



# A New Frontier for Impact

Why corporate leaders should  
integrate Distributed Renewable  
Energy into their climate strategies:  
the case for D-RECs

***We are at a crossroads.***

***The decisions we make now can secure a liveable future.***

***We have the tools and know-how required to limit warming.***

- Hoesung Lee, IPCC Chair

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# Executive Summary

This white paper aims to help companies maximize the impact of their renewable energy procurement when moving towards a just transition. It will look at the key criteria for a successful strategy, explore how small, decentralized, renewable energy projects can in many cases deliver greater impact than large utility-scale facilities, and it will also introduce a new tool, the D-REC (Distributed Renewable Energy Certificate), which unlocks access to these Distributed Renewable Energy (DRE) projects around the globe – in effect, creating a new frontier for impact.

This report suggests that the overriding concern for companies developing their renewable energy strategy should be the search for impact. Beyond the regulations and the reporting framework, real life impact should be the North Star for corporate climate leaders.

## Key definitions

**“Utility-scale projects”:** Large renewable energy projects connected to the grid – e.g. wind farms in the US.

**“Distributed Renewable Energy” (DRE):** Small, decentralized projects built near the point of use. E.g., solar panels on a hospital, school, factory, or farm.

**“Avoided emissions”:** The amount of CO<sub>2</sub> saved by the use of renewable power, versus the more polluting energy it displaces.

**“Additionality”:** The additional green energy and associated climate benefits being made available, for example by the building of a new project that would not otherwise have been created.



Photo credit: Adolfo CJ - Pixabay

Yet that impact can be hard to achieve. Whilst corporations are essential actors in the clean energy transition, they face many challenges:

- The range of tools at their disposal is complex and requires in-depth expertise.
- There are different approaches to reducing emissions and achieving Net Zero, and some are more efficient than others. Companies face pitfalls, such as supporting projects that make little “real life” difference – and these pitfalls carry reputational risks.
- Renewable energy projects also have social and environmental footprints and generate both negative and positive externalities, all of which need to be considered.

## Executive summary

We recommend three key guiding points for a successful clean energy procurement strategy:

- 1 Focusing on investments that support renewable generation** – both supporting more green energy and also replacing the most polluting energy sources. This means focusing on new (additional) projects, and on areas where the electricity displaced by those renewables is especially carbon-heavy (avoided emissions). This distinction can separate investments that will make little to no difference to climate change from those that will have significant material consequences for carbon emissions.
- 2 Aligning the renewable energy choices of a company with its broader sustainability strategy, and the Sustainable Development Goals (SDGs) it prioritizes.** Synergies between renewable energy procurement and ESG sustainability commitments can deliver powerful results and maximize the effect of the investment.
- 3 Taking a big picture approach to emissions across Scopes 1, 2, and 3.** Corporate climate leaders will consider their impact not only where they directly use energy, but also where their suppliers operate and, ultimately, where their current and future consumers live. A global footprint entails global responsibilities, but also creates new opportunities to maximize impact where it can make the biggest difference to both people and planet.

**“Small is beautiful”<sup>[1]</sup>** – Distributed Renewable Energy (DRE) addresses many such guiding points. Small and decentralized, DRE is faster and easier to deploy than larger power projects, and often more appropriate for the end user. For example, distributed solar delivers on successful projects more often than any other energy technology in Africa<sup>[2]</sup>. As such, DRE projects offer new opportunities, both in terms of reducing emissions (displacing diesel generators, kerosene lamps, and charcoal stoves) and social impact (reaching many of the poorest people on the planet).

Innovative, tech-led tools such as D-RECs (Distributed Renewable Energy Certificates) now allow companies to support DRE directly. They give corporations the chance to buy RECs from distributed renewable energy projects in any country. Clean energy buyers can do this using familiar contracting tools, unlocking impact beyond the utility-scale projects in the developed world that they have been limited to in the past.

Our paper assesses DRE and D-RECs on the three criteria identified above, and finds that:

- **Avoided emissions** - DRE and D-RECs are nearly peerless when it comes to avoided emissions. In developing markets, electricity often comes from diesel generators. This means that, per kWh, distributed renewable energy projects can displace up to seven times more carbon emissions<sup>[3]</sup> than identical projects on the US grid.
- **Additionality** - D-RECs drive additionality both directly – by unlocking financing for new projects – and indirectly, by improving bankability and providing working capital to local clean-energy entrepreneurs.
- **Social impact** - Because energy access is so crucial in developing countries, DRE and D-RECs can help support a range of SDGs. Solar panels on schools, hospitals, factories, and farms transform the lives of communities. A D-REC portfolio can be curated to fit a company’s environmental and social impact strategy.

D-RECs offer guaranteed and traceable impact. Aligned with the I-REC standard, they help a company reduce its Scope 2 and Scope 3 emissions and take significant steps towards a just energy transition.

**As COP 27 is opening this November, the pressure to move towards Net Zero is intensifying. Employees, stakeholders, and consumers around the world are asking for real action in the face of the climate emergency. In this high-pressure environment, climate leaders have the opportunity to pioneer real change and help shape tomorrow’s world as accountable global citizens.**

1

# Why should impact be a priority for corporate leaders when moving towards a just energy transition

1.1

## 1.1. Corporations have the opportunity to lead the energy transition and shape tomorrow's world.

The corporate world is a central stakeholder in the climate emergency, with the resources to shape our world over and beyond compliance with legislation. The IMF estimates private corporations are responsible for over 60% of GDP in most countries<sup>[4]</sup>. Companies have had a significant impact on climate change – a recent report found that 100 companies are responsible for 71% of global GHG warming since 1998<sup>[5]</sup>. In this context, there is a significant opportunity for companies to become climate leaders and help shape the transition to a more sustainable, carbon-neutral world.

