

Annual Report 2018



european sustainable energy
innovation alliance

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Brigitte Hasewend
Director of eseia

“For the EIT KIC Proposal WeMove2Zero eseia built an impressive grouping of organisations. Together we will continue working on affordable, fast, inclusive, sustainable, entertaining, and personalised mobility systems with European citizens.”

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Message from the President of eseia

In 2018 integrated mobility systems development and emission-free alternatives for transport of people and goods in urban regions continued to be high on the EU agenda.

*eseia directly responded to this challenge by setting up a large knowledge and innovation community on **urban mobility systems** for the EIT KIC Proposal **WeMove2Zero** including **80 partners from all sectors**. The eseia led KIC covered the full value chain from urban planning, to vehicles, infrastructures, ICT for mobility management, transport operators, and service providers. As a direct result, **six new organisations** from three different countries joined eseia, among which four businesses.*

*Among the highlights in 2018, member organisations benefited from a total of **€ 1 Mio. H2020 funding** for BioEnergyTrain (BET), MCSA RISE Phoenix, and ERA-NET Smart Grids CESEPS.*

*I am also proud to mention that eseia successfully completed the **H2020 funded SuPreme** capacity-building project led by IMP Pan after three years of twinning with the University of Twente and the University of Aalborg to enhance research staff capacity at KEZO in Jabłonna, Poland.*

*Among many other achievements, the **eseia Education and Training Programme** staged **four international training courses** held in four different countries reaching nearly 80 participants.*

It is a pleasure to share this Annual Report with you. Thank you for your great work and commitment in 2018.

Graz, December 2018



Harald Kainz
President of eseia

“I am pleased to welcome six new member organisations in eseia, two higher education institutions, and four businesses, one energy provider, one incubator, one regional planning company, and one energy agency. Together we are well-equipped to respond to the challenges of Horizon Europe.”

Vision

Since its foundation in 2009, eseia has striven to become the **first European reference for sustainable Energy systems innovation. For this purpose**, eseia brings together higher education institutions, research organisations, and businesses, and public authorities representing the whole value-chain.

Mission

eseia identified **three major challenges** to fulfil her mission, namely to act as forerunner in agenda setting, as a provider in the area of capacity-building and as a broker in international cooperation.

Strategy: 3rd eseia Conference Special JESS Issue

Professor Brian Norton, Rector of DIT and eseia Vice-President and his Team headed by **Dr Andy Maguire** kindly hosted the 3rd eseia Conference 2018 on **Smart Energy Systems in Cities and Regions**. The eseia Conference is a bi-annual international conference where industry and academia have candid scope to share and exchange their views and have opportunity to churn future bright ideas into promising new projects to address the societal challenges. In four engaging tracks of policy, mobility, urban regeneration and bio

resourcing, **78 participants from 17 countries** discussed their latest research findings to an international audience. Thanks to our colleague **Dr Malabika Basu** from DIT, School of Electrical and Electronic Engineering, the highlights of various perspectives of these topical issues were published in a **special conference issue** in the eseia Springer Open Access Journal Energy, Sustainability & Society (JESS).

Challenges

Forerunner - Setting the agenda For RES in the European market

With 400 experts, the eseia Working Groups have the capacity to advise EC decision-makers to achieve sustainable and high competitive energy systems in Europe by 2050.

Provider - Capacity building for both people and institutions

The Education and Training Programme (ETP) ensured the participation of students, academics and professionals in EU programmes and training courses based on alternative learning formats.

Broker - Forging International Partnerships

In 2018, eseia raised its international visibility by forging cooperation in R&I with major international groups, also involving countries from outside the EU, such as China.



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3rd eseia Conference hosted by DIT in Dublin, Ireland, 9 April 2018

Smart Urban Mobility Systems Targeted

In the first half year, eseia intensified efforts on smart mobility for urban regions. eseia held a series of workshops on the topic in **Vienna, Dublin, and Graz** together with partners from **urban industry, research, education and city administration**. The prevailing understanding was that this mayor societal challenge required a **systemic approach** integrating technologies, modes of transportation for people and goods, intervention paths, new business models, and a multitude of actors, especially the European citizens.

