

BALKANS JOINT CONFERENCE AND EXHIBITION
ACCELERATING
Change 7-9 NOVEMBER 2023
GOLEM, ALBANIA

*Towards Safe, Reliable
and Sustainable Services*



SCADA – Information as Treasure and a Key to Efficiency

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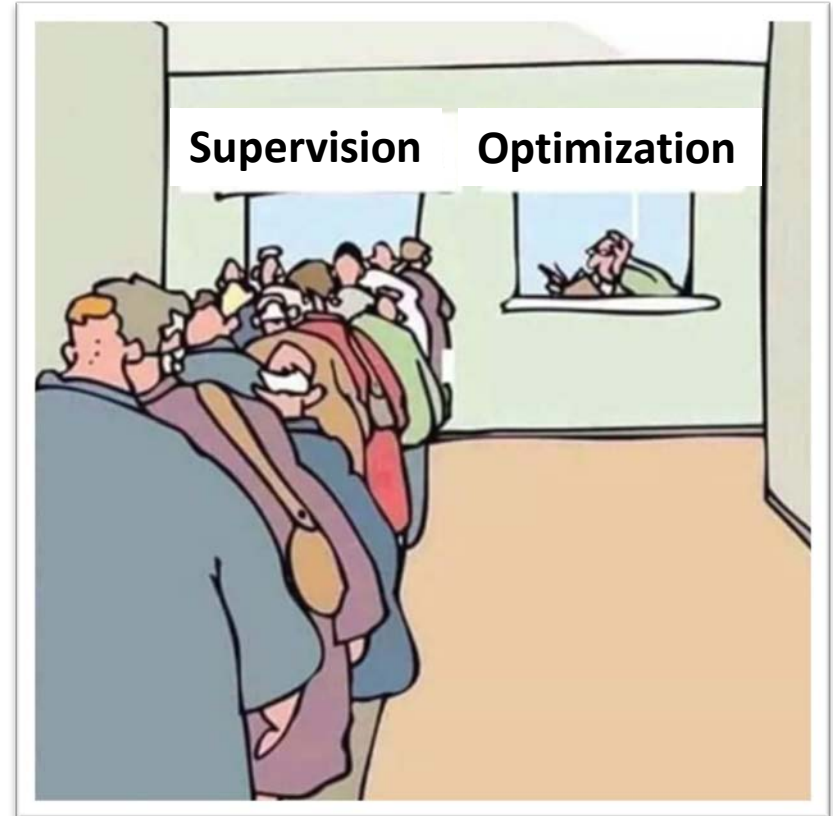
Golem, 8th November, 2023



