10 STEPS
TO BECOMING A CARBON NEUTRAL BUSINESS

The Executive's Guide

LM WIND POWER
a GE Renewable Energy business

Contents

Introduction

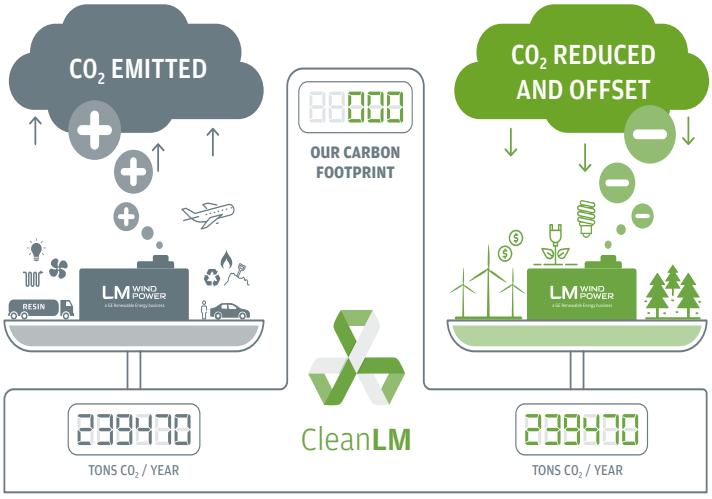
In 2015, 195 world leaders signed the historic Paris Agreement to combat the threat of global warming by drastically cutting greenhouse gas emissions. Businesses were specifically encouraged to contribute, leveraging their ability to drive change fast while creating value for multiple stakeholders. Together with the Sustainable Development Goals (SDGs), there is now a clearly defined set of targets for creating a more sustainable future, with our sector addressing one SDG (SDG 7 – Affordable and Clean Energy) in particular.

At LM Wind Power, we have taken this to heart with our pledge to go carbon neutral – a goal we achieved in 2018. Through this program we have proved that a green business model is actually a leaner business model, reducing our costs and improving our processes. Focus on the minute details of where our emissions come from reveals hidden opportunities. It is a continuous improvement process. We firmly believe that the companies that lead, win - and an ambitious climate action strategy puts us in front when applying for funding, when attracting new colleagues, when setting up operations in new markets and when pursuing new business. It is not a nice to have, it is the business model for the future.

This guide summarizes what it takes to go carbon neutral for any organization with an ambition to launch an ambitious climate action program. The content is based on the key lessons learned from the first year of implementing LM Wind Power's carbon neutrality program CleanLM. Being one of the first companies to go carbon neutral, there was no simple and predefined path to follow. We were constantly exploring new turf, learning and adjusting as we went.

Throughout the guide, we'll share insights we have had in the process and things we wish others had told us before we started. With this, we hope to make it easier for more organizations to pursue carbon neutrality and grow the movement of corporate sustainability leaders. It is part of our ethos and our vision: Together, we capture the wind to power a cleaner world.

Carbon neutrality definition



STEP 01 Define your ambition

Having made the decision to go carbon neutral, the first thing you need to do is to clearly define your ambition level. There are three main factors that will influence how your carbon neutrality pledge plays out: the extent of emissions you are including, your timeline and the resources you have available to put into it. Together with your chosen strategy (see Step 4 “Define the strategy”), the choices you make on these three aspects will determine how ambitious your pledge is and the course you will need to take to reduce your carbon footprint to zero.

/ Which emissions to include

A carbon neutrality pledge needs a defined emissions boundary or limit stating which emissions it includes and which it excludes. To be carbon neutral you will have to reduce and offset all the emissions you include in your pledge. The emissions you exclude are disregarded in terms of your pledge, but will of course still be generated and exist.

/ Life-cycle approach

At the very ambitious end of the spectrum is the full life-cycle perspective which is also the starting point for setting Science Based Targets. This approach means you take responsibility for all the direct and indirect emissions related to your product, from raw materials, manufacture, transport, storage, sale, use and disposal. This is a comprehensive approach requiring considerable resources and knowledge of your value chain and the emissions it generates. When companies pursue this route, they often need to set the deadline well into the future as it is both time-consuming and sometimes complex to understand.

According to the Greenhouse Gas Protocol - the world’s most widely used greenhouse gas accounting standards - emissions are classified as Scope 1 (direct), Scope 2 (energy indirect) or Scope 3 (other indirect) emissions, depending on the level of control your company has over these emissions. What may be indirect emissions for your company can be direct emissions for others. Waste disposal, for example, is a Scope 3 emission for your company. For the waste contractor, on the other hand, disposing of waste is considered a direct emission source.

The life-cycle approach may therefore mean that you are contributing to ‘double counting’ as other players in the value chain might also be working to eliminate or compensate for the emissions they are causing. If every company only accounted for their direct emissions, there would be no double counting. However, if the waste disposal contractor in the above example also commits to offsetting its carbon emissions, together you will be offsetting more emissions than you cause, going beyond being carbon neutral to being “carbon positive”. It often makes sense to share the burden, though, by engaging your suppliers and customers to address their own impact. This way, you are creating a network of companies that jointly work towards carbon neutrality throughout your value chain.

To make any carbon neutrality claim whatsoever, as a minimum you need to address the emissions that are directly caused by your company (Scope 1) and the indirect emissions resulting from purchased electricity (Scope 2). Including Scope 3 emissions in your pledge is optional and different organizations can choose to include different sources depending on what is considered important for their company or industry. For example, if your industry has a particularly heavy footprint from transport emissions, you can choose to include these in your boundary and claim carbon neutral transport.

LM WIND POWER'S APPROACH
TO DETERMINE EMISSIONS BOUNDARIES

For LM Wind Power, the question of which emissions to include was about our responsibility and a frank assessment of what we could reasonably influence with the resources available. We decided to go beyond the minimum requirements of carbon neutrality (Scope 1 + 2 emissions) to include the emissions over which we have operational control.

The boundaries of our pledge

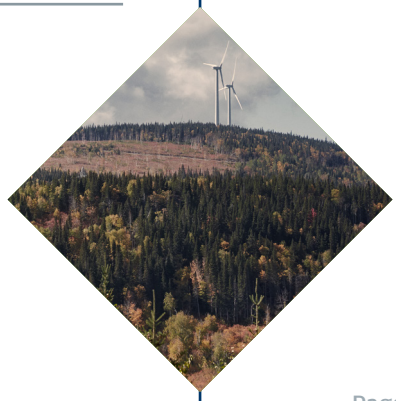
/ Setting the right timeline

Setting a timeline for your pledge is inherently connected to your emissions boundary and your available resources. If you set a deadline for your program far into the future, you might be able to include more emissions in your carbon neutrality program than you would if pledging to go carbon neutral within a few years, simply because you have more time to identify and collect your data. You will also have more time to implement larger scale programs that reduce your biggest emission sources internally rather than having to opt for the quicker method of offsetting them. From a budgeting perspective, the costs of going carbon neutral can be spread over multiple years. The downside of a longer timeline is the challenge of keeping your carbon neutrality pledge on the agenda of your organization and maintain the priority focus.

The advantage of setting a shorter timeline of one to two years is that you create a sense of urgency to start delivering the program right away as you simply have less time to meet your target. You may also have to compromise on the extent of your strategy. You should ideally always focus on reducing your emissions internally before you start to offset. In terms of climate impact, actually reducing your immediate carbon footprint is considered a better option than compensating via offsets. Realizing significant reductions in your footprint, however, can take time and sometimes requires considerable investments whereas offsetting can be done immediately. You should expect to look at a combination of both reductions and offsetting as part of your strategy, with various emphasis depending on whether you have decided on a shorter or longer timeline.

LM WIND POWER'S APPROACH TO SETTING A TIMELINE

At LM Wind Power, we opted for a deadline that was about two years away from our announcement to go carbon neutral. We were convinced that if we were going to be successful, we had to act fast and build on the immediate momentum. The short timeline had an impact on the level of internal reductions we were able to achieve before the deadline. We wanted to reduce as much as possible but had to settle for an approximate four percent carbon footprint reduction in the first year through a focused energy efficiency drive. These reductions were worth hundreds of thousands in (USD) savings and proved to everyone from top to bottom in the organization that our sustainability ambitions were driving hardcore business improvements. In this way, the savings enabled us to pursue the rest of our program components which, for a large part, focused on purchasing Renewable Energy Certificates (RECs) to achieve a green electricity supply and acquiring carbon credits to offset our emissions.



/ Allocating resources

One thing is for sure, carbon neutrality does not come for free. Even though you may well save money in the long-run, you need the budget and manpower to implement the measures that will deliver those savings. You will need people to determine and deliver the measures that will reduce emissions; you will need dedicated resource for supporting activities such as taking on external partners or engaging stakeholders; and you will need either internal or external help to acquire Renewable Energy Certificates and carbon offsets.

Give your organization a good, hard look. The skills and competences in your team may not match what is required to achieve your pledge and you will most likely need to commission external help for some parts of your program. You need to be realistic and transparent from the outset, as you do not want to be stuck in a situation where you cannot promote your pledge or, worse, not fund the measures that will make your company carbon neutral.

Some companies may attach such value to going carbon neutral that they will invest considerable resources upfront and continuously to claim climate action leadership. Most companies, however, will have to work with limited resources perhaps from an existing Sustainability team and the initiatives you want to launch will have to stand normal commercial scrutiny. Regardless of the level of resources invested, there is a task to engage the organization to determine where carbon neutrality investments and savings are accounted for. Get your Finance team involved early on to see what works best for your organization and its reporting requirements.

