HOW TO ACHIEVE

NET ZERO EMISSIONS

100% renewables

Net zero is achieved when your organisation's residual emissions are balanced by greenhouse gas removals or offsets.

Working towards net zero means focusing on deep decarbonisation of your business and value chain. When you have maximised your abatement, you use carbon offsets or removals to reach net zero.

ACHIEVING NET ZERO

The first step is to set a net-zero target year in line with science and to set the boundary of what emission sources you will include in your net-zero target. Ideally, the boundary of emission sources reflects all material emissions in your operations and your value chain, for example, aligned with the Climate Active standard.

You then move on to develop your carbon footprint, analyse how you will grow over the next several years, and project your expected future emissions.

You develop a plan to achieve net-zero emissions, based on business cases that are cost-effective and staged over time.

You plan for the net-zero projects to be delivered to achieve net-zero in the target year. And every year, you keep implementing projects that will bring you closer to your goal.

Figure 1: How you can achieve net zero

While this process is the most efficient way to work towards net zero emissions, your organisation's pathway will be uniquely yours. Achieving net zero may be an iterative process for you. You may start with a carbon footprint that initially only considers scopes 1 and 2, or you may begin to implement initiatives without having an overarching strategy in place. Like Craig Scroggie, CEO of NEXTDC, said in our podcast interview, you need to start somewhere, seek the help of experts and keep going until you reach your goal.

In addition to working towards your net zero target, which will be some time in the future, you can also go carbon neutral right away by becoming certified under Climate Active.

SET A NET-ZERO TARGET IN LINE WITH SCIENCE

Science-based targets (SBTs) are greenhouse gas emissions reduction targets necessary to meet the goals of the Paris Agreement – to keep global temperature increase within 1.5°C compared to pre-industrial temperature levels.

You can have your science-based target validated by the Science Based Targets initiative (SBTi), which offers a credible, globally recognised approach for setting carbon reduction targets. If you employ under 500 people, you can apply to have your target validated under the streamlined route for SMEs.

NEAR-TERM AND LONG-TERM NET ZERO TARGETS

In late 2021, the SBTi released the first global science-based framework for companies to set net-zero targets.

The Net-Zero Standard defines 'near-term' and 'long-term' science-based targets. For most companies, you must achieve emission reductions of at least 4.2% p.a. for near-term targets and must reach 90% emission reductions by 2050 at the latest as your long-term target. To achieve net zero, you can offset the remaining 10% of your emissions via greenhouse gas removals.

If you are looking to achieve carbon neutrality on the way to net zero, you can consider becoming certified under Climate Active.

DEVELOPING YOUR SCIENCE-BASED TARGETS

1. Engage your stakeholders to discuss the business case for setting a science-based target
2. Analyse your situation and choose the most appropriate SBT approach
3. Select a baseline year
4. Calculate your carbon footprint (please refer to the next section in this guide)
5. Set your short-term science-based target for the next 5-10 years.
6. Set your long-term target in line with global net zero scenarios
7. Communicate your targets internally and externally
8. Optional: Get your target validated by the SBTi

HOW TO CALCULATE YOUR CARBON FOOTPRINT

There are three steps to calculate your carbon footprint.

1. Identify your carbon footprint boundary and emission sources
2. Collect activity data
3. Calculate your carbon footprint

