



Energy efficiency at WWTP in Baltic Sea region

Cracow WWTP's

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Cracow WWTPs

Sewage system



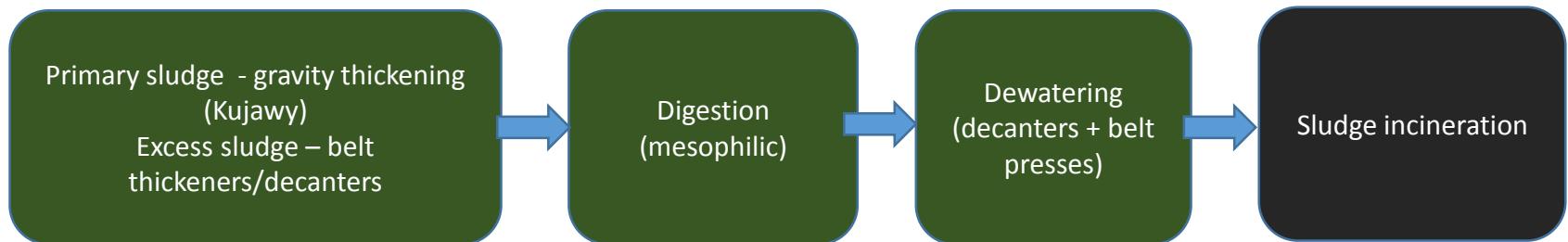
Cracow WWTPs

Process

Wastewater treatment



Sludge processing



Kujawy WWTP

Modernisation & Extension



Kujawy WWTP

Modernisation & Extension

Object: 373000 PE, Nitrogen removal improvement,

- New screens & grit chamber,
- 4th biological line,
- New aeration system (turboblowers),
- Decanters – sludge thickening and dewatering,
- Biogas pipes renovation,
- Sidestream Deammonification – DEMON®
- Advanced Process Control

Kujawy WWTP

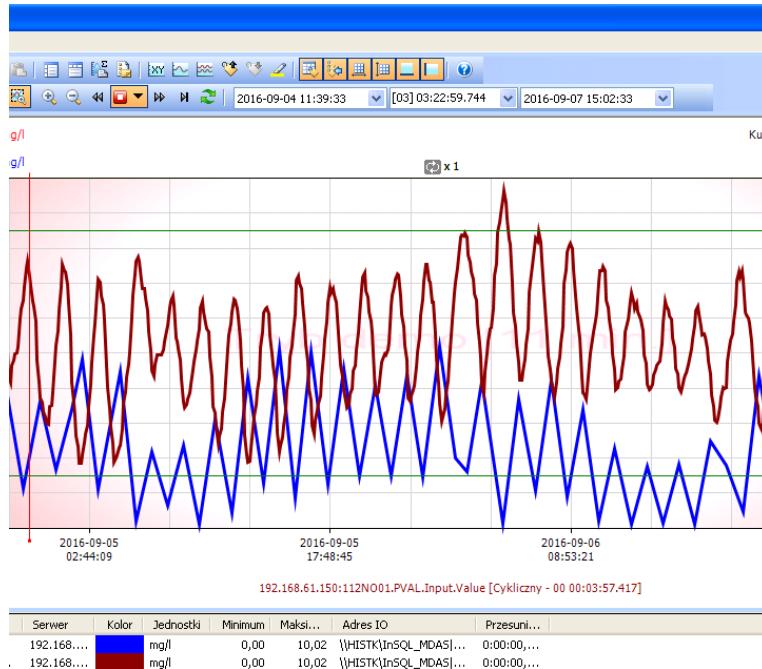
Sidestream Deammonification – DEMON®



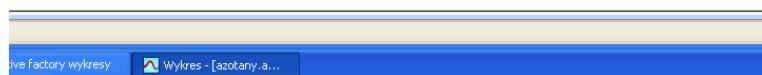
- SBR System
- Nitrogen removal shortcut
Nitritation + Anammox
- 70-80% Ntot reduction
- Less energy demanding

