

Practical approaches of energy efficiency in Romanian industry



Brief case studies in Industry

...around 600



“Collecting the low hanging fruits”



Behavioral change



“Collecting the low hanging fruits”

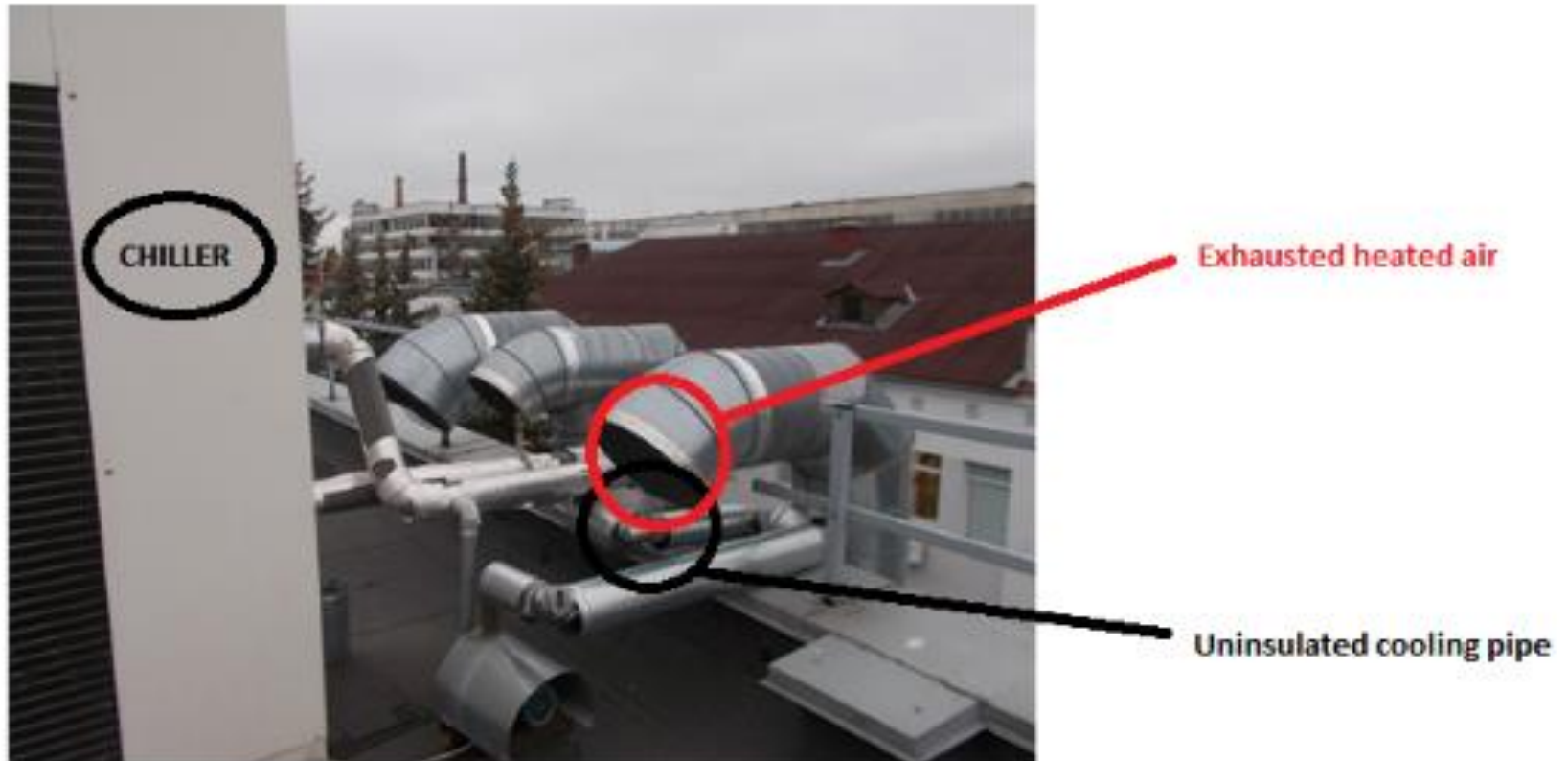


Fully benefit of the free heat recovery from the air compressors room. Keep the grill open.

Harvest the waste heat



“Collecting the low hanging fruits”



Small adjustments in the ‘air’



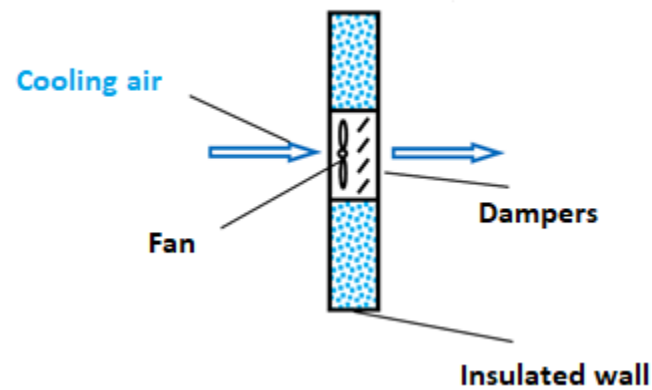
Free cooling



Outdoor



Indoor



Behavior change



Compressed air leaks



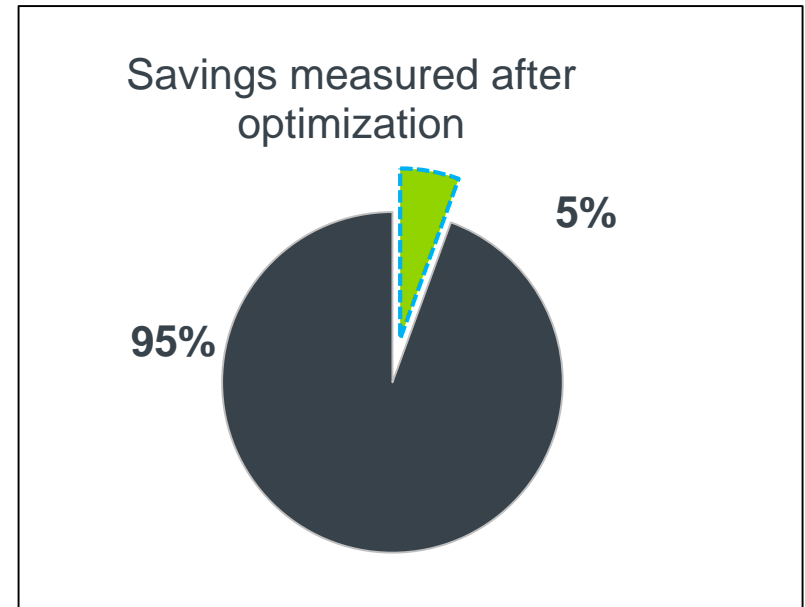
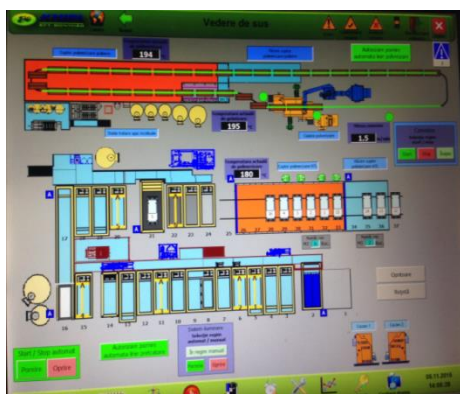
Awareness

