VOLVO

Organisation	Owner	Document type	Version
Volvo Car Corporation	50130 Global Sustainability	Position Paper	3

Document name	Valid from	Security class
Volvo Cars position on Energy Attribute Certificates (EACs) for electricity	2024-10-14	Public

Volvo Cars position on Energy Attribute Certificates (EACs) for electricity

Purpose of this document

This document outlines Volvo Cars position on Energy Attribute Certificates (EACs) and provides guidance on which certificates we allow when procuring and reporting climate neutral electricity. EACs are used to claim GHG Protocol[1] scope 2 emission reductions by providing proof of climate neutral energy production. We consider sources of electricity that do not emit GHG emissions in their generation as climate neutral. Although EACs cover both electricity and energy (including heating), this document is focused on electricity. Volvo Cars sees a need to define our position on EACs due to the complexity of the different renewable (RE) markets and to show how we are aligned with international carbon accounting standards, i.e. the GHG Protocol.

Background and challenge

- The current global energy crisis has accelerated the energy transition and once again highlighted the key role of renewable energy.[2]
- Volvo Cars' ambition is to reach net zero Green house gas emissions by 2040. As a first tangible step we intend to reduce our lifecycle carbon footprint by 30 to 35 per cent per average car until 2025 (compared to 2018 levels).[3]
- Securing access to climate neutral energy, both for heating and electricity use, is critical to reaching our 2025, 2030 and 2040 ambitions. By 2025 we aim to have climate neutral energy in our own operations, both for heating and electricity. In addition, achieving 100 per cent climate neutral electricity (where possible) is a key contributor to reach our ambition to reduce emissions from our retailers' operations and facilities by 50 per cent by 2025 (compared to 2018 levels).
- When shifting from fossil-fuel to climate neutral energy different options are available:
    - Investment in additional (on- or offsite) climate neutral energy production for own energy consumption.
    - Use different types of green power purchasing agreements (PPAs). In particular, long-term PPAs for new renewable electricity capacity help to support the development of additional renewable energy production.
    - Buy climate neutral energy using EACs.

[1] Greenhouse Gas Protocol (GHGP).
[2] https://www.iea.org/reports/renewable-energy-market-update-may-2022
[3] Please see the Volvo Cars Global Newsroom for further explanations.

- Organisations may have contracts, i.e. PPAs, to purchase electricity from a specified generating facility[4] to enable long-term sourcing of RE with or without the potential to achieve a high degree of additionality.
    - Physical PPAs represent an energy delivery contract between end-user and generator for the supply of electricity and the associated EACs, that may offer a high degree of additionality[5].
    - Virtual PPAs are financial contracts between the RE generator and the end-user without the physical delivery of electricity, but with the transfer of asset specific EACs. The agreement can be cross border, however, generator and end-user should be within the same EAC market boundaries. Virtual PPAs and unbundled EACs have lower transparency, do not enable 24/7 tracking, nor support the build up of local RE production.
- As the GHG emission claims are related to our own electricity usage and footprint, they are not equivalent to carbon offset[6] claims. Regarding offsetting, please see the separate Position Paper on Carbon removals and offsetting.

What are Energy Attribute Certificates?

- EACs are certificates representing the environmental attributes (e.g. technology, location, GHG emission rates and facility age) of a generated MWh from a specific RE asset. EACs[7] are purchased, traded and cancelled to claim the usage of that specific MWh of electricity.[8]
- An EAC allows a company to claim the usage of climate neutral electricity to reduce its carbon footprint associated with purchased electricity.[9]
- EAC procurement can be either contractually bundled (EAC and underlying energy traded in a single contract) or unbundled (EAC and underlying energy traded in separate contracts).

Description of EAC[10] standard attributes:

Type	**REC Renewable Energy Certificates**	**GO Guarantee of Origin**	**GEC Green Electricity Certificate[11]**	**I-REC International Renewable Energy Certificates**	**TIGR Tradable Instrument for Global Renewables**	**Japanese EACs** (see separate table below)
Location	Used in North America (USA and Canada).	Used in majority of Europe (both domestically and within Europe).	National certification system in China.	International certification system. Used in any country or region.	International certification system. Used in any country or region.	National certification systems in Japan.
Expiration time frame	12 months after production.	18 months, but tradable until 12 months after generation.	No expiry date.	12 months after production.	Not clearly defined.	

