MARS

The world we want tomorrow starts with how we do business today

Accelerating Change: The Case for Renewables Acceleration (RAcc)

April 25, 2025

Transitioning from fossil fuels to renewable energy is a significant global decarbonization lever on the way to a Net Zero future.[1] The UN has called for a tripling of renewable energy capacity by 2030[2]. However, many of the largest companies are well on their way to supplying 100% of their direct electricity needs with renewables[3]. That means their appetite for incremental renewable electricity will be limited. So how can those companies help create a tripling of demand in service of the UN goal?

Conventional wisdom calls on those companies to engage directly with their thousands of suppliers and the suppliers of those suppliers to encourage them to engage directly in renewables procurement. In some cases with direct suppliers that can be successful, but it lacks speed and scale and consumes significant "soft" resources in terms of education and negotiation. This model alone will not lead to a tripling of demand for renewables in the next 5 years.

Renewables Acceleration (RAcc) is an innovative strategy option for those sophisticated, large scale, credit worthy buyers to extend their renewables procurement into their value chains and directly support the development and expansion of renewable generation. This is far faster and more efficient than asking those large buyers to convince all of their suppliers and customers to go source small amounts of renewables. For a business like Mars, the electricity use up and down our value chain (~6-7 TWh) is roughly triple what we use in our factories, offices and clinics (~2 TWh). Under RAcc we can bring all of that demand to the market now and could have those assets online before 2030 – turning Mars from a 2 TWh into an 8-9 TWh renewable electricity customer. If a similar approach was applied by others, that could accelerate the expansion of renewable generation:

- RE100's 2023 member reporting (link) becoming 481+1443 TWh
- CEBA's 2024 State of the US Market (link) becoming 84+252 GW
- RE-Source Europe PPA deal tracker (link) becoming 50+150 GW

That's the world we want tomorrow, and we believe doing Renewables Acceleration for Scope 3 today is the way to get there.

How to motivate companies to act?

We know that more renewables are what the world needs – the question is how to motivate the private sector to follow this path. The GHG footprint of value chains is ultimately caused by a relatively small number of processes that release various greenhouse gases to atmosphere – things like energy production from fossil fuels, methane production by livestock and some crops, industrial process emissions, emissions from fertilizer use and carbon losses from soils or natural ecosystems. Scope 3 electricity emissions in their value chains are an important source of emissions and are significantly bigger than most companies' Scope 2 electricity emissions. The idea behind RAcc is to separate out all of the emissions associated with electricity production across all the tiers of the value chain and then create options to cover that electricity

Footer Notes

[1] Eg IPCC AR6 WG3
[2] UN report offers roadmap for scaling up adoption of renewable energy
[3] RE100 Annual Disclosure Report 2023.pdf

use (and only that electricity use) with a series of large renewable electricity projects following accepted standards for sourcing renewables such as RE 100.

RAcc is a large-scale, cost-efficient strategy for progressing against renewable energy goals and GHG commitments. Using Mars as an example, thanks to our value chain mapping and life cycle analysis (LCA) data, we know that at least ~3Mt CO_2e of the value chain emissions we'll report for 2024 came from ~7 TWh of electricity use. That means that ~10% of Mars' total value chain footprint can be addressed by RAcc. There is no other single decarbonization strategy at this scale that we can execute as quickly as RAcc, which is why in our 2023 Net Zero Roadmap we called out Renewable Electricity as a key strategy in almost every value chain stage. We say "at least ~3Mt" because we're still working to disaggregate GHG data and identify additional electricity embedded in our footprint today beyond those 7 TWh that we have already identified. Until we can disaggregate to a MWh, we can't apply RAcc as a strategy. For some other supply chains, the electricity driven fraction of emissions could be much higher than 10%.

