



Resalta™

Stop wasting, start saving.

# How we create and save energy

June 2018, Ljubljana

# Who are we?

A leading energy services company in Southeastern Europe, present on 9 markets.

We help clients improve their energy efficiency and lower their environmental impact.

We offer **integrated energy services** in the fields of the **ESCO** model and **renewable energy sources**.

**Resalta™**



# Resalta in numbers

70+

Experts from different fields with many years of valuable and varied experience

120+

Satisfied local and regional companies, cities and municipalities whom we have helped to achieve financial and energy savings

180+

Successfully carried out energy projects

# Ownership structure



**Energetika Ljubljana** remotely supplies heat, cooling and natural gas. It is among the highly developed supply systems in Central Europe and has significant experience with the operation of energy systems and strong competences in the field of engineering.



**Black Peak Capital** is a co-investment growth equity fund focused on investing in high-growth Southeast European small and medium enterprises. BlackPeak Capital is funded by the European Investment Fund, part of the European Investment Bank, through the JEREMIE initiative for support of the SME enterprises in Bulgaria.



**Post Scriptum** is a venture capital group which holds a broad portfolio of investments in start-up and niche situations, primarily but not exclusively in the energy sector. Its biggest focus is the dynamic field of renewable energy.



**European Investment Fund & SID Banka** through a joint instrument (The Slovenian Equity Growth Investment Programme). The European Investment Fund invests in SMEs through private banks and funds, partnering here with SID Banka whose goal is to stimulate the economy and promote sustainable development through its financial instruments.

# The ESCO model

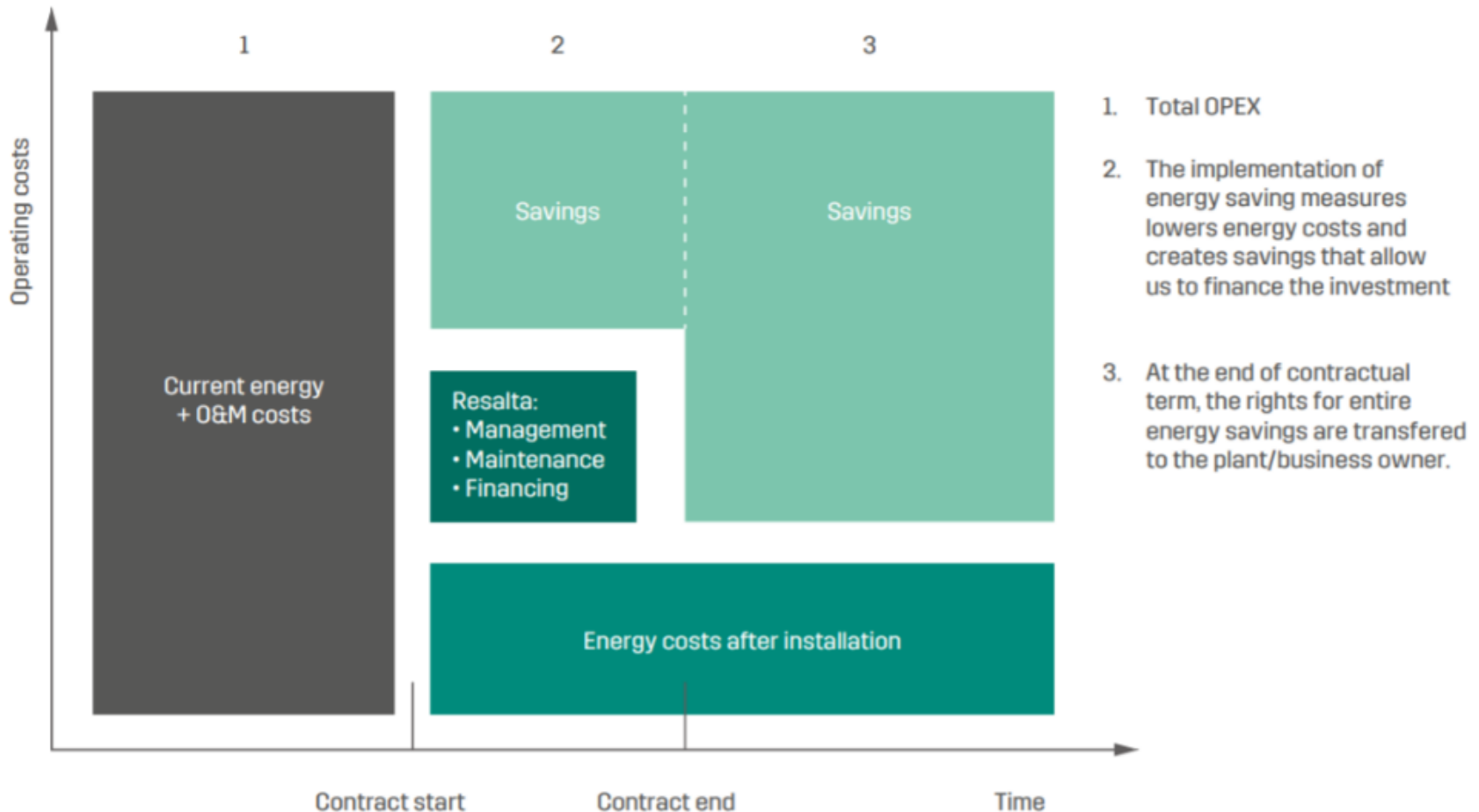
Resalta offers clients integrated energy solutions to help them achieve financial and energy savings:

- Financing
- Investment planning and implementation
- Energy management, energy supply
- Maintenance and operations of energy systems or buildings
- All other risks and responsibilities

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# The ESCO model – financing investments from achieved savings



# From energy audits to project realization and financial savings

	1 ENERGY AUDITS	2 INVESTMENT PLAN/PROPOSAL	3 PROJECT IMPLEMENTATION	4 GUARANTEED SAVINGS
INPUTS	Utility bills, access to the facility, information on consumption	Energy audit, success criteria definition, financial goals	Investment plan, contractual agreement	Energy efficient facility
ACTIVITIES/ EXPERTISE	<b>Analysis of the characteristics of the existing systems:</b> <ul style="list-style-type: none"> <li>- Energy systems,</li> <li>- Facility characteristics,</li> <li>- Lighting,</li> <li>- HVAC systems,</li> <li>- Energy measuring systems,</li> <li>- Voltage optimization,</li> <li>- Water,</li> <li>- Organization, business processes, safety, ...</li> </ul>	<b>Process planning and technical solutions:</b> <ul style="list-style-type: none"> <li>- Energy efficiency measures and equipment selection,</li> <li>- Savings, investment and financial calculations,</li> <li>- Defining partnership terms,</li> <li>- Project timeline, ...</li> </ul>	<b>Expert project management:</b> <ul style="list-style-type: none"> <li>- Professional planning, project launch, implementation and operation,</li> <li>- Rigorous project deadlines,</li> <li>- Client communication,</li> <li>- Client training, ...</li> </ul>	<b>Energy management and user support:</b> <ul style="list-style-type: none"> <li>- Measurements and verification of new equipment and processes,</li> <li>- System monitoring,</li> <li>- Client training and technical support,</li> <li>- Planning of energy flows, consumption control,</li> <li>- Equipment operation and maintenance,</li> <li>- Savings reports, ...</li> </ul>
RESULTS	Clear picture of the potential for energy savings	Investment plan	Improved infrastructure and optimized processes	Energy efficiency, savings and guaranteed results

# Certifications

Resalta has obtained numerous international certificates in its commitment to maintaining quality control, excellence and safety, all while preserving the environment:

- 8 EUREM certified engineers
- ISO 9001:2015
- ISO 14001:2015
- ISO 50001
- BS OHSAS 18001:2007
- FSC membership

