

Energie din Deseuri (EfW) Digestoare Anaerobice (AD)

Performanta si eficientizare prin automatizare

2019-04-03, Constanta
Romulus Berdei



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Control Point

- Companie romaneasca infintata in 2005
- Sediul in Brasov
- >15 angajati permanenti (ingineri automatisti, electrotehnici, securitate si tehnicieni)
- Peste 50 proiecte in mediu industrial realizate
- Piata: Romania, Austria, Grecia, Germania, Olanda, Norvegia, Finlanda, Franta, UK, Ungaria, La Reunion, Sudan, Iran
- Partener VALMET servicii de inginerie software si hardware
- Partener VAR VALMET Romania

Control Point



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Proiectare – Instalare - Punere in Functiune – Mantenanta - Inspectii

Automatizari Industriale

Instalatii electrice Industriale

Servicii de Securitate

Termocentrale

Biomasa

Energie din deseuri

Fabrii de celuloza si hartie

Hidrocentrale

Industria alimentara

Silozuri

Industria chimica

Brutarii

Mori

Control Point



Samsun – Turkey (greenfield)
Combined cycle power plant



Ilarion – Greece (greenfield)
Hydroelectric power plant



Bergen – Norway (revamp)
Waste to energy power plant



Riverside – UK (greenfield)
Waste to energy power plant



Agios Dimitrios – Greece
Lignite power plant (revamp)

Dalkia projects – Biomass
power plant (greenfield)



Hitachi Zosen
INOVA

Valmet

k+s



7spice



Vaasa – Finland (greenfield)
Waste to energy power plant

ENERGIE AG
Oberösterreich
Voller Energie

TEIJIN
Human Chemistry. Human Solutions

ZP ZELLSTOFF
ROSENTHAL

æ
åmotfors energi



Gent – Belgium (extension)
Paper mill



STV 4&5 – UK (greenfield)
Waste to energy power plant



Neste Oil – Netherlands
Bio fuel – (Service & Maintenance)



Sensus – Netherlands
Inulin (Service & Maintenance)



Sidec – CTG, CTM
Biomass power plant (revamp)

