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Considerations on geographic and temporal boundaries across Energy Attribute Certificate schemes

Valuing
consumer
action

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Current definitions
of best practices

Theory on geographic
and temporal boundaries

Practicalities

Current definitions of best practices

- **Mostly voluntary**
- **Main references are:**
 - Greenhouse Gas Protocol (GHG)
 - CDP - Disclosure Insight Action
 - RE100
 - Science-based Targets Initiative (SBTi)

	Type	Background	Adoption	Latest
	<p>A framework to measure and manage GHG emissions</p>	<p>A Partnership between World Resources Institute (WRI) and the World Business Council for Sustainable Development (WBCSD). Its first Corporate Standard guidance was published in 2001.</p>	<p>Provides the foundation for other initiatives in the sector. In 2016, 92% of Fortune 500 companies responding to CDP used GHG Protocol directly or indirectly.</p>	<p>Ongoing survey to update its guidance. Plenty of guidance and courses available here.</p>
	<p>A disclosure tool and comprehensive dataset on climate action</p>	<p>CDP is a not-for-profit charity established in the early 2000s. Respondents are ranked against CDP's criteria.</p>	<p>Over <u>23,000</u> companies. Its Corporate Environmental Action Tracker includes 86% of S&P 500 companies.</p>	<p>In 2024, CDP will roll out a new integrated questionnaire combining disclosure across climate, forests, and water security.</p>
	<p>A target on renewable energy procurement</p>	<p>Led by the Climate Group in partnership with CDP, RE100 is a collaborative initiative bringing together the world's most influential businesses committed to 100% renewable electricity. Launched in 2014.</p>	<p>400+ members. Combined demand of 500+ TWh/year (>France). Targets must meet or exceed the following minimum ambition path to 100%RE: 2030→60% 2040→90% 2050→100%</p>	<p>APAC countries have been leading on demand increases over the past years. Of the top 10 largest electricity consuming companies that joined RE100 recently, 7 are headquartered in South Korea, with the other 3 being based in Japan.</p>
	<p>A target on renewable energy procurement</p>	<p>A partnership between CDP, the United Nations Global Compact, WRI, and the World Wide Fund for Nature (WWF). Launched in 2015.</p>	<p><u>7,922</u> companies. RE procurement share: 2025→80% 2026→84% 2027→88% 2028→92% 2029→96% 2030→100%</p>	<p>The SBTi launches open call for Validation Council members, aiming at the separation of standard-setting and validation of targets.</p>

Theory on geographic and temporal boundaries

- **Geographic Market Boundaries**
- **Temporal boundaries**
 - **Vintage**
 - **Expiry and COD**

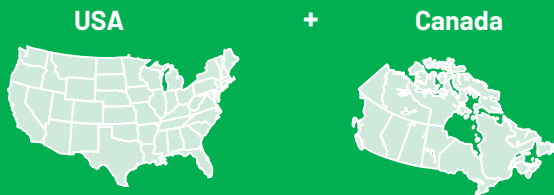
RE100 & CDP European Market

- Companies must source renewable electricity from **within** the boundary of the market in which they consume electricity. The **market boundary for most of the countries is defined as their geographical boundary.**
- However, **there are two notable exceptions:**

Market boundaries that exceed geographical boundaries:

1

North American market



2

European market

See next slide
for detail on European
market boundary



Market Boundary (2/3)

RE100 & CDP European Market



	Included	Excluded	N/A
RE 100 (2022 criteria)			
RE 100 (2019 criteria)			
Country			
Austria			
Belgium			
Bulgaria ¹			
Croatia			
Cyprus ²			
Czech Republic			
Denmark			
Estonia			
Finland			
France			
Germany			
Greece			
Hungary			
Ireland ²			
Italy			
Latvia			
Lithuania			
Luxembourg			
Netherlands			
Norway			
Portugal			
Serbia ²			
Slovenia			
Slovakia			
Spain			
Sweden			
Switzerland ³			
Bosnia Herzegovina ¹			
Montenegro ¹			
Andorra ⁴			
Liechtenstein ⁴			
Malta ²			
Monaco ⁴			
Poland ²			
Romania ²			
Vatican City ⁴			
Channel Islands ⁴			
San Marino ⁴			
Vatican City ⁴			
United Kingdom ²			

¹ Reason of exclusion: Not a full AIB member yet.

