

EaPPLUS

Eastern Partnership +

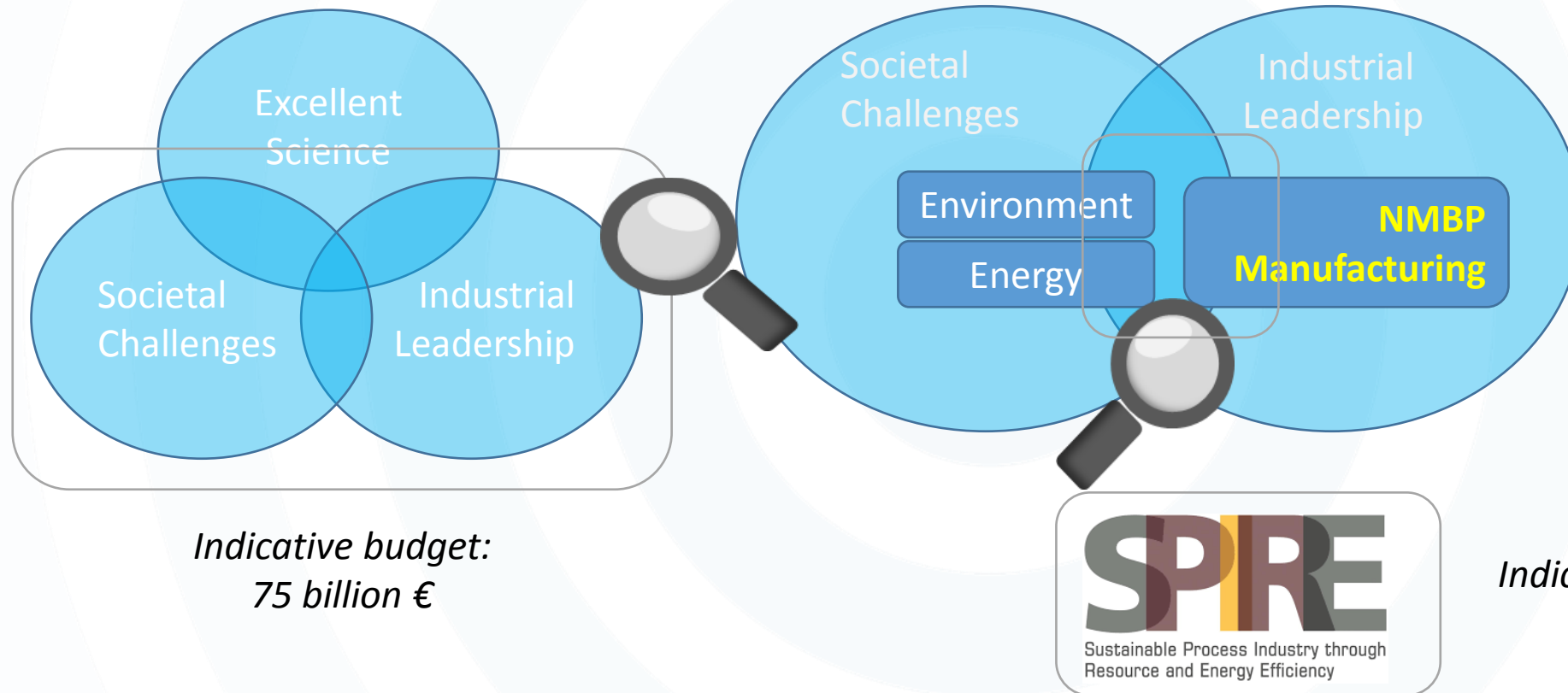


Sustainable Process Industry (SPIRE) cPPP opportunities for 2018-2020

Jaroslav PIEKARSKI
National Contact Point in Poland

*EaP Plus Webinar,
23 November 2017*

Sustainable Process Industry in HORIZON 2020



SPIRE in Horizon 2020 Workprogramme 2018-20



EN

Horizon 2020

Work Programme 2018-2020

*5.ii. Nanotechnologies, Advanced Materials, Biotechnology and
Advanced Manufacturing and Processing*



3.1. SUSTAINABLE PROCESS INDUSTRY (SPIRE)

.....

In line with the strategy for EU international cooperation in research and innovation (COM(2012)497), **international cooperation** may be **particularly appropriate** in some areas of the Sustainable Process Industry, in **particular with Eastern Partnership countries** (Ukraine, Moldova, Georgia, Armenia, Azerbaijan and Belarus).



Sustainable Process Industry

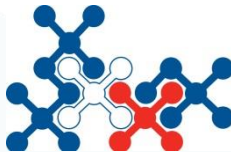
SPIRE is a contractual Public-Private Partnership dedicated to *innovation in resource and energy efficiency* enabled by the **process industries**.



