

Bellona input to the Sharm el-Sheikh Mitigation Ambition and Implementation Work Programme

Suggested topics for the Sharm el-Sheikh mitigation ambition and implementation work programme

Bellona welcomes the opportunity to provide input to the Sharm el-Sheikh Mitigation Ambition and Implementation Work Programme (MWP) concerning proposed topics consistent with the programme's scope outlined in paragraph 4 of FCCC/PA/CMA/2022/L.17, paragraph 12, to be addressed during the dialogues.

The Bellona Foundation is an international, independent non-governmental organisation (NGO) combating climate change, with 30 years of experience on the ground and active collaborations with civil society, academia, governments, institutions, and industries.

There are 3 topics we would like to draw particular attention to, each addressed in more detail below:

1. *Transport and storage infrastructure - for, electricity, hydrogen, and CO₂*
2. *Finance and interconnected carbon pricing mechanisms*
3. *Lead markets for low carbon products*

Topic 1: Transport and storage infrastructure

1. Electricity

Achieving a complete transition to a renewables-based electricity system necessitates the implementation of modernised infrastructure for the efficient transmission of electricity from production to consumption points. This entails the international development of large-scale, optimised, and digitised electricity grids capable of seamlessly integrating renewable generation, enabling demand response and broader electrification efforts.

- Grids demand substantial maintenance and new deployment to accommodate the transition from a fossil-based to a renewable-based electricity system and a major electrification to transition end-uses away from fossil fuels.
- Accelerating permitting processes, addressing the lack of a skilled workforce and the problems in supply chains are crucial for constructing the necessary grid and renewables infrastructure.
- Incentives should be crafted to establish effective mechanisms for balancing an increasingly renewables-heavy grid.
- Direct electrification is the most efficient means to decarbonise various economic sectors. Utilising renewable electricity directly achieves high levels of decarbonisation across all sectors. Reaching net-zero means electrifying transport, heating, and industrial sectors, yet the existing grid is ill-equipped for the expected surge in demand for renewable electricity.
- As the share of variable renewables grows, policies must provide flexibility in the energy system to support sectors relying on direct electrification and promote increased renewable penetration.

While much international attention is driven towards hydrogen (see below), the international community should prioritise significant and rapid investments in the build-out of electricity grids, the often-underappreciated backbone of our renewable energy future.

Resources:

[*Bellona's position on the upcoming Grids Action Plan \(Bellona, 2023\)*](#)
[*Improving the Electricity Market Design for a Decarbonised and Sustainable Energy System \(Bellona, 2023\)*](#)

2. Hydrogen

Hydrogen (H₂) can massively substitute fossil fuels as critical feedstock for various industrial sectors, including chemicals and steel. Moreover, it can be used as an energy vector and a means to store energy. However, despite its combustion resulting in zero greenhouse gas emissions, it is itself an indirect greenhouse gas and the production of H₂ is fraught with challenges can generate emissions associated with the carbon intensity of the energy used. Bellona would like to draw particular attention to the risks and challenges of the international trade of hydrogen, such as its importation to Europe: We fear that widely praised plans to fund the build-out of renewable energy capacities in sun-rich developing countries for the purpose of producing green hydrogen for Europe risks cannibalising their local energy transition among other equity concerns, such as water consumption.

In the context of hydrogen production:

- Electrolytic hydrogen should exclusively be derived from additional renewable electricity, connected to both the timing and location of the clean power generation.
- Evaluating the climate impact of hydrogen production, irrespective of technology or feedstock, should prioritise assessing the greenhouse gas emissions involved across the entire value chain.
- Presently, the predominant global production of hydrogen is "grey" hydrogen, generated using fossil gas and causing significant greenhouse gas emissions. "Green" hydrogen, produced from renewable sources, has the potential for minimal carbon emissions but requires substantial renewable electricity capacity, as well as simultaneous production and consumption. Otherwise, "green" hydrogen production may divert existing renewable electricity crucial for decarbonising the power grid and phasing out fossil fuels (e.g. through direct electrification of end-uses), shifting emissions rather than reducing them.
- When leaked into the atmosphere, hydrogen can produce a series of reactions with other gasses and provoke a warming effect. It is thus crucial to minimise leaks across the entire H₂ value chain.
- "Blue" hydrogen, produced through fossil gas with carbon capture and storage (CCS), " has the potential to be low carbon. The realisation of this potential depends on minimising upstream emissions from gas extraction and transportation, along with controlling CO₂ emissions during hydrogen production. To be considered low carbon, these emissions, as well as potential emissions throughout the entire value chain, must be rigorously monitored and regulated.

In short, while substituting the use of "grey" hydrogen and unabated fossil fuels with low-emission hydrogen presents substantial potential for emission reductions, this requires careful pairing of H₂ production with renewable energy sources and meticulous management of greenhouse gas emissions across the entire hydrogen value chain.

