

# Discussion paper: blended finance guidelines for clean energy

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## Context and background

### Purpose, objectives and scope

1. Meeting the Paris goals of limiting global warming to 1.5°C by the end of the century, while pursuing climate-resilient development, will require an unprecedented mobilisation of all sources of finance, public and private. The financing needs to meet these goals are particularly acute in emerging and developing economies. The scale and complexity of the challenge is compounded by Covid-19 recovery needs, as well as longer-term development needs under the 2030 Agenda for Sustainable Development. Meanwhile, there remain myriad long-standing barriers to infrastructure and wider climate finance, and the use of scarce public finance to effectively mobilise commercial capital remains far below its potential.

2. The scale of the challenge is such that all sources of finance – public, private, domestic and international – need to be mobilised at scale. In particular, the huge stocks of global capital need to be mobilised at scale towards more productive uses. Blended finance – the strategic use of development finance for the mobilisation of additional finance towards sustainable development in developing countries – has a critical role to play in this endeavour. In light of these challenges, the OECD's Development Assistance Committee (DAC) has agreed a set of comprehensive principles to support development actors to most effectively leverage commercial capital through public development finance (OECD, 2021<sup>[1]</sup>).

3. The OECD is supporting emerging and developing economies to accelerate clean energy transition and green their financial systems, through the Clean Energy Finance and Investment Mobilisation (CEFIM) programme. Support for the greening of financial systems is intrinsically linked to and being complemented by support to accelerate financial mobilisation. To this end, the OECD is also providing advice and targeted training and peer exchange to help emerging and developing economies

tap into commercial finance to fund their transitions, including through the more effective use of blended finance and by supporting the deepening of local capital markets. This support draws on the OECD's existing Blended Finance Principles.

4. While finance will need to be mobilised at scale to support climate mitigation and adaptation in all sectors, the energy sector<sup>1</sup> – which accounts for around three-quarters of global greenhouse gas emissions (IEA, 2021<sup>[2]</sup>) – will require the lion's share of investment: clean energy investment in emerging and developing economies will need to grow from USD 150 billion in 2020 to over USD 1 trillion per annum by the end of the decade to keep the world on track to a 1.5°C pathway (IEA, 2021<sup>[2]</sup>). The sector also faces a set of additional constraints to investment, compounding long-standing barriers to infrastructure investment that exist across traditional infrastructure assets. These include, among others: the prevalence of fossil fuel subsidies that distort competition in favour of conventional energy sources and can make energy efficiency investments less attractive; a lack of in-country capacity to shift to lower carbon technologies; and high up front capital costs and the long life-cycles of energy assets, posing financing challenges that can make the prospective return profile unattractive to commercial investors and result in difficulties in securing long-term finance for projects. The rapid pace of change in the sector, including the emergence of new technologies, makes the investment dynamic particularly complex, requiring careful consideration of where best to deploy scarce domestic and development finance, in a way that optimises the additionality of development finance, manages market failures, and is sensitive to local contexts.

5. Given the scale of the challenge, the urgency of the required mobilisation of finance, and the unique challenges of the sector, the international donor community is making clean energy a central pillar of their development strategies, as part of their wider efforts to support the development and implementation of robust national determined contributions (NDCs) to emissions reduction. The DAC committed in October 2021 to align development cooperation with the goals of the Paris Agreement, including by prioritising support for technologies focused on accelerating progress towards net zero systems, in particular renewable energy and energy efficiency (OECD, 2021<sup>[3]</sup>). The UN Thematic Working Group on Finance and Investment's report in 2021 reaffirmed the need for all financial flows to be aligned with the Paris goals, including through the better use of blended finance schemes to mobilise and maximise private capital for clean energy investments and innovative energy technologies (UN, 2021<sup>[4]</sup>).

6. One of the biggest challenges to achieving a Paris-aligned global energy transition will be to rapidly scale the mobilisation of private sector investment in order to close the significant global clean energy financing gap. This has spurred calls from major donors for the international architecture to rapidly adjust to this need, including by more effectively using blended finance to mobilise greater volumes of private capital towards climate action.

7. In light of the challenge, there is now a renewed need to develop bespoke guidance for the deployment and mobilisation of blended finance for clean energy. This guidance will focus on the OECD DAC Blended Finance Principle 2: designing blended finance to increase the mobilisation of commercial finance, whilst recognising the close inter-dependencies of the other four principles, components of which feature as necessary conditions for the effective mobilisation of private capital. This paper will revisit Principle 2, namely its sub-principles, and begin to overlay clean energy sector considerations, exploring specific features of the sector that require additional consideration when designing and deploying blended finance for clean energy with the objective of mobilising commercial finance.

8. This paper aims to reflect early research findings and highlight remaining gaps on blended finance for clean energy. It also draws on findings from consultations with experts from donor governments, development finance institutions, and multilateral development banks and funds; private sector financial institutions and project developers; and beneficiary country governments. Finally, it aims to guide the

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<sup>1</sup> For the purposes of this paper, the energy sector includes electricity generation as well as end-use sectors, including industry, buildings, and transport.

OECD's continued consultations, including through a series of workshops with expert stakeholders, with a view to ultimately drawing on these inputs to inform the development of more detailed guidance for the use of blended finance for clean energy.

9. The guidance will be simultaneously targeted at policy-makers in emerging and developing economies to help them address the upstream barriers to commercial investment in clean energy and the steps needed to overcome them; donors – bilateral and multilateral – to support them with guidance and the energy sector-specific considerations needed when developing and deploying scarce public finance to mobilise private capital; and the private sector to set out a common understanding for engaging with governments and donors to help shape their climate strategies, project plans, and financing frameworks.

## Revisiting the OECD DAC blended finance principles for clean energy

10. Blended finance is the strategic use of development finance for the mobilisation of additional finance towards sustainable development in developing countries. Additional finance is commercial finance that does not have an explicit development purpose and that has not primarily targeted development outcomes in developing countries, and development finance is public and private finance that is being deployed with a development mandate. This framing of blended finance distinguishes finance by purpose rather than by source, moving away from the emphasis on public/private actors to highlight development/commercial finance flows. It is broader than those used by multilateral development banks (MDBs) and development finance institutions (DFIs) in that it does not depend on concessionality as a prerequisite for blending and considers blending in the context of both public and private investments. Blended finance occurs within the context of a specific transaction, and differs from public support for policy and regulatory reform which also has a role in unlocking commercial capital in developing countries (OECD, 2018<sup>[5]</sup>).