EU budget: 900M€ for H2020 (2014 – 2020)

Key targets: *30% less energy consumption;*
20% fewer raw materials;
40% CO₂ equiv. footprint reduction

- *Creating knowledge, skills and high-tech jobs;*
- *Increased use of renewable feedstocks;*
- *Efficient sorting, separation and recovery technologies.*



Sustainable Process Industry



Implementation:

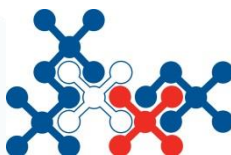
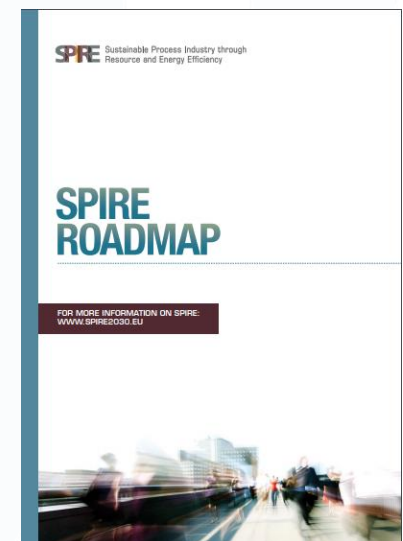


www.spire2030.eu

*Based on European Commission and stakeholders agreement representing eight sectors of the process industry: **chemicals, cement, ceramics, minerals, steel, non-ferrous metals, industrial water and process engineering.***

*The technological objectives are guided by a **2014-2020 multi-annual roadmap developed by the research and industrial stakeholders and validated in a Europe-wide open consultation process.***

*Calls are implemented according to **normal HORIZON 2020 procedure***



Resource Efficiency in the whole production process

Input

Process

ENERGY

RAW MATERIAL

Solvents,
Catalysts &
Auxiliaries

WATER

PACKAGING

Recycling

CO₂

PRODUCTS

By-products

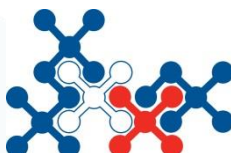
Residues

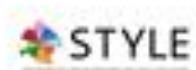
WASTE WATER

Landfill Waste

Gaseous
Emissions

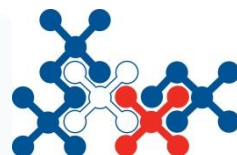
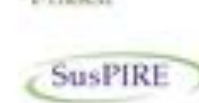






