riskier. Banks verify the credibility of EPC (Engineering, Procurement, Construction) contractors to mitigate crucial EPC risks such as cost overruns and delays, common to most cleantech projects. Similarly, insurance protection coverage is vital to hedge projects against disruptions, delays and other material risks. Banks also require government support or MDB guarantees to cover regulatory risk. Public finance from funds and MDBs is crucial to mitigate those project risks which private finance investors cannot absorb.

---

9 The Debt Service Coverage Ratio (DSCR) is a key financial ratio used in project finance structures. It represents the financial strength of a project to pay off contractual debt obligations using its operating cash flows.

10 The Capital Requirements Regulation (CRR) is the European transposition of the international banking rulebook or Basel standard. The latest rules on credit risk have been in force, in a phased-in approach, since 2024. Under Article 122(a) of the regulation, banks using the Standard Approach (SA) can now apply more sensitive risk weights between 20% to 150%.

11 Regulation (EU) 2024/1623 of the European Parliament and of the Council of 31 May 2024 Amending Regulation (EU) No 575/2013 as Regards Requirements for Credit Risk, Credit Valuation Adjustment Risk, Operational Risk, Market Risk and the Output Floor.

Recommendation #2 Targeted public money to derisk cleantech projects, especially in the development phase

A wide gamut of public derisking tools is already available – they must be deployed at *the right time, on the right project and in the right amount*. First-loss tranches and public guarantees are highly valuable during the development phase, as they help reduce project credit risk and speed up the FID. However, most public guarantees from MDBs, such as the EIB, cover only performance-related issues closer to FID (in the ramp-up phase), including operations, maintenance and construction costs. Guarantees often do not cover bank senior debt, driving up their cost of capital. Through guarantees, project credit can be significantly reduced, thus lowering banks' RWA and cost of capital (**Chapter 3**). Guarantees by third parties such as Export Credit Agencies (ECAs) are also similarly useful. For floating offshore wind projects, FOAK offtake guarantees are useful to cover market price deficits. Public guarantee mechanisms for seabed tender access must allow bidding from mid-size consortia with limited balance sheets. At the same time, a project having 100% guarantees with public money is not cost-effective, as it increases project costs.

Irrespective of the cleantech TRL, grants are more effective during the development rather than the construction phase to boost bankability, provided they are proportionate (**Recommendation 1**). In the development phase, bank loans are not fit for purpose in part due to high prudential risk weights (130% or more). Here, the costs are lowest (< €100 mn), but project risks are highest, needing targeted public money to unblock solid yet stalled projects. At a project level, public funding of €50 mn to 70 mn is a crucial lifeline for startups running demonstration projects, while large corporates running industrial gigafarms require specific EPC and O&M (Operations and Maintenance) guarantees to secure project finance loans.

2.2. Bank corporate finance loans are a useful form of bridge finance

Banks are the biggest lenders to the European economy, holding approximately 43% of the total stock of loans as of Q3 2025 *(ECB, 2026b)*. Cleantech firms, like other corporates, primarily seek bank loans to scale operations. For cleantech projects, short-term corporate finance loans[12] or bridge loans are a form of necessary bridge finance till firms fulfil more stringent bankability conditions for long-term debt. Stalled projects seek corporate loans as a financial float, while those that successfully secure project finance require corporate loans during the operating phase to top up capital for additional expenses. Compared to project finance, **corporate loans are flexible, with an average size of €10 mn and a horizon of 5-8 years**, but also come with some bankability conditions.

CONDITION #1

Does the firm have sufficient collateral to secure the loan?

In the development and construction phases, cleantech startups have weak balance sheets and limited physical assets to pledge as collateral for secured bank credit. Unlike large corporates, cleantech firms in the pre-operating phase have uncertain cash flows and almost no physical assets to meet banks' collateral requirements. However, this is a structural problem faced by startups across sectors, especially those building infrastructural assets. Firms struggle to meet bank ratio requirements, such as the LTV,[13] which limits the maximum loan amount a bank can grant a firm or household. An LTV of 70% indicates a maximum loan amount of €70 for every €100 of collateral. For startups that are yet to launch their FOAK projects, they do not own factories, plants and other eligible real estate to pledge as collateral.

