Oracle's Commitment to Renewable Energy

Oracle Cloud Infrastructure: How Does Oracle Make Renewable Energy Claims?

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Oracle's Commitment to Renewable Energy

Oracle is building a more sustainable future and using technology as a force for good.

Oracle Cloud Infrastructure (OCI) is a complete cloud infrastructure platform that can reduce our customers' environmental footprints. By moving to the cloud, customers no longer manage on-premise data center emissions – whether from diesel backup generation or procuring and using electricity. Cloud providers like OCI use their scale and reach to help enable customers to grow their business while OCI makes this growth sustainable and lowers carbon. OCI is committed to matching 100% renewable energy usage across its global platform by 2025. Our number one environmental impact comes from the power used to support our customers' cloud deployments. As such, Oracle has set a goal to reach **100% renewable energy coverage by 2025 and Net Zero by 2050** across all scopes of emissions with an interim goal to reduce all value chain emissions by 50% by 2030.

Context of energy and carbon emissions

Around the world, governments and corporations are recognizing the urgent threat of global climate change. According to the International Energy Administration (IEA), emissions arising from global electricity and heat production experienced the highest annual change (2019 to 2021) across all sectors.[1] In the past decade, corporations increasingly led the way towards a lower carbon energy future. Beyond their compliance requirements, companies like Oracle are setting ambitious voluntary goals to address emissions across their value chains.

How carbon emissions are reported by companies today

Until recently, companies outside of the energy generation sector (e.g., utilities), were largely not required to report their greenhouse gas emissions (GHGs). Now, over 90% of the S&P 500 disclose their emissions through annual sustainability reporting[2] and many companies adhere to the Greenhouse Gas Protocol (GGP) to report Scope 1, Scope 2, and Scope 3 emissions.[3] Oracle reports its emissions in its annual Social Impact Report.[4]

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[1] https://www.iea.org/reports/global-energy-review-co2-emissions-in-2021-2
[2] https://www.ga-institute.com/nc/news/newsletter/press-release/article/its-here-ga-institutes-2021-sustainability-reporting-in-focus-trends-report.html
[3] https://ghgprotocol.org/sites/default/files/standards/ghg-protocol-revised.pdf
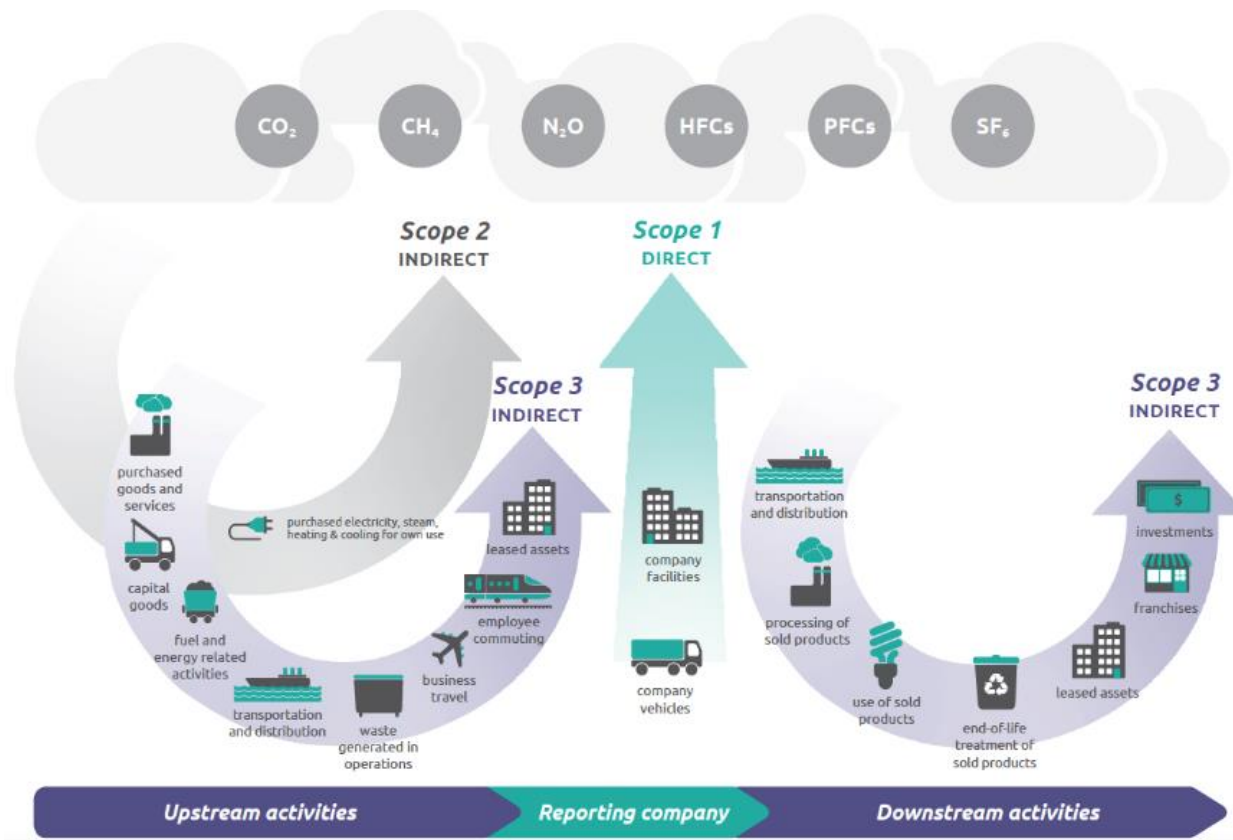[4] https://www.oracle.com/social-impact/

