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COMMISSION STAFF WORKING DOCUMENT

Annex 3 (Part 2) of the Impact Assessment

Accompanying the document

Proposal for a
COUNCIL REGULATION

on the Bio-Based Industries Joint Undertaking

{COM(2013) 496 final}
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Value chain 5

The integrated energy, pulp and chemicals biorefineries: Realising sustainable bio-energy production, by backwards integration with biorefinery operations isolating higher added value components.

New value chains will be demonstrated that improve the sustainability and economics of bio-energy production by conversion / integration into biorefinery operations: creating a spectrum of added-value products from the feedstock in addition to bio-energy. This will decrease the pressure on biomass resources and increase industries competitiveness.
New chemicals, biofuels and materials from this value chain help mitigating climate change by realising the replacement of fossil-based materials by biobased materials with a positive social impact and lower environmental footprint. This will fulfil market and consumer demand and create new markets by demonstrating routes and concepts for new and innovative materials into new products.

The value chain demonstration projects will achieve:

- Primary processing of biomass at farm level including suitable packaging and e.g. water extraction from the biomass to reduce transport volume and improved storage capability (e.g. by Torrefaction, pyrolysis, shredding, etc.)
- Integrating the production of bio-products and advanced bio-energy carriers in a smart way (smart use, maximise carbon and energy yield from biomass)
- Demonstrate processes for more efficient use of lignin: transformation into high(er) value hydrocarbons polymers, aromatics and performance chemicals before energetic use.
- Densify the energy content of the initial feedstock through several pre-treatment processes, e.g. torrefaction pelletization and pyrolysis oil production.
- Implementation of conversion technologies allowing for the use of heterogeneous biomass while ensuring high efficiency and low environmental impact
- Turning solid residues (bottom ash, fly ash) into valuable products, a.o. taking advantage of their mineral properties for plant nutrition.
- Integrating technological results from other value chains into the integrated bio-energy concept

The value chain demonstration projects will also reveal technological challenges that need more extensive R&D. These specific technological challenges are the basis of the calls for **R&D Projects** (see section 3.1.2 for the description behind the topics):

R&D project topics
1.1.4; 2.2.1; 2.2.3; 2.2.4; 2.2.5; 3.1.3;

The value chains demonstration projects will lead to investments in full-scale **Flagship projects.** This value chain will lead to at least one flagship project. This flagship project will cover the full value chain. It will include programmes realising feedstock supply, ensuring the

market uptake, and integrating in the existing rural and industrial infrastructures. See below an example of a possible flagship project to be realised within value chain nr 5.

Value chain Flagship Example
A flagship for the conversion of an energy plant that currently co-fires 1.000.000 ton/y of biomass for energy production, into an integrated biorefinery, producing 400.000 ton/y cellulose fibres & chemicals next to bio-energy

3.1.2. The R&D projects (addressing the innovation challenge)

While value chains can be built partly on already developed research results and successful pilot trials, the demonstration projects will still require substantial **research and development** before the whole value chain can be moved to the demonstration level.
Calls for R&D projects (including specifically SME targeted projects) will address the specific research and innovation challenges arising from the value chain demonstration activities. This will generate the necessary enabling knowledge and technologies to build and reinforce the new value chains from biomass to biorefineries and markets/products. Research and innovation activities addressing the innovation challenge will be centred around the three parts of the value chain: biomass supply, biorefineries and products & markets. The table on the next pages shows an indication of possible research areas and their timing. However, **calls will only address those topics that arise from encountered challenges** in the value chains to be demonstrated and realised. Calls will therefore be made **more specific** based on the value chains to be realized. Some (hypothetical) examples of topics becoming more specific:

– "Development of concepts for reuse of fertilizer recovered from by-streams in biorefinery operations" (1.1.2) might become a specific call on "Development of an economical process for the isolation of pure phosphate from process water arising from the value chain that processes Irish nature grass into proteins for fish feed and specific functional food ingredients" and / or "Development of an effective fertilizer application for the phosphate recovered from process water arising from the value chain that processes Irish nature grass into proteins for fish feed and specific functional food ingredients"

