



Summary of the dissemination activities and efforts during the second reporting period

Task 8.3: ToK and dissemination

The project coordinator has organized several ToK workshops to boost the transfer of knowledge activities between the partners. As explained above, during each consortium meeting a ToK workshop was organized where sometimes researchers from outside the projects were invited to participate as attendees of the lectures provided or as speakers. Below the list of the ToK Workshop that were organized:

	Dates	place
ToK Workshop 5 / Consortium Meeting	05-06 May 2014	SOLVAY-Brussels
ToK Workshop 6 / Consortium Meeting	29-30 October 2014	SOLVAY-Brussels
ToK Workshop 7 / Consortium Meeting	01-02 June 2015	SOLVAY-Brussels
ToK Workshop 8 / Consortium Meeting	29-30 October 2015	SOLVAY-Brussels

The table below gives the list of presentations, speakers, and attendance at the organized ToK workshops:

ToK activities	Speaker & authors	date	place	Related WP	attendees
ToK Workshop 5					
Market perspectives of SC and LIC	<u>F. Gauthy</u> , <u>V. Khomenko</u>	05-06 May 2014	SOLVAY Brussels	9	E. Frackowiak, D. Gastol, J. Menzel,
The impact of separator properties on the performance of supercapacitors	<u>S. Isikli</u> , <u>P. Gajewski</u> , <u>F. Langouche</u> , <u>F. Gauthy</u>	idem	SOLVAY Brussels	4	Y. Maletin, D. Tretiakov, N. Stryzhakova, H. Mosqueda, D. Novak,
Influence of polymer binders on performance of supercapacitors based on different electrolytes	<u>V. Khomenko</u> , <u>I Makeyeva</u> and <u>J. Menzel</u>	idem	SOLVAY Brussels	2, 3, 4, 5	V. Barsukov, I. Makyeyeva, V. Khomenko,
Modeling the effects of electrode composition on the performance of electrochemical capacitors	<u>V. Barsukov</u> , <u>F. Langouche</u> , <u>V. Khomenko</u> and <u>I. Makeyeva</u>	idem	SOLVAY Brussels	2, 3, 4, 5	F. Gauthy, S. Isikli M. Biso, V. Thulliez, A-L Goffin, A. Ghanem



Grant Agreement 286210

YUNASKO Hybrid Technology: Both Sides of the Energy & Power Coin	<u>Y. Maletin</u> , D. Tretyakov	idem	SOLVAY Brussels	2, 3, 4, 5, 6 9	As above
The electrochemical properties of various commercial graphite materials for Li – ion capacitors	Irina Makeyeva and Volodymyr Khomenko	idem	SOLVAY Brussels	2, 4,	As above
Enhancement of Li-ion batteries anodes and Li-ion hybrid capacitor performance by utilization of fluorinated carbonates as electrolyte components	Jakub Menzel, Grzegorz Lota, Mikolaj Meller,	idem	SOLVAY Brussels		As above
ToK Workshop 6					
Future Perspectives for Hybrid Supercapacitors	<u>K Fic</u> , D Gastoł, E Frackowiak	29/10/2014 (PM)	SOLVAY Brussels	2,3, 4,5,	E. Frackowiak, D. Gastoł, J. Menzel,
The design of negative electrode of lithium – ion capacitor	<u>I. Makyeyeva</u> , V. Khomenko, O. Chernysh, V. Barsukov	As above	SOLVAY Brussels	2, 5,	Y. Maletin, D. Tretyakov, N. Stryzhakova, H. Mosqueda, D. Drobyni,
Influence of polymer binders on performance of supercapacitors	<u>O. Chernysh</u> , I. Makeyeva, V. Khomenko, V. Barsukov	As above	SOLVAY Brussels	2, 5,	V. Barsukov, I. Makyeyeva, O. Chernysh, V. Khomenko,
Development high energy density coin type Li-ion capacitors	<u>V. Khomenko</u> , I. Makeyeva, O. Chernysh, V. Barsukov	As above	SOLVAY Brussels	3, 4, 5,	F. Gauthy, S. Isikli, V. Mathieu, A-L Goffin, F. Langouche, M. Biso, C. Hamon, J-R Caille,
Enhancement of Li-ion batteries anodes and Li-ion hybrid capacitor low-temperature performance by modification of electrolyte	<u>J. Menzel</u> , F. Gauthy, E. Frackowiak	As above	SOLVAY Brussels	WP3 , WP5 ,	
Optimisation of activated carbon electrode for implementation in lab cell	<u>D. Gastoł</u> E. Frackowiak	As above	SOLVAY Brussels	2, ,	
Modeling the effects of	<u>F. Langouche</u> ,	As	SOLVAY Brussels	2,	