LM WIND POWER'S APPROACH TO ALLOCATING RESOURCES

Like most companies, we had to work with limited resources. The core team leading and having the oversight over our program consisted of two full-time equivalents. On all the four key workstreams - greenhouse gas (GHG) accounting, internal reductions, renewable energy and carbon credits - we relied on internal resources in various functions but were supported by external partners specializing in these different areas. For the energy efficiency drive, we had significant technical help from our maintenance managers to establish our energy baseline, identify the reduction potential and implement the measures. For our 100 percent renewable energy drive, we had one full-time equivalent for six months to identify opportunities for Power Purchase Agreements (PPAs) and on-site installations.

In terms of budgeting, fees for external expertise and the cost of internal and external engagement fell under the Communications and Sustainability budget. Investments needed to reduce our emissions, however, were treated like any other large capital investment our company would make. A business case was presented to our Capital Expenditure Board and the investment was assessed on its merits.

STEP 02 Find your partner

Going carbon neutral will most likely challenge you to acquire new knowledge in the areas of GHG accounting, carbon reduction initiatives, renewable energy options and carbon offsetting. Each work stream is a discipline in its own right. These are all technical and specialized fields, and while your aspiration to go carbon neutral can be fully in place, you will most likely not possess the knowledge and expertise required to do so. External partners can help you navigate through the technicalities of going carbon neutral, allowing you to spend more time on other activities, such as engagement. There are significant differences between partners, and it is important to understand their service offer, technical capabilities and the way they work when choosing the right one(s) for you.

/ Service offer and expertise

The budget you have available will of course influence the range of partners you can choose from. If you want to be a leader on carbon neutrality, partner up with a consultant who has worked with the most ambitious climate business leaders that can leverage their experience and suggest state of the art solutions. There are specialist climate consultancies out there that can help you on the full range of activities required to go carbon neutral, or you may prefer to work with different partners for different activities.

Not every company with an ambition to do better for the climate will need to be leaders of course, and there are many options and levels of support available to help you deliver your program. It can be a bit of a jungle to know what to look for, but your choice of partner should ultimately be determined by what you are able (or want) to do yourself and which activities you need help with.

Aspects that might help guide your choice include:

- Can you construct your carbon footprint yourself?
- Are you able to reduce your emissions internally with existing resources?
- Are you aware of the best ways to green your electricity supply and able to execute on them?
- Do you know enough about carbon offsetting to do the trading of certificates yourself?

Choosing the right partner to get going is important but as with any supplier partnership, you need to review your needs continuously. As you mature and grow your carbon neutrality drive, your needs for external support may change. In practice, you may find that you will work with a number of different organizations that support you on various topics at various times.

Having more partners allows you to compare services and get different perspectives, but you also risk having unconnected workstreams and making the overall management of your program more complicated.

There are a few considerations to be aware of when choosing a partner. Each partner has their own range of activities they will be able to help you with. There is a somewhat blurry pool of consultancies that claim to be experts in the full range of climate action programs. In reality, most of them will likely be really strong in one or two areas and either work with partners to cover the rest or simply offer a limited level of service. You should expect to see different emphasis across these organizations. Some will be strong on the hardcore operational tasks required for implementation of your program, like the acquisition of Renewable Energy Certificates or carbon credits. Others may have their strengths in greenhouse gas accounting and reporting frameworks. Others again may be specialized in Power Purchase Agreements and can help you connect to relevant partners commercially, financially and geographically. Each of these consultancies will have various levels of capability in terms of also working as your strategic partner and sounding board to develop your program and offer advice proactively. The latter is really at the high-end of the service spectrum and comes at a significant cost. You will need to gauge which focus area or strength you think is most important in the partner you sign to support your particular need.

Note that even if you decide to work with only one partner, you will most likely be assigned multiple consultants specialized in the different areas. These individuals may not necessarily be well-connected, based in the same location or even in the same team. So you may want to consider requesting one project manager from your external partner to coordinate and align the work carried out on your behalf among their individual consultants.

/ Culture and operating style

The culture of your external partner and the way they do things is almost as important as their technical credentials. Your perfect match (if that exists!) will depend on your organizational culture and also on your carbon neutrality ambition. For instance, would you like your partners to be highly proactive or is it fine that they are reactive as long as they respond to your requests?

Of course, you cannot really know how companies work until you start collaborating with them. Do make sure that the factors that are priorities for you are explored during the pitch and due diligence phase. Sometimes the best thing to do is speak to one of their existing clients to find out what they are really like to work with.

LM WIND POWER'S APPROACH
TO FINDING THE RIGHT PARTNER

Our choice to work with one of the leading climate consultancies that was able to help with most of our carbon neutrality pledge was motivated by our desire to keep the setup for managing and developing our program as simple as possible. We ran an elaborate Request for Quotation process, scoring three potential partners on criteria such as range of expertise and carbon offset portfolios, responsiveness and global coverage, and of course cost.

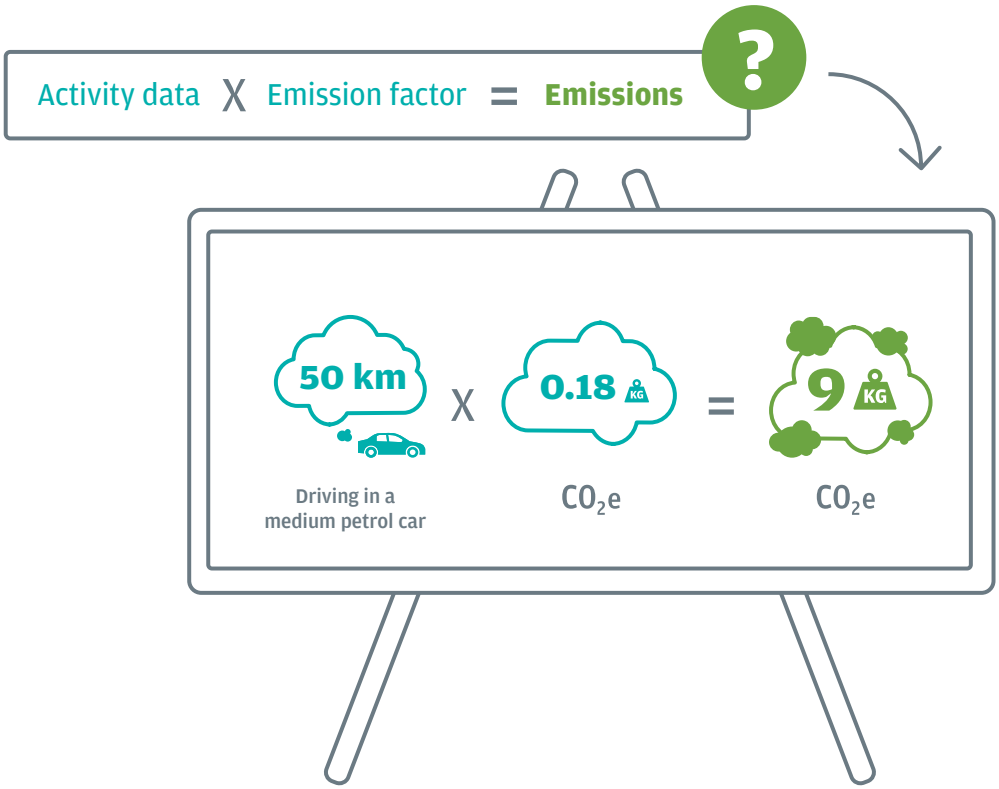
Our selected partner assisted us on the four main workstreams of our carbon neutrality program – namely GHG accounting, internal reductions, renewable energy and carbon offsetting. We have relied on their expertise for continuous questions on technical queries like calculating emission reductions for a specific site and for reviewing and verifying claims in our carbon neutrality newsletter. To keep all the activities aligned, we benefited from a project manager that kept track of the work happening simultaneously.

STEP 03 Create your baseline

Prior to reducing any emissions, you need to know the baseline volume and the sources of the emissions – a process called greenhouse gas accounting. This can be quite a complex and time-consuming process that should not be underestimated. GHG accounting is the foundation for every other aspect of your carbon neutrality program, and it is therefore an absolutely crucial first step. Unless you are an expert on GHG accounting and have sufficient resources, consider collaborating with an external consultant to calculate your carbon footprint. Even if you can measure your emissions yourself, you will still need a third party to validate your carbon neutrality claim to make sure it stands external scrutiny. Ensuring your data collection process is fully auditable and being able to back up your carbon footprint calculations is critical to making third-party validation as smooth as possible.

The usual way for calculating emissions is to multiply activity data by an emission factor. Examples of activity data include liters of gasoline consumed, kilograms of waste sent to recycling or megawatt hours of electricity used. Emission factors are estimates of the carbon emissions associated with one unit of that activity.

How are carbon emissions calculated?



For accurate emissions reporting, you need to ensure that both the activity data as well as the emission factors are accurate or you risk miscalculating your carbon footprint. If there is no clear owner of emissions data within your organization, the logical first step is to assign responsibility for the GHG accounting process. Someone in your Environment, Health and Safety or Sustainability department could be a good bet to take this on, but the most important factor is really to find someone who has the insights and analytical skills to engage the right people and data sources across the organization.

An external partner can then scrutinize your in-house emissions reporting, checking which data is currently captured, how that is being done and which emission factors were used. This review will highlight which activity data still needs to be collected, the method of collection and determine the appropriate emission factors to be used. Ensuring alignment from the start on these components minimizes the risk of problems later in the process.