2014

2015





COCOP

Smartrec

INSPIRE

CarbonNext



INSPIREWater

REHAP

ReWaCEM

IMPROOF

KARMA2020

CoPro

DRYficiency

DREAM

FUDIPO

2016

2017

ENSUREAL

MORSE

SUPRIME

RECODE

Carbon4PUR



PORTABLECRAC

ICO2CHEM

SPRING

SCALER



<https://www.spire2030.eu/>

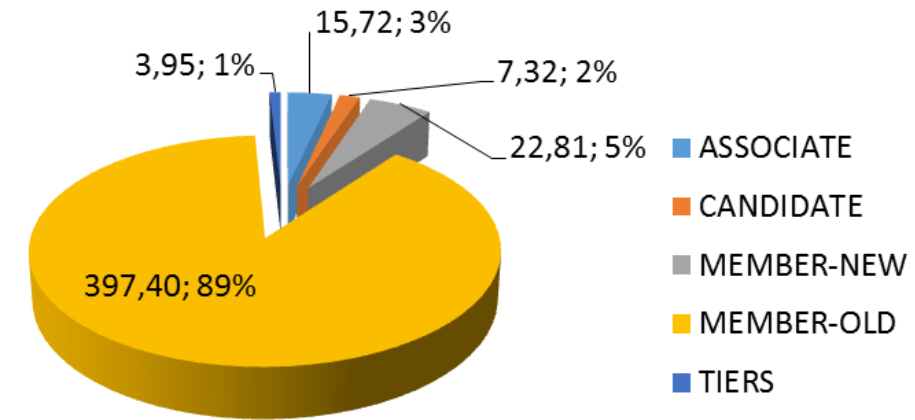
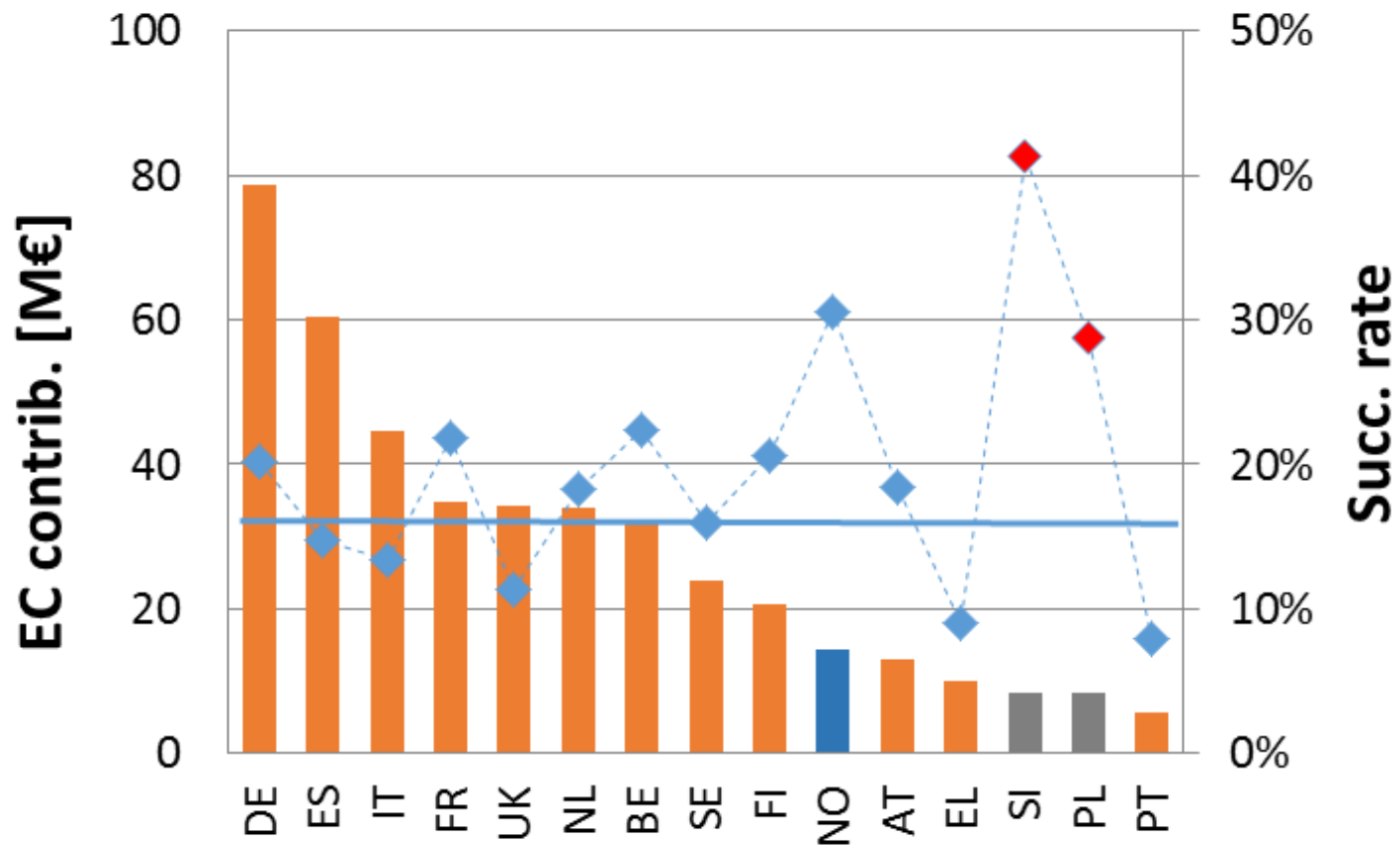


TARGETS OF SPIRE PPP – COMPARISON TO THE CURRENT STATUS (2016)

OBJECTIVES: innovative systems and technologies	OBJECTIVE 2020	ON-GOING (by 2016)
TOTAL	40	45 + 128
Adaptable processes able to use different feedstock	7	6
Reduction and re-use of waste with ambition to close the loop	6	9
Innovative processes leading to CO2 reduction	9	8
Green technologies to develop novel materials for new and existing markets	8	10
Industrial processes reducing water use	6	8
Technology uptake within/between sectors to enable industrial symbiosis	4	4
Other exploitable technologies, processes and methods (systems, tools, modules, algorithms, etc.) that are complementary to one or several of the above mentioned	Not foreseen	128