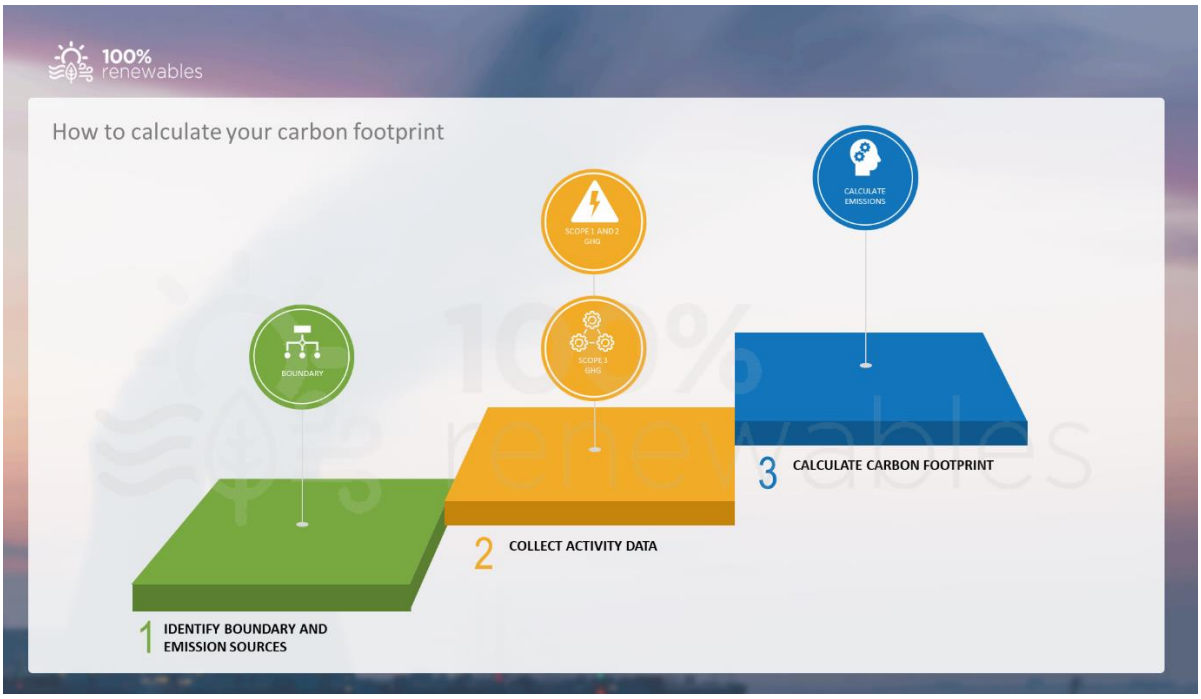


Figure 2: Three steps for calculating your carbon footprint

For more details, please go to our podcast – Net Zero Fundamentals, Part 1 – Carbon accounting and net zero pathways

STEP 1- WHICH EMISSION SOURCES SHOULD YOU INCLUDE?

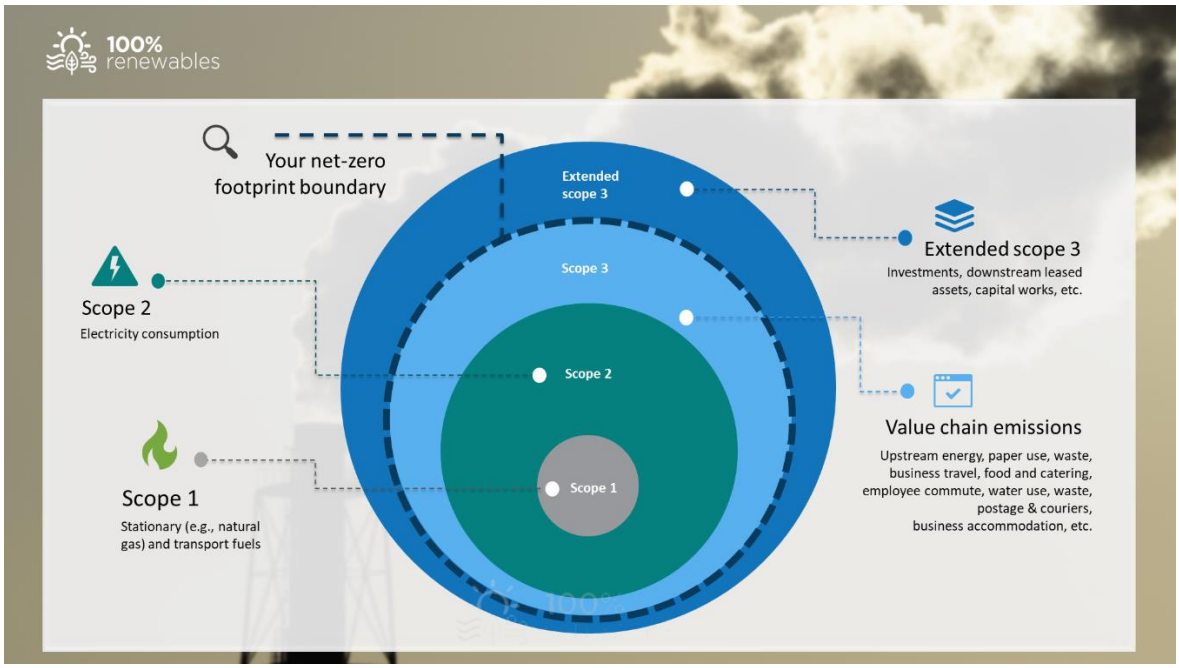


Figure 3: Emission sources you could include in your boundary

You may be aware of your scope 1 carbon footprint, which is emissions that come from burning natural gas or the fuel in your company cars. You may also be aware of your scope 2 emissions, which is your electricity consumption.

However, there is usually a lack of awareness of scope 3 emissions, which happen both upstream and downstream of your business. Examples of your value chain emissions are contractor emissions, paper consumption, waste, or air travel.

When you investigate your value chain emissions, you will discover many emission sources that you could potentially include in your carbon footprint. However, your resources aren't endless, so you have to draw the line somewhere. As you gain more experience with calculating your carbon footprint, you may wish to include more emission sources over time.

STEP 2 – COLLECT ACTIVITY DATA

ACTIVITY DATA

Activity data is the underlying activity that causes emissions. There are many sources of activity data, as shown below.