To this effect, environmental and social commitments have seen a meteoric rise in recent years. Companies are embracing climate targets such as RE100, The Science Based Targets Initiative, and The Climate Pledge – see overleaf some of the pledge groupings. Since the founding of the Science Based Targets initiative in 2015, the number of companies with net-zero commitments has more than doubled every year. Renewable energy procurement is at the core of these corporate decarbonization strategies.

## Private sector climate leadership



**3,943** companies  
**60** countries  
**50** sectors  
**\$20.5 trillion** USD market capitalization



**370+** members  
**175+** markets  
**330 TWh/year** electricity  
**250GW** required



**292** Investor Signatories  
**\$68 Trillion** Assets Under Management (AOM)

In addition, the business case for the “just transition” has never been stronger – the Organisation for Economic Co-operation and Development (OECD) found that a decisive investment in the transition could boost G20 GDP by 5% by 2050<sup>[6]</sup>, while Business for Social Responsibility (BSR) has collated data indicating climate policies could create tens of millions of jobs globally<sup>[7]</sup>. Companies that take part in this foundational shift are likely to mitigate the risks tied to the transition to a low-carbon economy, and make the most of the related opportunities.

### 1.2. There are many challenges for corporate sustainability leaders on the road to Net Zero.

Navigating the energy transition is a colossal task. This is especially true for companies whose core competencies are removed from energy, climate, and the environment. The range of tools to reach Net Zero is broad and complex, requiring in-depth expertise to

analyze the many considerations around carbon emissions, societal impact, price, scope emissions and more. Not only do climate leaders need to assess the best path for their organization, they also have to persuade stakeholders who are not grounded in the complexities of renewable energy and climate impact. This is no easy task – as one sustainability director expressed it, “nuances matter and there isn’t a good way to uncomplicate this”.

There are genuine pitfalls when building a clean energy strategy, and it is easy to end up supporting projects that do not in fact need assistance, or invest in well-marketed initiatives that have limited impact. Successfully navigating these challenges while keeping a long-term strategic perspective and embracing innovation is what will define the true climate leaders.

The procurement of renewable energy is a central plank of any corporation’s strategy towards a just climate transition. There are three main ways for a company to procure renewable energy:

1. Build on-site: e.g., installing solar panels on factory and office rooftops.
2. Power Purchase Agreements (PPAs): signing a long-term contract with a generator to purchase some or all of their electricity.
3. Renewable Energy Certificates (RECs): a digital certificate proving that a unit of energy (e.g., 1 MWh) has been produced by a renewable source; this can be purchased bundled with the associated electricity (often as part of a PPA) or “unbundled” as a certificate (without also taking delivery of the associated electricity).

In addition, corporations can use RECs, PPAs, or other mechanisms to support different generators, such as utility-scale projects (typically high-capacity and connected to the grid), or distributed energy systems (smaller, decentralized projects built near the point of use). The latter are known as Distributed Renewable Energy (DRE) projects, and present an attractive opportunity, which will be discussed in this report.

This report aims to support the decision-making process for corporations seeking to make sense of the above choices, with the ambition of decarbonizing their activity with maximum impact. Of the many challenges surrounding such a task, there are three that stand out:

### 1.2.1. There are different ways to reduce scope emissions, and some are more impactful than others.

Most companies will look at energy procurement as a means of covering their Scope 2 emissions, i.e., the emissions from the energy their facilities actually use (scope emissions are detailed further later in this report). Existing regulations mean that this concentrates their spending on countries where they have physical operations. As more and more companies increase their renewable energy procurement in developed markets like those in Europe or North America, they are seeing diminishing returns in terms of carbon impact. This is because they are sourcing their renewable energy into grids that are already seeing increasing renewables penetration, such as the US (20%) or the UK and Germany (>40%). Procuring renewable energy in countries that rely on dirtier fuel sources can displace six to seven times as much carbon as the same amount purchased in the UK<sup>[9]</sup>.

Balancing the imperative need for impact against the demand to reduce Scope 2 emissions is a complex challenge, as corporations must show both real climate leadership and still cover the “local” emissions they are responsible for. True climate leaders are looking beyond simple “box-checking” procurement strategies, seeking the renewable energy projects that displace the most carbon. Often, this requires looking past their Scope 2 boundaries to countries across their value chain. Corporations that focus on impact, beyond simply meeting reporting guidelines, are those that will genuinely make a dent in the world’s ever-growing carbon bill.



Photo credit: Kong Foto - Shutterstock

### 1.2.2. Renewable energy choices have environmental and social impacts, positive and negative, that need to be taken into account.

Access to power and energy is a critical fuel for human development. Since the Industrial Revolution, average human life spans across the world have risen from under 30 to 73<sup>[9]</sup>, while the share of those living in extreme poverty has dropped from 84% to below 10%<sup>[10]</sup>, despite a seven-fold increase in population. However, this development has been powered by the massive use of fossil fuels, as well as damage to significant portions of our biosphere. On a global level, investments in energy can have dramatic effects on our environment and society. As good “global citizens”, corporations must be mindful to ensure positive impact and externalities when replacing fossil fuels with renewables.

While it is intuitive to see renewables as a good thing in and of themselves, projects can cause damage as well as benefits. Renewable energy developments can impact land use and wildlife. Working conditions and a project's impact on local job creation or displacement need to be taken into account, as well as the endorsement (or not) of local communities. All energy projects have some level of environmental footprint, such as the disposal of hardware and electronic waste. As a result, understanding the investment and maximizing its potential for positive socio-environmental impact is key.