Replace timber dryers & air leaks reduction





Temperature control during stand-by operation of brazing kilns

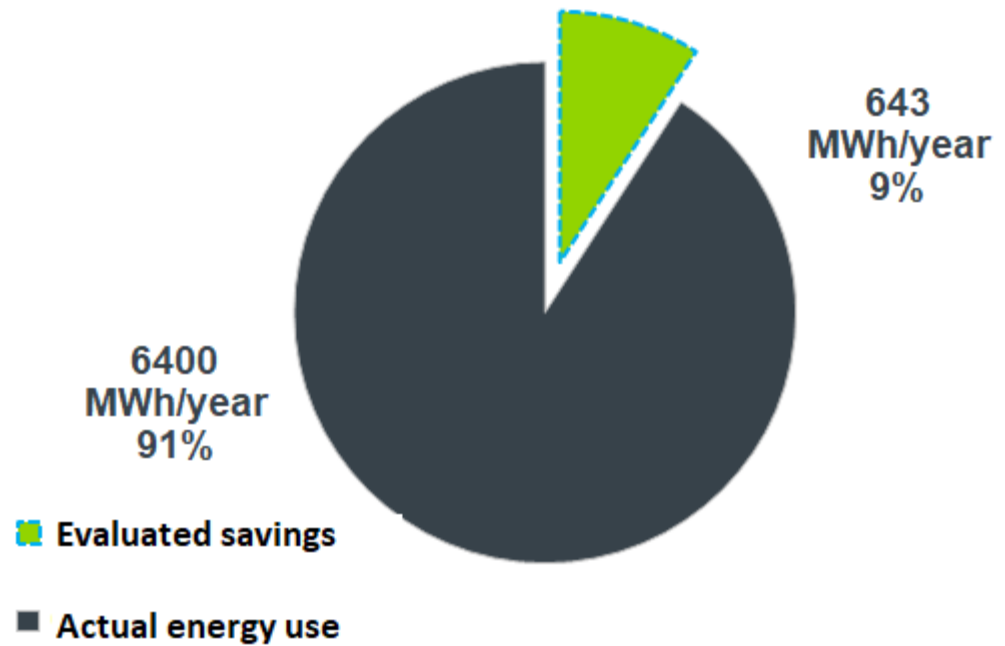


Process Settings

Thermal insulation of kilns

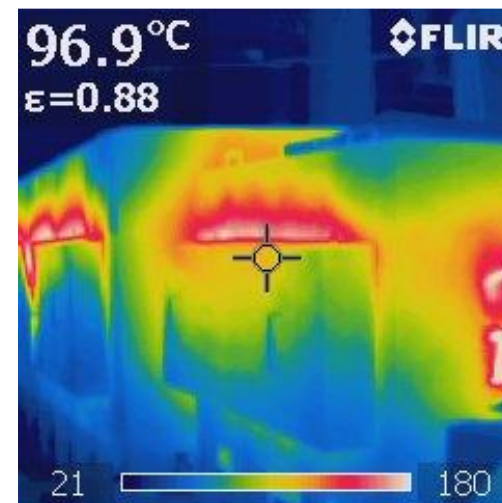
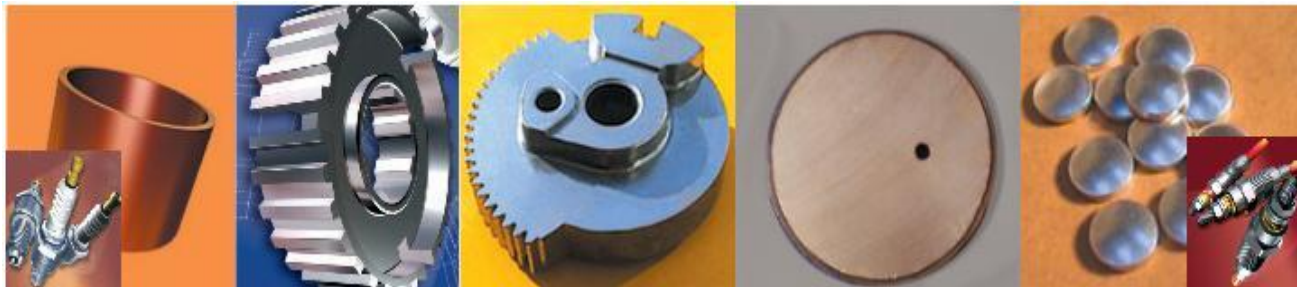