Cleantech firms are innovative by nature and can pledge their Intellectual Property (IP) as collateral, but only 34% of total bank loans are secured by IP collateral. Banks do not systematically value IP as an asset. In a survey, 61% of large cleantech firms (having > 250 employees) reported that their IPs and patents are considered as collateral by investors, thereby increasing their access to private capital *(EIB-EPO, 2024)*. Unlike equity investors, **banks do not systematically value IP as collateral due to its non-monetisable nature, coupled with their lack of sufficient internal expertise for IP valuation**. In Europe, 34% of the total outstanding secured loans are pledged by financial assets (such as IPs), while 53% are pledged by real estate, indicating a preference among banks for the latter *(Degryse et al., 2025)*. At the same time, banks are aware of cleantech firms' collateral constraints and consider

12 General-purpose bank corporate loans (or simply corporate loans) are a vital financial lifeline to help firms meet working capital and operational expenses. They are the bulk of the European credit channel.

13 The Loan-to-Value ratio (LTV) is a regulatory ratio that banks must comply with. For secured loans, the LTV is the ratio of the loan amount to the market value of the collateral.

other important factors when issuing loans. Successful cleantech firms that secure bridge finance do not have better collateral; rather, they have a better credit risk profile despite the lack of collateral.

CONDITION #2

Does the corporate loan match the firm's growth potential?

Banks can refuse to lend to cleantech firms if the bridge loan is not 'fit for purpose' after considering the firm's existing capital stack and growth potential. Given the volume of loan demand, banks assess opportunity costs by accounting for the duration and size of the loan, the firm's existing capital stack and its growth potential. If a cleantech firm seeks a short-term corporate loan that burns working capital at a time when it is cash-poor, it could prove costly for it to survive till the next fundraising round.

> In the now well-documented bankruptcy of Northvolt, one of the reasons for its failure was its inability to repay considerable debt obligations amassed during 'frenzied' expansion. By 2024, it had taken on more than SEK 80bn (€7 bn in current rates) in debt, with little revenue to service its accumulating interest payments (Sandström, C. 2026). Fresh capital went towards operating and working capital expenses, rather than capex – causing nervous debt and equity investors to pull back from injecting further capital.

Successful cleantech firms gain banks' confidence with clarity and conviction on the timeliness of appropriate bridge finance to scale their operations. Firms leverage their bankability assessments to demonstrate the timeliness and payoff of injecting fresh bridge finance to attract both equity and debt investors. For example, a green hydrogen firm looking to install its FOAK plant may have a diversified capital stack, good quality demonstration projects and 100% offtake secured. If it lacks a crucial national permit for operations, its FID would stall, driving up development costs. However, since the firm meets other bankability conditions, a bank may decide to issue a corporate loan or an RCF (Revolving Credit Facility) in the interim, supplying a vital lifeline. Cleantech firms on the verge of securing long-term debt would prefer not to raise further equity capital to limit dilution of ownership.

CONDITION #3

Can banks overcome information asymmetries to assess credit risk?

Banks assess cleantech firms' bankability based on expert judgement using available information and limited internal capacity, impacting lending decisions. Information asymmetries are common in private financial markets, especially for pre-IPO firms, where investors evaluate investment opportunities based on limited transparency. For SPV financing, specialised institutional investors help mitigate EPC, O&M and other operational risks. However, for corporate loans, banks require knowledgeable in-house credit and research teams for technology-specific analysis. A credit officer evaluating a solid-state EV battery manufacturer would need to perform extensive due diligence to understand the technological competitiveness, OEM trends, manufacturing dynamics and supply chain risks. **Information asymmetries play a significant role in heterogeneities in loan pricing**: 'specialised' sector-focused banks and existing bank-client relationships can be advantages for some cleantech firms *(Morse and Sastry, 2025)*.

Due to limited information, credit officers bank on the quality of the cleantech firm's management team as an indicator of success. A cleantech firm's bankability is strengthened by its financial viability on paper as much as the executive team driving it. Bank credit officers assess the track record of the management team to be reassured that the team is not only technically capable but can also efficiently allocate capital. First-time founders with a novice team and limited public backing could be at a disadvantage. Firms that are well-supported and advised by banks and other investors have a higher chance of securing loans. Local ecosystem hubs and networks are imperative to reduce information asymmetries between investors and cleantech firms and support on-the-ground execution.

