

Table of content

- Pre-announcement of the 5th joint call
1
- Overview of the approved projects granted funding by the 3rd joint call
2
- 4th joint call: projects recommended for funding
3
- ERANET in Industrial Biotechnology Showcase and 5th Call Launch Event
3
- EFIB
3
- CINBIOS Forum
4
- European Biotech Week
5
- BIO-TIC Regional Event Industrial Biotechnology in the UK and Ireland - Identifying Challenges and Opportunities
5
- ERA-IB 3rd technical seminar with stakeholders
8
- Nova CO2 conference: CO2 is ready to go as a fuel and chemical feedstock
9
- SPIRE PPP – Interview Ludo Diels (VITO)
11
- Calender of IB-conferences 2014
13

Dear reader,

The ERA-IB team is delighted to present our ERA-IB-2 newsletter of December. With this edition we first and foremost want to pre-announce the 5th joint call for 2014!

In addition, we would like to give you an overview of what the ERA-IB partnership has accomplished during the second half of 2013. As well as ERA-IB related news, we will also give you the latest updates about what is happening in the IB landscape for example the EFIB event and the BIO-TIC regional workshops.

As the icing on our Christmas cake, we had the privilege of interviewing Ludo Diels from Vito about the SPIRE PPP. Last but not least, you will find an overview of the upcoming IB conferences in 2014.

We wish you an enjoyable lecture. Just as importantly, we wish you great holidays and a prosperous/succesful 2014!

With our very best wishes,

The ERA-IB team

Pre-announcement of the 5th joint call

On 1 February 2014 the fifth ERA-IB joint call will be launched in cooperation with ERA-NET EuroTransBio and within the framework of the ERA-NET Industrial Biotechnology. By combining the forces of the two ERA-NETs in this manner, more funding will be available and the geographical coverage is wider. The main purpose of the call is to generate joint European research and development activities. Joint projects must have a minimum of three and a maximum of eight participants from a minimum of three different ERA-IB-2 and/or EuroTransBio partner countries. The participation of an industrial partner in the consortium is mandatory.

The deadline for submitting the pre-proposals is 31 March 2014. The results of the pre-proposal evaluation will be announced to the project coordinators during the first week of May. Those who are selected during the first phase will be invited to submit a full proposal by 30 June 2014. In November 2014, the ERA-IB consortium will announce the projects that are recommended for funding. The approved projects will start in early 2015.

Overview of the approved projects granted funding by the 3rd joint call

The projects approved for funding grants as a result of the third ERA-IB joint call are now known. Twelve projects out of 33 submissions have been selected for budget grants of approximately 18 million euros in total. Cross-border partnerships between academic and industrial IB actors will be established between the following countries: UK, France, Denmark, Germany, Spain, Israel, Poland, Ireland, Norway, Belgium, Romania, the Russian Federation, Turkey and Portugal. An overview of the projects that are up and running can be found in the right column.

The selected projects cover one or more of the following topics: improved enzyme systems for new and more efficient bioprocesses; the improvement of micro-organisms by metabolic engineering and synthetic and systems biology approaches; innovative downstream processing; innovative fermentation and bio-catalytic processes (e.g. for platform chemicals, including bio-monomers, oligomers and polymers); biological processing (including separation and conversion) of biomass (including from side streams) and other renewable carbon sources into value added products; developing new valuable products by plant and animal cell cultures.

POAP - Production of Organic Acids for Polyester Synthesis
CESBIC - Critical Enzymes for Sustainable Biofuels from Cellulose
MySterI - Novel industrial bioprocesses for production of key valuable steroid precursors from phytosterol
THERMOGENE - Novel thermostable enzymes for industrial biotechnology
FIBERFUEL - Improved cellulosomes to enhance saccharification of industrially-suitable lignocellulosic biomass residues
HyPerIn - Integrative approach to promote hydroxylations with novel P450 enzymes for industrial processes
CONTIbugs - Overcoming metabolic stochasticity and population dynamics in microbial cell factories
PRODuCE - Tailor-made expression hosts depleted in protease activity for recombinant protein production
Cellulect - A synthetic biology platform for the optimization of enzymic biomass processing
REACTIF - Rational Engineering of Advanced Clostridia for Transformational Improvements in Fermentation
SCILS - Systematic Consideration of Inhomogeneity at the Large Scale: towards a stringent development of industrial bioprocesses
MICROTOOLS - MICROscale downstream processing TOOLbox for Screening and process development