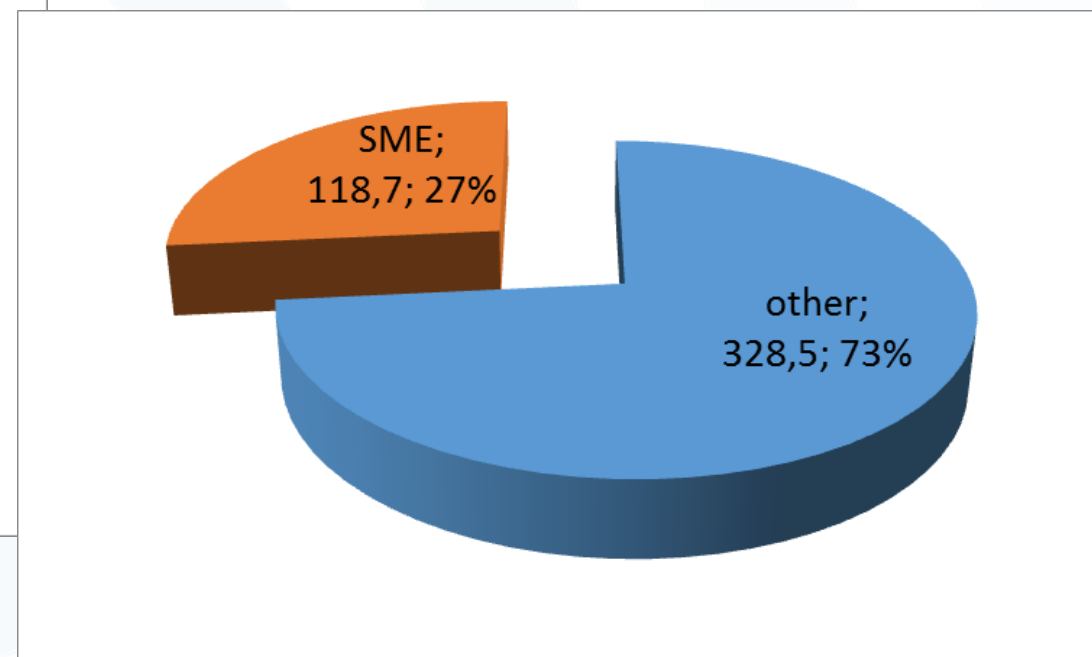
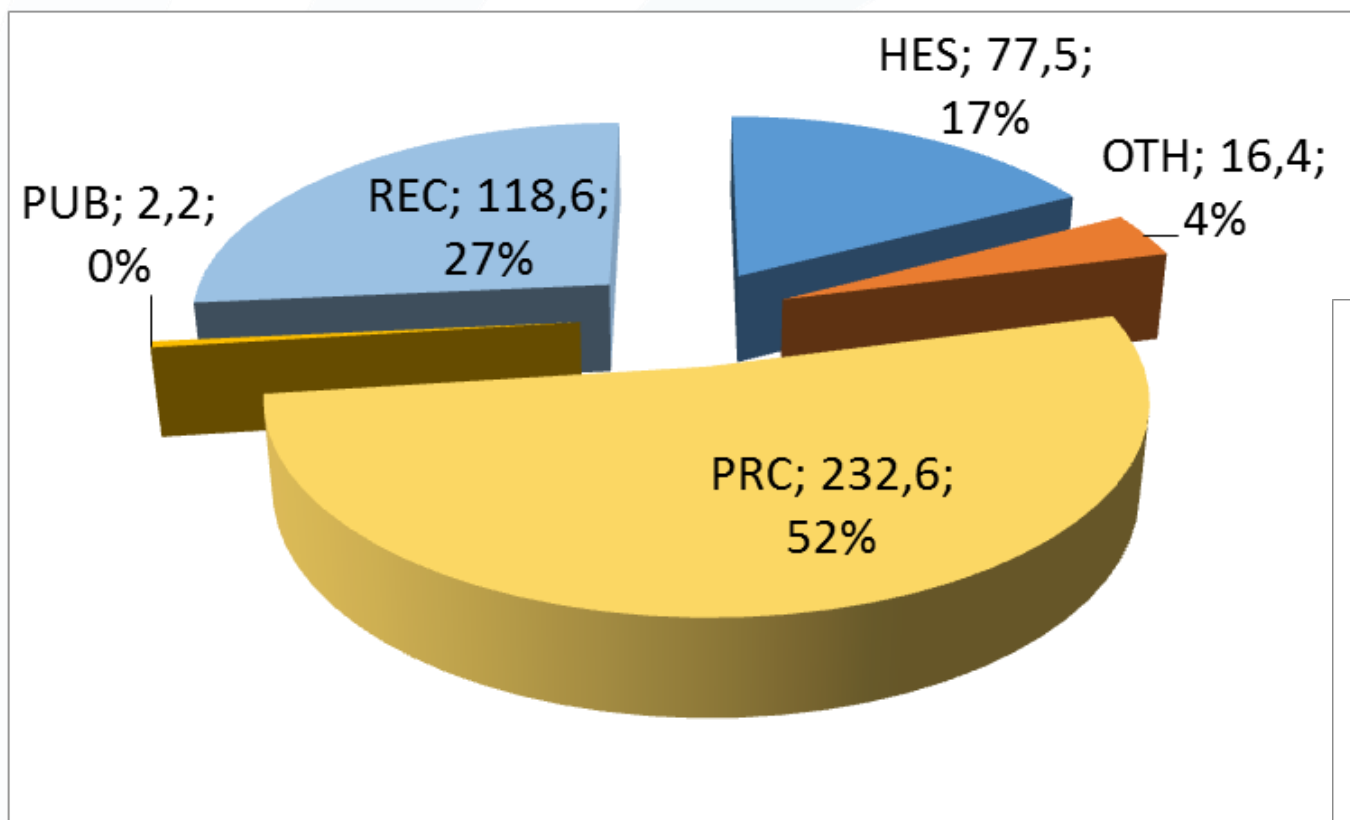
SOURCE: PROGRESS MONITORING REPORT FOR 2016, SPIRE cPPP

