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EnergyTag Response to Notice 2022-58
Request for Comments on Credits for Clean Hydrogen and Clean Fuel Production

EnergyTag appreciates the opportunity to provide comments to the Department of the Treasury and the Internal Revenue Service. Regarding implementation of the Inflation Reduction Act's (IRA) 45V Clean Hydrogen Production Tax Credit (PTC). **We strongly believe that 24/7 clean electricity rules are crucial for a successful US clean hydrogen** sector and EnergyTag[2] has developed an international standard[3] for 24/7 tracking to enable this.

EnergyTag is a non-profit bringing together over 500 organisations to define and build a market for Granular Certificates (i.e. GCs/ T-EACs/hourly RECs) the instrument required to energy on a 24/7 basis. We are based in Europe, but have a significant presence in the United States with representatives from Google, Microsoft, and the Clean Energy Buyers Alliance all sitting on our Advisory Committee. Minneapolis based M-RETs are one of the world's largest energy tracking software providers and are a key partner. We believe robust market-based accounting documented with GCs is a crucial lever to ensure clean hydrogen production and grid decarbonization. 24/7 tracking system are already up and running around the world and ready to scale. EnergyTag will auditing 5 systems over the coming months in line with our missions to scale 24/7 energy attribute tracking globally.

Clean hydrogen is an important tool to enable deep decarbonization of our own operations and value chain, as well as the global economy. Strong standards are essential to ensure the environmental integrity of clean hydrogen. Without such standards, hydrogen production could lead to significant increases in carbon dioxide emissions, undermining its effectiveness and legitimacy as a key decarbonization lever. EnergyTag has been working with partners in the European Union for the past year to push for strong renewable hydrogen rules in Europe, including coordinating a letter of responsible industry stakeholders asking for strong 24/7 clean electricity supply criteria in the definition of clean hydrogen which as sent to the European Commission in November 2022.[4] **Given our expertise, we shall limit our comments to the criteria we feel are necessary to allow the use of contractual instruments for clean hydrogen produced from grid electricity.**

Recommended Quality Criteria for Grid-Electricity to ensure Clean Hydrogen

Princeton University researchers[5] have done the only rigorous, system-level analysis to examine under which criteria grid based electricity can produce zero-carbon hydrogen in the US. The results are clear: hourly, local and new asset clean electricity is required to ensure low-carbon hydrogen production and relaxation of these criteria leads to high emission hydrogen. In line with our position on Green Hydrogen in Europe, EnergyTag therefore recommends that Granular Certificates be required to demonstrate clean electricity supply to an electrolyser that should have following the criteria:

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[1] Contact killian@energytag.org
[2] See annex for more
[3] EnergyTag GC Scheme Standard
[4] EU Industry Letter on 24/7 Clean Hydrogen
[5] Ricks, Wilson, Xu, Qingyu, & Jenkins, Jesse D. (2022). Enabling grid-based hydrogen production with low embodied emissions in the United States. Zenodo. https://doi.org/10.5281/zenodo.7183516

- **Temporality**: Hourly correlation of consumption with production based on GC timestamp to ensure fossil-electricity is not being used at times when clean supply is not available.
- **Deliverability**: Proving deliverability of electricity (by sourcing from the same balancing authority / RTO) based on GC location information to ensure that congestion does not cause local fossil generation to supply electrolysers.
- **Asset Age**: Subsidised new hydrogen demand should drive new clean electricity supply for grid-based hydrogen to be considered zero-carbon. This can be demonstrated on the GC by asset age (or potentially repowering, life-extensions). As guidance, Princeton University proposes a maximum asset age of 18 months older than the electrolyser, with the European Commission presenting 36 months in their regulatory proposal[6]. GCs should be able to be sourced bundled (i.e. PPAs) or unbundled, provided the quality criteria are met.

Granular Certificates to ensure Robust Implementation

New tools are quickly becoming available to assess and verify the use of carbon-free electricity at an hourly level. Time-based Granular Certificates are instruments that, in addition to tracking how and where electricity is produced, also certify specifically when.