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# Awards

The quality of our work has been recognized by leading institutions as well our peers. Our most recent wins include:

Dnevi Energetikov awards for:

- Most Energy Efficient Company (with Gorenje) 2017,
- Best Energy Efficiency Project in 2015 and 2017

EUREM's award for Best Project for Žito in 2018

**Resalta™**



# Over 120 satisfied clients

**ATLANTIC**  
GRUPA

**FRAGMAT**

**SAVA**  
HOTELS & RESORTS

**gorenje**  
Life Simplified

*Plantaže*

INDUSTRIJA MESA  
**TOPOLA**  
BAČKA TOPOLA

**MORA**

**TALUM**

**Mercator**

**ALKALOID**  
SKOPJE

**citypark**  
Nakupovalno središče Ljubljane

**THERMANA**  
Laško

**LIVAR**

**RAVNE**  
KNIVES

**ISKRATEL**

**triglav**

**ERICSSON**

Center **INTERSPAR** Vič

**ADRIA**

**TelekomSlovenije**

**SŽVIT**

**2S**  
AdriaticSlovenica

**KD**

**ETRA**

**KANUS**

**nectar**  
nije svejedno.

**P**  
Perutnina Ptuj  
110 LET

**žito**



**ELES**

**ž'dežele**  
celjske mesnine

**K**  
KOLIČEVO KARTON  
Proizvodnja kartona d.o.o.

**USA**



**SAPONIA**

# Resalta Ventures

## Strategic partnerships

- Local, regional sales partnerships
- Business models
- Internationalization
  - JV activities
  - Subsidiaries
  - Project approach