11. The OECD's Blended Finance Principles offer a common policy framework to guide the use of blended finance. These principles are designed to offer general lessons that apply for all sectors and development priorities, and, as such, are a strong foundation on which to develop both further theory on best practice and practical lessons for real-world application in the clean energy sector.

### The OECD DAC Blended Finance Principles



Source: (OECD, 2018<sup>[5]</sup>), *OECD DAC Blended Finance Principles for Unlocking Commercial Finance for the Sustainable Development Goals*, <http://www.oecd.org/dac/financing-sustainable-development/development-finance-topics/OECD-Blended-Finance-Principles.pdf>

12. Scaling the mobilisation of commercial capital toward clean energy will require concerted, systematic efforts by beneficiary governments, donors, and the private sector. Having a clear overarching development, and by default, climate objective – for example sustainable energy access and clean industrial development – as per Principle 1, can help manage commercial investors' perceptions of risk by giving them confidence that individual projects and investments are part of a wider, determined government

strategy. Projects, and the way they are financed, will also need to be determined in large part by local conditions, in line with Principle 3 – for example by being tailored to local capital market conditions – in order to most effectively tap into commercial capital and help address potential foreign exchange issues. Establishing strong partnerships and country-led governance structures that bring together beneficiary governments, donors, and the private sector, in line with Principle 4, can also help to align the incentives of commercial investors with beneficiary countries' wider development and climate objectives. Finally, the complexity of blended finance is often compounded in the case of the clean energy sector, one feature of which is the presence of untested project developers, technologies, and routes to commercial sustainability; this puts an additional emphasis on the need for effective monitoring and evaluation of results, in line with Principle 5.

13. Whilst blended finance can be an effective mechanism for scaling the mobilisation of commercial finance, it is not a panacea. It cannot alone address long-standing barriers to infrastructure investment in emerging and developing economies, and must come as part of a wider strategy to address macro-level – for example, sovereign credit risk and other macroeconomic imbalances, currency instability, and weak local capital markets – as well as sector-specific barriers to commercial investment. Blended finance should be deployed in a way that supports the creation of sustainable private markets, and be provided together with support to strengthen and create suitable regulatory frameworks that can attract commercial finance and private investments in clean energy projects. Moreover, blended finance may not always be the solution to scaling up the mobilisation of commercial finance, and given the scarcity of public finance and wider development and climate objectives, its use should be carefully calibrated to maximise its impact.

14. The types of blended finance – including the instruments and levels of concessionality, if any, that may be required – should also be carefully tailored to the context in which it is being used. These features will be discussed in the subsequent sections. One of the key determinates for deciding the most appropriate types of blended finance will be on the underlying risks and barriers to commercial investment that it is trying to address. Clean energy sector-specific features and barriers to commercial investment, and the opportunities for blended finance to address them, include<sup>2</sup>:

- **Political risk:** clean energy projects that are highly site-specific – for example wind, hydro-electric, and solar plants – can be subject to politically and socially sensitive and complex land permitting processes. As well as increasing the risk that projects fail to get approval, this can prolong the development phase of projects and delay construction and operation, and therefore the point at which investors begin generating returns. Political risk insurance can help address these risks.
- **Currency risk:** exchange rate volatility can create mismatches between obligations priced in US dollars and revenues denominated in local currency, a common feature of power purchasing agreements for grid-scale renewable power generation projects in emerging and developing economies (EDEs). Efforts to support the development of local capital markets and fund investments through locally raised debt can help address this, as can blended finance mechanisms such as guarantees and local currency hedging facilities by MDBs and DFIs.
- **Revenue volatility:** the rapid growth and relative inexperience of stakeholders along the clean energy supply chain can result in inaccurate assessments of, and imbalances between, supply and demand. This can be compounded by the long time horizon of clean energy investments. Performance insurance and partial risk guarantees can help address these risks.
- **Untested track records** of specific technologies, project developers and operators creates both a higher perception of risk, and makes it more difficult for investors to undertake robust due diligence on potential investments. Structured finance, including aggregating smaller projects in special

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<sup>2</sup> General barriers and risks facing infrastructure investment – including political risk, policy and regulatory risk, currency risk, construction risk, and operation risk – are well-researched and documented. This section, and the wider paper, will not revisit them unless there are specific additional considerations for clean energy investment.

purpose vehicles and securitised products, can be used to allow credit ratings agencies to assess the credit-worthiness of aggregated investments, and act as a proxy for due diligence (IRENA, 2016<sup>[6]</sup>). In parallel, technical assistance can be used to support project developers to develop robust business cases, project plans, and risk mitigation strategies ex ante.

- **Counterparty, off-taker and transmission line delay risk**, in the form of weak credit-worthiness of local partners, such as power utilities, as well as due to dependence of many clean energy projects on parallel infrastructure investment (for example the dependence of renewable power generation projects on grid infrastructure that is completed in time for energy production). In these instances, blended finance – for example government guarantees and partial risk guarantees – can be used to cover the risk of non-payment of financial obligations (IRENA, 2016<sup>[6]</sup>).

15. The following sections will revisit the sub-principles under OECD DAC Blended Finance Principle 2: designing blended finance to increase the mobilisation of commercial finance, overlaying clean energy sector-specific considerations. It aims to support policy-makers, project developers, and financiers to better judge how and where best to use blended finance, including exploring its use in various clean energy sub-sectors, and which specific sectoral and geographic features should be considered when deciding on the deployment of specific instruments and degrees of concessionality.

### Sub-principle 2.A: Ensure additionality for crowding in commercial finance

16. Additionality of development finance is defined as providing additional financial or non-financial input resulting in additional development outcomes that would not have materialised without the intervention, thereby contributing to amplified development impact (OECD, 2020<sup>[7]</sup>). The practical implications of adherence to this principle are therefore that:

- a) blended finance should be deployed only for uses where commercial financing is not currently available for development outcomes, especially if it involves concessionality; and
- b) blended finance should have an explicit focus on opportunities to crowd in financing from commercial sources into transactions that deliver development impact (OECD, 2020<sup>[7]</sup>).