Estimated savings for the proposed solution



Technology upgrade

Replace thermal treatment kilns



Waste heat recovery



Servelect – ESCO financing

Variable speed drives

1	Cooling towers	
2	Wood choppers	
3	Fans	
4	Water pumps	

Technology upgrade

VSD / Power factor correction / Energy monitoring



ESCO financing

Variable speed drives



Optimal steam generation





Building materials plant Micro-cogeneration



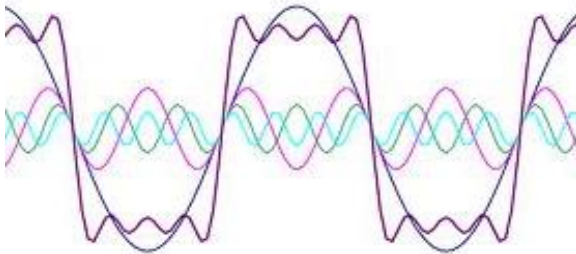
Technology implementation

Power losses reduction in internal distribution grid

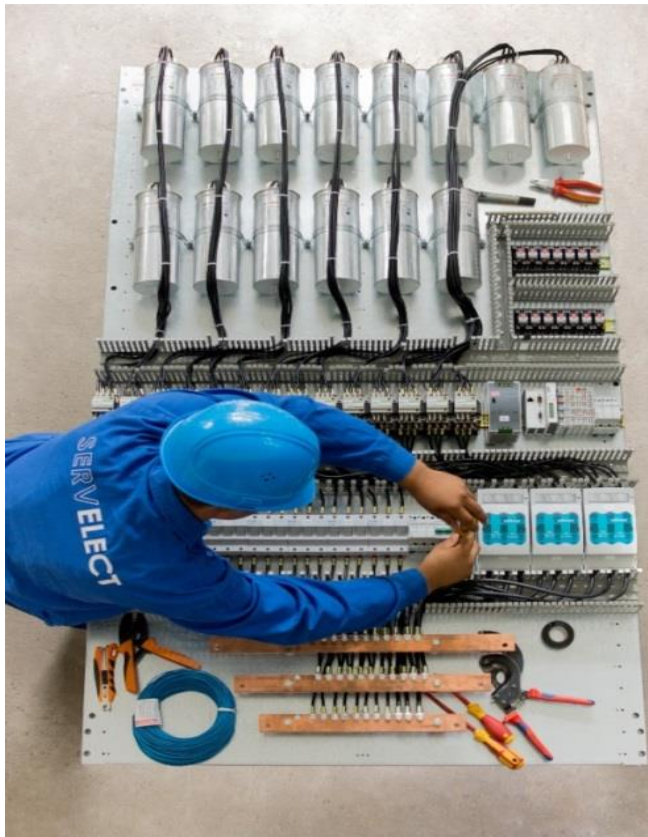
krum & spöck



Harmonic filters



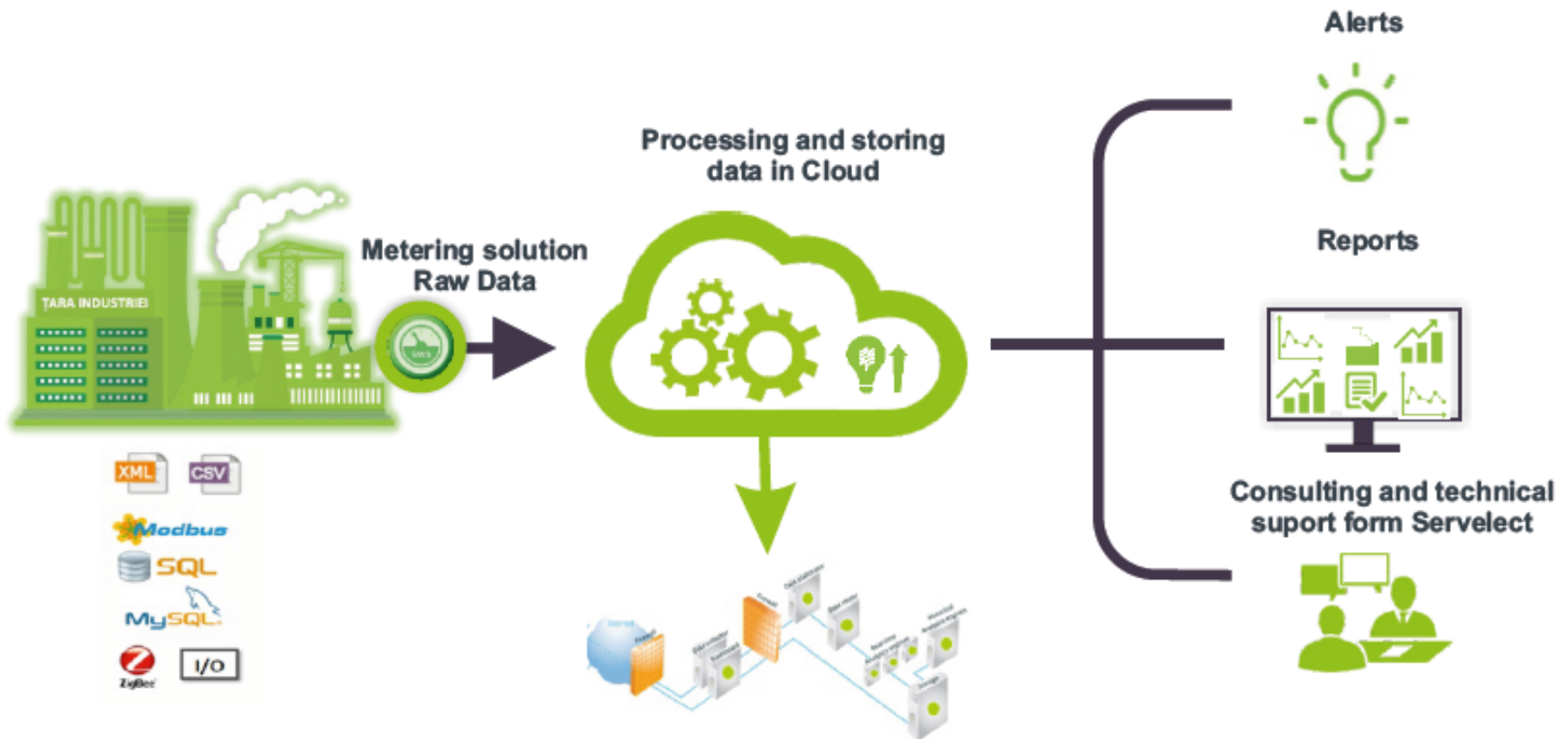
Power factor correction in photovoltaic parks



Technology upgrade

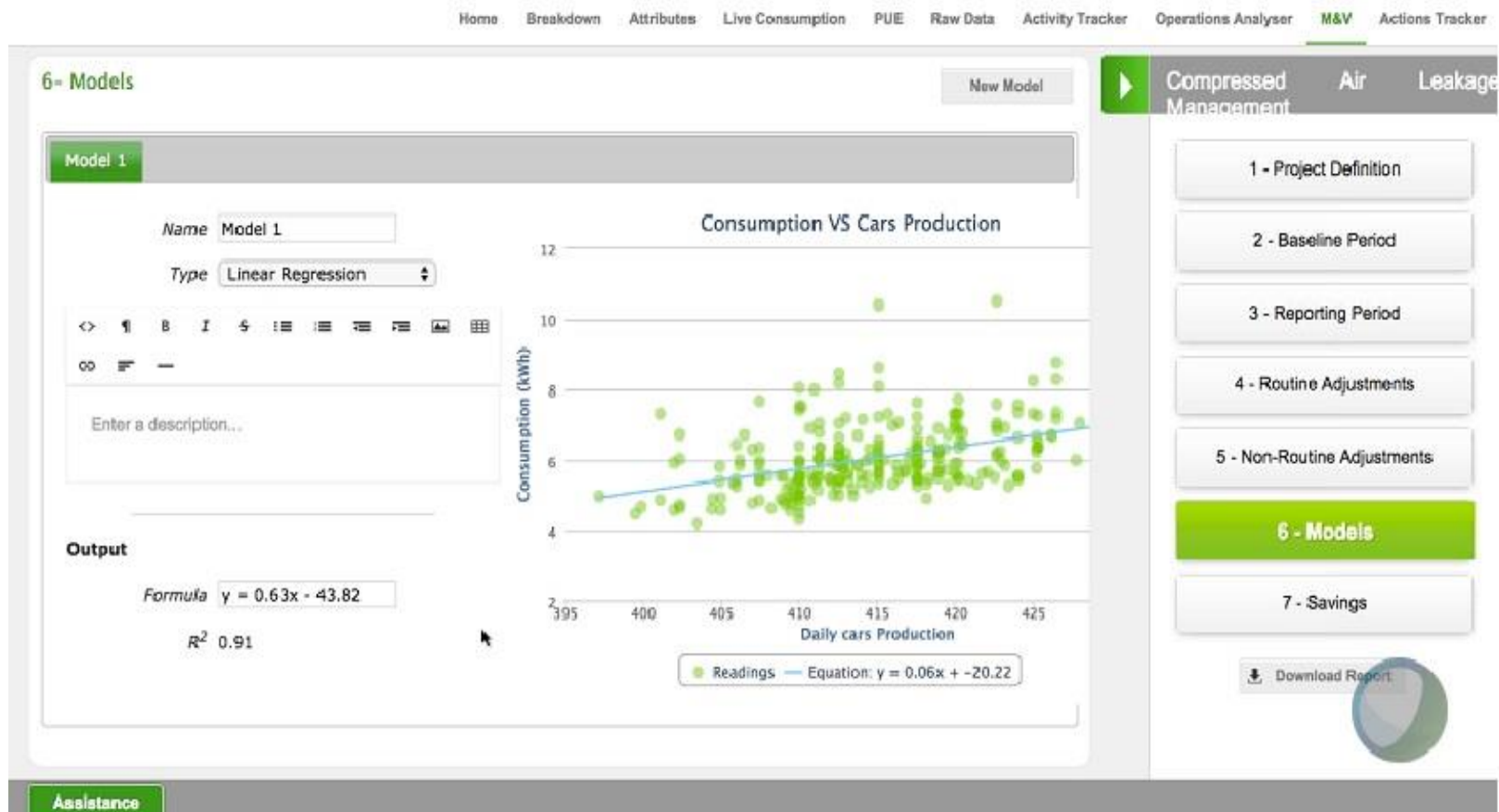


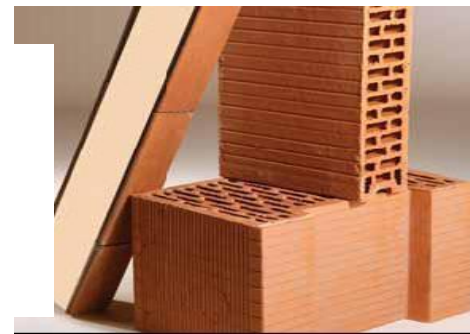
Energy monitoring systems





Evaluate KPIs, set energy use trends





Measurement and verification

See the relevant values and graphs for the whole project life-cycle and provide an executive summary.