Grant Agreement 286210

electrode design on the performance of electrochemical capacitors	V. Barsukov, V. Khomenko, I. Makeyeva	above		5,	
Supercapacitors: achievements, challenges and perspectives	Y. Maletin,	30/10/ 2014 AM	SOLVAY Brussels	9	As above + G. Laurent + + N. Deligne + A. Graet
Hybrid Technology: YUNASKO approach	D. Tretiyakov,	As above	SOLVAY Brussels	6	As above
Test results for hybrid electrodes in pouch prototypes	N. Stryzhakova D. Tretiyakov, S. Zelinskyi	As above	SOLVAY Brussels	6	As above
New materials for Supercaps - sulfolane based electrolyte and graphene	H. Mosqueda N. Stryzhakova, Y. Maletin,	As above	SOLVAY Brussels	2, 5, 6	As above
Can small things make a big difference? Advantages and challenges for aqueous binders	<u>S. Isikli</u> , F. Gauthy	As above	SOLVAY Brussels	2, 5,	As above
Targeted competitive advantages with SOLVAY products in Lithium Ion Capacitors	<u>F. Gauthy</u> , V Khomenko, S. Isikli	As above	SOLVAY Brussels	9	As above
ToK Workshop 7					
Characterization of anode materials of the LIC	<u>I. Makyeyeva</u> , V. Khomenko, O. Chernysh, M. Koliada	01 June 2015 PM	SOLVAY Brussels	2, 5	E. Frackowiak, J. Menzel, K. Fic, Y. Maletin, D. Tretiyakov, N. Stryzhakova, H. Mosqueda, D. Drobnyi, Makyeyeva, O. Chernysh V. Khomenko, M. Koliada S. Isikli, F. Gauthy, F. Langouche, T. Baert, F. Tedjar, A. Vascon
New high energy design of cathode for the LIC application	<u>O. Chernysh</u> , V. Khomenko, I. Makeyeva, M.Koliada	As above	SOLVAY Brussels	2, 5,	As above
Electrode fabrication on prototype level	<u>M. Koliada</u> , V.Khomenko, I.Makyeyeva,	As above	SOLVAY Brussels	2, 5, 6	As above



Grant Agreement 286210

	O.Chernysh				
Li-ion capacitor – which direction?	<u>V. Khomenko, I. Makeyeva, O. Chernysh & M. Koliada</u>	As above	SOLVAY Brussels	5, 6, 9	As above
Development of a recycling methodology	<u>Alessio Vascon, Farouk Tedjar</u>	As above	SOLVAY Brussels	7	As above
Design of electrolyte solutions for better performance	<u>Suheda Isikli, Volodymyr Khomenko, Fernand Gauthy</u>	As above	SOLVAY Brussels	6	As above
Hybrid Capacitors: test results for LIC prototypes	<u>H. Mosqueda, N. Stryzhakova, Y. Maletin</u>	02 June 2015	SOLVAY Brussels	2	E. Frackowiak, J. Menzel, K. Fic, Y. Maletin, D. Tretiakov, N. Stryzhakova, H. Mosqueda, D. Drobyni, Makyeyeva, O. Chernysh V. Khomenko, M. Koliada S. Isikli, F. Gauthy, F. Langouche, A. Vascon
Test results for hybrid electrodes in pouch cell prototypes	<u>N. Stryzhakova, D. Tretiakov, S. Zelinskyi</u>	As above	SOLVAY Brussels	6	As above
Enhancement of Electrochemical Capacitor Performance by Understanding its Impedance Response – Theoretical and Experimental Study	<u>Krzysztof Fic, Florentin Langouche, Mikołaj Meller, Elżbieta Frackowiak</u>	As above	SOLVAY Brussels	2, 5,	As above
Lithium-Ion Capacitors from the Energycaps Project to the next step	F. Gauthy,	As above	SOLVAY Brussels	6, 9	As above
ToK workshop 8					
Influence of aluminium current collectors surface treatment on electrochemical performance of activated carbon electrode	<u>Dominika Gastoł Elżbieta Frackowiak</u>	29 Oct. 2015 PM	SOLVAY Brussels	2, 5,	E. Frackowiak, D. Gastol, J. Menzel, K. FIC Y. Maletin, D. Tretiakov, N. Stryzhakova, H. Mosqueda, D. Drobyni, V. Barsukov, I. Makyeyeva, V. Khomenko, S. Isikli, V. Mathieu, P. Cojaru