17. Additionality is particularly pertinent to clean energy, which attracts a large portion of commercial investment relative to other sectors (OECD, 2021<sup>[8]</sup>). Given the significant financing needs of wider climate action, including investment in adaptation and resilience, as well as in wider development objectives, it is critical that scarce public and concessional finance is preserved for the interventions where it can have the greatest additional impact. Nevertheless, absolute development finance flows both to blended finance interventions in general, and towards clean energy in particular, remain low, and need to be significantly scaled up in order to close the global clean energy financing gap.

18. The two components of additionality, which will be explored in turn with reference to their application to clean energy, are:

- **Financial additionality:** transactions extended to an entity which cannot obtain finance from the private capital markets (local or international) with similar terms or quantities and for similar developmental purposes without official support, or if it mobilises investment from the private sector that would not have otherwise invested.
- **Development additionality:** the development impact of the investment that would not have occurred without a partnership between the official and the private sector (OECD, 2020<sup>[7]</sup>).

19. Assessing additionality is difficult, since it requires assessment of a counterfactual of commercial mobilisation and development impact that is dependent on a multitude of factors. The MDBs' *Harmonized Framework for Additionality in Private Sector Operations* provides a useful set of indicators against which additionality can be measured for development finance (Multilateral Development Banks, 2018<sup>[9]</sup>). As a

general principle, robust ex ante assessment of specific project features can support judgements on whether commercial investment would not be forthcoming without blending of public finance, and on whether blended finance would deliver additional development outcomes over those delivered purely by the amount of public finance used for blending (OECD, 2020<sup>[7]</sup>). The subsequent sections explore particular features of clean energy projects that may inform assessments of financial and development additionality.

### ***Assessing financial additionality for clean energy***

20. Commercial investment decisions are guided by a plethora of factors that influence real or perceived risk and expected returns. Despite the falling costs of many clean energy technologies (IRENA, 2021<sup>[10]</sup>), this calculus for commercial investors is often unfavourable, due a number of general, long-standing barriers and risks to investment in EDEs, as well as clean energy sector-specific risks. Moreover, commercial financial institutions' business models – including a preference for more liquid assets and limited institutional capacity to invest directly in projects among institutional investors – as well as regulatory requirements increasing the cost of capital for longer term investments, further constrain commercial investment in clean energy (Climate Policy Initiative, 2018<sup>[11]</sup>).

21. Blended finance can be used to de-risk investments and mobilise additional commercial finance. This requires a comprehensive assessment of the underlying risks that deter commercial investment in the first place, in order that blended finance is targeted and adjusted to the specific risks facing a particular potential investment, whilst concessionality is minimised. Blended finance interventions should also be combined with parallel efforts to tackle both structural and sector-specific barriers to infrastructure investment in order to support long-term mobilisation of commercial capital, as well as to ensure long-term commercial sustainability for individual projects (see sub-principle 2.D below).

22. The potential for financial additionality in clean energy will vary by technology and geography, reflecting project- and country-specific risks, barriers, and opportunities. While not exhaustive, the following three clean energy sub-sectors display some common characteristics. A number of other clean energy technologies, such as energy storage, e-mobility, and green hydrogen, among others, will also be needed to meet energy transition goals, and may benefit from the deployment of blended finance.

- **Utility scale renewables:** Large renewable projects often face similar risks to other large infrastructure projects: long planning phases surrounded by political uncertainty; long construction phases, delaying the onset of revenues; and payment structures that are sensitive to macroeconomic and currency fluctuations. Off-taker risk, through dependence on single purchasers of power in the form of state-owned power utilities, often with poor financial performance, can also increase the cost of capital. Dependence on governments to connect transmission lines to new generation infrastructure can add a further layer of uncertainty. These risks and barriers to investment are multifaceted, complex, and interconnected. The use of blended finance therefore needs to be part of a wider, concerted strategy to address the various, interconnected risks to commercial investment. In addition, blended finance needs to be tailored to address specific risks. For example, political risk insurance to mitigate uncertainty around the project development phase; performance insurance and partial risk guarantees can help address revenue risk; and guarantees can cover non-payment due to delays of parallel transmission infrastructure.
- **Distributed renewables and mini-grids:** Distributed renewables and mini-grid solutions often face the problem of being too small to attract the attention of commercial investors. The relative cost of conducting due diligence on projects, relative to the expected returns, is much higher for investors. However, given distributed renewables and mini-grid solutions are often designed to provide energy access to the most under-served communities, the development and financial additionality of such projects is potentially very high. Moreover, the relatively simple nature of

projects, reduced dependence on wider grid infrastructure, and speed at which they can be deployed provide certain advantages, including for a more diversified portfolio that can reduce risks compared to utility scale renewable investments. Blended finance can be used to support aggregation of small projects into larger financial products that are more attractive to commercial investors. Supporting policies, for example, net metering schemes, are often also required to tip distributed renewables into commercial sustainability.

- **Energy efficiency:** Commercial financing of energy efficiency faces a number of barriers: firstly, investment in efficiency is often undertaken by individuals or SMEs, whose access to finance is constrained; secondly, it does not yield direct revenue, but incremental savings over time; and linked to the previous point, there is a lack of financial instruments designed specifically to fund investments in efficiency, in part due to the small size of investments. Blended finance can address these barriers to investment and unlock additional commercial finance by supporting the aggregation of small loans towards efficiency investments into larger products, supporting local financial institutions to access refinancing through green bonds, through the financing of preferential mortgages for more efficient buildings, and by demonstrating new business models such as energy service companies (ESCOs). Policy support to strengthen regulatory environments needs to complement any deployment of blended finance, for example through wider and more stringent minimum energy performance standards.

### ***Assessing development additionality for clean energy***

23. Blended finance that catalyses the mobilisation of private capital has a number of positive general development impacts: it can help establish a track record of private investment that galvanises future investment; and it deepens local capital markets, with spill-overs for the wider business and investment environment, including by enhancing access to finance for SMEs, women, and disadvantaged groups.