Kujawy WWTP

Advanced Process Control

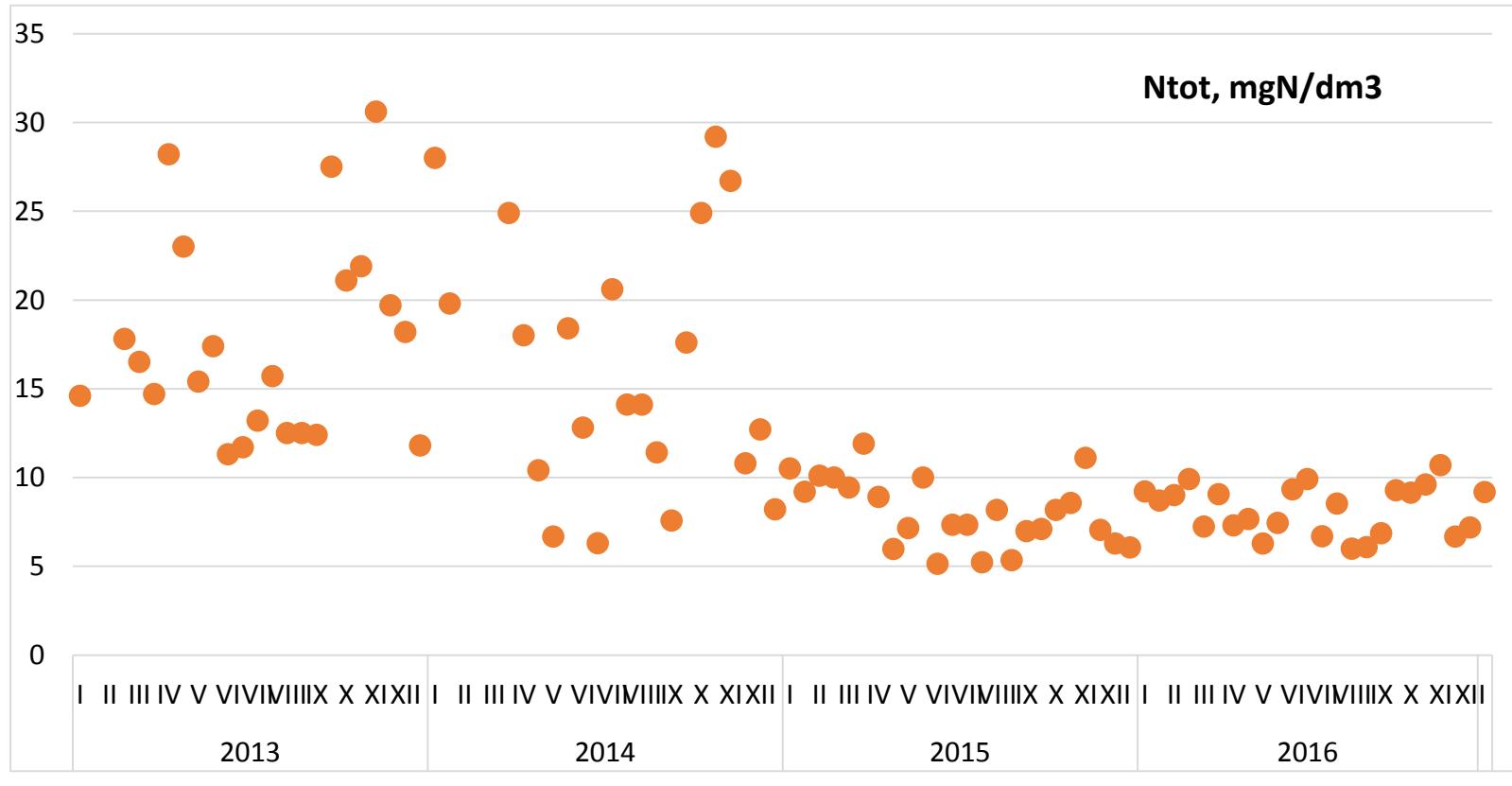


- Advanced algorithms
- Intermittent aeration
- Internal recirculation
- Sludge recirculation
- Fe dosing control
- Sensor quality control



