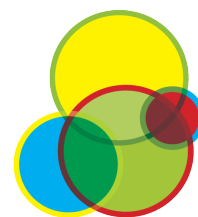


ANNUAL  
REPORT  
**2016**

**eseia**



european sustainable energy  
innovation alliance

# Table of Contents



**Brigitte Hasewend**  
*Director of eseia*

*“The vast majority of the eseia members have been on board from its inception in November 2009. This is not only due to the high return on investment that eseia has yielded to members in the past years, it is also due to the fact that they can rely on a stable alliance of partners for setting up large-scale initiatives that will create impact on the world renewable energy market.”*

Message from the President of eseia.....	3
About eseia	
Vision and Strategy.....	4
eseia in the World.....	6
Organisation.....	8
Working Groups.....	9
Education and Training Programme (ETP).....	10
Projects.....	11
More Projects.....	12
2 <sup>nd</sup> eseia Conference 2016.....	13
eseia Members	
Membership Benefits.....	14
Members’ infrastructures.....	15
List of Members.....	16
Brussels Links.....	18
Looking to 2017.....	19

## Message from the President of eseia

*In 2016 eseia attracted another € 1.6 million EC funding for an ERA-Net Smart Grids Plus project named CESEPS. This, together with the three EC projects granted funding in 2015, brings up the total volume for projects to € 8.8 Mio., of which two thirds are **directly benefiting eseia members**. As every Euro spent in membership affiliation is multiplied and invested in the acquisition of new EC funded projects and the development of education and training activities, relevance and impact of eseia are growing and new member organisations, like e-Mobility Graz GmbH, join the Alliance.*

*2016 was a year in which the Alliance intensified activities on multiple levels. It enlarged her Education and Training Programme by enabling the **creation of two new Master's programmes** in the field of bio-resources, with alternative learning formats and staff exchanges, strengthened her relations with members in the search of new joint project acquisition, and widened her position on the global market by reaching out to new partners in and outside Europe. I witnessed these positive developments first-hand at the **2<sup>nd</sup> biannual eseia Conference**, where almost 40 lectures on smart and green transitions in cities and regions were hosted by TU Graz 4-6 April 2016.*

*The success of eseia is clearly ascribable to the high level of participations of eseia members and their experts to the association's activities. It is therefore with great sadness that we had to part from **eseia Treasurer Sjoerd van Tongeren from the University of Twente** who sadly passed away in Graz early 2016. By continuing the development of eseia, we will honour Sjoerd's work, energy, passion, and dedication.*

*I would like to thank the Director and her Team for their hard work and congratulate them for the success in 2016!*

Graz, December 2016



**Harald Kainz**  
*President of eseia*

*“Two thirds of the funds eseia generates are benefiting eseia members directly.”*

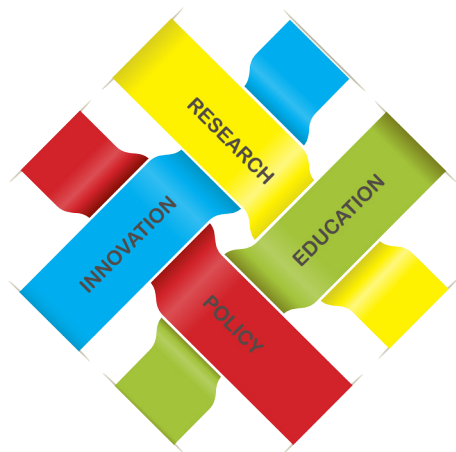
## About eseia: Vision & Strategy

eseia is a leading European non-profit association of 32 organisations in renewable energy innovation. The Alliance embraces the full value chain from research, higher education, business and administration.

### Vision

eseia strives to become the **first European address for renewable energy systems innovation by 2020**, and supports the European Union in taking the leading role to make Europe the most innovative energy region in the world.

eseia's expertise and activities focus on the management of large-scale **sustainable energy innovation projects**, organization of **expert panels to identify innovation gaps and needs**, planning of **entrepreneurial education courses** and the **promotion of dialogue** among main actors in society.



*eseia Approach*



*eseia Treasurer and Visionary*

*"Deeply touched and with great sadness, we have to inform you that the eseia Treasurer and our dear friend Sjoerd van Tongeren passed away on the night of February 1st 2016 while on a delegation visit to TU Graz, Austria. We all lose a close friend coined by an eternally positive mind and outstanding character."*

*Sjoerd provided vital strategic support for the built-up of eseia, forming close bonds between the University of Twente and members of eseia. Sjoerd's drive and energy as well as his visionary, innovative character were crucial to form our pioneering European Alliance."*

## Strategic Challenges

In order to advance smart energy systems and their market uptake in Europe, eseia is acting simultaneously as FORERUNNER, PROVIDER and BROKER.