24. The development additionality of clean energy includes several facets:

- **Decarbonisation:** Achieving emissions reduction of energy production and use is increasingly a central objective of EDEs seeking to align their development pathways with the goals of the Paris Agreement. As well as the direct climate impact, decarbonisation can help improve local air quality and health outcomes. Financial solutions to accelerate the retirement of coal-fired capacity and support renewable electricity generation and other low carbon alternatives will be essential.
- **Energy access and security:** Rapid investment in clean energy will be required to meet existing and future energy demand of households and expanding access to affordable and clean energy services, itself a major development outcome. Clean energy is cheaper and subject to less price volatility than conventional sources of energy. Off-grid solutions can also be used to provide energy access to underserved communities, for example in remote geographies. At the macro level, reducing reliance on imports of fossil fuels can improve the trade balance, and reduce exposure to swings in international market prices.
- **Industrial development and efficiency:** Investment in clean energy can be combined with long-term industrial strategies to provide cheap and stable energy to domestic firms. Together with investment in efficiency, these can reduce long-term costs for businesses and improve competitiveness. Countries with high potential for renewables can also pursue strategies to develop clean energy for export.

25. These development outcomes do not themselves necessarily justify the use of blended finance for clean energy. It may be possible, for example, to achieve desired development objectives through purely public investment, though in these cases the opportunity cost of foregone spending on other development priorities should be considered; for EMEs with significant development and wider climate needs, this opportunity cost is high. Conversely, public finance should only be used to catalyse private finance through blended finance structures if there is a plausible degree of certainty that private investment is required and



is not forthcoming on its own. This will become more important as the costs of clean energy continue to fall in the coming years, and the case for the use of concessional public finance to galvanise private investment becomes harder to justify. These assessments, however, need to be made with reference to specific project, sector, market and country features.

## Questions for discussion

- **What other clean energy risk “add-ons” exist on top of the baseline risks for infrastructure investment?**
- **In which clean energy sub-sectors or geographies is there the highest potential for financial and development additionality, and for which the use of blended finance should be prioritised?**
- **How can blended finance be used to secure wider social benefits, including greater participation of women in clean energy projects?**

### Sub-principle 2.B: Seek leverage based on context and conditions

26. In the context of blended finance, leverage refers to the amount of commercial finance mobilised for development objectives. The OECD defines leverage as having exposure to the full benefits arising from holding a position in a financial asset, without having to fully fund the position with own funds (OECD, 2008<sup>[12]</sup>). Mobilisation refers to the ways in which specific mechanisms stimulate the allocation of additional financial resources to particular objectives (“direct mobilisation”). Though the OECD’s definition of mobilisation does not include indirect mobilisation<sup>3</sup>, it is an important complement to efforts to directly mobilise capital, in the context of significant, long-term financing needs across a range of sectors.

27. At the global level, maximising leverage will be critical to closing the global clean energy financing gap and meeting a Paris-aligned transition pathway. However, the potential to tap into commercial finance will vary markedly across different geographies, depending on a particular jurisdiction’s country, regulatory, market, technical, financial, and foreign currency risks, among others, as well as on the strengths of macroeconomic fundamentals, the investment climate, local capital markets, and sector frameworks (OECD, 2020<sup>[7]</sup>).

28. Many of the factors that determine financial additionality can be used to assess the mobilisation potential of blended finance. Riskier investments, or those perceived to be riskier, are likely to have lower potential to mobilise commercial finance. Consequently, projects in less risky jurisdictions tend to achieve the highest leverage ratios; but given lower risk is associated with higher levels of overall economic development, the additionality of blended finance is lower, reflecting an inverse relationship between additionality and mobilisation (OECD, 2020<sup>[7]</sup>). These factors present additional barriers to investment for clean energy, particularly in EDEs, given the scale, pace and complexity of clean energy investments that will need to be funded in the coming decades. This section assesses the implications of varied local conditions for clean energy investment and the implications for blended finance.

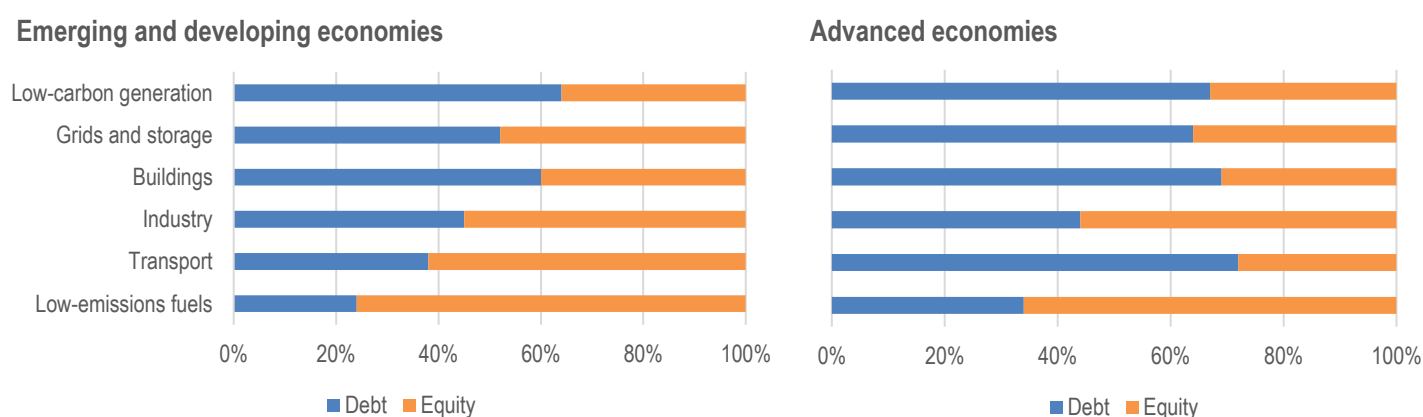
<sup>3</sup> Indirect mobilisation is defined by the multilateral development banks as “combining concessional finance from donors or third parties alongside DFIs’ normal own account finance and/or commercial finance from others to develop private sector markets, address the Sustainable Development Goals (SDGs), and mobilise private resources”; from the DFI working group on blended concessional finance for private sector projects summary report (AfDB, AsDB, AIIB, et al., 2017<sup>[16]</sup>)

## Geography

29. Country risk, including sovereign credit ratings, are a major driver of cross-border investment decisions. Sovereign credit ratings in most low and low-middle income countries are non-investment/speculative grade. Meanwhile, rising debt levels in EDEs, exacerbated by the pandemic, present further macroeconomic pressures with implications for both public and private investment. Currency risk also takes a particular complexion in the case of clean energy, as discussed in the preceding section. These pressures, together with underdeveloped local capital markets, serve to keep the cost of borrowing and capital high in EDEs, which the IEA estimates to be on average seven times higher than in the US (IEA, 2021<sup>[21]</sup>).