> **Recommendation #3**
>
> **Local ecosystem clusters for support, know-how and execution**
>
> After derisking with sufficient public and private capital, project developers need support with cost-efficient execution with operational know-how. The missing middle in European cleantech financing is as much a finance problem as it is an execution and know-how problem. Project developers require local ecosystem partners to support them on managerial, operational and financial issues of running large-scale infrastructural projects on the ground. Integrated value chains within local ecosystems could play an important role in supporting struggling sectors such as hydrogen.
>
> Several clean technologies are still a relatively new asset class requiring local hubs or sandboxes to exchange best practices among investors and support project developers on execution. Sectoral clusters would need both public and private support to institutionalise the business case across multiple deals and create 'systemic change' *(GFI, 2025)*. These sectoral clusters should be organised at the national level with exchanges at the European-level to share best practices and reduce information asymmetry between firms, financiers, and policymakers. The InvestEU Advisory Hub is a useful start in this direction. Similarly, the Net-Zero Acceleration Valleys initiative[14] and Industrial Accelerator Areas launched by the European Commission are encouraging starting points. Policymakers must balance capital allocation alongside the development and training of local, sectoral expertise.

14 European Commission (EC), https://single-market-economy.ec.europa.eu/industry/sustainability/net-zero-industry-act/net-zero-acceleration-valleys_en.

3. CHAPTER 3: CAN PRUDENTIAL REGULATION MOBILISE MORE BANK LENDING TO THE CLEANTECH SECTOR?

Mandatory capital rules play a crucial role in banks' lending practices. When making a credit decision, banks are guided by an overarching question: 'Is this a good use of capital?' The answer lies in evaluating both the capital and the credit case behind lending. This chapter illustrates how cleantech credit risk impacts outweigh banks' capital costs, thus limiting the role of prudential capital requirements to stimulate additional lending. However, existing supervisory tools can help monitor banks' transition finance frameworks.

3.1. Prudential capital requirements impact banks' cost of capital and profitability

The regulatory cost of capital directly impacts banks' profitability – a hurdle that all firms must cross to access bank credit. When issuing loans, banks expect a return on capital that meets at least the minimum CoE[15] to be profitable. A common metric to represent the expected return in loan pricing is the RAROC. In reality, banks' lending policies are heterogeneously priced, leading sometimes to overpricing in the short-term (maturities of less than 1 year) and underpricing for longer-term loans *(Mateus and Pinheiro, 2021)*. Even so, loans to the cleantech sector are subject to the same capital constraints as those to other economic sectors. But those cleantech firms that carry high credit risk (due to lower bankability) increase banks' capital costs, thus excluding them from credit channels (**Figure 1**).

Capital relief for cleantech lending already exists, but these incentives have so far demonstrated little impact on banks' lending decisions. Existing capital relief in the prudential framework incentivises banks to lend to SMEs and infrastructure projects, including cleantech. In 2019, CRR 2[16] introduced a 25% ISF discount for corporate or project finance loans financing physical assets (for example, in energy) - provided the loans satisfied certain eligibility conditions. According to the results, the ISF resulted in a modest increase in banks' CET 1 ratios from an RWA savings of €21.8 billion, mostly concentrated in large banks. The European Banking Authority's (EBA) analysis of 61 banks providing project finance loans revealed that 36% of banks did not apply the ISF due to complications in the applicability criteria. Of those banks that applied the discount, a majority reported improved lending conditions toward 'green' loans. However, **only 4 banks reported that the ISF resulted in a lower interest rate for the borrower** *(EBA, 2022)*. These preliminary results should be read with caution, given the voluntary nature of the EBA survey and limited quantitative data.

15 In practical terms, the Cost of Equity (CoE) influences the regulatory cost of capital that banks must hold to buffer against losses and return profits to shareholders. It is not directly observable. The ECB's own estimates vary on average between 7.7% to 12.7% based on different models (Altavilla, C. *et al.*). Theoretically, the regulatory cost of capital is quantified as = Risk-Weighted Assets (RWA) X CoE.

16 The CRR (Capital Requirements Regulation) is part of the European regulatory framework that sets the legally-binding rules for banks' prudential regulation and supervision. The CRR 2 was adopted in 2019. However, the CRR 3, passed in 2024, is the most recent adoption of the international Basel framework.