Selection procedure

First of all, the pre-proposals were evaluated by the ERA-IB consortium. After an initial selection had been made, the consortia whose pre-proposals were accepted were invited to submit a full proposal. These proposals were in turn evaluated by an international panel of evaluators with relevant expertise in the project field. In addition, written reviews were also collected from external peer reviewers. The following aspects were taken into account during the evaluation: relevance of the proposal to the aims of the call; scientific and technologi-

cal quality; economic and social perspective; and, finally, administrative and financial viability. The main goal of the calls is to encourage academics and industrial researchers active in the field of industrial biotechnology to work together across the whole value chain. An investment in co-funding can contribute towards the reduced fragmentation of knowledge and resources, as well as stimulating the improvement of transnational partnerships. A full hand-out of these projects will be available and can be downloaded on the ERA-IB website at the beginning of 2014.

4th joint call: projects recommended for funding

In February of this year ERA-IB, working in cooperation with EuroTransBio, launched its fourth joint call. Full proposals were submitted by the end of June 2013. In November the projects recommended for funding were published by the ERA-IB consortium. The following projects will start in 2014:

ANTHOPLUS – ANTHOCyanin production Platform Using Suspension cultures

TERPENOSOME – Engineered compartments for monoterpenoid production using synthetic biology

NBCPBH – Production of new bioactive compounds by plants and bacteria using new and improved halogenases

INNOVATE – Investigating NOvel VALuable bio-Therapeutics and Expression systems

ProSeCa – Recovery of high value Proteins from Serum by innovative direct Capture techniques

ELMO – Novel carbohydrate-modifying enzymes for fibre modification

DeYeast Library – Designer yeast strain library optimized for metabolic engineering applications

IPCRES – Integrated Process and Cell Refactoring Systems for enhanced industrial biotechnology

EFIB

From 30 September to 2 October 2013, the sixth annual European Forum for Industrial Biotechnology and the Bio-based Economy (EFIB) took place in Brussels, Belgium. The conference attracted more than 700 business and policymakers from the field of industrial biotech and bio-based industries. This high level of interest shows that the EFIB is becoming a market-leading and pan-European event in the bioeconomy sector. The participants had a full three-day program, during which they could attend partnering meetings and sessions

ERANET in Industrial Biotechnology Showcase and 5th Call Launch Event

On Wednesday 26 February 2014 (Warsaw, Polen) ERA-IB-2 organizes an event that will allow you to hear the outcomes of 10 pan-European projects as well as new funding through the ERANET for industrial biotechnology.

The projects were funded in 2011 through the ERA-IB's 2nd joint call and ran for 3 years. An overview of these granted projects can be found on the ERA-IB website: www.era-ib.net.

In addition ERA-IB-2 will be launching the 5th ERA-IB joint call for R&D proposals (supported by EuroTransBio). By attending the event you hear what topics will be included in the call and the requirements for submitting an application.

Places are limited and tickets are for free, please visit the website to register: <http://bit.ly/IBctpr>

on feedstock and international policy. There was also a packed innovation agenda, a high-quality technology showcase and plenty of opportunities for networking.

Interesting announcements

After a word of welcome by Joanna Dupont-Inglis (director of Europabio), Rudolf Strohmeier (Deputy Director of the DG Research and Innovation) started the event by underlining three main goals for Europe's bioeconomy. First of all, he stressed that Europe must achieve a 20% reduction in CO2 emissions. Secondly, he highlighted the importance of producing 20% of all European

energy from renewable sources. Finally, he pointed out that 20% of Europe's GDP needs to come from the bioeconomy. To reach these goals, he defined a number of key policy instruments. In addition, he outlined how industry can and must play a critical role in achieving the stated objectives. Philip Malmberg, Chief Executive of the Belgium based Ecover Group, showed how this can be done. The group's success started in 1979 with the production of a phosphate-free washing powder. They continued their work by developing new molecules to create a fully bio-based detergent from sugar beet. He emphasized that greater success for the biotech industry can only be achieved through a significant increase in scale. It is necessary to create a community of innovators and to invest more in consumer understanding.