Grant Agreement 286210

					F. Gauthy, F. Langouche, F. Tedjar
Electrolyte optimization test at 70°C	Jakub Menzel	As above	SOLVAY Brussels	4, 6	As above
Fabrication of high-performance PVDF separator with improved thermal and mechanical stability	<u>Suheda Isikli</u> , Piotr Gajewski, Florentin Langouche, Fernand Gauthy	As above	SOLVAY Brussels	3,	As above
Li-ion capacitor – project: final achievements in lab cells	V. Khomenko, I. Makeyeva, O. Chernysh, V. Barsukov	As above	SOLVAY Brussels	5, 6	As above
Global and final recycling process for Energy Caps RECUPYL	<u>F. Tedjar</u> , A. Vascon	As above	SOLVAY Brussels	7,	As above
Dissemination actions Target is the general public	<u>F. Gauthy</u> , S. Isikli	As above	SOLVAY Brussels	9	As above
Supercapacitors and Hybrid capacitors in Hybrid vehicles	Y. Maletin	30 Oct. 2015 AM	SOLVAY Brussels	9	As above
Test results for hybrid cells	Hugo A. Mosqueda A	As above	SOLVAY Brussels	5, 6	As above
Comparative test results for various hybrid electrochemical systems	<u>N. Stryzhakova</u> , D. Tretyakov, S. Zelinskyi	As above	SOLVAY Brussels	5, 6	As above
LIC prototypes manufacture and testing	<u>D. Tretyakov</u> , N. Stryzhakova, S. Zelinskyi	As above	SOLVAY Brussels	5, 6	As above
Markets in which the LIC technology is cheaper, safer and more performing	F. Gauthy S. Isikli	As above	SOLVAY Brussels	9	As above
Global Recycling Process for EnergyCaps Materials	F. Tedjar, A. Vascon	As above	SOLVAY Brussels	7	As above
Work plan for the final report	F. Gauthy	As above	SOLVAY Brussels	8	As above



Grant Agreement 286210

WP 9

ToK and dissemination (see the Task 8.3 in the § WP8):

The project coordinator has organized several ToK workshops to boost the transfer of knowledge activities between the partners. As explained above, during each consortium meeting a ToK workshop was organized where sometimes researchers from outside the projects were invited to participate as attendees of the lectures provided or as speakers. Below the list of the ToK Workshop that were organized:

	Dates	place
ToK Workshop 5	05-06 May 2014	SOLVAY-Brussels
ToK Workshop 6	29-30 October 2014	SOLVAY-Brussels
ToK Workshop 7	01-02 June 2015	SOLVAY-Brussels
ToK Workshop 8	29-30 October 2015	SOLVAY-Brussels

An exhaustive table gives the list of presentations, speakers, and attendance at the organized ToK workshops (see the Task 8.3 in the § WP8).

Task 9.1: Project Website (www.energycaps.eu)

Detail about the achieved prototypes

As promised in the annex 1, the following information have been written by our partner Yunasko and will be inserted in our website (www.energycaps.eu).

FP7 EnergyCaps project: hybrid Li-ion capacitors

Needs for energy efficiency coupled with environmental concerns open new doors to the market for electrochemical double layer capacitors, otherwise known as ultracapacitors or supercapacitors (*SC*). Indeed, there is a tremendous opportunity for an energy storage device of high power capability that can be used either as a complement to conventional batteries or as a standalone system. In addition to early applications in consumer electronics, new powerful *SC* markets arise in the renewable energy and hybrid vehicle technologies. However, the *SC* market growth is still modest due to mostly the lack of energy density. The low energy density remains an obvious drawback of *SC* devices, and therefore, the Energy Cap project was aimed at developing the hybrid lithium ion capacitor (*LIC*) technology to combine *SC* and Li-ion components in electrode materials. Such a hybridization technique enables to increase the energy density by at least the order of magnitude keeping at the same time the power capability of hybrid *LIC* devices comparable with that for the best carbon-carbon *SC* devices available on the market.



Grant Agreement 286210

After a thorough study of various electrochemical systems, the following ones have been selected for final prototyping:

- positive electrode – a mixture of Lithium iron phosphate (LFP) with YP50F active carbon (AC, produced by Kuraray, Japan);
- negative electrode – pre-lithiated hard carbon (HC) or Lithium titanate (LTO);
- electrolyte1 – LiTFSI (received from Solvay) in acetonitrile (AN);
- electrolyte2 – LiTFSI (received from Solvay)+ LiPF₆ in AN;
- electrolyte3 – LiTFSI (received from Solvay) in mixture of fluorinated ethylene carbonate (FIEC, received from Solvay) and dimethyl carbonate (DMC);
- electrolyte4 - LiPF₆ in EC+DMC (1:1 wt) – commercially available LP30 electrolyte, received from Novolyte Technologies Co.