***Buying renewable energy certificates should be about more than just ticking boxes.***

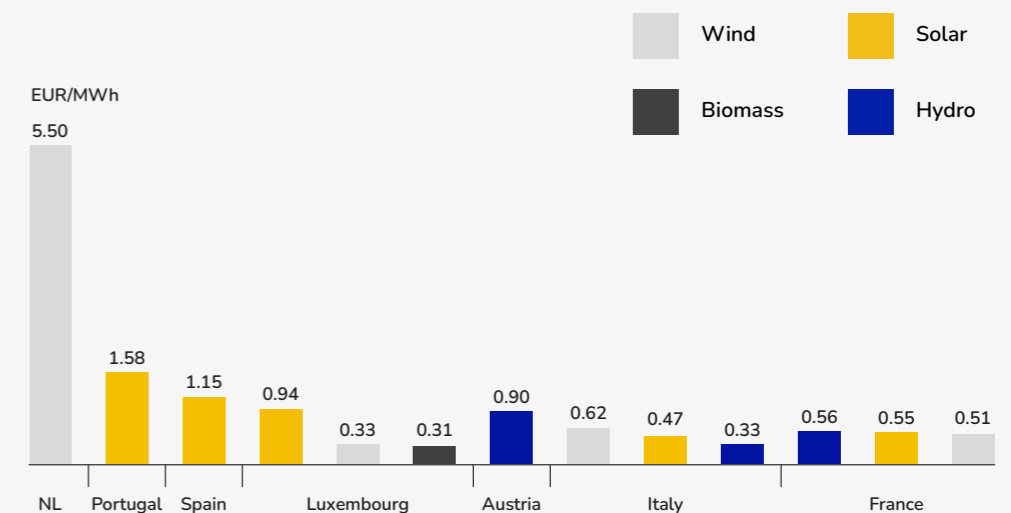
- D-REC Co-Lead

### 1.2.3. Reputational risks and greenwashing claims have impacted many leading corporations.

Greenwashing accusations are a reputational risk growing in parallel with ESG claims across the corporate world. The term implies an entity is being misleading with its claims to cut carbon emissions or exaggerating its efforts in that direction. A good example is the carbon offset sector, which many corporations have used to help compensate for their emissions. The use of cheap offsets of questionable quality can generate a lot of negative publicity.

There are similar risks around renewable energy claims. For example, when companies buy low-quality, unbundled RECs and claim to be 100% powered by renewables, legitimate questions arise about the impact they create on the ground. Purchasing such RECs typically does not alter the energy mix in any way, when these projects do not generate new, additional renewable energy or reduce emissions. Examples like these are fueled by the low prices of low-quality RECs in many countries, driven by the relatively high volume of established renewable generation in developed markets – see below.

### Average Guarantee of Origin (REC) Prices



Source: BloombergNEF, EEX, GME, Digital Renewables, ILR Note: Average prices for Netherlands, Portugal, Spain, Austria and Norway are estimated from online marketplaces. Luxembourg, Italy and France have GO auctions and release the average prices

Simply buying low-quality RECs to cover a company's own Scope 2 emissions can have little or no impact on carbon emissions, sustainability, or climate.

Climate leaders looking to harness the potential of their organizations as a force for change will focus on creating genuine impact on the ground.



# What are the key guiding points to consider on the path to a successful energy transition?

## 2.1. What should corporations look for when procuring clean energy?

As a result of the challenges described in section one, the key criteria guiding a clean energy strategy can be summarized as:

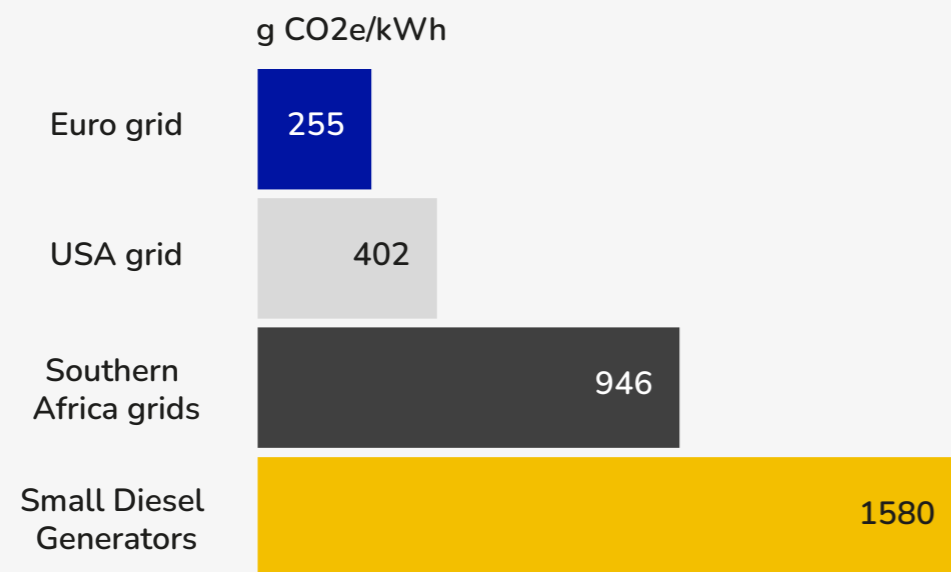
- How much carbon emission does the investment/procurement actually prevent?
- What is the societal impact of this energy source?
- What is the guarantee this will cover a corporation's emissions?