3.2. Project credit risk can outweigh capital costs in banks' lending to cleantech firms

Banks' credit decision is primarily determined by the underlying risk profile of the cleantech firm, going beyond the capital charge on banks' balance sheets. Cleantech firms that are unable to meet key bankability conditions have higher credit risks that can outweigh any capital discount advantage. In the same 2022 EBA survey, even among the banks that applied the ISF to their loan exposures, none saw a change in the risk policy. In other words, **the 'decision to lend is not affected by the supporting factor'** *(EBA, 2022)*. Capital discounts, such as the ISF (unless very large) cannot compensate for high project credit risk. Given current efforts to reduce capital requirements to boost European banking competitiveness, policymakers should bear in mind that historically, capital incentives produced limited impacts on real economy lending. Instead, the extra capital leeway marginally boosts profitability, fuelling share buybacks and increased bank dividends *(Finance Watch, 2026)*.

In reality, profitability is not the key determinant in banks' lending decisions as banks assess project credit risk for competitive cleantech sectors. The hurdle rate or RAROC[17] determines the profitability of banks' capital consumption, but does not always determine the pricing or interest rate charged to the borrower. Rather, this pricing is determined by the market, including risk-free interest rates and competitor pricing for similar deals. In Europe, loans are usually priced at Euribor rates (or risk-free rates) plus the bank margin. In an ideal scenario, this rate should be almost identical to RAROC. However, banks could sometimes be operating at thinner **profitability margins where loan interest rates are at or slightly lower than the hurdle rate**. Such underpricing can sometimes be found in mature cleantech sectors such as offshore wind, where loan pricing is competitive.

Despite a cleantech firm having a good credit risk profile, banks may decline a loan due to broader sector challenges. Even if the profitability margin is high enough to sufficiently meet the bank's hurdle rate, the risk committee might still reject the loan for other reasons. The bank's internal committees may decide that 'the deal is the right fit, but wrong time'. Beyond profitability, these committees assess the banks' own strategy compatibility with a specific clean energy technology, the overall sectoral trends, the banks' own operational and technical capacity, and the maturity of the underlying asset class, among others. **The key question guiding the credit decision is whether 'this deal is consistently bankable throughout the sector?'** EV battery gigafactories can appear bankable on paper, but banks can find it 'tricky to finance projects for 20 years that may become redundant in less than 5 years from competitive imports'. Timely and targeted public support is crucial to correct such market failures.

A note of caution on regulatory capital simplification and securitisation reform

Bank prudential capital reform, resulting in reduced capital requirements, would likely have a limited impact on directly boosting credit to European priority sectors such as cleantech. Yet, recent calls for simplification hide an important fact: large EU banks are less compliant with Basel 3 capital rules compared to their US peers due to an already relatively relaxed capital framework *(ECB, 2026c)*. Even if capital reduction potentially injects a one-off lending spurt into the real economy, there is no guarantee of a sustained capital allocation drive. Finance Watch reveals, based on ECB data, that despite higher profitability during 2019-2025, EU banks lent 2.5x faster to other financial institutions than to real economy businesses *(Finance Watch, 2026)*. At the same time, banks' record profits in recent years continue to spur increased dividend payouts and share buybacks. BCBS data shows that EU banks, contrary to their US peers, are already back to pre-pandemic levels of dividend payouts of 40-50% of their net profits.[18] EU banks are neither constrained by nor starved of capital – policymakers must leverage an already strong and profitable banking sector to boost lending for European competitiveness.

Similarly, increased industry pressure for securitisation reform should also be interpreted cautiously. Securitisation of assets helps free up capital on banks' balance sheets, thus improving profitability, while having little impact on lending decisions. After granting loans, banks consider various mitigation options to reduce credit risk, including through Collateralised Loan Obligations (CLOs). However, this remains a post-trade decision that does not factor into loan decision-making. Importantly, securitisation helps improve profitability while promoting risk-taking as banks can offload or sell loans to other actors. While securitisation is useful for risk management, it is not the need of the hour when banks have sufficient capital headroom to lend. EBA data confirms that EU banks' CET1 capital ratios reached an all-time high of 16.3% in Q4 2025, well above the minimum regulatory capital requirements of 11.5% - mainly driven by increased retained earnings *(EBA, 2026)*. Policymakers aiming to mobilise bank lending for cleantech projects should regard securitisation as a secondary concern.

17 Banks' return on capital is highly idiosyncratic and depends on the credit risk rating of the borrower. Credit risk assessments are conducted using parameters such as Loss Given Default (LGD), Probability of Default (PD), Exposure at Default (EAD) and loan tenor. Banks run extensive forward-looking scenarios of up to 30000 simulations to estimate the maximum loss they would incur should the borrower default. Based on either the IRB or SA approach, the firm is assigned a risk weight, through which the RWA is derived.