Two series of 500F LIC prototypes have been assembled, namely, 8 cells based on LTO/LFP+AC electrochemical system, and also 8 cells based on HC/LFP+AC system. Specific energy values of 60 Wh/kg for LTO/LFP+AC and of 86 Wh/kg for HC/LFP+AC prototypes have been achieved, and it has been found that LTO/LFP+AC prototypes demonstrate the highest power density of all the systems tested (~4kW/kg at ~80% of efficiency). No prototype degradation has been observed during the tests.

Fig. 1 illustrates typical Ragone plots, i.e. available energy density vs. power density, for LIC cells based on LTO negative electrode.

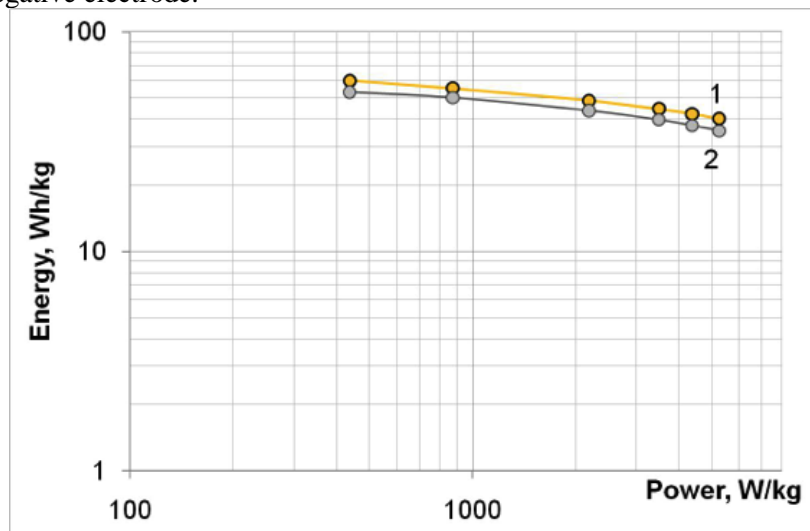


Fig. 1. Ragone plots for LIC cells based on the LTO negative electrodes and two electrolytes: 1 – LiTFSI in AN; 2 – LiTFSI + LiPF₆ in AN.

So, the LIC devices developed in the framework of EnergyCaps project can be recommended for further development and use. Most promising areas cover the applications wherein the fast charge is critical and the power supply unit must deliver high power within tens or hundreds of seconds. In this range the LIC devices can provide a unique performance, since Li-ion batteries, as high-energy



Grant Agreement 286210

devices, cannot be charged/discharged very fast. Even Li-ion batteries specially designed for high-power application would overheat after a few repeated high power cycles and would face severe safety issues like fire or explosion. On the other hand, conventional *SC*, as high-power devices, may compete in a time range up to 10 or maximum 20 seconds. Beyond this time range, *SC*'s are limited by their low-energy density.

The *LIC* devices fill efficiently the gap between Li-ion batteries and supercapacitors. Some examples of possible application are:

- hybrid vehicles (cars, buses, trucks...);
- hybrid garbage trucks (refuse collection vehicles);
- cranes, earth moving machines, hybrid forklifts;
- electric transport, in particular, public transport;
- uninterrupted power supply;
- power tools;
- kids' toys.

Some of the results were also presented by F. Gauthy, S. Isikli, Y. Maletin, V. Khomenko and N. Stryzhakova (5 presentations) at the 6th International Conference on Carbon for Energy Storage/Conversion and Environment Protection (CESEP'2015) in Poznan, Poland, October 18-22.