² Reason of exclusion: Cyprus, Ireland, Malta, Poland, Romania, Serbia and the UK do not meet RE100/CDPs 2022 criteria (AIB membership, EU single market and grid connection).

³ Import allowed, but barriers to export Swiss GOs.

⁴ Exceptions have been made for countries or areas which have little domestic energy production. Buyers may procure AIB GOs and cancel them ex-domain. Including Andorra, Liechtenstein and Monaco.

In regions lacking an EAC scheme or facing structural supply shortages, certain consumers choose to pair their consumption by selecting EACs sourced from neighboring countries, a practice referred to as **Next Best Options (NBOs)**.

Initiative	Position
GHG protocol	Except for the US & Europe, the market boundary concept for other geographies is not clearly defined . NBOs could technically be accepted for claiming emissions reductions. Under review .
CDP	Urges companies to avoid NBOs while emphasizing the need for transparent reporting to leverage policy developments and track RE demand worldwide.
RE100	Next best options do not meet the technical criteria of RE100 . When supply is unavailable, RE100 views it as a market failure rather than a deficiency in procurement strategy. RE100 advises consumers to explore alternative instruments, such as self-generation, and encourages participation in workshops aimed at promoting renewable energy development in challenging markets
SBTi	Refers to the GHG Protocol guidance.

Concept

- ‘Vintage’ refers to the **period of energy generation** from which the contractual instrument is derived.
- The GHG Protocol states that the **vintage must be ‘reasonably close’** to the reporting year of electricity consumption. **Under review.**
- **Green-e[®], an independent certification and verification program has a 21-month window** of eligible generation **dates** from which renewable energy generation can be used. CDP & RE100 suggest that **applying the Green-e guideline** is considered **best practices**.

Example:

- **Client’s reporting year matches 2023 Calendar Year. Client buys EACs with a vintage from within the below 21 month window**

Previous Year (eg. 2022)						Calendar Year (eg. 2023) (usually matches client’s reporting year)												Following Year (eg. 2024)			
M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	

Expiry

EU GOs and UK REGOs

- Expire within 12 months after the last day of generation

Validity

On issuance:

- For EU GOs, it varies per registry, but usually within a few weeks to months from generation.
- For I-RECs, issuance of previous year vintages is possible until the end of May for H1 generation and end of September for H2 generation.

On reporting:

- Any certificates outside Green-e®'s 21-month vintage window are no longer considered best practice for reporting purposes.

Note on retirement for EU GOs:

- For most registries, a cutoff deadline around March of the year following the consumption cycle applies to ensure that the fiscal year is closed and accounted for.