30. Clean energy investments in EDEs are reliant to a greater extent on equity than debt in EDEs as compared to advanced economies (see figure 1 below). This imbalance will need to be corrected, and debt much more effectively mobilised. Weak macroeconomic and investment climates, and shallow local capital markets, which increase the cost of borrowing, are therefore a major impediment to commercially financed clean energy investment. Specific blended finance instruments, for example, on-lending facilities can reduce the cost of borrowing for distributed power generation and SME investments in energy efficiency (IRENA, 2016<sup>[6]</sup>), thereby supporting the mobilisation of commercial finance. Developing local capital markets will also be critical, both to more effectively mobilise domestic private finance, and because domestic financial institutions are often better-suited to take on local policy risks (perceptions of which can be overstated by international private financial institutions).

**Figure 1. Typical capital structure of clean energy investments in emerging and developing economies and advanced economies**



Source: (IEA, 2021<sup>[13]</sup>), *The Cost of Capital in Clean Energy Transitions*, <https://www.iea.org/articles/the-cost-of-capital-in-clean-energy-transitions>

31. Local institutional arrangements and appropriate governance structures will also be key to ensuring that blended finance can also leverage domestic commercial finance institutions. Blended finance facilities can support the development of local capital markets for financing of renewable energy and energy efficiency projects by helping to develop local financial expertise and experience in financing such projects, consequently helping to reduce perceived risks and improve deal flow. Setting up suitable local partnerships (Principle 4) can also accelerate the development of financing solutions that are more adapted to local circumstances, draw on existing banking relationships, and access a large pool of project developers.

32. Financial regulation, specifically Basel III and Solvency III, can have the unintended consequences of deterring investment in illiquid assets, and discouraging long-term lending to renewable energy projects. Loan tenure extensions and subordinated debt can help address these pressures, by transferring risks from local financial institutions to MDBs and DFIs that are buttressed by stronger credit ratings, and who are better placed to assess and manage risk, drawing on deeper experience of managing clean energy projects. DFIs can operate in local currency and when necessary hedge currency exposure in order to operate but can also carry out transactions in euros or dollars when the technology needs to be sourced internationally giving them considerably flexibility.

33. The single buyer model of many electricity systems in EDEs can also create barriers linked to financial regulation that limits bank exposure to single entities as a way to mitigate financial risks. Many domestic banks are often fully exposed to debt holdings of the state owned utility, which often is also the single buyer of power. This limits the potential to provide commercial finance to renewable power projects that hold power purchase agreements with the utility. Exposure to a small banking sector for a sizeable project may also mean that finance needs to be sourced from a number of financial institutions.

34. Physical project features can also present challenges for commercial finance. Smaller projects in remote areas, for example distributed solar power generation in rural communities are often too small to attract the interest of institutional investors. In addition, and as discussed in the preceding section, large commercial financial institutions often lack the capacity or expertise to conduct due diligence on smaller projects. Blended finance to support project aggregation and securitisation can help address these barriers, by pooling assets into much larger, more attractive, and rateable assets. For example, blended finance can be used to provide pooled off-grid renewables projects with shared legal services, technical advice and common documentation in a more cost effective way than would be possible for a single project. Other financial instruments in this regard are Green, Social, Sustainable and Sustainability linked Bonds (GSSS Bonds).

35. Support for microfinance institutions that can more readily channel funding towards very small scale projects can also help to overcome the unique challenges faced by off-grid developers and micro and small enterprises, and help to enhance financial inclusion for low income and rural communities. A focus on establishing new business models for productive uses of clean energy (for example, solar water pumps and small scale solar drying for the food industry) can also help to deliver decentralised energy solutions that are tailored to the needs of end-users.

### ***Stage in the project cycle***

36. The availability and potential for the mobilisation of commercial finance will vary across the project cycle. Early stage projects in the development phase are deemed higher risk, and are further away from generating revenues. Given the novelty of clean energy projects in EDEs, as well as the entrenched positions of fossil fuel energy providers, there can be a higher degree of uncertainty surrounding early-stage clean energy projects. This puts a greater emphasis on equity financing, compounded by the aforementioned constraints in the form of higher cost of capital. Government stakes in early-stage clean energy projects, as well as grants to de-risk investments, and technical assistance towards project development, can help make early projects more attractive for commercial investors.

37. Though the risk of default is typically smaller in the construction than in the development phase in EDEs, there may be a heightened risk of cost overruns for clean energy projects, particularly where project developers are less experienced or administrative procedures for land access and permitting is overly cumbersome. Nevertheless, it is generally easier to attract debt financing during the construction phase, as a degree of uncertainty surrounding when a project will break ground is reduced. Blended finance instruments for projects closer to completion and revenue generation should also be more attractive to commercial investors, thereby reducing the required concessionality to crowd-in private finance.

38. Finally, in the operation phase, governments, donors, and project developers should assess options for reducing concessionality, and act on ex ante plans for long-term commercial sustainability. Wider clean energy investment, climate, and development needs, and the opportunities for further investment, will continue to be significant. Early stage developers and public sector equity holders with higher risk appetites should therefore actively seek to bring in late stage investors whose risk appetites limit their interest to projects where cash-flow has been proven, and exit projects to free up capital for riskier investments elsewhere.

## Questions for discussion

- **What institutional and local financial market considerations are needed in beneficiary countries to design effective blended finance mechanisms?**
- **Which blended finance instruments should be used to maximise mobilisation in riskier projects and project phases?**

### Sub-principle 2.C Deploy blended finance to address market failures, while minimising the use of concessionality

39. The use of concessionality is motivated by the presence of imperfect markets that do not provide commercial finance for development outcomes. In the clean energy sector a variety of market failures exist that create barriers to achieving clean energy transition objectives and can be particularly challenging to overcome in emerging and developing economies where regulatory frameworks for clean energy development may be lacking.