The level of detail needed to construct your carbon footprint can feel overwhelming. Looking at employee commuting for instance, you would need to know the distance each employee travels to work, their mode of transport and how often they make that journey. If they use a car, you need to know if it is a passenger or heavy-duty vehicle and what type of fuel it runs on. Do not let that stop you, though. The process of mapping your emissions means that you suddenly discover new things about how you run your business and that will help you identify areas for improvement.

It is up to you and your consultants to agree which level of detail is feasible. Do not let perfect stand in the way of good. GHG accounting is always somewhat imperfect. You simply cannot know exactly how much you are emitting, but you can make the best possible estimation by using reliable activity data, valid assumptions when actual data is not available and the right emission factors. Instead of aiming for perfection straight away, try to improve your reporting every year. If in one year you made estimations for one source, try getting activity data the year after. If you suspect data is incomplete, you can aim for strengthening data collection in the future.

/ Capturing activity data

Activity data is usually collected within the organization. You are probably already collecting some activity data which you can build on. Energy consumption is an example of something which is frequently measured and seems fairly straightforward. But even with the simple metrics, you may need to spend more time than expected on validating, clarifying or harmonizing data before you can consolidate.

Examples of challenges that could come up as part of your process could be that you get your consumption data in various units because you operate in different countries with different standards; the local utility only sends you a total bill for your energy, and it includes various energy sources but not the breakdown of each; you are part of a shared facility and do not have meters to indicate your own consumption. None of these cases are particularly difficult to solve, but they may require extra time to address and will require you to make choices and maybe accept trade-offs in terms of accuracy.

You will most likely also have to start from scratch collecting some types of data. Do you know exactly where your material is delivered from and by which transportation mode for instance? Or do you sort and track your waste to such an extent that you can clearly determine which processing method each fraction goes through? There is usually a bit of detective work involved in reaching a satisfactory data input for your GHG accounting. Rather than getting the data for a single year only, consider setting up a self-sustaining data collection process to avoid manual yearly data collection.

Often relevant activity data is captured in various parts of the organization rather than through a central repository or system. You can of course do a lot in Excel but for many organizations, a sustainability reporting software may be useful. By using this type of system, individual sites can fill in data on an online platform, which relevant users can access with a login 24/7. Most systems will have a built-in functionality that flags if your data deviates too much from previous entries and might even enable you to benchmark your data according to various standards. Besides the centralization of your sustainability data, some sustainability reporting software furthermore automate the process of translating activity data into emissions and thus calculate your carbon footprint.

/ Emission factors

Emission factors are as important as the activity data and unfortunately there is not one single universally agreed and applied set of factors. Instead there are a variety of factors that live in different databases - the most widely known include DEFRA, EcoInvent or GaBi. These databases house datasets that detail the emissions resulting from specific processes, such as waste disposal, fuel consumption, business travel, electricity consumption and a number of other activities. For example, as part of the waste disposal dataset, the database would indicate that sending one kilogram of plastic to recycling will on average result in a certain amount of emissions, based on a number of assumptions around a typical process for sending plastic to recycling.

Different consultants use different databases or even a mix of the ones available. The consequences of using one database over the other can be very significant for the carbon footprint that comes out at the end of your GHG accounting process. If you work with an external expert, make sure you ask upfront what they base their calculations on and why, to ensure their approach aligns with your desired level of ambition and perhaps previous carbon footprint work that you have undertaken already.

There may be processes so specific to your business that they are not covered sufficiently in the standard databases. In this case you may decide to create emission factors related to specific business processes yourself. Make sure to document the assumptions you build in to your emission factors, this will also come in handy in case you want to update or revise them as you move through your program or if you need to answer detailed questions about your carbon footprint.

This part of your process will be guided by the Greenhouse Gas Protocol which provides the world's most widely used greenhouse gas accounting standards. The Greenhouse Gas Protocol classifies all the emissions you have under specific categories and talks about Scope 1, 2 and 3. You already had your first exposure to this framework as part of Step 1 "Define the ambition" and albeit helpful for standardizing emissions reporting, the Greenhouse Gas Protocol is not exactly easy to communicate. You may find it useful to have two versions of how to present your carbon footprint. One which follows the requirements of the Greenhouse Gas Protocol and one which shows your results in more easily understandable categories. Especially in Step 5 "Engage your colleagues", simplifying emissions is one of the elements that can really help your audience understand what your carbon neutrality goal is about.

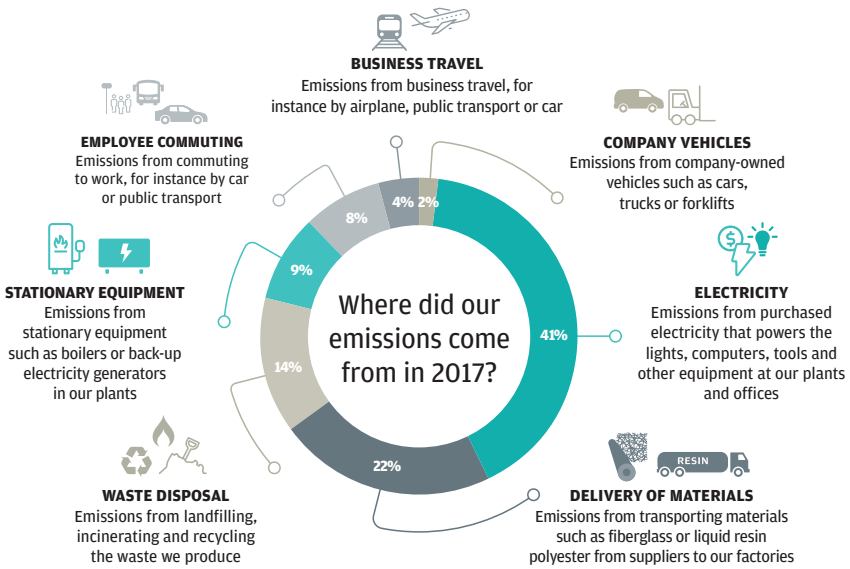
LM WIND POWER'S APPROACH TO WORKING OUT THE CARBON FOOTPRINT

We had already measured our carbon footprint for quite some time before pledging to go carbon neutral. We collected a wide variety of data directly from our sites through an online sustainability reporting software called SoFi. While we had clear ownership of our carbon emissions reporting and the majority of our data was robust, the carbon neutrality pledge compelled us to collect data for activities that we had not been tracking in detail before. One example was the transport of materials from suppliers to our factories.

We worked together with an external partner, helping to construct and validate our carbon footprint, and using their expert knowledge to bring our reporting practices in line with global standards. We realized there was no magic trick to acquire this new data – we just had to engage the relevant parts of the business and get a reliable process in place for data collection. We were also realistic in terms of which emissions we would and which we would not be able to map. For example, we used a survey to map the emissions from employee commuting, and in areas where we had limited data we extrapolated when the full data set would be impossible to chase down.

While data collection can be tedious and challenging, the biggest single issue we encountered related to the emission factors used. The emission factors included in our SoFi system turned out to be quite different than the ones used by our external partner. When trying to compare our in-house carbon footprint reporting with that of our carbon neutrality consultants, we had two significantly different results. To ensure we sorted this out for future reporting, we had to spend a considerable amount of time and effort figuring out where exactly the emissions factors varied, why they differed and which one to choose going forward. This was an unexpected part of the process, which should be avoided if at all possible.

Our carbon footprint



STEP 04 Set your strategy

Having understood your organization's carbon footprint, you can now define the strategy to reduce it. There are several options for meeting your carbon neutrality goal. In principle, you could "offset" your way to carbon neutrality without even reducing your organization's own emissions. It is fast, easy and not necessarily hugely expensive (depending on the scale of your carbon footprint of course). It does not improve your business performance though, and since you will need to buy the offsets annually, you are simply adding an additional cost to your business. Some organizations may really struggle to significantly reduce their carbon footprint and will ultimately need to offset their way to carbon neutrality. For many larger businesses, however, there is real potential to combine a climate action program with operational efficiencies and cost savings. Thus, a widely recognized approach is to focus heavily on reducing your own emissions as much as possible first, switch to renewables for the energy supply and then offset the remaining emissions that cannot be avoided or addressed in other ways.

With this approach, you will have these four workstreams which to some degree are sequential, but in reality work in parallel at various paces:

- Greenhouse gas accounting
- Internal emission reduction
- Renewable electricity
- Carbon offsets

Reducing your own emissions for example through an energy efficiency program that lowers your electricity consumption can be a powerful way to show the direct business benefits of an ambitious sustainability program. It can also help free up funds that can be invested in renewable energy supply or carbon offsets.

As with any strategy development, your approach depends on your goal or ambition, the resources you have available (see Step 1 "Define the ambition") and your organizational culture. If you set a relatively short-term goal or have a limited budget, you may have to accept that a significant part of your emissions will be reduced by Renewable Energy Certificates and carbon offsets instead of internal reductions. However, if you have decided to include all the emissions from your value chain in your carbon neutrality pledge, your deadline is further away or your resources are sufficient – your primary focus could be on internal reductions instead. With this strategy, you could also switch to longer term renewable energy options, shifting the focus from RECs to PPAs or on-site installations.

In each of the four workstreams, you will have to make some decisions about your strategy:

- Which emissions will you focus on reducing internally?
- How will you prioritize between RECs, PPAs and on-site installations to achieve a renewable electricity supply?
- To what extent and which carbon credits will you invest in?