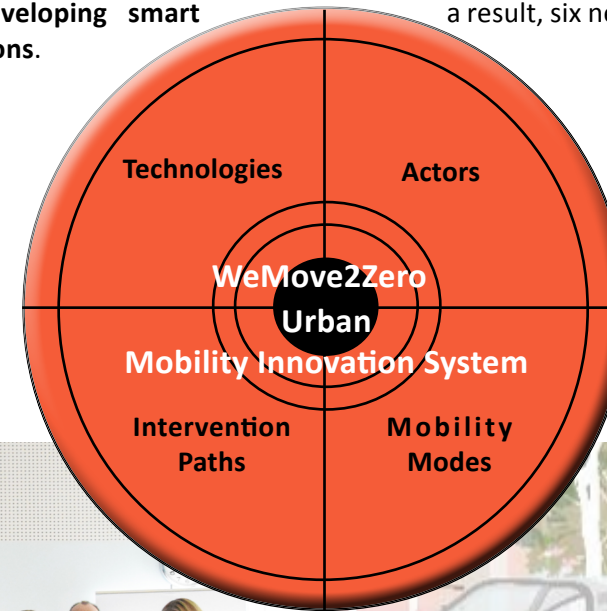
Most importantly, any future approach needed to count in the **human and social factors as a priority**. It was especially noted how important it was to offer **training and awareness raising measures** for all actors involved. For this reason, eseia submitted a cross-sector research exchange proposal to the EC under the Marie Skłodowska-Curie Action RISE Green Mobility Innovation Exchange 21 March.

The challenges identified by urban regions to move to zero emission inspired the eseia **EIT KIC Proposal Urban Mobility** entitled **WeMove2Zero**, which was submitted **12 July**.



The wemove2zero partnership shares the vision to create **emission free urban regions in Europe by developing smart mobility solutions**.

To address the actual challenges of mobility wemove2zero aims to focus on providing **affordable, fast, inclusive, sustainable, entertaining, and personalized mobility** solutions for European citizens.



This **WeMove2Zero** cross-sector consortium includes seven urban regions of which one city cluster of 250 cities, four business clusters regrouping 400 companies, nine international businesses and 20 SMEs, plus 36 educational and research partners. Even though WeMove2Zero was not selected for funding, the partnership will continue exploring other funding opportunities. As a result, six new member organizations joined eseia.

The discussions eseia held throughout the year were echoed by the **EC Graz Forum on the Future of Urban Mobility** in European Cities, to which the EC had invited the eseia Director to develop the EU's Strategic Transport Research and Innovation Agenda.



Henriette van Eijl, EC DG MOVE at Graz Forum, 26 November 2018



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eseia Workshop, hosted by FFG in Vienna, Austria, 29 January 2018



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WeMove2Zero Vision painted by Architect Klaus Loenhardt, TU Graz

Education and Training Programme (ETP): Capacity Building for People and Institutions

In 2018, eseia invested greatly in capacity building for people and institutions. In total, **80 research students** took part in four courses held in four countries funded by H2020 BET, MSCA Phoenix, and SuPreme. In addition, eseia submitted three more proposals to the EC to fund future ETP activities, namely:

● **MSCA RISE Green Mobility Innovation Exchange:** submitted 21 March 2018 with 25 partners, not retained for funding.

● **Skills for Energy Transition EnergyTrainPlus (ETP):** intended as a follow-on project from BET, ETP was submitted 6 September 2018 together with 25 partners, not retained for funding.

Four eseia Courses

● **Spreading Excellence and Widening Participation:** BRACELET, a twinning project to build capacity in the field of energy transition benefiting staff and institution. The proposal was submitted 15 November coordinated by the University of Zagreb, FSB, **Prof. Goran Krajacic and MSc Victorija Dobravec** and supported by DTU, AAU, KnowCentre, and eseia. This project is intended to follow on the work that was successfully completed under SuPreme.



“Thanks to the MSCA Phoenix project, I had the chance to work for the Energy Agency Styria in Graz, Austria, gaining insight knowledge in the role of the agency as an interface between regional administration, policy, science, education, economy and consumers in the energy transition.”