SPIRE Projects – EC Contribution



EC contribution 2014-17: **447 M€**
 Av. EC contrib / project: **6,4 M€**
 Av. EC contrib / partner: **0,43 M€**
 Av. success rate: **16%**

SPIRE Projects – Type of organisations



SPIRE Projects – Top 10 organisations

Organisation	Country	EC contrib. [M€]
VTT	FI	10,7
FRAUNHOFER	DE	9,6
TECNALIA	ES	8,6
SINTEF	NO	7,0
CEA	FR	6,6
UNIVERSITEIT GENT	BE	5,3
SWEREA MEFOS AB	SE	4,8
ARCELORMITTAL MAIZIERES RESEARCH SA	FR	4,2
VDEH-BETRIEBSFORSCHUNGSINSTITUT GMBH	DE	4,1
IRIS	ES	4,0

<https://www.spire2030.eu/projects/>

Projects

Technical field

All ▾



TERRA
Full Title: Tandem Electrocatalytic Reactor for Energy Resource Efficiency and Process Intensification
Aim:
TERRA aims to develop, from TRL 3 to 5,



VULKANO
Full Title: Novel integrated refurbishment solution as a key path towards creating eco-efficient and competitive furnaces
Aim:
VULKANO project aims to design,

SPIRE Projects – PL Participation

H2020-SPIRE-2014

- **DISIRE** (KGHM, KGHM Cuprum, WrUT)
- **iCspec** (Airopic, WrUT)
- **RECOBA** (MINKON SP ZOO)

H2020-SPIRE-2015

- **ADIR** (IMN)
- **EPOS** (CEMEX Polska)
- **MAESTRI** (IZNAB, LEAN Enterprise)

H2020-CIRC-2016TwoStage

ZERO BRINE (SUT)

H2020-SPIRE-2016

KARMA2020 (IBChW)

VULKANO (IEn)

H2020-SPIRE-2017

CO2EXIDE (AGH)

ENSUREAL (LUVENA, ODLEWNIE POLSKIE)

NOVUM (ABB sp. z o.o, AGH, RMA sp z o.o.)

process control, energy and resource management systems, industrial symbiosis, recovery technologies, valorization of bio-resources, industrial furnaces

Call ID: H2020-SPIRE-2014

EU contribution: EUR 5 587 932

Coordinator: SIEMENS (DE)

Objective:

to develop gas analyzers for fast in-line multi-component monitoring of gas compositions in a process stream and to replace currently employed analyzers ...



Nanosystems and
Technologies
GmbH
nanoplus

Julius-Maximilians-
**UNIVERSITÄT
WÜRZBURG**



Wrocław
University
of Technology

AIR OPTIC™
REAL TIME GAS ANALYZERS

 **mir
sense**

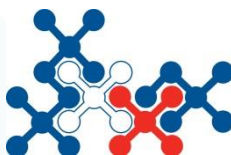
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Eastern Partnership +

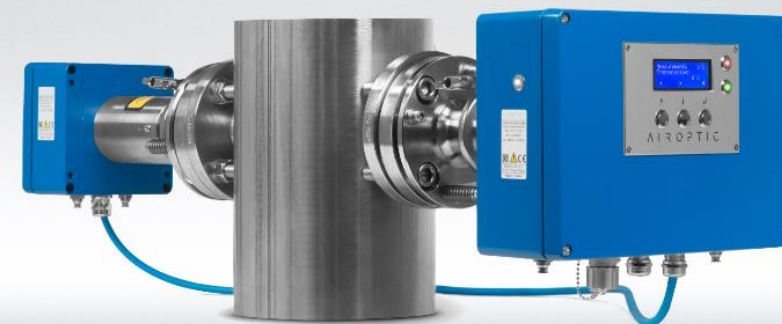


NMP TeAm



GasEye Cross Duct in-situ tunable laser gas analyzers for industrial process monitoring