Your GHG accounting process is a helpful starting point for defining the strategy. Once you know where your emissions come from, you will have an indication of where it might make most sense to start your reduction efforts. If you are a service provider that mainly has offices, your emissions profile will obviously be different than an industrial business. In this case, you may want to focus on achieving a green electricity supply as this tends to be a large part of the footprint. On the other hand, a manufacturing company may try to reduce the emissions which are usually associated with its operations, for instance waste or the delivery of materials to the factories.

Beyond your emissions profile and ambition, the sector your company operates in should influence your strategy where possible. To put it simply, if you are a company manufacturing LED light bulbs, you may want to replace conventional lights with LED lights and clearly show the link between your core business and carbon neutrality. If you are a car lease company, you may want to green your own company car fleet and set an example for your customers. Walking the talk and leading the way, using your own products is a powerful commercial link to your sustainability initiative and can help drive employee ownership and pride as well as brand differentiation.

Unless you start your program with a big bag of money in your hands, an important factor when designing the strategy is how your approach influences the financial payback of the program. Some emission reduction measures will have a relatively long payback period and this can become a challenge if you are funding most of your program through the company's regular capital allocation process. It is key to identify the quick wins that can demonstrate the direct business value of your climate action program and build momentum that may help you get larger initiatives approved next time. Communication and employee engagement can be useful vehicles here.

While the four workstreams can work somewhat sequential, they are more likely to run in parallel, perhaps even with different scenarios being explored simultaneously. The challenge is that your choices in one work stream influence the others so you will quickly appreciate the value of priorities and frameworks. This could be in relation to preferred approach to renewable energy supply or limitations on capital expenditures that will guide how you allocate resources and focus in your workstreams. Make sure you have one or more program manager(s) that can connect the dots and ensure the workstreams inform and enrich each other and stay coordinated. A significant reduction in electricity supply for instance has a direct influence on the requirement for Renewable Energy Certificates or the volume of electricity consumption that can be pitched for a PPA. A significant reduction in carbon emissions from other activities will influence the volume requirements for carbon offsets and therefore the prices you can negotiate.

LM WIND POWER'S APPROACH TO SETTING THE STRATEGY

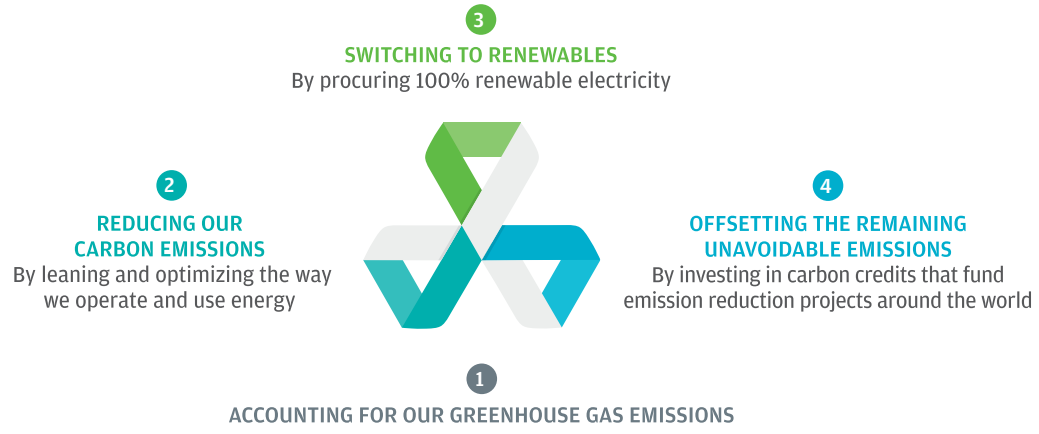
Sustainability at LM Wind Power has always been about business development and improvement. This was clearly reflected in the strategic approach to CleanLM which was defined after a comprehensive process to understand what carbon neutrality was and what would be required to get there as a leader.

We took inspiration from other companies also far more advanced ones and built our approach on a few simple principles:

1. Efficiency and business improvement first – internal reductions with accompanying cost savings had to cover any need for RECs and carbon credits already year one.
2. Clear link between renewable electricity supply and our business identity – green power should ideally come from a wind turbine installed and plugged into our manufacturing facilities where feasible.
3. Brand differentiation and employee engagement – any RECs or carbon offsets should come from wind projects to the widest possible extent and support communities in the countries where we operate or feature customer wind turbines, ideally even with LM Wind Power blades.

Given the priorities above, we prioritized the energy efficiency drive as the first step. With invaluable support from our Vice President Operations, we managed to assign dedicated resources to identify and drive energy reductions with double digit savings and less than two years payback. This move was instrumental for the rest of the program to materialize successfully.

The four workstreams of CleanLM



STEP 05

Engage your colleagues

You could argue that you should start engaging employees the minute you launch your carbon neutrality pledge. You certainly could. Ultimately, it all depends on your organizational culture and setup, but for many, it will probably make sense to widen the engagement activities when you have reached the point where you have set out your goal, mapped your carbon footprint and defined your strategy. It is not just the Sustainability team or the colleagues directly involved in the program that are going carbon neutral – your entire business is. Engagement is a powerful lever to maximize support for your initiative or even accelerate progress by motivating colleagues to be involved and reduce emissions themselves. Proper employee engagement that actually drives organizational and cultural change as well as reputational benefits requires resources though. Prioritize engagement and use the opportunity to build a powerful platform for motivation, attraction and retention of employees.

Ideally you have a specific work stream focusing on employee engagement, both in terms of allowing them to actively contribute to the carbon reduction initiatives and for being ambassadors both towards other colleagues and external audiences. You need to communicate and campaign your carbon neutrality pledge continuously. It really helps having your Communications and Human Resources teams involved, as you need to find a balance in how you build your carbon neutrality drive seamlessly into the wider network of priorities in the business. You need to determine what level of engagement will have the biggest effect in your organization. Would you like all employees to feel included and able to contribute? Or do you prefer launching large scale projects that generate considerable reductions that everyone can then be proud of but which only need a limited group to implement? The optimum approach is probably a combination but explore what is feasible and applicable to your business. Regardless of what you do, continuous campaigning should be a key element of your carbon neutrality program.

And note – carbon neutrality is not easy to understand even for sustainability professionals, let alone for colleagues in other functions. It is really helpful to use visuals to explain concepts and facts as early in the process as possible. The more specific and relatable you can make the presentation of where your emissions come from for instance, the better. Do not be afraid to oversimplify to explain the technical parts of carbon neutrality. You can always add complexity upon demand and further interest.

LM WIND POWER'S APPROACH TO ENGAGEMENT

Employee engagement was not the first priority in our drive to go carbon neutral. This was neither a deliberate nor particularly useful position, but we simply had to focus on getting the main workstreams launched. Around six months into the program, we started the wider employee communication with a clear ambition to provide the simplest explanation of carbon neutrality as possible. Knowing that something with so many technical elements and difficult words is rarely very engaging, we simplified where possible and applied the visual metaphor of balance to help people relate. We visualized carbon neutrality by using a weighing scale, showing a balance between emissions on the one hand and reductions and offsets on the other. We also created visuals for other key parts of our program such as where our emissions came from, with descriptions of our emission sources that were easy to understand. We use these key visuals across multiple media whenever we are talking about carbon neutrality to help reinforce our core program.

The single most successful way of engaging stakeholders on carbon neutrality has been the use of experiential learning through a simple cardboard game called "Go Carbon Neutral in 30 Minutes". We developed the board game to engage the global leaders of the company on what we had embarked on with CleanLM and it worked exceptionally well. The concept involves having teams up to 15 people simulate how to take a fictive organization carbon neutral. In the process, they need to agree on the best route, financially and reputation wise. It has since been expanded to other groups such as new employees and external audiences at various events in Denmark and one occasion in Brussels. Although simplified, feedback is that the people who have played it know what carbon neutrality is, how it can be achieved by using different measures and that it is a balancing act between various aspects such as implementation ease, how long different measures take and the brand value associated. All change starts with awareness and the playful learning concept of our game has been a successful approach that we will continue to build on.

STEP 06 Reduce your emissions

Most of the steps described so far were to enable you to start reducing emissions. By now, you have set a clear ambition, signed up your partners, established your footprint, defined your strategy and built support across the organization. You are now ready for implementation. There is not one single way to reduce emissions internally. While one organization might focus on energy efficiency, another could focus on waste disposal or employee commuting instead. Although different in type, internal reductions generally follow the same steps – assign resources, assess the situation, identify areas for opportunities, get the commitment and resources, execute, keep track of progress and adjust where necessary.

Whilst the Sustainability department may play a prominent role in driving momentum and engagement around this activity, there will most likely be an operational team that is better situated to take ownership of your internal reduction efforts. Reducing emissions from a specific source is highly technical and benefits from expert colleagues that know the ins and outs of the process. As well as securing expert knowledge, handing over ownership of specific workstreams to teams spread across the organization is a useful way to embed sustainability more deeply within the business. If you lead all sustainability activities from a centralized Sustainability department, you are not driving business ownership. Sustainability initiatives might even be perceived as the sole responsibility of the Sustainability team. When you spread responsibility across the business, it becomes an embedded part of the way your organization works - sustainability becomes everyone's business.

Once you have decided on who is taking ownership of the emission reduction task, the first thing you need to do is to establish the baseline. What data and analysis do you have? How robust is it? Do you already know where there is considerable potential to reduce your emissions? Your baseline assessment should include the relevant activities currently taking place, the level of emissions generated by these activities and how much your current processes cost. This analysis will be the basis for your proposed opportunities for improvement. When looking at the results of the assessment, work with subject matter experts – for example the colleagues who will eventually be responsible for implementing the improvements. This helps secure ownership and you are more likely to identify the best possible solution because of their expert knowledge.