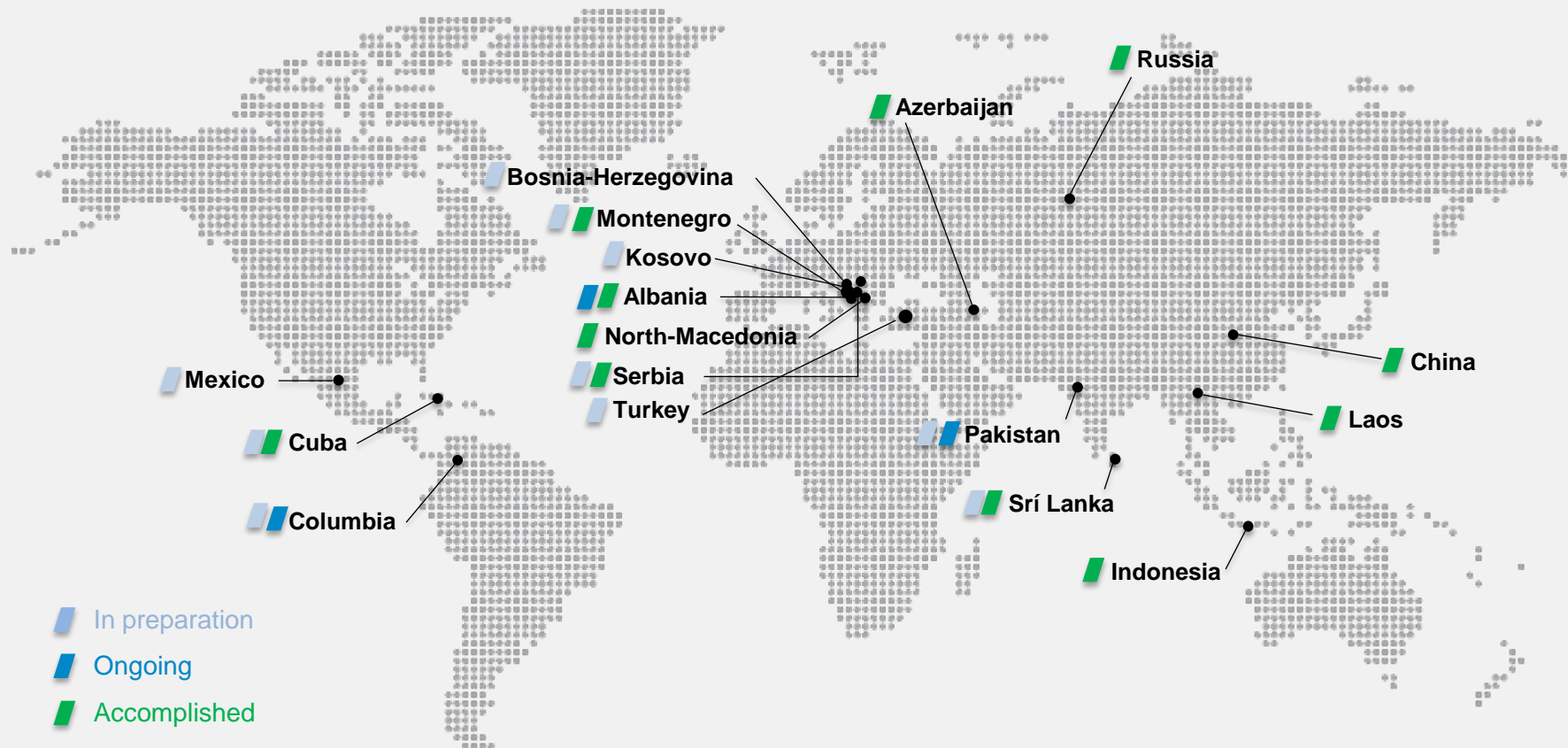
SCADA – Information as Treasure and a Key to Efficiency

SCADA system is the tool of central operation and supervision.

Collected data can be the basis of loss reduction and savings.



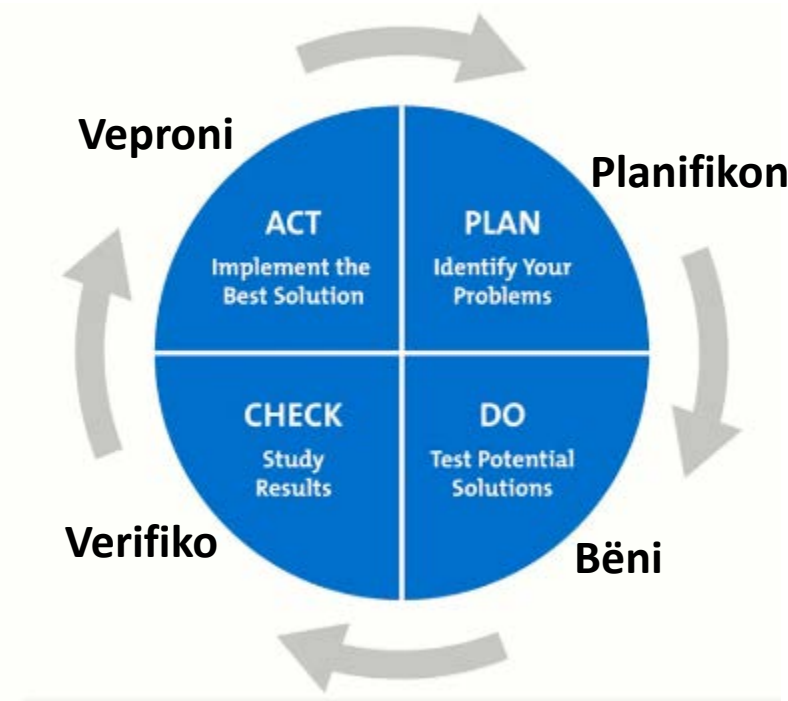
International projects



Boosting Efficiency in Operations

- Focus on operation!
- Find potential savings!
- Use the collected data!