Consumption before and after ECM



Baseline Period

1 November 2013 - 24 December 2013

Reporting Period

5 January 2014 - 9 February 2014

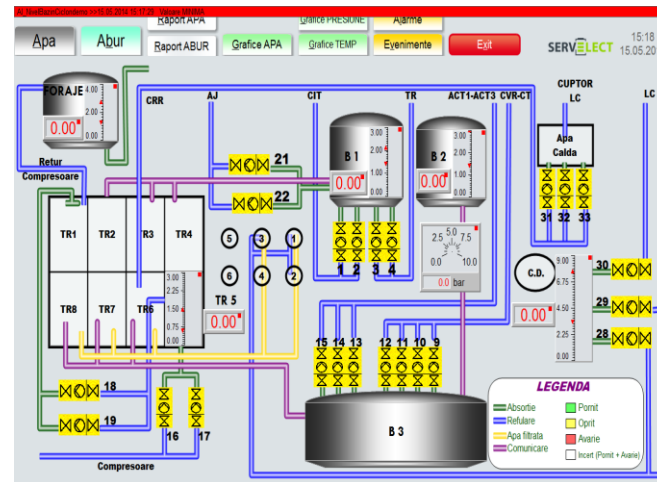
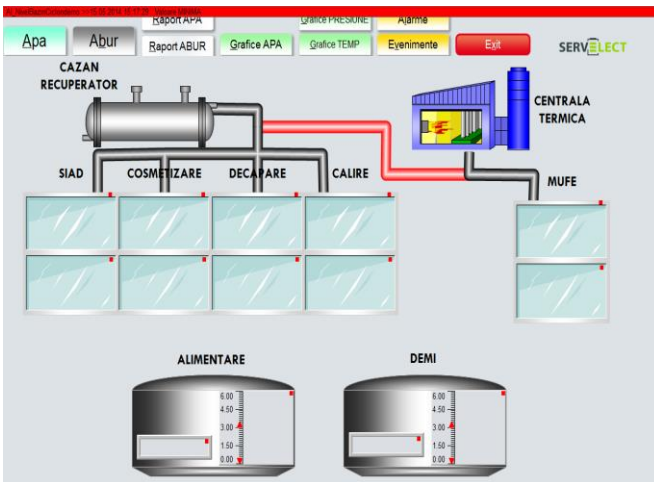
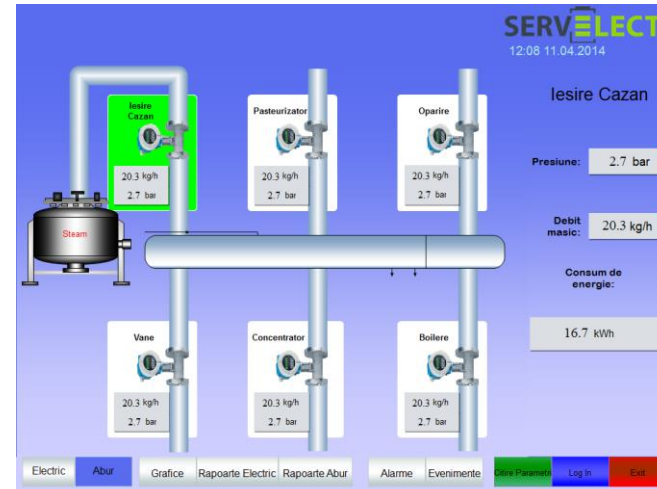
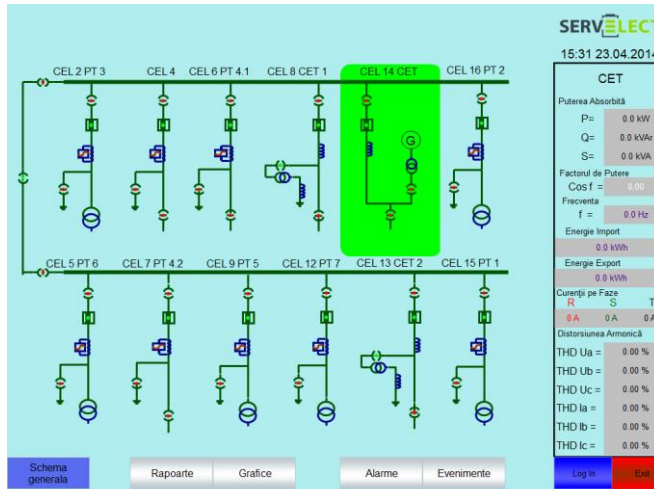
Estimated annualized consumption without ECM: 236,301.95 kWh (£21,267.18)

Annualized actual consumption: 140,968.18 kWh (£12,687.14)

Savings per year: 95,333.77 kWh (£8,580.04)

Payback Period: 1.75 Year

Monitoring and control systems



Energy & Water infrastructure

High Voltage Power Station Internal Services

Energy use	Consum de energie estimat	Procent consum
	[MWh/an]	[%]
Cooling ventilation	259	28%
Cooling pumps	226	25%
Energy storage	110	12%
Lighting	52	6%
Air conditioning	38	4%
Power supply transformer losses	24	3%
Electric heating	182	20%
Other energy users	17	2%
Total	915	100%

Smart Transformer Cooling & Heat Recovery



Technology upgrade

Solutions for gas stations



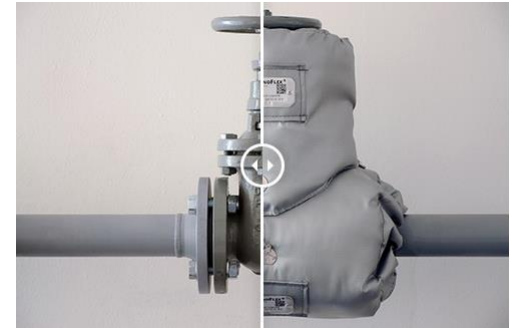
We keep the products fresh with a
low energy consumption

by **SERVELECT**
Energy is money! We save both.



Oil & Gas

- ✓ Energy conversion;
- ✓ Reduce the need;
- ✓ Energy productivity;
- ✓ *Green oil extraction.*





~35% water losses
~6% energy cost in delivery cost

Water companies

Technology upgrade - pumping

Variable speed drives

Biogas cogeneration



Buildings industry

Airports

Capacitive power factor correction



neZEH – Nearly Zero Energy Hotels



ENERGY

- Reduce your operational and maintenance costs.
- Increase independence from energy suppliers.
- Improve your energy efficiency; take advantage of funding opportunities.