Another critical factor for success is that all relevant partners must be taken into consideration in the creation of the bio-based value chain. This means that not only the biomass producer and the producer of semi-manufactured or end products should be included in the process, but also all other actors who are involved in or affected by the chain, up to and including the end-user. According to Marcel Lubben, Vice President of DSM Bio-based Chemicals and Materials, it is above all the end-user who has a key role to play. Another point to be noted, according to Gloria Gaupmann of Cariant, is the importance of the stable political framework created by the EU, which leads to a beneficial market. She also stressed the fact that the EU must invest more in advanced biofuels, particularly biofuels which are not fabricated from feedstock.

On the second day there was a panel debate. The panel members were Novozymes Europe, DSM, Proviron, OECD, DG Research EC and an MEP. The panel reached the following important conclusion: Europe has the potential to become a world leader in BBE, but it is essential both to invest and to provide the right legislative framework. There is a need for business clarity in the long term, since this will greatly reduce investment risk. The industrial biotech sector needs transparent and clear-cut signals from Europe's legislators; preferably legislation which is applicable in all EU countries. In other words, there is a need for harmonization of the European market, instead of the existing fragmented markets, each with their own rules.

If you would like to read the full forum report, please visit the EFIB website: www.efibforum.com. Agro & Chemie, a platform for undertakings in the bio-based economy in the Netherlands and Flanders was also present at the EFIB. Their integral live report (in Dutch) can be found on www.agro-chemie.nl/artikelen/efib2013-agro-chemie-live-vanuit-brussel.

The next EFIB will be held in Reims, France from 30 September to 2 October 2014.

CINBIOS Forum

The annual CINBIOS Forum for Industrial Biotechnology & the Bio-based Economy, which took place on 30 September 2013 in Terneuzen, highlighted the many possibilities that industrial biotech and innovative biorefining processes provide for the production of bio-based products. The forum gathered together about 60 participants from various industrial sectors, universities and the government. The programme of lectures was followed by a boat trip in the Port of Ghent and site visits to Bio Base Europe, the Ghent Biorefinery cluster and Oleon. Keynote speaker Bernhard Hauer (Professor at the Universität Stuttgart, Germany) provided insights into expanding nature's portfolio of chemical reactions by designing novel enzymes and biosynthetic routes. The programme furthermore offered case studies of new initiatives in the fields of bioplastics, biosolvents, biodetergents, biomaterials and biolubricants from distinguished companies like Taminco, Derbigum, Corbion, Voltrion and Wheatoleo.

www.cinbios.be

CINBIOS is an industrial biotechnology platform in Flanders.

BIO-TIC Regional Event : Industrial Biotechnology in the UK and Ireland

Identifying Challenges and Opportunities

BIO-TIC - the Industrial Biotech Research and Innovation Platforms Centre: towards technological innovation and solid foundations for a growing industrial biotech sector in Europe - is a project launched in September 2012 by the European Commission's FP7 research program and aims to establish an overview of the barriers to biotech innovation and find solutions to overcome them.

The BIO-TIC consortium held a series of regional workshops around the EU to determine local issues surrounding the use and adoption of IB. During these workshops, participants develop a series of recommendations to overcome innovation hurdles within selected market segments that could make a major contribution to IB in the market place. For 2013 there were workshops organized in the Benelux, Poland, Spain, Italy, Nordic countries, Germany, the UK and Ireland.

The next BIO-TIC regional event is foreseen on 13 February 2014 in Paris, France. For registration please visit the BIO-TIC website: www.industrialbiotech-europe.eu/events

Below you can find a complete report on the regional workshop that was held on 19 November 2013 in the UK.