### eseia as a FORERUNNER in agenda setting

Because of her full value chain interdisciplinary knowledge base, eseia is well equipped to look ahead of development and identify energy system solutions of the future. eseia focuses on **smart cities and communities** developing new business models for e-mobility integration and smart grid systems. By taking a systemic approach, eseia also works on finding the most efficient solutions using **nanotechnologies and new energy materials**. eseia also works on defining the optimal use of resources in a given world region.

### eseia as PROVIDER in capacity-building

eseia is running its own capacity building programme, the Education and Training Programme (ETP), bringing together **people** and **institutions** to transfer the skills needed for the energy transition.

The ETP is expanding its portfolio of activities thanks to EC funded projects. New master's courses, alternative learning formats, like industrial student camps and lab courses, joined eseia's International Summer Schools, site visits and twinning programmes. While training the experts of tomorrow, eseia is committed to the development of innovative institutions in the field of renewable energy innovation.

### eseia as BROKER in the world

eseia reaches out to partners outside Europe according to the EU Strategy for International Cooperation in Research and Innovation. In 2016 eseia engaged in cooperation with Eastern Partnership countries setting up joint training events funded by ener2i. eseia also worked with partners in China for acquisition of EC funds to create an EU-China renewable energies innovation platform.



*Bio-C President Lajos Vajda awarded eseia Director Brigitte Hasewend a Certificate of Appreciation for enhancing the international reputation of the Green Energy Innovative Biomass Cluster, Braşov, Romania.*

## eseia in the World

In 2016 eseia's efforts to enhance its presence in Europe culminated with the inauguration of **new premises in the heart of Brussels**, close to the European Parliament. eseia and its network expanded beyond European borders to a world-wide reach. eseia continued to raise its international visibility according to the EU Strategy for International Cooperation in Research and Innovation.

### 4 Eastern Partnership Countries

In 2016 the ener2i project was successfully concluded after three years. The ener2i project tackled the gap between **energy research** and **European industry** in the framework of the **European Neighbourhood Policy (ENP)**. eseia was involved in **knowledge transfer** and **innovation** of renewable energies and energy efficiency processes to support four out of six Eastern Partnership countries, namely **Armenia, Belarus, Georgia and Moldova**. Alongside its 10 partners, coordinated by the Centre for Social Innovation (ZSI), eseia cooperated to identify innovation gaps and training needs in these countries deploying experts from eseia members Utwente, SINTEF, BAV, UTBv, TUHH, TU Graz, and VGTU.

The networking activities eseia organized in ener2i, such as the EC Brokerage Events and H2020 workshops, led to the involvement of Armenia and Belarus in the Phoenix project.

*"eseia has come a long ways since its foundation 7 years ago. From a loose and diverse network of universities and businesses, held together by their common enthusiasm for changing the energy future in Europe, eseia has developed into a **major international actor for innovation** in all fields related to the energy turn around."*

Michael Narodoslawsky, TU Graz

ener2i

[www.ener2i.eu](http://www.ener2i.eu)

ener<sup>2</sup>i  
energy research  
to innovation

- 🕒 Oct. 2013 - Sept. 2016
- € € 1 Mio.
- 👥 11 partners from 5 EU and 4 EaP Countries
- ✓ 233 participants trained in 4 workshops in 4 EaP countries
- ✓ 47 staff exchanges between European and EaP countries
- ✓ Roadmap on energy efficiency renewable energies in business and recommendations for future cooperation
- ✓ Long-lasting partnership through the H2020 funded Marie Skłodowska-Curie RISE Phoenix project



Grant Agreement No. 609532

In the coming years, eseia's outreach strategy will expand to include new world regions outside Europe, where eseia members are already active in training and smart cities development, such as Africa, Latin America and China.

### Africa

The National Laboratory of Energy and Geology (LNEG), member of the eseia umbrella, was one of the three party's consortium that signed a 85 € million contract with the Geological Institute of Angola (IGEO) to implement the National Plan of Geology (PLANAGEO) in the capital city of Luanda between 2014-2018.

### Latin America

The University of Twente, longstanding eseia member, signed a Memorandum of Understanding with several parties, including the Brazilian City of Curitiba. The 5-year collaboration will focus on transforming the green city into a full functioning Smart City.