Having established your baseline emissions, you can start to identify areas for improvement. There is no easy way to go about this. Finding ways to reduce emissions means scrutinizing your existing facilities, processes and sometimes policies. If you have consultants on board, they may be able to share best practices from other companies and compare your emissions performance to peers they have worked with.

For most sources, there are two different approaches to reducing emissions. The first option is where you reduce your carbon footprint by cutting consumption or production. For example, you could reduce the total waste you generate or the electricity you consume.

The second option is to green your production or consumption. Rather than lowering absolute numbers, you can switch to environmentally friendly alternatives. For example, you could send more waste to recycling, instead of sending it to landfill or incineration. Or you could switch from fossil fuels to more environmentally friendly fuel. In the latter option, you do not actually reduce overall consumption or production, but switch to less carbon-emitting alternatives. The best option depends on your situation. If your organization is already advanced in reducing waste and there is little room for improvement, you may want to explore environmentally friendly disposal methods.

Of course, preventing consumption or production in the first place is the preferred option as you completely eradicate the associated emissions. When you switch to environmentally friendly alternatives, your emissions will be minimized but rarely zero. For example, switching to recycling waste from landfill will prevent certain emissions associated with landfill. However, as the recycled waste still needs to be transported and then processed, it still generates emissions. Preventing waste generation in the first place would be the only way to eliminate the vassociated emissions.

When starting to implement, make sure to monitor and report progress from the beginning. Most likely, you will have presented a proposal to key stakeholders within the organization in which you have set out a specific amount of savings, both for CO2 and cost, using your baseline study as the starting point. You need a system to track the savings regardless of which aspects you are focusing on. You will get asked for the results – a lot. Besides proving your case, getting the tracking and reporting in place is absolutely crucial for securing continued support to your initiative.

LM WIND POWER'S APPROACH TO REDUCING EMISSIONS

Our internal reductions strategy focused on energy efficiency, and we assigned a dedicated global energy efficiency manager to drive it. A few years in advance, we had already conducted a study by an external expert that showed us a significant potential saving from a number of energy efficiency measures. With this in mind, we initiated a program of site visits by our internal energy team and our external partner. They went to six of our sites to assess the situation in detail, working with the local colleagues who would eventually become responsible for implementing the identified reduction measures. A significant potential for cost and CO2 savings were identified and each site had their own report which would specify the current energy consumption, the measures already in place and what it would mean to put energy saving measures in place.

Keen to contribute and become even more efficient, the plants agreed to take this additional challenge on. Three initiatives were presented to the Management Team as enablers of double digit energy and CO2 savings. These initiatives had to be presented as any other business case and were assessed on the exact same merits as any other investment in our manufacturing facilities. We identified the projects with the biggest impact at the lowest cost. It turned out to be a significant challenge to determine the expected savings potential and pay back. None of the plants had energy management systems (EMS) granular enough to indicate exactly how much the initiatives we would implement would contribute. So, one of the first initiatives was to install an EMS that allows us to track in much more detail how the factories consume their energy. This enables us to compare consumption to output, observe deviations and thus find areas for improvement. Ultimately, we will be able to see how individual initiatives influence energy consumption worldwide. The other two initiatives were process based ventilation control and shifting to LED lighting.

STEP 07

Switch to renewable energy

Switching to renewable energy is one way to specifically reduce emissions resulting from electricity usage and is often considered a separate step in going carbon neutral. If you cannot reduce electricity consumption, there will still be emissions associated with switching to 100 percent renewable electricity. These emissions are for example associated with manufacturing the solar panels you install or the transmission and distribution of electricity from the generation point to your company's sites.

Depending on the boundary of your carbon neutrality pledge, these emissions may or may not be included in your carbon footprint. If you adopt the GHG Protocol category "Fuel- and Energy-Related Activities Not Included in Scope 1 or Scope 2" in your boundary, for example, you should still expect to have some measure of emissions associated with your electricity consumption, even if it is validated as 100 percent renewable. Most likely, you will have to offset these remaining emissions as they are virtually impossible to reduce internally.

As with the internal reductions work stream, you ideally need to start with an overview of your current situation, which would be a location-wise inventory of your current electricity procurement. This is especially important if you have premises spread across different regions and countries, as renewable energy options are subject to significant local differences. You need to include information about your current consumption load, contracts and prices. You need to understand your total annual electricity consumption and how it may differ in the future according to your business strategy as well. Is the energy sourced renewable or not? Is there an energy contract in place and what is its duration? What is the price being paid? This analysis will give you an idea of your opportunities per country, from which you can determine the most appropriate options.

There are three renewable energy options available, each described in detail below.

Key characteristics of RECs, PPAs and on-site installations

	RECs	PPAs	On-site installations
Feasibility	Feasible almost everywhere	Only in deregulated energy markets	Feasible almost everywhere
Ownership of renewable energy installation	No ownership, the RECs only certify that the electricity purchased is green, but do not include the underlying electricity	No ownership	Full ownership
Upfront investment required	None, only pay for the amount of RECs purchased	None, the renewable energy installation is not owned	Significant upfront investment required to install owned on-site production
Separate energy contract needed	Yes, the RECs only certify that the electricity purchased is green, but do not include the underlying electricity	No, PPAs are contracts for the sale of electricity and replace existing contracts	No, unless on-site production does not cover 100 percent of energy consumption, in which case the remaining consumption has to be covered by separate contracts
Profitability	The cost of RECs are additional to your existing energy contracts and therefore an added cost	Possibly profitable option, depending on how energy market prices develop during the contract period. Could also result in financial losses	Possibly highly profitable option, depending on how energy market prices develop during the lifetime of the on-site installation. Could also result in financial losses
Complexity	Process of purchase is straightforward and fast	Potentially complex process, usually taking between six months and two years	Potentially complex process, usually taking between six months and one year
Duration	One year	10-15 years	10-20 years
Brand value	Least compelling story about commitment to renewable energy	Straightforward story about commitment to renewable energy	Most compelling story about commitment to renewable energy

/ Option 1: Renewable Energy Certificates

Renewable Energy Certificates may also be called Guarantees of Origin or Green Certificates, depending on the location. They are certificates that prove that the electricity you buy is generated from a renewable source. While RECs prove that your electricity is green, you are only purchasing the certificate that validates the source of your electricity, not the actual electricity itself.

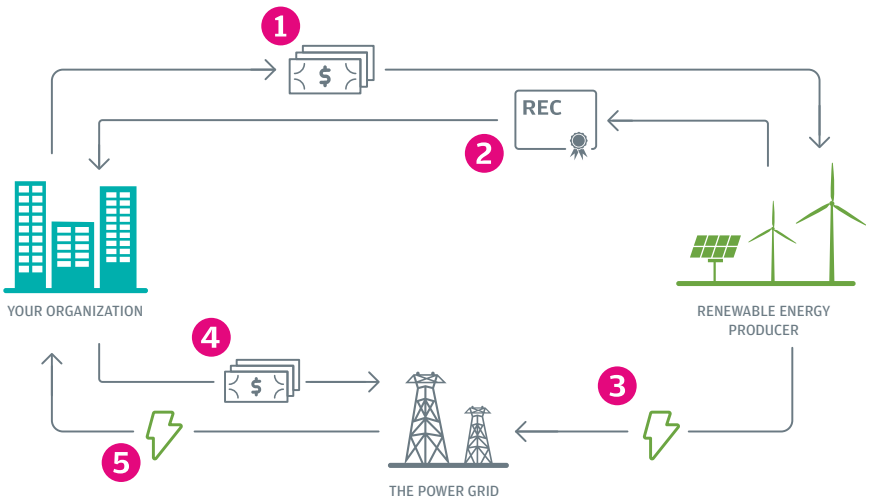
RECs can be generated by several types of renewable sources: wind, solar, hydro, geothermal or biomass. When one MWh of renewable energy is generated by one of these sources, one REC is issued that proves the MWh generated is green. The electricity is then fed into the grid, where grey and green electricity are indistinguishable from each other. The renewable energy just fed into the grid may realistically be used by any consumer that is connected to that grid. However, it is a generally accepted practice to claim that the electricity you consume is sourced from the project from which the RECs are issued. Contrary to carbon credits discussed in Step 8 “Balance your remaining emissions”, it is not common practice to track down RECs to the specific wind or solar farm they were produced by. While usually RECs only indicate the type of renewable energy and the country of origin, it is however possible to trace the specific project that generated your certificates.

The benefit of RECs is that they allow maximum flexibility in greening your electricity supply. They can be purchased retrospectively to cover past electricity consumption if there is still enough supply available in the market. As RECs expire 12 months after they are issued, prices may be higher when supply decreases. Much like purchasing RECs to cover past consumption, contracts for RECs can be negotiated for forward delivery. This means that you could reserve RECs for some years into the future.

The process of acquiring RECs is relatively straightforward in most countries, usually happening within a few months. Your consultants should be able to assist you without much more than consumption data broken down by location. RECs are also attractive if your company has a running energy contract. By buying RECs, you are only buying a certificate that proves your energy is green. You will not have to modify existing contracts in this scenario.

The downside of RECs, however, is that they do not deliver cost savings. Even though there are little financial uncertainties associated with RECs, you will have to buy RECs on top of your regular energy bill. It is therefore an additional cost rather than a saving. Furthermore, RECs are only valid for one year and therefore you will have to acquire them annually in addition to the electricity from the grid. While the cost of RECs may be acceptable for one year, the cost of buying RECs repeatedly amounts to quite an investment over many years. In addition to the financial cost, RECs tell the least compelling story about your commitment to renewable energy compared to the other two options.