– "Efficient and cost-effective fractionation and separation technologies to simplify biomass into its basic components" (2.1.1) might become "Development of a sustainable and cost-efficient technology to separate wheat straw from Denmark into it's pure components cellulose, hemicellulose and lignin, within the specifications given by the further conversion of those components into pure sugars, cellulose for paper, benzene and furans"

Table 6. THE INNOVATION CHALLENGE - MAIN RESEARCH AREAS supporting the value chains				
1. Fostering a sustainable biomass supply **to feed both existing and new value chains**				
1.1 Increase biomass production by improving agricultural practices		Short 2014-'15	Medium 2016-'17	Long 2018-'20
1.1.1	Development of higher efficiency in cultivation systems to increase yield, availability and use of forestry and agricultural biomass (in particular residues, co- and by-products) while meeting the range of other demands on arable and woodland. Reducing feedstock production costs under sustainable production methods with added value for the complete production chain and demonstrating of value creation (economic, environmental and social) at the production/ mobilisation stage	■	■	
1.1.2	Development of concepts for reuse of fertilizer recovered from by-streams in biorefinery operations. Preferably leading to a separation of organic matter and minerals, helping to improve plant yields and soil quality and reducing waste and environmental impact of biorefineries	■	■	
1.1.3	Identifying the most appropriate crop cultivation systems to increase biomass production for specific value chains taking into account climate change, crop rotational effects, resistance to biotic and abiotic stresses, nutrient and carbon balance, water use efficiency, soil tillage practices and management needs	■	■	■
1.1.4	Development of pre-transformation techniques at harvest and/or storage, in particular focusing on cost- effective concentration systems to facilitate transport and/or storage.	■	■	
1.1.5	Development of agronomic solutions to maintain soil structure and fertility, reducing erosion, putting into value arable land and maximizing water use efficiency for specific areas in order to supply the biomass production for dedicated new fuels, chemicals and materials value chains	■	■	■
1.1.6	Precision farming: improving soil quality, water, land use, new input management technologies (water, crop protection, animal husbandry techniques, sensor technology) for specific areas in order to increase the biomass supply for dedicated new value chains;		■	■
1.1.7	Develop regional closed loop systems in biorefinery clusters and hubs: study the use and impact of spreading safe and nutrient-rich process water from biorefineries onto fields on soil quality and productivity	■	■	■