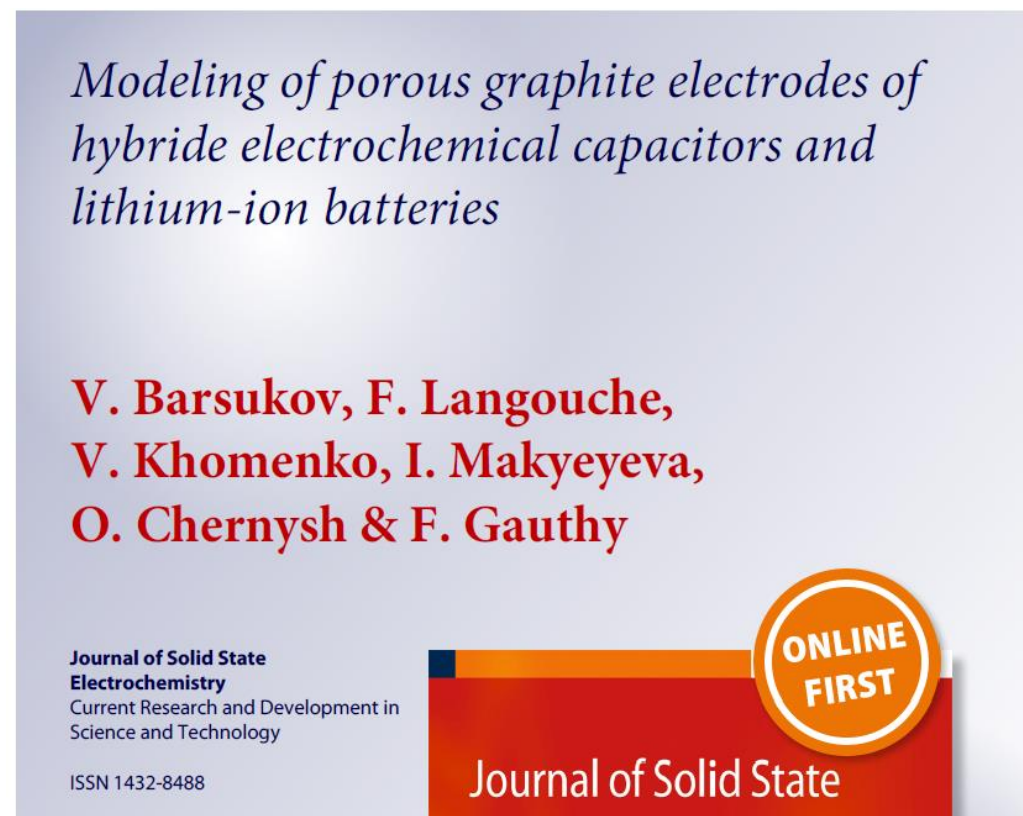
The publishable summary has also been inserted on our website.
The link to our publications will be also inserted on our website (see next §).



Grant Agreement 286210

Peer review publication(s)

The following publication is the first already issued. Based on the accumulated results, we expect additional publication in the following months and years.



Energy Caps publications in open access, accessible to a wide public

Parliament magazine (on sustainable energy week; June 2015)

A page on the Energy Caps project was published in the Parliament Magazine's 15th June edition. This edition was about the "Sustainable Energy Week". Here is also a link to a digital version:

<https://www.theparliamentmagazine.eu/articles/magazines/issue-414-15-june-2015>

A page on the Energy Caps project was published in the Parliament Magazine's 30th November edition. This edition was about COP21 – Paris climate change conference. Here is also a link to a digital version:

<https://www.theparliamentmagazine.eu/articles/magazines/issue-424-30-november-2015>.



Grant Agreement 286210

The Parliament Magazine is European Affairs magazine written by the Members of The European Parliament and The Commission. It is published once every two weeks and **2,500 copies** are distributed directly to **all Members of the European Parliament, senior members of the Commission and various EU institutions, NGOs, trade associations, think tanks and stakeholders**. Additionally, the Parliament Magazine newsletter digital magazine is distributed to **58,000 contacts** including the public affairs contacts from European Public Affairs Directory (EPAD), TheParliamentmagazine.eu bulletin subscribers.

Horizon 2020 Projects: Portal

Two pages on the Energy Caps project was published in the October 2015 digital publication : <http://www.horizon2020publications.com/H8/#74>.

The editor estimated the circulation to approximately 240,000. The audience is the European academics and policy makers but the web site is available to everyone.

Panuropeannetworks

A page will be published in January 2016 which will be a Special report on the website:

www.panuropeannetworks.com

European Energy Innovation (June 2015 edition on Smart cities, E-mobility, Energy storage and COP21)

Energy Caps project has also two communication pages in the following magazine:

<http://www.europeanenergyinnovation.eu/OnlinePublication/Summer2015/index.html>

In the summer 2015 issue which was published in June this year.

Adjacent government (August 2015)

This one page A4 profile in the Adjacent Government August 2015 document which have been distributed to over 145,000 EU Government, Funding, Transport & Environment contacts. Our profile page appeared on page number 323.

This is an open access digital document which is for the use of EU Government Departments and the Academic community.

<http://www.europeanenergyinnovation.eu/OnlinePublication/winter2015/index.html>

or

<http://edition.pagesuite-professional.co.uk/Launch.aspx?EID=b90ebf25-2861-48d5-a11a-14dfc69c988a>



Grant Agreement 286210

This is an open access digital document which is for the use of EU Government Departments and the Academic community.

The magazine (the paper version) is distributed on a quarterly basis in print and email format to over 5000 recipients, and the estimated readership is 20,000. The distribution is done on a subscriber name basis so that each copy is personally addressed. The aim of the magazine is to connect the energy and transport industry stake holder in Europe.

In order to achieve it is distributed to all MEPs on 3 Parliamentary Committees (ITRE, TRAN, and ENVI), as well as to senior members of the European Commission.

For industry the magazine is distribute to CEOs, and senior executives of all major energy and transport companies throughout the EU, as well as to all European trade associations for both of these industrial sectors. Copies are also sent to academics in universities, research establishments and National Ministries of Transport and Energy.