### China

eseia and her members have a good cooperation base with various institutions in China. Two years ago a Memorandum of Understanding was signed to enhance EU-China cooperation by setting common Urban R&I Agenda; promoting research and innovation projects; and providing knowledge for EU and Chinese policy makers and city planners. On 25 November 2016 eseia participated in the China-Forum "one belt, one road" hosted by TU Graz.



*Ener2i Brokerage Event in Graz, 5 April 2016.*

## Organisation

### eseia GENERAL ASSEMBLY

The GA is eseia's highest decision making body consisting of eseia members.  
The GA votes on decisions proposed by the GC twice a year.

### eseia GOVERNING COUNCIL



Harald Kainz  
TU Graz, AT

**President**



Teresa Ponce  
de Leão  
LNEG, PT

**Vice-President,  
Record Keeper**



Brian Norton  
DIT, IE

**Vice-President,  
Treasurer**



Ion Visa  
UTBv, RO

**Vice-President**



Josef Furlinger  
RIC GmbH, AT

**Vice-President**



Brigitte Hasewend  
eseia, AT

**Director**

**WG 1**  
Bioresources

**WG 2**  
Smart Cities  
and Regions

**WG 3**  
Education and  
Training

**WG 4**  
Smart Energy  
Materials

#### EXPERTS

[www.eseia.eu/experts](http://www.eseia.eu/experts)

The four eseia Working Groups with a total of 270 eseia experts focused their work on agenda-setting and project generation activities under Horizon 2020.

### eseia TEAM

The eseia Team, headed by the eseia Director Brigitte Hasewend, manages and co-ordinates the services and operations of the Alliance. In 2016, the Team included Catherine Bilger, Elisabetta Caharija, Alica Hammerova, Elena Markočič, Vera Veleva, Linette Viertelhausen, and Richard Wheeler.



## Working Groups

The vast expertise in sustainable energy solutions that eseia pools together through its members and partners represents one of the major added values of the Alliance. Currently eseia has **MORE THAN 270 EXPERTS from 32 organisations** active in different fields of sustainable energy innovation. The experts are organized in **four eseia Working Groups** which focus their actions on **agenda-setting** and **project generation** activities under Horizon 2020.

### Working Group 1 BIORESOURCES



**Coordinator:** M. Narodoslowsky, TU Graz  
**Co-coordinator:** Maarten Arentsen, Utwente

In this thematic area the main challenge is to provide a framework for contextualised and rational use of bio-resources. These resources are the most contested input to renewable energy systems as the food sector, the energy sector, and, increasingly, the industrial sector all compete for these resources.

### Working Group 2 SMART CITIES AND REGIONS



**Coordinator:** Teresa Ponce de Leão, LNEG  
**Co-coordinator:** Gintaras Stauskis, VGTU

The challenge in this area is the integrated utilisation of efficiency technologies, grid-overarching optimisation of energy systems, and the societal challenges of implementing complex energy solutions. WG 2 entertains two focus groups: **Smart Grids** and **Smart Mobility** to address challenges of the EU strategy for urban development.

### Working Group 3 EDUCATION AND TRAINING



**Coordinator:** Ion Visa, UTBv

The WG conceives and implements innovative training courses for the brightest students, for young scientists, and for professionals. WG 3 exploits the full potential of eseia members for linking practice and education.

### Working Group 4 SMART ENERGY MATERIALS



**Coordinator:** Katarzyna Siuzdak, IMP PAN

Created in 2016, the WG addresses the synthesis, processing, and application of smart energy materials to be used for improving the energy efficiency of renewable energy systems, e-vehicles, energy generators and buildings.

*“The most important asset of eseia is its **broad portfolio of expertise** that is truly inter- and transdisciplinary. eseia provides sound and impartial expertise for supporting the planning and preparation of strategic programmes for sustainable energy innovation in Europe.”*

Michael Narodoslowsky, TU Graz

## Education and Training Programme (ETP)

The eseia Education and Training Programme provides participants with the necessary knowledge and entrepreneurial skills for the energy turn. It addresses the lack of qualified workforce for the low carbon energy sector as indicated in the EU Strategic Energy Technology Plan Education and Training Roadmap. **The high level training offered by the eseia ETP covers the whole innovation field**, from sustainable energy resources to efficient infrastructure, and rational provision of energy services.