How do RECs work?



1. **Your organization purchases an amount of RECs** that equals its electricity consumption, allowing you to claim 100 percent renewable electricity use
2. **The RECs are transferred from a renewable energy producer** or trading company to your organization, but not the underlying electricity
3. The renewable energy producer **feeds the electricity** into the grid
4. Your organization continues to **buy electricity from the grid**, separately from the RECs purchased
5. **Electricity is delivered** through the grid to your organization

/ Option 2: Power Purchase Agreements

In simple terms, a Power Purchase Agreement is a long-term contract for the sale of electricity. The contract is negotiated between your company and a renewable energy project owner, for instance a wind farm or solar system owner. When entering into a PPA, the developer owns the project, meaning that they will take care of designing, permitting, financing and installing the project. The developer will then sell a certain volume of energy to you against a set price that is often lower than the market price.

In contrast to RECs, when entering into a PPA you are actually purchasing electricity. As electricity sourced from the PPA will also be delivered through the grid, you cannot prove that the energy consumed is from a renewable source without the RECs. The PPA comes with the RECs bundled to the electricity, proving you are buying renewable energy. PPAs usually last between 10 and 15 years and are most commonly used by organizations that have a concentrated load in a specific location - sufficient to facilitate a new renewable energy project. As a rule of thumb, the larger your electricity consumption, the more attractive a PPA will be.

You need a critical mass to secure interest from developers and the larger the volume you bring, the better prices you can negotiate. Generally speaking, PPAs cover a minimum volume of around 15 MW. With PPAs, you are changing the way in which you source renewable energy, which is a more compelling story than purchasing RECs. Furthermore, PPAs should deliver cost savings from the moment your contract goes live, due to the lower tariffs available under a PPA structure.

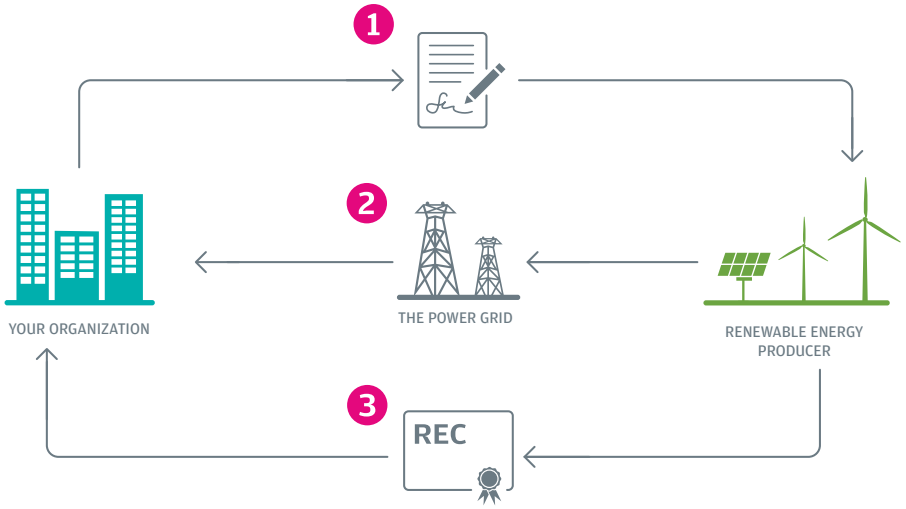
However, there is considerable financial uncertainty in the long run. As you lock in energy prices from anywhere between 10 to 15 or more years in the future, the prices in the wholesale electricity market will affect your overall financial picture. In a worst-case scenario, where wholesale energy prices decline sharply during your contract term, the prices negotiated in the PPA will eventually be higher than sourcing electricity from the grid. Conversely, if wholesale energy prices increase more than you anticipated, your savings will be potentially higher than predicted.

The inflexibility of the PPA – with its fixed prices, volume and duration – could be an advantage for some organizations while a disadvantage for others. If you have business certainty and you know your sites will remain in the same location covered by the PPA for the duration of the contract, the inflexibility may not be a problem. However, in a fast-changing business environment where you need to be able to respond quickly to market fluctuations, being location-bound and committed to offtake larger volumes for a long period of time can present a significant risk.

Negotiating PPAs can be quite complex, requiring thorough knowledge of energy contracts, the energy market and its latest developments, as well as understanding of your own business environment and your company's risk appetite. You would need to investigate the national energy markets and the regulatory framework to enter into a PPA. You would also have to collect market price indications and contact project developers for a proposal. Lastly, you need to enter in direct negotiations with a project developer on the contract details. This is a comprehensive process which also involves considerable internal engagement and you will most likely not have the internal resource to fully drive this alone. Support can be provided by external consultants or if you decide to do it alone, you probably need people with a background in Energy, Sourcing, Legal and Finance. From start to finish, setting up a PPA could easily take a year.

Although usually a new renewable energy project is set up from a PPA, you can also source electricity from an existing project. Ideally, however, you would want your purchase of electricity to be "additional". Additionality in the context of renewable energy means that your electricity purchase contributes to adding new, renewable capacity in the grid mix. When you purchase RECs – either unbundled or bundled through a PPA structure – without additionality, this means you are using energy generated by the existing renewables sources in the grid. However, if you purchase RECs with additionality, your purchase of electricity will add renewable energy capacity to the existing grid by increasing the share of renewables in the overall energy mix.

How do PPAs work?



1. Your organization terminates its existing energy contract and **negotiates a new, long-term agreement directly with a renewable energy producer**
2. **Electricity is physically delivered to your site** to power your operations, according to the contract terms of the PPA
3. **At the same time, the RECs associated with the renewable energy generated are transferred from the renewable energy producer to your organization**, proving that your electricity is green

/ Option 3: On-site installations

The electricity generated by an on-site installation is usually consumed “behind the meter” or without being fed into an electricity grid, depending on the local regulations. Sometimes the technology used is wind, hydro or biomass. Most on-site installations are solar solutions that are built for example on the rooftops of buildings or on unused areas next to facilities. Especially in the case of solar technology, only a fraction of the site’s total electricity demand is typically covered as you need considerable space for the panels.

Your organization owns the on-site installations. This ownership means you are also responsible for project development, permitting, maintenance and everything else that comes with it. It also provides opportunities to generate income from excess power generation but the attractiveness of this option varies greatly across regions and countries. Contracts tend to run between 10 and 20 years and the price for electricity from self-generation can be well below the wholesale market price.

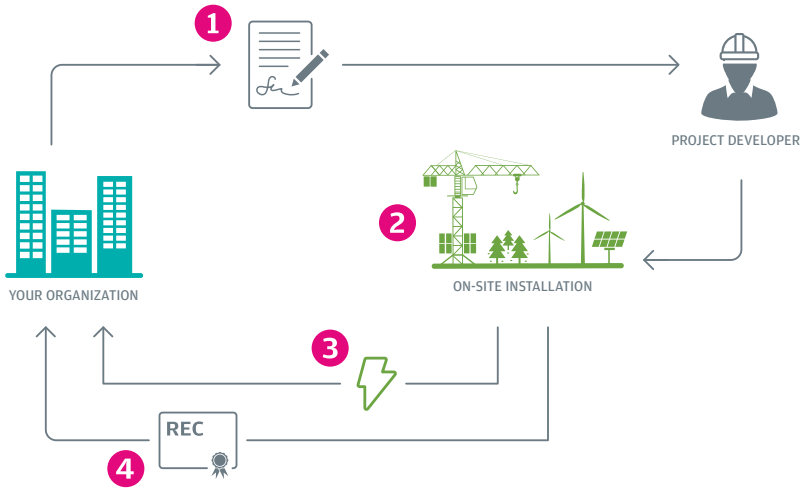
Setting up on-site installations needs dedicated resources and significant time to realize as it requires in-depth, country-specific knowledge about the technical, regulatory and economic environment. When pursuing this option, work with specialized, local partners who have experience with setting up similar projects, so they are aware of the local conditions. In some locations on-site installations may not even be feasible from an economic, technical or regulatory standpoint.

And even when on-site installations are feasible, they may not be able to deliver all your electricity demand. Therefore, you may need to combine on-site installations with other alternatives to fully green your electricity supply.

Unless you can find a partner who wants to own the installation and lease it back to you e.g. through a PPA structure, an on-site installation requires a significant upfront investment and you are responsible for the project development on your property. While there are clearly costs associated with the construction phase, you are also bearing the operating cost. The fact that you own the renewable energy project and that it is located on one of your sites means that you lose a certain amount of flexibility. For example, should your organization lease instead of own a building, the on-site installations may well outlast your lease term case. Additionally, if a business needs to change its footprint quickly, the resulting inflexibility from an on-site installation can represent a significant financial risk.

One of the key benefits of on-site installations is that you can procure energy well below the market price. Even though on-site installations require an upfront investment, the financial returns can in the long-run be much higher than sourcing energy through a PPA structure. In addition, on-site installations decrease the dependency on the local grid operator and market price fluctuations. Having your own green energy production also shows a strong commitment to renewable energy.

How do on-site installations work?