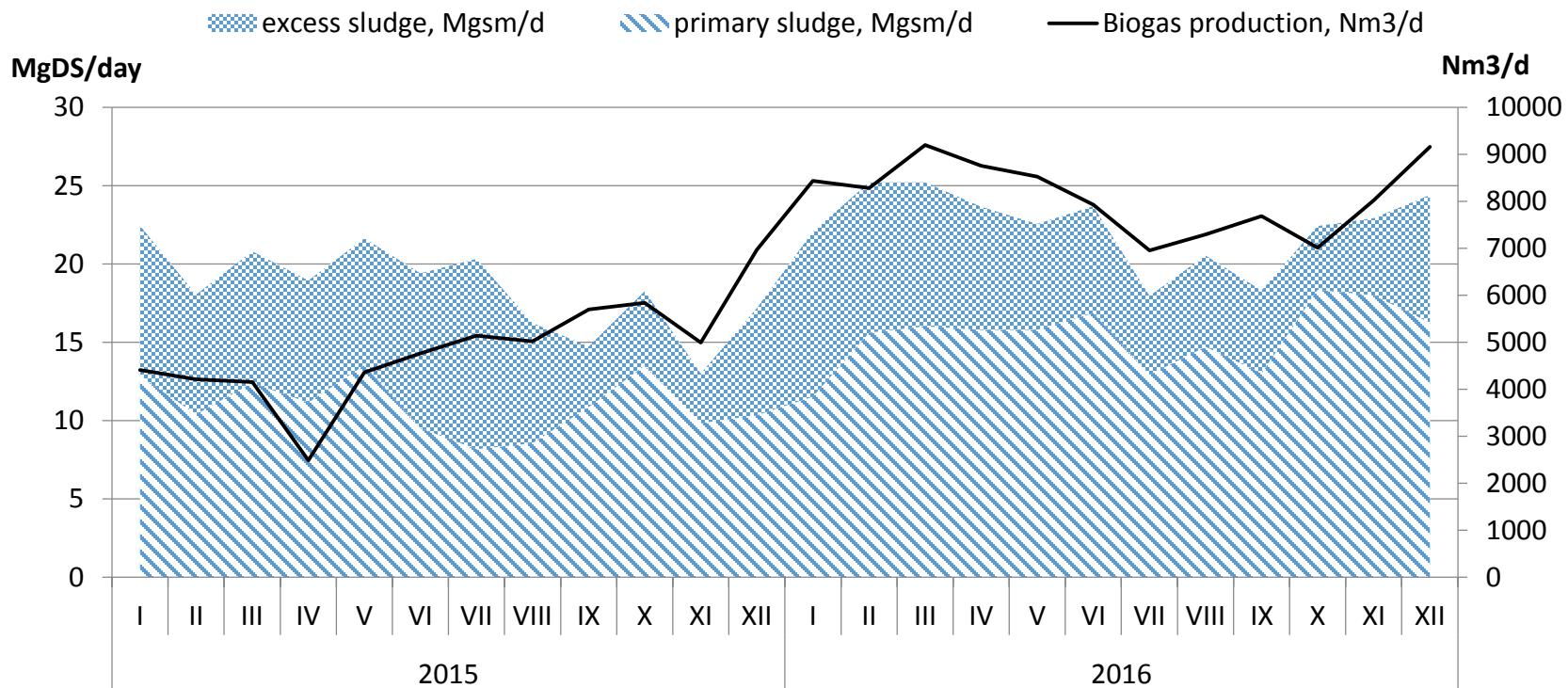
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Nitrogen removal



