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Department of Industry, Science, Energy and Resources  
Via: <https://consult.industry.gov.au/>

## Energy Networks Australia welcomes the development of a hydrogen guarantee of origin scheme

Energy Networks Australia welcomes the opportunity to provide input on the discussion paper titled “*A Hydrogen Guarantee of Origin scheme for Australia.*”

Energy Networks Australia is the national industry body representing Australia’s electricity transmission and distribution and gas distribution networks. Our members provide more than 16 million electricity and gas connections to almost every home and business across Australia.

To date, the focus of decarbonisation has been on the electricity sector, but gas networks are on their own decarbonisation journey. Customers tell us that they are seeking a clean energy future and are engaged in achieving emission reductions from gas use. New renewable fuels, such as hydrogen and biomethane, have the potential to become mainstream and complementary energy solutions that will use existing energy infrastructure. Our gas networks businesses are leading the development of renewable gas projects by delivering renewable hydrogen blends to residential customers in the Adelaide and Sydney gas distribution networks.

### Key Points

1. A hydrogen certification scheme is needed to provide customer confidence that they are purchasing a green product.
2. Energy Networks Australia is supportive of the proposed scheme as an initial step to develop the hydrogen market.
3. Energy Networks Australia supports the proposed system boundaries and supports that the Clean Energy Regulator should administer the scheme.
4. In the interest of developing a hydrogen market, Energy Networks Australia supports that ALL forms of renewable electricity and renewable gas feedstock should be eligible for hydrogen production. For grid based electricity used in producing hydrogen the time of use emissions should be considered in providing certification.
5. Over time, the proposed GO scheme for hydrogen should be expanded to include other renewable gases, for example the current development of a pilot certification program for biomethane.

We are generally supportive of the proposed scheme and provide responses to the discussion paper questions below. Our main recommendations are to broaden the scope to include other renewable gases, such as biomethane, and consider the other renewable gas certification pilots underway to ensure that there is a consistent framework aimed at reducing emissions from gas use.

If you have any questions or would like to discuss this further, please do not hesitate to contact our Head of Gas - Dr Van Puyvelde on [dvanpuyvelde@energynetworks.com.au](mailto:dvanpuyvelde@energynetworks.com.au).

Yours sincerely,



**Andrew Dillon**  
Chief Executive Officer

## ENA Response to Questions

Question	ENA Response
<p>1. An initial focus on hydrogen production is proposed to facilitate timely establishment of a hydrogen GO scheme. Do you agree with this as a starting point?</p>	<p>ENA supports this.</p> <p>Enabling domestic blending of hydrogen is a key enabler to build Australia's hydrogen industry.</p> <p>The CEFS's recent report – <i>Australian hydrogen market study</i> – shows that the blending in the natural gas network is one of the lowest cost production and delivery cost options. Blending up to 10 per cent volume of hydrogen into gas for residential and commercial use will incentivise the scale up of hydrogen without requiring major investments into other infrastructure such as fuel cell vehicles or refuelling stations. The scale up will provide localised experience resulting in reducing costs for the installation of hydrogen electrolyser plants and provide local experience for hydrogen productions and use with both the community and technical regulators.</p>
<p>2. A well-to-gate boundary is proposed as the initial boundary across which the emissions are to be calculated for hydrogen GO scheme. Do you agree this is an appropriate and acceptable starting point for the boundary?</p>	<p>ENA supports this as this initial boundary.</p> <p>The inclusion of the “product transport and storage” block of the value chain should also be considered as the next priority as it is the logical next step in the supply chain.</p> <p>Arguably, this would not impact on the GO scheme as the energy used to transport and store hydrogen (as either blend or 100%) is mostly taken from the gas within the pipeline or network. As such, this is an energy balance issues, not necessarily an issue with the GO. However, the use of non-renewable electricity as part of that supply chain (e.g. electrical powered compressors) would need to be considered in the GO if it is boundary is extended.</p>
<p>3. Is hydrogen production at a pressure of 3MPa and 99% purity appropriate conditions for measuring the emissions associated with hydrogen? If hydrogen is produced at a different pressure</p>	<p>ENA supports this as the initial position and makes the following observations for future amendments of the GO.</p> <p>The end-use of hydrogen should be considered when identifying the pressure associated with GO.</p> <p>Gas distribution networks operate at pressure of less than 1 MPa so there is no requirement for hydrogen to be compressed to 3 MPa. A level of 3 MPa is generally compatible with the output from PEM electrolysis and</p>