		Short 2014-'15	Medium 2016-'17	Long 2018-'20
1.2 Mobilising an increasing supply				
1.2.1	New plant species or varieties: Improving composition of lignocellulose or other components for the use of plants as source of renewable materials to be used in specific value cahins (e.g. more easily hydrolysable, lower lignin content, lignin with less stable bonds)	■	■	
1.2.2	New plant species or varieties: Deliver specific ingredients (e.g. fatty acids, more homogeneous lipid composition, single and complex carbohydrates or protein components)	■	■	■
1.2.3	New plant species or varieties: Create a list of biomass genotypes (e.g., poplar, willow, miscanthus, reed canary grass) to be grown for specific new value chains	■	■	■
1.2.4	Mobilisation of currently unused biomass and residues from agriculture and forest through precision equipment for harvesting and collection, while maintaining other important functions of woodland and crop land	■	■	
1.2.5	Storage: Develop technologies to improve biomass storage properties and to improve feedstock quality	■	■	
1.2.6	Logistics: Improved logistics and storage to provide a continuous supply of feedstock to specific value chains, minimise transport costs, exploitation of transport as process stage and guarantee intermediate product quality and availability;	■	■	
1.2.7	Planning and managing integrated logistics chains at local and regional scale to achieve the maximum supply potential required for the value chains (also combining different transport types: road, railways and waterways)	■	■	
1.2.8	Recycling: Develop adequate advanced recycling methods for bio-materials and residues (improved collection, sorting and processing)	■	■	
2. Optimising efficient processing **through R&D and pilot** biorefineries				
2.1 Primary conversion processes		Short 2014-'15	Medium 2016-'17	Long 2018-'20
2.1.1	Efficient and cost-effective fractionation and separation technologies to simplify biomass into its basic components, such as lignin, cellulose, hemi-cellulose, minerals, oils and fatty acids, protein, starch, sugars and other carbohydrates	■	■	■
2.1.2	Innovations in existing primary processes (agro-food, pulp and paper) to minimise residues and obtain higher value	■	■	
2.1.3	Advanced technologies to mildly extract or separate components while preserving their functionalities and minimising the degradation of other components to enable their further valorisation	■	■	
2.1.4	Cost-efficient preparation of harvested material	■	■	
2.1.5	Ensuring flexibility on size of biorefineries while at the same time remaining price-competitive Combining low investment costs with large regional stakeholder commitment improving market deployment with the specific advantages of local/regional processing		■	■
2.2 Secondary conversion processes		Short 2014-'15	Medium 2016-'17	Long 2018-'20
2.2.1	Bio-technological	■	■	■
2.2.2	Chemo-catalytical	■	■	■
2.2.3	Thermo-chemical processes	■	■	
2.2.4	Hybrid & consolidated processes		■	■
2.2.5	Downstream processes	■	■	
3. Developing innovative products **and accelerating** market-pull for biobased products and fuels				
3.1 New materials & products (incl. conversion and functionalization technologies)		Short 2014-'15	Medium 2016-'17	Long 2018-'20
3.1.1	Materials based on lignin (and bio-aromatic) chemistry;	■	■	■
3.1.2	Biobased alternatives for existing polymers and innovative polymers from new biobased monomers	■	■	■
3.1.3	Advanced biofuels and bioenergy carriers from waste, residues, lignocellulosic materials and other new promising biomass sources;	■	■	■
3.1.4	New (chemical) building blocks from renewable resources;	■	■	■
3.1.5	New functional biobased materials and products: e.g. bioplastics, biocomposites, materials based	■	■	■

	on lignin, starch, (nano-)cellulose or carbon fibres;			
3.1.6	Materials based on cellulosic and hemicellulosic fibres and fibre/polymer composites			
3.1.7	Lignin-based carbon fibres and nano-cellulose fibres;			
3.1.8	New packaging solutions derived from biobased materials;			
3.1.9	Materials based on biopolymers (such as starch, polyesters from vegetable oils and sugar, chitin)			
3.1.10	Biomass based oleochemistry: fatty acids conversion technologies, including chemistry (metathesis, for example) and biotechnology (including microbial conversion of sugars to lipids/fatty acids, cutin and suberin conversions)			
3.1.11	New advanced fertilizers;			
3.1.12	New high-value products (pharmaceuticals, cosmetics, chemical), in some cases directly extracted from plants			
3.1.13	New hygiene products derived from biobased solutions			
3.1.14	Materials based on oils and fats from plants and animals e.g. biolubricants, biosurfactants, biosolvents			
3.1.15	Recyclability concepts for biomaterials			
3.2 Conversion and functionalisation technologies		Short 2014-'15	Medium 2016-'17	Long 2018-'20
3.2.1	Functionalisation and conversion technologies, including chemical catalysis, mechanical, thermal and biotechnology processes towards functionalised chemicals and products			
3.2.2	Fractionation and extraction technologies to preserve structure and activities of macromolecules of natural polymers. Advanced functionalisation technologies;			
3.2.3	Biopolymer processing into products (films, fibres, packaging, structural composites for e.g. automotive, agriculture).			
3.2.4	Polymerisation processes based on new biobased monomers;			
3.3 New applications and market development		Short 2014-'15	Medium 2016-'17	Long 2018-'20
3.3.1	Connect market demand with biobased opportunities: combine required techno-economical specifications with opportunities of new biobased chemicals and materials			
3.3.2	Increase consumer awareness on biobased products and biobased economy.			
3.3.3	Identify and create market applications for new biobased products; diversification of markets of current biomass based products; networks and closer cooperation with downstream industries to better understand and serve industrial customers and consumers requirements			
3.3.4	Demonstrate industrial feasibility for new products.			
3.3.5	Create combinations and synergies between fossil and biobased materials.			