Resources:

[*Risks and challenges of importing hydrogen to Europe \(Bellona, 2023\)*](#)
[*Hydrogen DRI for a resource-constrained Europe \(Bellona, 2023\)*](#)

3. CO₂

Alongside the necessary efforts to improve material efficiency and reducing demand for polluting processes, Carbon Capture and Storage (CCS) can play a key role in minimising the emissions associated with the production of key materials, such as cement and steel. CO₂ transport and storage infrastructure holds significant importance in addressing climate change by aiding the permanent storage of CO₂ emissions captured from point sources or directly from the atmosphere. This critical infrastructure is instrumental for the successful deployment of Carbon Capture and Storage (CCS) which will play a role for some heavy industry sites such as cement or steel production. Effective cross-border transport systems are essential for the movement of captured CO₂ from such industrial sites to appropriately selected geological storage sites.

There is a pressing need for proper planning and coordination between Parties and among market participants, as well as the need for de-risking tools, in order to establish a comprehensive CO₂ infrastructure which can enable the decarbonisation of heavy industry. For more information check out Bellona's campaign [CCS4NetZeroIndustry](#)

[Carbon Capture and Storage Ladder](#) (Bellona & E3G, 2023)

[Models for Transport and Storage of Captured CO₂](#) (Bellona, 2022)

Topic 2: Finance and interconnected carbon pricing mechanisms

Implementable, coordinated, and well-functioning networks of carbon pricing mechanisms and Carbon Border Adjustment Mechanisms (CBAMs) are pivotal for bolstering and safeguarding low-carbon economies globally, extending beyond the EU.

While setting the right financial penalty for carbon emissions is paramount for holding emitters accountable and steering towards low-carbon production, global carbon pricing is effectively inexistent. In the EU, the Emission Trading System (ETS) embodies the “polluter pays”-principle, but improvements are needed to unlock its full potential. The introduction of EU CBAM marks a crucial step forward, allowing the elimination of free allowances while handling the risk of carbon leakage. However, the success of the EU's CBAM hinges on meticulous design and implementation.

In this context, Bellona proposes a system of interconnected carbon pricing mechanisms and CBAMs, with a focus on elevating international climate ambition. The proposed system aims to address challenges in the global introduction and implementation of carbon price mechanisms. It envisions preventing potential negative impacts on Least Developed Countries (LDCs), channelling funds from CBAMs to a global fund for decarbonising covered sectors and empowering these economies to develop low-carbon products for a decarbonised world.

This proposed system offers an opportunity to create a coordinated global network of carbon pricing systems and CBAM-like measures and could amplify international climate ambition.

Bellona therefore strongly recommends:

- Fostering and encouraging the establishment of carbon price systems worldwide.
- Simultaneously reducing the risk of carbon leakage through an interconnected system of CBAMs.
- Establishing a fund supporting the production of low-carbon products, funded partially by revenues from interconnected CBAMs.
- Encouraging science-based information exchange and knowledge sharing in carbon accounting endeavors.

Resources:

[CBAM – Future Platform for Climate Finance](#) (Bellona, 2023)

[*Addressing classification mechanisms for sustainable economic activities around the world*](#) (Bellona, 2023)

Topic 3: Lead markets for low carbon products

Lead markets, often referred to as early adopter markets, are specific geographic regions or industries where innovative, more sustainable, and lower-carbon products, services, or technologies are initially introduced and gain traction.

In lead markets, "lead users" or early adopters prioritise lower-carbon products and demonstrate a willingness to take risks, including accepting potential "green premiums". These markets play a crucial role in reducing the green premium by contributing to technological advancements, economies of scale, and increased consumer demand. Examples of lead markets include Silicon Valley for tech, certain German regions for the automotive industry, and Denmark for wind power technology.

There is a need for lead markets for lower-carbon products, in particular construction materials such as cement, steel and aluminium, that are so central to the green transition. Several measures at the municipal, regional, or national levels can help facilitate this:

1. Green Public Procurement (GPP) requirements: Public buyers can use their purchasing power to drive demand for innovative products, creating a market pull for sustainable solutions and stimulating their development and adoption.
2. Green purchasing agreements: Collaborations between public and private entities, with large private buyers leveraging their purchasing power to send signals to the market through statements of demand or green purchasing agreements.
3. Financial support: Governments can provide financial support for research and development (R&D) and scaling up existing solutions through grants, subsidies, tax incentives, low-interest loans, or venture capital funds, reducing financial barriers and stimulating innovation.
4. Standards and regulations: The establishment of standards and regulations promoting sustainability or encouraging innovation can shape the market environment and drive lead market development, providing a level playing field and incentives for companies to invest in R&D.
5. Education and skill development: Investments in education, training, and skill development programs for large buyers (public and private) can cultivate a skilled workforce capable of demanding innovation. Industry collaboration through innovation clusters, incubators, and technology parks fosters knowledge-sharing and facilitates lead market development.

Through these measures, lead markets can effectively drive the development and adoption of lower-carbon materials, contributing to a more sustainable and innovative future market.

Resources:

[*The case for updating EU Procurement Policy*](#) (Bellona, 2023)

[*Embodied Carbon Terms of Reference Report – Establishing a common framework of understanding for low-carbon construction materials in Europe*](#) (Bellona, 2023)