The extensive ETP portfolio has been extended in 2016 with alternative learning formats such as the **Student Camp, Pilot Plant Research Lab** and **Professional Trainings** to link education to practice. In the BioEnergyTrain project eseia developed **two new exclusive European Master Programmes**, namely:

**BIOREFINERY ENGINEERING (BRE)**  
at Graz University of Technology, Austria

**BIORESOURCE VALUE CHAIN MANAGEMENT (BVM)**  
at University of Twente, the Netherlands



BioEnergyTrain Project Meetings in Brussels, 13-14 December 2016

The Horizon 2020 funded BioEnergyTrain project, coordinated by eseia, formulated these **two post-graduate level curricula** to include the whole value chain of bioenergy, from field and forest to integration into the sustainable energy systems of buildings, settlements and regions. All the materials used for the lectures will be available on the **BET online learning platform from 2017**.

### BioEnergyTrain

[www.bioenergytrain.eu](http://www.bioenergytrain.eu)

🕒 May 2015 - April 2019

€ € 3,7 Mio.

👥 15 partners from 6 EU countries



Grant Agreement No. 656760

## Projects

True to her mission of **capacity-building of people**, eseia invested heavily in the training activities of professionals to foster the growth of **INSTITUTIONS**. In Horizon 2020 funded SuPREME project, eseia supports the Institute of Fluid-Flow Machinery of the Polish Academy of Sciences (IMP-PAN) setting up twinning and training together with eseia member University of Twente in the Netherlands and Aalborg University in Denmark.

The aim is to develop the necessary resources to foster the advancement of the **KEZO Research Centre** in Jabłonna near Warsaw.



*SuPREME Kick-off Meeting in Jabłonna, Poland, 12-13 January 2016*

In addition, eseia is forging the energy EXPERTS of tomorrow and consolidating networks of professionals through the Marie Skłodowska-Curie action Phoenix. Researchers exchanged knowledge internationally and across sectors to find **innovative solutions** for a European bio-economy based on **non-conventional bio-resources**. eseia, Phoenix Coordinator, organized 66 months of staff exchanges of 13 **researchers** from **6 countries**, coming from **academia and business** in 2016.

### SuPREME

[www.h2020-supreme.eu](http://www.h2020-supreme.eu)

🕒 Nov. 2015 - Oct. 2018

€ € 1 Mio.

👥 4 partners from 3 EU countries

SuPREME



*Grant Agreement No. 692197*

### Phoenix

[www.etp.eseia.eu](http://www.etp.eseia.eu)

🕒 Dec. 2015 - Nov. 2019

€ € 1,3 Mio.

👥 15 partners from 6 EU countries



*Grant Agreement No. 690925*

## More Projects

### ERA-Net Smart Grids Plus

In 2016, eseia proposal generation secured € 1,6 Mio. funding for a new ERA-Net Smart Grids Plus project named CESEPS.

CESEPS has the aim to develop a viable market for residential smart energy systems. Experts from **Austria** and **the Netherlands** teamed up to find **solutions for large-scale deployment of smart grid products and services** with improved performances in terms of **cost, reliability, safety, end-users' comfort and energy efficiency.**

#### The CESEPS Approach:

- Analysis of user experiences and energy measurements in more than **20 existing residential smart grid pilots** spread out in both territories;
- **Meta-studies** to understand how technologies, marketplaces, user needs and stakeholders can be merged and implemented in smart energy products and services.



#### CESEPS

[www.ceseps.eu](http://www.ceseps.eu)

🕒 Feb. 2016 - Jan. 2019

€ € 1,6 Mio.

👥 7 partners from 2 EU countries



Grant Agreement No. 645782



CESEPS Coordination Meeting in Graz, Austria, 2 December 2016

## 2<sup>nd</sup> eseia Conference

### Smart and Green Transitions in Cities and Regions

100 participants from 21 countries, 16 EU countries and 5 third countries, attended 6 sessions delivering 36 papers at the 2nd eseia Conference on Smart and Green Transitions in Cities and Regions. The eseia Conference took place 4-6 April 2016 in Graz, Austria.

At the event, representatives of academia, business and research organisations had the chance to exchange views on current trends in smart city development. eseia also provided the platform to discuss EC funded projects, namely ener2i, BioEnergyTrain (BET), CESEPS, SuPreme, and Phoenix.

This is to thank Michael Narodoslowsky from TU Graz and Catherine Bilger for setting up the eseia Conference and Catherine for her special contribution to eseia in the years 2013-2016.



