

PLAN.
INNOVATE.
ENGAGE.



ETIP SNET

EUROPEAN
TECHNOLOGY AND
INNOVATION
PLATFORM

SMART
NETWORKS FOR
ENERGY
TRANSITION

Digitisation of the electricity system and Customer participation

''ITCity''

An ICT Platform for Sustainable Energy
Ecosystem in Smart Cities

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Short presentation of the project

Name: **An ICT Platform for Sustainable Energy Ecosystem in Smart Cities (“ITCity”)**
Under ERANet-LAC 2nd Joint Call on Research and Innovation for Latin America, Caribbean and European Union Countries

Overarching objectives:

- Reinforced collaboration between EU and LAC researchers, international industrial collaborators in order to implement digital services for smarter neighborhoods;
- Intelligent ICT framework development to support EU and LAC cities in their transformation into Smart Cities with key focus on intelligent use of energy and digital services implementation, achieving social, economic and environment sustainable solutions;
- Data techniques applied to information delivered by ubiquitous smart metering technologies for multivector energy use in large cities.

CONSORTIUM

IPE - Institute of Physical Energetics (Latvia) Coordinator

UPB - Politehnica University of Bucharest (Romania)

INESC P&D Brasil - Institute for Systems and Computer Engineering, Research and Development of Brazil

UDA - University of Atacama (Chile)

UdeC - University of Concepcion (Chile)

UTEM - Metropolitan Technological University (Chile)

AES ES - AES Energy Systems Inc. (Barbados)

PROJECT TIMELINE

February 1st 2017 - January 31st 2020

BUDGET 615.619,00 €

Partners from 5 countries

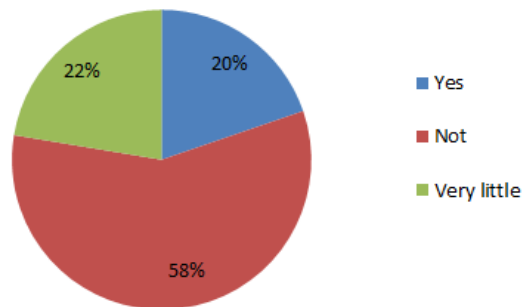


Key exploitable results addressing energy system integration

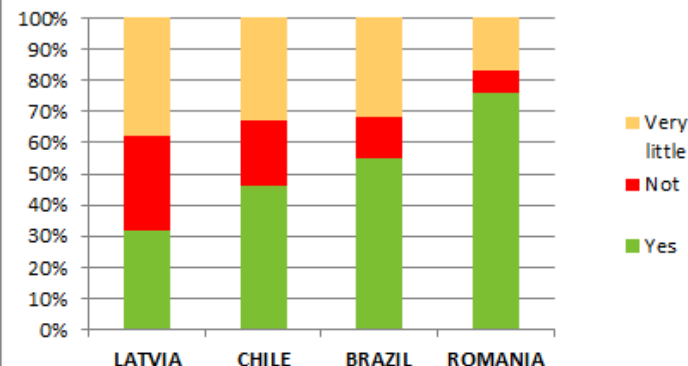
Key results:

- Knowledge, experience exchange and an establishment research cooperation between involved countries;
- Estimate of citizen grasp on energy use in EU and LA countries;
- Successful monitoring pilot launch and consumption analysis;
- Unified management of distinct energy types to reduce GHG emissions and promote RES integration;
- Gathered collection of household appliance consumption patterns;
- ICT communication technology used in smart cities - description and simulation.

Do you know about projects in your city aimed at "smart" energy consumption?

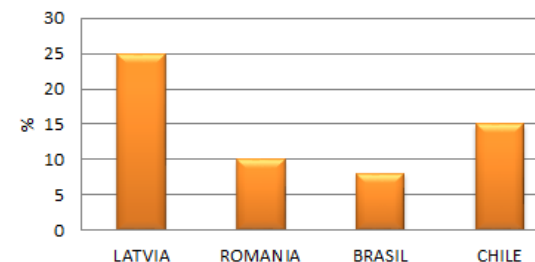


Do you know what a smart city is? Have you heard of initiatives aimed at helping city become smart?