FOR IN-SITU DETECTION OF CO, CO₂, HCL, HF, O₂, HCOH, C1-C5, NH₃, SO₂, SO₃, H₂O AND OTHERS DIRECTLY IN PROCESS STREAMS



Novel integrated refurbishment solution as a key path towards creating eco-efficient and competitive furnaces

Call ID: H2020-SPIRE-2016

EU contribution: 6 940 813,75

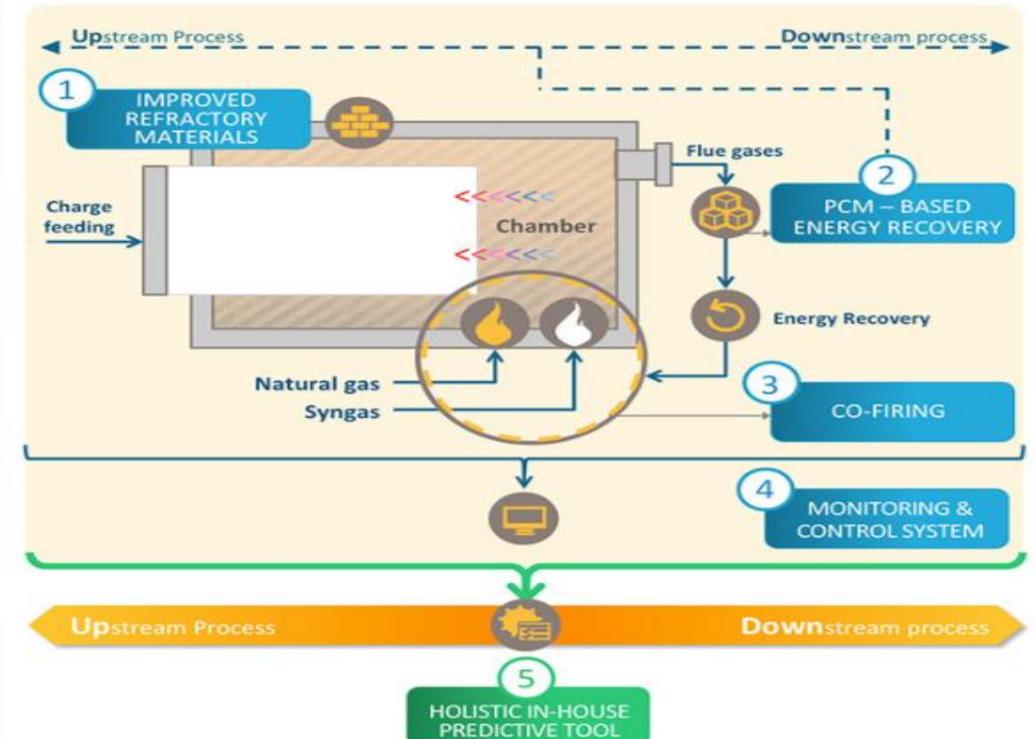
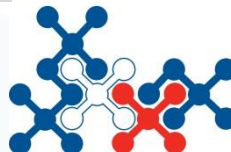
Coordinator: CIRCE Foundation (ES)

Objective:

the retrofitting of two types of industrial furnaces, namely preheating and melting, applied on three energy-intensive sectors (steel, ceramic and aluminium)

CONSORTIUM

7 COUNTRIES AND 12 PARTNERS



SPIRE 2018 calls

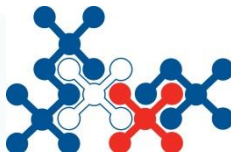
CE-SPIRE-02-2018: Processing of material feedstock using non-conventional energy sources (IA)

CE-SPIRE-03-2018: Energy and resource flexibility in highly energy intensive industries (IA 50%)

CE-SPIRE-10-2018: Efficient recycling processes for plastic containing materials (IA)

Deadline: 22 February 2018

Budget: EUR 97,500,000



SPIRE 2019 calls

CE-SPIRE-04-2019: Efficient integrated downstream processes (IA)

CE-SPIRE-05-2019: Adaptation to variable feedstock through retrofitting (IA 50%)

DT-SPIRE-06-2019: Digital technologies for improved performance in cognitive production plants (IA)

Deadline: 22 February 2018

Budget: EUR 97 700,000



ENERGY and ENVIRONMENT topics

CE-SC3-NZE-2-2018: Conversion of captured CO2

LC-SC3-RES-7-2019: Solar Energy in Industrial Processes

LC-SC3-EE-6-2018-2019-2020: Business case for industrial waste heat/cold recovery

CE-SC5-01-2018: Methods to remove hazardous substances and contaminants from secondary raw materials

CE-SC5-04-2019: Building a water-smart economy and society

CE-SPIRE-02-2018: Processing of material feedstock using non-conventional energy sources (IA)

TRL 4-6
6-10 M€

Deadline
27.02.2018

Specific Challenge: (...) The processes **powered by non-conventional** energy sources are suitable for connection to the electricity grid. (...) [Non-conventional] technologies are suitable for downscaling and continuous processing.