ISC: Four regional challenges:

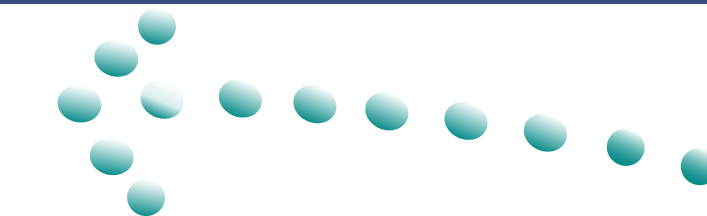
1. How to reach climate goals (Styrian Government)
2. How to use biomass effectively (Agricultural Chamber)
3. Circular bio-economy: the Case of Mureck (BE2020)
4. Bio-based products from Municipal Waste (Styrian Government)

Interdisciplinary Student Camp (ISC): Regional Challenges for Bio-Based Economy

Organized in the framework of the BioEnergyTrain (BET) project and organised by Energy Agency Styria (EAS), Christian Sakulin and Theresa Urbanz in Graz, 26 February - 2 March, gathered 23 students from 12 different countries, and trained by Prof. Wolfgang Bauer and Prof. Marlene Kienberger, TU Graz and Maarten Arentsen, UTwente.



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International Summer School (ISS): Micro and Macro Scale Energy Systems

The SuPREME ISS was hosted by Dr Sebastian Bykuć and Ewa Domke from IMP PAN at the Energy Conversion and Renewable Resources Research Centre KEZO in Jabłonna, Poland, 19-25 August. Prof. Birgitte Bak-Jensen and Poul Alberg Østergaard from AAU and Prof. Johann Hurink, Albert Molderink and Frans Coenen from UTwente trained some 20 research staff on the potential of micro and macro scale energy systems.



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Pilot Plant Course (PPC): Hands-on pilot scale plants

From 17-19 October four research students from three higher education institutions, eseia members Prof. Michael Bongards and Christian Wolf, TH Cologne, the Saxion University of Applied Sciences, and UTwente took part in the 3rd BET PPC hosted by the Bergischer Abfallwirtschaftsverband at the waste disposal site Leppe in Germany. Participants gained valuable hands-on experience on pilot-scale plants.



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International Summer School (ISS): BioRefinery Processes and Sustainability

30 professionals, researchers, PhD and master students from different parts of the world, examined the complexity of biorefineries at the eseia ISS 2018 hosted by LNEG, Dr Luis Duarte in Lisbon, Portugal, 9 -21 July. Together with experts from the BET Consortium, the school demonstrated how the concept of biorefinery could open up new processes and sustainable products.



In October 2018, the **EU H2020-TWINN-2015 project SuPreme** –Twining for a sustainable, proactive research partnership in distributed energy systems planning, modelling, and management, coordinated by **Ewa Domke** and led scientifically by **Dr Sebastian Bykuć** from **IMP PAN** was **successfully completed**. Professors from **Alborg University**, as well as from the **University of Twente** trained some 20 members of the **KEZO** research staff through training courses, international summer schools on **micro and macro scale energy systems**, workshops and conferences, as well as long and short-term visits. **eseia staff** were responsible for dissemination and proposal work.
Website: www.h2020-supreme.eu



The **ERA-Net Smart Grids Plus** project **CESEPS** coordinated by **Prof. Fickert, TU Graz** in Austria with **AIT** and **eseia** and **Prof. Angele Reinders, UTwente**, with the universities of **Delft, Utrecht and Wageningen** in the Netherlands yielded first results, namely field studies of residential pilots and a **market study on selected smart grid products and services**.

Website: www.ceseps.eu



BET Meeting in Brussels, Belgium, 13 November 2018

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To date, a **total of close to 100 students** are benefiting from courses offered by the new **BET Master's Programmes, Biorefinery Engineering (TU Graz) and the Bioresource Value-chain Management (University of Twente)**. All information regarding the programmes is available on www.bioenergytrain.eu. For those interested to learn from the good example, the **BET Publication** entitled **Theory and Practice of European Cooperative Education and Training for the Energy Turn** was published in the *Journal on Energy, Sustainability and Society (JESS)*. Copies are available from the **eseia Secretariat** on request.



