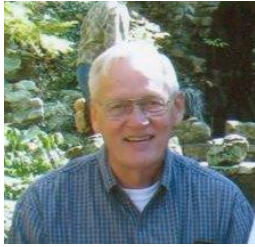


NET ZERO EMISSIONS

By Gary Antonides



Many countries and companies have vowed to reduce CO2 emissions to “net zero” by a certain date. But “net zero” means different things to different people. Some of the inconsistencies are discussed in “So What the Heck Is Net Zero, Anyway,” by Nick Cunningham, Feb 7 2022 (<https://www.sierraclub.org/sierra/so-what-heck-net-zero-anyway>).

In mid-January, ExxonMobil announced its “ambition” to reach net zero emissions by 2050, following some of its competitors in setting new climate-action targets. But, like many similar net zero by mid-century promises, Exxon’s plan was light on details, and the pledge excluded the vast majority of the emissions for which the company is responsible. In addition, their plan hinges on speculative technologies.

In the last year or so, net zero pledges have become all the rage among countries as well as corporations to show a commitment to addressing the climate crisis. But many of the net zero claims use differing metrics to define net zero, and often use “creative” carbon accounting. Their targets vary in ambition, and their pledges serve a PR purpose at a time when public scrutiny on corporate climate records is increasing. All this casts doubt on whether net zero plans are honest efforts or “greenwashing.”

What is “net zero” supposed to mean? After the 2015 Paris Agreement on climate change, reaching net zero greenhouse gas emissions by mid-century became a generally accepted international goal. In addition to decreasing emissions where practical, greenhouse gas emissions from difficult-to-decarbonize sectors like the aviation industry or beef production would be “offset,” (discussed later) thus achieving net zero emissions. So, by the middle of this century, all human activities combined must be capturing or sequestering as much greenhouse gases as they are emitting. This would be expected to limit temperature rise to 1.5°C (2.7°F) above pre-industrial levels (“1.5 to stay alive”), which is the primary goal of the agreement.

A few years after the Paris Agreement, the UN-backed International Panel on Climate Change (IPCC) stated that emissions would need to fall by roughly half by 2030 to ensure the world stays on track for the mid-century target. And last year, the International Energy Agency (IEA) argued that net zero emissions by 2050 would require an immediate end to new fossil fuel projects and that existing production must be phased out.

In addition to big polluters like ExxonMobil, BP, and Shell having 2050 net zero targets, some corporations other than fossil fuel companies have more aggressive targets. Microsoft, Amazon, HP, Proctor & Gamble, and dozens of others have pledged to hit net zero by 2040 or earlier.

The UN-backed “Race to Zero” campaign, which seeks support for net zero commitments, has signed up pledges from over 5,000 businesses, 400 large investors, 1,000 universities, and more than 1,000 city and regional governments.

Problems with “Net zero.” Unfortunately, there are no standards to gauge net zero. Companies can use different dates, omit some of their pollution from their pledges, and promise future reductions rather than take immediate action. A major problem is that many companies promise to cut emissions only from their immediate operations but take no responsibility for the pollution that comes from their products. Emissions are broken down into Scope 1, Scope 2, and Scope 3 emissions. The first two relate to a company’s operations. Emissions coming directly from the smokestack at a factory are Scope 1. The indirect emissions, such as from its electricity use or from employees traveling for business, are Scope 2.

Scope 3 emissions are generally those that are released by consumers using their products. Depending on the industry, these can be difficult to track, and some companies even refuse to consider it. For a software company, Scope 3 may not be a big deal, but for oil and gas companies, addressing Scope 3 emissions may be an existential threat to them. Roughly 80 percent of ExxonMobil’s emissions come from the burning of the oil and gas it produces, but Exxon only considers Scope 1 and 2 emissions. Exxon and other oil companies could plug methane leaks, electrify some their operations, and perhaps use carbon capture, and by mid-century, they could conceivably reach net zero from its drilling operations, but that would still ignore the vast majority of the emissions from oil and gas.