Scope: (...) develop technologies **applying non-conventional energy sources** to processes of high industrial interest. (...) Show potential for **integration** in a renewable **electricity grid** (...) **advantages** in terms of **resource** and **energy efficiency** (...) applicable to **continuous processes** (...)

Impact: Allowing for a **-30% to +30% energy** input (...) improvement in **energy efficiency** of 30%; (...) **resource efficiency** of 30%; (...) decrease in CO2 emissions by 40% (...) Decreased OPEX and CAPEX by 15%; (...) Effective dissemination (...)

CE-SPIRE-03-2018: Energy and resource flexibility in highly energy intensive industries (IA 50%)

TRL 5-7
8-12M€

Deadline
22.02.2018

Specific Challenge: *Energy intensive industries should **adapt** (...) to increasingly sustainable, but highly **fluctuating energy supply**. The challenge is to establish **synergistic integration at a regional level** among different production sectors (...)*

Scope: *Solutions (...) for **value chain optimisation** through **energy** [and raw materials] **efficiency** (...) of manufacturing equipment and processes, collective **demand side strategies**, and potential **integration** of the nearby **renewable energy** sources.*

Impact: *Cost reduction of the process of at least 10% through the implementation of a flexible scheme in raw materials
(...) Improved process efficiency (...) by at least 15%;
(...) CO2 emissions reduction by at least 5%,
and reduction of the environmental impact (...) by at least 15%;*

CE-SPIRE-10-2018: Efficient recycling processes for plastic containing materials (IA)

TRL 5-7
6-8 M€

Deadline
22.02.2018

Specific Challenge: (...) The wide use of [**Plastic materials**] results in a **huge amount of plastic waste**. (...) **Recycling and redesign** of plastics are **essential** in reusing plastic waste material (...) A **better use** of [plastic waste] support the **circular economy**.

Scope: (...) cover processes for the **production of recyclable materials** containing plastics.
(...) Improved **energy** and **resource** efficiency [LCA, LCC]
(...) value chains (...) ensuring the **secure supply** of the **raw materials**
(...) Process **flexibility** and ability to utilise **waste heterogeneous plastic materials**
(...) **Non-technological** hurdles (...) to enable the prompt **deployment in industry**

Impact: (...) **efficient** and **sustainable** (...) process (...) utilising **plastic waste ... (excluding fuels)**;
(...) decreased utilisation of **primary fossil** resources (...) of at least 30%;
(...) decrease in **CO2** emissions of at least 20%;
(...) utilise **at least 70%** of **waste** material including **at least 40%** of **plastic waste**;

CE-SC5-01-2018: Methods to remove hazardous substances and contaminants from secondary raw materials (RIA)

TRL 5-6
3-5M€

Deadline
27.02.2018

Specific Challenge: (...) The **uptake** and **recyclability** of secondary raw materials can be **hampered** by the presence of **undesirable contaminants** (...)

Scope: (...) develop innovative **solutions for removing** undesirable substances ; (...) **the safe utilisation or disposal** of substances thus removed ; (...) provide evidence of the potential **market impact** ; (...) **recommendations** on the design and manufacturing of materials for recyclability and for standardisation

Impact: (...) **increased purity** and/or desirable **quality** of secondary raw materials;
(...) **increased recycling rate** for (...) secondary raw materials;
(...) **reduced risk** of retaining hazardous substances ... ;
(...) **relevance to EU circular economy strategies**

CE-SC3-NZE-2-2018: Conversion of captured CO2 (RIA)

TRL 3-6
3-4M€

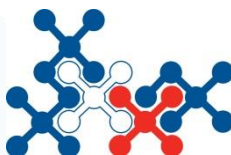
Deadline
06.09.2018

Specific Challenge: (...) Conversion of captured CO2 (...) to produce fuels is not only a means to **replace fossil fuels**, but also a promising solution for **seasonal energy storage** (...); CO2 (...) conversion process is **highly energy intensive**

Scope: (...) **develop** of energy-efficient and (...) viable **CO2 conversion technologies** for chemical energy storage or displacement of fossil fuels (...)
define **ambitious but achievable targets** for energy requirements of the conversion process (...)

Impact: (...) **New solutions** for the **conversion** of captured **CO2** (...) to useful products ;
(...) **diversify the economic base** in carbon-intensive regions,
(...) contribute to **achieving a Circular Economy**

International cooperation: **China**



LC-SC3-EE-6-2018-2019-2020: Business case for industrial waste heat/cold recovery

(2018) Cost-benefit models for industrial waste heat/cold recovery

TRL 4-8
3-4M€

Deadline
06.09.2018

Specific Challenge: (...) significant parts of the **input-energy are still lost** in the form of **waste heat/cold** (...)streams.