3.1.3. Supporting projects (addressing the societal challenges)

Demonstrating the value chains will require non-technological cross-cutting challenges to be solved. Some of those will be solved in the value chain demonstration projects and R&D projects, or on the programme level in the Joint Undertaking. Others will lead to calls for specific **Supporting Projects** on cross-cutting issues. Supporting projects will thus enable the value chains to face the many critical elements related to cross-disciplinary approaches. These practices and tools can either address market, legal aspects, technology, quality or any other aspect. Cross-cutting issues include cross-sectoral and critical elements which connect the different steps of the value chains, the different levels of innovation as well as the different stakeholders involved from the private and the public sector.

The Supporting Projects in BRIDGE will take into account the following cross-cutting issues:

- **Clustering and networking:** Clusters are networks of stakeholders in the bioeconomy, which transcend regions and value chains. They will be essential to develop new value chains and support the development of new processes and materials by connecting different partners: research, technology development, operators/producers and consumers. Some value chains aim to create and strengthen optimally integrated areas of rural and industrial biobased activities (Biobased 'hubs), and create and strengthen clusters which connect value chains and linking regional agriculture, industry and research networks. Activities might also involve the demonstration of systems of new integrated cascaded biorefinery approaches or systems of industrial ecology and symbiosis: combined residue processing, bio-energy production, heat integration and valorisation, re-use of water and (organic) nutrients, analyse energy streams to discover what processes / companies could fit together, etc. Studies might include feasibility studies regarding the optimal locations for biorefineries and suitable unused facilities for conversion to biorefineries.
- **SME engagement:** SMEs are expected to play an important role in building the European bio-based industries. They will be active throughout the whole PPP, in R&D and demonstration projects. In addition, BRIDGE will develop supportive measures for SMEs concerning critical issues such as financing, market information and forecasts, legal obstacles and international partnering. Moreover it is planned that SMEs pay a reduced membership fee to the PPP[1].
- **Standards and regulations:** While developing new biobased products, the BRIDGE projects will contribute to the development of standards working closely together with CEN[2]. Specific questions might arise from the value chain demonstration for analysing the relationship between the development of standards and regulations and the markets for bio-based products and bio-fuels and identify societal demands and unmet market needs. This includes the development of a common language over the entire value chain(s).
- **Feed-stock sustainability and LCA:** Specific value chains might require the assessment of methodologies for addressing sustainability criteria facilitating all projects, including a sustainability and economic feasibility evaluation over the whole value chain, and the environmental footprint of the resulting product.

Cross-cutting issues to be covered in the individual projects and by the overall Joint Undertaking concern increasing awareness and support for the activities of BRIDGE. Actions will include proactive communication, dissemination and outreach, educational activities and monitoring the impact on the European biobased economy.

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1 A defined in the BIC statutes, its Internal Rules and the Biobased Industries PPP Governance document.

2 European Committee for Standardization (*Comité Européen de Normalisation*)

3.2. Monitoring the progress and impact

Fast implementation and performance feedback are key issues of BRIDGE. Overarching strategic objectives towards the Biobased Economy that will be triggered by the PPP activities and results have been identified in Table 1 (Chapter 2), covering the whole value chain as well as cross-cutting areas. Looking at the ambition and the high level strategic objectives of BRIDGE, the effectiveness and throughput will be the most suitable aspects for monitoring the success of the initiative.

The PPP is a chain of links: input, throughput, output, outcome, impact. Each of these links is taken into account in monitoring to assess and evaluate:

– **Efficiency**, in terms of relationship input/output;
– **Effectiveness**, in terms of relationship input/outcome and impact;
– **Throughput**, in terms of relationship between output, outcome and impact.

It is proposed to implement all validated technologies or processes at pilot scale within demonstration projects and in some cases flagships allowing the assessment of the programme progress with the help of an appropriate set of KPIs. Three levels of quantitative and qualitative Key Performance Indicators have been identified (see Figure 4).