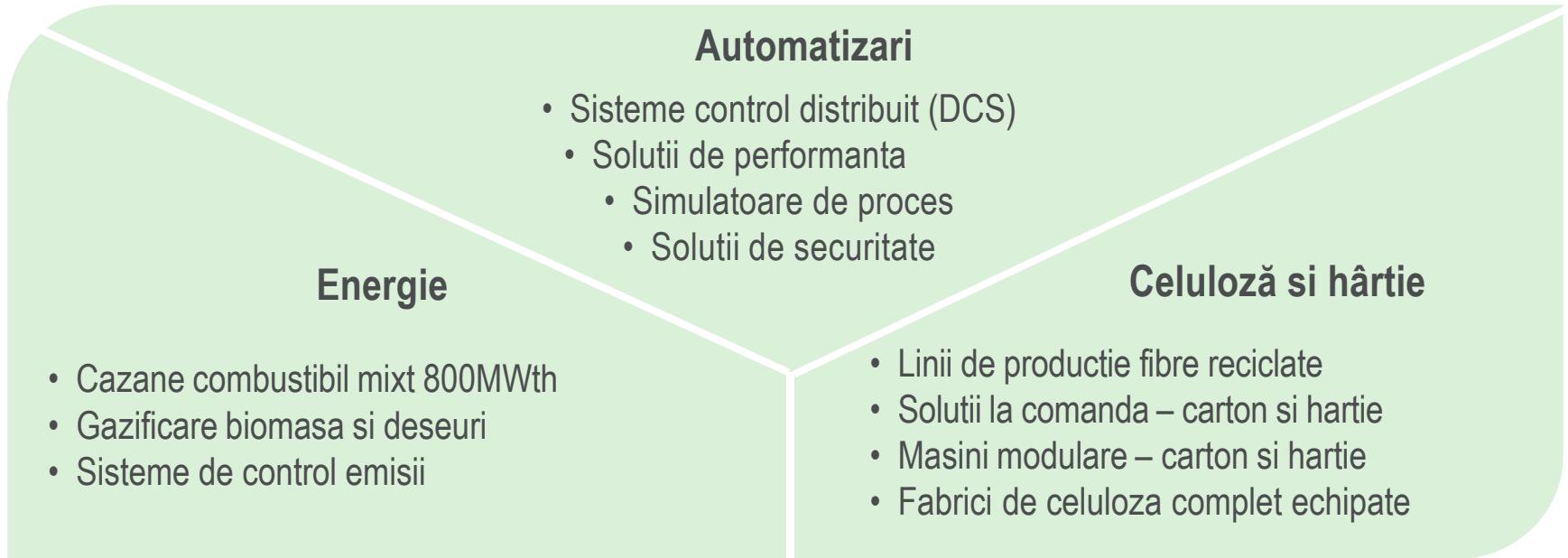
CNIM

VEOLIA
ENVIRONNEMENT

controlpoint
your partner for automation®

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Valmet



Focus pe beneficiile clientului

Solutii de automatizare si eficientizare

Energie



Turbine gaz



Biomasa



Hidrocentrale



Biogaz



Turbine abur



Deșeuri

Agro



Silozuri



Panificație, morărit

Tratarea apei



Ape uzate

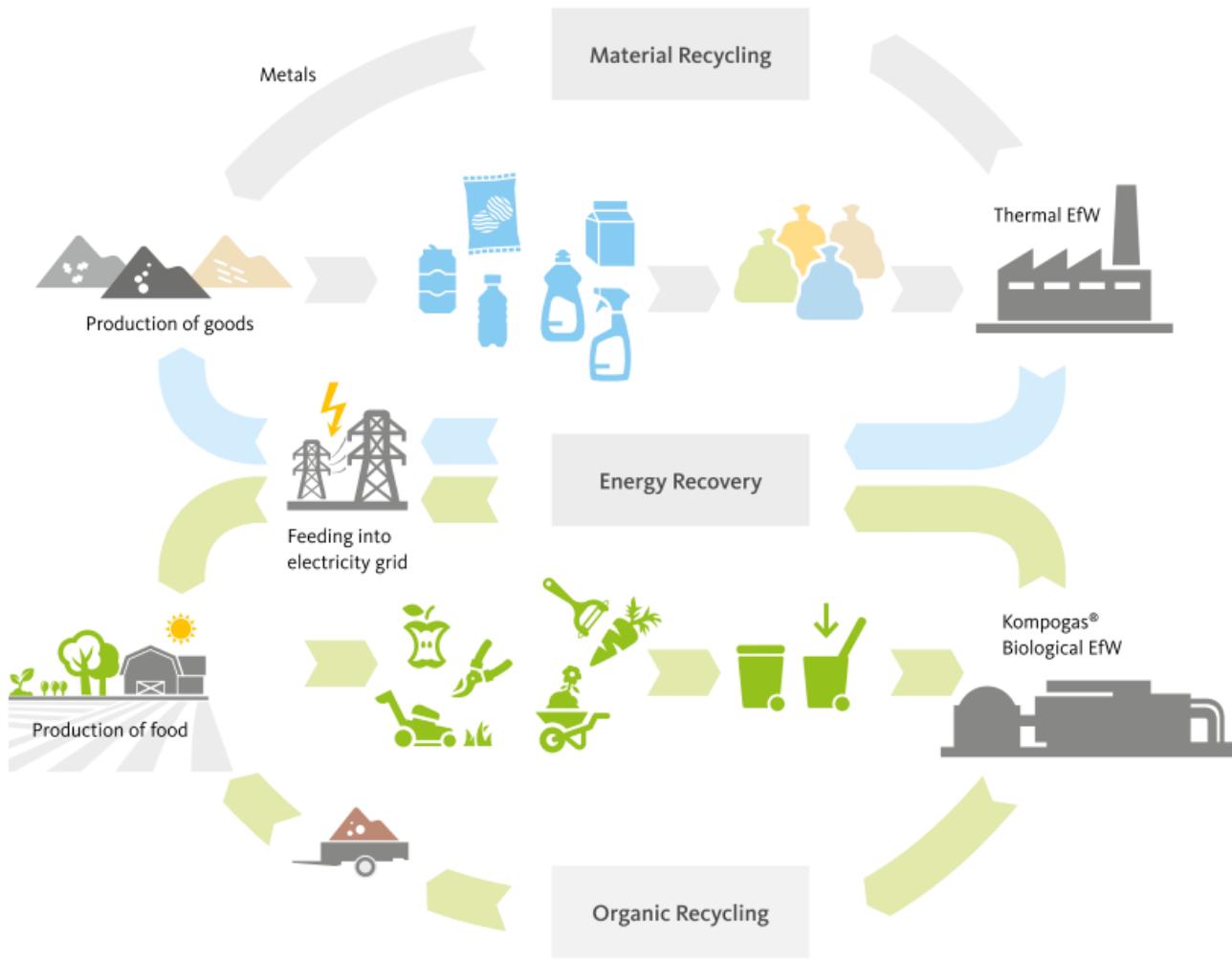


Valmet DNA pentru Managementul deseurilor

Un singur sistem de automatizare

Exemple bazate pe o tehnologie furnizata de
Hitachi inova Zosen

Economie Circulara pentru managementul deseurilor

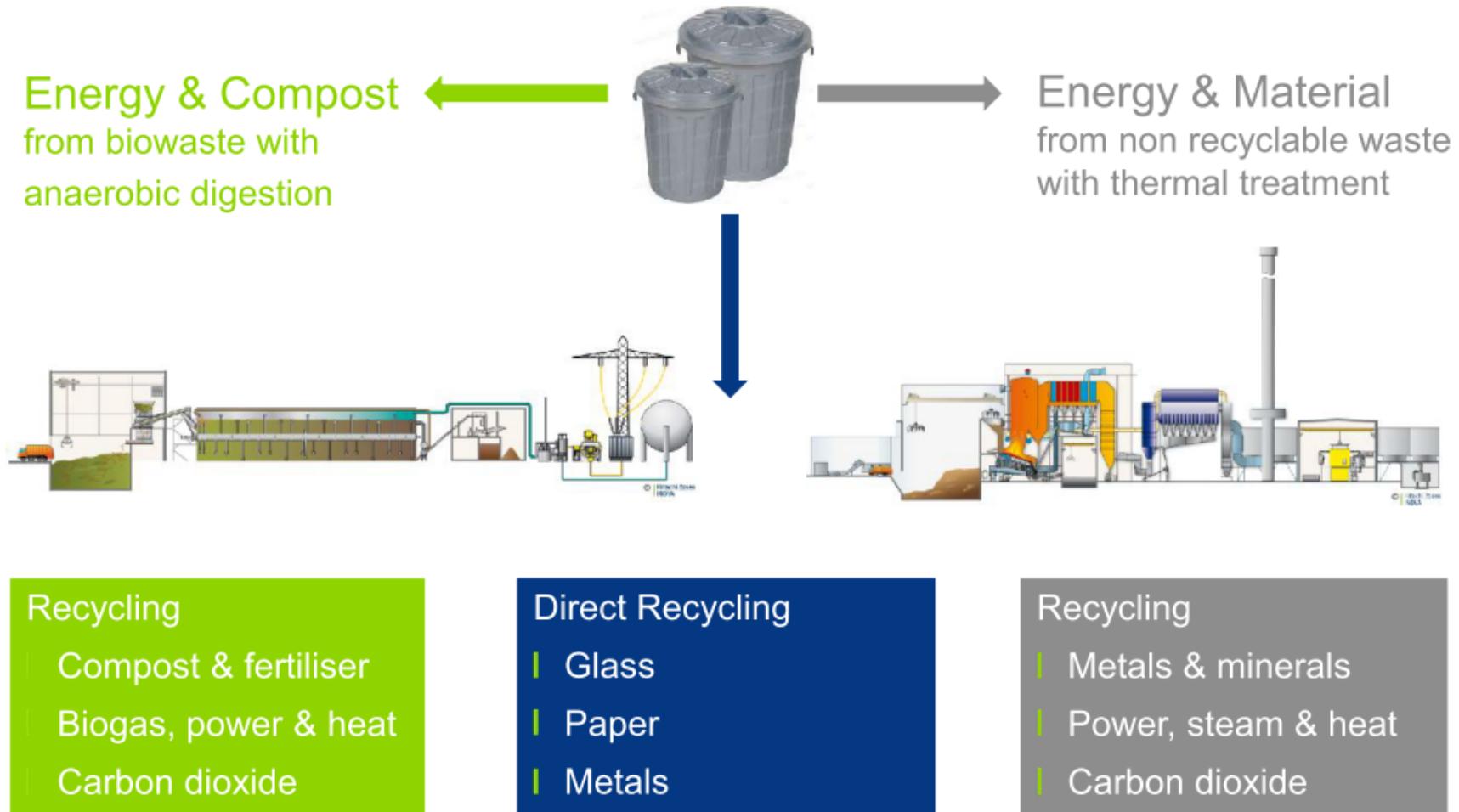


Managementul deseurilor

Tehnologii disponibile

- 1. Incinerare cu recuperarea energie din deseuri municipale solide (MSW) si industrial (RDF)**
 - Soluție EfW verificata pe termen lung, cu ardere pe grătar, utilizarea energiei, tratarea gazelor de ardere și recuperarea materialelor
- 2. Recuperarea energiei prin tratare biologica in mediu anaerob (AD)**
 - Fermentarea uscată in digestoare din oțel sau beton pentru recuperarea energiei și a materialelor și tratarea biogazului pentru a fi introdus în rețeaua de gaze naturale.

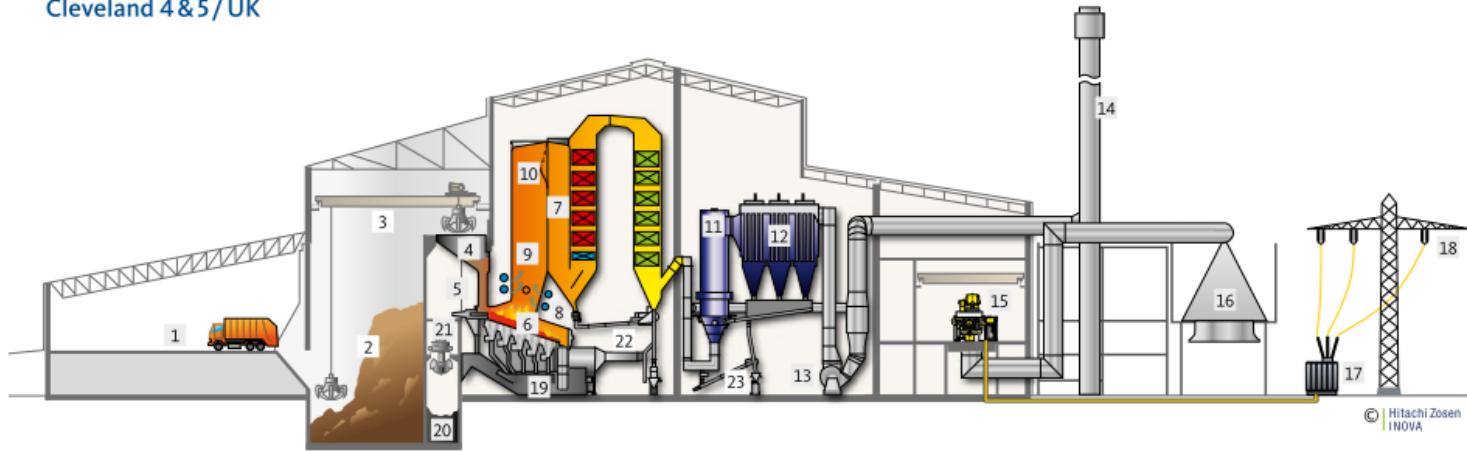
Managementul deseurilor



Managementul deseurilor

Incinerare cu recuperarea energie din deseuri municipale solide (MSW) si industrial (RDF)

