Kanadevia INOVA

Decarbonization of the Waste-to-X industry in Europe

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Since 1933.

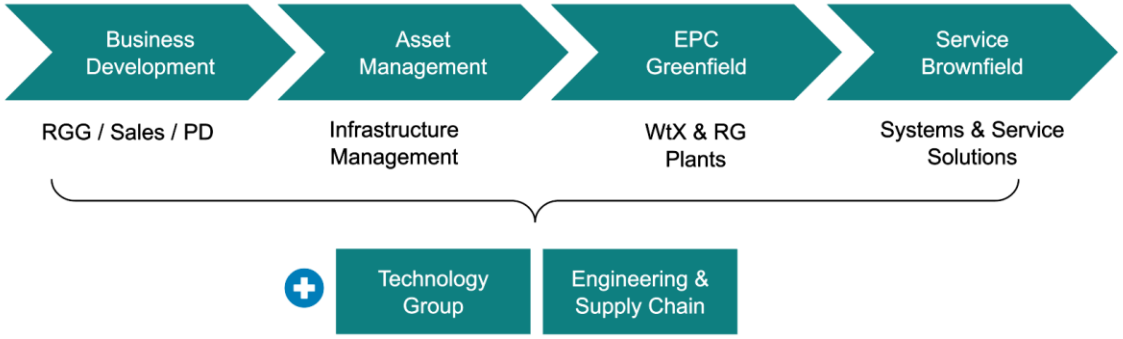
- HQ: Zürich, Switzerland
- > 1’600 references worldwide
- Since 2011: Kanadevia Corporation (Japan) subsidiary
- EPC contractor for Waste-to-Energy projects: European lead

Illustration: Ferrybridge UK (500 ktpa)

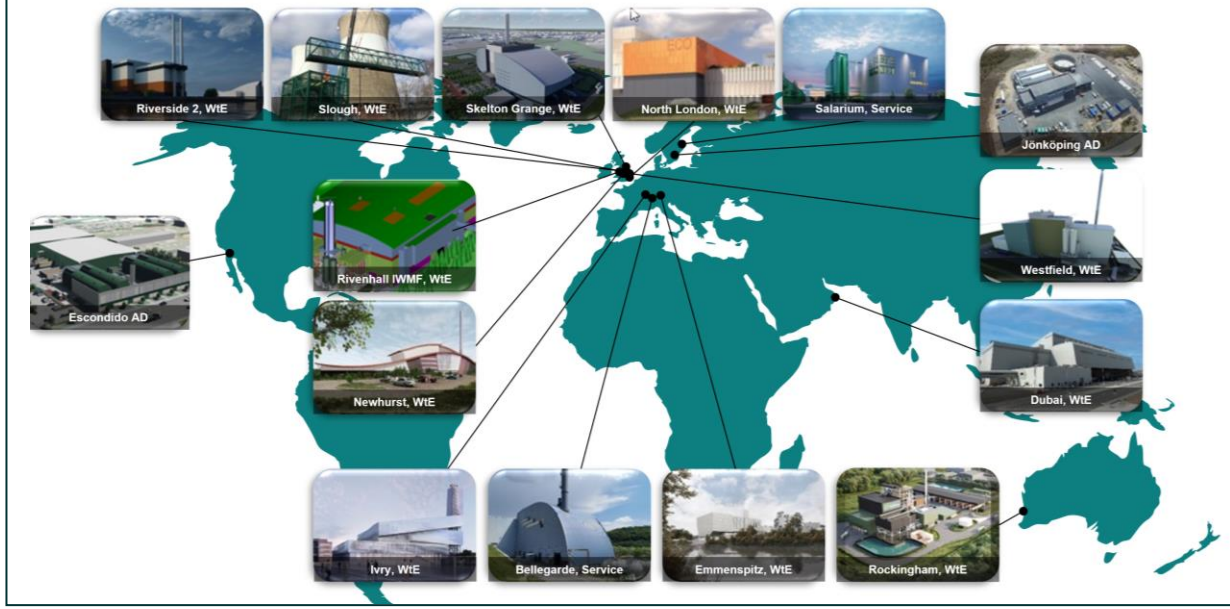
Website: https://www.kanadevia-inova.com/