"In the UK it is recognised that Industrial Biotechnology is not an industry of itself; it is a means through which many industries can make their processes more renewable, more sustainable and more cost-effective." Colin Tattam, Chemistry Innovation KTN

IB has been a focus area in the UK for several years and benefits from a high profile and increased levels of funding and investment. The Industrial Biotechnology Innovation and Growth Team (IB-IGT), which operated between 2008 and 2009, was a major catalyst in developing the UK strategic framework for exploiting IB opportunities in the UK. A report from the IB-IGT was positively received by the UK Government and subsequently led to the creation of the Industrial Biotechnology Leadership Forum (IBLF) to help drive

European Biotech Week

From 30 September to 4 October 2013, the European Biotech Week took place in twelve different countries throughout Europe. This week was devoted to the celebration of biotechnology. Biotechnology is an innovative sector, which was first started some 60 years ago thanks to the discovery of the DNA molecule.

In addition to the EFIB event in Brussels and the CINBIOS forum in the Netherlands, Spain held the European Strategy Forum on Bioeconomy, Switzerland hosted the Swiss Biotech Day 2013 and in the UK the World Agri-Tech Investment Summit was organized. By visiting the website www.biotechweek.org, you can find out which events took place, when and where.

the UK IB industry forward. Composed of industry partners, funding bodies and other organisations, the IBLF has been able to foster even greater activity and interest in IB in the UK over recent years, with millions of pounds invested in demonstration facilities, feasibility studies and IB research in universities. In 2014, a new IB Catalyst Fund is expected to provide an additional £45 million of funding for IB.

The strong strategic and industrial focus on IB in the UK is complemented by first-class scale-up facilities and academic research. The flagship National Industrial Biotechnology Facility (NIBF) was established as a result of one of the recommendations from the IB-IGT and aims to de-risk access to new technologies. Other impressive pilot and demonstrator facilities include CoEBio3 (the Centre of Excellence for Biocatalysis, Biotransformations and Biocatalytic Manufacture), the Biorenewables Development Centre in York and the Beacon Centre in Wales. These are further complemented at the university level with the N8 group of northern universities amongst a wealth of other UK academic establishments with IB expertise.

Despite its relatively well-developed nature, however, the IB sector in the UK still faces many challenges and these were examined and discussed in the workshop.

The lack of human resources with the right skills and curricula was highlighted as the biggest challenge for the development of IB in the UK. While there are a large number of good graduates in the UK and throughout Europe, tapping into chemical engineering expertise could significantly help develop IB;

for instance, through the development of novel separation technologies and techniques. The second biggest hurdle for the successful implementation of IB is the lack of incentives for bio-based products. Biofuels benefit from considerable public attention, subsidies and fostering legislation but they are not the only bio-based products worth encouraging.

Finally, technical issues associated with bioconversion were identified as the third key challenge during the UK workshop. The results associated with the up-scaling of laboratory successes are not always obvious, whilst the performance of biocatalysts and micro-organisms also needs to be improved.

The UK is one of the leading countries within Europe for IB and, as a result, UK stakeholders can provide an excellent insight into the hurdles faced by companies in a supportive and leading environment.

However, IB is at different stages of development across Europe and consequently the barriers and enablers to IB may

vary significantly in different countries. In order to capture these different regional hurdles and enablers, the BIO-TIC consortium has organised eight workshops across Europe aiming to identify the issues particular to each region or country.

These workshops have brought together, amongst others, government, industry, academia, regional agencies and venture capitalists, and have provided a rich dataset to underpin the project.

*“We have created an environment in the UK to catalyse and accelerate the innovation, commercialisation and growth potential of IB; our ambition is to realise a market of £12 billion by 2025.” Colin Tattam
Chemistry Innovation
KTN*

The results from the regional workshops will feed into the development of a series of roadmaps outlining market development for IB products to 2030, highlighting the technical and the non-technical issues associated with several product groups of particular interest for Europe.

These product groups are advanced biofuels, biopolymers, bio-derived chemical building blocks, bio-surfactants and the use of IB processes to convert CO₂ from burning coal to marketable renewable products.

The BIO-TIC consortium is currently organising a series of events for 2014 to investigate issues surrounding the hurdles and possible solutions to the development of these product groups in more detail.

More information on the dates for these workshops will be available via the BIO-TIC website at <http://www.industrialbiotech-europe.eu/>.