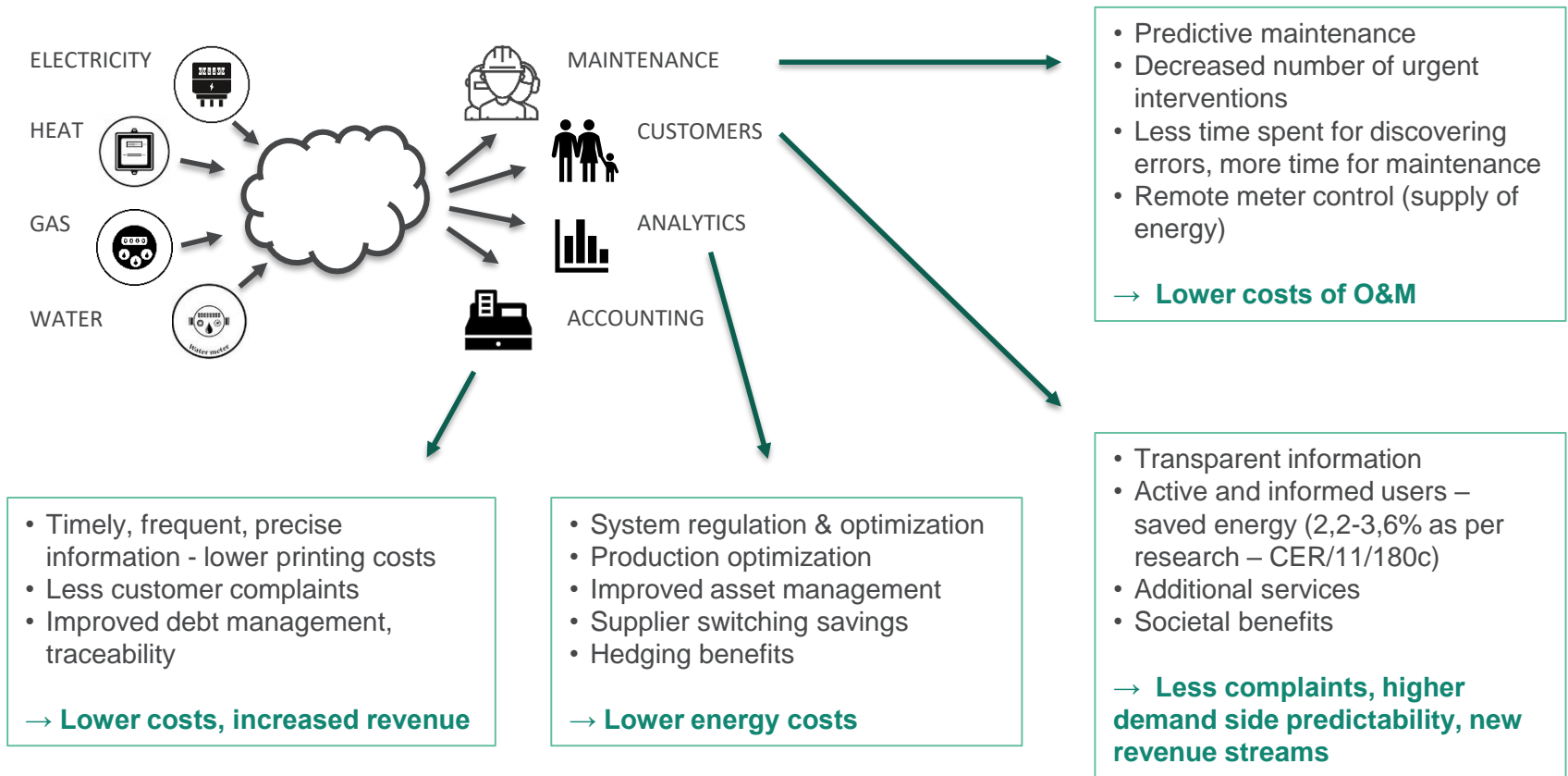
## Strategic technology partnerships

- New value for existing customers
  - Up-sell / cross-sell
  - Improved value proposition
- New markets
  - New geographies
  - New customer segments



# Solutions - Phase 1: Digitalization of meters

Smart metering system provides real-time data about energy, gas or water networks and provides benefits for multiple usage scenarios within the utility company.



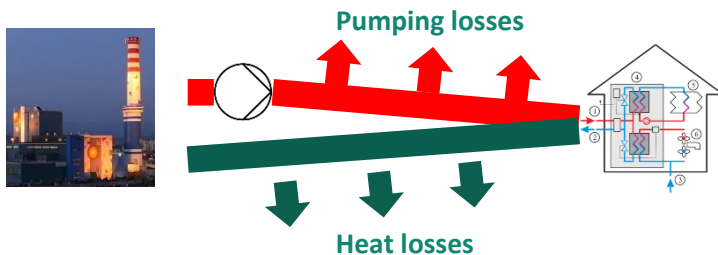
# Case Study – District Heating System Ljubljana

## Project scope

- Deployment of smart metering system for 4.500 sub-heating stations on existing heat meters with the use of battery powered data concentrators through GSM network
- Energy management system and integration with SAP and other business intelligence
- Installation of regulation controllers (bi-directional communication)

## Project impact

- Energy system optimization
- Active demand and response



**Expected 2% energy savings out of total 1.000 GWh p.a.**

- Integration of multiple IT platforms for improved asset mngmt, analytics, customer and debt mngmt
- Internal and external workforce/process optimization



**Expected 1,5% overall operating and maintenance costs savings.**

- Interactive platform for end consumers



**New revenue stream with premium features for end users. User's changed behavior to save up to 3,5% energy.**

# Our commercial clients include:

## Hotels & Spas

- GH Bernardin
- Terme Radenci, Terme Topolšica, Thermana Laško, Salinera
- Hotel Delfin, San Simon Hotel Resort, Grand Hotel Union
- Hotel Otrant, Hotel Žusterna,
- Rikli Balance Hotel
- Terme Čatež, Terme Ptuj