Figure 1. The Greenhouse Gas Protocol. Overview of scopes and emissions across a value chain.

Scope 2 Accounting: Location versus Market-based

Corporate greenhouse gas accounting takes an inventory of a company's climate-related emissions. For Oracle's operations – across offices and OCI cloud data centers – electricity consumption is the largest contributor to our operational carbon footprint. As aligned with the GGP, Oracle reports its carbon associated with electricity in two formats: Scope 2 location-based and Scope 2 market-based.

OCI's Scope 2 Carbon Footprint

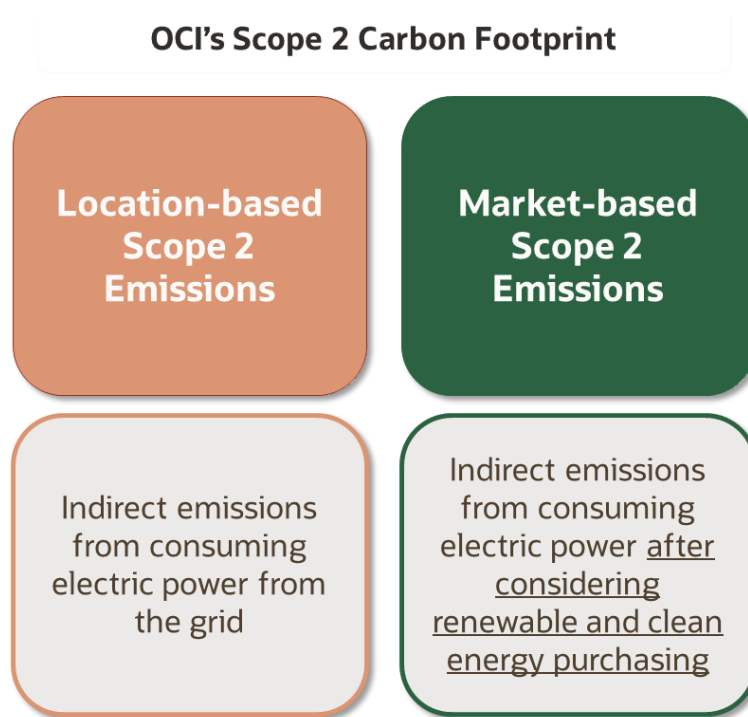| Location-based Scope 2 Emissions	Market-based Scope 2 Emissions
Indirect emissions from consuming electric power from the grid	Indirect emissions from consuming electric power after considering renewable and clean energy purchasing

Figure 2. The Greenhouse Gas Protocol. Scope 2 descriptions.