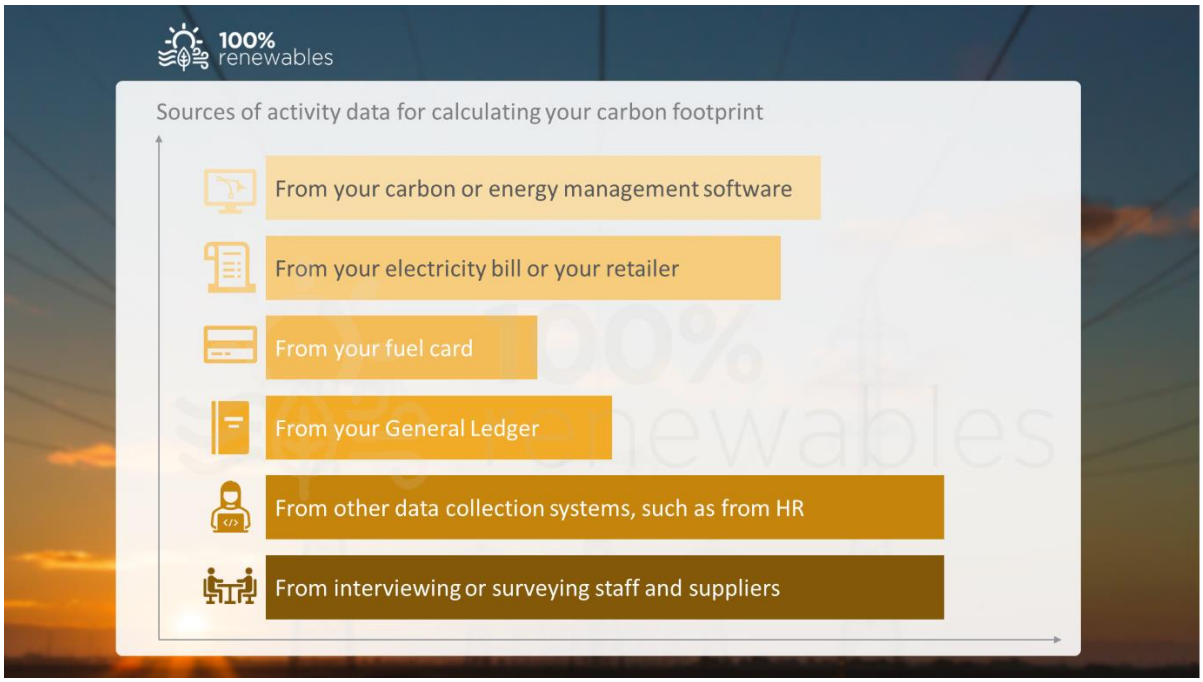


Figure 4: Sources of activity data for calculating your carbon footprint

- **Carbon management software** – a type of software platform that enables you to monitor, manage and report carbon emissions, as well as energy consumption, *e.g. Envizi, Azility, E21 or Trellis*.
- **Electricity bills or your retailer** –this could be a bill that your retailer issues, or direct webpage access.
- **Fuel cards** – your corporate fuel provider may issue fuel cards, which enable you to get a report at the end of every period, in which you can see your fuel consumption.
- **General Ledger** - represents the record-keeping system of your company's financial data, which contains information you can use to translate to emissions.
- **Other data collection systems, such as from HR systems**– Your HR department may be able to provide data on employee commute, work from home, etc.
- **Interviewing and surveying staff** –asking your staff to obtain data on emissions, such as flights

DOES YOUR DATA NEED TO BE 100% ACCURATE?

Your data does not always need to come from actual data. Where you don't have access to actual data, you can *estimate* or *model* it. You can even apply an uplift factor if all else fails.

Figure 5: Hierarchy of activity data

- **Extrapolated data:** partial year data or a representative sample from a group of buildings/vendors or survey data that is extrapolated to a full data set.
- **Projected data:** where data is expensive or difficult to collect, you may collect actual data once every few years and adjust for inflation/staff numbers or other relevant factors to estimate the current year's data.
- **Data conversion:** converting data from one type to another through known conversion units
- **Estimated data:** online calculators or general statistics.
- **Uplift factor:** where you can't obtain estimates, you may need to increase the size of your carbon inventory to allow for data unavailability.

STEP 3 – CALCULATE YOUR CARBON FOOTPRINT

Obtaining activity data is the most time-consuming task, but once you have all the data you need, calculating the carbon footprint is comparatively simple.

EMISSIONS FACTORS

An emissions factor is a coefficient that allows you to convert activity data into greenhouse gas emissions.