Figure 4: The different levels of KPIs

In particular:

– **KPIs "Level 1"** address the contribution to accomplishment of the overall strategic objectives of the Biobased Economy associated with the Vision 2030 (outcome and impact). Although the PPP results and activities will be crucial triggers for these objectives, these objectives will not be direct results of the PPP;
– **KPIs "Level 2"** aim at monitoring the progress of BRIDGE and measuring how the specific research and innovation targets defined by 2020 are met (output and outcome);
– **KPIs "Level 3"** allow monitoring the success of each project to be funded under BRIDGE.

KPI level 3 will be defined by each project as ad-hoc KPIs attuned to KPI level 2.

Efficiency of BRIDGE

For the sake of monitoring progress and implementation of BRIDGE, the direct quantitative objectives could be used as KPIs Level 2 to monitor the progress of the programme (see Tables 2, 4, 5 and 8). A limited selection from these objectives is made as key specific objectives. These objectives are directly linked to a set of key performance indicators (kpi's), to be measured and monitored during the progress of the PPP, and to be used to steer the PPP activities accordingly. See table 8 and 9 on the next pages.
The monitoring at this level will be a task of the programme management. Frequent monitoring gives insight in the efficiency of the programme During the execution of the programme these KPIs will be evaluated on their effectiveness, in order to be able to change and complete the monitoring of the programme when needed.

These kpi's will be complemented with operational objectives on the PPP performance to be monitored continuously:

- Overall percentage % of industry investments (cash + in-kind) in the total PPP organisation and projects
- A well balanced SME involvement in BRIDGE organisation and projects, in line with Horizon 2020
- Involvement of RTOs / Academia (i.e. targeted amount of finances flowing to RTOs / Academia)
- Balance between R&D, demonstration and supporting projects
- Addressing the societal challenges (i.e. including some cross-cutting issues in demonstration projects)
- Follow-up on R&D results: % of PPP R&D results brought into demonstration projects
- How well do the projects realised address the variety of topics in the SIRA in a balanced way (e.g. variety in feedstock, in products, in processes, etc.)
- A geographically balanced distribution of projects across member states (in all projects, and especially large demonstrators)

Table 7. PPP Key Objectives
• **36** new cross-sector interconnections in biobased economy clusters (new bridges creating cooperation between the 9 different sectors); • **At least 10** new biobased value chains (new products and feedstock); • **More than 200** cooperation projects through cross-industry clusters • **5** new building blocks based on biomass of European origin validated at demonstration scale, further increasing to **10** in 2030 • **50** new biobased materials (eg. such as specialty fibres, plastics, composites and packaging solutions) • **30** new demonstrated 'consumer' products based on biobased chemicals and materials • At least **5** flagships resulting from BRIDGE producing new biobased materials, chemicals and fuels which have proven to become cost-competitive to the alternatives based on fossil resources (at least 1 per value chain)

Effectivity of BRIDGE

To get insight in the effectiveness of the programme, i.e. answering the question 'are we doing the right things?', a monitoring for the KPIs at Level 1 (Table 1) has to be set-up. This is a task of the programme management, but might be supported by a Supporting Project within the PPP, that will run throughout the execution of the programme.

KPI level 3 will be defined by each project. This can be done by setting monitoring criteria in the call for proposal and/or by demanding the determination of KPIs in the Description of Work of the projects. The KPIs Level 3 have to be attuned to KPI level 2 and 1. Ensuring the KPIs Level 3 are well attuned is the responsibility of the programme management of BRIDGE. The project manager is responsible for monitoring the progress of the project and has to deliver data for KPIs Level 1 and 2 when needed.

Table 8: PPP key specific objectives + kpi's for monitoring and assessing the progress of the Biobased Industries PPP

