

Innovation Fund Workshop

06/04/2017

Brussels

Questions Raised

- **What kind of innovation** is needed to successfully make the transition to a low-carbon economy in your industry/area of investments?
- **With which type of support** and financial instruments could the EU facilitate the development and quick adoption of breakthrough innovation that we need?
- **Which modalities for public support** can make the difference between failure and success from your point of view?

Related key 6 themes:

Morning session:

Theme 1: **What are technology innovation needs for turning the industry into a low-carbon mode?**

Theme 2: **How to make the low-carbon innovation happen?**

Theme 3: **How could Innovation Fund help?**

Afternoon session:

Theme 4: **What are the needs in terms of financing (volume) and capital (type) to address the technological and business challenges** related with decarbonisation?

Theme 5: **How could public funds help - How should the Innovation Funds be structured?**

Theme 6: **What financing products should the Innovation Fund offer** to match the risk profile of beneficiary projects?

Theme 1: What are technology innovation needs for turning the industry into a low-carbon mode?

- Which **key technology innovations** do you plan or foresee?
 - Energy-saving solutions: how much GHG mitigation can they deliver?
 - Breakthrough process solutions: what are they?
- Focus on **process or product innovation**?
- What can **CCS and CCU** deliver?
- Will the de-carbonisation happen in isolation or via **synergies with other sectors**? Please explain...

Category	Short name	Description of greening option
Reduction in manufacturing emissions	Reduction in energy consumption	Migrate manufacturing to lower specific fuel consumption processes
	Fuel switching	Use natural gas instead of solid fuel
	Alternative fuels	Use alternative fuels, especially biomass, to reduce net CO2 emissions
Lower clinker content in concrete	Ultra-low clinker concrete	Use of plasticizers, water reducers, aggregate packing and other techniques to produce stnd. Strength concrete with 100 kg. clinker or less
	Increase use of cementitious additives	Increase use of slag, fly ash, calcined clay, pozzolona, etc. to reduce the clinker content in concrete
Changes in concrete composition	CEM X	Broadening of permitted raw materials for cement under European standard
	CSA-Belite cements	Alternative binder (sulpho-aluminate belite)
	Supersulphated	Alternative binder (supersulphated cement)
	Alternative CSH	Alternative binder (alternative CSH cement)
	Geopolymers	Alternative binder (alkaline-activated materials)
	Solidia	Alternative binder (CO2-activated cement)
	Carbstone	Alternative binder (CO2-activated cement)
Use of recycled materials / components	Design for disassembly	Construction using standard units designed for disassembly
	Mechanical cement recycling	Mechanical cement recycling via C2CA or 'smart crushing'
	Thermal cement recycling	Thermal cement recycling based on 'circular construction' concept
	Use of carbonated wastes	Use of incinerator bottom ash, slag from steel or copper production, ... as raw material
Extension of building lifetime	Self-healing concrete	Self-healing concrete with calcium carbonate- producing bacteria
Energy consumption in user phase	Concrete core activation	Concrete core activation combined with heat pump and heat /cold storage additional to EPC requirements
	Energy Efficiency in Buildings	Use proven techniques including new insulation materials to lower the energy use of buildings
Carbon capture in concrete	Mineral CO2	Use of filler in which CO2is sequestered
	Carbon8	Gravel substitute based on fly ash and/or bottom ash and CO2
	Solidia	CO2-activated concrete
	Carbstone	CO2-activated concrete
Carbon capture , utilization and storage	Develop processes to efficiently separate CO2 generated in the process system	Oxy-combustion, amine absorption process; gas separation membranes; fluidised bed solid sorbent technology; hot carbonate looping process
	Carbon reutilization processes	Chemical feedstock, fuel feedstock, bio-feedstock, other Industrial gas

Theme 2: How to make the low-carbon innovation happen?

- What are the **major risks and barriers** for corporate low carbon innovation investments? Please rank them.
- What are the **emerging business models** for low-carbon innovations (how do you see the demand evolving) in your sector? What **cooperation structures** could work? (co-operative R&I? PPP-style? Industrial symbiosis?)
- Will (and if yes how) the **emerging product and materials innovations** change your production patterns and infrastructure?

Theme 3: How could Innovation Fund help?

- IF will address **TRL 6 – 9: many small projects or few big ones?**
- How should the **technology boundaries** (for competition) be set? Closed detailed technology list or sector-specific technology range allowing cross-cutting technologies?
- In the **application process**: should the IF work on the basis of continuous submission (first-come, first-served), or staged calls for all projects or differentiated approach for large and small projects? Appropriate time gap between the calls (consistent with the demand for funding?)
- Would a multistep **submission system** consisting of 1. Expression of Interest, 2. Full project proposal (technical and financial due diligence) and 3. Project selection, be seen as an administrative burden or rather an administrative lean procedure?
- What project **evaluation and selection criteria** would you see as fair but robust to ensure maximum impact?
 - Equal priority for the decarbonisation pathway? (e.g. energy efficiency / electrification based on RE / process improvement / product improvement)
 - Priority for breakthrough technologies or for evolutionary improvement?
 - Other?

Theme 4: **Financing needs (volume) and capital (type) to address the technological and business challenges** related with decarbonisation.

- What are the **key drivers** for your company **to invest into low-carbon innovation?** (e.g. Costs savings/Productivity gains/Green image/Pressure from investors/shareholders/Preventing the stranded assets/other)
- What is the **minimum project internal rate of return** in your sector for **high-risk, highly innovative projects?** What is the **acceptable payback time?**
- What **type of funding is needed** in different stages of your investments?
- How do you **financially structure your low-carbon innovative projects** in terms of financing of CAPEX and OPEX? Where would you seek **external financing?** What are the **key requirements (conditions) from private sector financiers?**

Theme 5: How could public funds help? **How should the Innovation Fund be structured?**

- How can a **limited fire-power** of the Innovation Fund be addressed (amount of monetised allowances will not cover the demand)? How can it be made **bigger and flexible**? Should it?
- How would you see the **Innovation Fund in combination** with other funds (H2020, EFSI) and Member States support. Would you see **Innovation fund's support as a qualifier** for additional support from the Member States or other EU related Programmes (EIT-KIC's)?
- Are **state aid** (notification) rules limiting factor for your potential interest in public funding?
- **Should Innovation Fund work directly** with industries, **or via Member States' Ministries?**

Theme 6: **What financing products should the IF offer** to match the risk profile of low-carbon innovations?

- **Which products** should the Innovation Fund offer **and when**?
 - project development grants, investment grants, guarantees, risk-sharing, debt financing, equity-type and equity financing? If a combination, how to match the project cycle?
- What **type of support** would have the major impact in terms of mobilising the private investments? How to achieve **more bankable projects**?
- **How long a period** before actual project financing from the market should the Innovation Fund's support cover (how long does it take to reach project commissioning)?
- **Should the IF be revolving**, ensuring recycling of proceeds back to industry?
- Should the Innovation Fund provide **ex-post** (results-based), **or milestone-based financing**? Which milestones would you see in the project cycle? How their achievement can be verified?
- Any **specific ideas on new types of financing products** that you would seek/need?