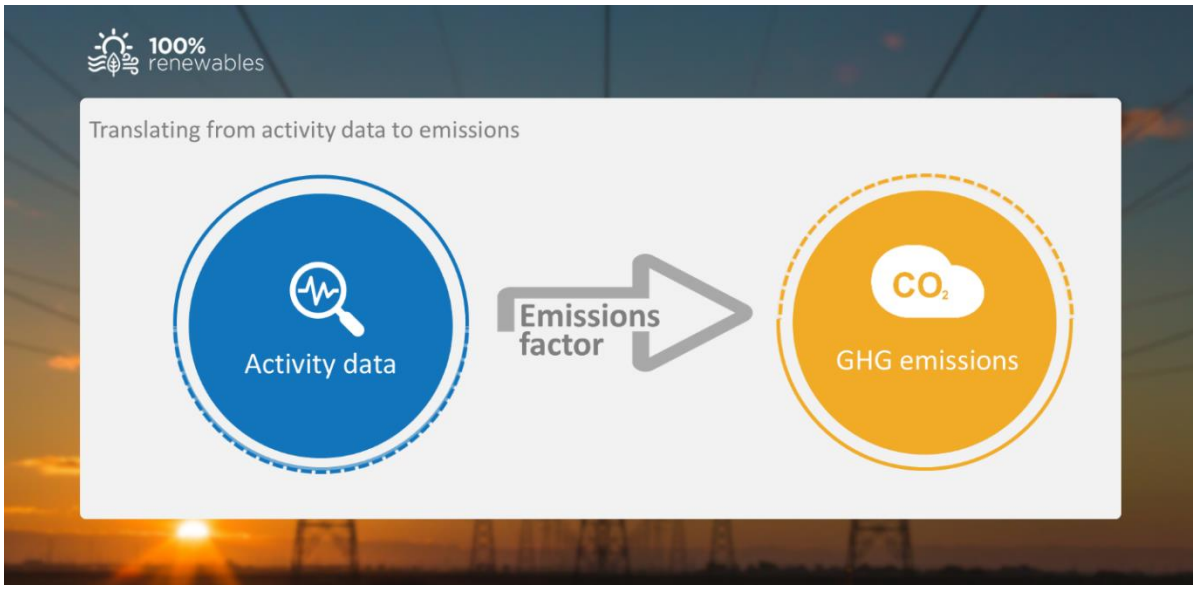


Figure 6: Translating from activity data to emissions

In Australia, the best source for all scope 1 and 2 and some scope 3 emissions can be found in the NGA factors or the National Greenhouse Accounts Factors.

If you are looking to get certified under Climate Active, you will get access to calculators with a wide range of emissions factors, including scope 3 emission factors.

It's a good idea to engage consultants that can help you with developing your carbon footprint. 100% Renewables is a registered consultant to CLIMATE ACTIVE for Organisations, Products and Services, Events, and Precincts. We have accredited expertise that can assess any organisation's carbon footprint aligned with best practice.

Below, you can see an example of an extensive carbon footprint we developed for one of our clients. Electricity emissions are the single biggest emission source, followed by purchased food and catering, and professional services.

EXAMPLE OF AN EXTENSIVE CARBON FOOTPRINT

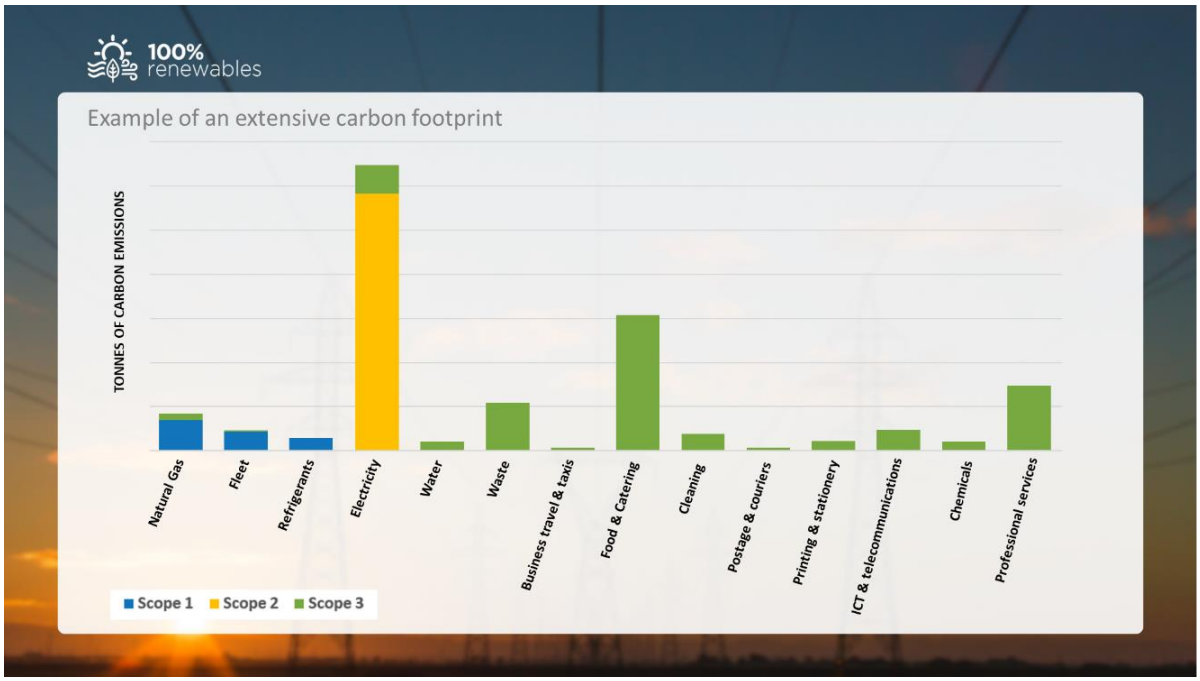


Figure 7: Example of an extensive carbon footprint

PROJECT YOUR EMISSIONS INTO THE FUTURE

The carbon footprint you develop will be a snapshot in time. With business growth, your carbon footprint will likely grow as well, which means that your abatement task will be bigger the further you delay action.

A larger carbon footprint also means that you will have to buy more offsets should you choose to go carbon neutral, making this achievement more expensive than it needs to be.

Once you have developed your carbon footprint, you will need to project it into the future, so you know where your business will be without any abatement measures.

PLAN TO ACHIEVE NET ZERO

A plan to reach net zero emissions is based on cost-effective emissions reduction measures over time. There are many ways you can reduce your carbon footprint – here are the most prominent examples.