40. The mobilisation of commercial finance is at the core of any blended finance intervention, and the use of concessional finance needs to be carefully evaluated to ensure that it does not lead to distortions in the market. The supply of bankable or near-bankable clean energy projects in some emerging and developing economies is limited, and the demand to finance climate aligned projects outstrips supply, in some cases to a degree where development finance may be in direct competition with commercial finance.

#### **Market failures**

41. Public goods: Access to affordable and modern clean energy services are central to meeting sustainable development goals. In emerging and developing economies, 759 million people are still without access to electricity and 2.6 billion people lack access to clean cooking (SEforALL, 2022<sup>[14]</sup>). The cost of providing clean electricity to all users can exceed the ability of consumers to pay the full cost of electricity provision creating a public good dimension to providing clean power supply to all consumers. The rapid decline of solar PV costs has helped to increase electricity access in many emerging economies such as India and Cambodia, but many least developed countries and small island developing states still struggle to expand clean electricity supply. Access to clean cooking continues to lag behind despite the much smaller investment volumes needed to provide universal access to clean cooking.

42. Externalities: The lack of adequate carbon pricing at the levels that internalise the full environmental and energy security costs of fossil fuel usage results in the market inadequately providing clean energy services. Fluctuations in fossil fuel prices also creates uncertainty on the economics of clean energy and highlight the potential economic benefits of a more rapid switch towards renewables, energy efficiency adoption and other low carbon energy sources. While carbon pricing is gaining momentum

around the world, current carbon prices (typically below USD 5 / tCO<sub>2</sub>) in emerging and developing economies are too low to send adequate market signals that will shift countries away from fossil fuels. Full decarbonisation of the energy supply and end use sectors would require carbon prices in the range of USD 50 / tCO<sub>2</sub> by 2030 rising to upwards of USD 150-200 / tCO<sub>2</sub> to achieve full decarbonisation across all end use sectors.

43. Fossil fuel subsidies continue to create market distortions in the use of fossil fuels and reduce the attractiveness of renewable energy and energy efficiency investments. These inefficient subsidies typically lead to wasteful usage of fossil fuels and create major barriers to the adoption of energy efficiency technologies and conservation as consumers do not have adequate price signals to change behaviour. Moreover, many beneficiaries of these subsidies are in higher income classes that no longer require public support. Finally, the prevalence of fossil fuel subsidies in emerging and developing economies locks in carbon intensive infrastructure, reducing the competitiveness of clean energy alternatives.

44. Information asymmetries in the clean energy sector create significant barriers to market development. In the renewable electricity market, feed in tariffs (FITs) have created boom and bust cycles in developed, emerging and developing economies as governments struggle to establish FITs that are adequately attractive to stimulate the market without over subsidising developers. The rapid cost declines of solar and wind technologies that accompany rising deployment have proven difficult to anticipate. The performance of energy efficient equipment is impacted by operational know-how and local climate and resource aspects as well as consumer behaviour that can lead to differences between actual and expected performance. Performance of new technologies in new markets also suffer from inadequate data for financial institutions to performance risk assessments and resource data (i.e. hydrological data for hydro power plants) provided by developers in feasibility studies may differ from actual performance. The lack of reliable and transparent clean energy data can hinder market development and lead to higher financing costs or absence of commercial finance.

### ***Market inefficiencies***

45. Catalysing clean energy markets: access to commercial finance for clean energy technologies that have yet been proven in the market can be challenging. Financial institutions often lack the internal knowhow and experience to undertake project due diligence and adequately price risk. The lack of performance data creates high perceived risks and as a result the level of concessionality that may be needed to attract adequate capital to realise the first projects and establish the market. As experience grows the need for concessionality declines and access to commercial finance rises.

46. Access to affordable modern energy services may require the use of concessional funding to lower costs. Blended finance can be used to help demonstrate new business models and establish markets, but longer-term sustainability will need to include structural reforms and targeted safety nets. Programmes targeting energy access should also consider regional economic development that can in the future provide adequate income to pay for energy services. For example, a focus on solar irrigation systems for farmers can support income creation that can finance investments in both energy and water supply to communities.

47. Achieving project bankability: in addition to lowering the cost of finance through concessionality, blended finance can help to strengthen the feasibility of clean energy projects by providing finance for project preparation. Such funds should focus on opportunities to replicate transactions in the market to crowd in more commercial finance and build capacity and knowledge of local developers that can help grow the clean energy market and provide jobs. Focusing limited technical assistance in clean energy markets with high local employment potential would also support development additionality.

### ***Drivers of concessionality in the clean energy sector***

48. Sector and geography: the need for concessional finance in the clean energy sector will depend on the country context and clean energy sub-sector. In countries with strong regulatory environments with well-functioning power and energy markets as well as developed financial markets, commercial finance, particularly for utility scale renewable energy projects is often available. However, many smaller scale clean energy project such as distributed renewables and energy efficiency can struggle to access affordable finance. These projects are often developed by smaller less established developers that may influence the level of concessionality needed relative to terms available in the market to unlock investments.

49. In the case of energy efficiency projects developed by energy service companies (ESCOs), the energy savings approach to financing investments in energy efficiency is not well understood by banks who typically look at revenue generated cash flows to evaluate the capacity for developers to repay project loans. The ownership structure of the energy savings equipment can also create obstacles to finance as this may not lie with the ESCO, leading to collateral issues. The provision of energy services such as heating, lighting, refrigeration, cooling or renewable power through ESCOs are in many countries still a relatively new business model and the lack of experience and suitable comparative performance data can limit availability of commercial finance.

50. Certain market segments may require the use of concessional finance to develop business models that can crowd in private investors to provide access to modern energy services (clean cooking, water heating) and/or most efficient technologies (for example, LED lighting). The high capital cost of many clean energy technologies versus fossil fuel technologies, traditional biomass (typically free or low cost) or less efficient equipment (incandescent light bulbs) can make these options even less affordable if financing costs for the purchase of equipment is also prohibitively high. The use of concessional finance can improve affordability and help to drive down future costs as deployment increases and financial institutions gain experience in financing energy access projects.