Other BIO-TIC regional events 2013

An overview of hurdles identified during the regional workshops in the Benelux and Poland is as follows:

Hurdles in the Benelux

- hurdles related to feedstock supply and price;
- the prohibitive price of enzymes;
- poor yields (of both biomass and conversion processes);
- the need to scale up from batch to continuous processing modes to more market-based issues, such as a lack of investment to promote R&D;
- pilot and demonstration activities and the costs associated with IP protection, especially for SMEs;

- complicated regulations over the use of some materials: e.g. wastes and new technologies.

Suggested solutions

- financial support for farmers;
- decreasing tariffs for imported biomass;
- introducing tax exemptions for bio-based products;
- bio-based productions should be included within the RED alongside fuels, in order to create a level playing field for incentives;
- biomass yields should be improved;
- waste regulations should be simplified for the use in bio-based products;
- the principal of the cascading use of biomass should be more widely adopted;
- increasing the visibility of IB through the exchange of best practice;
- promoting cooperation;
- developing networks and demonstrating viable business opportunities;
- improving the visibility of IB will also help to raise funds for R&D pilot and demo activities, whilst new business models, where the return on investment can be 5 years or more, would help support the industry.

Hurdles in Poland

- the relationship between academia and industry: cooperation between universities, both inside and outside of Poland, is good, but there is a lack of collaboration between the universities and industry in the region as a whole;
- improved mechanisms to link industry and research are needed, including a new framework for the cooperation of academia with industry.

Suggested solutions

- tax incentives should be developed to stimulate the market; research projects could then be developed to align with a clear industrial need.
- there are recognised areas of IB expertise that can act as clusters for further developments, and government support is potentially available to help cover the cost of the necessary facilities, especially in Special Economic Zones, where exemption from corporate income tax is granted.

*Claire Gray and Ioana Popescu,
EuropaBio.*

ERA-IB 3rd technical seminar with stakeholders

On 8 October 2013, ERA-IB-2 organized its third technical stakeholder seminar in The Hague, Netherlands. 45 participants identified and discussed current priority areas in Industrial Biotechnology (IB) and suggested relevant R&D topics. These results will determine the future call topics for ERA-IB-2.

The seminar brought together key members of European industry and academia in the field of IB, as well as ERA-IB-2 partners/observers and the representatives of related initiatives, such as the ERA-Net EuroTransBio, the ERA-Net Marine-Biotech and the European Technology Platform (ETP) SusChem. This distribution of participants ensured in particular that the needs of industry will be aligned with the requirements and priorities of the national/regional funding organizations.

The seminar was held in two parts. During the first part - a brainstorming session - the participants were free to suggest any topics they regard as important. This resulted in a list of 25 topics. In the second part - a facilitated work session - the participants were separated into five groups.

Each group was asked to consider the same list of possible topics from a different perspective; namely, their social/ethical impact, their environmental impact, their impact on industrial competitiveness and their impact on human resources. After some lively and focused discussions, each group presented their work and listed their suggested topics for future calls, providing motivated arguments to support their case.

The output of the technical seminar was studied in the ERA-IB-2 Executive Board Meeting on the

following day and a consolidated list of call topics was drawn up.

This list will be included in the documents of the upcoming 5th ERA-IB call and will also be shared with stakeholders on the ERA-IB-2 website <http://www.era-ib.net>. As a valuable 'side effect' of the seminar, the participation of other ERA-Nets and of ETP SusChem served to further strengthen ties with IB initiatives and thereby enhanced future collaboration options.

The extensive participation of industry representatives was also beneficial to the consortium's aspiration to improve industry dynamics and the economic benefits of the projects funded through ERA-IB joint calls. The ERA-IB-2 consortium therefore sees its technical seminars as a golden opportunity to learn about the needs and preferences of relevant stakeholders at first hand. The feedback and contributions of the stakeholders will undoubtedly help the ERA-IB-2 consortium to organize more collaborative and more effective calls.

Priority areas

Processes

1. Conversion of industrial by-products and biomass into value-added products.
2. Developing novel systems for new, more sustainable processes (bio-catalysts such as enzymes, micro-organisms and cell-free biosynthesis systems).
3. Developing new compounds from existing ones (but not the previously well studied biological systems), by understanding their metabolic pathways.

4. Modelling and optimization of biological unit operations and modelling for the improvement of cellular bioprocesses.

5. Process development, intensification and/or integration in existing industrial processes (e.g. downstream and scale-up, process design, scalability).