Figure 8: Typical abatement opportunities for business

BEHIND-THE-METER SOLAR

Where you can, you should install solar. It reduces your emissions immediately, and is cost-effective. And in future, battery storage will be more cost-effective, allowing you to scale up your solar ambition and take more control over your energy supply and risk.

ENERGY EFFICIENCY

You can be more energy efficient, for instance, by turning off equipment when it's not needed or by replacing old, inefficient equipment with new, energy-efficient ones.

RENEWABLE ENERGY POWER PURCHASING

Over time, your electricity-related emissions will reduce as the grid decarbonises. This means that fossil fuel-powered plants are being replaced with renewable power plants, reducing electricity-based emissions.

However, this will take time, so in the mean time, you can choose where the electricity you are buying comes from. You can consciously select to buy renewable energy. Bigger organisations can do that via Power Purchase Agreements, smaller consumers can elect to purchase GreenPower.

ELECTRIFICATION

Rather than powering your equipment and vehicles from fossil fuels, such as natural gas, you can electrify your equipment and power it from renewable energy.

SUSTAINABLE PROCUREMENT

You can make more sustainable buying decisions and purchase carbon neutral products, or products that were made from

renewable sources, that can be recycled, or composted.

SUSTAINABLE TRANSPORT

You can buy efficient, low- and zero-emissions vehicles and implement EV infrastructure such as charging points. Even bigger trucks can be electrified. Using videoconferencing also helps to reduce emissions.

CARBON OFFSETTING/INSETTING

On your journey to net-zero, you can invest in carbon offsets to finance projects that invest in emissions reduction or sequestration, or you can create insets by focusing on projects via land you or your partner organisation owns.

WASTE

You can reduce your emissions from waste by consuming less, recycling more and fostering a circular economy, in which the waste of your organisation can be a resource for another business or vice versa.

GOVERNANCE AND LEADERSHIP

And perhaps most importantly, you can show leadership. You can implement emissions reduction solutions and then share your stories with others so that they can learn from our experience. A good example is our 'Driving Net Profit With Zero Emissions' Podcast.

OUR APPROACH - AVOID, REDUCE, PRODUCE, PURCHASE

Our approach to helping you develop your net zero carbon emissions abatement opportunities is based on an "***Avoid, Reduce, Produce, Purchase***" model across your operations, fleet and value chain. That is, avoid emissions through waste reduction in design, operations and supply chain; reduce energy demand and emissions through efficiency, fuel switching and technology change; produce your own energy through solar PV and battery storage; and for the balance of energy and emissions, source this over the long term via offsets, renewable energy power purchases, insetting, and through sustainable purchasing.

Our methodology for developing your net zero roadmap is illustrated below.

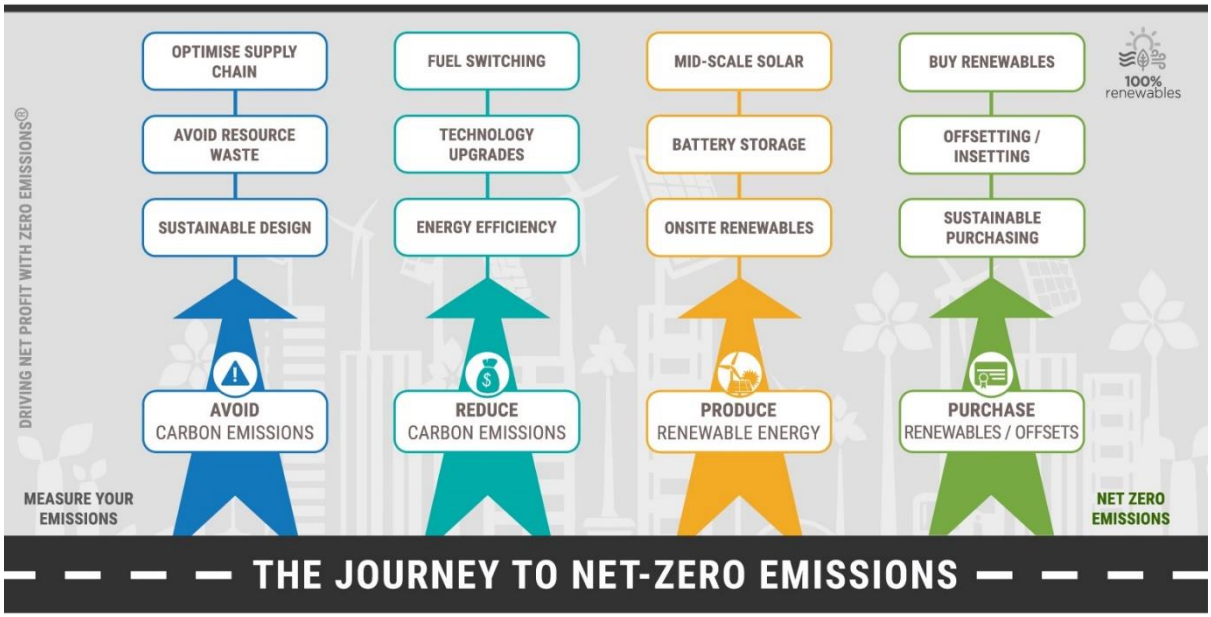


Figure 9: 100% Renewables methodology for developing your net zero roadmap

NET ZERO PATHWAY

Once you have developed your emissions reduction opportunities, you can plot them in a net zero pathway. Such a pathway or roadmap graphically defines the magnitude and timing of emissions reductions and is excellent for visually engaging your stakeholders. Here is an example of a net zero by 2030 pathway.