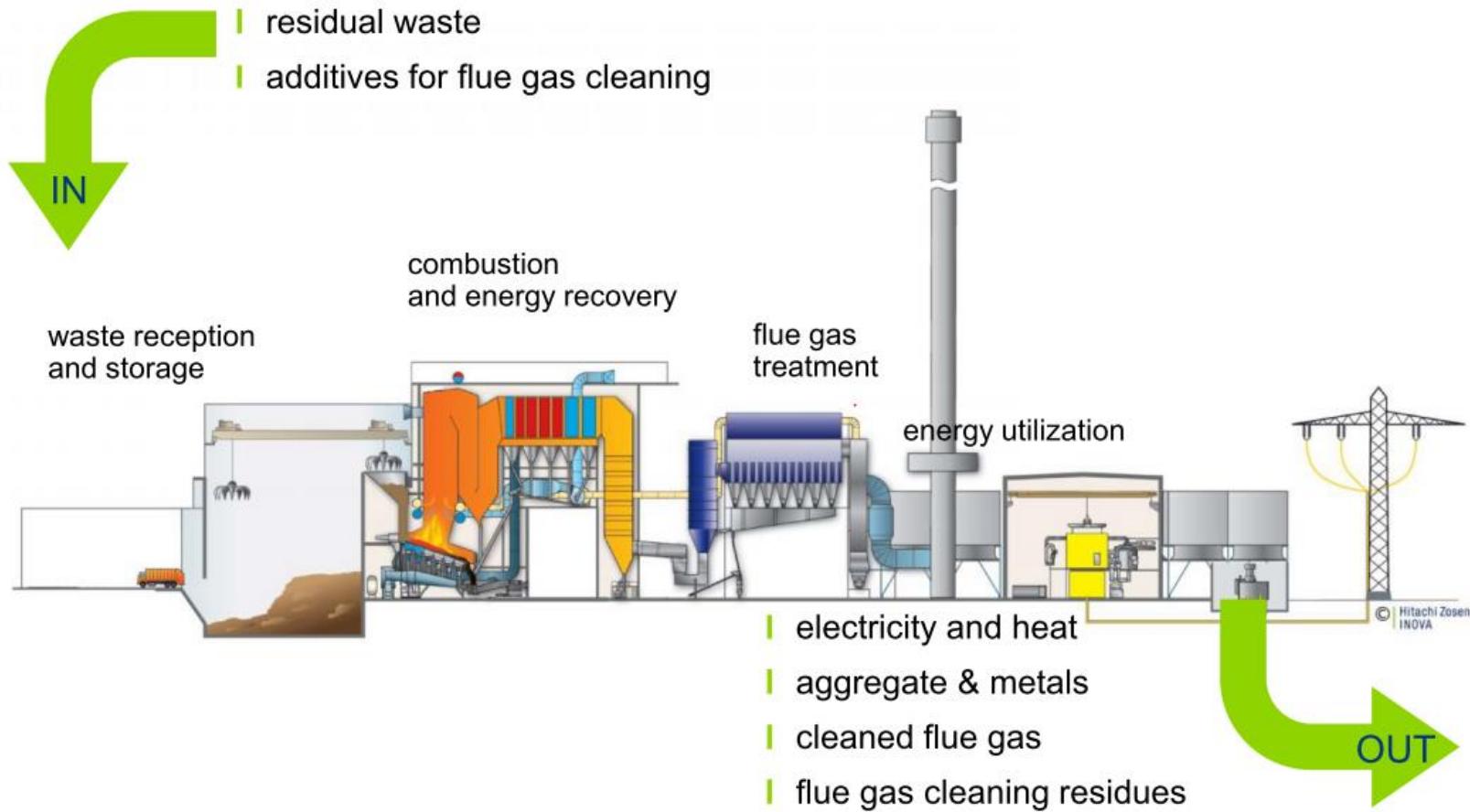
Cleveland 4 & 5 / UK



| Waste Delivery and Storage | Combustion and Boiler | Flue Gas Treatment | Energy Recovery | Residue Handling and Treatment |
|--|--|---|--|---|
| 1 Tipping hall 2 Waste pit 3 Waste crane | 4 Feed hopper 5 Ram feeder 6 Hitachi Zosen Inova grate 7 Four pass boiler 8 Secondary air injection 9 Start-up burner | 10 SNCR injection levels 11 Semi-dry reactor 12 Fabric filter 13 Induced draft fan 14 Stack | 15 Extraction-condensation turbine 16 Air cooled condenser 17 Trafo 18 Electricity export | 19 Bottom ash extractor 20 Bottom ash bunker 21 Bottom ash crane 22 Boiler ash conveying system 23 Residue conveying system |

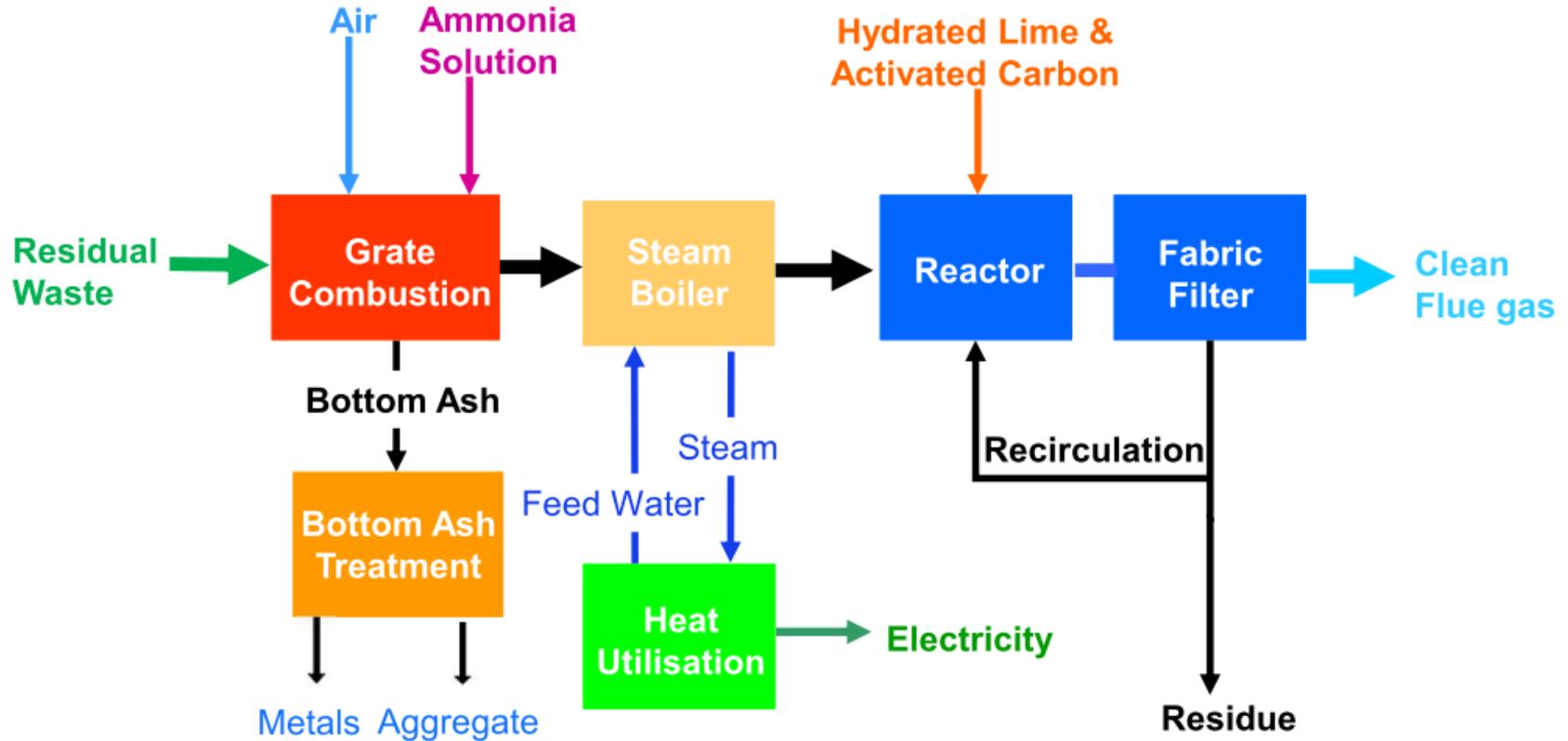
Managementul deseurilor

Incinerare cu recuperarea energie din deseuri municipale solide (MSW) si industrial (RDF)