BRANDING

- Attach the green concept to your brand image.
- Gain visibility in a new market segment: the "sustainability market".
- Increase your competitive advantage.



ADD VALUE

- Reduce your carbon footprint.
- Meet your corporate and social responsibility targets.
- Increase living comfort and innovate in guests' experience.
- Increase your customers' loyalty.

Buildings transition to nZEB

- ✓ Adequate thermal insulation;
- ✓ Integration of HVAC systems;
- ✓ Optimal intake of natural and artificial light;
- ✓ Renewable local energy sources;
- ✓ Building Energy Management System – *M&V*;

www.mens-nzeb.eu www.republicZEB.org www.train-to-nzeb.com

Local energy sources

Operation hours

> 12000

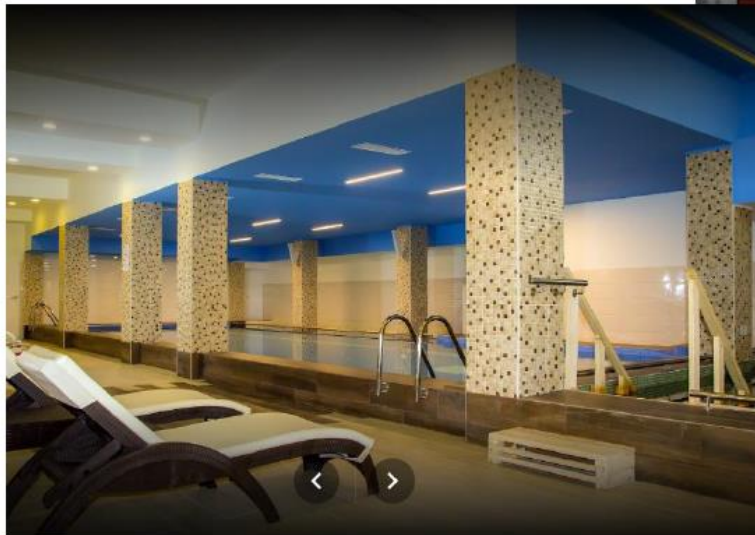
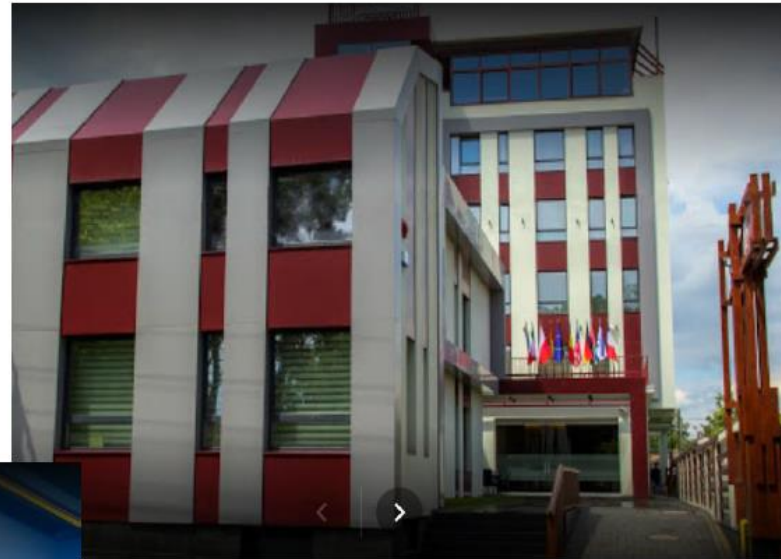