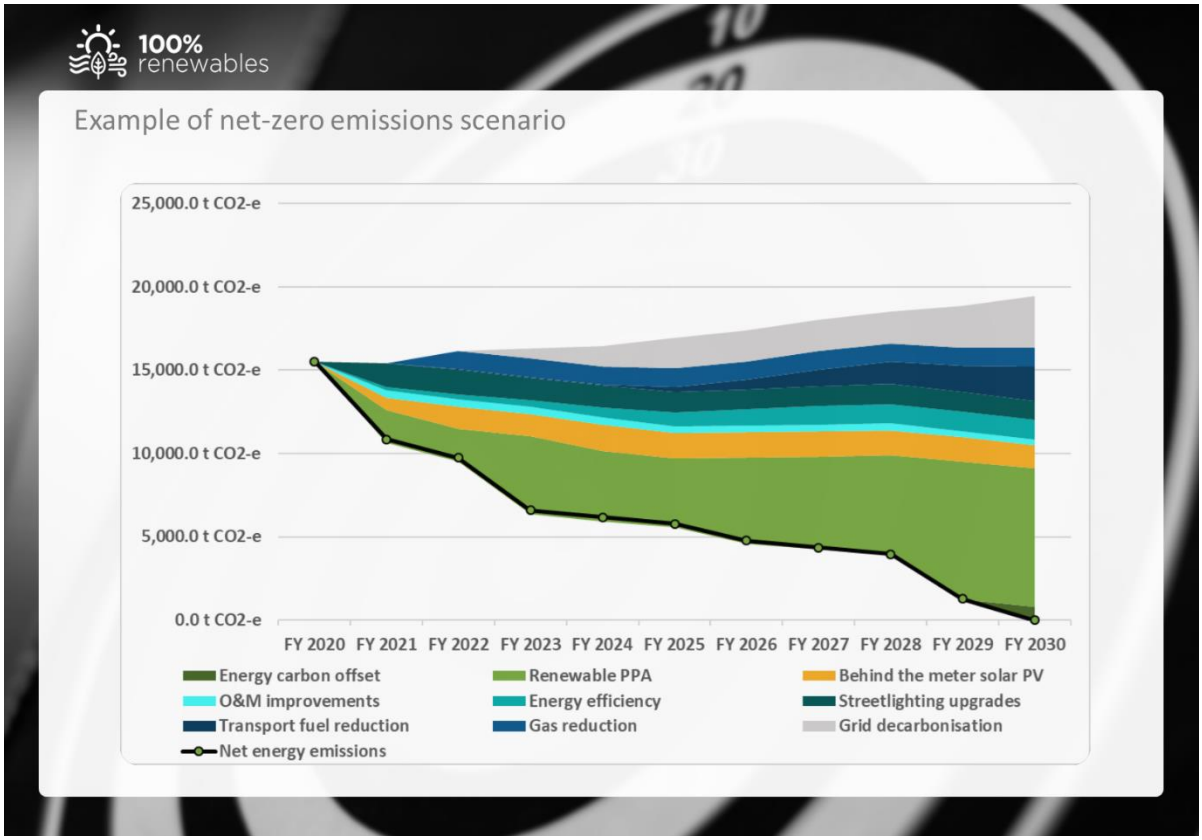


Figure 10: Example of net-zero emissions scenario

You can decide to go *net zero later* or *net zero now*, by working towards carbon neutrality. In the next section, you can see how these two targets can be expressed in a pathway.