## Retail & Service Companies

- Mercator, Roda, Interspar Vič,
- City Park Ljubljana, Magma X, Serdika, Centrice
- Big Bang, Brodomerkur, Staklopan, Serdika
- SAS, Telekom Slovenije, Triglav, Adriatic Slovenia, Telemach
- Triglav, KD Group, NLB



# Our references



# City of Ljubljana - Slovenia

## Challenges

- The public tender for the energy retrofit of the City of Ljubljana included 49 buildings: elementary schools, kindergartens, libraries, cultural institutions, healthcare centers, sports centers and administrative buildings.
- The aim of the city was to improve the energy efficiency of the buildings with minimal investment, in accordance with the environmental policies of Ljubljana and the city's reputation of European Green Capital.
- In order to successfully carry out the implementation of such an ambitious project, Resalta entered a consortium.

## Solutions

Resalta's solutions will have a positive impact on the environment while allowing for higher energy efficiency as well as lower energy consumption.

Resalta will renovate heating, ventilation and cooling systems, replace inner lighting with more efficient lighting, replace existing heating systems with systems using renewable energy sources, replace doors and windows, renovate facades and isolate roofs.

The public private partnership duration is 15 years.



## Results

- Annual energy savings: 8,245,534 kWh
- 2,956t of CO<sub>2</sub> emissions cut annually

# Plantaže - Montenegro

## Challenges

- Plantaže AD, the largest winery in the region and one of the most famous, had very high energy costs.
- It used an old heavy oil steam boiler, incurring significant costs for operation, maintenance, cleaning, as well as losses on steam pipelines.
- The existing boiler also lacked a condensate return system, resulting in wasted energy.

## Solutions

Resalta's proposed solution was the installation of a new biomass steam boiler, 2 MW capacity, 3t/h, with a partially new steam line and an entirely new condensate return system.

The new fuel proposed is biomass from vine cuts, which is a byproduct of the company's main operation and has low moisture content and high calorific value.



## Results

- Annual cost savings of up to 100% for steam production
- CO<sub>2</sub> emissions reduced by 950t annually
- More reliable system, highly efficient

# Mercator - Serbia

## Challenges

- Mercator's retail centers throughout Serbia are relatively inefficient, dependent on district heating and have obsolete lighting systems.
- The client wanted to lower costs in several facilities and improve the lighting and heating systems.
- Resalta signed a contract for projects with four centers throughout Serbia.

## Solutions

Resalta came up with solutions to improve energy systems and achieve financial savings for the client in four Mercator centers throughout Serbia.

Among the implemented measures are:

- Installation of two steam boilers with a 1,600 kW and 1,300 kW capacity in one Mercator center.
- Installation of modular condensate gas generators of heat with 1,440 kW and 1,650 kW capacity in three centers.
- Installation of LED luminaires of a combined power of 122.6 kW in one of the centers.



## Results

- Financial savings of 20-30%, up to 70% once the contract expires
- Higher efficiency, more reliable and eco-friendly systems
- Improved comfort for visitors and staff

# Gorenje/CHP - Slovenia

## Challenges

- Gorenje's facilities in Velenje were using natural gas cogeneration (CHP) units for heat energy supply with 880 kW of combined heat power and 654 kW of electrical power.
- The required heat was 31,420 MWh annually, with an estimated 4,000 annual operating hours of the CHP.

## Solutions

Integration of the right size of cogeneration (CHP) on natural gas; 850 kW of electricity and 929 kW of thermal power.

Resalta monitors the system through Resalta's central control system (web access) in real time, operating and maintaining the plant, also selling heat and electricity to the client.



## Results

- Annual savings: 60,000 EUR
- Reduction of 517t of CO<sub>2</sub> emissions annually

# Hotel Putnik - Serbia

## Challenges

- The Hotel Putnik in Kopaonik, Serbia's most popular winter tourism destination, has changed owners and as a result is undergoing complete renovations to raise its service offer to a new level.
- The client was looking for a company with experience in renewable energy sources and the hotel business.