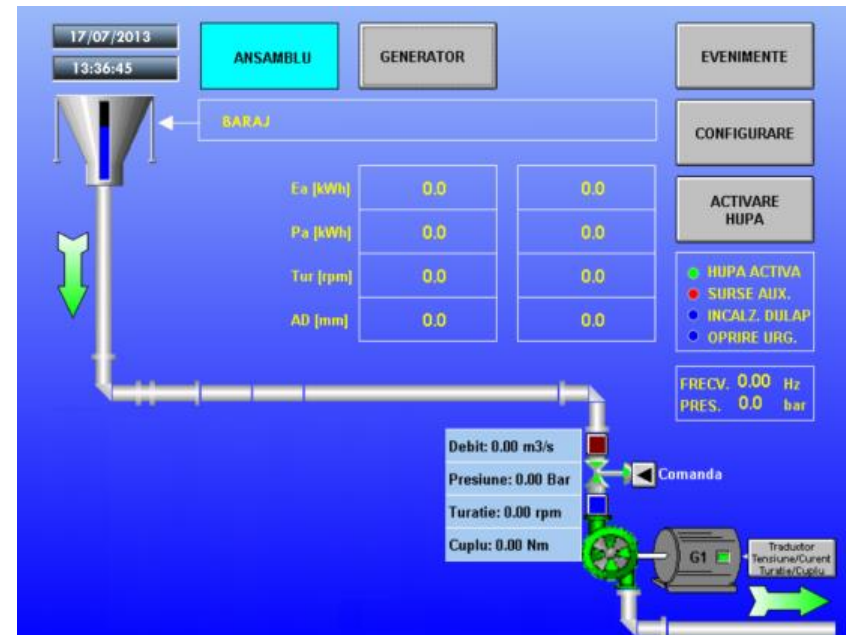
Hotel Salis Turda

Operation hours

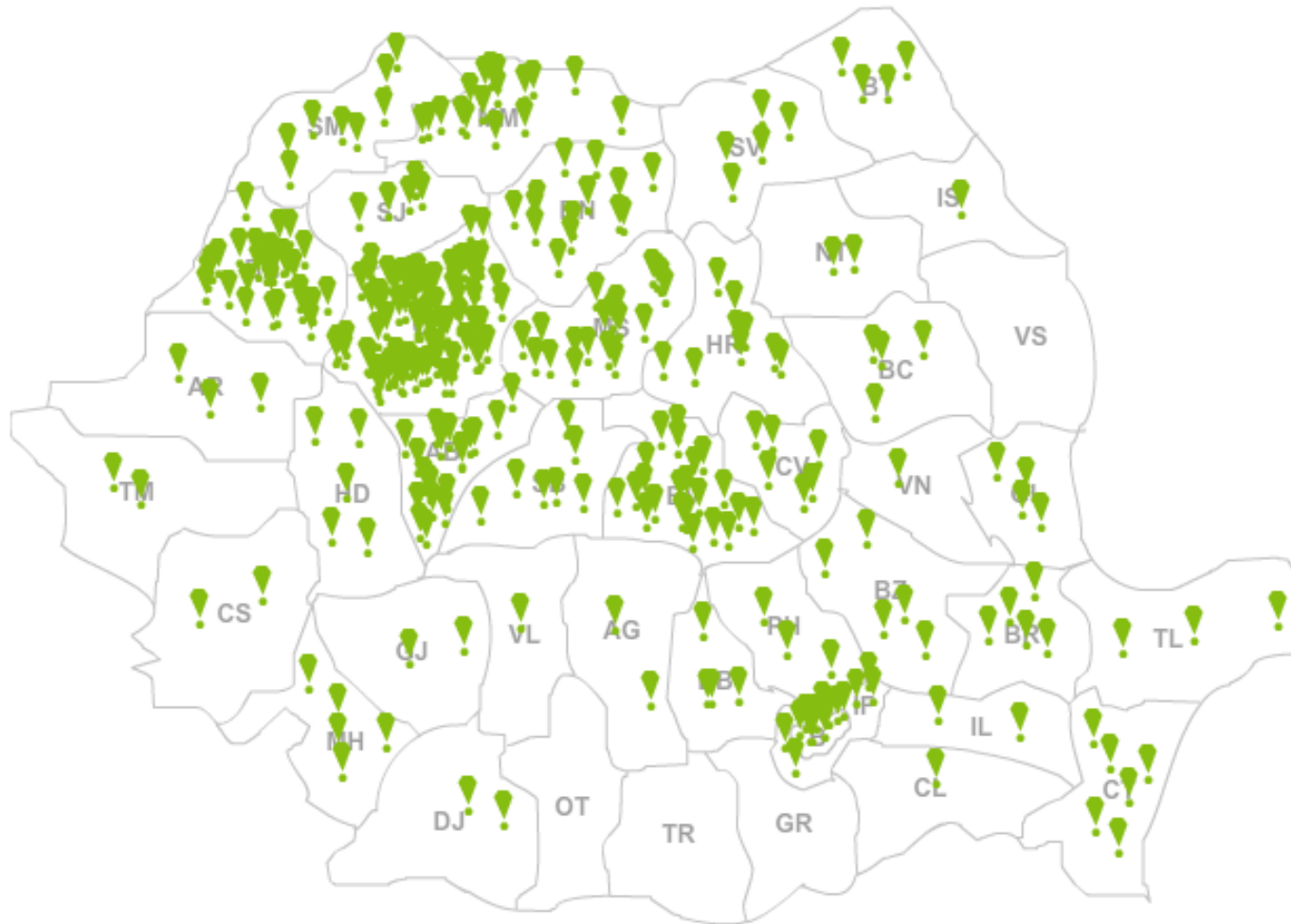
> 6000



Small scale hydro generation using water pressure drop



Romanian projects by Servelect



28 GWh/year

Annual savings brought by Servelect in industry

* Reference year for M&V: 2016.

9%

Industrial Energy Efficiency
Servelect's Romanian EE market share

* According to annual Romanian Energy Regulation Authority reports – 2017.

Financing solutions

- ✓ **POIM 6.1 EU Biomass / Geothermal systems**
- ✓ **POIM 6.2 EU Energy monitoring systems up to 200.000 Euro**
- ✓ **POIM 6.4 EU Cogeneration up to 15.000.000 Euro**
- ✓ **Romanian Fund for Energy Efficiency – *loans***
- ✓ **ESCOs – EPC – www.escorom.ro**



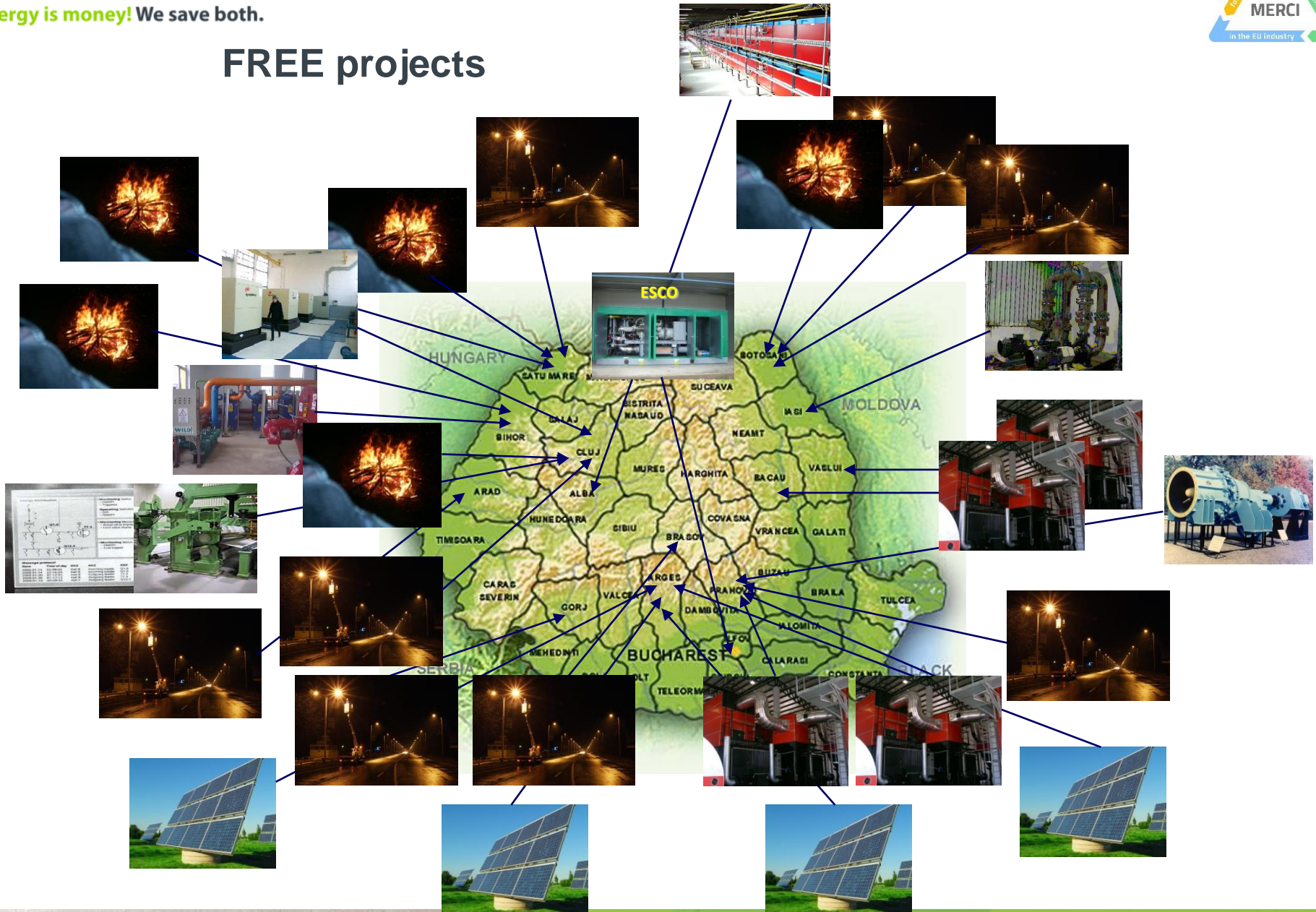
Romanian Fund for Energy Efficiency

FREE

www.free.org.ro



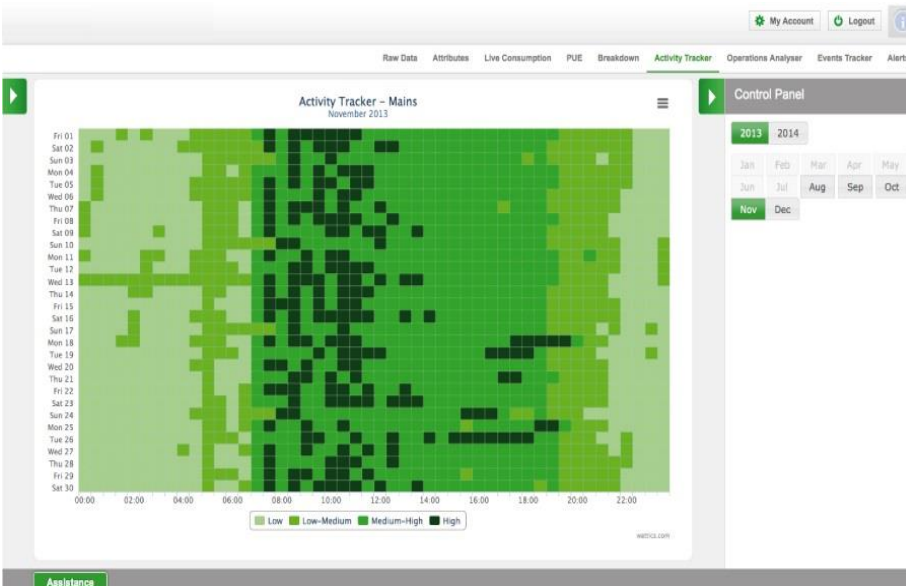
FREE projects



Research Innovation Dissemination Projects



Demand Response in Blocks of Buildings (Horizon 2020)