NET ZERO LATER: DECARBONISE FIRST, OFFSET THE BALANCE LATER

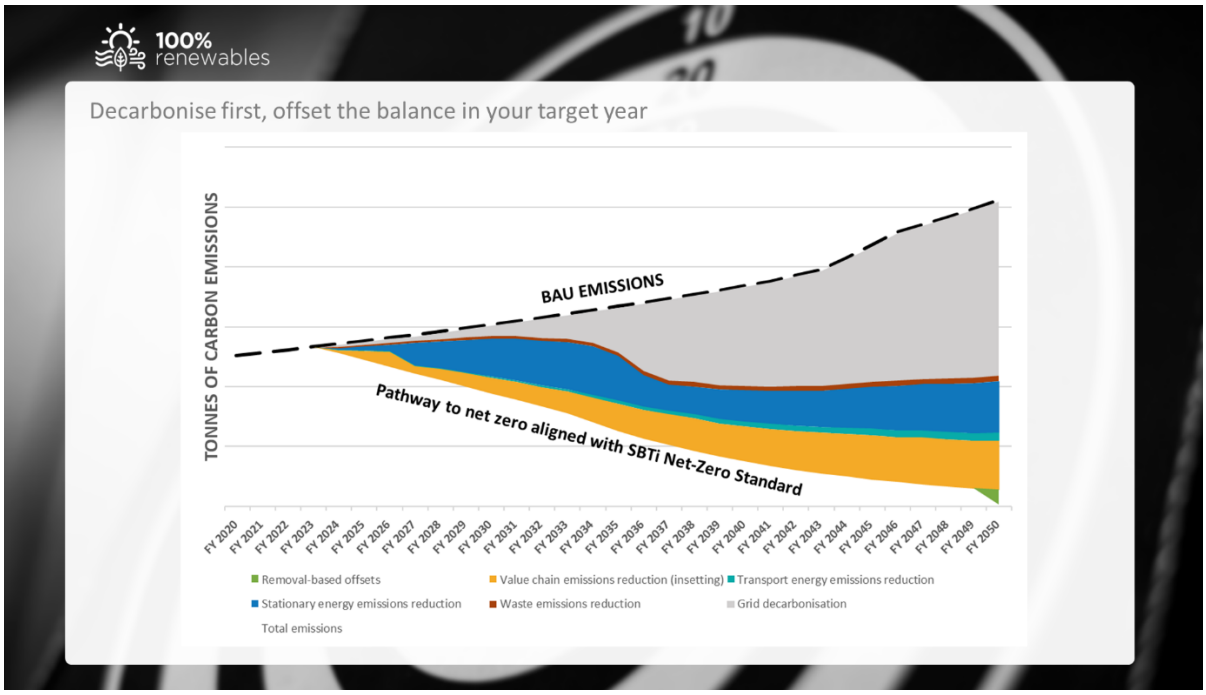


Figure 11: Option 1- Decarbonise first, offset the balance in your target year

Above is an illustrative net zero pathway that shows you a decarbonisation roadmap aligned with science.

In the absence of any carbon reduction activities, emissions will grow. However, because the grid is getting greener, your electricity-related emissions will fall automatically over time.

You will rarely achieve net zero emissions with a single 'silver bullet' solution.

There are many opportunities that contribute to a net zero goal, such as energy efficiency, onsite solar and batteries, renewable energy purchasing, waste management, fleet electrification and supply chain initiatives.

Grid decarbonisation happens relatively slowly. You can't wait for grid decarbonisation to take care of your electricity emissions. Business and individuals need to act now, themselves, with actions like efficiency, solar and buying renewables that reduce emissions and save money.

Over the next one to two decades, depending on what makes up your value chain or scope 3 emissions, you can work with customers, suppliers and other stakeholders to drive these down, while creating new opportunities for your business to prosper over the long term.

In the long term, you should minimise offset purchases, and use them only for those emissions that are too hard to reduce or remove directly.

However, buying carbon offsets now may still be a great strategy, as it can show leadership and set an internal price on carbon. But over time, the goal should be to reduce your carbon offset purchases to zero while reaching net-zero emissions.