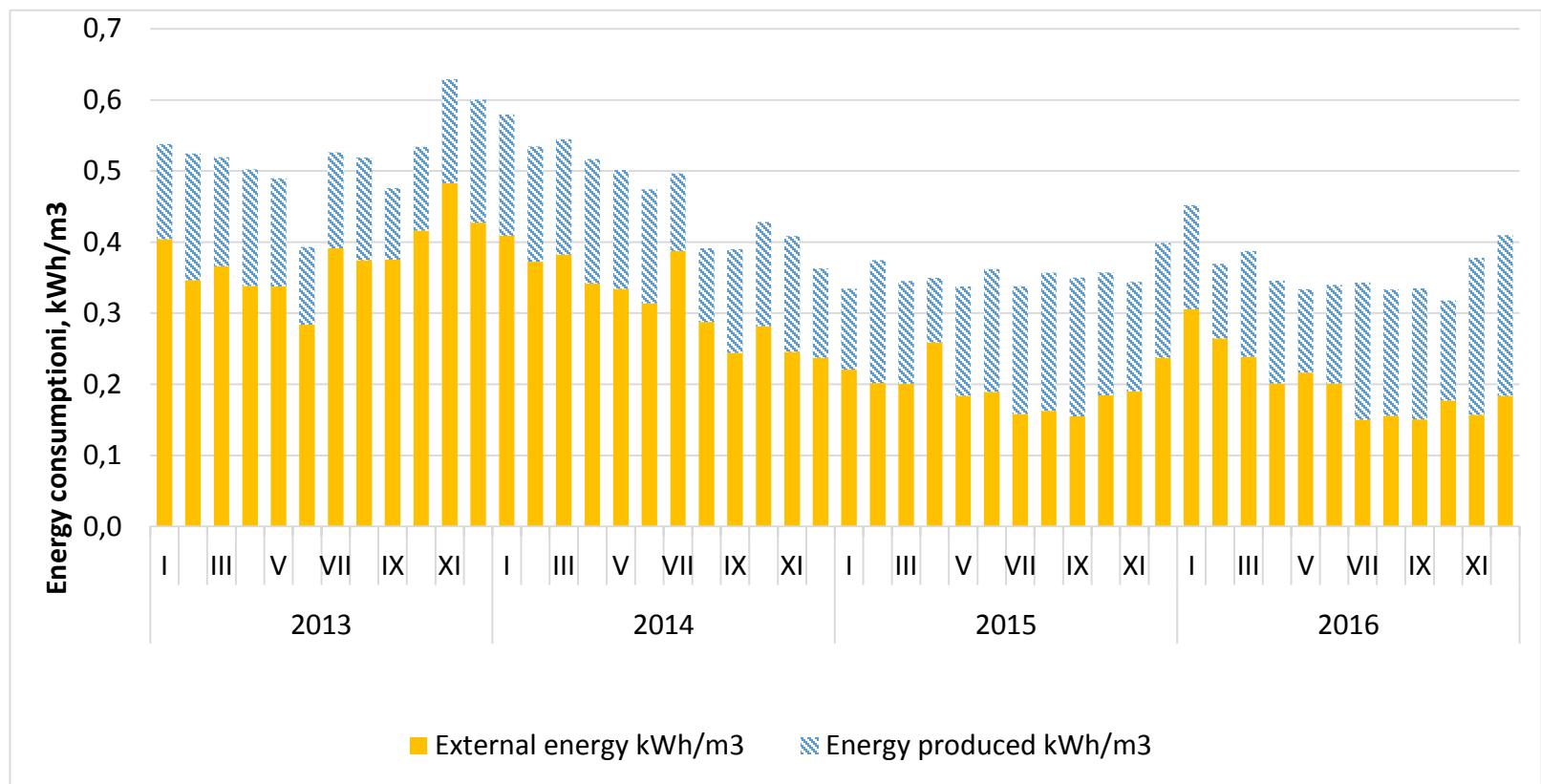
Kujawy WWTP

Biogas production



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Energy consumption



Kujawy WWTP

Next project

- Excess sludge retention,
- Biogas tank,
- Biogas torch,
- Siloxane removal,
- Biogas turbine,