eenabling new **D**emand **RE**sponse **A**dvanced, **M**arket
oriented
and secure technologies,
solutions and business models
(Horizon 2020)

Efficiency mechanism

SAMER

Societatea Auditorilor si Managerilor energetici din Romania

ENERO – Center for the Promotion of Clean and Efficient Energy in Romania



Asociatia ESCOROM
a Societatilor de
Servicii Energetice
din Romania

ally
of
eu.esco



ESCOROM is The National
co-Administrator of European
Code of Conduct for Energy
Performance Contracting



**AUTORITATEA NAȚIONALĂ DE REGLEMENTARE
ÎN DOMENIUL ENERGIEI**

arpee

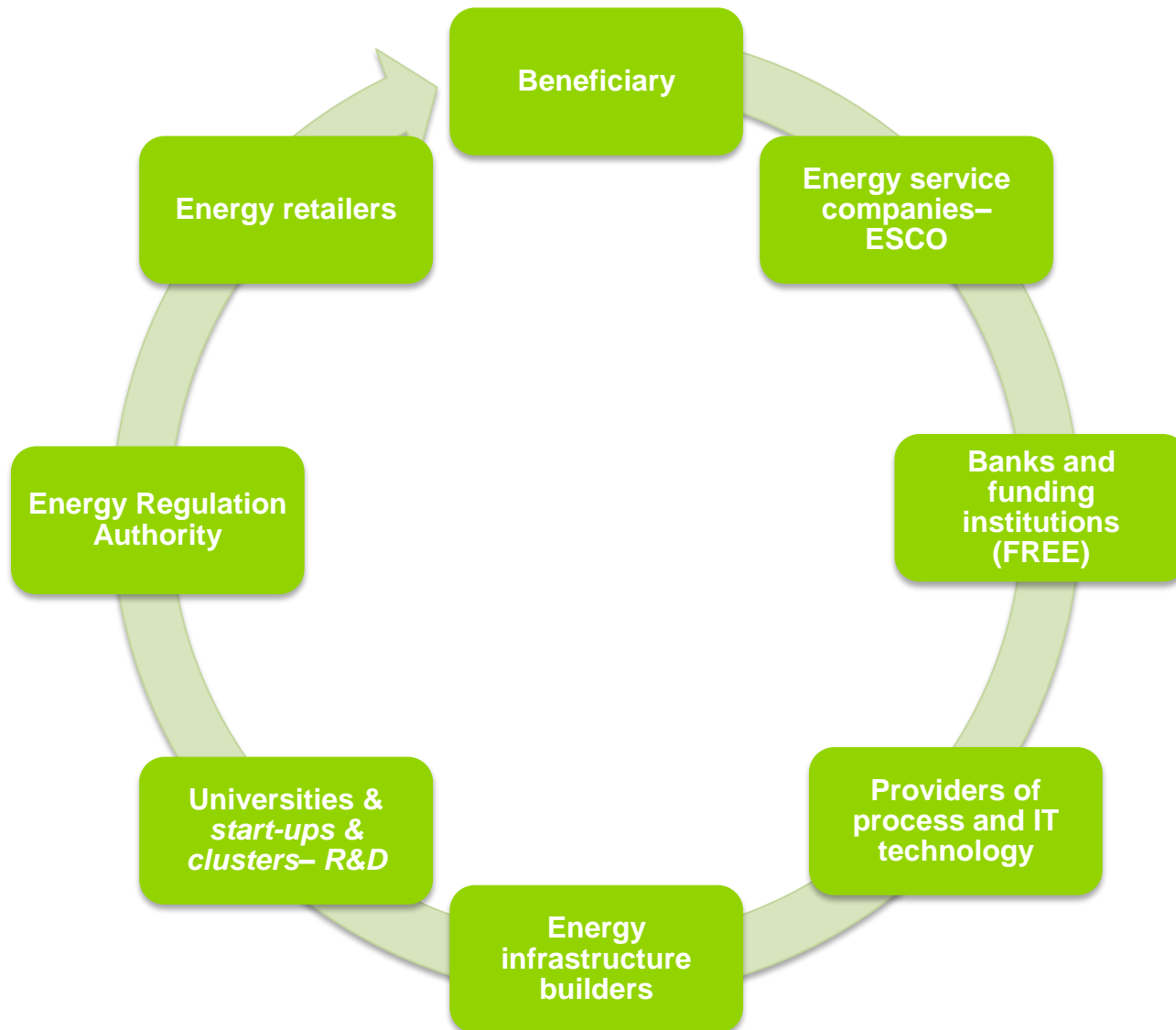
asociatia romana pentru
promovarea eficientei energetice



**FONDUL ROMAN
PENTRU EFICIENȚA ENERGIEI**
Credite pentru un consum inteligent

EE decision making

- ✓ Not a priority in business, although intentions declared;
- ✓ Focus on more and more production;
- ✓ **Lack of instruction and education regarding EE;**
- ✓ High interest cost in financing EE > 6%;
- ✓ **Lack of trust in energy performance & results;**



...its still a challenge

*“Energy efficiency can be one of
the country’s projects for
Romania”*

(CME-CNR)