SOLVAY R&I internal newsletter

In order to ensure the dissemination about the Energy Caps project the coordination write a article in the R&I newsletter of Dec 2014. The audience of this newsletter is the whole organization of SOLVAY (about 30 000 people). The content of the newsletter not is not accessible outside of the SOLVAY organization but is very similar than the article published in the Adjacent Government August 2015 (page 323).


<http://edition.pagesuite-professional.co.uk/Launch.aspx?EID=b90ebf25-2861-48d5-a11a-14dfc69c988a>



Grant Agreement 286210




N°1 - Jan 19, 2015

 Dear colleagues,

At the beginning of the New Year, I wish you and your families all the best for 2015 - happiness, prosperity, success and inspiration!

I would like to take the opportunity to highlight the progress that our R&I family has achieved over the last 12 months.


[Read more](#)

 **Open Innovation**
Dec 12, 14

A car with a fuel consumption lower than 2 liters per 100 km to come soon! [Read more](#)

[» Subscribe/unsubscribe our R&I newsletter](#)

[» Contact us](#)

 **Open Innovation**
Dec 12, 14

Great future for SOLVAY products in lithium-ion capacitor technology [Read more](#)

Appointments

Novecare - Organizational Announcement - Qiqiang WANG, Rabih RACHED, Zhijun WANG
Jan 16, 15

Novecare - Organizational Announcement - Jian Zhou
Jan 2, 15

Publication on SOLVAY.COM

After discussion with the SOLVAY communication team, it appears that the best audience will be obtained on the SOLVAY.com web site. The idea is to enlarge the scope of the Life+ project page to the Marie Curie project.

This idea has been preferred in comparison with the idea to make a Youtube video.



Grant Agreement 286210

Task 9.2: Workshops, seminars, and conferences

Conference/Workshop/Seminar organized or with the participation of Energycaps researcher/partners

Conference/Workshop/Seminar	Who	When	Where	WP	remark
RECUPYL					
Jeudi d'AXELERA (Cluster Chemistry and Environment)	A. Vascon, F. Tedjar	Octobre 30 2015	Lyon France	7, 9	Présentation de l'apport de l'hydrométallurgie aux produits de e-mobilité
Electronic Recycling Asia 2015	F. Tedjar	November 12 2015	Singapore	7, 9	Challenge strategic metals in e-mobility equipment (Li-ion batteries, supercapacity, Fuel Cells, Solar Panels)
Coming event Mineral and Metals Society Congress (MOLTEN 10)	F.Tedjar, J Cognard	22-26 May 2016	Seattle USA	7	New approach for separation carbon/transition metals in Supercap and Li-ion batteries
Meeting at the European Battery Recycling Association. (www.ebra-recycling.org)	F. Tedjar	Mars 2014	Brussels Belgium	7	The way of calculation recycling rate according to annex 2 of EU Directive 06/66EC
Table ronde Recyclage métaux stratégique et énergie.	F. Tedjar	12 juin 2015.	Assemblée Nationale Française Salle colbert, 126 rue de l'Université 75007 Paris, FRANCE	7	Co animation d'une table ronde sur le recyclage à l'assemblée nationale Session 2 : L'indépendance minérale: de la collecte au recyclage Avec la participation de : M. Alain Geldron (Expert National Matières Premières, ADEME), Dr. Farouk Tedjar (Fondateur, Recupyl) M. Arnaud Deschamps (Directeur général, Nespresso France), française.
Final meeting of collaborative project	F. Tedjar	November 2013	Brussels	7	Recommandations à Renault sur l'écoconception
Final meeting of collaborative project	F. Tedjar	November 2013	Brussels	7	Recommandations à VOLVO sur l'écoconception
SOLVAY SA					
Supercapacitors 2014 organized byIDTech @ Berlin	Fernand Gauthy	27-30 April 2014	Berlin	6, 9	
Innovation day at SOLVAY Campus (Brussels)	Fernand Gauthy Suheda Isikli	Nov 27 2014	Brussels/ Belgium	2, 9	High performance activated carbon-based electrodes with Solef® PVDF by O. Chernysh, I. Makyeyeva, V. Khomenko, <u>S. Isikli, F. Gauthy</u>
Innovation day at SOLVAY Campus (Brussels)	Fernand Gauthy Suheda Isikli	Nov 27 2014	Brussels/ Belgium	4, 9	Performance enhancement of electrochemical energy storage devices with Solvay fluorinated additives. J. Menzel, V. Khomenko, M. Bomkamp, S. Isikli, F. Gauthy, F. Beguin, E. Frackowiak