Location-based reporting means that everyone calculating carbon in the same grid region will use the same geography-based emissions factor. This is because location-based methodologies are based on the average emissions intensity of the local grid. On the other hand, market-based emissions are calculated based on a specific consumer's contracts and renewable energy purchasing mechanisms. Using market-based accounting means that companies like Oracle, who access renewable energy above and beyond the grid – through the form of contracts that include Environmental Attribute Certificates (EACs) or renewable energy certificates (RECs) – can further reduce their carbon footprints.

Oracle calculates and reports its electricity-based carbon footprint as such:

Location-based Scope 2 Emissions	kWh electricity consumed x grid-based emissions factor = Location-based Scope 2 CO2e
Market-based Scope 2 Emissions	kWh electricity consumed x contract-based emissions factor = Market-based Scope 2 CO2e

Where the units of measure for the emissions factor is CO2-equivalent emissions per kWh of electricity only (kgCO2e/kWh).

This methodology is in-line with industry best practice to report carbon emissions in two formats.

How companies buy renewable energy

Buying renewable energy is a complex process around the world. Each geographic region offers varying levels of renewable energy availability and contract structures. Because electricity grids around the world are connected to many generation sources – e.g., coal-fired power plants, natural gas plants, nuclear, wind and solar – any given grid will be comprised of a mix of electrons from these sources. To distinguish which of these electrons is "green," companies and governments must rely on Environmental Attribute Certificates (EACs) which are created when a unit – 1 MWh – of renewable energy is generated.

Companies and utilities that hold ownership of an amount of EACs can claim the corresponding amount of renewable energy towards their compliance[5] or voluntary goals. Frequently, utilities will offer their customers – both commercial and residential – opportunities to buy-up to a higher-level renewable energy claim than what is inherently offered to all customers (e.g., for a set price per kilowatt-hour an energy customer can move from 20% renewable to 100% renewable). In this case, utilities are securing additional EACs for these customers beyond what they are required to secure for overall compliance[6] purposes.

In some cases, companies may find it more cost-effective to secure their own purchase of EACs. This is done through a variety of mechanisms which include:

Table 1. Examples of purchasing structures for clean and renewable energy volumes that generate EACs.

Bundled purchases	Short to medium-term contracts for both electricity and EACs (hence the term bundled).
Unbundled purchases	Short-term contracts for only the EAC commodity at specified volumes and locations.
Power Purchase Agreements (PPAs)	Long-term contracts for delivery of electricity and the associated EACs.
Virtual Power Purchase Agreements (PPAs)	Long-term contracts for the net of the purchase of electricity sold back to the wholesale grid and the associated EACs. These are virtual as the power is not consumed, rather sold back to the market and the EAC is retained by the company making the renewable energy claim.
Direct Investments (including Onsite and Utility Scale)	Direct purchasing of renewable energy generation assets (e.g., onsite solar panels or an offsite solar farm) with associated energy and EACs.

Regardless of whether a utility or corporate energy consumer buys the EACs, renewable energy claims are substantiated by the matching of EACs to electricity consumption during a given reporting timeframe (usually annually) through retirement within the respective electronic registry of certificates.

Under market-based Scope 2 accounting, there are no claimable carbon reductions without evidence of EACs being procured either by the company or a utility/electricity supplier on behalf of a company. For example, to make a claim of 100% renewable electricity, for every megawatt-hour consumed of electricity, one megawatt-hour (MWh) of EACs must be purchased and retired on behalf of the company making the claim.

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[5] Compliance goals are government-set targets usually on generators of electricity.
[6] Example compliance mechanisms include U.S. state renewable portfolio standards (RPS) which are designed to increase the use of renewable energy in electricity generation.

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Table 2. Examples of Environmental Attribute Certificates (EACs).