18 Basel Committee on Banking Supervision (BCBS), https://www.bis.org/bcbs/publ/d592/intgraphs/ch1graph6.htm.

3.3. Beyond capital requirements, supervisors can leverage existing tools with a proactive lens

Prudential transition plans (PTPs) could prove useful in incentivising banking transition finance flows towards European cleantech, if used proactively. Supervisors could proactively use PTPs[19] to monitor banks' lending to support the European energy transition. Large banks are reporting the first PTPs from 2026, which were introduced in 2024 under the CRD VI.[20] **PTPs could support bank lending, should supervisors choose to issue bank-level recommendations to better align portfolios with credible decarbonisation pathways**. However, supervisors currently interpret PTPs as a purely CRD-based risk management exercise to assess banks' ESG risk management processes. This narrow view limits leveraging PTPs as a truly proactive tool to support the European low-carbon transition, reducing transition risk feedback to the banking sector. Due to a lack of supervisory consensus on the proactive approach, it is unclear how supervisors will act beyond the baseline set by the EBA *(EBA, 2025b)*.

Supervisory dialogues are a useful tool to guide bank practices and identify obstacles in lending to the cleantech sector. These dialogues form part of mandatory pillar 2 SREP (Supervisory Review and Evaluation Process) to discuss 'progress, challenges and areas for improvement', including for ESG and climate risks *(ECB, 2025)*. The ECB is conducting dialogues on banks' transition planning processes in 2026, with a formal assessment in 2027. Best practices already reveal that **banks apply a 'technology-focused approach to transition finance' to design transition planning products such as venture debt and blended finance structures for innovative projects** *(ECB, 2026d)*. Supervisory dialogues are a useful opportunity to gain insights into bank-level obstacles in project finance and corporate lending for innovative clean energy technologies.

Recommendation #4 Prudential insights and influence to proactively support bank lending towards European low-carbon transition priorities

Prudential supervisors can and should do more to support bank lending - the financial backbone of the European economy - towards European decarbonisation objectives. Prudential Transition Plans (PTPs), if used proactively, could not only monitor but also guide banks' transition planning processes to finance European low-carbon transition opportunities. The current narrow interpretation of these CRD-based transition plans implies managing ESG risk impacts on banks' portfolios. However, supervisors could issue bank-level recommendations to encourage financing clients' transition needs based on banks' credible transition planning processes.

Supervisory dialogues are a useful complementary tool for sharing insights on banks' transition finance activities. The ECB's ongoing informal dialogues on banks' transition planning processes will lead to a formal assessment in 2027. While these dialogues are already revealing good practices on banks' technology-focused, new transition planning products (such as venture debt), supervisors could further leverage insights on lending obstacles to the clean energy sector. A deeper understanding of banks' decision-making, risk management and lending practices could inform policymakers on the most appropriate derisking tools to improve bankability.

19 As per the EBA's 2025 guidelines, Prudential Transition Plans (PTPs) are the 'overview and articulation of the strategic actions and risk management tools deployed by institutions, based on a forward-looking business environment analysis and a single, comprehensive transition planning process.' PTPs are reported only to prudential supervisors under Pillar 2 processes. They are not disclosed publicly.

20 As per article 76(2) of the Capital Requirements Directive (CRD), institutions shall develop 'specific plans that include quantifiable targets and processes to monitor and address the financial risks arising in the short, medium and long term from ESG factors.'

CONCLUSION

Successful cleantech firms that secure long-term bank loans sufficiently derisk before FID, though getting there requires resolving key project risks in the development phase. Project bankability remains a critical scale-up barrier, especially during the development phase when bank loans are unavailable. Cleantech firms must meet stringent bankability conditions to scale with debt capital.

Technology risk is the first hurdle that firms must solve through repeated demonstration projects and pilots, supported by government grants and a dynamic early-stage VC ecosystem. Sponsor equity and diversified equity capital, boosted by MDB public finance schemes, help leverage bigger bank checks by reinforcing the firm's equity capital stack. Revenue offtake agreements from both governments and corporates are key to guarantee cash flows, but cleantech firms must also be able to prove that their operating cash flows can meet debt obligations. Banks scrutinise the project's credit quality, which, together with higher prudential risk weights for risky projects, can lead to loan refusals. If cleantech firms fail to mitigate key performance risks (EPC, O&M), their FID could be del However, firms with strong MDB guarantees, credible founder teams and promising growth potential can access bridge finance loans while continuing to offset residual performance and technical risks.