Managementul deseurilor

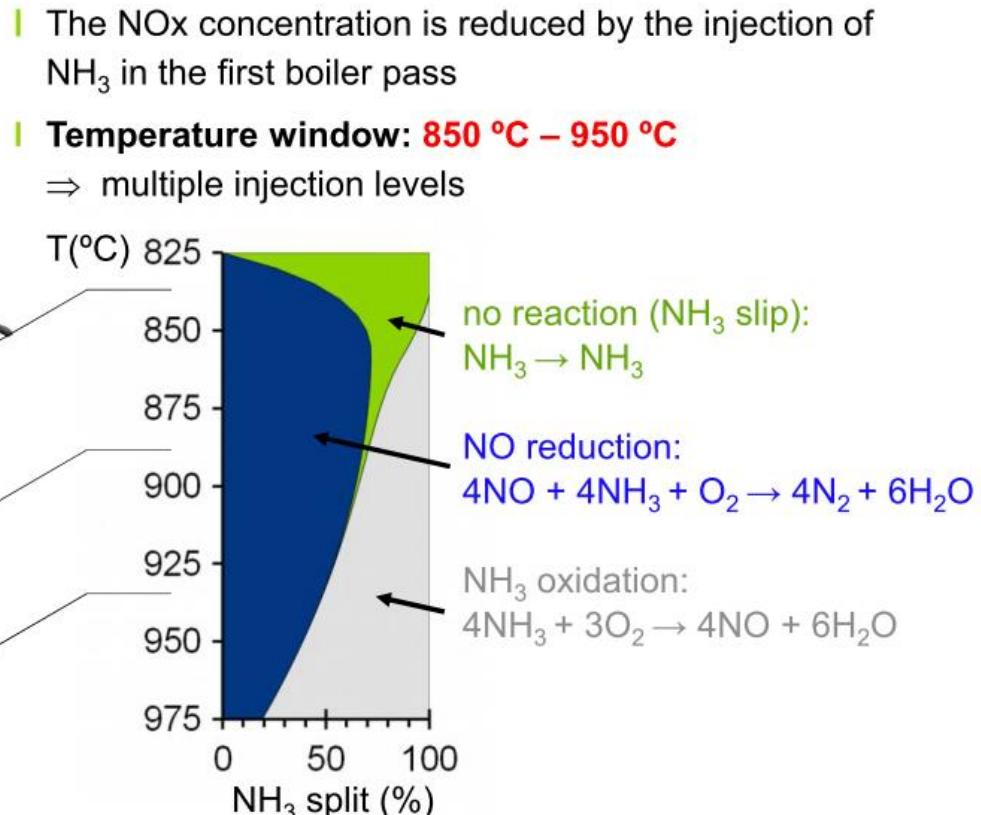
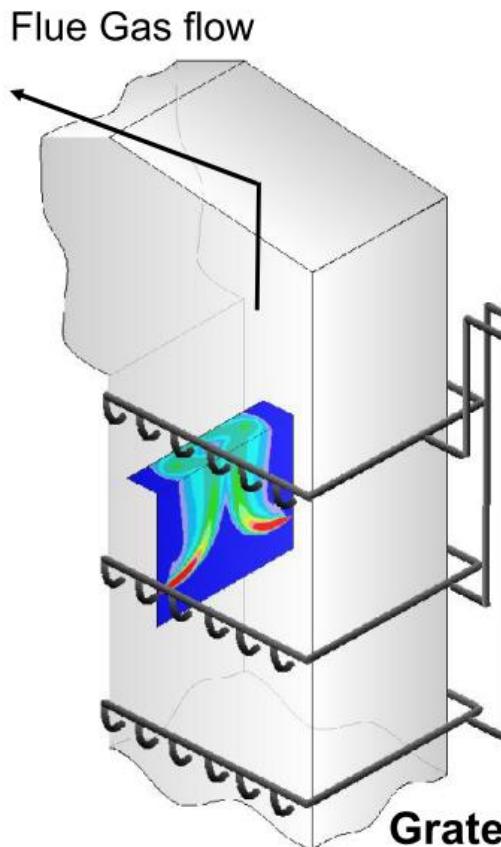
Incinerare cu recuperarea energie din deseuri municipale solide (MSW) si industrial (RDF)



Managementul deseurilor

Incinerare cu recuperarea energie din deseuri municipale solide (MSW) si industrial (RDF)

Fundamentals of Selective Non-Catalytical Reduction of Nox (Instalatia de denitrificare)



Managementul deseurilor

Incinerare cu recuperarea energie din deseuri municipale solide (MSW) si industrial (RDF)

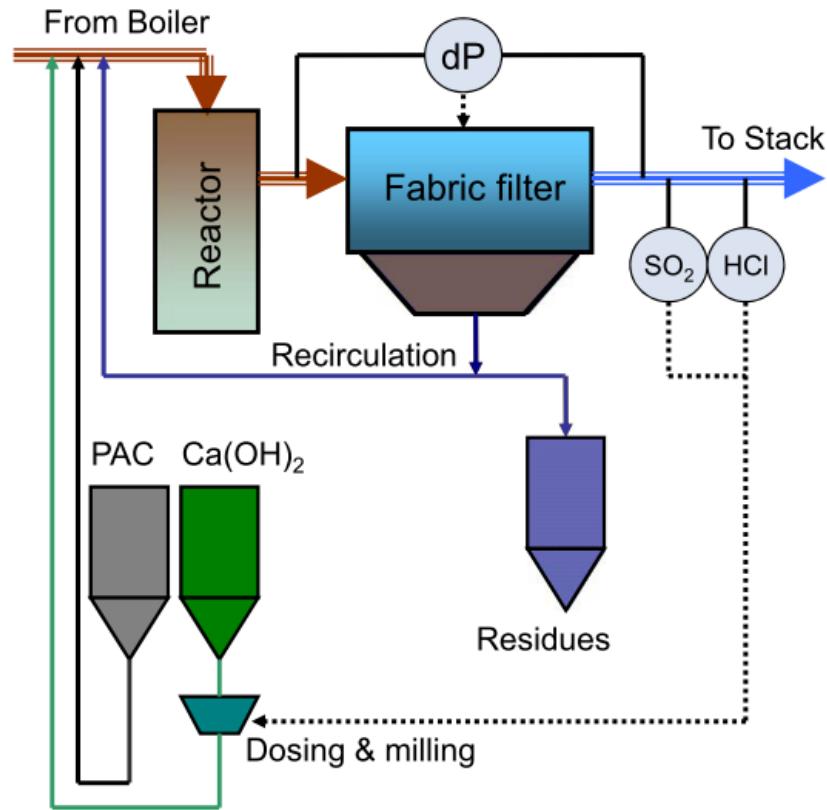
Dry Scrubbing with Hydrated Lime and Activated Carbon (Instalatia de Desulfurizare)

Principal:

- | Neutralisation / absorption of HCl, SO₂, Mercury and Dioxins with dry powdered adsorbent (hydrated lime and powdered activated carbon PAC)

Main Control Loops:

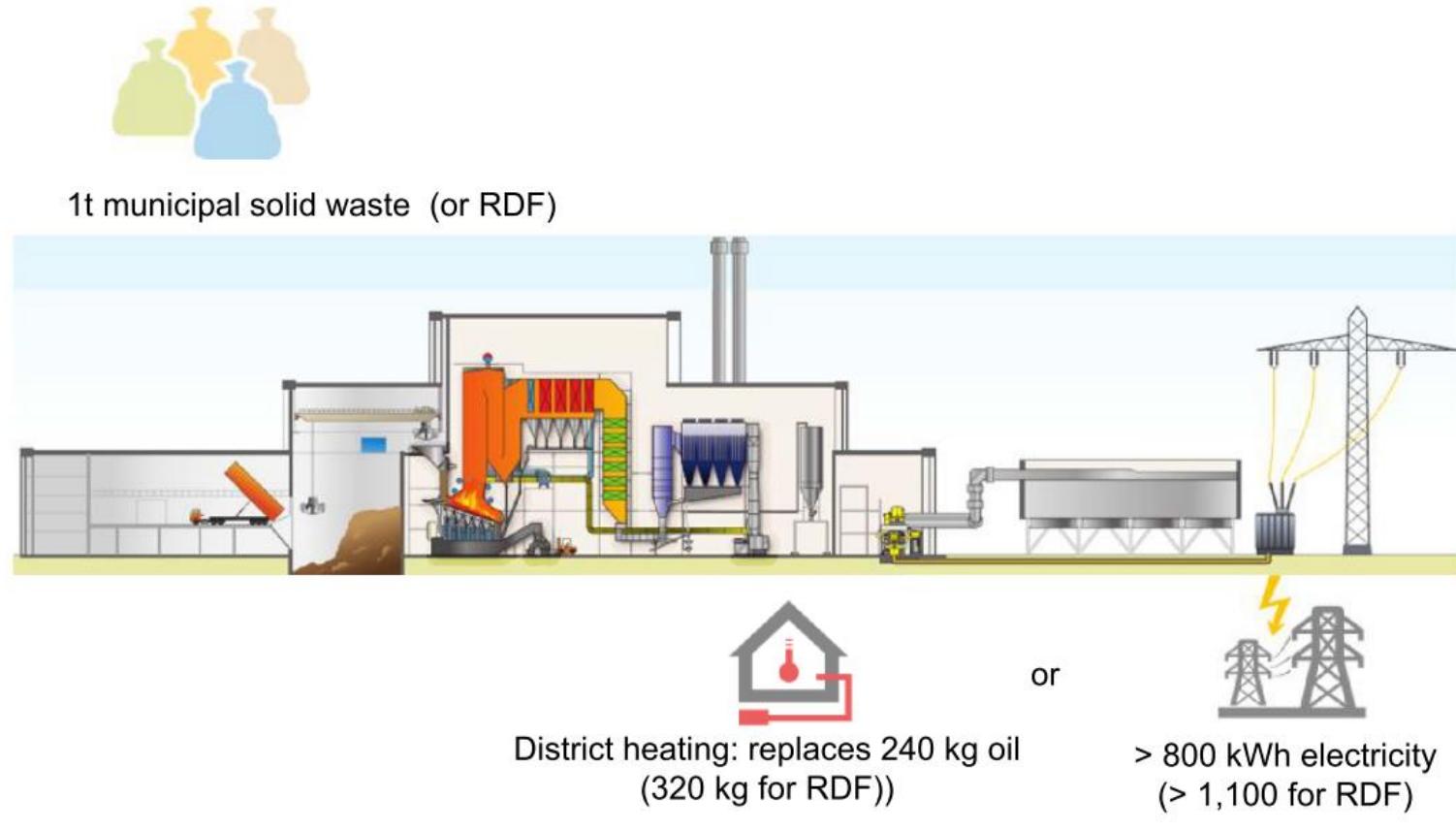
- | Hydrated dosing according mainly to HCl (SO₂) emissions
- | Fabric filter pulse-jet cleaning according to differential pressure



Managementul deseurilor

Incinerare cu recuperarea energie din deseuri municipale solide (MSW) si industrial (RDF)

Caldura și energie



Managementul deseurilor

Incinerare cu recuperarea energie din deseuri municipale solide (MSW) si industrial (RDF)

Caldura, energie si reciclare



Electricity from waste



Metals and minerals for recycling recovered from bottom ash.

1 t of Waste



Up to 4.6 t steam



Up to 3.4 MWh heat



Up to 1.1 MWh electric power

Thermal energy can be converted into electricity or extracted as steam or hot water for district heating.

1 t of Bottom Ash:



Up to 27 kg of aluminum



Up to 12 kg of nonferrous heavy metals



Up to 100 kg of ferrous metals

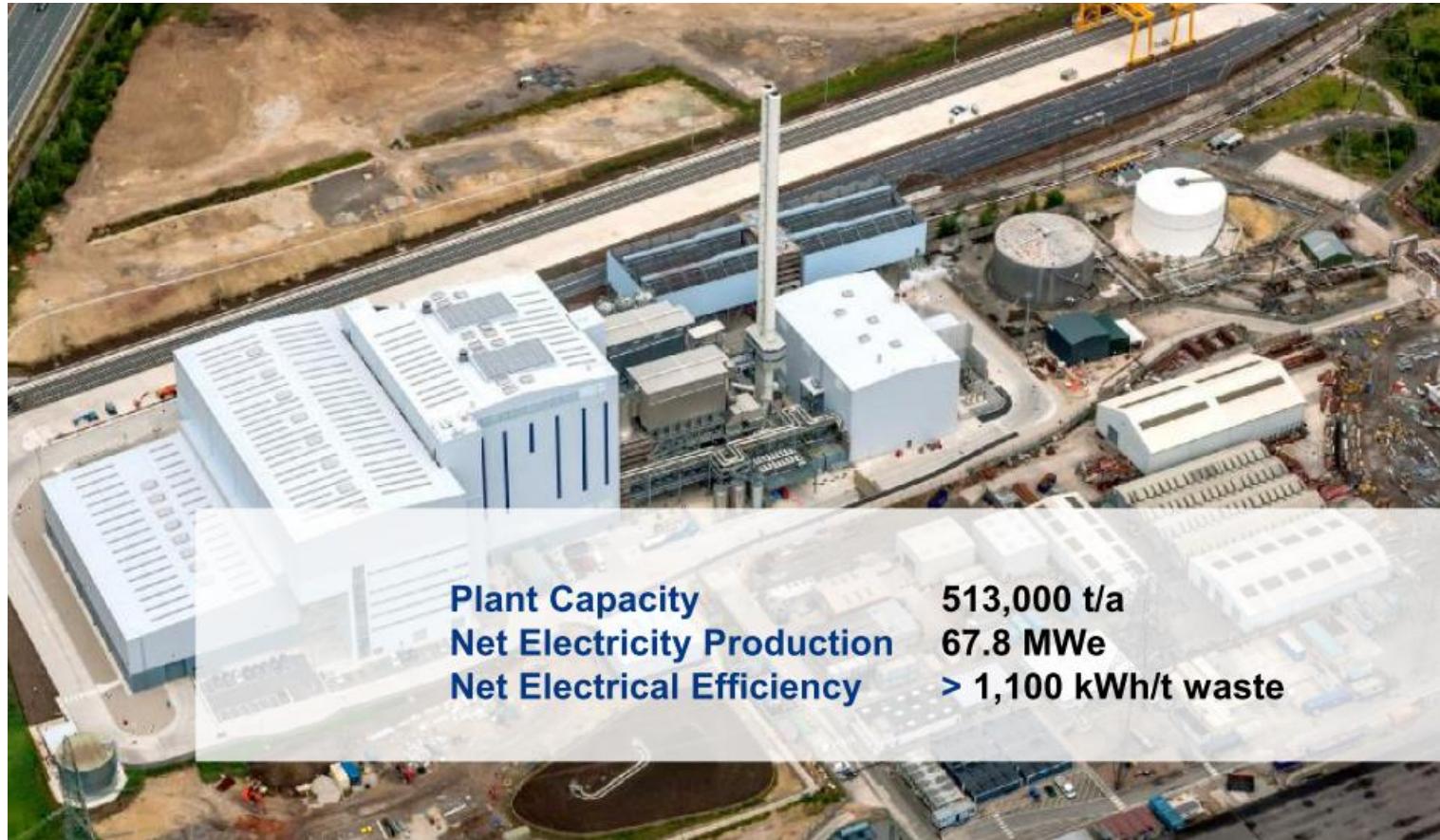


Up to 150 kg of inerts

Metals and inerts for reuse recovered from bottom ash.