### 2.1.1 Avoided emissions and additionality.

Perhaps the most important aspect of renewable energy procurement is how it affects carbon emissions. Not all renewable energy purchases have the same impact – while purchasing 1 kWh of renewable energy would ideally replace 1 kWh of carbon-emitting energy, this is often not the case. A kWh is used at a specific time and place, and as a result it is the marginal generator at that time which is displaced. Marginal, in this case, means the first generator to switch off if a kWh is added from elsewhere, since supply must balance demand. This generator may not be a carbon emitter. For example, in markets where renewables already have significant penetration (for example, 50%), buying an additional kWh of clean energy might only displace carbon emissions 50% of the time. Even among grids relying 100% on fossil fuels, an additional kWh of renewable electricity will yield twice the carbon reduction in a grid with 100% coal versus one relying on 100% gas.

The efficiency of purchasing 1 kWh of renewable energy can vary greatly – grids with a high reliance on carbon-heavy fossil fuels provide the most impactful targets. Even in these grids, renewable energy procurement can have little impact if the energy procured is not additional. The graph below shows the difference in carbon impact between displacing a kWh on a European or American grid versus displacing a kWh from highly polluting small diesel generators.

### The Impact of New Renewables: Emissions Factors of Energy Displaced



Sources: IGES list of emission factors, US EPA, IFC, CarbonFootprint.com, Abdul Qayoom Jakhriani et al., 2012, "Estimation of Carbon Footprints from Diesel Generator Emissions."

Additionality can refer to whether the power procured leads to or supports the viability of new renewable generation, whether directly or indirectly. If 1 kWh is bought from a ten-year old wind farm, then there is no additionality. Simply put, the money used to buy the green kWh did not lead to a new project being built, or additional green electricity being made available.

This concept is just as important as avoided emissions, as it is often used to frame renewable power procurement as "greenwashing", or simply low impact. It is also one of the reasons that prices for RECs are often low, as there is a significant quantity of existing production of clean energy, which outstrips REC demand in many developed markets.

While building new generating capacity is the most direct way to create additionality, PPAs and RECs sourced from recently built projects can also support and drive additionality when:

- They provide developers with additional revenues and funds that are reinvested into new clean energy projects. Access to capital is a key constraint limiting the global energy transition, especially for small-scale DRE developers across the Global South.
- They increase the bankability of the project – through these additional or guaranteed revenue streams, the project is made a safer prospect for banks, and the project's cost of capital decreases. A corporation that agrees to procure green electricity can make the difference as to whether or not that project is built, or whether it is built at the same pace or scale.
- In many poor countries, it is not uncommon to find projects that have fallen into disrepair and stopped generating because the tariffs paid by end users cannot support ongoing operations and maintenance costs. A long-term off-take agreement for the project's RECs can give it a new lease of life by covering these costs. This will in turn displace emissions that would otherwise have occurred as communities fall back on diesel generators and other dirty fuel sources.

These three points highlight the important role that RECs can play in developing markets and DRE projects, given these projects often lack access to capital. In these contexts, a long-term REC off-take from a credit-worthy buyer can often lead to new/additional impact.

**Climate leaders should focus on projects that most need their support to create new clean energy (additionality), and in markets where the electricity displaced by those renewables is especially carbon-heavy (avoided emissions).** This distinction can separate investments that will make little to no difference to climate change from those that will create significant material impact on our global carbon emissions.

#### 2.1.2. A just and equitable transition.

While the world is facing a climate emergency, humanity still faces the multi-faceted challenges of poverty and its associated impacts on education, healthcare, and access to the basic building blocks of a prosperous and dignified life around the world. Our answer to climate change, which represents a huge redirection in capital and rethinking of our ways of living, is a once-in-a-generation opportunity to address these concurrently. These challenges cannot be overcome without companies taking a leading role in driving a just transition away from fossil fuels.

To balance the need for human progress with sustainable and low-carbon development, the UN has published 17 Sustainable Development Goals (SDGs) to lead to a just and equitable climate transition. These goals are backed by 193 governments. A Global Reporting Initiative report<sup>[11]</sup> found that 83% of companies support them, and 40% set measurable commitments to contribute to the SDGs, including giants such as Microsoft, Salesforce, IKEA, Unilever, LEGO and many others. A number of these firms have taken substantive steps to address one or more SDGs through targeted ESG strategies. In its seminal “More Than a Megawatt”<sup>[12]</sup> report, Salesforce described the importance of incorporating environmental and social impact in energy procurement in more depth.