1. Your organization contacts **a project developer or a technology provider**
2. The project developer or technology provider **installs on-site production**
3. Electricity is delivered **without accessing the wholesale market**, or “behind the meter”
4. **The RECs associated with the renewable energy generated are transferred** to your organization

LM WIND POWER'S APPROACH TO RENEWABLE ELECTRICITY

Due to the short timeline of our carbon neutrality pledge, we knew we would not be able to install a wind turbine or enter into a large-scale Power Purchase Agreement as the most likely ways to secure our clean electricity supply short term. We did manage to sign a solar PPA for one of our factories in India though, which took effect in March 2018, and which has delivered USD177k in cost savings in the first five months.

While our immediate target meant we had to source RECs for the first year, we launched a parallel work stream to pursue PPAs and on-site installations to implement as soon as possible and eliminate the need for RECs. We preferred this approach because of the potential savings to be achieved and the direct link to our business and commitment to renewable energy. We quickly learned, however, that there is a reason why on-site installations and PPA projects take time to implement. Regulatory, technical and commercial challenges need to be addressed and balanced against the business situation and expectations for the future, and it requires a mix of different resources from the organization. We were fortunate to have a team of talents from a GE leadership program dedicated to help us identify the most attractive options. Their support has been invaluable to identify and develop specific opportunities to green our electricity supply while saving money. Now we need to take the next step and start implementing their recommendations.

STEP 08

Balance your remaining emissions

Generally, you want to reduce your emissions internally first before starting to offset. There will be unavoidable emissions when running your business that you cannot eradicate. Your CEO might have to use air travel to attend overseas customer meetings; your company will generate waste that needs disposing; or your company's forklifts may run on propane. Each of these activities has an associated carbon footprint. To go carbon neutral, you will have to balance any emissions that remain after your internal reductions and efforts to green your energy supply, by "offsetting" them.

Carbon offsetting means compensating for emissions by funding the removal of an equal amount of emissions elsewhere in the world. It works as follows: your company financially invests in the implementation of a carbon reduction project, through a project developer. Examples of reduction projects include planting trees, developing wind farms or providing rural communities with low emission cooking stoves. In return for your financial investment in the project, you will receive the accompanying carbon credits which allow you to "claim" the related emission reductions. The carbon credit is verified by an independent party and documents that one ton of CO2 was reduced or avoided by the project you invested in. Carbon credits prove that, first, the project you invested in reduced a certain amount of CO2 and, second, the reduction of CO2 could not have been achieved without your financial investment.

While all carbon reducing projects decrease emissions, there are also some that provide additional social benefits, such as local employment, but these usually come with an extra cost. Your organization should decide how important it is that your carbon offsetting projects add value beyond emission reductions. If offsetting constitutes a large part of your carbon neutrality pledge due to a tight timeframe for achieving your target, you may want to invest in high-profile carbon credits to have a better story to tell. Alternatively, if you have already reduced most of your emissions by internal measures, offsetting plays a less important role and therefore you may not place the same importance on selecting carbon credits with social benefits.

As there are a wide range of projects to potentially choose from, it is important to set some guiding principles for your selection. Carbon credits offer an opportunity to communicate about the impact of your carbon neutrality project beyond greenhouse gas reductions alone. With many projects having their own benefits beyond emission reductions – ranging from protecting animal habitats to providing clean water and sanitation – there is an obvious opportunity to source carbon credits that align with your business and its values.

/ Hot air?

There has been considerable criticism of carbon offsetting. As carbon offsets consider how much CO2 will be mitigated over a period of time, this requires a set of assumptions about the duration of the project and the CO2 reduced. For example, when you invest in a tree-planting project, assumptions have been made about the average life of the trees and what their carbon absorption would be. For cooking stoves too, assumptions need to be made about the firewood or fuel consumption a stove reduces and its durability. As such, the CO2 mitigation of carbon offsets cannot be 100 percent accurate.

Beyond the future-oriented nature of carbon offsets, there has been a discussion on the "additionality" of carbon offsets. In the context of carbon neutrality, "additionality" means that the CO2 saved by the project should be additional to what would have happened under normal circumstances. In other words, additionality proves that your investment would not have been provided by some other means, such as government regulation or business-as-usual. As with the CO2 savings, this would mean making assumptions about the future. It may also be the case that while your offsets are considered "additional" initially, they are no longer considered as such in the future. For instance, if you invest in cooking stoves, but the government two years later initiates a policy to distribute them too – your project ceases to be additional. Usually, carbon offsetting project developers then switch the investment to another project to ensure that the promised emission reductions are still realized.

Finally, the entire concept of offsetting has been challenged by those who think that it allows organizations to keep emitting while not reducing emissions internally. While offsetting is not a perfect solution to reduce your emissions and you should focus on internal reductions first, carbon credits do present an opportunity to drive positive development within sustainability.

/ Go for gold or similar

Despite its limitations, there are widely accepted carbon offsetting standards available that make your purchase more credible. Carbon offsetting standards offer a framework for verifying greenhouse gas emission reduction activities and criteria for determining the additionality of the project. Among the leading international standards for carbon offsetting are the Verified Carbon Standard and the Gold Standard. Besides international standards, there are country or region-wise standards that regulate the carbon offsetting market. Make sure to select a widely accepted standard as it gives at least some reassurance the projects you invest in are legit and you limit your reputation risk.

A number of organizations sell carbon credits but only few organizations actually develop the projects behind. If this is an important parameter for you, there are in reality a very limited group of potential partners to work with which can make some things easier.

Although RECs and carbon credits have some similarities, they are not the same. While one carbon credit proves that one ton of CO2 was reduced or avoided, one REC proves that one MWh of renewable electricity was generated. Carbon credits will compensate all non-electricity carbon emissions and can be used for a variety of emission sources – waste, business travel, transport, employee commuting. Technically speaking, you could also use carbon credits to offset your emissions from electricity consumption. Best practice, however, is to purchase RECs to green your electricity supply as it is considered more "precise" and you then use offsets for the other emission sources. Additionality is optional for RECs, while for carbon credits, additionality is a key requirement. If your investment does not reduce additional CO2 beyond what would otherwise have happened, you will not receive a credit.

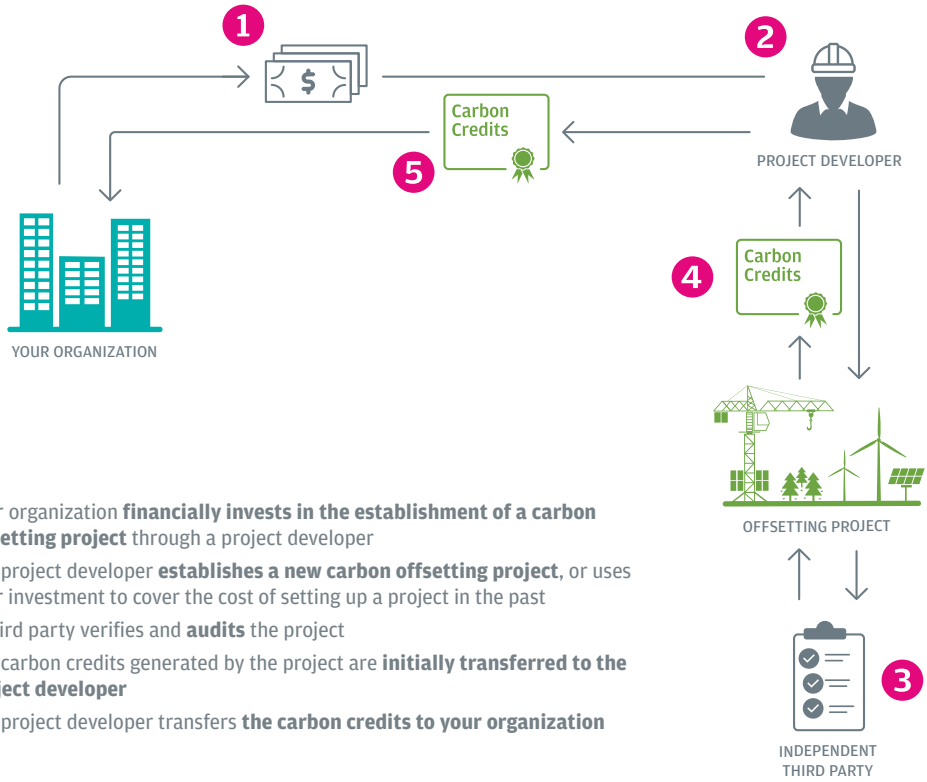
The differences between RECs and carbon credits

	RECs	Carbon credits
Unit of measure	One MWh	One ton of CO2e
Generation	When one MWh of renewable energy is generated, one REC is issued	When one ton of CO2e is avoided, one carbon credit is issued
Type of project	Only renewable energy projects	Any project that reduces CO2e, for instance renewable energy, cooking stoves or reforestation projects
Emissions addressed	Only Scope 2 emissions from purchased electricity	Could be Scope 1, 2 or 3 emissions, although best practice is to balance Scope 2 emissions from purchased electricity with RECs
Additionality	Optional, not required	Required
Claim	Guarantee that one MWh of electricity is consumed from a renewable source	Guarantee that one ton of CO2e has been avoided elsewhere in the world to compensate for your emissions
Benefits	Only environmental benefits	Environmental, optional additional social benefits

Your carbon offset process relies on the outcome of your greenhouse gas accounting process and involves a decision on your purchasing strategy. You can buy your credits at the end of the year, reflecting your exact carbon footprint as determined by your greenhouse gas accounting process. The downside of that approach is that prices of carbon credits tend to go up during the year as supply decreases so you might end up paying a premium compared to if you bought upfront.