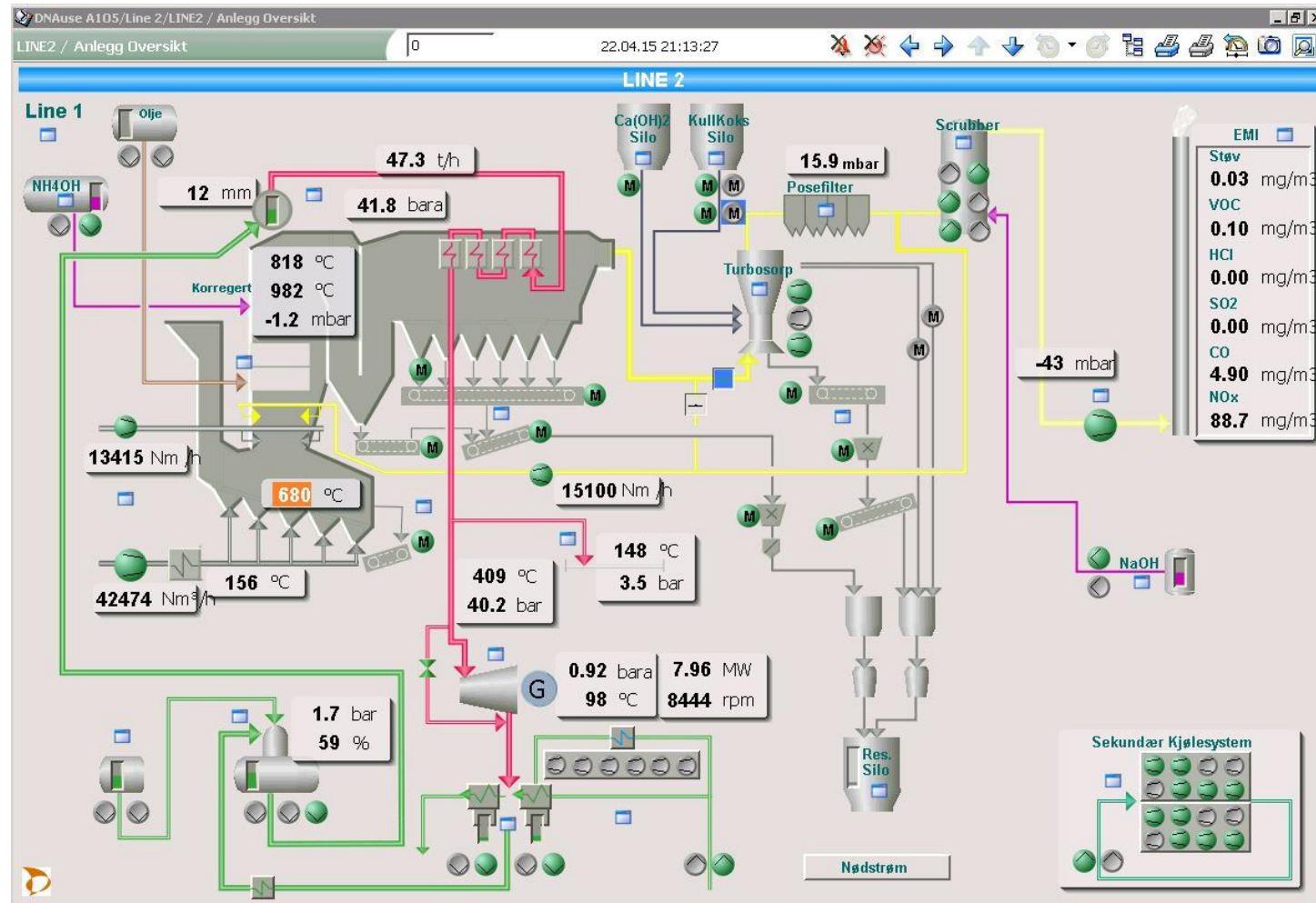
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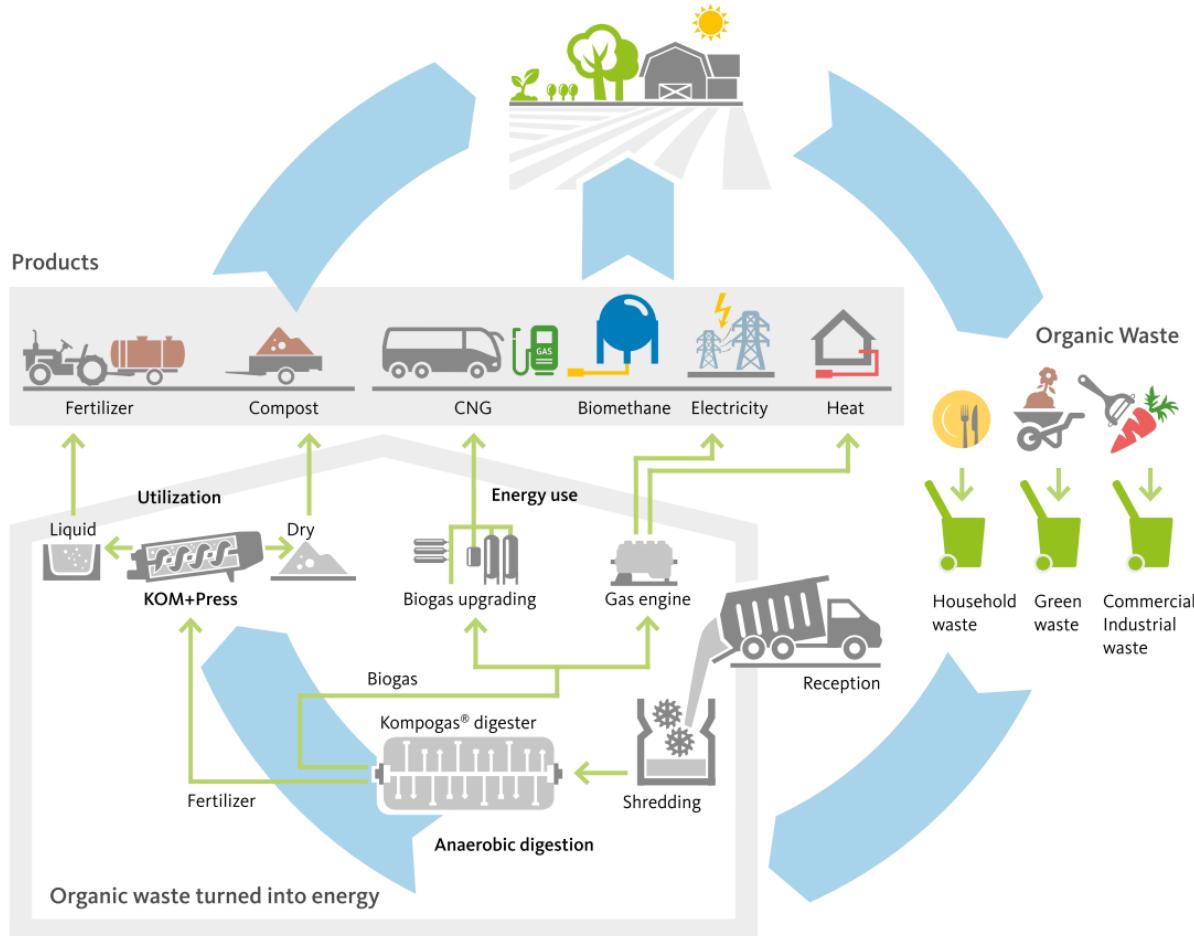
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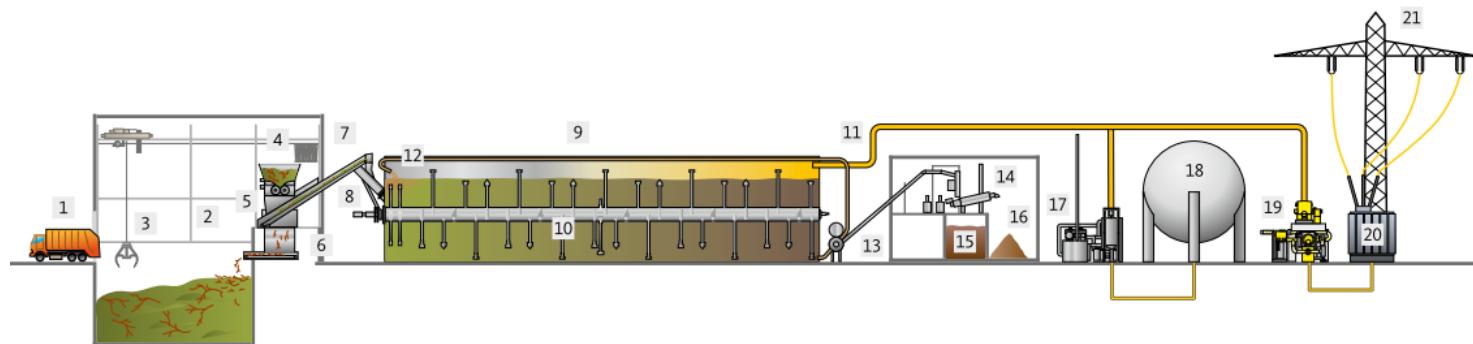
Managementul deseurilor