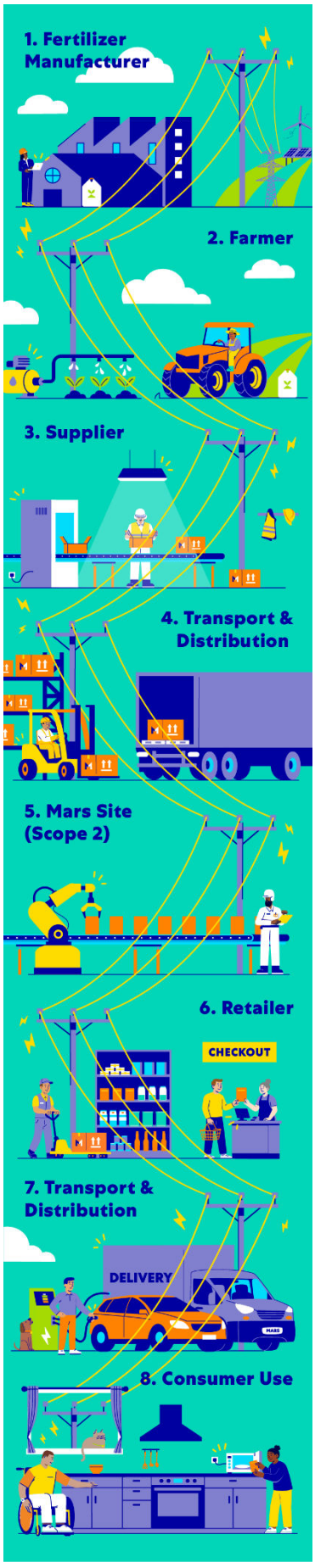
RAcc is not a competitor to a direct supplier engagement strategy. For companies with concentrated supplier electricity use, a small number of suppliers, or an existing direct engagement program, RAcc can be a supplement to address the long tail of smaller suppliers or the electricity footprint in countries without large suppliers. It also offers a path for addressing downstream electricity use (e.g. end consumers) where there are naturally very large numbers of very small electricity users. For example, Mars sells a rice product that requires just 90 seconds in a microwave to prepare. With the average microwave being around 1000 watts that means each pouch uses 1/40th of a kWh. There is no practical way to engage millions of consumers in sourcing renewable electricity for 1/40th of a kWh at a time. For every 100 million of those pouches Mars sells in the US, we include 2500 MWh worth of electricity footprint into our scope 3 emissions. By adding that 2500 MWh into a RAcc sourcing strategy for the US we could then apply 2500 US RECs to account for each one of the 100 million of those 1/40th of a kWh.

At the same time, there are several other ideas circulating about alternative accounting approaches for renewables (e.g. "24/7" or "emissionality"). These ideas generally seek alternative uses for the existing Scope 2 demand of experienced, motivated renewables buyers. Here again RAcc takes a complementary approach to those discussions and simply seeks to increase overall demand with the goal of shortening the time to electricity grids powered largely by renewables. More certain demand can help contribute to resolving some of those other barriers – e.g. by making potential projects in interconnection queues into certain projects, there is more certainty for transmission planners. More total demand means more projects get built in more places – including regions with lower renewables penetration.

How can companies figure out value chain electricity?

In GHG accounting, activity data (tonnes of raw materials, tonne-km of shipping, kWh of electricity, etc.) is multiplied by emissions factors. But where do those factors come from? In some cases, it is a simple calculation; for example, a CO_2e/kWh factor from national government published data is multiplied by kWh usage in a factory. The energy to microwave a food product at home would be a similar example in the Scope 3 value chain of a food manufacturer.

But in other cases, there are calculations to get to those factors. Those calculations are themselves aggregations of activity data & emissions factor math done with tools/methods such as life cycle analysis (LCA). An LCA is based on a model of the process to produce whatever you're studying – and electricity use can be pulled out of those models.



Let's look at a simplified example of a rice product:

1. Far upstream of Mars, input companies make fertilizers and other products used by farmers – the production of which includes electricity consumption.

2. The farmer uses electricity on their farm, for example to run irrigation equipment.

3. Mars' direct supplier, and any other supply chain steps between our supplier and the farmer, use electricity in their facility. Electricity is used by the upstream supply chain for all of the raw materials and packaging procured by Mars to make a product.

4. Electricity is used in distribution warehouses and – increasingly – for actual transportation. This includes all the transportation in the upstream supply chain, as well as in Mars' downstream logistics supply chain to the retailer.

5. Electricity is used at the Mars manufacturing site and accounted for in Mars' Scope 2 emissions.

6. The retailer uses electricity in their warehouses, logistics, and retail stores.

7. The product is transported, usually by a consumer but sometimes by delivery services, from the retail location to the consumers' house. While today most of this is powered by fossil fuels, there's increasingly electricity use in EVs for both consumer transport and shipping.