Plaszow WWTP

Project: Integrated Energy Efficiency System



Plaszow WWTP

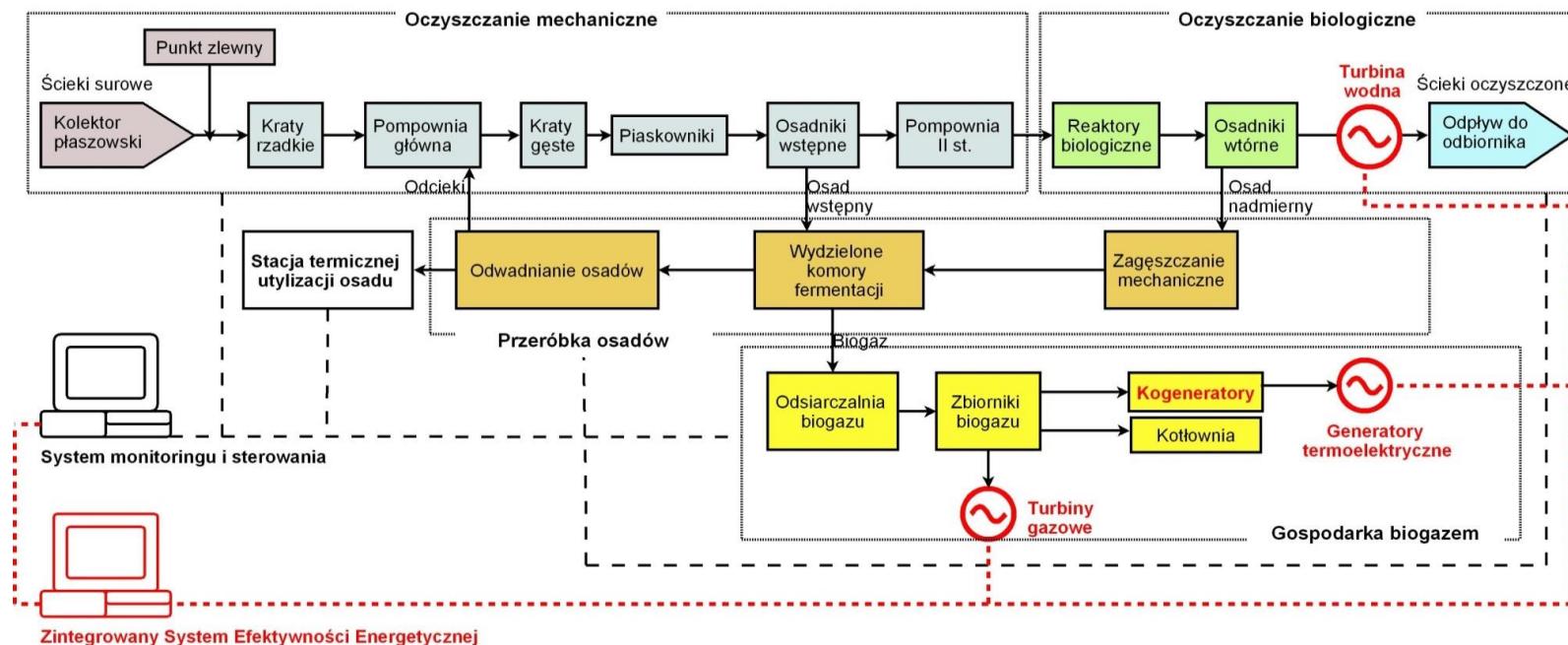
Project: Integrated Energy Efficiency System



- Energy Production:
 - Water turbine,
 - Biogas turbines
- Process Control based on energy efficiency
 - Blowers
 - Pumps
- System integration with other sources:
 - CHP,
 - PV

Plaszow WWTP

Project: Integrated Energy Efficiency System





EUROPEAN UNION

EUROPEAN
REGIONAL
DEVELOPMENT
FUND



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