Recuperarea energiei prin tratare biologica – Ciclu Ecologic



Managementul deseurilor

Recuperarea energiei prin tratare biologica



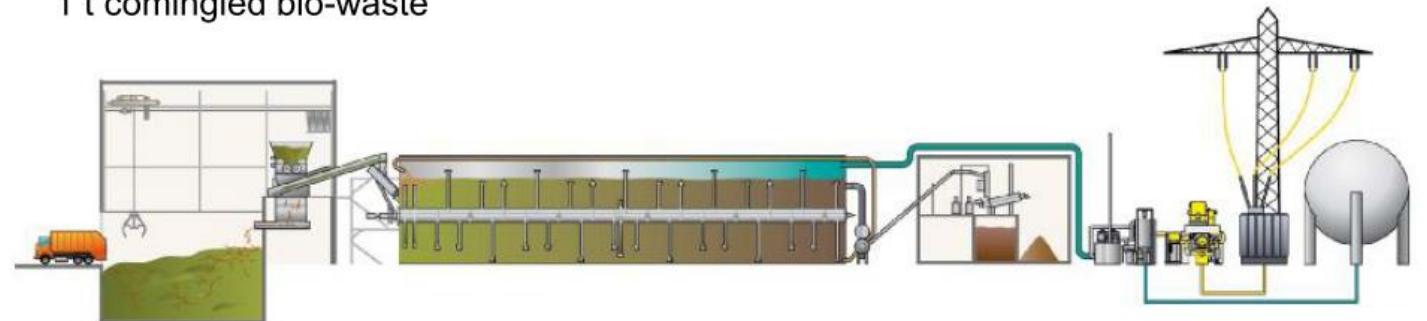
| Waste Receiving and Storage | Anaerobic Digestion | Discharge | Energy Utilization |
|---|--|---|--------------------|
| 1 Waste receiving 2 Waste bunker 3 Waste crane 4 Shredder 5 Sieve 6 Sieve rejects 7 Conveying system 8 Feeding system 9 Digester 10 Agitator 11 Biogas pipe | 12 Inoculation pipe 13 Discharge system 14 Dewatering press 15 Liquid digestate 16 Solid digestate | 17 Biogas upgrading H2 BioMethan® 18 Gas storage 19 Combined heat and power plant 20 Transformer 21 Electricity export | |

