

# ENcontrol PBS – Power Balancing System

## A new device increasing economy of local energy source

### MOTIVATION

- **Electricity purchase minimization** from distribution network using turning on/off defined appliances depending on actual output of the energy generator
- **Decrease of main circuit breaker value** and fixed fees reduction
- **Creation of suitable reserve** for appliances with defined consumption
- **Operative decrease or increase of the overall consumption of the object**



### EXAMPLE OF TRADITIONAL SOLUTION WITHOUT POWER BALANCER



Sold,  
Consumed

Sold,  
Released

Bought,  
Consumed



### NEW SOLUTION WITH POWER BALANCER



Sold,  
Consumed

Bought,  
Consumed

Saved



= benefit

### OUR SOLUTION

- Standalone device **ENcontrol Balancer** provides **continuous optimization**. It can control 3 individual appliances or circuits or up to 1000 appliances in a wireless network
- Appliances can be controlled by **switching on/off** (eg. washing machine, filtration, etc.) or by **fluent power regulation** (resistor devices like boiler, water heating, etc.) – with the goal to minimize difference between requested consumption or power plant output and real consumption
- **Configuration can be made in any common PC**. In the software application, there are defined appliances which can be turned on/off in the optimization process – eg. boiler, freezer, air condition, washing machine, pool filtration, etc.
- There can be many parameters set to every appliance – like **priority to turn on/off, average input, minimal time on, maximal time off, low tariff control**, etc.
  - The **required overall consumption limit of the object is set** – it means input power minus local source output power
  - All settings can be send to the balancer from PC wirelessly
  - **Every given count of minutes**, the optimization process **measures real input of the whole object and compares this value to the required limit**; if necessary, it turns suitable appliances on or off
  - **Optimization process can be parameterized in any PC** using wireless modem and software application ENcontrol. In this configuration **many measured values can be stored in the PC, the algorithm can be planned** as well as it can be operatively turned on/off



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### LOCAL INFRASTRUCTURE CHANGES

- It is not necessary to change any devices in order to optimize them
- Any 1- or 3-phase device can be controlled; connection can be made in a socket or in a switching box
- The system is wireless, therefore its installation is very fast and simple – it can be made in a few hours

### PRICE AND BENEFITS

- The price of the systems corresponds with the amount of controlled devices
- The savings coming from power balancer operation for an object with 5KW local source installed is usually around 200 EUR each year
- Return of investment into PBS is usually between 1 – 3 years



### ADDITIONAL EXTENSIONS

ENcontrol system can be extended by many functions anytime:

#### COMFORT

- Setting of switching, measuring, etc. in any time with many different cycles and conditions
- Whole system control from one place – such as touch screen, PDA, other PC, TV, etc.
- Remote control and monitoring by mobile phone or internet
- Connection of various devices – for example switching gas cattle according to the temperature, watering according to the humidity, sending notifications, etc.
- Instant transfer of required information to the user (mobile phone, email)

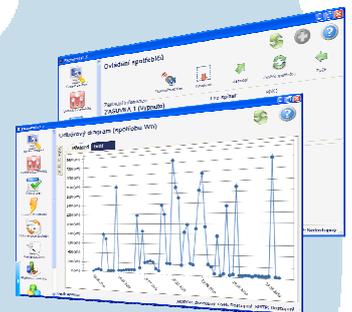


#### SAFETY

- Remote monitoring of devices which can violate safety or increase consumption
- Integration of various detectors (moves, smoke, flooding, glass breaking, etc.), sending notifications, raising alarms
- Integration with specialized security systems

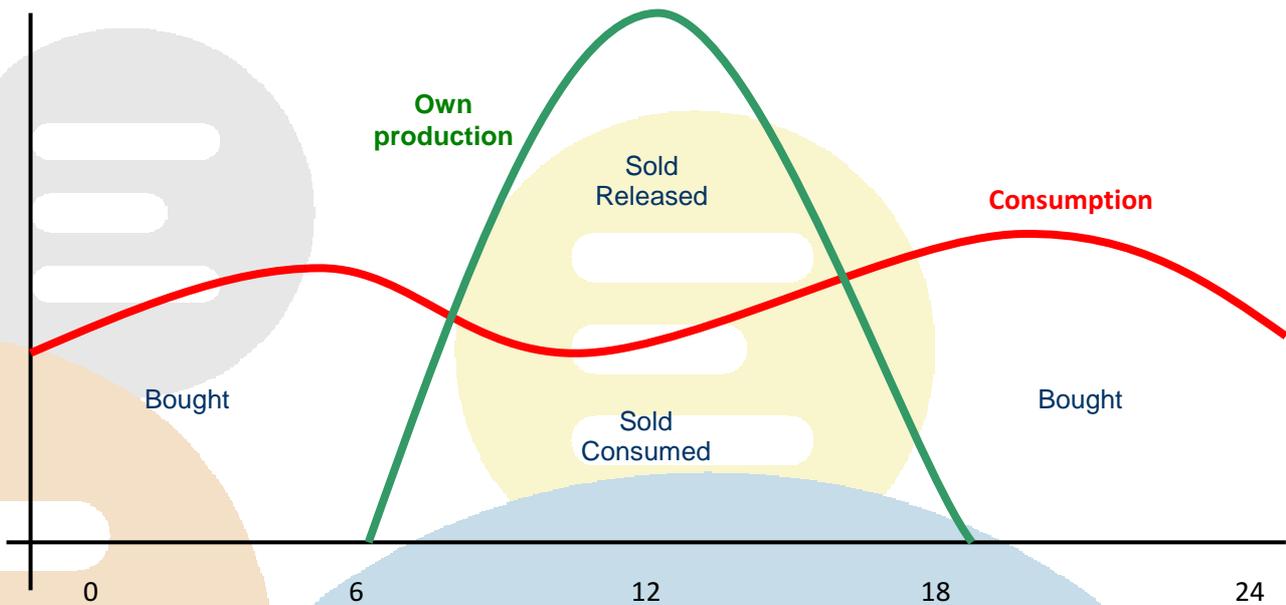
#### SAVINGS

- Measurement of the whole object or of any device or device group
- Monitoring of continuity of current, voltage, power, consumption, other electrical values and supply quality
- Setting rules and conditions for switching appliances
- Decision support while optimizing the object, appliances or people behavior



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### CONVENTIONAL SOLUTION WITHOUT POWER BALANCER



### NEW SOLUTION WITH POWER BALANCER