NET ZERO NOW: OFFSET NOW AND CONTINUE YOUR DECARBONISATION

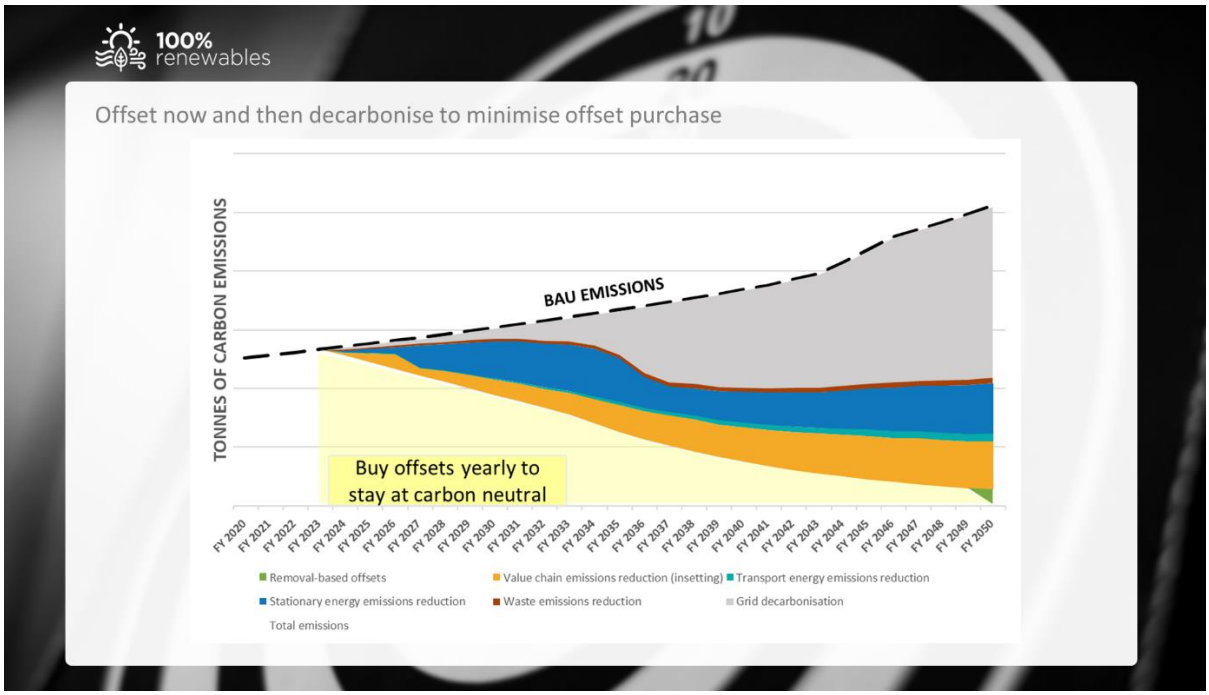


Figure 12: Option 2 - Offset now and then decarbonise to minimise offsets

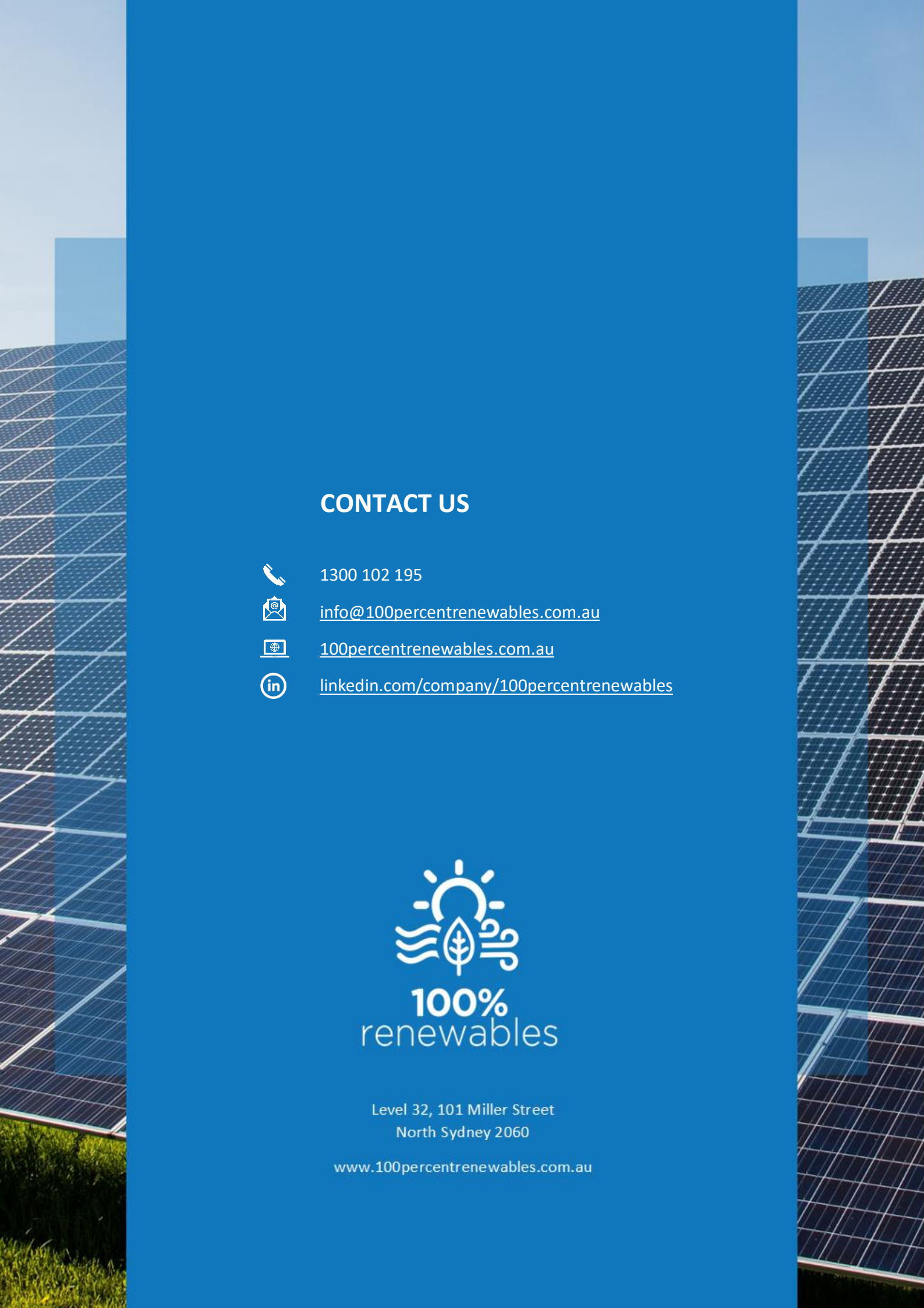
Above you can see the same illustrative pathway from before, but here, you go carbon neutral right away by purchasing carbon offsets to balance your current carbon footprint.

Research shows that companies that invest in carbon offsets pay more attention to their own carbon emissions and are actively working on reducing them as opposed to companies that are not offsetting their carbon footprint.

Having to purchase carbon offsets is effectively acting like an internal price on carbon. If you keep decreasing your emissions, you spend less money on purchasing carbon offsets. You can use the money you save by investing further in emission reduction opportunities.

WHERE CAN YOU GET HELP?

100% Renewables are experts in helping organisations develop their carbon footprint and net-zero strategies. If you need help, please contact Barbara or Patrick.



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