Products/markets

1. Development of new functional materials/properties from renewable resources.

2. Development of platform chemicals, including bio-monomers, oligomers and polymers.

3. Biomaterials, pharmaceuticals, functional food/feed ingredients (not for all agencies; please check national annexes).

Function-based bio-products: from function to process

1. Further development of function-based bio-products and bio-process design.

Projects are also required to assess environmental impacts.

Carina Lemke

Nova CO2 conference: CO2 is ready to go as a fuel and chemical feedstock

Dynamic technological developments – Investors await market incentives

At the beginning of October 2013, 140 leading minds from the world of CCU (carbon capture & utilization) met for three days in Essen at Europe's largest conference on "CO2 as chemical feedstock – a challenge for sustainable chemistry".

While carbon dioxide is generally seen as a "climate killer", which should best be avoided or stored underground (carbon capture and sequestration), a growing number of scientists and engineers are considering how this virtually limitless source of carbon can be used or recycled

as a fuel or chemical feedstock. CO2 is an inert molecule that must first be broken down again using energy to make it usable, a process that chemists call "reduction". If renewable energy is used, this opens up a variety of interesting and environmentally friendly possibilities for storing energy, producing methane and liquid fuels, or making chemicals and plastics. What sounds like a fairytale is well on the way to becoming a reality. Many demonstration facilities and the first commercial plants are already up and running, most of them in Germany.

These feature various key technologies to utilize CO2 as a source of materials and energy. Some of these are "artificial photo-

synthesis" technologies such as electrolysis and catalytic water splitting, imitating plants which produce biomass in the form of sugar, starch, oils and cellulose from carbon dioxide, water and sunlight. Scientists and engineers would like to develop artificial means of running this process more efficiently and independently of biomass. However, biotechnological techniques also exist to reduce CO2 and make it available for use with the help of special bacteria, for instance. The great advantage of biotechnological techniques is that they do not need purified CO2 but can use CO2 straight from power stations or from industry. This makes the whole process far more viable, even if its overall efficiency is likely to remain below that of

electrolysis or catalyzers. Lastly, CO₂ can be directly incorporated into polymers and chemicals without any need for splitting.

As with biomass use, energy in the form of liquid and gaseous fuels has been the main outlet for CO₂ use up till now, in part because such uses can lay claim to existing support mechanisms for renewable energy and fuels. The framework conditions for material use are far less advantageous, despite the fact that it offers special processes that render it particularly interesting to use CO₂. Carbon dioxide does not necessarily have to be reduced for use in chemical building blocks, but can instead be directly incorporated into chemical structures, partly even into exothermic processes.

Where should the CO₂ be taken from?

CO₂ is available in sufficient quantities worldwide, but which is the most attractive current source? At present this would appear mainly to be carbon dioxide emissions from fossil-burning power station and industries such as the steel industry, as well as bioethanol plants. These produce large volumes of CO₂ that would have to be cleaned so as not to destroy the catalyser or the electrolysis unit. Direct air capture would be the ideal way, as one would not have to resort to large-scale fossil-powered plants but could obtain CO₂ as a raw material anywhere on the globe,

including places where inexpensive renewable energy is available. This is however still a long way off.

Could CCU be the solution to all our climate and raw material needs, or just a small contribution?

How significant CO₂-based technologies could be for protecting the climate and securing raw material supplies was one of the most keenly debated questions of the entire conference. The observation that non-purified CO₂ can be increasingly used (see above) was new to many people, and this immediately adds to its potential.

Over the course of the day, people began to realise that CCS and CCU had fundamentally the same potential and that their potential largely depended on whether the CO₂ could be tapped directly from the atmosphere. This would generate almost limitless potential, the only constraint being the quantity of available renewable energy.

Political framework conditions: an incentive to use CO₂?

The rate at which CO₂ will establish itself as a feedstock depends largely on the political framework conditions, the support measures available to develop it further and the incentives for commercial implementation.

European support has been directed almost exclusively at CCS, and there are a few projects

that are part of the bio-based programmes. This is due to change in 2016 with SPIRE (Sustainable Process Industry through Resource and Energy Efficiency), which should explicitly include CCU.