Cleantech projects, including floating offshore wind projects, face the 'valley of death' most acutely in the development phase – the result of both capital supply and demand constraints. Banks' prudential capital costs are high, but are not the only reason for the absence of bank credit. High project credit risk on the demand side, if not derisked, cannot meet banks' strict credit conditions for issuing debt. Limited growth stage equity capital further compounds the funding gap. Policymakers should consider appropriate de-risking tools and initiatives to improve bankability.

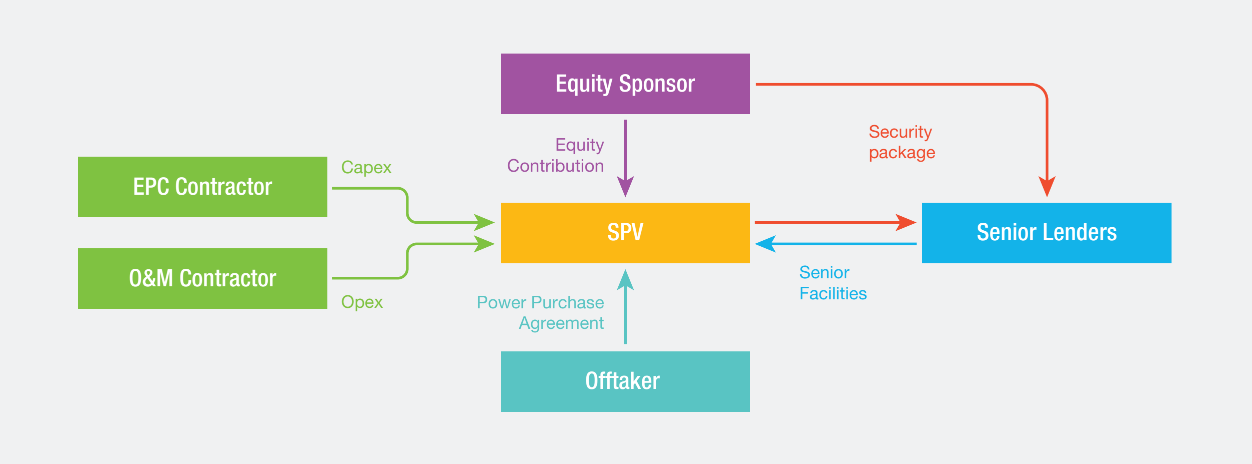
Recommendations

#1 **Selective public grants and schemes to reinforce the equity capital base**	Cleantech firms with a diversified equity base with own funds, public money and a mix of private investors send a strong signal of credibility. Public grants are crucial in the early development phase, but they must remain proportionate to sponsors' own equity. Public grants must be selective in bankrolling promising projects rather than evenly distributing funds, irrespective of project bankability. Public schemes and initiatives such as the SIU would be necessary to build bigger growth-stage VC funds to bridge the gap.
#2 **Targeted public money to derisk where and when it matters most**	Derisking tools must be deployed at *the right time*, on the right project and in the right amount. Public bank first-loss tranches and guarantees are highly valuable during the growth and late stages to reduce credit risk and boost bankability. They must also cover non-performance costs, including senior bank debt. Importantly, public guarantees are effective in the development phase to reduce the cost of capital and crowd-in bank debt. This is where the valley of death is most acute, irrespective of the cleantech TRL. Guarantees are critical to speed up FID.
#3 **Local ecosystem clusters to build projects on the ground**	The valley of death is as much a finance problem as it is an execution and know-how problem. Several clean technologies are still a relatively new asset class requiring local hubs or sandboxes to share best practices among investors and support project developers on execution. Information asymmetries are real constraints that must be countered through sectoral, knowledge-sharing clusters at both national and European levels.
#4 **Supervisory tools to proactively support bank transition finance**	Capital requirements reform would do little to direct bank lending to the cleantech sector. But PTPs could prove useful if supervisors choose to apply a proactive approach. Bank-specific supervisory recommendations could guide transition planning processes towards decarbonisation objectives. Similarly, the ECB's ongoing informal dialogues on banks' transition planning processes are a good opportunity to gain insights into obstacles in banks' risk management and lending practices towards innovative, clean energy projects.

Making European cleantech bankable and competitive will require several levers working in concert throughout the fundraising cycle. **Bank finance is not strictly missing; it is simply going to the few highest-quality projects.** The policy levers outlined above will help determine whether the Clean Industrial Deal produces a pipeline of bankable projects or ends up with a handful of successful outliers.