Wide-scale **deployment** of industrial **waste heat/cold** recovery is hindered (...) by the **lack of financial/ economic** justification (...) and (...)by the **limited industrial applicability**

Scope: (...) integrated **cost-benefit simulation tools** that, (...) , can determine the **best utilisation options** of recovered **waste heat/cold** and/ or surplus **renewable energy** from industrial and eventual other sources (...).

Impact: (...) Accurate **prediction and holistic modelling** of industrial waste heat/cold and/or surplus renewable energy (...)

(...)Better **impact of the various factors/ variables** on the cost-benefit simulation of industrial waste heat/cold and/or surplus renewable energy (...)

(..) **Valorisation in assessments of cost-benefit** of industrial waste heat/cold and/or surplus renewable energy (...)

International cooperation: **China**



Open Innovation Days Brussels, 3-5 Oct. 2017



The screenshot shows the European Commission's streaming service interface. At the top, there is a header with the European Commission logo and the text "STREAMING SERVICE OF THE EUROPEAN COMMISSION". Below this is a navigation bar with links for "SESSIONS", "ABOUT", and "FAQ". The main content area features the title "INDUSTRIAL INNOVATION INFO DAYS 2017 (SPIRE and Catalysing the Circular Economy)" in bold. Below the title, the date and time "2017-10-03 | 14:00 to 17:00" are displayed, along with a "Recorded" button. The video player shows a presentation slide titled "Horizon 2020 Work Programme for Research & Innovation 2018-2020" with the subtitle "Industrial Innovation Information Days Brussels 3-4 October 2017". The slide also mentions "PARALLEL SESSIONS" and "SUSTAINABLE PROCESS INDUSTRY (SPIRE) & CATALYSING THE CIRCULAR ECONOMY". A small inset video in the bottom right corner shows a man speaking at a podium.

European Commission

STREAMING SERVICE OF THE EUROPEAN COMMISSION

SESSIONS | ABOUT | FAQ

INDUSTRIAL INNOVATION INFO DAYS 2017 (SPIRE and Catalysing the Circular Economy)

2017-10-03 | 14:00 to 17:00 | Recorded

Slide #3and4Oct2017

Horizon 2020 Work Programme for Research & Innovation 2018-2020

Industrial Innovation Information Days Brussels 3-4 October 2017

PARALLEL SESSIONS
SUSTAINABLE PROCESS INDUSTRY (SPIRE) & CATALYSING THE CIRCULAR ECONOMY

<https://webcast.ec.europa.eu/industrial-innovation-info-days-2017-spire-and-catalysing-the-circular-economy-day1-0a>

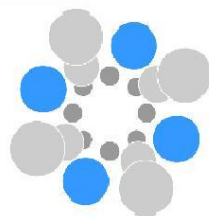
SPIRE 2018 calls – GET SUPPOT



<http://ec.europa.eu/research/participants/portal>

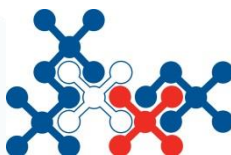


<https://www.spire2030.eu/>



NMP TeAm

<https://www.NMPTEAM.eu/>



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Partner search

[LOGIN](#)[REGISTRATION](#)[PARTNER SEARCH HOME](#)[SEARCH ENTRIES](#)[SEARCH PROFILES](#)[LIST ENTRIES OFFERS](#)[LIST ENTRIES SEARCH](#)

Links

Get information on how to register and create your own partner searches and partner offers

Find out who is your national NMP NCP

Project Ideas and cooperation offers from brokerage event in Strassbourg (17th October 2017)

Attention - Re-launch of the Partner Search Tool in October 2017

In view of the European Commission launching new Horizon 2020 work programmes for 2018-2020 - the partner search service of the Horizon 2020 NCP network projects NMP TeAm, NCPs CaRE and C-Energy 2020 have improved their services for you! These entail the following and will be effective from 16 October 2017 onwards:

Common registration level for the three activities. This will allow registered users to enter partner searches and offers on call topics of all the activities. Which means, that a registrant only needs to fill in his/her profile once and can still chose the specific database of interest.

Topic specific deadlines to avoid entries on already closed calls for proposals.

General overhaul of the tool

Partner Search - Partner Offer – How does it work?

This partnering tool supports potential applicants for **NMBP Work Program 2018-2020** in finding partners and building a consortium for a project proposal. It can be used in the following ways:

Step 1: In order to submit your own partner offer or partner search you first have to register on the common registration

Thank you for your attention!

Jarosław PIEKARSKI

NCP in POLAND

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