Along with research programmes, the important factor is the political framework conditions that are created for CCU technologies. If DG Energy includes CCU fuels in the Renewable Energy Directive with multiple counting, this could send a powerful signal to investors and give significant impetus to the use of CO₂. Further options are being sought to supplement biofuels and electric vehicles. CCU fuels offer one such option that can draw on the endless reserves of CO₂. As the conference clearly demonstrated, new technologies are raring to go, and there are many options that are being developed and are just waiting for implementation. This sleeping giant could come of age faster than politicians and the public imagine, as long as the right direction is set.

You can order all 35 presentations given at the three-day conference for €150 at the following address: <http://www.nova-shop.info>

*nova-Institut GmbH
Email: contact@nova-institut.de*

SPIRE PPP – Interview Ludo Diels (VITO)

The public-private partnership (PPP) SPIRE - Sustainable Process Industry through Resource and Energy Efficiency - is organized within Horizon 2020, the next EU Framework Programme for Research and Innovation.

This partnership aspires to address the major societal challenges that are defined within the EU 2020 Agenda.

The decoupling of economic growth from resource impact and the better understanding and development of the role of the process industry in resource and energy efficiency to meet sustainable development needs are the main objectives of this PPP.

The driving force behind the SPIRE PPP is the Resource and Energy Efficiency Partnership (REP). REP is an informal group which is active in more than ten major process industry sectors. Group members include companies like Arcelor

Mittal, BASF, DSM, Solvay, Tata Steel, etc.; research institutions like TU Delft, SINTEF, VITO, CEA Tech; and technology platforms like SusChem, CLIB2021 and Eurometaux. The complete list of participants in the partnership can be found on the SPIRE website: www.spiire2030.eu.

All of the above mentioned partners are heavily involved in process manufacturing.

“SPIRE is devoting considerable attention to modular decentralized systems. We also think that modular chemical production systems will now become an example for other industrial sectors to follow and evaluate, to see if this approach could work for them, particularly for high added value materials production.”

These partners will help the SPIRE PPP to define the PPP's work package structure, as well as its multi-annual roadmap and the consortium structure. The novelty of SPIRE is that it brings together for the first time all actors along the full value chain: from different types

of feedstock through industrial transformation to intermediate and end-products.

In this edition of the ERA-IB newsletter, we were pleased to

have the opportunity to interview Ludo Diels of VITO. VITO is one of the participants within the REP.

Q - Within the SPIRE PPP several industrial partners and technology platforms are aiming to tackle resource and energy efficiency challenges to develop a long-term sustainable Europe. What exactly are the actions the SPIRE PPP is taking to meet these challenges?

A - SPIRE had drawn up a full roadmap with a strong emphasis for all topics on trans-sectoral approaches for energy and resource efficiency. Based on this roadmap, several calls of Horizon 2020 are now labelled as SPIRE and will be funded under the PPP conditions. The topics in question are linked to new feedstock for industry, process intensification and process technology, waste to resource, and applications. Further horizontal actions are also foreseen.

Q - In view of the fact that many sectors have reached their technical limits with regard to energy efficiency (and this in a period when the effects of the economic crisis are still being felt) and

knowing that technical breakthroughs are crucial to success, which technical breakthroughs, in your opinion, are feasible within the time frame of Horizon 2020 and which are possible over a longer time frame?

A - SPIRE was created precisely to overcome these technical limits by devoting attention to the cross-sectoral approach. This innovative approach is based on the fact that, for instance, industries such as the steel industry produce large amounts of excess heat and can deliver this to speed up chemical reactions. But in order to implement this, we will need to develop a modular and mobile chemical production system. We cannot relocate two major plants. But if one of these plants is mobile, cross-sectoral implementation can become a reality.

For this reason, SPIRE is devoting considerable attention to modular decentralized systems. We also think that modular chemical production systems will now become an example for other industrial sectors to follow and evaluate, to see if this approach could work for them, particularly for high added value materials production.