*The 2<sup>nd</sup> eseia Conference was chaired by Martin Fellendorf, TU Graz, supported by Patricia Götz. For further reference visit [www.tugraz.at/events/eseia](http://www.tugraz.at/events/eseia)*



*Catherine Bilger, eseia and Michael Narodoslowsky, TU Graz presenting BioEnergyTrain (BET)*

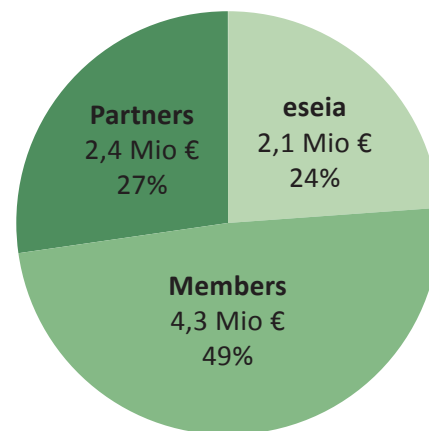


*Jörg Leichtfried, Austrian Minister for Transport, Innovation and Technology and eseia Director Brigitte Hasewend at eseia Conference Opening*

## Membership Benefits

In 2016 eseia **attracted funds** for an ERA Net Smart Grid Plus project **CESEPS worth € 1,6 Mio**. Including the other four running EC funded projects, BioEnergyTrain, Phoenix, SuPREME and ener2i, the total volume of the 5 running projects increased to € 8,8 Mio.

eseia Accounts 2016	
	in €
<b>Total Income</b>	<b>1,484,000</b>
of which Membership Fees	93,000
<b>Total Expenditure</b>	<b>1,344,000</b>
<b>Result 2016</b>	<b>140,000</b>
<b>Total Assests 31.12.2016</b>	<b>1,336,000</b>



Shared Project Income with total volume of 8,8 Mio. €

### eseia Services

- Pooling together the vast expertise from eseia Working Groups, comparing research and innovation profiles, identifying gaps and needs for innovation;
- Building and consolidating consortia, creating proposal strategy, coordinating EC proposal generation and submission;
- First-hand information from EC facilitated by our premises in Brussels, contacts to funding agencies and know-how of funding programmes;
- Access to world markets on the basis of strategic partnerships;
- Capacity building through education and training. Dissemination, communication and awareness raising;
- Exploitation: market studies and business creation;
- Support for consortium building and the coordination and management of large scale proposals and projects;
- Information sharing through interactive workshops, business meetings and quarterly newsletters including news from the grapevine of EU policy regarding renewable energies.

## Members' Infrastructures

eseia supports the exploitation and internationalisation of European infrastructures in cooperation with eseia members.

eseia members entertain high level research infrastructures funded by the EC such as ASCENT which is coordinated by **eseia member UCC** and provides access to the world's most advanced 14 nm and beyond CMOS nano electronics data and test structures in Europe.

The Polish Academy of Sciences Energy Conversion and **Renewable Sources Research Centre KEZO PAN** is a fully-fledged research infrastructure based in Jabłonna near Warsaw. It features a solar tech lab, micro cogeneration plants and ecological boilers lab, a wind energy lab, safety engineering lab for energy generation, and an integrated plus-energy lab. Similar high-tech labs are run by eseia members **LNEG** in Portugal and **Technical University of Braşov** in Romania.



*LNEG Campus Lumiar in Lisbon, Portugal*



*UTBv RESREC Lab in Braşov, Romania*



*KEZO PAN in Jabłonna, Poland*

## List of Members

By the end of 2016, eseia counted **32 MEMBERS** in **14 EUROPEAN COUNTRIES**, representing **higher education, research and business**.