In 2018, 12 secondees have participated in international exchanges under **MSCA RISE Phoenix**, reaching a total number of **42 person months in 2018** which increased the total number of **PM accomplished to 120** since the start of the project. One of many results from knowledge transfer was a publication on **optimal downstream processes for liquid bio-fuels from non-conventional bio-resources** in *JESS*.

Website: www.etp.eseia.eu



Membership Benefits

As part of the effort to accommodate the needs of eseia members and to align strategic directions, the eseia Director Brigitte Hasewend intensified dialogue with eseia member organizations.

Early in the year, the eseia Team paid a visit to colleagues from eseia member organizations based in Ljubljana, Slovenia, 6 February:

- to the group of **Prof. Spomenka Kobe**, Head of the Department for Nanostructured Materials and **Prof. Tina Zuzek**, and **Prof. Saso Sturm** from the Józef Stefan Institute, as well as to **Dr Gregor Papa**, Senior Researcher at the Computer Systems Department of the Józef Stefan Institute and



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Józef Stefan Institute, Ljubljana, Slovenia 6 February 2018



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University of Ljubljana, Slovenia, 6 February 2018

- Prof. Andrej Gubina**, Head of the Laboratory for Energy Policy, Faculty of Electrical Engineering, University of Ljubljana.

On the occasion of the **eseia Conference in Dublin**, 10 April the eseia Director had the pleasure to meet with the **DIT Team** headed by Rector **Prof. Brian Norton** that had organized the eseia Conference and with colleagues working in renewable energy innovation.

In the summer, 18 June, eseia Director was pleased to discuss eseia business and the exploitation of BioEnergyTrain learning materials with **Prof. Markku Huhtinen** from the Finnish eseia member organization **Savonia University of Applied Sciences**. He visited eseia in Graz with a **ten person strong delegation** with representatives from Karelia University of Applied Sciences and the University of East Finland who wish to create a Bioeconomy Specialisation for Eastern Finland.

- In Lisbon, 13 July, the eseia Director met with eseia **Vice-President Prof. Teresa Ponce de Leão** from LNEG and incoming member **CEO Miguel Sales Dias** from the Portuguese Energy Agency Adene to exchange notes on joint proposals.

- The **French Academy of Sciences** hosted an international workshop in Paris, 5 October, which the eseia Director attended as an expert for EC policy on institutional capacity building on the request of **Prof. Costas Papanicolas** from eseia member the **Cyprus Institute**.

- 15 October, the eseia Director met with the incoming **CEO of the Energy Agency Styria Edgar Chum** who was happy to continue working closely with eseia on international projects underlining the regional dimension of renewable energy innovation.



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Finnish Delegation in Graz, Austria, 18 June 2018



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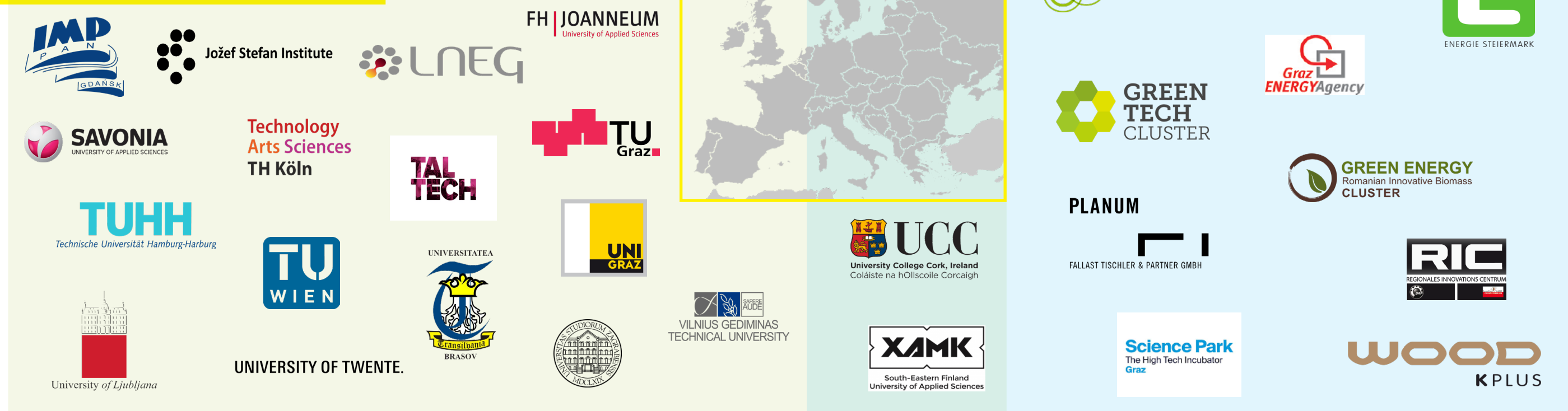
Dr Johannes Reichl, JKU Linz, SET Plan Conference, Vienna, Austria, 20 November 2018