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<p>and purity, can emissions be estimated for the conditions specified?</p>	<p>other production processes (e.g. steam methane reforming) produce hydrogen at lower pressures. A requirement to compress this to 3 MPa is unnecessary for blending into distribution networks, although a higher pressure will be needed for transmission pipelines. This will incur an additional and unnecessary cost to the production of hydrogen that is not warranted for the blending in networks – and may be a disincentive to developing a hydrogen market.</p> <p>If the energy for that additional compression is sourced from non-renewable electricity it will incur additional emissions that need to be considered in the GO.</p> <p>For compatibility with other renewable gas certification schemes, the pressure of the delivered gas should be considered, and it should be the same. For example, biomethane from anaerobic digestors is generally produced at lower pressure, and if this is required to be increased to 3 MPa it will similarly incur additional and unnecessary cost for blending into networks.</p>
<p>4. The Department recognises the need to extend the coverage of the scheme over time to include hydrogen derivatives and downstream products, additional production pathways and additional steps in the value chain. What additional components should be covered and when? (Noting the commitment to include hydrogen energy carriers as an early next step).</p>	<p>Hydrogen blending in networks should be covered by the scheme.</p> <p>The scheme should include other renewable gases, such as biomethane from organic sources or synthetic renewable gas produced from hydrogen and CO<sub>2</sub>.</p> <p>Work is currently underway with GreenPower, ENA and Energetics to develop a pilot of biomethane certification and blending in networks.</p>
<p>5. Do you agree that ISO standards and the GHG protocol provide the appropriate basis for the overarching</p>	<p>No comment</p>

Question	ENA Response
framework for a hydrogen GO scheme?	
<p>6. Should IPCC Guidelines, the NGERs determination and the Climate Active Electricity Accounting rules be leveraged to provide guidance on the detailed emissions calculations?</p>	<p>No comment</p>
<p>7. What is your preferred approach to offset inclusion within a domestic hydrogen GO scheme?</p>	<p>At present, carbon trading and carbon offsets can be used to reduce emission from the use of electricity, gas, or transport. Energy retailers are offering carbon offset options on their products.</p> <p>Applying carbon offsets as part of the GO scheme may have unintended consequences where hydrogen could be produced from natural gas or coal without CCS but the full emissions offset through carbon schemes. This will not incentivise the CCS component during the production of clean hydrogen, which should be an objective of the scheme.</p> <p>There is actually no incentives for a GO scheme when emissions are completely reduced using offsets, as those offsets could have been used for the use of natural gas at a cheaper cost.</p> <p>From an emissions perspective, the use of offsets should be recognised in the GO scheme, and the level of offsets used should be clear. If offsets are allowed as part of the CCS process, then a minimum capture rate (e.g. 95 per cent) should be agreed and offsets only applied to cover the small amount of remaining emissions. The level of offsets should be clearly articulated so that customers understand the product they are purchasing.</p>
<p>8. Do you agree that the Australian government should lead the administration of an Australian GO</p>	<p>ENA supports this.</p> <p>Government should lead the administration of the scheme.</p>

Question	ENA Response
scheme? If not, why not?	
9. Do you agree that the scheme should be administered by the Clean Energy Regulator?	<p>ENA supports this.</p> <p>The CER is experienced in developing schemes such as the Emission Reduction Fund, the Renewable Energy Certificates and others which are similar to the proposed hydrogen GO scheme.</p>
10. What should be the role of industry in co-designing a government led scheme?	<p>Industry should be involved to provide advice on the administrative burden on industry to validate the GO.</p>
11. Do you support the creation of Australia's hydrogen GO scheme as a certificate scheme?	<p>ENA supports this.</p> <p>The scheme should be developed so that it can be compatible with other renewable gas certificates, eg biomethane blending into networks.</p>
12. What would you consider to be the best regulatory framework to support a hydrogen Guarantee of Origin scheme?	<p>The best framework should build on the existing frameworks in place for emission reporting schemes. It should be flexible enough to accommodate growth in the sector.</p> <p>There should be an alignment with other certificates scheme such as ACCU's - although not necessarily at the same certificate price.</p> <p>The use of other renewable gases and schemes should be recognised by the GO scheme - in terms of their contribution to emissions reductions.</p>
13. How frequently do you consider hydrogen GO certificate creation will be required?	<p>No comment</p>
14. How frequently should data be reported; is the proposed 12 month period adequate? If not, what	<p>No comment</p>

Question	ENA Response
timeframe would you suggest?	
<b>15.</b> Do you agree with the approach set out for scope 1 emissions?	ENA supports this
<b>16.</b> Do you agree with the approach set out for upstream emissions?	ENA supports this
<b>17.</b> Do you agree that the calculation of electricity (scope 2) emissions should be based on the market-based method?	ENA supports this
<b>18.</b> Would you suggest any changes to the Climate Active approach (set out in detail in Attachment D) for the purposes of a hydrogen GO scheme?	No comment
<b>19.</b> What are your views on using voluntary surrender of LGCs to verify the consumption of renewable electricity under the market based method, compared to the alternative of a location-based method?	<p>For the purposes of hydrogen production, all grid-source renewable electricity generation should be treated equally.</p> <p>The use of voluntary surrender of LGC's is an appropriate way to demonstrate the use of renewable electricity.</p> <p>Hydrogen production facilities with dedicated renewable generation will not be able to access LGCs for their generation so an alternative approach is required to verify the use of renewable electricity.</p> <p>The scheme should also consider certification of hydrogen production when the feedstock is renewable gas (biomethane) instead of natural gas with CCS. When biomethane is used as feedstock, the produced hydrogen should be certified as renewable hydrogen,</p>