- While
 - keeping stability and
 - safe operation.



Operational examples

1. Scheduling load in a „large” pumping station
2. Parallel operation of pumps
3. Possibility in intermittent supply
4. Synchronizing solar system

Planning

Daily operations



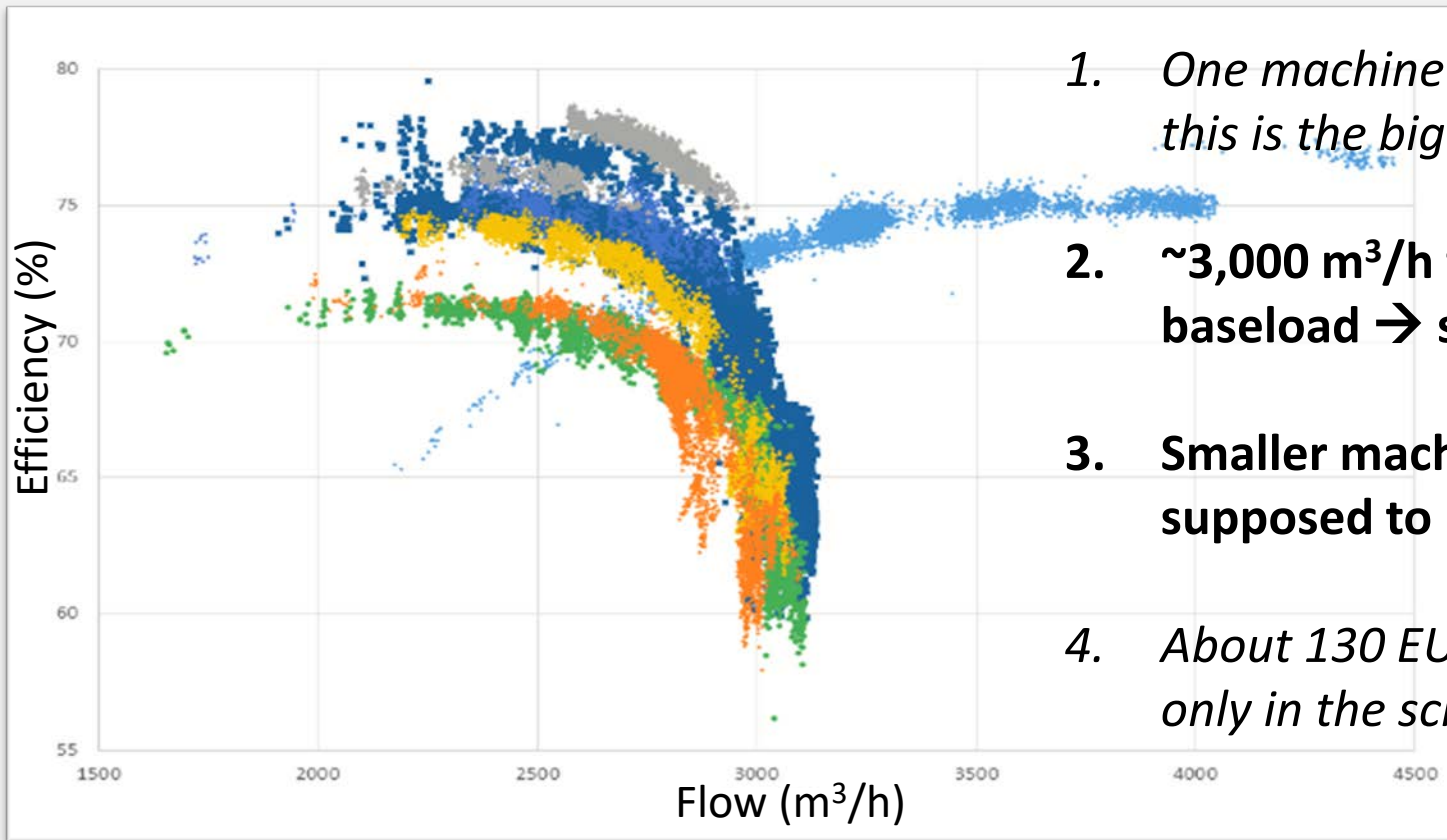
#1 – Scheduling load in a „large” pumping station