The second half of 2018 Austria was popular with EC events because of the Austrian Presidency. The eseia Director attended the **SET Plan Conference in Vienna**, 20-21 November at which **Dr Johannes Reichl** from eseia member **Energy Institute JKU Linz**, gave a pitch talk on Horizon 2020 project entitled Personal Energy Administration Kiosk application (PEAKapp).

List of Members Growing

In 2018, eseia welcomed **six new member organisations** from three different EU Member States among which four businesses, namely: **University of Natural Resources and Life Sciences Vienna, Energie Steiermark Technik GmbH, Science Park GmbH, Planum GmbH, Tallinn University of Technology, and Adene.**

Among her members were **34 member organisations** regrouping 12 businesses of which two business clusters, 18 higher education institutions, and four research organisations **from 13 European countries.**





According to EU strategic approach to **international cooperation in research and innovation**, eseia cooperated with major international groups fostering international collaboration **including with China**.

eseia members KFU Graz, Confucius Institute and TU Graz held the **4th China Forum** bringing together experts from both world regions to discuss

digitalization, sustainability and quality of life in Graz, 23-24 October.

The eseia workshop on Sustainability chaired by FH Joanneum Dr **Martijn Kiers** covered current and future challenges of smart mobility for urban regions, efficient buildings and urban policy. Panel presentations were given by **Xuesong Cai** from Shanghai Industrial Technology Institute, Architect **Erwin Kaltenecker**, Dr. **Ting Zhao** from East China University of Political Science and Law, Prof. **Mario Hirz** from TU Graz, Dr **Karl-Heinz Posch** CEO of FGM-AMOR, and Dr **Robert Schmied** CEO of Energie Agentur Graz, and the eseia Director **Brigitte Hasewend**.



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Speakers to the 4th China Forum Workshop on Sustainability in Graz, Austria, 24 October 2018



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General Assembly participants in Brussels, Belgium, 13 November 2018



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Robert Missen, DG MOVE, in Brussels, Belgium, 13 November 2018

The 19th eseia General Assembly and **EU Policy Update** took place at the eseia Brussels premises, 13 November. Over lunch **Robert Missen from the EC, DG MOVE** discussed the Future of Mobility in European Cities with eseia Members.

26 April eseia hosted the **2nd Review Meeting for BioEnergyTrain (BET)** in Brussels. The Work Package leaders presented BET results to EC PO **Manuela Conconi** from INEA.

The **BioEnergy Market Uptake Workshop** hosted by INEA in Brussels, 18 January gathered some 20 participants from 16 funded EC CSA projects in bioenergy, one of which is **BioEnergyTrain (BET)** coordinated by eseia. Overall, EC Horizon 2020 funds **40 bioenergy projects for € 185 Mio** of which the 16 CSAs received € 30, 9 Mio. This would make BET one of the largest CSA projects funded by the EC. The meeting agreed on joined exploitation of results from a joint toolbox to training measures.