1	**Objective**	**36** new cross-sector interconnections in biobased economy clusters (new bridges creating cooperation between the 9 different sectors);			
	KPI	# of new cross-sector interconnections in BRIDGE projects	*31-12-'16*	*31-12-'18*	*31-12-'20*
			10	*20*	*36*
	How to analyze	Amount of innovative cooperation's started in BRIDGE value chain demonstration projects: When companies from different sectors start to cooperate on building new value chains, while these companies have not been active in the same value chain before / did not cooperate in business before (or did cooperate but in a totally different field).			
2	**Objective**	**At least 10** new biobased value chains (new products and feedstock);			
	KPI	New biobased value chains realised	*31-12-'16*	*31-12-'18*	*31-12-'20*
			1	*4*	*10*
	How to analyze	Amount of completely new value chains (from raw material to product) developed in BRIDGE projects: New innovative products or existing products that have not been produced from the biobased feedstock before. The new value chains are proven in the PPP projects to be economically viable, and to fulfil all relevant sustainability criteria. Each of the value chains have elaborated business cases and plans for commercialisation (if not already scaled up to flagship projects - see objective 7)			
3	**Objective**	**More than 200** cooperation projects through cross-industry clusters			
	KPI	General progress of BRIDGE	*31-12-'16*	*31-12-'18*	*31-12-'20*
			80 projects	*140 projects*	*200 projects*
	How to analyze	Amount of cooperation projects started (value chain demonstrations and R&D)			
4	**Objective**	**5** new building blocks based on biomass of European origin validated at demonstration scale, further increasing to **10** in 2030			
	KPI	Amount of new biobased building blocks	*31-12-'16*	*31-12-'18*	*31-12-'20*
			1	*2*	*5*
	How to analyze	New building blocks developed and demonstrated by BRIDGE projects. New biobased building blocks are chemical building blocks that are currently made from fossil sources and have not (successfully) been made from biomass on (pre)commercial scale before, or are new building blocks that could replace the current fossil based ones. The new building blocks are proven in the PPP projects to fulfil a clear market demand and its technical requirements, to be economically viable and to fulfil all relevant sustainability criteria.			

5	**Objective**	**50** new biobased materials (eg. such as specialty fibres, plastics, composites and packaging solutions)			
	KPI	Amount of new biobased materials	*31-12-'16*	*31-12-'18*	*31-12-'20*
			10	*20*	*50*
	How to analyze	New biobased materials developed and demonstrated by BRIDGE projects. The biobased materials that replace current materials have proven to have an equal or overall better sustainability (by LCA, replacing fossil based, improved material efficiency, reduced GHG emission, biodegradability, recyclability or other improved effects during use or reuse). The biobased materials have proven in the PPP projects to fulfil a clear market demand and its technical requirements, to be economically viable and to fulfil all relevant sustainability criteria.			
6	**Objective**	**30** new demonstrated 'consumer' products based on biobased chemicals and materials			
	KPI	Amount of new biobased 'consumer' products	*31-12-'16*	*31-12-'18*	*31-12-'20*
			5	*15*	*30*
	How to analyze	New biobased products and applications developed and demonstrated by BRIDGE projects. The biobased products (materials, fuels, chemicals successfully converted into to 'consumer' products) will have an overall better sustainability than its current alternative (by LCA, replacing fossil based, improved material efficiency, reduced GHG emission, biodegradability, recyclability or other improved effects during use or reuse). The biobased products have proven in the PPP projects to fulfil a clear market demand and its technical requirements, to be economically viable and to fulfil all relevant sustainability criteria.			
7	**Objective**	At least **5** flagships resulting from BRIDGE producing new biobased materials, chemicals and fuels which have proven to become cost-competitive to the alternatives based on fossil resources (at least 1 per value chain)			
	KPI	Bringing PPP results into practice	*31-12-'16*	*31-12-'18*	*31-12-'20*
			1	*2*	*5*
	How to analyze	Amount of flagship projects started based on BRIDGE demonstration projects			