Budapest, Csepel pumping station

- 8 pumps (6x2,500 m³/h + 2x4,000 m³/h)
- 2,500-3,300 m³/h continuous pump-in need
- The storage capacity is significant
- >10 MWh/day electricity need
- Continuous supply the network pressure is 4.8—5.2 bar, depending on water demand



#1 – Pumping in a „large” pumping station



1. *One machine differs very much - this is the bigger one*
2. **~3,000 m³/h to be avoided, baseload → schedule**
3. **Smaller machines are not supposed to be revved up!**
4. *About 130 EUR/day potential – only in the scheduling*

#2 – Parallel operation of pumps

Budapest, bank-filtered well

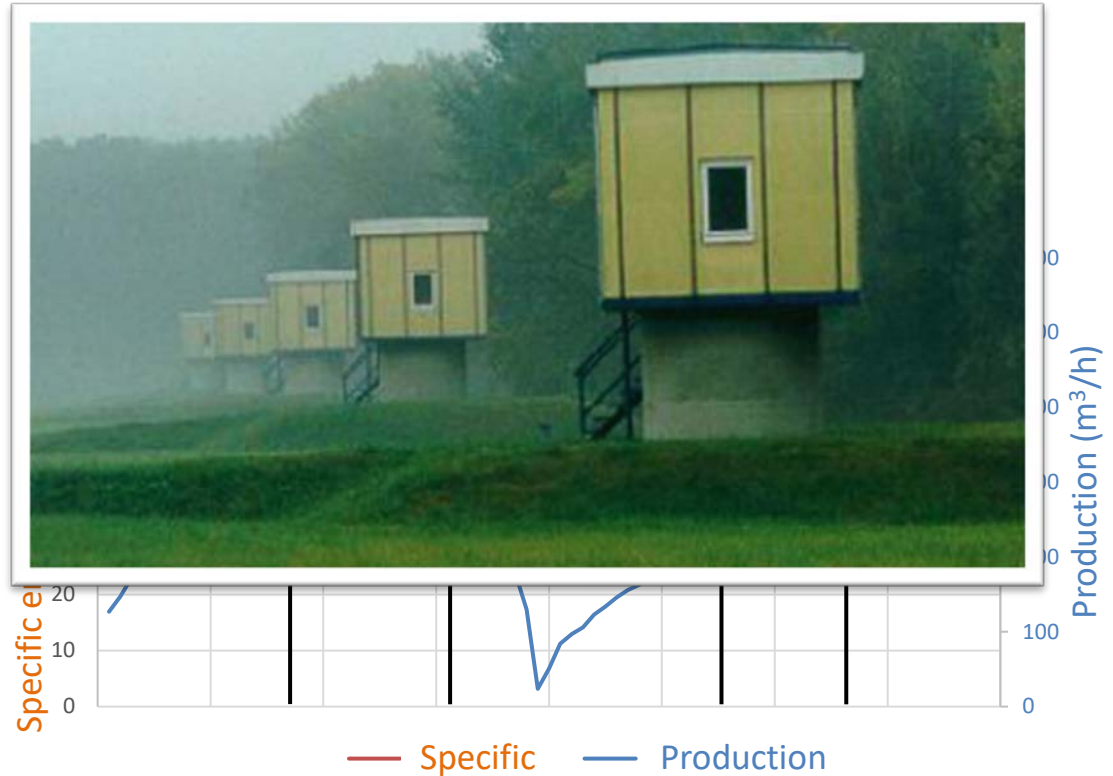
- 2 pumps with VFD
(350 m³/h + 185 m³/h)
- Continuous operation