8. The consumer opens the pouch and uses electricity to run the microwave to prepare the rice.

Mars already accounts for all these process steps when we use emission factors that represent the full upstream footprint of an ingredient when it leaves the supplier's factory gate combined with additional accounting for all of the subsequent steps after we buy the ingredient. These calculations are very complex and include many different emission sources including fossil fuels and non-energy related emissions (methane from cows, refrigerant leaks, etc). You can open those calculations and work out how much diesel, how much natural gas and, critical to the RAcc strategy, how much electricity in kWh was necessary for each kg worth of microwaveable rice product.

Increasingly there are opportunities to replace that secondary database information with primary data from suppliers or customers which can be valuable for increasing the precision of the calculation. But even working from an LCA database value, RAcc simply provides a mechanism for addressing the emissions from electricity that are already in the reported footprint of a company. And by the nature of the calculation, RAcc cannot be used to "offset" or cover anything other than reported emissions from electricity. Using LCA, even renewable technologies like wind and solar still have emissions associated with their construction and dismantling. The emissions cannot get below zero for that electricity footprint as at best you are simply moving from the electricity grid emission factor for the country to use a much-reduced $KgCO_2e$/MWh value specific to renewable technology providing the power.

Why does covering your value chain with renewable electricity make logical sense?

If a company was vertically integrated and directly owned their entire value chain and were buying the electricity to run it, all of these electricity emissions would be in scope 2 reporting instead of being embedded in scope 3 value chain emissions. As scope 2 emissions, the company could source renewables under RE100 and GHG Protocol Scope 2 guidelines and cover that footprint with EACs (Environmental Attribute Certificates – in this case specific to electricity such as US Renewable Energy Certificates (RECs), UK Renewable Energy Guarantees of Origin (REGOs), EU Guarantees of Origins (GOs), etc.). This is the foundation of all corporate renewable procurement globally today and these rules have successfully driven the explosion in corporate demand for renewable electricity.

But most companies are not fully vertically integrated – meaning electricity use is scattered across many different portions of scope 3 emissions - leading to the following scenarios for a supplier in relation to a manufacturer:

Scenario 1

If a supplier in the value chain of a manufacturer sourced and retired their own EACs to cover their electricity use they could calculate a reduced scope 2 GHG footprint for their own operations.
If the manufacturer's scope 3 impact factors and current footprint for supplier included emissions from electricity, the manufacturer could then reduce those scope 3 emissions using their share of the reduced scope 2 footprints reported by the supplier.

Scenario 2

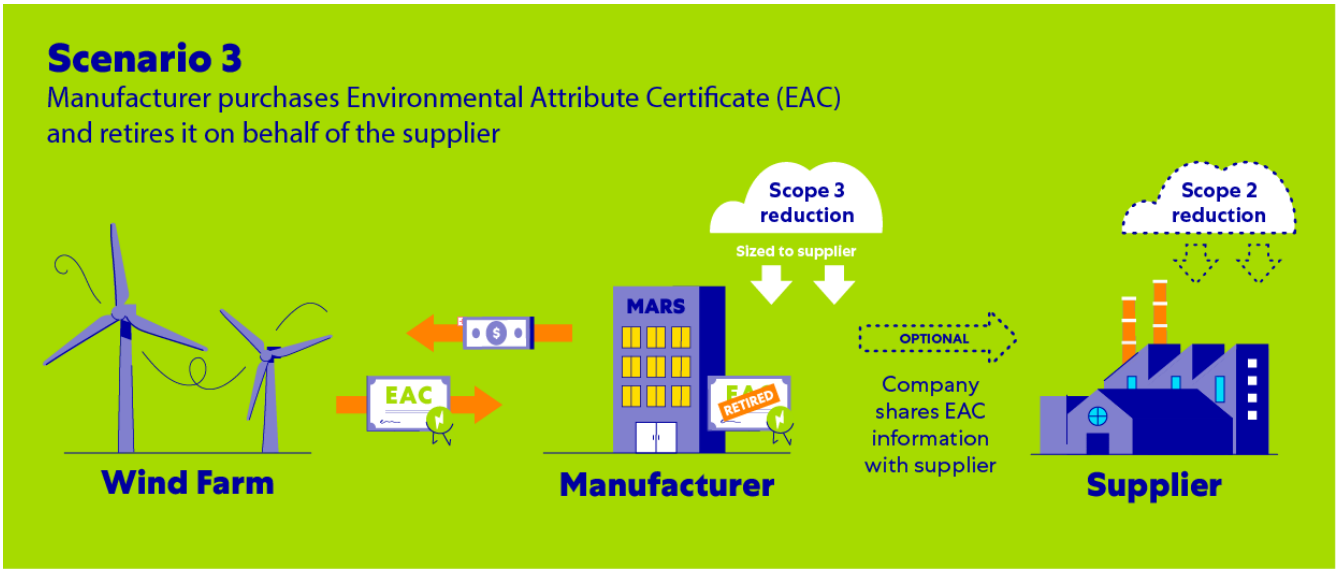
If instead of the supplier buying those EACs from a wind farm directly, they bought them from a manufacturer who had transacted with the wind farm, that would also be acceptable under current standards.