Grant Agreement 286210

6th International Conference on Carbon for Energy Storage/Conversion and Environment Protection – CESEP 2015	SUHEDA ISIKLI Fernand Gauthy Volodymyr Khomenko Irina Makyeyeva	18 th to 22 nd October 2015	Poznan/ Poland	4 & 5	
65 th International Society of Electrochemistry Annual Meeting,	SUHEDA ISIKLI	31 August-5 September 2014	Lausanne/ Switzerland	2 & 3	
European Electric Vehicle Congress	SUHEDA ISIKLI	3 rd -5 th December 2014	Brussels/ Belgium	5 & 6	
European Electric Vehicle Congress	Fernand Gauthy	2 nd -5 th December 2014	Brussels/ Belgium	5 & 6	
European Electric Vehicle Congress	Fernand Gauthy	1 st December 2015	Brussels/ Belgium	5 & 6	Posters Energy Caps: Possible applications of lithium-ion capacitors (hybrid vehicles)
YUNASKO					
Supercapacitors 2014	Natalia. Stryzhakova	1-2 Apr 2014	Berlin, Germany	6, 9	International conference Attendees from Energy Caps project: N. Stryzhakova
Batteries 2014	Yuri Maletin	24-26 Sept 2014	Nice, France	6, 9	International conference Attendees from Energy Caps project: Y. Maletin
IEEE/IEVC 2014	Yuri Maletin	17-19 Dec 2014	Florence, Italy	6, 9	International conference Attendees from Energy Caps project: Y. Maletin
ISEE/Cap 2015	H. Mosqueda	8-12 June 2015	Montpellier France	5, 6,	International symposium Attendees from Energy Caps project: H. Mosqueda
CESEP 2015	Yuri Maletin Natalia. Stryzhakova	18-22 Sept 2015	Poznan, Poland	6	International conference Attendees from Energy Caps project: Y. Maletin, N. Stryzhakova Oral presentation entitled: Hybridizing the Carbon Electrodes – a Way to Enhance the Supercapacitor Performance - Yurii Maletin , Natalia Stryzhakova, Sergii Zelinskyi, Sergey Chernukhin, Dmytro Tretyakov
POZNAN UNIVERSITY OF TECHNOLOGY					
Advanced Automotive Battery Conference IABB	Prof. Elzbieta Frackowiak	3-7 February 2014	Atlanta, USA	4, 9	International conference, oral
MRS Spring Meeting 2014	Dr. Mikołaj Meller	21-25 April 2014	San Francisco, USA	4, 9	International conference, oral



Grant Agreement 286210

225th Electrochemical Society Meeting	Prof. Elżbieta Frąckowiak	11-15 May 2014	Orlando, USA	4, 9	International conference, oral
World Conference on Carbon, CARBON 2014	Prof. Elżbieta Frąckowiak, Dr. Krzysztof Jurewicz, Dr. Mikołaj Meller, Krzysztof Fic, Jakub Menzel	29 June - 4 July 2014	Jeju, South Korea	4, 9	International conference, oral
Faraday Discussions 172: Carbon in Electrochemistry	Prof. Elżbieta Frąckowiak, Dr. Dominika Gastoł	28-30 July 2014	Sheffield, UK	4, 9	International conference, oral, poster
Hands-on training on SEM techniques	Dr. Dominika Gastoł	1 August 2014	Cranfield, UK	4, 9	Training on SEM technique for Al-foil treatment evaluation
65th Annual Meeting of International Society of Electrochemistry	Prof. Elżbieta Frąckowiak, Dr. Krzysztof Jurewicz, Dr. Dominika Gastoł, Dr. Mikołaj Meller, Krzysztof Fic	5-9 October 2014	Cancun, Mexico	4, 9	International conference, oral, poster
Eilat-Eilat Green Energy Conference	Prof. Elżbieta Frąckowiak, Dr. Mikołaj Meller, Krzysztof Fic	9 December 2014	Eilat, Israel	4, 9	International conference, oral
Hands-on seminar at El-Cell laboratories	Dr. Dominika Gastoł, Jakub Menzel	12-13 March 2015	Hamburg, Germany	4, 9	Training on assembling techniques for Li-based hybrid solutions
ISE Topical Meeting - Electrochemical Properties and Applications of Advanced Carbon Materials	Prof. Elżbieta Frąckowiak, Krzysztof Fic	22-25 March 2015	Angra dos Reis, Brasil	4, 9	International conference, oral
5th European Symposium on Super Capacitors & Hybrid Solutions	Krzysztof Fic, Jakub Menzel	23-25 April 2015	Brasov, Romania	4, 9	International conference, oral