Strategic Goal:

Formulation of the cheapest operational practice

Scope:

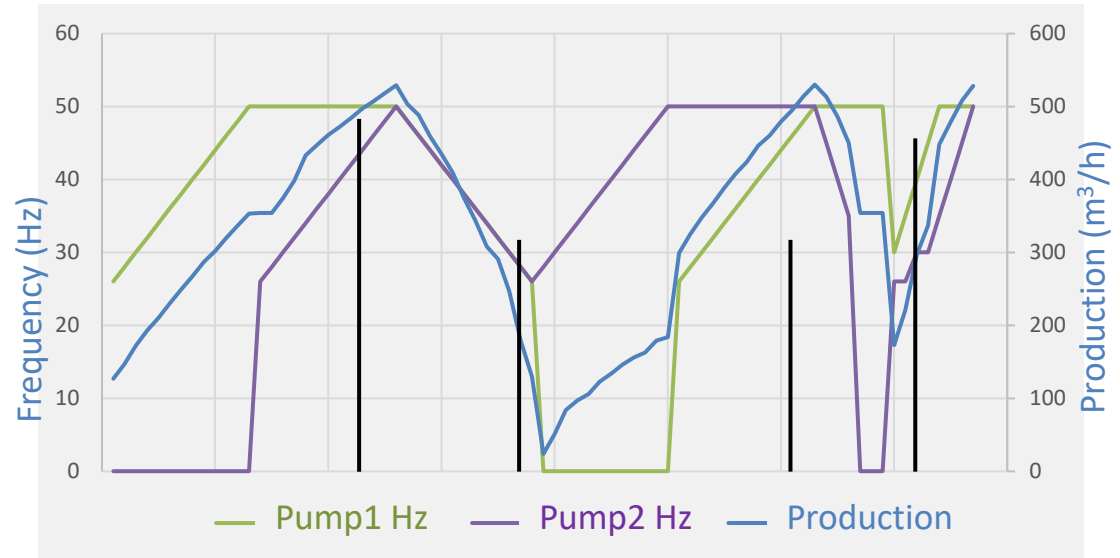
Simple analysis of operational data



#2 – Parallel operation of pumps

Budapest, bank-filtered well

- 2 pumps with VFD
(350 m³/h + 185 m³/h)
- Continuous operation



Q=400 m³/h

1: 0.063 kWh/m³

2: 0.042 kWh/m³

3: 0.041 kWh/m³

4: 0.065 kWh/m³

The best solution:

Smaller pump in max load and the larger one repress, or operating the 2 pumps on the same frequency.

Task:

SCADA programming

Saving:

46 EUR/day

#3 – Possibilities in measuring flow rate

– intermittent water supply –







Albanian large city – 2x2
hour water supply

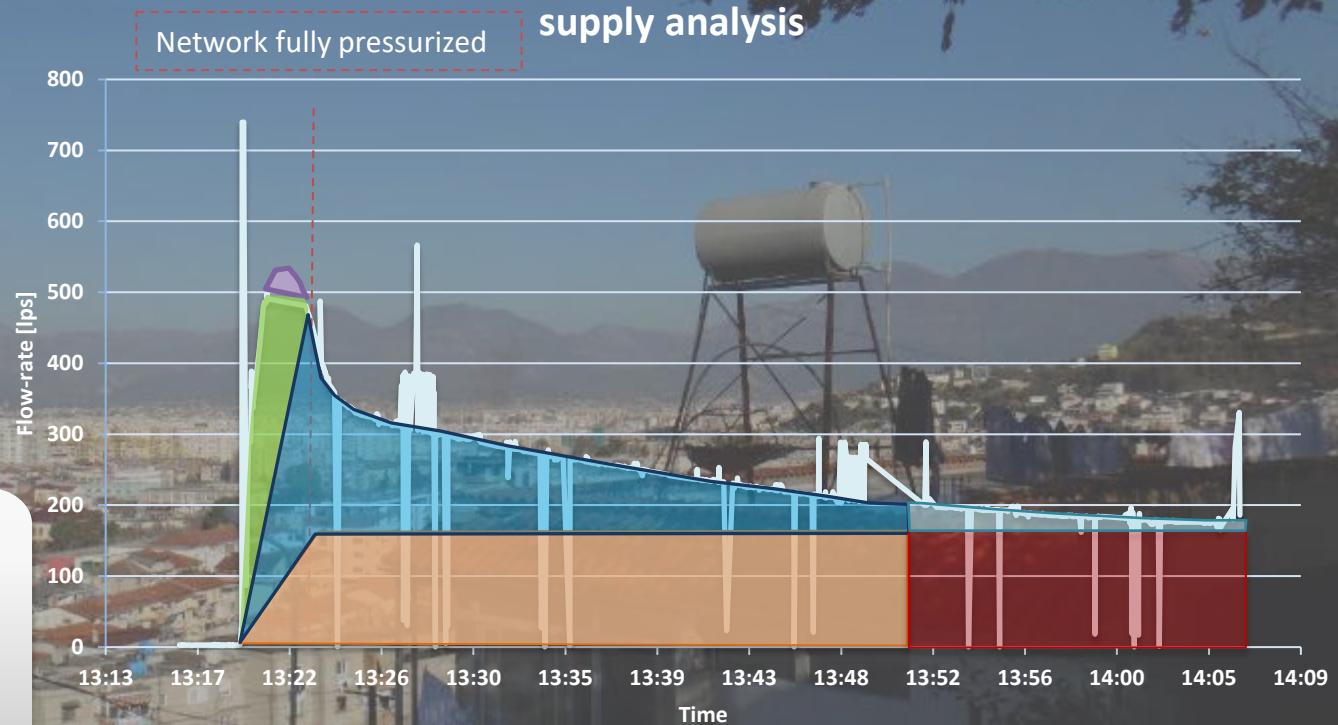
Opportunity

Water saving

Tool

Online flow rate
measuring

-  Peak flow rate (cut off by meter)
-  Filling the network
-  Filling the tank volume
-  Unavoidable losses
-  Supplying effective demand
-  Avoidable losses



#4 – Solar panels

– environment in Hungary –

The composition of energy cost

- Fix cost (EUR/connection/year)
- Performance proportion fees e.g. network usage fee (EUR/kWh)
- Energy fee (EUR/kWh)

We feed energy out into the public grid: 2 cases

- 1. In household-sized small power plant size, in monthly billing, based on the balance, we receive the energy fee of the fed out
- 2. Individual contract for small power plant – 15% of the energy fee



In the hungarian energy market, the regulation is encouraging use for internal needs!

It is most advantageous for us if we use all the produced energy and none is fed out into the public grid.

#4 – Solar panels

– planning –

Possibility of altering the operations

- Can we align energy usage with sunlight?
- How much energy can we store?
- Can the possible risks be undertaken by a water utility supplier?

BWW's solution (inlet system of Budapest)