51. Project cycle and market maturity: Early stage development capital for certain clean energy technologies, such as geothermal where exploration costs are high and can be extremely risky may require higher levels of concessionality than less risky technologies such as solar and on-shore wind, where resource data is more established. Market maturity also influences availability and cost of commercial finance, as less mature markets will face significant information asymmetries and lack reliable performance data to which financial institutions can adequately evaluate project risks. Lack of experience also drives concerns around perceived risks. While solar PV and onshore wind technologies are often considered mature, in some emerging and developing economies where fossil fuel technologies continue to dominate the market the lack of experience by the financial sector in financing solar PV and onshore wind may justify the need for concessional finance to help renewables compete on par with fossil fuels that may benefit from lower financing costs. Long-term stability of policy and regulatory frameworks for clean energy are also needed to attract commercial financing for the sector. As more emerging and developing economies make pledges to phase down coal and other fossil fuels, and adopt sustainable finance regulation and practices, the cost of financing fossil fuel technologies will rise and reduce the level of concessionality needed for clean energy.

### ***Approaches to determine need for concessionality in blended finance transactions for clean energy***

52. Blended finance can help to overcome market failure and help to crowd-in commercial finance in emerging and developing economies. Efforts are needed to minimise concessionality; in certain cases it may not be needed at all. Concessionality should only be justified if it addresses market failures, enables crowding-in and avoids crowding-out of commercial investors, without over-subsidisation. Through

consultations with experts, this guidance will aim to outline steps that can be taken to outline an approach to minimise the level of concessionality in blended finance for clean energy.

### ***Alternative mechanisms to concessional finance that can mobilise commercial finance***

53. Project preparation: developers of renewable energy and energy efficiency projects in emerging and developing economies are often smaller local developers, many of whom are small engineering firms with limited to no financial knowledge or awareness of how to develop project feasibility studies that meet expectations of banks and other financial institutions. The provision of project preparation capital can strengthen project feasibility and increase the bankability of projects and facilitate access to commercial finance for clean energy projects. Such interventions could be structured via a revolving facility that provides reimbursable grants that are repaid on successful financial closure of a project.

54. Project structuring: many clean energy projects, particularly distributed renewable generation and energy efficiency projects are characterised by small ticket sizes (well below USD 1 million and some only in the USD tens of thousands) that often are too small to attract commercial finance or have high transaction costs making financing prohibitively expensive. Standardisation of such projects can facilitate financing through lower project due diligence costs and also facilitate securitisation and aggregation of smaller projects into diversified fund that can more easily attract lower cost capital. Blended finance mechanisms that provide technical assistance in the form of grants to support project structuring can also help to attract additional sources of private capital that would not otherwise be able to invest. This includes institutional investors that require scale and liquidity, as few can take direct equity or debt positions in projects and require tradeable instruments. Support provided for structuring of green bonds by clean energy developers or financial institutions who use proceeds to finance clean energy projects can help to reduce financing costs and expand the capital base.

## Questions for discussion

- **How can the need or degree of concessionality be determined in the clean energy sector?**
- **What other blended finance instruments (i.e. technical assistance for project preparation and project structuring) should be prioritised over concessional finance?**

### **Sub-principle 2.D Focus on commercial sustainability**

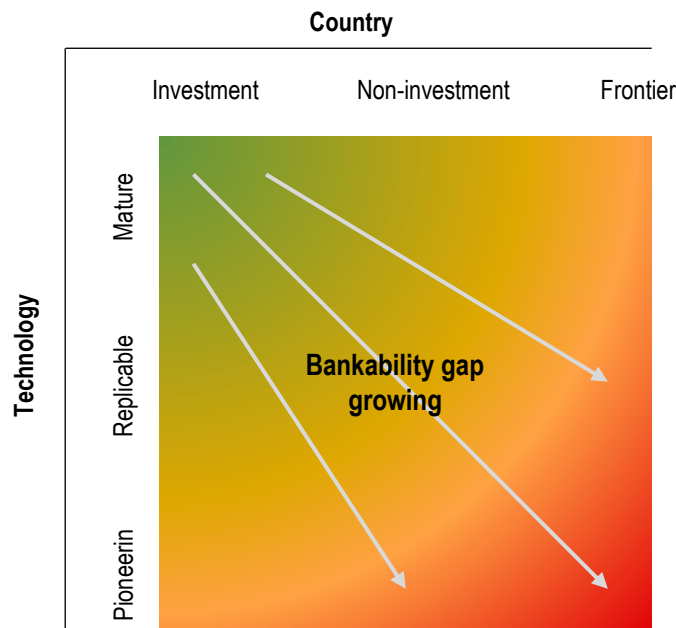
55. Even discounting climate and wider social and development impacts, the value proposition for clean energy investment is increasingly attractive, as the costs relative to conventional sources of energy continue to fall rapidly with technological innovation and wider deployment. Costs will vary markedly across regions, however, and the overall risk-return profile of clean energy investment will to a large degree reflect country circumstances, as discussed in the preceding section on sub-principle 2.B. Nevertheless, analysis of the long-term costs of clean energy, including using indicators such as the levelised cost of electricity (LCoE), can provide insights into the long-term commercial sustainability of different electricity technologies.

56. Decisions on long-term financing and ownership arrangements, commercial viability, and by extension on the degree of concessionality, need to be taken on a case-by-case basis, reflecting local and project specific conditions. It should not be taken for granted that full private sector financing, ownership

or control of assets is always possible, or even desired. Some clean energy projects with an overriding development objective, for example those providing energy access to remote communities where grid connection is not viable, may never have a path to long-term commercial sustainability, and may require permanent government support through subsidies or other mechanisms. Nor should it be taken for granted that blended finance is always necessary or sufficient to mobilise commercial capital. Undue intervention through blended concessional finance, in particular, can serve to distort otherwise functional markets, by over-subsidising investments and artificially making commercial finance less attractive and deterring commercial banks. It may therefore be more appropriate to tackle underlying risks through direct government action via policy reforms.

57. Judgements about the commercial viability of and the required degree of concessionality for specific investments, technologies, and sectors will also need to be made on a case-by-case basis and reflecting local circumstances at a particular time. These judgements will vary over time, even in the same or very similar geographic contexts, given the rapid pace of technological, commercial and financial innovation in the clean energy sector. Timing the exiting of blended finance is, therefore, difficult and subject to a range of factors.