Product Name	Location and Administration	Eligibility for Claims
Green-e Renewable Energy Certificates (Green-e RECs)	US primarily and certified by CRS an independent entity who administers the Green-e standard for voluntary renewable claims	Voluntary only
Guarantees of Origin (GoOs)	European countries who are members of the Association of Issuing Bodies (AIB)	Voluntary and Compliance
International RECs (I-RECs)	Worldwide administered by the IREC Foundation for voluntary renewable claims	Voluntary only
Large Generation Certificates (LGCs)	Australia and administered by the Clean Energy Regulator	Voluntary and Compliance
Renewable Energy Guarantees of Origin (REGOs)	UK (Great Britain and Ireland) and administered by Ofgem on behalf of the UK government	Voluntary and Compliance
Non-fossil fuel energy certificates (NFCs)	Japan administered by METI	Voluntary and Compliance

OCI's renewable energy strategy

OCI's cloud platform takes advantage of geographically distributed data centers around the world. Our data center providers are established industry leaders and we work closely with these suppliers to ensure we can access renewable energy and lower-carbon electricity opportunities. In addition, we focus on energy and water efficiency, as well as fuel reliability and resilience.

Our data centers rely on a variety of renewable energy products to make progress towards our goal of reaching 100% renewable energy by 2025. Many of our suppliers are already providing their services at 100% renewable energy coverage – this is true throughout Europe, and we are making progress elsewhere. Where Oracle cannot contract renewable energy or work with vendors who are providing it, we will investigate power purchase agreements (PPAs or VPPAs) or high-quality renewable energy certificates (RECs) as available in each region.

We publish our progress annually through our Oracle Social Impact Report and through our CDP Climate Change disclosure. In addition, we publish an Oracle Clean Cloud Datasheet annually documenting our renewable energy coverage and other important environmental metrics.

FAQs

Does Oracle consume renewable energy from the grid or only use certificates?

All electricity grids are comprised of electrons that come from a variety of power sources. Yes, Oracle consumes renewable energy; however, the claims we make about the composition of our power (e.g., % renewable energy) are substantiated using certificates, such as EACs or RECs. Non-renewable energy does not generate certificates.

Is an offset the same as a certificate?

In the world of renewable energy and carbon claims, there are many kinds of products on the market. The term 'offset' usually refers to a carbon offset which represents 1 metric ton of carbon being avoided through projects such as reforestation, technological removal (such as direct air capture) or renewable energy, etc.; as opposed to a REC which represents 1 MWh of renewable electricity.[7] 'Offset' should not be used in place of renewable energy certificate

(REC) as it does not represent the same claim and is not necessarily derived from renewable electricity sources such as solar and wind. At the time of this publication, Oracle does not use carbon offsets.

How does Oracle verify the quality of renewable energy it claims?

Oracle adheres to the Corporate Accounting and Reporting Standard of the Greenhouse Gas Protocol (GGP)[8] and guidance from CDP[9] – a leading body on climate change reporting for corporates. In addition, all carbon claims are 3rd party assured through an annual verification process. In this process, our auditor reviews our calculations, assumptions, and backup data such as contracts, evidence of EACs/RECs, invoices, etc.

Framework Alignment

Oracle aligns with the following corporate sustainability frameworks: CDP Climate Change, the Greenhouse Gas Protocol, UN Sustainable Development Goals, and ISO 14064 for the quantification and reporting of greenhouse gases.

References

Oracle publishes social impact and environmental information in a variety of locations. To view all available data please visit:

- Oracle 2022 CDP Climate Change Survey: https://www.oracle.com/a/ocom/docs/cdp-climate-change-questionnaire-2022.pdf
- Oracle Clean Cloud: https://www.oracle.com/sustainability/green-cloud/
- Oracle Clean Cloud OCI Data Sheet: https://www.oracle.com/a/ocom/docs/corporate/citizenship/clean-cloud-oci.pdf
- Oracle ESG Hub: https://www.oracle.com/social-impact/esg-hub/
- Oracle Social Impact Report Website: https://www.oracle.com/social-impact/
- Oracle Social Impact Datasheet: https://www.oracle.com/a/ocom/docs/corporate/citizenship/ccr-datasheet.pdf
- Oracle Sustainability: www.oracle.com/sustainability

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[8] https://ghgprotocol.org/sites/default/files/standards/ghg-protocol-revised.pdf
[9] https://www.cdp.net/en/guidance/guidance-for-companies

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