ANNEX

FIGURE 4. A STANDALONE SPV STRUCTURE FOR RENEWABLE ENERGY PROJECTS



Source: Frédéric Esteves, La Banque Postale.

Project finance relies on the creation of a Special Purpose Vehicle (SPV) dedicated to the construction and operation of a specific asset. However, the structure may vary depending on the number of projects to be developed and financed, the sponsor's strategy and the group's financing policy. In a standalone structure, a single SPV is directly owned by the sponsor. The SPV is the borrower under the facilities or securities agreement. The project risk remains contained within the SPV as the project is ring-fenced under a single SPV. This structure is commonly used for renewable energy projects.

BIBLIOGRAPHY

Arnold, N.G. *et al.*, IMF Working Paper, International Monetary Fund, 2024. *Stepping Up Venture Capital to Finance Innovation in Europe*. https://doi.org/10.5089/9798400280771.001.

CEPS, 2025. Centre for European Policy Studies. *It's Finally Time to Leverage Pension Funds to Foster EU Productivity and Benefit Pensioners*. https://www.ceps.eu/its-finally-time-to-leverage-pension-funds-to-foster-eu-productivity-and-benefit-pensioners/.

Degryse *et al.*, European Central Bank, 2025. *Collateral and Credit*. https://doi.org/10.2866/9520991.

Dentons, 2018. *Global Project Finance Risk Guide*. https://www.dentons.com/en/insights/guides-reports-and-whitepapers/2015/november/30/global-project-finance-risk-guide.

Draghi, M., 2024. *The Future of European Competitiveness*. https://commission.europa.eu/topics/competitiveness/draghi-report_en.

Cleantech for Europe, 2024. *A Cleantech Investment Plan for European Competitiveness*. https://www.cleantechforeurope.com/cleantech-investment-plan.

EBA, 2022. European Banking Authority. *EBA Report on the Application of the Infrastructure Supporting Factor*. https://www.eba.europa.eu/sites/default/files/document_library/Publications/Reports/2022/1042869/Report%20on%20the%20application%20of%20the%20Infrastructure%20Supporting%20Factor.pdf.

EBA, 2025a. European Banking Authority. *Risk Assessment Report - December 2025*. https://www.eba.europa.eu/publications-and-media/publications/risk-assessment-report-december-2025.

EBA, 2025b. European Banking Authority. *Final Report on Guidelines on the Management of ESG Risks*. https://www.eba.europa.eu/activities/single-rulebook/regulatory-activities/sustainable-finance/guidelines-management-esg-risks.

EBA, 2026. European Banking Authority. *Risk Assessment Report - June 2026*. https://www.eba.europa.eu/publications-and-media/publications/risk-assessment-report-june-2026.

ECB, 2025. Elderson, F., European Central Bank. *Banks Have Made Good Progress in Managing Climate and Nature Risks – and Must Continue*. https://www.ecb.europa.eu/press/blog/date/2025/html/ecb.blog20250711~f5c6a0259f.en.html.

ECB, 2026a. Montagner, P., European Central Bank. *Banking Supervision, Integration and Competitiveness in Europe*. https://www.bankingsupervision.europa.eu/press/speeches/date/2026/html/ssm.sp260518~0c6457d9f7.en.html.

ECB, 2026b. European Central Bank. *Financial Integration and Structure in the Euro Area*. https://www.ecb.europa.eu/press/fie/html/ecb.fie202605~c4c6cabe93.en.html.

ECB, 2026c. Dzezulskis *et al.*, Occasional Paper Series, European Central Bank. *Understanding the banking sector capital framework in the European Union*. https://dx.doi.org/10.2139/ssrn.6664244.

ECB, 2026d. European Central Bank. *Good practices for climate and nature risk management*. https://www.bankingsupervision.europa.eu/ecb/pub/pdf/ssm.thematicreviewcercompendiumgoodpractices052026.en.pdf.

EIB-EPO, 2024. European Investment Bank and European Patent Office, 2024. *Financing and Commercialisation of Cleantech Innovation*. https://www.eib.org/en/publications/20240003-commercialisation-of-clean-and-sustainable-technologies.

EIB, 2022. European Investment Bank. *What Is Venture Debt? All the Answers from a Market Pioneer*. https://www.eib.org/en/stories/what-is-venture-debt.