Figure 2. The bankability frontier



Source: Adapted from (Lankes, 2021<sup>[15]</sup>)

58. As discussed in earlier sections, having a clear idea of the specific barriers to investment that a blended finance intervention intends to address and ultimately overcome is critical. As well as having a plan for achieving long-term commercial sustainability – financial viability to achieve returns and limited uncertainty in the form of limited volatility of cash flows (OECD, 2020<sup>[7]</sup>) – blended finance interventions need to be deployed as part of a wider strategy to address macroeconomic and investment climate barriers, as well as market fundamentals. In the power sector, for example, tariff strategies and mechanisms need to provide commercial investors with transparency on the stability of future cash flows.

59. Achieving long-term commercial sustainability also requires a systemic approach that anchors financing decisions in a wider, concerted strategy to decarbonise sectors. This will often require multi-faceted approaches to blended finance, with different components of a sectoral transition requiring varying



degrees of public support. Electric vehicles, for example, are not yet cost-competitive with internal combustion engine vehicles; blended finance can be used to incentivise investment by manufacturers, as well as charging infrastructure, whilst subsidies, an effective carbon price on petrol and diesel, and carbon border adjustment mechanisms can help shift consumer behaviour. The commercial viability of specific investments, and decisions on the use blended finance, therefore need to be taken in a holistic manner with reference to the wider transition in a sector and beyond.

## Questions for discussion

- **How do we assess clean energy sub-sectors for their long-term commercial sustainability, and determine the level of public support, including the use of concessional finance, accordingly?**
- **What level of technology maturity is needed before the use of blended finance should be considered?**

# References

- AfDB, AsDB, AIIB, et al. (2017), *DFI Working Group on Blended Concessional Finance for Private Sector Projects SUMMARY REPORT*. [16]
- Climate Policy Initiative (2018), *Blended Finance in Clean Energy: Experiences and Opportunities*, <https://www.climatepolicyinitiative.org/publication/blended-finance-clean-energy-experiences-opportunities/>. [11]
- IEA (2021), *Financing clean energy transitions in emerging and developing economies*, IEA, Paris, <https://www.iea.org/reports/financing-clean-energy-transitions-in-emerging-and-developing-economies>. [2]
- IEA (2021), *The cost of capital in clean energy transitions*, <https://www.iea.org/articles/the-cost-of-capital-in-clean-energy-transitions>. [13]
- IEA (2020), *Projected Costs of Generating Electricity 2020*, International Energy Agency, Paris, <https://www.iea.org/reports/projected-costs-of-generating-electricity-2020>. [17]
- IRENA (2021), *Renewable Power Generation Costs in 2020*, International Renewable Energy Agency, Abu Dhabi, <https://www.irena.org/publications/2021/Jun/Renewable-Power-Costs-in-2020>. [10]
- IRENA (2016), *Unlocking Renewable Energy Investment: The Role of Risk Mitigation and Structured Finance*, International Renewable Energy Agency, Abu Dhabi, <https://www.irena.org/publications/2016/Jun/Unlocking-Renewable-Energy-Investment-The-role-of-risk-mitigation-and-structured-finance>. [6]
- Lankes, H. (2021), *Blended finance for scaling up climate and nature investments*. [15]
- Multilateral Development Banks (2018), *Multilateral Development Banks' Harmonised Framework for Additionality in Private Sector Operations*, [https://www.ifc.org/wps/wcm/connect/7d286672-0c03-47f7-ad41-fce55d3ef359/201809\\_MDBs-Harmonized-Framework-for-Additionality-in-Private-Sector-Operations.pdf?MOD=AJPERES&CVID=mppa97S](https://www.ifc.org/wps/wcm/connect/7d286672-0c03-47f7-ad41-fce55d3ef359/201809_MDBs-Harmonized-Framework-for-Additionality-in-Private-Sector-Operations.pdf?MOD=AJPERES&CVID=mppa97S). [9]
- OECD (2021), *Amounts mobilised from the private sector by official development finance interventions in 2018-19*, OECD, Paris, <https://www.oecd.org/dac/financing-sustainable-development/development-finance-standards/mobilisation.htm>. [8]
- OECD (2021), "OECD DAC Declaration on a new approach to align development co-operation with the goals of the Paris Agreement on Climate Change", <https://www.oecd.org/dac/development-assistance-committee/dac-declaration-climate-> [3]

[change-cop26.pdf](#) (accessed on 3 April 2022).

- OECD (2021), *The OECD DAC Blended Finance Guidance*, OECD Publishing, Paris, [1]  
<https://www.oecd-ilibrary.org/docserver/ded656b4-en.pdf?expires=1648125217&id=id&accname=guest&checksum=AB4D3DBBA9772D26513CE290974E2809>.
- OECD (2020), *OECD DAC Blended Finance Principle 2 Guidance*, OECD Publishing, Paris, [7]  
[https://www.oecd.org/dac/financing-sustainable-development/blended-finance-principles/documents/Principle\\_2\\_Guidance\\_Note\\_and\\_Background.pdf](https://www.oecd.org/dac/financing-sustainable-development/blended-finance-principles/documents/Principle_2_Guidance_Note_and_Background.pdf).
- OECD (2018), *OECD DAC Blended Finance Principles for Unlocking Commercial Finance for the Sustainable Development Goals*, OECD Publishing, Paris, [5]  
<https://www.oecd.org/dac/financing-sustainable-development/development-finance-topics/OECD-Blended-Finance-Principles.pdf>.
- OECD (2008), *OECD Glossary of Statistic Terms*, OECD Publishing, Paris, [12]  
<https://doi.org/10.1787/9789264055087-en>.
- SEforALL (2022), *SDG 7.1 - Access to energy | Sustainable Energy for All*, [14]  
<https://www.seforall.org/goal-7-targets/access> (accessed on 3 April 2022).
- UN (2021), *High Level Dialogue on Energy: Theme Report on Finance and Investment*, [4]  
[https://www.un.org/sites/un2.un.org/files/2021-twg\\_5-062421.pdf](https://www.un.org/sites/un2.un.org/files/2021-twg_5-062421.pdf).