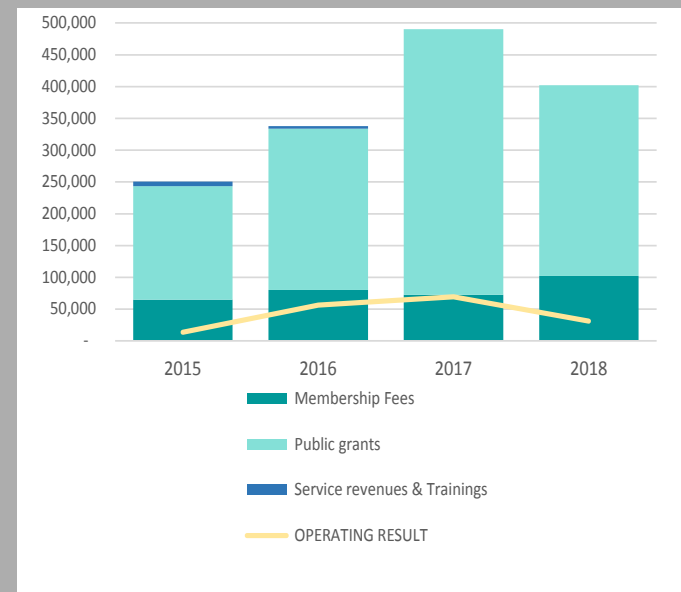
eseia GENERAL ASSEMBLY

The GA is the highest decision-making body and consists of one representative from each member organisation. The GA votes on decisions proposed by the Governing Council twice a year.

eseia GOVERNING COUNCIL

						
Harald Kainz	Teresa Ponce de Leão	Brian Norton	Jan Kicinski	Ion Vlsa	Josef Furlinger	Brigitte Hasewend
TU Graz, AT	LNEG, PT	DIT, IE	IMP-PAN, PL	UTBV, RO	RIC GmbH, AT	eseia, AT
President	Vice-President	Vice-President, Treasurer	Vice-President	Vice-President	Vice-President	Director

In the past four years, on average **Members have benefitted from eseia project income** of more than € 1 Mio per year. eseia has earned itself € 300,000 from EC funded projects. Membership fee income has nearly doubled since 2015.



Audited Accounts

In 2018 eseia members received income from eseia projects of **€ 1 Mio**. The total revenue for eseia was € 400,000 of which € 100,000 came in from membership fees and another € 300,000 from running projects BET, Phoenix, SuPReme and CESEPS. In total the eseia expenditure was lower than the income which equals a **positive net result**. This result was achieved despite the huge effort undertaken to set up the EIT KIC Urban Mobility Proposal and for other proposals coordinated by eseia (ref. Projects). The years 2015-2018 were particularly strong project income years as can be seen from the graphics.

Looking to 2019

WG	Topic	Call	Type of Action	Mio €
1. BIORE-SOURCES	The transition to a low-carbon energy system and economy	LC-SC3-CC-1-2018-2019-2020 poses particular challenges for carbon-intensive regions.	RIA, single stage	3
2. SMART CITIES AND REGIONS: FOCUS GROUPS SMART URBAN MOBILITY AND SMART GRIDS	InCo flagship on Urban mobility and sustainable electrification in large urban areas in developing and emerging economies	LC-GV-05-2019 Actions should bring together European, Asian (China), Latin American and Caribbean States and African partners	IA, single stage	18
	Integrated urban logistics systems for on demand economy	LC-MG-1-10-2019 and for shared-connected and low-emission logistics operations	RIA, two stage	4
	Strengthening cooperation with China and CELAC on sustainable urbanisation	SC5-13-2018-2019: nature-based solutions for restoration and rehabilitation of urban ecosystems	RIA, two stage	5
	Bioclimatic approaches for improving energy performance in buildings in Africa and Europe	LC-SC3-EE-18-2019 affordable building design	CSA, single stage	1
	Visionary and integrated solutions to improve well-being and health in cities	SC5-14-2019: therapy gardens, urban living rooms, creative streets, city farms	IA, two stage	10
3. EDUCATION AND TRAINING	Stimulating demand for sustainable energy skills in the construction sector	LC-SC3-EE-3-2019-2020 construction sector	CSA, single stage	1
	Sustainable Urban Mobility Systems Innovation Exchange	H2020 MSCA-RISE-2019 (SUMSIE)	single stage	1,5
	Innovative Training Networks	MSCA-ITN-2019-2020	single stage	1,5
	Network of research infrastructure	INFRAINNOV-02-2019 Industrial Liaison and Contact Officers	CSA, single stage	1,5
4. SMART ENERGY MATERIALS	Strengthening EU materials technologies (TRL 4-6)	LC-NMBP-27-2019 for non-automotive battery storage materials	RIA, single stage	8
	Smart Energy Materials	COST resubmission	single stage	0,5



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