European Commission, 2025. *The EU Blue Economy Report 2025*. https://op.europa.eu/webpub/mare/eu-blue-economy-report-2025/blue-economic-sectors/marine-renewable-energy.html.

European Commission, 2026. *Clean Energy Investment Strategy*. https://energy.ec.europa.eu/news/commission-launches-strategy-accelerate-clean-energy-investment-2026-03-10_en.

Finance Watch, 2026. *Resilient Banks, Resilient Economy*. https://www.finance-watch.org/policy-portal/stability-supervision/resilient-banks-resilient-economy/.

Fuccaro, M., 2025. Build Up, European Commission. *What Makes a Project Bankable? Rethinking Finance for Energy Efficiency in Buildings*. https://build-up.ec.europa.eu/en/resources-and-tools/articles/what-makes-project-bankable-rethinking-finance-energy-efficiency-buildings.

GFI, 2025. Green Finance Institute. *Transactions to Transitions: A Global Investment Greenprint*. https://www.greenfinanceinstitute.com/wp-content/uploads/2025/11/GFI-TRANSACTIONS-TO-TRANSITIONS-0411.pdf.

GWEC, 2026. Global Wind Energy Council. *GWEC Records Sharp Rise in Wind Turbine Installations, as Five OEMs Exceed 100 GW*. https://www.gwec.net/news/gwec-records-sharp-rise-in-wind-turbine-installations-as-five-oems-exceed-100-gw.

I4CE, 2026a. Calipel, C. and Henry, C., Institute for Climate Economics. *Accelerating Investment for an Energy-Independent and Low-Carbon Future: The State of Europe's Climate Investment - 2026 Edition*. https://www.i4ce.org/en/publication/state-europe-climate-investment-2026/.

I4CE, 2026b. Kerrand *et al.*, Institute for Climate Economics. *Réindustrialisation Verte en France : Réalité, Projection raisonnable ou Mirage ?* https://www.i4ce.org/publication/reindustrialisation-verte-france-realite-projection-raisonnable-mirage-climat/.

IFM, 2025. IFM Investors. *The Global Investor Barometer*. https://www.ifminvestors.com/capabilities/know-how/private-markets-700-2025/barometer/.

Invest Europe, 2024. *Unlocking the Capital to Fund European Change*. https://www.investeurope.eu/about-us/forward-2024-2029/unlocking-the-capital-to-fund-european-change/.

Invest Europe, 2025. *Building Europe's Foundations: The Role of Private Capital in Infrastructure*. https://www.investeurope.eu/publications-policy/publications/2025/building-europe-s-foundations-the-role-of-private-capital-in-infrastructure/.

KKR, 2025. *Beyond the Bubble: Why AI Infrastructure Will Compound Long after the Hype*. https://www.kkr.com/insights/ai-infrastructure.

Letta, E., 2024. *Much More Than a Market*. https://www.consilium.europa.eu/media/ny3j24sm/much-more-than-a-market-report-by-enrico-letta.pdf.

Mateus, M. and Pinheiro, T., Banco de Portugal, 2021. *Bank pricing of corporate loans*. https://www.bportugal.pt/paper/bank-pricing-corporate-loans.

Morse, A. and Sastry, P. 2025. *The Economics of Net Zero Banking*. https://doi.org/10.1146/annurev-financial-112923-021641.

Nerlich, C., *et al.* 2025. ECB Occasional Paper series, European Central bank. *Investing in Europe's Green Future: Green Investment Needs, Outlook and Obstacles to Funding the Gap*. http://dx.doi.org/10.2139/ssrn.5088767.

PitchBook, 2025. *EIB Director Sees Gap in European Venture Debt for Tech-Savvy Lenders*. https://www.pitchbook.com/news/articles/eib-director-sees-gap-in-european-venture-debt-for-tech-savvy-lenders.

Sandström, C., 2026. *Explaining Northvolt's Bankruptcy and the Dilemma of Green Deals*. https://doi.org/10.1007/978-3-032-15512-2.

World Fund, 2026. *The Series B Funding Gap in European Climate Tech*. https://www.worldfund.vc/knowledge/series-b-funding-gap-in-european-climate-tech.

Realisation SophieBerlioz.fr (4170)

INSTITUTE FOR CLIMATE ECONOMICS
30 rue de Fleurus - 75006 Paris

www.i4ce.org
Contact : contact@i4ce.org

Follow us

IMPRIM'VERT®
© 2019 - 5874