Photo credit: Los Muertos Crew - Pexels



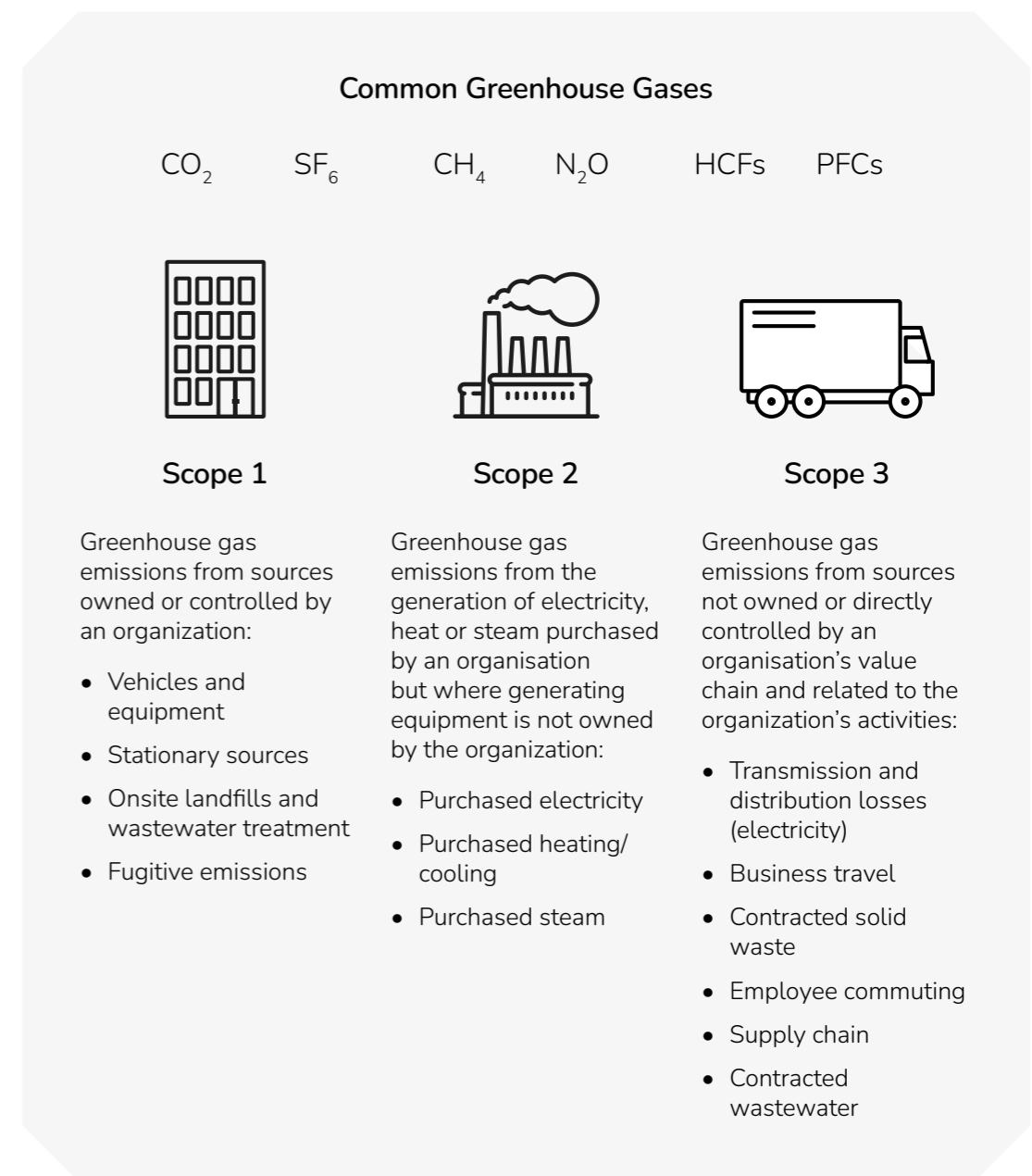
Source: United Nations Department of Economic and Social Affairs

However, addressing several of these goals, or even a single goal in a way that does not hinder others, is a considerable challenge for today's corporate leaders. For example, while funding renewable energy projects will advance SDG13 (climate change), it could increase poverty levels if it fails to create new employment opportunities for displaced fossil-fuel workers, especially in poor and developing countries. Developing countries tend to have more carbon-intensive economies and less access to clean energy and funding, while being on the front lines of climate change. Renewable projects built in these markets, especially right-sized DRE projects, often create the opportunity to address multiple SDGs simultaneously, and should be considered a priority for corporate renewable energy procurement.

Corporations should therefore ensure a strong alignment between their energy choices and their wider ESG strategies, since these are often linked. Synergies between renewable energy procurement and ESG commitments have the potential to deliver powerful results and maximize the effect of the budget invested.

### 2.1.3. Scope emissions and guaranteed impact.

As mentioned in section 1.3.1, corporations often look at renewable energy procurement as a way of reducing their scope emissions (see below). Scope 1 emissions cover those emitted by sources that are owned or controlled by the corporation, such as company vehicles. Scope 2 includes emissions from the electricity generation used by that corporation, while Scope 3 relates to the emissions from the company's value chain (such as transport not owned by the company, or its supply chain's emissions).



When comparing these scopes, it is apparent that Scope 1 and 2 emissions are the easiest to quantify and address, while Scope 3 emissions are both harder to tackle and can make up a significant majority of a company's emissions. However, in the context of tackling climate change, these scope definitions can be quite limiting. Large, advanced, and climate-conscious corporations tend to be based in developed markets, where local renewable energy investments can be less impactful, given the grids in these markets are increasingly powered by renewables.

Even in the framework of scoped emissions, corporations still have significant global responsibilities through the need for sustainable supply chains to address Scope 3. Companies can either buy RECs or sign PPAs to cover these emissions, or encourage their suppliers to do so, but to cover scope emissions, any PPA or REC will need certification by the relevant bodies – another important requirement. Equally important is the need to ensure the procurement of these contracts/certificates is transparent, secure, and flexible.

Corporate climate leaders will therefore wish to consider their impact in all the markets they operate – not only where they directly use energy, but also where their suppliers work, and ultimately, where their current and future consumers live. A global footprint creates global responsibilities, but also the opportunity to shape and lead the transition to a more sustainable world.