Automakers also have challenges, but the major automakers are doing better than the oil industry. Ford announced last year that it would cut Scope 1 and 2 emissions by 76 percent by 2035, and Scope 3 emissions by 50 percent. GM, Ford, and nine other major automakers signed an agreement in December 2021 to aim for selling 100 percent zero-emission cars by 2040. There are serious questions related to the electric car boom, such as where and how metals are mined for batteries, but automakers plan to make substantial strides, even on Scope 3 emissions. Aviation and heavy industry, such as steel and cement, also have enormous Scope 3 problems. All will require progress on costly

technologies. However, the steel industry, at least, is very enthusiastic about the future of “green steel,” which produces steel with renewable energy rather than coal and hydrogen.

“Net zero” relies heavily on offsets. Some portion of emission cuts may not be feasible for a long time. “Offsetting” those emissions can be done in a variety of ways, such as: (1) purchasing credits that finance projects to build renewable energy, (2) paying for nature-based projects, such as soil management or reforestation, and (3) directly removing CO2 from the air.

If it is done right, ‘offsets’ can be a legitimate source of emission reductions. However, carbon offsetting is plagued with a long list of problems. Ensuring that a specific project genuinely removes a certain amount of CO2 from the atmosphere is difficult, and the accounting is complex. Companies can inflate the actual impact of offsets, and go on polluting as before.

Bloomberg Green reported last year on the effort by French oil giant Total to offset the emissions from a cargo of liquefied natural gas (LNG) it shipped from Australia to China. The offset project Total financed merely paid some volunteers in Zimbabwe to clear brush to reduce wildfire risk. Total marketed its LNG shipment as “carbon neutral.”

In a 2021 report, the watchdog group Corporate Accountability reported on “greenwashing,” calling many net zero plans a “Big Con,” and amount to “Big Polluters” attempting to preserve business as usual.

Last year, JBS, the world’s largest meat processor promised to invest \$1 billion in an undefined “net zero” program consisting of offsets and carbon capture. They also said it would *try* to eliminate deforestation by 2030. We can expect that they will continue bulldozing the Amazon rainforest at least until then.

The oil and gas industry is probably the most infamous for strategies of delay. In its recent announcement, ExxonMobil promised to reduce its emissions by deploying “hydrogen, carbon capture and storage, and lower emission fuels,” technologies that are costly, technically challenging, and not commercially viable today, so it’s hard to believe it will happen.

“The time between now and 2030 is absolutely critical for reducing emissions on the order of 50 percent,” Kathy Mulvey, from the Union of Concerned Scientists, said. But “they’re just banking on a magic wand being waved some time past 2030 to really achieve the cuts that are necessary to get to net zero.”

Not only is Exxon refusing to acknowledge responsibility for the consumption of fossil fuels, but it has spent decades engaging in PR and lobbying to derail any attempt by governments to address the problem. That campaign continues. Executives from BP, Shell, ExxonMobil, the American Petroleum Institute (API), and the US Chamber of Commerce appeared before a House Oversight Committee hearing last year, in which Congress was looking into the oil industry’s history of climate denial. When pressed to end support for the lobbying outfits that obstruct climate action, they demurred.

Also, API and other corporate lobbying groups spent millions of dollars over the past year on PR and lobbying to kill Biden’s Build Back Better Act, which would have included roughly \$550 billion in investments in renewable energy and electric vehicles. Fighting to kill climate legislation while at the same time announcing net-zero targets strains their credibility.

What about country-level net-zero goals? In the lead up to the international climate change negotiations in Glasgow, Scotland, last year, countries updated their climate plans, and many offered up their own commitments to reach net zero by 2050. In April 2021, President Biden announced a net zero target by 2050 for the US.

Emerging economies have a bit longer to reach that goal. China said it would do so by 2060, and India by 2070. Even oil-producing countries have announced similar goals. Saudi Arabia said it would aim for net zero by 2060.