EnergyTag, through a rigorous consultation process with the support of 100+ leading organizations (e.g. Google, Microsoft, UN Energy, AES...) published the world first and only GC standard in March 2022[7] and is currently auditing the first formally audited GC system across the world. **GCs are technically proven with over a dozen GC projects around the world and over 1 TWh tracked already with over 15 TWh/a expected next year.**

M-RETs, the largest US REC registry, has already issued hourly RECs to Google on its registry in a pilot project and is actively working on scaling up this system across the US. **Scaling a US GC system is far less complex and lengthy than building large scale electrolysers,** leaving ample time for the tracking system to be updated. Therefore, GCs are highly likely to be a key enabler, rather than a roadblock for 24/7 clean hydrogen.

The **contracting structure** required to deliver the hourly matching criteria discussed above are already tested in a number of deals by Google (in Virginia and California) and Microsoft (in Virginia) contracting structures are also being developed to enable the sourcing of clean energy around the clock. These same three criteria have also been proposed by the European Commission as part of their own approach for defining the minimum requirements to demonstrate that renewable hydrogen from grid-based electricity is actually clean. We hope this information is useful and remain available for any questions.

Best regards,

Killian Daly

General Manager, EnergyTag

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[6] European Commission - Production of renewable transport fuels – share of renewable electricity (requirements)

[7] Granular Certificate Scheme Standard: Version 1. EnergyTag. https://energytag.org/wp-content/uploads/2022/03/20220331-EnergyTag-GC-Scheme-Standard-v1-FINAL.pdf

Annex : GCs are Standardised, Proven and Scaling

This short paper presents an overview of the state of play for Granular Certificates (GCs or T-EACs), the tracking instrument needed for the robust implementation of 24/7 carbon-free energy (CFE). GCs are a standardised and technically proven solution ready to be implemented at scale.

Research Shows *Why* We Need GCs

1. TU Berlin EU research shows that 24/7 "leads to **lower emissions for both the buyer and the system**".
2. Princeton University demonstrates **benefits of 24/7 PPAs and T-EAC trading.**
3. Princeton University research shows 24/7 for US Green Hydrogen is needed to **avoid "significant excess emissions"**.
4. Florence School of Regulation Study shows significant benefits of **24/7 for Green Hydrogen** at little extra cost.
5. University of California Davis research shows **hourly accounting increases accuracy over annual** by up to 35%.

Projects Show *How* to Get There

- Various projects prove GCs are a technical reality, with over **1 TWh of hourly tracking already performed with over 10 TWh expected next year.** Some examples:
  - EnergyTag demos provide multiple implementation cases.
  - Google hourly tracking with T-EACs (i.e. GCs) around the world.
  - M-RETs hourly tracking in the US.
  - FlexiDAO working with various partners on Granular Certificates.
  - Energy Track and Trace - 3 EU TSO launching alpha in Q4 2022.
  - Nord Pool and Granular Energy set up a GC spot market in the UK.
- The next key step is **full scale-up** by registries. M-RETs (US largest) predicts that, with sufficient investment, this can be done in **~12 months across 50 states.**
- WRI webinar gives detail on state of play.

EnergyTag Standard Ensures Trust

- EnergyTag is a non-profit with **500+ organisations** "to define and build a market for Granular Certificates".
- Our Advisory Committee has the **world's top experts** overseeing GC adoption.
- Collaboration with leaders like CEBA, Eurelectric, Linux Foundation Energy.
- The EnergyTag Standard is a first of its kind and sets criteria for robust GC schemes.
- Auditing is led by Katrien Verwimp & Phil Moody, who have decades of experience overseeing EU's Guarantee of Origin.

Voluntary Demand is Growing

- Google's 24/7 carbon-free energy goal set to achieve by 2030.
- Microsoft 100/100/0 goal to run 100% of the time on energy with 0 emissions by 2030.
- Eurelectric gathers **EU suppliers and buyers in its 24/7 Hub** to drive demand.

Growing Institutional Support

- The United Nations has a **24/7 carbon free energy compact** to build demand.
- US Federal Government goal to run on at least 50% 24/7 CFE by 2030.
- The EU Commission proposes **24/7 matching** for green hydrogen.
- The EU Parliament positions **in favour of Granular Certificates** in draft law.
- C40 cities Paris, London, and Copenhagen launch 24/7 initiatives.
- EU System operators say GCs develop renewables "**in the right time and in the right geographical location**".