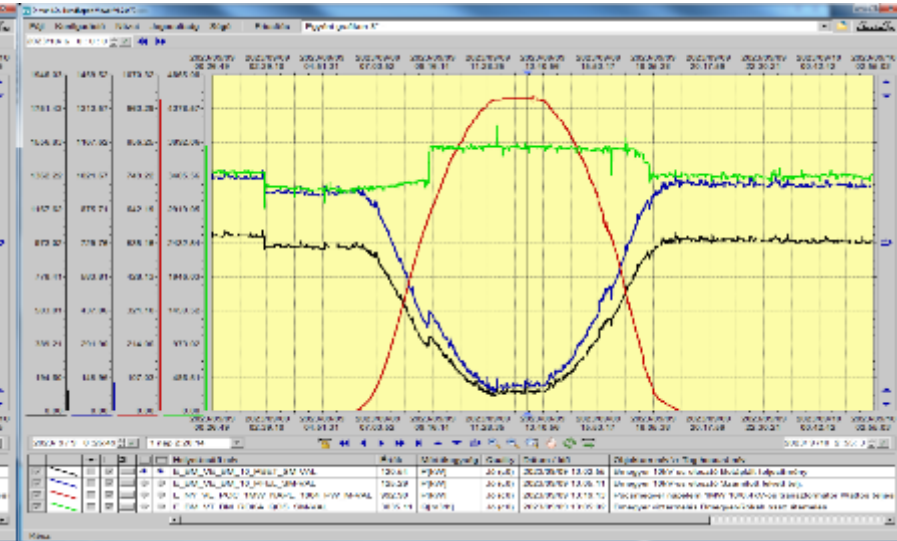
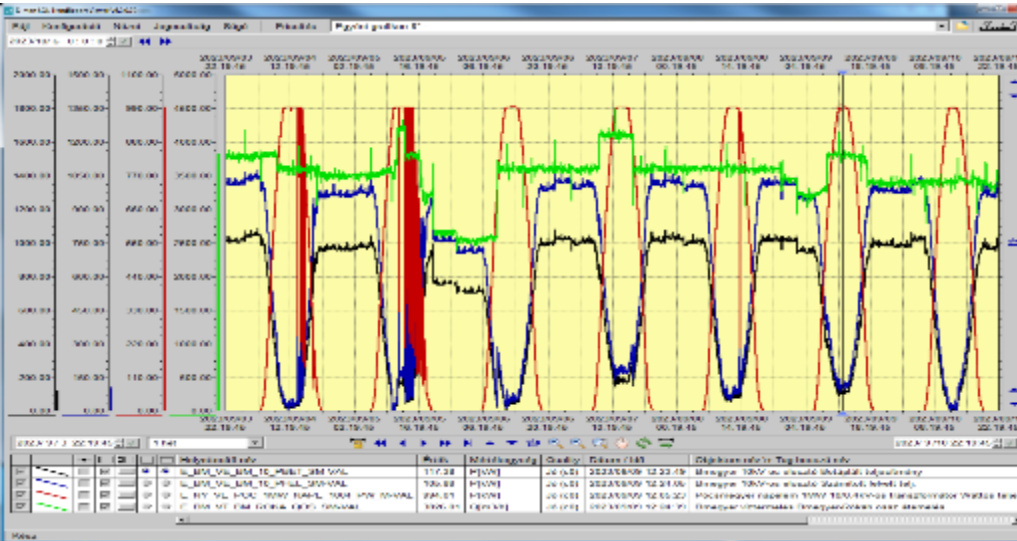
- Can we align energy usage with sunlight?
 - Yes – we have defined the limits
 - Where can we store the energy?
 - Yes – in the reservoirs as potential energy
- Are the risks bearable?
 - Yes – pressure increase
 - Yes – NTU increase
 - Yes – dynamic effects

Result:

1 MW solar power plant can be installed into this system

#4 – Solar panels

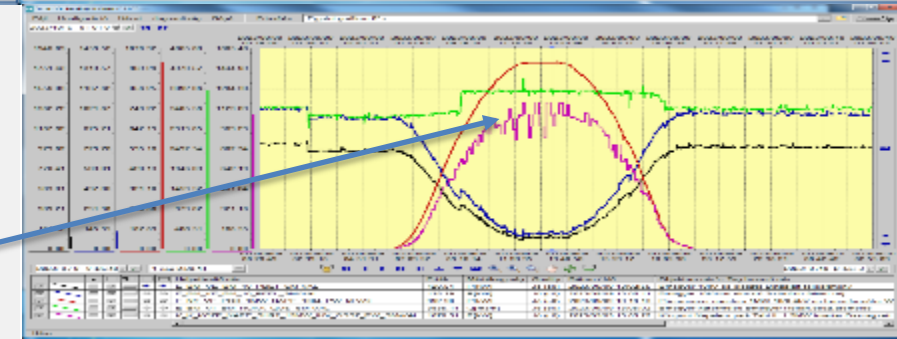
– operations, practice pursuant to implementation –