Should we be just as skeptical that net zero claims are a greenwashing exercise if they are made by a government? Greta Thunberg summed up her feelings last year in a speech in Glasgow. “Build back better. Blah, blah, blah. Green economy. Blah blah blah. Net zero by 2050. Blah, blah, blah.”

But one big difference between a claim from an oil company and one from a government is that the country-level commitments by default include the Scope 3 emissions, at least those stemming from the combustion of fossil fuels within their borders. Of course, the emissions from the oil and gas that is exported shows up on the ledger of the country where the fuel is burned. Still, when all country commitments are added together, everything in theory should be accounted for.

Actually, countries have additional incentives to slash the use of fossil fuels, such as improved public health and national security. Even net zero claims from oil-producing countries may be more believable than those from oil companies.

The Problem With "Net Zero," By [Tina Gerhardt](https://www.sierraclub.org/sierra/problem-net-zero-cop26-climate-talks), Nov.10 2021 (<https://www.sierraclub.org/sierra/problem-net-zero-cop26-climate-talks>) discusses the climate negotiations at COP26.

At COP26, the International Energy Agency (IEA) announced that the *pledges* made thus far could hold warming to 1.8 or 1.9°C, which blows past the 1.5°C goal. Worse, the Washington Post found that countries' pledges are based on faulty data. And a report by Climate Action Tracker (CAT) found that the targets would, at best, keep temperature rise to 2.7°C. The United Nations Environmental Programme (UNEP) report agrees.

The CAT based its conclusions on the Nationally Determined Contributions (NDCs) that each country released before the talks. They spell out how each country plans to cut emissions, and they range from specific to vague, and from extremely short to hundreds of pages. Under the Paris Agreement, which was adopted at COP21 in Paris in 2015, each country needs to submit its NDC every five years.

Because of the sheer volume of countries involved, the CAT focused on the 40 countries that are responsible for 80 percent of the world's emissions and ranked their plans based on how likely they are to result in the necessary cuts.

CAT found that only four plans (Chile, Costa Rica, the European Union, and the United Kingdom) were acceptable for holding warming to the stated goal of 1.5°C. Some reasons many other countries have managed to delude themselves and others is that, instead of laying out concrete plans to drastically cut emissions during the next crucial two decades, they plan to cut their emissions only minimally and get credits by doing things like buying carbon offsets, planting trees, and investing in carbon-capture technology. When countries promise that they can reach net zero without making sharp cuts to emissions in the next decade, those claims should not be taken at face value. The commitments are too far into the future, and action is needed now. Reliable methods of carbon capture and sequestration do not exist yet at the scale necessary to help meet those targets, and should not be counted on.

Some net-zero schemes rely on "nature-based solutions," such as using lands in the Global South as carbon sinks. But there is concern that, at least for that scheme, it could lead to land grabs, food insecurity, and rights violations for people living there. It must be accepted that there are simply not enough land and trees in the world to absorb our emissions.

Promise now, deliver later. The cuts that nations have laid out in their NDCs fall into two categories: short-term (by 2030) and long-term (by 2050 for developed nations, later for developing nations). It is essential that these short-term emissions cuts are made this decade, but most of the "good news" from COP26 was based on long-term commitments, giving the nations making those pledges over a decade before they can be held accountable for failing to meet their goals, which is almost certain to happen.

At a press briefing, Professor Niklas Höhne, of the NewClimate Institute, said that if one takes into account only the short-term targets that the nations participating in COP26 have for 2030, temperatures would rise by 2.4°C. But with their existing policies and actions, temperatures will increase to 2.7°C. Since existing NDCs do not meet the 1.5°C goal, countries are "urged" to update and strengthen their NDCs before COP27 in 2022. And many nations are calling for NDCs to be reported every year instead of every five years from now on.

The countries at COP26 had trouble agreeing on realistic actions. The COP26 statement was the first time they even *mentioned* fossil fuels. It demands that members "accelerate the phase-out of coal and subsidies for fossil fuels." It's looking more and more probable that being able to get to net zero will depend on carbon capture and sequester.