Question	ENA Response
	similarly to how it would be certified when produced from renewable electricity, which is certified by LGCs.
<p>20. Do you agree that a means of identifying consumption of below-LRET-baseline renewable electricity generation would be beneficial for the hydrogen certification scheme?</p>	<p>All network connected renewable electricity generation should be recognised in the GO, whether this is below LRET baseline or not.</p> <p>The GO scheme should ensure that the electricity used is renewable.</p> <p>Incentivising increased renewable electricity growth could be achieved (if needed) through expansion of the existing LRET scheme. But the GO scheme should not discriminate between sources of renewable electricity.</p>
<p>21. What are your views on establishing a new renewable guarantee-of-origin certificate for verifying below-baseline and post-2030 renewable electricity?</p>	<p>ENA support the development of a generic certificate applicable to all grid based renewable electricity.</p>
<p>22. What would be the effect of having a general certification scheme for renewable electricity?</p>	<p>The main impact of such a scheme would be that it doesn't differentiate between established and new renewable electricity generators. It certifies their output.</p> <p>If additional support is required to grow the renewable electricity market, this should be addressed through additional measures for renewable electricity generation as a whole, not necessarily linked to the hydrogen GO.</p>
<p>23. Do you agree that certification should recognise other sources of renewable electricity, including those outlined above?</p>	<p>Yes, all grid connected renewable electricity sources should be recognised equally for the production of hydrogen.</p> <p>A separate certificate for direct connected (off grid) renewable electricity will be needed.</p> <p>In the absence of renewable electricity certificates, the emission intensity at the time of use of the electricity networks should be considered.</p>
<p>24. Do you agree that emissions should be attributed to co-</p>	<p>ENA's focus is on renewable gases that by their definition do not contribute to emissions. As such, there is no reason to attribute emission to co-products.</p>



Question	ENA Response
products where they are on-sold?	
25. Are the by-products identified for each pathway likely to be co-products (or are they more likely to be waste products?)	This is primarily an issue for hydrogen producers. No further comment from ENA.
26. Do you think that the allocation methods suggested in each pathway are appropriate and practical? How would you suggest emissions be allocated between the main product and co-products?	This is primarily an issue for hydrogen producers.  No further comment from ENA.
27. Do you agree with an approach limiting provisions for CCS and CCUS in an initial Guarantee of Origin scheme to those included under the NGER determination, noting that these will be expanded or adjusted as new CCUS technologies and industrial processes are implemented?	This is primarily an issue for hydrogen producers.  No further comment from ENA.
28. What are the likely or possible applications of CCUS technologies in the hydrogen industry?	This is primarily an issue for hydrogen producers.  No further comment from ENA.
29. Do you agree with setting a materiality	Small producers or those using complex processes should be incentivised via other mechanisms, not the

Question	ENA Response
<p>threshold allowing entities to exclude a small amount (e.g. 2.5 to 5%) of total emissions from analysis?</p>	<p>certification scheme. These other avenues could include government grants or technology specific incentives to demonstrate a new technology.</p> <p>This level of exclusions noted in the discussion paper could potentially be met using carbon offsets as per Q7.</p>
<p>30. What would you consider to be an appropriate threshold?</p>	<p>No comment</p>
<p><b>31.</b>Is a trial phase an appropriate next step for testing and refining the proposed methodologies?</p>	<p>Yes, a trial phase is necessary. This should be complementary with the current trial being led by GreenPower in NSW in relation to biomethane.</p> <p>The CER (as the agency administering the final scheme, as per Q9) should be invited to participate in both the hydrogen and the GreenPower trials.</p>
<p>32. Is the list of attributes and features to be tested correct? Is there anything else that could be tested through a trial phase?</p>	<p>The list of attributes provided should be further develop during the trial phase with the administering body and industry participants.</p> <p>A trial phase could also identify potential transport and storage options so that the hydrogen GO scheme includes delivery of hydrogen.</p> <p>Another attribute is to test the compatibility between the hydrogen certificates and other certificates in the market, for example ACCU's certificates for biomethane.</p>
<p>33. Would you like to be involved in a trial (noting an affirmative response will not guarantee participation)?</p>	<p>ENA's member would like to be invited to participate in a trial.</p> <p>ENA as the industry association is keen to observe how the trial progresses.</p>
<p>34. What reporting frequency should be adopted for trials to deliver learnings and results quickly?</p>	<p>No comment</p>