It doesn't matter to the climate or the electricity grid how many times the EAC changes hands contractually between the wind farm and the end user. Since what matters is the 1:1 between the MWh used and EAC being retired – it also doesn't matter if the same party does both. There's no functional difference between a manufacturer retiring an EAC for a supplier and the manufacturer selling or even simply giving the supplier the REC who then retire it themselves. However, there is a huge practical difference in that a manufacturer coordinating REC transfers to thousands of suppliers & customers and millions of consumers is incredibly inefficient and adds no climate benefit.

Which leads to the idea behind RAcc:

Scenario 3 (RAcc)

The manufacturer sources and then retires the EACs matched to the calculated electricity use of all of their suppliers and upstream suppliers of their suppliers, as well as all of their downstream customers, and counts the reductions in their scope 3. Optionally, they may communicate these EAC retirements to their suppliers.



What if my suppliers/customers are already using renewable electricity?

In the situation where the supplier has already sourced EACs in a credible fashion and reported that to the manufacturer, then the manufacturer could simply reduce the number of EACs necessary for their value chain under RAcc. As the manufacturer has extracted all of the calculated/estimated MWh usage in their scope 3 footprint, they know which of those MWh are being multiplied by average grid factors and which (if any) are having supplier contracted EACs applied to them. LCA databases, for example, assume grid emissions factors. Using those grid factors makes both current GHG accounting and the sizing of RAcc conservative as it effectively assumes that no one in the manufacturer's value chain has contracted for renewables.

If the manufacturer then contracts for all of those MWh, it's likely that actually brings duplicate demand to the market because the manufacturer has contracted for those MWhs of EACs while the supplier has perhaps also done the same. This is less efficient from a business perspective but good for the climate as it actually catalyzes market demand of >100% of the actual value chain demand. Over time, this duplicate demand will

incentivize improving the flow of information on RE procurement through the value chain in order to reduce costs.

How can this be a further catalytic accelerator of decarbonization?

The first accelerator in RAcc is the power of one company to bring the electricity demand of their entire value chain to market now and address it in a rapid procurement exercise. This enables larger scale projects & contracts with overhead and contract cost efficiency for developers, customers, project financiers as well as grid operators. It eliminates the need to “pareto” a company’s supply chain and leave emissions on the table (e.g. small suppliers or use phase emissions). So not only does this very quickly bring demand to market, but it also offers the most economically efficient route to doing so.

The second layer of acceleration can come in the relationship between that company executing RAcc and their value chain. At the core of the RAcc concept, value chain partners may not even be aware that a company has executed RAcc and is adjusting their scope 3 emissions from those partners accordingly. At the same time, there are many elements of decarbonization that cannot be solved at arm’s length through a strategy like RAcc. Companies executing RAcc could bring those EACs into supplier collaboration discussions and allow their suppliers to count those EACs in the supplier scope 2 emissions in return for:

- More primary data on supplier emissions, which could lead to more collaborative decarbonization ideas
- Action on other elements of supplier footprint, e.g. instead of a supplier trying to build renewable electricity expertise they can focus resources on energy efficiency, converting processes from fossil to electrical energy, or non-energy related emissions that are directly within their control
- Companies could sell those EACs to suppliers
- Longer term relationship incentives

RAcc enables companies to come into a supplier engagement discussion with a mutually beneficial incentive already live and ready to go. By creating new supplier engagement tools, RAcc could catalyze benefits even beyond the substantial contribution it will make in reducing electricity driven GHG emissions in the value chain.