## 2.2. What are the options to procure renewable energy?

Procuring renewable energy in a way that meets the above three criteria allows corporations to take a leadership role in a just energy transition. As mentioned, there are three primary ways for a company to procure renewable energy:

1. Build on-site.
2. Sign Power Purchase Agreements (PPAs).
3. Purchase RECs.



Photo credit: Davide Bonaldo - Shutterstock

Whilst companies can develop solar or wind projects themselves, it is often impractical (e.g. a financial services firm in a city office likely does not have the expertise or roof space required). Building renewables on-site is costly, and suited to entities that own large and power-hungry sites. It is by nature additional, since electricity from this on-site generation replaces that from the grid. On the other hand, the impact on emissions may be limited if the grid electricity it replaces is already relatively clean. As a result, while on-site renewables is a direct and effective solution, it is not suited to most companies, and may not maximize impact on carbon emissions.



Photo credit: Westock Productions - Shutterstock

PPAs have a historically important role in developing renewables; for example, the UK Government's Contracts for Difference (CfD – a type of PPA) has allowed offshore wind prices to fall from levels of around £150/MWh to just over £37/MWh. This four-fold decrease in under a decade is certainly attributable in part to the powerful subsidy provided by the CfD scheme, and highlights the transformative power of PPAs. Corporations can also sign these PPA agreements with generators, and many industry sources affirm these are critical to project bankability. By catalyzing financing for new projects, PPAs allow more aggressive deployment of renewables and significant additionality. However, there are drawbacks; PPAs are still typically signed with local generators, and thus displace electricity mainly in developed markets' cleaner grids. In addition, they are the hallmark of utility-scale (large) renewables projects, and are less suited to DRE or developing markets with sparser legal frameworks.

The third major method of procuring renewable energy is Renewable Energy Certificates, or RECs. These are sometimes known by other names such as Energy Attribute Certificates (EACs) or Guarantees of Origin (GOs) – these are all simply a means of certifying that a unit of energy (e.g. 1 MWh) has been produced by renewable sources. As our electricity grids cannot themselves differentiate between electricity produced by coal or from solar, RECs allow solar developers to differentiate their generation from fossil fuels. This is important for energy consumers, as purchasing RECs alongside electricity is a means of ensuring the energy procured is renewable-based. RECs have some drawbacks – as mentioned in section one, when they are sourced from low-quality projects that do not contribute to building new renewable generation capacity, RECs become decoupled from any real additionality or impact on emissions. However, not all RECs are equal – a specific type of REC called a D-REC will be covered in section three, which addresses many of the drawbacks existing REC mechanisms present.

The criteria laid out here highlight the key requirements for market-leading renewable energy procurement. These are:

- The reduction of carbon emissions the investment actually achieved.
- The wider impact on society and integration into a company's ESG strategy.
- The ability of the investment to reduce scope emissions in a transparent and secure way.

# How to capitalize on a new frontier for impact – the case for DRE and D-RECs

## 3.1. Distributed Renewable Energy – an impactful investment.

DRE systems are typically small-scale renewable projects built at or near the point of use. These qualities make DRE faster to build, less capital intensive, and often do not require expensive transmission infrastructure to connect to the grid. As a result, they are ideal for rural communities around the world, but especially in developing markets where access to the grid can be limited.

A paper by Alova G. et al.<sup>[2]</sup> describes results from a machine-learning model that assesses the probability of success of power projects, based on real data from Africa. The model found that distributed solar systems had a number of features that significantly boost the odds of project success, including being off-grid, of typically smaller size, with local ownership, and an abundant fuel supply. While it is clear that a renewables-powered world must depend significantly on the grid and utility-scale projects, this evidence shows that DRE projects are more successful and thus more impactful in developing markets, where they often have transformative impact, powering communities, hospitals, and schools.

However, DRE projects can struggle to materialize due to lack of capital, given the risk and nature of the investment. Funding such projects can make a significant difference to DRE developers and their deployment plans. Compared to utility-scale projects in developed markets, which often see competing bids from financiers, a long-term REC off-take agreement for a DRE developer can be the decisive factor in whether or not their projects get built.

So how can climate leaders catalyze the impact potential of DRE projects?

### 3.1.2. D-REC mission outline.

D-RECs allow corporations to buy RECs from distributed renewable energy projects in any country, not just from utility-scale projects in countries with a formalized REC market. This opens up a new frontier for impact, both in terms of carbon (displacing diesel generators, kerosene lamps, or charcoal stoves) and social impact (reaching many of the poorest people on the planet).

The D-REC Initiative's mission is to accelerate climate justice and the energy transition by reducing the barriers to entry that prevent high-impact DRE projects in emerging countries from accessing global environmental markets.