[4] https://www.epa.gov/sites/default/files/2020-12/documents/electricityemissions.pdf
[5] Additionality refers to the degree to which additional renewable energy capacity is added to the grid with the selected RE sourcing option.
[6] Offsets and EACs are fundamentally different contracts. Offsets address direct and indirect GHG emissions by removal and/or reduction through external projects used to reduce an organisations' scope 1, 2, or 3 emissions, as a net adjustment. EACs address indirect GHG emissions associated with purchased energy by verifying the use of renewable sources of energy, associated with scope 2 emissions.
[7] To prevent double counting, EAC systems provide tracking to ensure that the same environmental attributes are not claimed more than once.
[8] All electricity production has an GHG emission factor, expressed in metric tons of CO2-equivalent per MWh of generation (tCO2e/MWh) used for Scope 2 calculations and claims. (Second attribute also ascribed referring to avoided grid emissions).
[9] Standard by: GHG Protocol, World Resource Institute (WRI) and World Business Council for Sustainable Development (WBCSD): https://ghgprotocol.org/corporate-standard and the RE100 Making Credible Claims document.
[10] EACs specified herein are delimited to the ones that Volvo Cars has a position on. (There are other EACs available as well.)
[11] GEC is China's national system for EACs, launched to reduce governmental subsidies by a market-based mechanism (to mitigate risk of RE investment). RE producers receiving government subsidy can still issue GECs, but once they sell it, they can no longer receive the subsidy.

Subsidies	Generally possible to issue RECs and receive state subsidy.	Depending on registry, GOs issued from RE assets receiving state subsidy.	Subsidy allowed, but, if GECs sold the producer can no longer receive subsidy.	No explicit exemptions.	Generally not allowed to issue TIGRs if receiving subsidies.	
Framework compliant	GHGP, SBTi[12], RE100[13] and CDP[14].	GHGP, SBTi, RE100 and CDP.	Conditionally accepted by RE100 (risks of double counting).	GHGP[15], SBTi, RE100 and CDP. Market boundary needs to be considered.	GHGP, SBTi, RE100 and CDP. Market boundary needs to be considered.	

Japanese EACs

Type	**Non-Fossil Certificates (NFCs)**			**GEC Japan**	**J-Credits**
	Feed-in-Tariff (FIT)[16] NFCs	Non-FIT NFCs (incl. Feed-in-Premium (FIP))			
		Renewable (Solar, wind, hydro, geothermal, bioenergy)	*Non-Renewable (Nuclear, plastic incineration)*		
Bundling	Bundled and unbundled.	Bundled and unbundled.		Unbundled	
Expiration time frame	Same FY as generation.	Same FY as generation.		No expiration.	
Subsidies	Subsidised	Can be subsidised.[17]		No explicit exemptions.	
Framework compliant	GHGP, RE100 and CDP.	GHGP, conditionally RE100 (only renewable sources) and CDP.		GHGP, SBTI, RE100 and CDP.	

Volvo Cars position

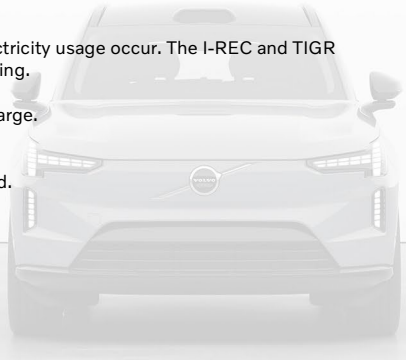
We accept the following EACs:

Type	**REC**	**GO**	**GEC**	**I-REC**	**TIGR**	**Japanese EACs**
Position	Accepted as EAC.	Accepted as EAC.	Conditionally accepted as EAC.	Conditionally accepted as EAC.	Conditionally accepted as EAC.	Conditionally accepted as EAC if renewable. Non-FIT Non-Renewable NFCs are generally not accepted.[18]

However, to align with the GHG Protocol scope 2 accounting, EACs shall meet the following criteria:

Criteria	**Explanation**
1. Credible generation data and convey GHG emission rate claims	The contract must specify the GHG emission rate[19] associated with the electricity produced. Accurate generation data is critical for the climate neutral usage claim - both static (e.g. location, date of first operation) and dynamic data (quantity of generation and source of energy).
2. Unique claims and exclusive ownership (no double counting)	To make a credible electricity usage claim and avoid double counting, the contract must be the sole owner of the GHG emission claim and ensure no attributes have been sold off, transferred, or claimed elsewhere. Therefore, Volvo Cars will only buy unsubsidised certificates[20].
3. Retirement of claims	Contracts shall be redeemed to enable a GHG emission claim. Certificates must be tracked and redeemed, retired, or cancelled when the electricity is consumed.
4. Vintage	Certificates shall be issued and redeemed as close as possible to the time of energy consumption to which it is applied and consistent with existing market standards. Volvo Cars requires that the cancellation should take place within 12 months after issuance of the certificate.
5. Market boundaries	The certificate must be valid for the same market as where the electricity is produced. A market is a geographical area with a common system for trading and cancellation. E.g. the US and China can be seen as markets dependent on boundaries set by the issuing body of the certificate.
6. Residual mix	The residual mix represent emission intensity from remaining energy generation after EACs are delivered. Utility specific emission factors are therefore claimed and deducted from the

[12] The Science Based Targets initiative (SBTi).
[13] RE100 is the global corporate renewable energy initiative bringing together hundreds of large and ambitious businesses committed to 100% renewable electricity.
[14] Carbon Disclosure Project (CDP).
[15] The GHG Protocols outline that electricity should be sourced from the same market as the electricity usage occur. The I-REC and TIGR therefore needs to be sourced from the same market as the operations for scope 2 GHG accounting.
[16] Enacted in July 2012. End-users pays for the RE surcharge.
[17] Electricity under FIP is subsidized, enacted in April 2022. The Government pays the RE surcharge.
[18] Nuclear may be conditionally accepted if the nuclear waste treatment method is disclosed.
[19] Refers to the GHG generated during the RE production.
[20] In some markets (e.g. Japan) when only subsidised EACs are available, exemptions are allowed.



	calculation. The residual mix shall be disclosed for consumer scope 2 calculations and if no EAC is available.[21]

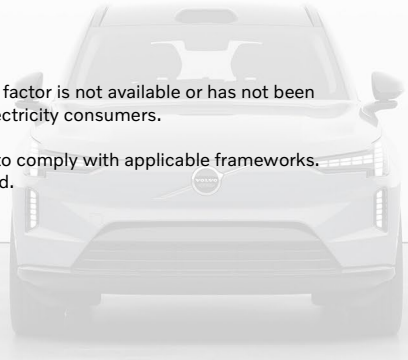
- Volvo Cars prefer bundled EACs. Allowing for unbundled ones may be needed when other options are not viable.
- Regardless of the standard and framework we always take Volvo Cars' sustainability requirements into account in case standard requirements are lower than ours.

Regarding I-RECs, TIGRs, GECs and Japanese EACs (RE[22]), Volvo Cars accepts these under the following conditions:

- The certificate must be valid for the same market as where the electricity is produced. China can be considered as one market (dependent on boundary set by the issuing body of the certificate according to the GHG protocol).
- Cancellation takes place within 12 months after issuance of the certificate.[23]
- The contract must specify the GHG emission rate for the generated electricity.
- There must not be any double accounting (e.g by issuing other types of certificates or contracts for the same MWh of electricity) of such CO2 emissions on behalf of the producer or the utility company (i.e. all contracts must have the same owner). We should only buy unsubsidised certificates, but under certain conditions exemptions[24] may be necessary.
- Bundled EACs are preferred over unbundled. Allowing for unbundled ones may be needed when other options are not viable.
- The certificate must be tracked and redeemed, retired, or cancelled when the electricity is consumed to claim the climate neutral energy usage.

Future direction

- We expect the sustainability requirements on EACs to increase in the next 5-10 years. Additional criterias may include requirements on RE, additionality, shorter expiration of EACs (e.g. monthly, 24/7 matching) and stricter definitions of electricity markets (e.g. physically interconnected grid, same electricity pricing area). We aim to demonstrate leadership through gradually applying additional criteria.



[21] If a residual mix is not currently available, companies shall disclose that an adjusted emissions factor is not available or has not been estimated to account for voluntary purchases and this may result in double counting between electricity consumers.
[22] Nuclear may be conditionally accepted if the nuclear waste treatment method is disclosed.
[23] As the expiration dates for GEC and TIGRs is not clearly defined, Volvo Cars set this standard to comply with applicable frameworks.
[24] In some markets (e.g. Japan) when only subsidised EACs are available, exemptions are allowed.