Grant Agreement 286210

Seminar "Latest Developments in Electrochemical Capacitors"	Prof. Elżbieta Frąckowiak, Dr. Dominika Gastoł, Dr. Mikołaj Meller, Krzysztof Fic, Jakub Menzel	29-31 January 2014	Poznan, Poland	2, 4, 9	International conference, oral
4 th International Symposium on Enhanced Electrochemical Capacitors, ISEE/Cap15	Prof. Elżbieta Frąckowiak, Dr. Krzysztof Jurewicz, Dr. Mikołaj Meller, Krzysztof Fic, Jakub Menzel	08-12 June 2015	Montpellier, France	4, 9	International conference, oral, poster
World Conference on Carbon, CARBON 2015	Prof. Elżbieta Frąckowiak, Dr. Mikołaj Meller, Krzysztof Fic, Jakub Menzel	12-17 July 2015	Dresden, Germany	2, 4, 9	International conference, oral
ISE Satellite Meeting: New Devices for Energy Conversion and Storage	Prof. Elżbieta Frąckowiak, Krzysztof Fic	1-3 October 2015	Hong Kong, China	4, 9	International conference, oral
66th Annual Meeting of International Society of Electrochemistry	Prof. Elżbieta Frąckowiak, Krzysztof Fic, Jakub Menzel	4-9 October 2015	Taipei, Taiwan	2, 4, 9	International conference, oral
Carbon for Energy Storage and Environment Protection CESEP'15	Prof. Elżbieta Frąckowiak, Dr. Krzysztof Jurewicz, Dr. Dominika Gastoł, Krzysztof Fic, Jakub Menzel	18-22 October 2015	Poznan, Poland	4, 9	International conference, oral, poster
2015 Fall Meeting of Materials Research Society	Krzysztof Fic	29 November – 5 December 2015	Boston, USA	4, 9	International conference, oral



Grant Agreement 286210

KIEV UNIVERSITY OF TECHNOLOGY AND DESIGN					
Carbon for Energy Storage and Environment Protection CESEP'15	Dr. V. Khomenko, Dr I. Makyeyeva	18-22 October 2015	Poznan, Poland	5, 9	International conference, oral presentation of Dr. Khomenko on the results of the Energy Caps project + poster
International Workshop on the Electrochemistry of Electroactive Materials WEEM - 2015	Prof. V. Barsukov	May 31st - June 5th, 2015	Bad Herrenalb, Germany	5, 9	International conference, oral presentation
International scientific conference "Advanced Polymer Materials and Technologies"	O. Chernysh	22-23 October 2015	Kiev, Ukraine	5, 9	International conference, oral presentation
Baltic Polymer Symposium, BPS-2015	Prof. V. Barsukov	16-18 September, 2015	Sigulda, Latvia	5, 9	International conference, oral presentation
10th International Conference on Physics of Advanced Materials (ICPAM-10)	Prof. V. Barsukov	22-28 September, 2014	Iasi, Romania	5, 9	International conference, oral presentation
Leuven.Inc Visionary seminar (KUL)	Dr. V. Khomenko, Dr I. Makyeyeva	27 May 2014	Leuven, Belgium	5, 9	Round-table discussions of the results of Energy Caps project and hybrid capacitors
Supercapacitors 2014 organized by IDTech	Dr. V. Khomenko	27-30 April 2014	Berlin, Germany	5, 9	Round-table discussions of the results of Energy Caps project and application of hybrid capacitors

Language Training of the researchers involved in the EnergyCaps project

Dr Irina Makyeyeva and Oksana Chernysh (PhD student) attended private English courses at the frequency of 2hours per week during almost their whole secondment duration within the SOLVAY campus. Both improved their communication skill and are able to deliver a presentation in English.

Dr Suheda Isikli recruited by SOLVAY attended French private course at about 2 h per week and a week of residential training in French. She is now fully fluent in French and able to deliver a presentation in French. She understands questions and answers fluently any kind of questions (general or technical).



Grant Agreement 286210

Direct dissemination to a general public as suggested during the mid-term review

The coordinator did a special effort in order to ensure the best outreach to a general public as discussed during the mid-term review.

Energy Caps stand at an open-door day in the framework of the national event (“I Love Chemistry”)

Taking advantage of an open-door event organized at SOLVAY Brussels, the 9th of Mai, our research team organized an Energy Caps stand with a video explaining the preparation of lab cell, three posters and a table with the applications of hybrid supercapacitors.



This open door was a national event advertised on the web site www.ILoveChemistry.be, on the TV and on national radio. It was really open to any interested people.

Dr Isikli and Mr Grandfils were ready for explaining hybrid capacitors to our visitors.





Grant Agreement 286210

The coordinator (F. Gauthy) was explaining the Energy Caps posters.



Dr S. Isikli was showing and explaining a hybrid capacitor pouch cell.



The new generation of future gifted researcher also enjoyed our explanations