### 3.1.3. What are D-RECs?

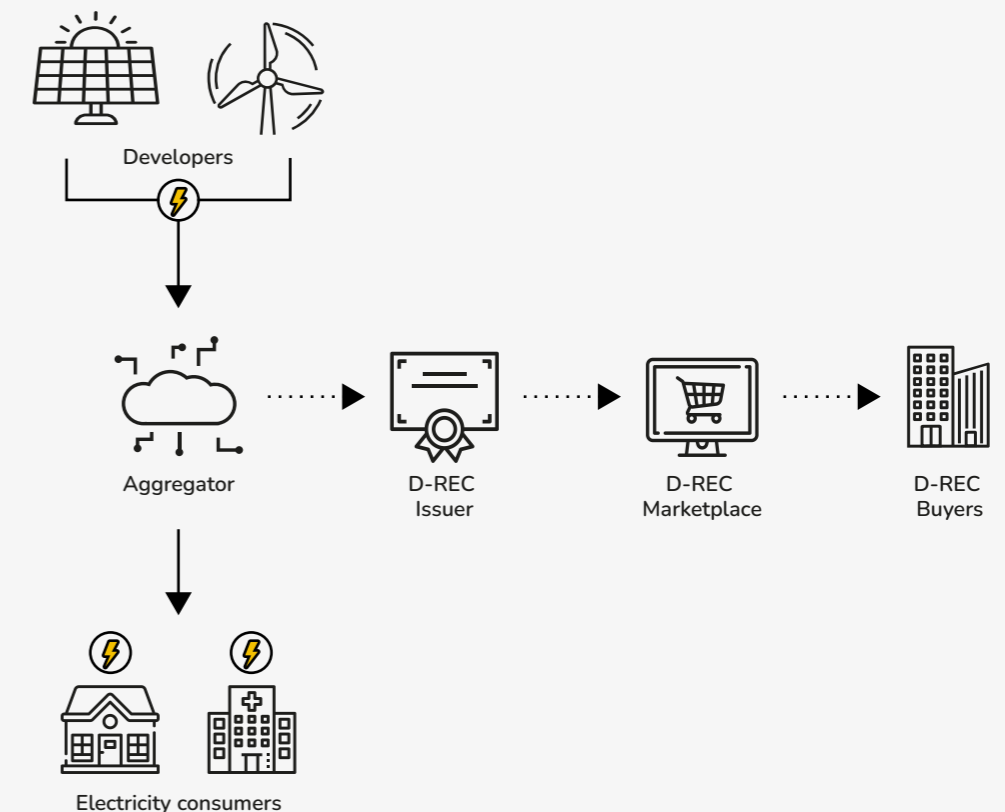
A D-REC is a type of renewable energy certificate; that is, digital proof that 1 kWh of clean electricity has been generated. However, it is more than just a typical REC, which focuses on utility-scale projects. "Distributed" RECs represent the aggregated clean energy from many "distributed" generators (e.g., rooftop solar panels) that otherwise would not be able to monetize RECs for their energy.

This feature makes D-RECs a powerful tool to support green generation in developing markets, which typically have fewer large-scale or on-grid renewable projects and a sparser legal framework for other support mechanisms such as PPAs. D-RECs are currently in the process of obtaining I-REC accreditation and are fully transparent and verifiable.

D-RECs operate in a new and transparent ecosystem, and can be curated to fit companies' ESG strategies. They are a powerful tool to meet many of the UN's Sustainable Development Goals.

### In a nutshell, there are four phases to D-RECs:

1. A developer installs some form of renewable generation (such as solar panels, solar lamps, or microgrids).
2. The renewable asset generates electricity, which is recorded by the D-REC digital monitoring, reporting, and verification platform.
3. The data from many such systems is aggregated to create D-RECs, each representing 1 kWh of renewable energy generated, in accordance with international standards.
4. A corporate entity purchases the D-RECs to address its Scope 2 or 3 emissions, providing revenue for all of these distributed renewable generators, and thus contributing to financing further such projects that benefit local communities through clean, reliable energy.





### 3.2. Why should DRE and D-RECs be integrated into corporate procurement strategies?

D-RECs are a powerful tool to support DRE in developing markets, which typically have fewer large-scale or on-grid renewable projects and a sparser legal framework for other support mechanisms such as PPAs. By unlocking access to finance and capital, D-RECs can unleash the potential of local clean energy entrepreneurs and spark a green movement to decarbonize developing countries and reduce energy poverty. This is a structural shift with transformative long-term consequences. It is of particular importance as 90% of the world's additional emissions moving forward will come from middle-income countries.

*Since almost 90% of the increased emissions going forward are coming from developing countries, we have to take the top level of risk off the access to capital in these countries*

- Al Gore

#### 3.2.1. Avoided emissions and additionality.

In developing markets with poor grid coverage, electricity often comes from diesel generators – the IFC estimates an installed capacity of 350-500 GW of such generators in developing markets. This means that, per kWh, distributed renewable energy projects can displace up to seven times more carbon emissions<sup>[3]</sup> than

identical projects on the US grid. As a result, DRE and D-RECs are almost peerless when it comes to avoided emissions, especially relative to RECs or PPAs supporting utility-scale projects in developed markets.

D-RECs drive additionality both directly – by unlocking financing for new, unbuilt projects – and indirectly, by improving bankability and providing working capital to DRE developers operating in extremely challenging environments. Even in cases where D-RECs are issued from a pre-existing project, they can help drive additionality in many ways, by:

- Increasing investments in such projects by improving credit-worthiness through revenue certainty – from foreign investors to domestic lenders. A multi-year D-REC off-take contract (five to eight years is typical) can be a significant credit boost.
- Mitigating foreign exchange risks by providing stable, secure revenues in hard currency.
- Creating access to global environmental markets for projects, developers, and communities that have never been able to monetize their EACs before.
- Granting a new lease of life to projects that have fallen into disrepair and stopped generating, by providing a secure source of finance for operations and maintenance.

#### 3.2.2. A just and equitable transition.

DRE and D-RECs also add a dimension of social impact that typical PPAs and RECs do not. DRE can bring a significant and tangible improvement to the lives of local communities by providing access to power in places such as schools, hospitals, factories, and farms. Renewable energy is a critical instrument in the fight against poverty, being directly linked to economic growth. As a result, supporting DRE deployment addresses many different UN SDGs, in addition to SDG7 (energy poverty).