## Solutions

Resalta will ensure that the hotel Putnik makes the transition from crude oil powered boilers to biomass boilers fueled by locally sourced woodchips.

Two boilers of a combined power of 720 kW will be installed, alongside a reliable system for delivery and dosing of the wood chips, and will provide the facilities with heat energy from renewable sources.



## Results

- Reduced CO<sub>2</sub> emissions by 265t each year
- Highly efficient, reliable system for heating the entire hotel and its facilities

# Perutnina Ptuj - Slovenia

## Challenges

- Perutnina Ptuj's meat packaging plant in Zalog requires several cooling chambers set at different temperatures for its production.
- The original cooling processes used ammonia compressors for all chambers, providing temperatures ranging from  $-20^{\circ}\text{C}$  to  $0^{\circ}\text{C}$ .
- Some of the older compressors are up to 40 years old and have an exceedingly poor energy efficiency ratio.

## Solutions

Resalta developed a parallel solution for the  $0^{\circ}\text{C}$  chambers that represent around 50% of the plant's total cooling space.

An air-to-water liquid outdoor chiller was installed. It uses the R134a environmentally friendly medium as a refrigerant and prepares the propylene-glycol cooling medium at a temperature of  $-6/0^{\circ}\text{C}$ .

With a cooling capacity of 760 kW, the energy efficiency ratio is twice as high as for the existing technology used at the Zalog plant. Under Eurovent conditions, this impressive chiller weighing 8 tons could have a capacity of as much as 1,300 kW.



## Results

- The plant has the required cooling capacity to operate fully efficiently
- The plant has contingency systems in place that ensure smooth operations under all conditions

# IM Topola – Serbia

## Challenges

- Based in Bačka Topola in the northern region of Vojvodina, Topola produces a variety of meat products for local consumption and international export.
- With 60,000 heads of livestock supplied each year from its two farms, and 4,300 hectares of arable land, Topola has very large energy needs for its production.

## Solutions

Resalta will install a new highly efficient natural gas steam boiler, essential to the client's production, in Topola's meat processing plant. Resalta will also install all the surrounding equipment which includes a new burner, a feed water tank with degasser, the condensate tank and condensate recovery system.

The project includes a new vertical tank with steam heat exchanger for the preparation of sanitary hot water and all the necessary mechanical and electrical boiler room equipment.



## Results

- 20% reduction of steam production costs
- CO<sub>2</sub> emissions reduced by 600 tons annually

# Livar, Ivančna Gorica - Slovenia

## Challenges

- Livar specializes in mechanical processing and the production of ductile cast iron. One of the company's factories is in Ivančna Gorica.
- The client's compressed air was produced by an old and unreliable screw air compressor, treated with an adsorption air dryer.
- Measurements showed that the annual compressed air consumption is 9,500,000 m<sup>3</sup>. The compressed air system consumed 1,368 MWh of electricity a year.

## Solutions

Resalta's solution was the installation of a new screw air compressor with nominal electric power of 160 kW.

The old air dryer was replaced with a new refrigerated air dryer.



## Results

- Reduction of electricity use for compressed air production by 23.6%
- Annual cost savings: 24,870 EUR

# Alkaloid / Energy Audit – Macedonia

## Challenges

- Alkaloid is a leader in the European pharmaceutical industry, and one of the largest companies in Macedonia.
- The company's goal is to keep improving energy efficiency in the region and help Macedonia's dynamic industry and hospitality sectors to grow in sustainable, environmentally mindful ways.

## Solutions

Alkaloid has undergone a thorough audit of six of its facilities, five in Skopje and one in Dojran, as part of Resalta's first energy efficiency project in the country. As one of the region's leaders in pharmaceutical production, Alkaloid consumes significant amounts of energy. Resalta's engineers have measured and analyzed all energy systems in order to identify potential for savings and optimization.



**ALKALOID**  
**SKOPJE**



## Results

- Thorough energy report with an analysis of the most cost-effective possible solutions for saving energy as well as lowering costs and carbon emissions.