Kanadevia Inova AG

• Full value chain

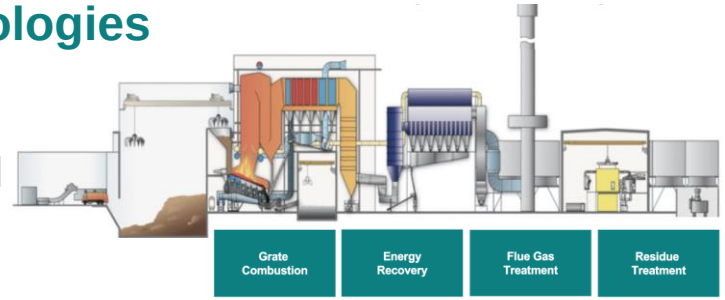


• Selection of active projects

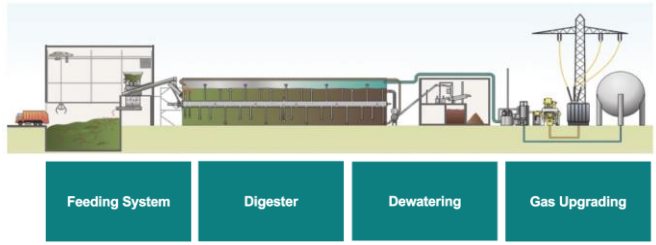


• Proprietary technologies

- Waste-to-Energy (WtE) from municipal solid waste (MSW)

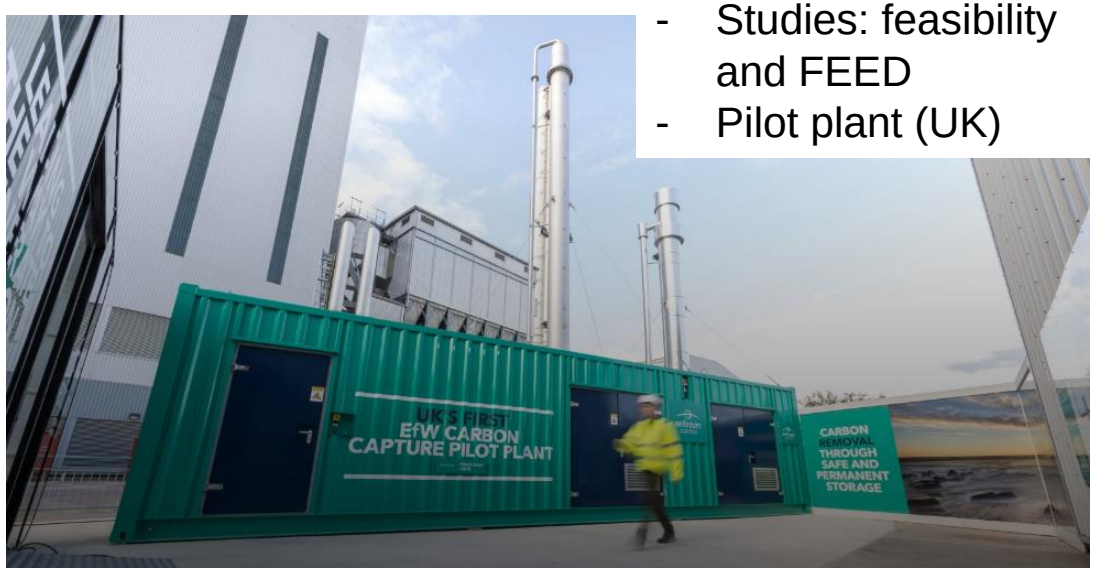


- Organic waste anaerobic digestion (AD)



• Decarbonization

- Studies: feasibility and FEED
- Pilot plant (UK)



Also developed: Power-to-X (CH_4, H_2), CO_2 liquefaction, metal recovery from ashes
Research: Carbon capture technologies, waste sorting, recycling, … → resource integration

Regulatory framework for waste treatment in the EU

Waste Hierarchy[1] & GWP emissions legislation status

- EU Emissions Trading System (EU-ETS) applicable to MSW from 2028
  - Obligation to measure, report and verify emissions from 2024[2] → ESG reports
- EU Industrial Carbon Management Strategy[3]
  - Funding support for CCS
- Net-Zero Industry Act[3]
  - EU-wide target of 50 Mtpa CO_2 injection capacity by 2030

→ Drivers to decarbonize and recover resources →

Waste-to-X systems:
- multi-actor,
- multi-energy,
- multi-product,
- multi-domain engineering

[1] and figure from Waste Framework Directive - European Commission, accessed 09.01.25.
[2] Climate change: Deal on a more ambitious Emissions Trading System (ETS) | News | European Parliament, accessed 09.01.25.
[3] Global Status Report 2024 - Global CCS Institute, accessed 10.01.25.