## UN SDGs addressed by DRE



Source: United Nations Department of Economic and Social Affairs

D-RECs offer a flexible tool for corporate procurement teams to support these DRE projects. For example, D-REC market participants are developing two types of D-REC purchase models – “pay-on-delivery” (where the buyer purchases D-RECs as they are generated), and “upfront” (where the buyer provides money upfront for several years’ worth of D-RECs at once). This latter method allows for more impact as a developer can use this commitment to agree financing conditions ahead of generation start, unlocking access to new capital, and allowing new projects to be built. In addition, corporates can buy D-RECs to match their specific values and strategy, for example focusing on:

- SDG 7 (energy poverty) by improving energy access to the communities that need it most.
- Health – by powering hospitals and clinics, and reducing pollution from diesel and indoor cooking fires that create significant global health issues.
- Education, providing access to electricity for schools and homes.

- Creating livelihoods in the green economy, especially for women.
- Climate justice by supporting transformative investment in the Global South.

This flexibility can be key for companies, with each having distinct ESG priorities or different requirements in terms of additionality or carbon impact.

***I saw first hand how energy affected maternal outcomes. Women would travel for days for an ultrasound, and when they arrived the clinic had not had power for weeks.***

Ricky Buch - D-REC Co-Lead

### 3.2.3. Guaranteed and traceable impact.

Access to impactful investments for renewable projects in developing markets can be challenging. Two key issues stand out – the risk-wariness of investors, and the lack of legal and technical capability for DRE generators to access RECs and PPAs. D-RECs are purpose-built to reduce these barriers, and are aligned with the I-REC Standard (pending accreditation), which has issued well over 30 TWh of RECs since inception.

D-RECs will allow companies to cover their Scope 2 and Scope 3 emissions in any country around the world. D-RECs can be purchased using the same contract structures companies are familiar with, which makes them recognizable and simple to purchase. While considering only scope emissions can limit a company's potential to create meaningful impact (as discussed in section one), there is still a sizable market for D-RECs within the boundaries of scope emissions. The graphic below shows that there are at least several TWh of Scope 2 emissions alone from CDP (Carbon Disclosure Project) companies with operations in developing countries. On Scope 3 emissions, this demand could multiply almost 100 times when looking at RE100 signatories. If these companies committed just 5% of their annual energy procurement to high-impact DRE projects, this would represent an investment of unprecedented magnitude for developing markets' renewable generation, with concrete and positive consequences for carbon emissions and social development.

### Electricity Demand from Corporate Climate Leaders



- **Almost 4,000 SBTi Companies** estimated demand **2,000+ TWh/year**
- **370 RE100 Companies** with operations in 175 countries. Global demand for **340 TWh/year**
- **68 CDP companies** reporting Scope 2 footprints in 49 developing and emerging markets. Aggregate demand for **5.23 TWh/year**

D-RECs are also a secure investment – once a kWh of renewable electricity is created, a digital certificate is issued that is then tracked using distributed ledger technology (blockchain). Whilst avoiding a technical deep-dive, this technology makes the certificate immutable, and its decentralized nature makes it far more secure than other digital certificates. Its uniqueness means that a kWh of electricity cannot be double-counted, or used to create another offset. It is also a highly transparent process, as the D-REC platform is open source and available via a public ledger. The D-REC platform's digital approach to monitoring, reporting, and verification of renewable energy generation is what enables small-scale DRE projects around the world to be aggregated to a meaningful scale (GWh+) for the first time, making them a new, powerful tool to maximize the impact of corporate renewable energy procurement.



Photo credit: UNDP / Karin Schermbrucker - Slingshot

# Conclusion

This report has outlined three key criteria that corporations should look for when procuring clean energy:

- **How much carbon emission does the investment/procurement actually prevent?**

Corporate buyers will want to focus on projects and developers that most need their support (for example, to build new renewable generation – additionality), and in markets where the electricity displaced by those renewables is especially carbon-heavy (avoided emissions).

- **What is the societal impact of this energy source?**

Corporations should look to merge their climate aspirations with their wider ESG strategies and philanthropic work.

- **What is the guarantee this will cover a corporation's emissions?**

Decision-makers will look to invest in transparent, certified, and verifiable assets, alongside emission reductions across Scopes 1, 2, and 3, to achieve their Net Zero targets and a fully sustainable value chain.

DRE projects have a strong claim to impact in terms of reducing carbon emissions in fossil fuel-intensive developing markets. Their significant need for capital means investments are also likely to drive additionality and, more broadly, support local clean energy developers and entrepreneurs. In turn, D-RECs are critical to reducing the barriers to entry that prevent these high-impact DRE projects from participating in global environmental markets.



Photo credits: (Left) Los Muertos Crew - Pexels, (Right) Powertrust

D-RECs also address multiple UN SDGs – they can increase access to energy, help reduce poverty, improve health, and contribute to sustainable economic development. The D-REC opens a new frontier for renewable energy procurement, effectively establishing a safe and transparent bridge for finance from developed markets to high-impact DRE projects in the Global South.

The UN describes the consequences of climate change as “intense droughts, water scarcity, severe fires, rising sea levels, flooding, melting polar ice, catastrophic storms and declining biodiversity”<sup>[13]</sup>. While much of the fight against the climate emergency is about reducing and mitigating risks, it also represents significant opportunities. These include new ways to partner with communities to drive impact, improved collaboration across supply chains, and new technologies that allow improved reporting and governance. By using smart and impactful renewable energy procurement strategies to capitalize on these opportunities, corporate climate leaders have the opportunity to create real change and embrace their role as good citizens, at both global and local levels.

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Photo credit: UNDP / Karin Schermbrucker

The D-REC Initiative is a not-for-profit, multi-stakeholder, industry-led initiative, co-led by Powertrust and South Pole. For more information, please contact [info@drecs.org](mailto:info@drecs.org)

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Accompanying video is available on [www.drecs-new-frontier.energy](http://www.drecs-new-frontier.energy)