Q - *Why is it important to invest in such a partnership between public and private partners? What is the added value?*

A - Nowadays, the risks for investment in innovative technology are high. The cost of such investment in Europe is also extremely high, whereas the real market is now located in Asia. This means that the urgent need for investment can only be solved by combining private and public money to reduce risks and cut costs. It is also important that several private companies should invest together in a single value chain.

Q - *Are there any pitfalls the partnership needs to consider, which might prevent it from delivering significant results by 2020?*

A - Cross-sectoral collaboration between industries is by no means evident. It is a real challenge to build a demonstration plant in one geographical location for several different actors/players in industry. We have to realize that a strong industrial cluster, spread over several regions, is the basis for Europe's future reindustrialization and that the physical location of the investment cannot be the priority concern. The fact that the investment takes place is crucial; where it takes place is less important.

Q - *In view of the fact that the PPP is a partnership between public and private partners, how will this partnership be funded by each partner and how will the upcoming calls be funded?*

A - SPIRE will invest in RT&I via Horizon 2020, as well as via the strong involvement of its industrial partners. Eight industrial sectors have already committed themselves to invest, especially in the topics foreseen in the roadmap and in collaborative ventures with the EC for pilot and demonstration plants. The eight sectors are chemical, steel, engineering, minerals, non-ferrous metals, cement, ceramics and water.

Q - *From 2014 onwards, SPIRE will launch calls for proposals. What are the main objectives and which stakeholders does the partnership want to reach?*

A - In 2014 four calls will be launched under the umbrella of SPIRE and several others are additionally supported by SPIRE. At the same time, other calls from other PPPs will also be launched, as well as under the LEIT program (Leadership in Enabling and Industrial Technologies).

The four SPIRE calls will deal with :

*Integrated process control

*Adaptable industrial processes allowing the use of renewables as flexible feedstock for chemical and energy applications

*Improved downstream processing of mixtures in process industries

*Methodologies, tools and indicators for cross-sectorial sustainability assessment of energy and resource efficient solutions in the process industry.



Ludo Diels, Dr. in chemistry - biotechnology, is research manager Sustainable Chemistry at the Flemish Institute for Technological Research (VITO) in Mol, Belgium. During 15 year he managed the Environment and Process Technology Business Unit and is now responsible for the transition toward sustainable chemistry and clean technology.

He is responsible for the organisation of collaboration with the academic and industrial World and for co-financing projects. He coordinated and is involved in many international research projects. He worked on the creation of the Flanders Initiative for Sustainable Chemistry (FISCH) and the Flemish Algae Platform (VAP). Ludo Diels is strongly involved in the set up of a biobased economy in Flanders. He is also responsible for the collaboration between VITO and India and he is managing the creation of a road map and Strategic Research Agenda for R&D on biomass and biowaste between India and Europe. Process intensification and the partial replacement of fossil based resources by biomass-based and renewable resource form the basis for the Sustainable Chemistry Development. The integration of waste (including also waste gases as CO₂ and H₂) and wastewater management and technologies are key in the development of a sustainable World. In this way he also was on the basis of the Sewage Plus concept, a combined waste and wastewater treatment system leading to reduced energy consumption in water treatment and production. He is the Flemish representative for the Shared Research Centre on Bioaromatics and is in charge of the Port of Antwerp – University Antwerp – VITO initiative on CO₂ to chemicals. Ludo Diels is also professor at the University of Antwerp at the department of bio-engineers. He teaches environmental stress, environmental technology and sustainable chemistry.

Calendar of conferences on IB 2014

• February 13, 2014, Paris, France

BIO-TIC regional event
For registration visit www.industrialbiotech-europe.eu/events

• February 26, 2014, Warsaw, Polen

ERANET in Industrial Biotechnology Showcase and 5th Call Launch Event

• April 3-5, 2014, Montpellier and Narbonne France

Young algaeeners symposium
<http://yas2014.sciencesconf.org/>

• September 30 until October 2, 2014, Reims France

EFIB

Contact Information

Karen Görner
T: +49-38-43 69 30 162
E: k.goerner@fnr.de

For more information about ERA-IB-joint calls please contact the ERA-IB Call Secretariat:

Mark Schmets MSc
T: +31-70-34 40 537
Susan Licumahua
T: +31-70-34 40 615
F: +31-70-34 40 787
E: era-ib@nwo.nl