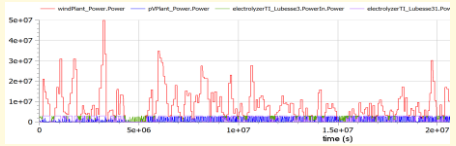
R&D insight: Decision-support platform

Handling the complexity of Waste-to-X systems

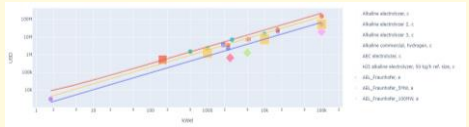
Boundary conditions

Regional and time-dependent fluctuations

- Commodities:
  - *Prices*
  - *Specifications*
  - *Demand/supply*
- Environmental conditions



- Technology development

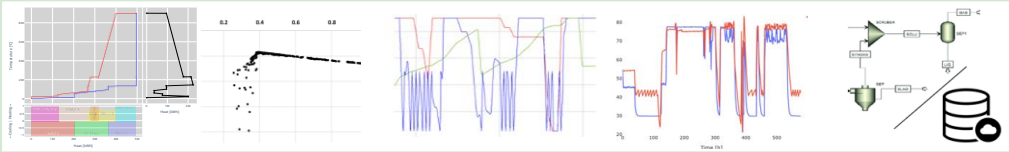


- Regulatory, contractual, & operational schemes

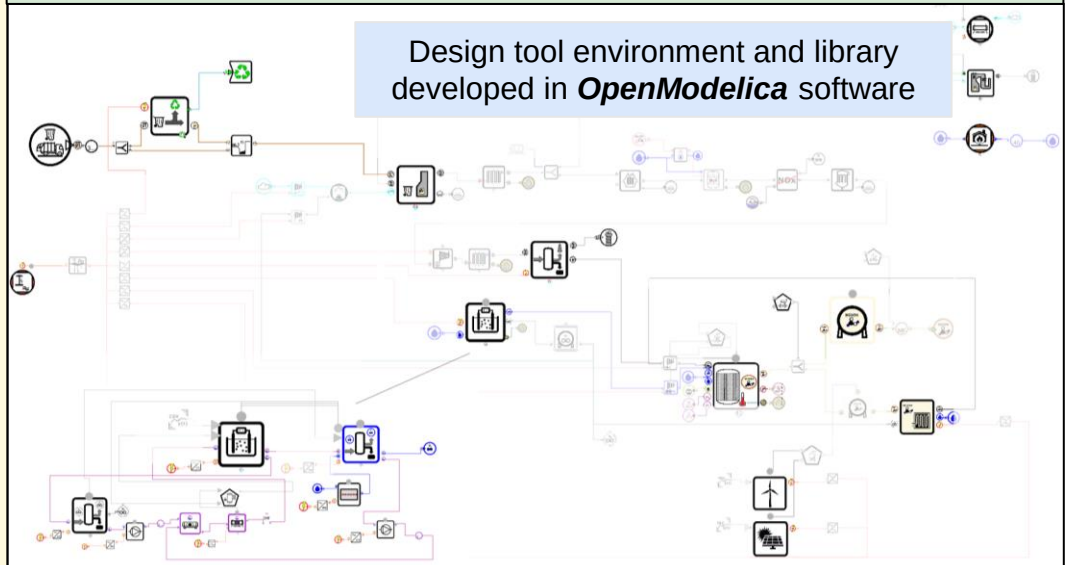
Strategy 1
Strategy 2
…

Contract 1
Contract 2
…

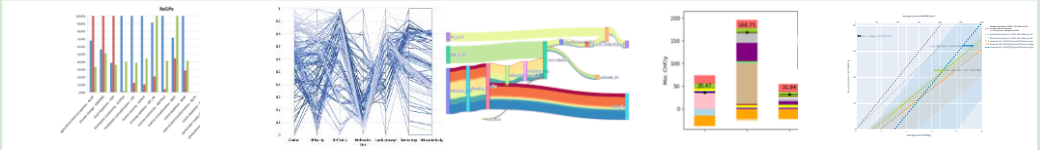
Process integration | **Co-optimization** | **System control strategy,** incl. storage | **Parameter identification** | **External softwares & database links**



Design tool environment and library developed in ***OpenModelica*** software

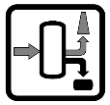


Life-cycle impact analysis (ISO14040) | **Performance indicator analysis** | **Process analysis** | **Cashflow analysis, Project development** | **Uncertainty analysis**



Outputs

Flexibility for various project & system evaluation



- Process design
- System integration
- Operation & control strategies
- …

Reports

- Technical
- Financial
- ESG indicators
- Life-Cycle Analysis (LCA)
- …

→ Value recovery & creation

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