Managementul deseurilor

Recuperarea energiei prin tratare biologica



1 t comingled bio-waste



Compost
Sole conditioner / Fertilizer



60 Nm³ Bio-Methane as GtG or CNG
replaces 60 l Petrol / 1'000 km drive



or

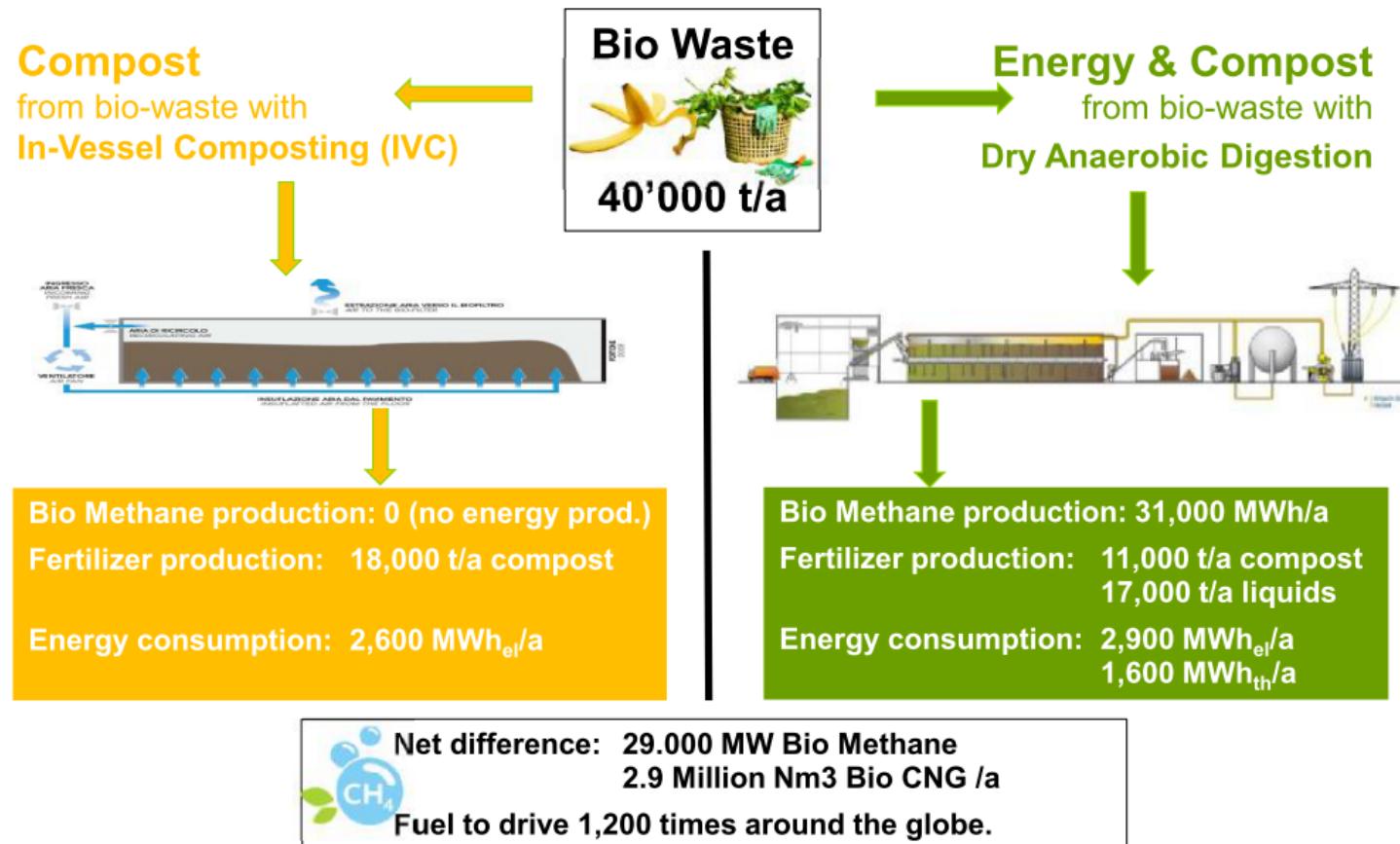


250 kWh electricity

Managementul deseurilor

Recuperarea energiei prin tratare biologică

Composting or Dry AD



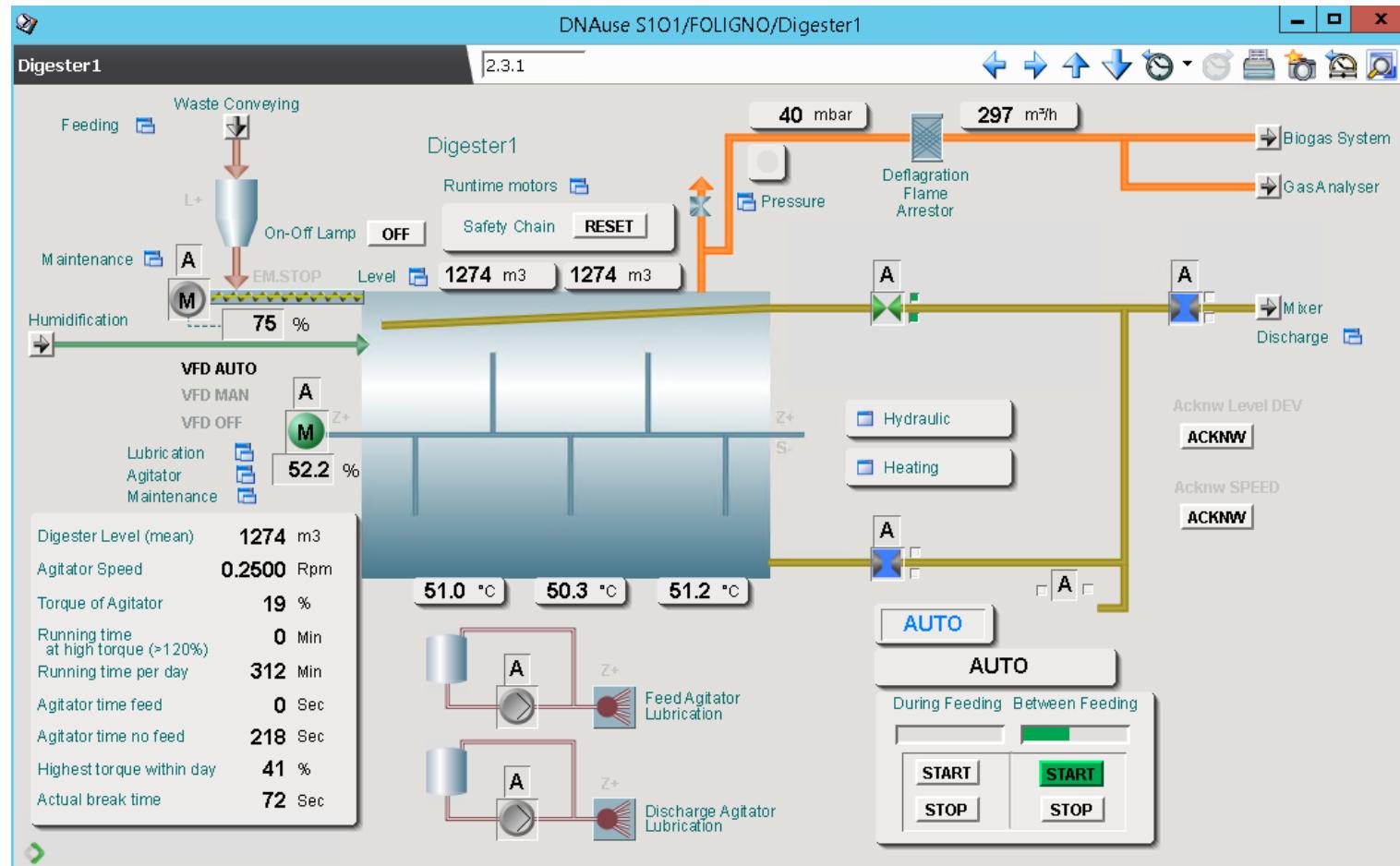
Managementul deseurilor

Recuperarea energiei prin tratare biologică



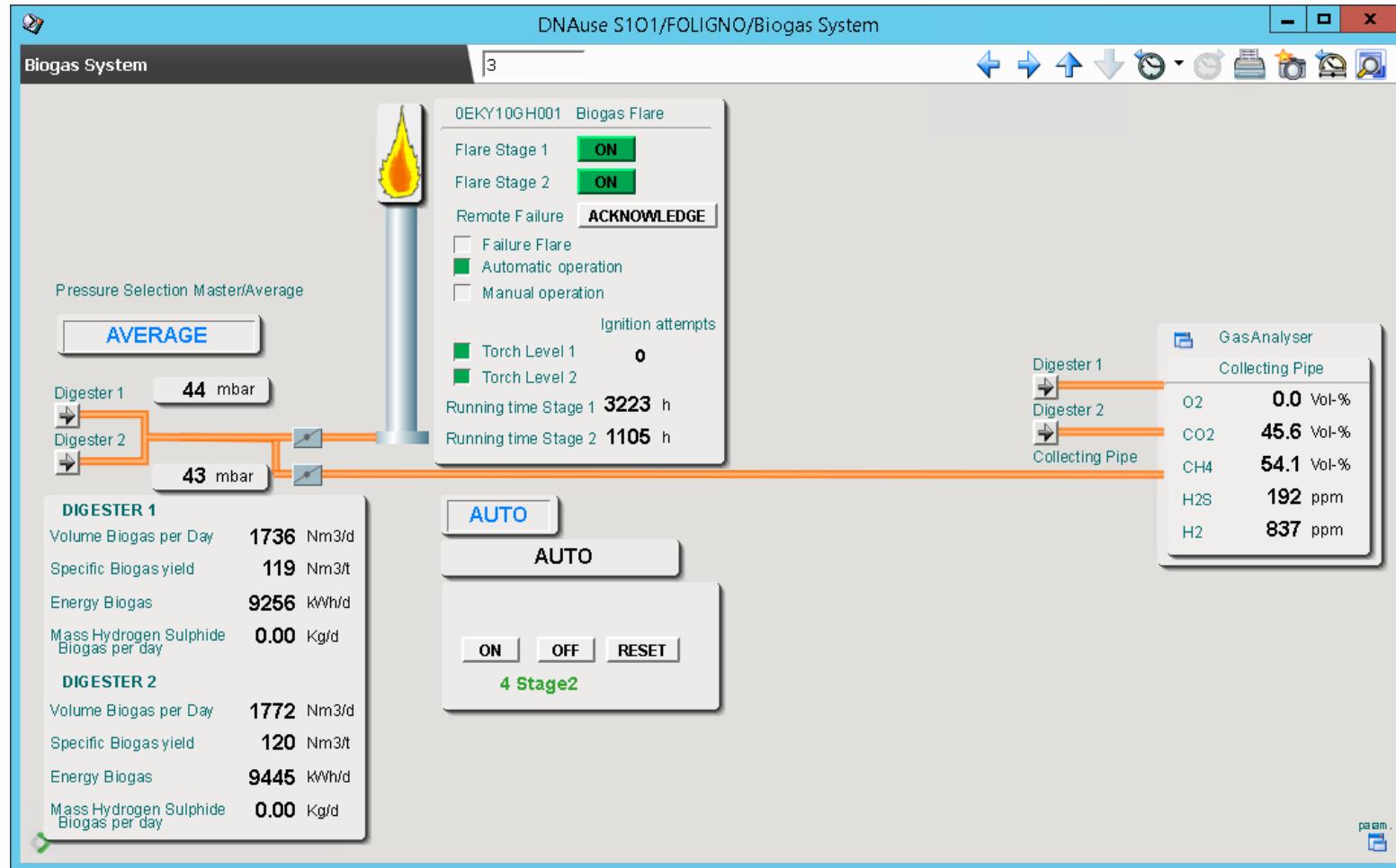
Managementul deseurilor

Recuperarea energiei prin tratare biologică



Managementul deseurilor

Recuperarea energiei prin tratare biologică



Portofoliu – Incineratoare cu recuperare de energie

| An proiect | Proiect | Client |
|------------|--|---------------------|
| 2016-2019 | Ferrybridge2 - WtE power plant / UK | Hitachi Zosen INOVA |
| 2015-2016 | Hereford and Worcestershire - WtE power plant / UK | Hitachi Zosen INOVA |
| 2015-2016 | Buckinghamshire - waste power plant / UK | Hitachi Zosen INOVA |
| 2014-2015 | Ferrybridge WtE power plant / UK | Hitachi Zosen INOVA |
| 2014 | West Yorkshire Leeds - Energy from Waste / UK | CNIM |
| 2014 | Battelfield - Energy from Waste / UK | CNIM |
| 2014 | Estree-mons - WtE / Franta | CNIM |
| 2014 | Ridham Dock - BtE Plant / UK | CNIM |
| 2013 | Cardiff Trident - Energy from Waste Facility / UK | CNIM |
| 2013 | Staffordshire Four Ashe - WtE / UK | CNIM |
| 2013 | Suffolk - Energy from Waste Facility / UK | CNIM |
| 2013 | Vassa - WtE / Finlanda | Hitachi Zosen INOVA |
| 2013 | STV 4&5 WtE / UK | Hitachi Zosen INOVA |
| 2012 | Kogeban - WtE / Franta | CNIM |
| 2012 | Lincolnshire - WtE / UK | CNIM |
| 2011 | New Heaven - WtE Power Plant / UK | vonRoll INOVA |
| 2010 | Riverside - WtE Power Plant / UK | vonRoll INOVA |

Portofoliu – Digestie Anaerobă

| An proiect | Proiect | Client |
|------------|--------------------------------------|---------------------|
| 2018-2019 | Anaerobic Digester Chongqing / China | Hitachi Zosen INOVA |
| 2018-2019 | Anaerobic Digester Nanjing / China | Hitachi Zosen INOVA |
| 2018 | Anaerobic Digester Foligno / Italia | Hitachi Zosen INOVA |
| 2018 | Anaerobic Digester Epirus / Grecia | Hitachi Zosen INOVA |

Clienti

Hitachi Zosen
INOVA





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