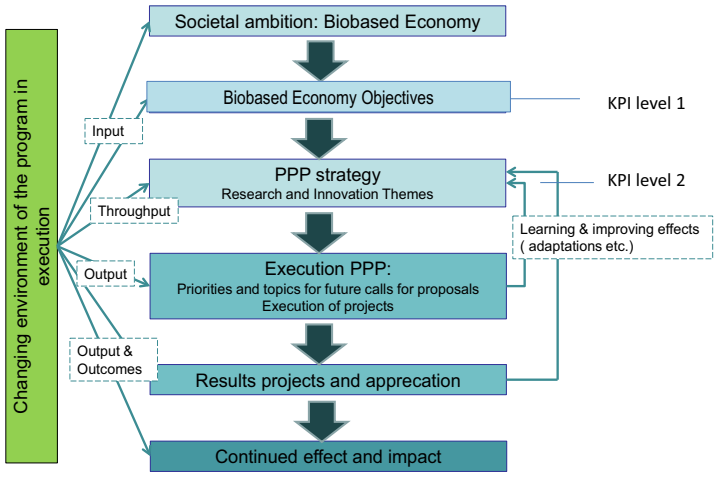

Figure 5: Proposed approach to monitor BRIDGE

Monitoring of these key specific objectives and kpi's will be performed according to the overall logic of figure 5.

3.3. Call procedure

BRIDGE supports research and innovation activities following open and competitive calls for proposals, independent evaluation, and the agreement for each selected project of a Grant Agreement and a Consortium Agreement.

Submission and evaluation procedure

Applications to the Joint Undertaking for financial support will be made following open competitive calls for proposals. The evaluation, selection and award procedures will be described in details in a specific document "Rules for submission of proposals, and the related evaluation, selection and award procedures". Evaluation will be performed on the basis of Excellence. The evaluation criteria (including weights and thresholds) and sub-criteria together defining 'Excellence', and the eligibility, selection and award criteria, for the different funding schemes will be based on Horizon2020 guidelines and described in a dedicated chapter in each Annual Implementation Plan and call, titled "Evaluation criteria and procedures".

Proposals will not be evaluated anonymously. Ranked lists of proposals will be established for each main area. Proposals from different topics, within the same area, with equal overall scores will be prioritized according to the overall Joint Undertaking Annual Implementation Plan coverage. Proposals for the same topic with equal overall scores will be prioritised according to their scores for the S/T Quality criterion. If they are still equal, they will be prioritised according to their scores for the Impact criterion. A reserve list will be constituted if there is a sufficient number of good quality proposals, which will be taken into consideration if budget becomes available.

Consortium Agreement

The legal entities wishing to participate in a project shall form a consortium and appoint one of its members to act as its coordinator. As a general rule, the coordinator of a demonstration project should come from the Industry Grouping (members of the Biobased Industry Consortium - BIC) or become member of BIC (before project application). For R&D and Supporting Projects the coordinator can be an Associate member to the BIC (e.g. RTO, university, industry association, …), however supported and steered by one or more members of BIC that together defined and support the specific call topic, based on the value chain project under development. Any exception to this rule will have to be justified. The IPR rules of BRIDGE will be described in a separate document.

Grant Agreement and forms of grants

The Consortium Agreement (between the partners) has to be agreed and signed before the signature of the Grant Agreement (between consortium and BRIDGE).

BRIDGE financial contribution will be given as a grant to the beneficiaries. The contribution will depend on the funding scheme, activity, nature of the beneficiary and type of cost. The reimbursement rules will be specified in detail in the call for proposals.

The Grant Agreement will:

- Govern the relationship between the consortium and BRIDGE,
- Provide appropriate provisions for the implementation of the RTD activities and support actions,
- Ensure that appropriate financial arrangements and rules are in place relating to the intellectual property rights policy (to be further detailed in the Consortium Agreement) and,
- projects shall be supported by a financial contribution from BRIDGE and through in-kind and/or cash contributions from the legal entities participating in the activities.

Requirements for participation

Participation in projects shall be open to all legal entities and international organisations once the minimum conditions have been satisfied. The minimum conditions for projects funded by BRIDGE are (cfr. Horizon 2020 rules):

- at least three legal entities must participate, each of which must be established in a Member State or Associated country;
- The partners should come from at least 3 different Member States
- All three legal entities must be independent of each other as defined in Chapter 1, Article 7 of the Rules of Participation of Horizon 2020;

BRIDGE will ensure that innovative SMEs will be an integral part of the PPP execution by having a visible and easy accessible SME portal, easy access to market information and financing instruments dedicated to SME. Furthermore, it is envisaged that a significant number of PPP funded projects will include a minimum of SME involvement, including special SME-calls for technology development.

Details on the calls procedure of BRIDGE (programming and implementation) are described in a separate document.