Secure, clean and efficient energy

Alliance to save energy

Carbon reduction commitment EU 2030

Engineering sustainability

Building future

Adding value to energy

Behavioral energy efficiency

Living building lab

Inspiring success

Research recognized as world leading

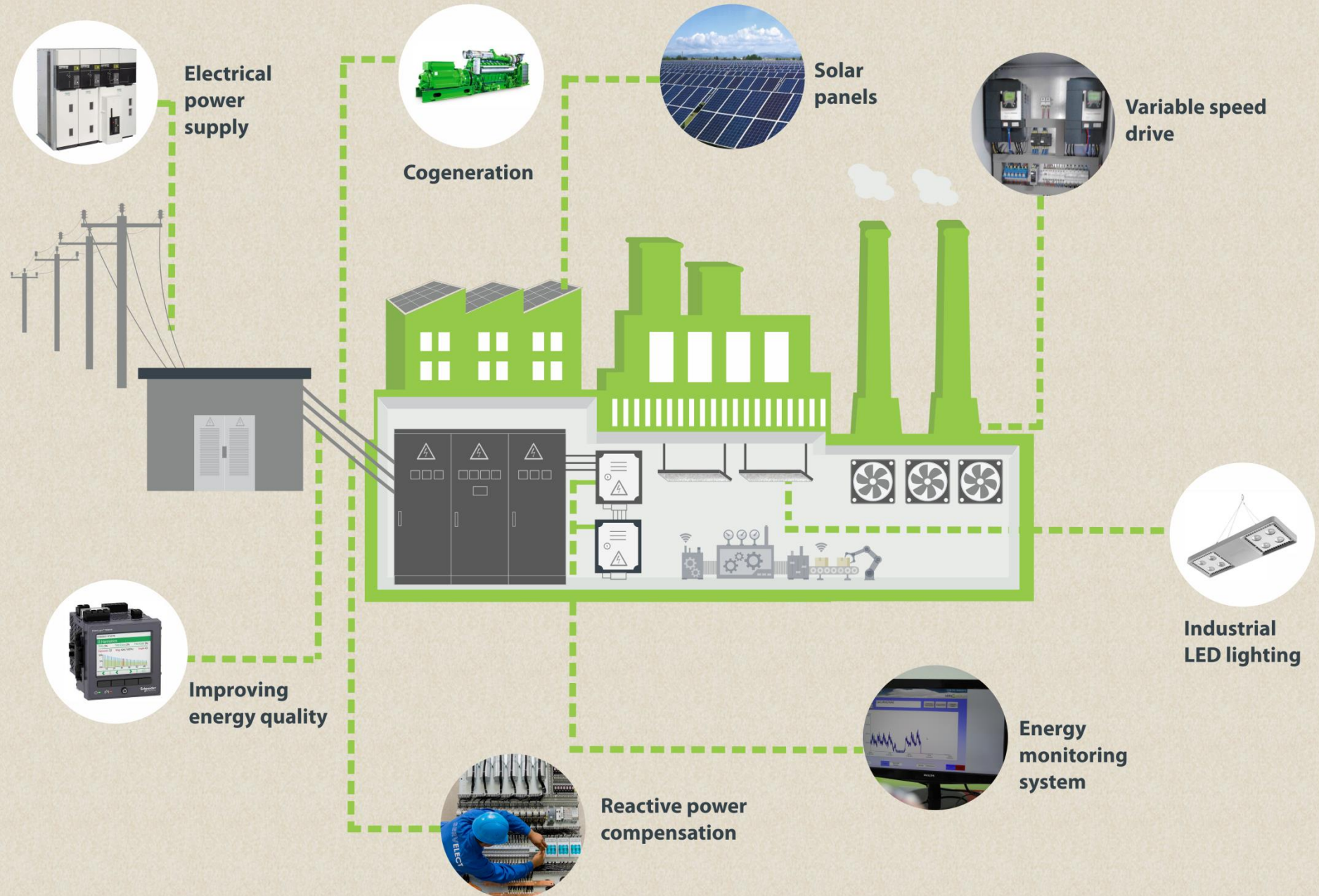
Research 2 Market

Sustainable building environment

Holistic approach

Address grand societal challenges

Some implemented solutions by Servelect



Our business card



Over 13 years of
experience in
Energy Efficiency
projects.



„**Best European
Energy Service
Provider**” –
entitled by the
European Union
in 2011.



More than 800
energy efficiency
projects,
implemented in
Romania and
Europe



Energy Auditor
and Energy
Manager, certified
by the Romanian
Energy
Regulatory
Authority



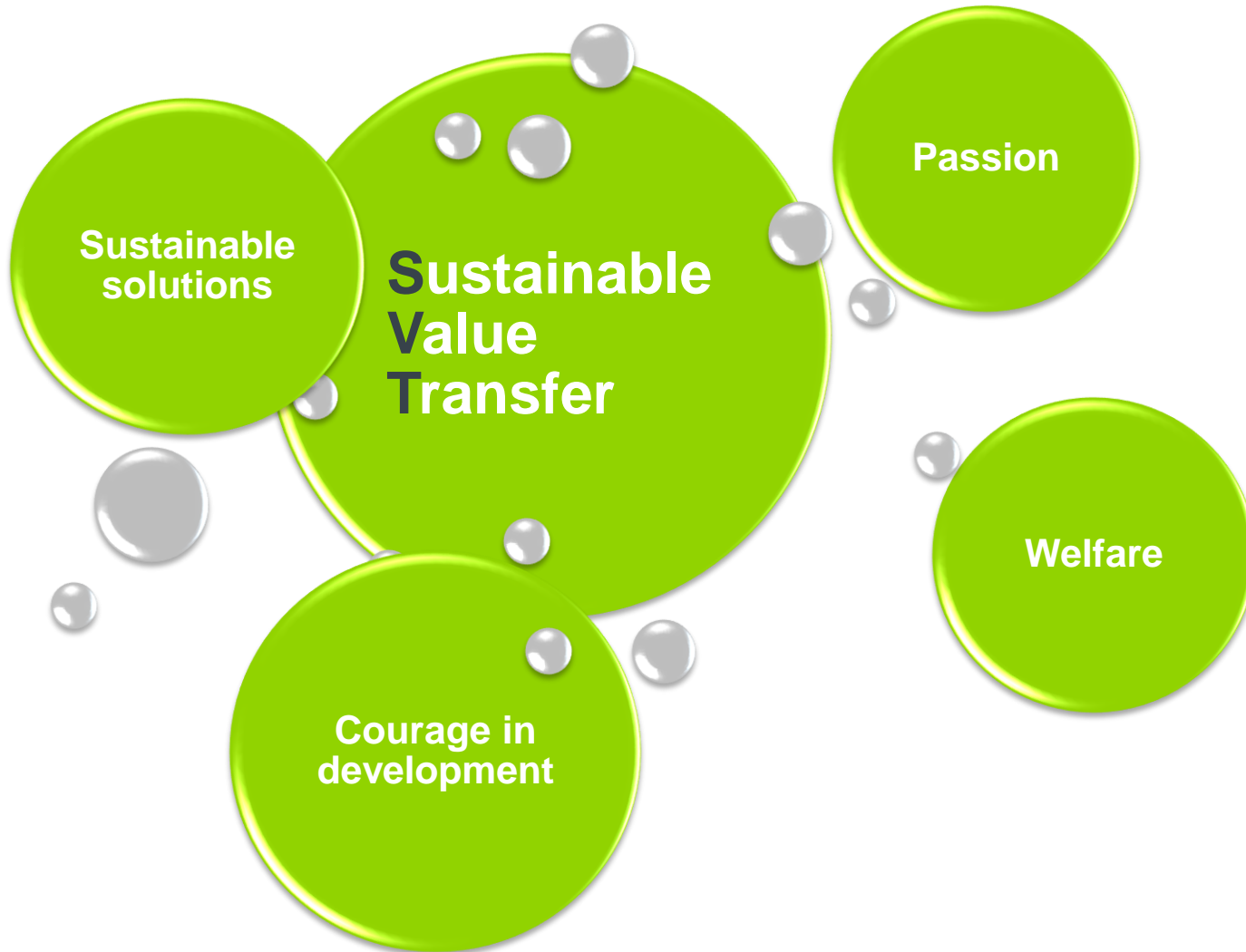
Signatory of the
European Code
of Conduct for
Energy
Performance
Contracting



NEGAWATT

NegaWatt –
registered
trademark by
Servelect

SERVELECT Values



**“Engineering is seeing solutions,
not finding problems.”**

SERVELECT Cluj-Napoca, România

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