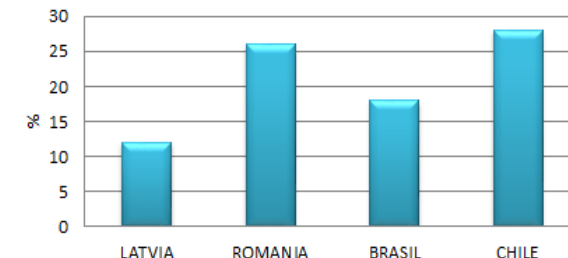


Figures from Su

«I do not know anything about choosing another electricity consumption mode for savings resources and money»



«I am ready to switch to another mode of consumption»



2019

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2. Valentin A. Boicea, Dorian O. Sidea, Radu Plamanescu, Ana-Maria Dumitrescu, Constantin Daniel Oancea, Viorel Petre „DFACTS Devices in Asymmetrical Power Grids: a Case Study”, 11th International Symposium on Advanced Topics in Electrical Engineering (ATEE), March 2019, Bucharest.
3. Ana Ruxandra Toma, Mihai Valentin Olteanu, Ana-Maria Dumitrescu, „Campus Load Profiles from Enhanced Smart Meter Data”, 54th International Universities Power Engineering Conference (UPEC 2019), September 2019, Bucharest.
4. Adrian Stroescu, Valeriu Vacaru, Ana-Maria Dumitrescu, „Impact of DC loads in hybrid local energy communities”, 54th International Universities Power Engineering Conference (UPEC 2019), September 2019, Bucharest.
5. Teremranova J., Mutule A. "Sustainable city development as a result of close cooperation with citizens: Europe and LAC experiences". THE XI INTERNATIONAL SYMPOSIUM ON ADVANCED TOPICS IN ELECTRICAL ENGINEERING, March 28-30, 2019, Bucharest, Romania.
6. Domingues, M., Alves, L., Salvini, R., Carrizo, D., Issicaba, D., Venturini, L. Rosa, M. "Collecting Energy Consumption Habits Data in Developing Countries: A Game Platform Proposal". 11th International Symposium on Advanced Topics in Electrical Engineering (ATEE). Bucharest, Romania. Mar 28-30, 2019.
7. Marrero L., García L., Carrizo D., Ulloa F. "An Application of Load Forecasting Based on ARIMA Models and Particle Swarm Optimization". 11th International Symposium on Advanced Topics in Electrical Engineering (ATEE). Bucharest, Romania. Mar 28-30, 2019.
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11. A.Mutule, J.Teremranova, N.Antoskovs, „Smart City Through a Flexible Approach to Smart Energy”, February 2018 Latvian Journal of Physics and Technical Sciences 55(1):3-14, DOI 10.2478/lpts-2018-0001, 2018.
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15. Cristina Mihaela Gheorghe, Ana Maria Dumitrescu, "Percepția consumatorilor casnici privind amprenta de carbon asociată consumului de energie electrică", published in Revista Energetica, Vol. 66, Nr.10/2018, pp. 453-460, 2018.
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Lessons learned and barriers to innovation deployment

Lessons learned:

- Transition into smart energy use in cities requires inclusion of an integrated approach by using unified management of energy and reshaping energy infrastructure of the city;
- Smart use of energy in smart cities requires:
 - New technology implementation;
 - High level citizen awareness;
- The level of experience in energy development wide difference in EU and LA countries;
- Government support in program creation for resident active participation in city life.

Encountered barriers:

- Lack of citizen knowledge in new energy technology implementation;
- Lack of practical models using unified energy management system;
- Lack of budget to fully realize ITCity created tool;
- Lack of deployment, adequate density of smart meter deployment.

Deployment prospects of the most promising solutions

Valuable information:

- Methodology of transition to smart city in the context of international experience in 4 countries.
- Created conceptual application, based on experimental data.
- Gathered database of end-user appliance consumption.

Needs for future R&I activities coming out of the project (if any !)

Need of future activities:

- Citizen awareness in-depth study
- Conceptual application implementation in a future project
- Continued cooperation in the field of smart cities and energy management on the base of international partnership

Thank you for your attention!



www.fei-web.lv/en/itcity