19 Higher Education Institutions (HEI), 10 Businesses and 3 Research Organisations coordinated by the eseia umbrella.

**BAV - Bergischer Abfallwirtschaftsverband**, Germany

**Bio-C - The Green Energy Innovative Biomass Cluster**, Romania

**Bioenergy2020+**, Austria

**DIT - Dublin Institute of Technology**, Ireland

**EAS - Energy Agency Styria**, Austria

**IMP PAN - Polish Academy of Sciences Research Centre**, Poland

**Johannes Kepler University, Energy-Institute**, Austria

**JSI - Jožef Stefan Institute**, Slovenia

**KFUG - Karl-Franzens University of Graz**, Austria

**KYAMK - Kymenlaakso University of Applied Sciences**, Finland

**LNEG – National Laboratory of Energy and Geology**, Portugal

**ELES - Elektro-Slovenija**, Slovenia

**e-mobility Graz**, Austria

**FH Joanneum Gesellschaft mbH**, Austria

**GreenTech Cluster Styria**, Austria

**Parthenope - University of Naples**, Italy



**GREEN ENERGY**

Romanian Innovative Biomass CLUSTER



bioenergy2020+



ENERGIEAGENTUR  
Steiermark



an der Johannes Kepler Universität Linz



Jožef Stefan Institute



KYAMK

University of Applied Sciences



**GREEN  
TECH  
CLUSTER**



**RIC - Regionales Innovations Centrum GmbH** - BRP Powertrain, Austria

**STU - Slovak University of Technology** in Bratislava, Slovakia

**TORBEL** - Engineering and manufacturing company in Ílhavo, Portugal

**TH Köln - University of Applied Sciences**, Germany

**TU Graz - Graz University of Technology**, Austria

**TUHH - Hamburg University of Technology**, Germany

**TU Vienna - Vienna University of Technology**, Austria

**UCC - University College Cork**, Ireland

**UCD - University College Dublin**, Ireland

**UL - University of Ljubljana**, Slovenia

**University of Pannonia**, Hungary

**University of Zagreb**, Croatia

**UTBv - Transilvania University of Braşov**, Romania

**Utwente - University of Twente**, the Netherlands

**VGTU - Vilnius Gedminas Technical University**, Lithuania

**Wood K plus - Kompetenzzentrum Holz GmbH**, Austria

*“eseia is unique because of the **combination of expertise spanning the whole innovation triangle** regarding sustainable energy systems with a strong capacity to organise and lead interdisciplinary teams as well as to reach out to change agents on the ground.”*

Michael Narodoslawsky, TU Graz



Technology  
Arts Sciences

TH Köln



TUHH  
Technische Universität Hamburg-Harburg



University of Zagreb



UNIVERSITY OF TWENTE.



Wood  
K plus

## Brussels Links

eseia strengthened her presence on the European scene and opened her **NEW HUB IN BRUSSELS ON 28 JUNE at Rue d'Arlon 22 on Square du Luxembourg right at the heart of the European institutions.** The ceremony was opened by Vice-President Brian Norton who outlined the importance of European funded projects for the advancement of excellence in eseia member organisations. In her speech the Director Brigitte Hasewend stressed the importance of the new eseia premises for facilitating permanent dialogue with members and representatives from European institutions, organizations and partners operating at EU level.



*Inauguration of the eseia Brussels Hub. From left to right: eseia Director Brigitte Hasewend, eseia Vice-President Brian Norton, and WG Bioresources Coordinator Michael Narodoslawsky.*



*Laura Esposito, DG RTD, speaking at the eseia H2020 Update Workshop in Brussels, 14 December 2016.*

### Connecting people and ideas

The eseia Brussels Hub is an exceptional facility designed for a variety of meetings and events. Our three meeting rooms are suitable for **different group sizes**, offer the **latest technologies**, **free WIFI** and have **catering available** on request.



*eseia Meeting Room in Brussels for a maximum size of 45 people powered by Neth-ER.*

## Looking to 2017

Focus	Proposal	Action	Call	Budget
Smart Cities and Regions	NETEVE	IA	MG-4.2- 2017 : Supporting Smart electric mobility in cities	4-5 M
	SESSUM	IA	MG-4.1- 2017 : Supporting Smart electric mobility in cities	2-5 M
	SeamET	IA	GV-08-2017: Electrified urban commercial vehicles integration with fast charging infrastructure	5-15 M
	ACE	RIA	GV-05-2017: Electric vehicle user-centric design for optimised energy efficiency	7-10 M
	Smart Cities	IA	SCC-02-2016-2017: Nature-based solutions for inclusive urban regeneration	10 M
New Energy Materials	New energy materials	CSA	NMBP: Nanotechnologies, Advanced Materials, Advanced Manufacturing and Processing, and Biotechnology	10 M
Education and Training	GreenCityE	MSCA	H2020- MSCA-RISE- 2017: Research and Innovation Staff Exchange	2.4 M
	Erasmus +		KA2: Cooperation for Innovation and the Exchange of Good Practices	0.5 M
Biobased Economy	Biofuels	IA	LCE-19-2016-2017: Demonstration of the most promising advanced biofuel pathways	10-15 M
Renewable Energies	Renewable energies	CSA	WIDESPREAD-03-2017: ERA Chairs	2.5 M
			WIDESPREAD-05-2017: Twinning	1 M



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