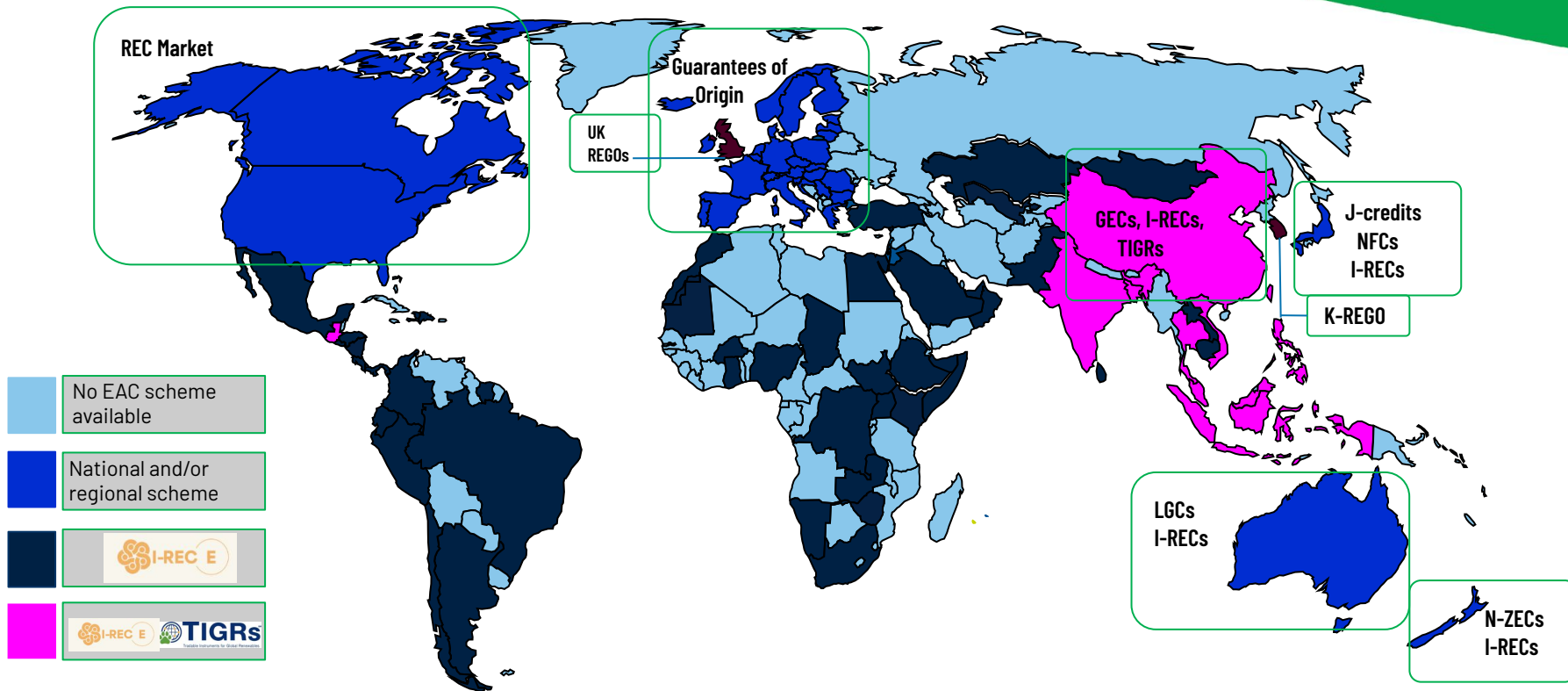
Date of Commissioning (COD)

- In 2022, RE100/CDP released a new criteria introducing a **15-year limit** on commissioning dates which RE100 members may claim purchased renewable electricity from. Applicable from 1 January 2024.

Practicalities

- Global availability of EACs
- Considerations on procurement
- Case study

Global availability of EACs



Considerations on Procurement

From a corporate perspective, varies greatly depending on a range of factors linked to:

GHG Footprint

- Structural supply constraints (i.e.: Singapore, South Korea)

Budget

- In-domain or NBOs?

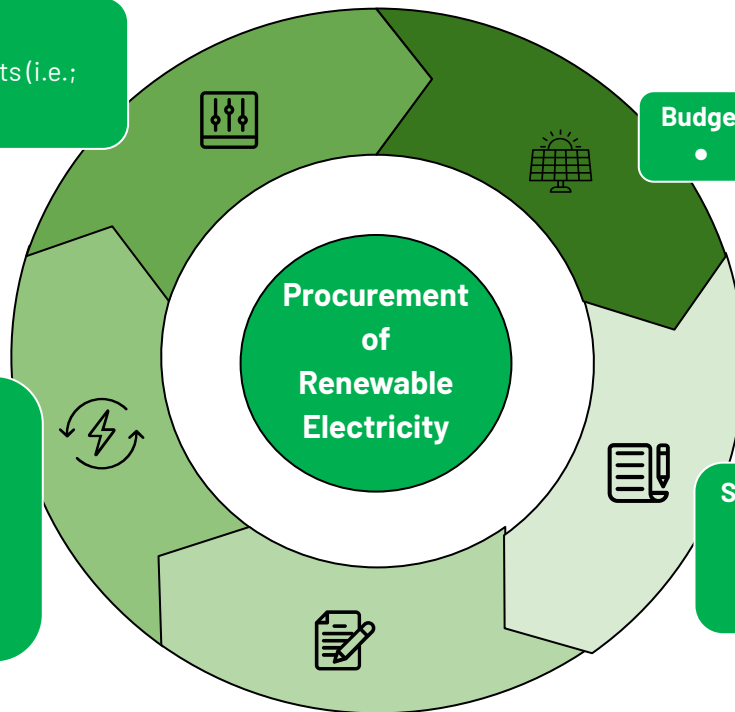
Extended criteria

- Premium labels (i.e.: EKOenergy, Green-e)
- Location-specific (i.e.: closer to consumption site)
- Tech-specific (i.e.: Solar/Wind only)

Stakeholders' expectations

- Consumers
- Targets and disclosure (i.e.: RE100, SBTi, CDP)

Sectoral Engagement



Case Study

Profile: CDP/RE100 compliance, preference for premium labelled Solar/Wind, considering NBOs for Taiwan, South Korea and Singapore.