# Schools in the City of Pirot - Serbia

## Challenges

- The City of Pirot announced a public tender in order to lower heating costs in four schools and improve efficiency.
- All four schools had obsolete and unreliable crude oil boilers, a solution that wasn't environmentally friendly.

## Solutions

In order to improve efficiency and lower environmental impact, Resalta installed two biomass boilers in each school:

- Dairy high school: 360 kW + 120 kW
- Elementary school "8. septembar": 450 kW + 120 kW
- Elementary school "Duško Radović": 550 kW + 120 kW
- Elementary School "Sveti Sava": 240 kW + 120 kW

Biomass is an efficient, locally sourced and environmentally friendly fuel.

The contract duration is 7 years.



## Results

- Up to 60% savings on energy costs
- 420t of CO<sub>2</sub> emissions cut each year

# City of Kruševac - Serbia

## Challenges

- Kruševac is a city in southern Serbia, as well as the seat of a wider administrative area with 128,000 inhabitants.
- Its public lighting infrastructure is outdated and the city has published a tender for a public private partnership to renovate the systems in the smaller towns surrounding the city that fall under its jurisdiction.
- Resalta won the tender with its technical partner.

## Solutions

Resalta will replace 12,545 old luminaires with 12,545 energy efficient LED luminaires. The luminaires were carefully selected following photometric measurements to fill all the requirements of the city and its surrounding towns.

Resalta will also replace the obsolete systems for switching public lighting on and off in all 330 substations in the municipality, with an automated system regulated by an astronomic clock adjusted for the conditions in Kruševac, enabling optimal energy savings as well as the required 4,000 operating hours per year.

The PPP contract lasts 12 years, with Resalta providing an added 3 years of guarantee on the lighting equipment.



## Results

- Reduction of total wattage from 1,664 kW to 356 kW
- 80% savings once the contract expires
- 2,772t annual reduction of CO2 emissions

# Iskratek - Slovenia

## Challenges

- Iskratek is a leading European provider of communications solutions with over 900 employees and local presence in more than 30 countries. Its headquarters are located in Kranj, Slovenia.
- Following a comprehensive energy audit carried out by Resalta, Iskratek decided to undertake some of the suggested measures to improve its energy efficiency.

## Solutions

Resalta has replaced the old, unreliable and energy inefficient close-control unit currently in use with a new system that will maximize energy efficiency. The new close-control unit uses free-cooling at temperatures below 18°C, so for most of the year, with direct air intake through filters. The hot air produced by the data center servers is used to heat the adjoining warehouse during heating season. An ultrasonic humidifier regulates air moisture.

Resalta has also installed a new chiller as well as an air handling unit with recuperation and fan coils to improve ventilation and comfort cooling. Moisture is regulated, as well as temperature for optimal air treatment.



## Results

- Annual energy savings of 637 MWh
- Increased system reliability and improved working conditions for employees
- Switch from R22 cooling media to an eco-friendly solution

# Slatina Cogeneration - Croatia

## Challenges

- The Slatina project was launched as Resalta's first large scale renewable energy project, in the industrial zone Trnovača, on the outskirts of the city of Slatina in northern Croatia.
- It is one of the largest such projects in that region of Croatia.

## Solutions

Resalta built a 5MWe biomass powered cogeneration plant, with a steam turbine and woodchip dryer. The plant has the capacity to power 500 households with electricity.

Resalta has signed a 14-year PPA with HROTE (Croatian electricity off taker). The project includes the electricity interconnection with a transmission system operator.

A long-term supply contract for biomass has been signed with Hrvatske Šume for 14 years.

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## Results

- Clean, cheap and efficient energy for the municipality
- 15 new jobs created at the plant
- 40 GWh of clean electricity produced annually
- 96 GWh of clean thermal energy produced annually

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**Thank you for  
your attention.**

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