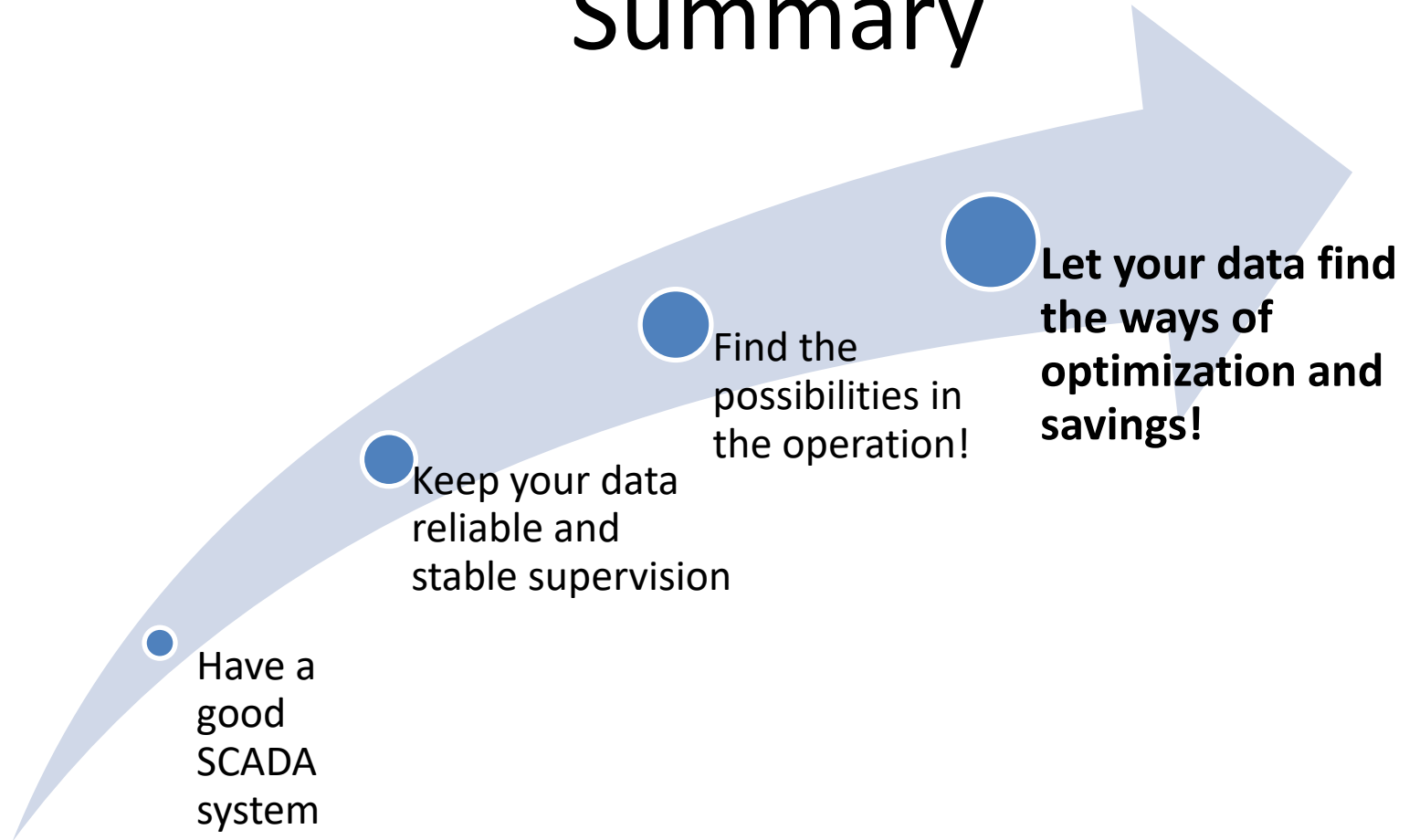
The necessary operational alterations are programmed in the SCADA system

- Even change of machine, gradually acceleration
- Automatic reports/alerts to find failures

e.g. inverters switching on and off



Summary



SCADA = Information as Treasure and a Key to Efficiency

**Thank You
for Your Attention**
Faleminderit për vëmendjen



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