Vintage	Consumption	Volume (MWh)	EAC availability	RE Generation	Tech	Premium Label	CDP/RE100 Compliance	
2024	Germany	48,841	EECS EU GOs (AIB)	EECS EU GOs (AIB)	Solar/Wind	EKOEnergy	Yes	N/A
2024	Poland	3,300	Polish GOs	Polish GO	Solar/Wind	EKOEnergy	Yes	N/A
2024	UK	48,841	UK REGOs	UK REGO	Solar/Wind	EKOEnergy	Yes	N/A
2024	Ukraine	2,500	No EAC available	Polish GO	Solar/Wind	EKOEnergy	No	NBO due to a lack of EAC schemes available
2024	US	2,628	US/Can RECs	US/Can REC	Solar/Wind	Green-e	Yes	N/A
2024	Canada	3,300	US/Can RECs	US/Can REC	Solar/Wind	Green-e	Yes	N/A
2024	Bolivia	4,000	No EAC available	Brazil as NBO	Solar/Wind	EKOEnergy	No	NBO due to a lack of EAC schemes available
2024	Taiwan	2000	Taiwan I-RECs/T-RECs/TIGRs	Taiwan	Solar/Wind	EKOEnergy	Yes	N/A
2024	Taiwan*	2000	Taiwan I-RECs/T-RECs/TIGRs	China as NBO	Solar/Wind	EKOEnergy	No	NBO due to client preference
2024	Japan	21,781	Japan I-RECs/J-Credits/NFCs	Japan I-REC/J-Credits/NFC	Solar/Wind	EKOEnergy	Yes	N/A
2024	South Korea*	50,000	South Korea REGOs	China as NBO	Solar/Wind	Not available	No	NBO due to structural supply scarcity
2024	Singapore	11,500	Singapore I-RECs/TIGRs	Singapore I-REC/TIGR	Solar/Wind	EKOEnergy	Yes	N/A
2024	Singapore*	11,500	Singapore I-RECs/TIGRs	Malaysia as NBO	Solar/Wind	EKOEnergy	No	NBO due to client preference
2024	Nigeria	10,000	Nigeria I-RECs	Nigeria I-REC	Only Hydro available	Not available	No	Only <15 COD available

*Next best option (NBO)

To conclude

- **Guidance on best practices is moving towards greater alignment. Yet, a lot remains to be seen once the revised GHG protocol is released next year.**
- **Every RE consumer is different and faces a unique set of challenges.**
- **From generators to consumers: a shift in regards to the applicability of EACs and the importance of having feasibility and impact aligned**

- Association of Issuing Bodies (AIB) - AIB Member Countries / Regions. Webpage. <https://www.aib-net.org/facts/aib-member-countries-regions>
- CDP - Disclosure, Insight, Action. FAQ Section. Webpage. <https://www.cdp.net/en/companies-discloser/how-to-disclose-as-a-company/faqs-for-companies>
- Greenhouse Gas Protocol - Scope 2 Guidance. Webpage. <https://ghgprotocol.org/scope-2-guidance>
- RE100 Climate Group - Overview. Webpage. <https://www.there100.org/>
- RE100 Climate Group - Technical Guidance & FAQs. Webpage. <https://www.there100.org/technical-guidance>
- RECS Energy Certificate Association - Understanding EAC markets. Webpage. <https://reco.org/public-information/>
- Science-based Targets Initiative. How it works. Webpage. <https://sciencebasedtargets.org/how-it-works>
- South Pole. Global Availability of Energy Attribute Certificates (EACs). Webpage. <https://www.southpole.com/sustainability-solutions/energy-attribute-certificates>



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