You can of course also try to buy all the credits up front to make sure you have locked the price, but there will always be an uncertainty on where exactly your final carbon footprint lands and you do not want to buy excess either! An acceptable compromise might be to reserve the majority of the carbon credits you believe you will need within a given year. You could for instance purchase 75 percent upfront and settle the remaining balance at the end of the year when you have the actual emissions data. This way you secure the price for the bulk of your carbon credits and limit the risk of overbuying.

How do carbon credits work?



1. Your organization **financially invests in the establishment of a carbon offsetting project** through a project developer
2. The project developer **establishes a new carbon offsetting project**, or uses your investment to cover the cost of setting up a project in the past
3. A third party verifies and **audits** the project
4. The carbon credits generated by the project are **initially transferred to the project developer**
5. The project developer transfers **the carbon credits to your organization**

LM WIND POWER'S APPROACH TO CARBON CREDITS

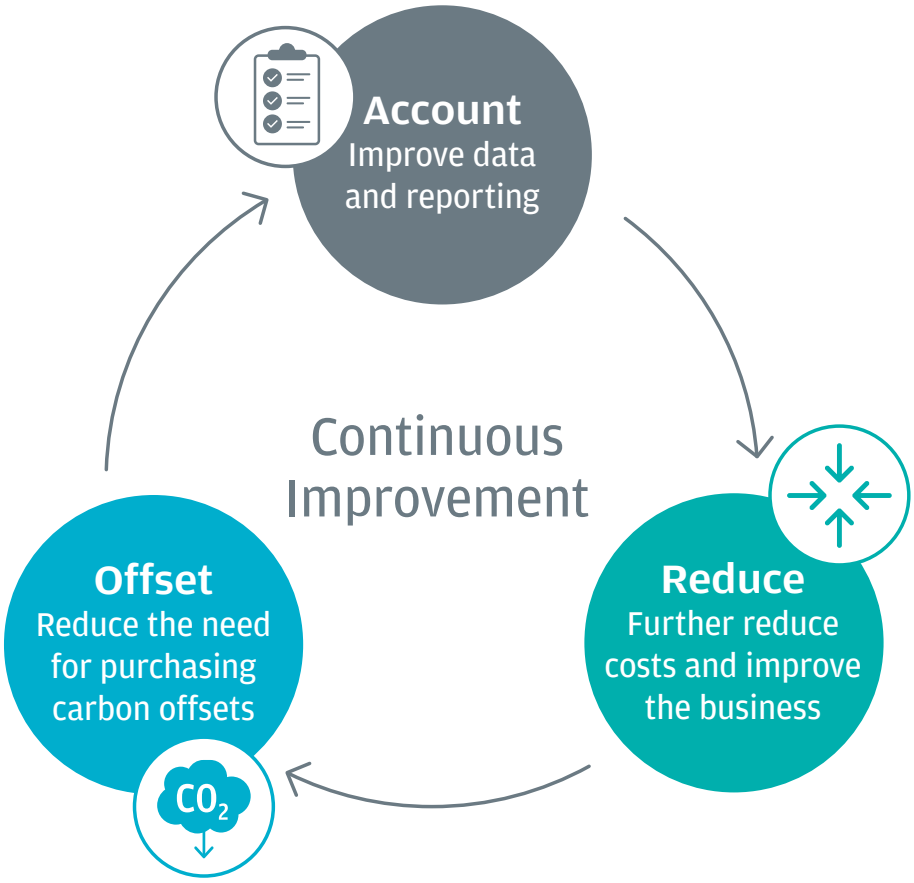
For us, carbon offsetting was the last step in reducing our emissions. After reducing emissions internally and sourcing renewable energy first, there were leftover emissions which we could not reduce within the short timeline of our pledge. For these unavoidable emissions, we purchased carbon credits verified by the Verified Carbon Standard or the Gold Standard.

Since we had to invest in these credits, we wanted at least to ensure our approach reflected our wider brand vision and a strong link to our business. Therefore, our investments focus on projects that provide clean energy access preferably from wind, use LM Wind Power blades, involve customer turbines and/or are close to our operations. For example, one of the projects we invested in provides clean, renewable energy in India – a country where we have two factories and a Technology Center. In addition, the project benefits the communities of surrounding villages by investing in employment, health worker training, young women empowerment, clean water provision and art workshops. This selection of carbon credits provides a strong storytelling platform that we hope will resonate well with employees and other key stakeholders.

STEP 09 Continue to improve

Now that you have achieved carbon neutrality, it does not mean you are finished or can sit back and relax. You have been through a detailed process that has revealed plenty of things that can be improved along the way. Data collection and validation, employee engagement activities, emission reduction opportunities that you want to pursue, your own renewable energy project – there is an endless list of things to pick up and continuously improve because carbon neutrality is an ongoing activity. Every year you need to prove that your reductions and offsets equal your emissions.

You should also think about what is next for your company. Perhaps you want to raise the bar and go for an even more ambitious reduction target, or include more emissions in the scope of your carbon neutrality claim. This is certainly the way the world moves and it would be prudent to prepare for stepping up even further even if you are already in the lead. This is also the time to pause and consider the strategic next step. Assess whether you still have the right partner in place, whether to strengthen your organization around delivery of your carbon neutrality program and how you see the activities develop over the coming years.



STEP 10 Celebrate and share

Congratulations! Hopefully, you have just gone carbon neutral. Depending on the resources available, it may have been challenging to communicate your program while at the same time implementing it. Ideally, however, you would have engaged key stakeholders throughout your carbon neutrality journey, as described in Step 5 “Get people engaged”. After achieving your target, you should build on the engagement you have already done and plug the gaps for topics you have not yet been able to discuss.

Make sure to announce and celebrate that you achieved your target. You have done something great and now possess key insights that you did not have before. You will, for instance, know how much you have saved while going carbon neutral. You will also have experience of going carbon neutral and therefore the lessons learned during the process. In other words, you are now able to announce your achievement, share the lessons learned and inspire the rest of the world.

Employees remain a key audience to engage especially after you have reached your target. Working for a company that has a purpose beyond profit can be a highly motivating factor for employees. As such, working for a carbon neutral company could generate a strong sense of pride in the employee base that you should try to tap into as much as possible. You have a unique opportunity to make your employees ambassadors of the program and able to articulate clearly what carbon neutrality is and why it is important to your business. If they talk willingly about your collective achievement and with their own enthusiasm, it is more authentic and effective.

External audiences are also very important. It is worth remembering the overall bigger picture here – it is not about your company alone, the climate challenge is for everyone to address. Of course, you should claim the full reputational benefits of going carbon neutral which is still far from the mainstream, but use the opportunity to inspire others to follow your lead.

If only a handful of companies pursue carbon neutrality, the impact on global climate change will be very limited. It is necessary to create a movement and build sufficient momentum to really make a difference. Consider it your expanded responsibility as a carbon neutral company to tell the story and inspire the companies that are not yet carbon neutral to follow.

LM WIND POWER'S APPROACH
TO ANNOUNCING, SHARING AND INSPIRING

An integral part of our carbon neutrality pledge was to tell the story of what we did and how we did it to the rest of the world. Inherent in our pledge was the desire to encourage others in the value chain to follow our lead, and we were keen to use our journey as a lever to make that easier. One company cannot change the world alone, so inspiring others became a key objective in itself.

We combined traditional means of communication like newsletters and intranet stories for employees with more engaging and interactive elements like our "Go Carbon Neutral in 30 Minutes" game at various events, also externally. Before achieving the target in July 2018, we communicated what carbon neutrality meant and the key workstreams we had initiated to get there. Now that we have reached the goal, our focus will be on sharing how we did it, making all of our knowledge and insights available to enable others to follow. The guide you are reading right now is a key part of that.

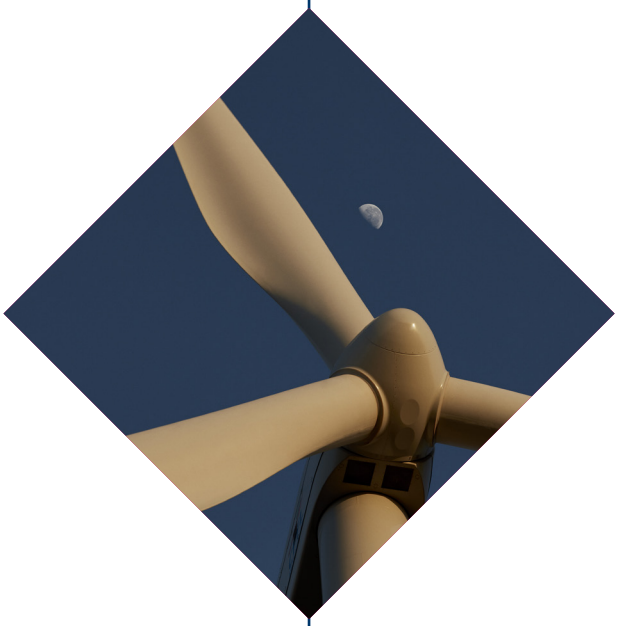
/ Conclusion

All the inputs and advice from this guide may seem overwhelming but we hope you found it useful nonetheless. We have illustrated that it is possible to follow a structured approach but you will of course need to charter your own course to fit your business and priorities.

Enjoy the ride! It is exciting, challenging, rewarding and comes with a variety of business benefits in terms of employee pride, brand differentiation and long term viability of your business.

Although going carbon neutral may seem like a daunting task, being ambitious is really what counts. We hope we made it easier for you to pursue this route, by sharing what we have learned along the way. We will continue to raise the bar as well as sharing our experiences going into the next phase of our CleanLM program.

We can make a difference, together: Leading the way for a cleaner world.



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