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OULU | *BusinessOulu*



Kiertokaari
Kestävän kiertotalouden edistäjä



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Welcome
to Oulu,
Finland

Finland is a country, where collecting, processing and utilisation of municipality waste is on a high level. City of Oulu, through its waste management arm 'Kiertokaari' is managing the municipality waste of several municipalities. 'Kiertokaari' is operating and managing an ecosystem, where public sector and several private companies seamlessly work together in collecting, transporting, sorting, utilising (circular economy), processing and storing of waste.

The Rusko waste treatment centre in Oulu is an efficient waste processing site, which 'Kiertokaari' is proud to introduce. **Rusko site can also be presented as a pilot site, which can be implemented in scalable manner in countries and cities that require similar waste processing sites.**

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Training program

Organisations and people interested in how 'Kiertokaari' manages municipality waste and how different public and private operators work together are more than welcome to visit Oulu and go through a training program and learn about our approach.

- We are introducing the waste management practices in the area through a 'Zero Waste City' program.
- While in Oulu, the visitor is wellcome to enjoy their stay in many ways. [Click here to find more information about Oulu](#)

In addition to staying in Oulu and learning about waste management, there is an opportunity to familiarise oneself with the diversity of companies, technologies and services in the area.

[Please see more here](#)

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Training Modules

Day 1: modules 1 a, b, c, d and e

Day 2: module 2

Location: City of Oulu, Finland
Rusko waste treatment centre

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Module 1 A



Waste management in Finland Case: Kiertokaari Ltd, City of Oulu

- Duration: 1 hour
- Program
 - Legislation, laws and decrees in Finland
 - Principles and responsibilities
 - incl. producer responsibility concerning paper, packaging waste, electric and electronic equipment, vehicle tyres, car accumulators, batteries and weatherproof wood
 - Authorisations and permissions needed
 - Different operators and their role

CASE Kiertokaari:

- Municipalities of the operational area
- Current operators and the extend of their businesses
- Regional waste management guidelines
- Network of eco-take-back points, waste drop-off points and recycling centres
- Waste collection system
- Main achievement: only 0.6 % of municipal waste landfilled



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Module 1 B



Rusko waste treatment centre – only 0.6 % landfilled

- Duration: 1.5 hour (+ lunch)
- Brief presentation of the main operator, Kiertokaari Ltd.
 - Part of the city organisation
 - Main tasks, responsibilities and key processes
 - Personnel and turnover
- General presentation of Rusko waste treatment centre
- Customer segments, pricing policy and prices
- The structure of service concept
- Different types of waste management
 - incl. circular economy based pilot projects and biogas ecosystem
 - equipment, facilities, personnel, etc.
- Utilisation of waste in energy production
- Includes site tour on the field



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Module 1 C



Sightseeing tour at the waste centre and getting acquainted with waste treatment facilities

- Duration: 2 hours
- General presentation of the area
- Waste weighing
- The types of waste received and the type of waste transported directly to waste-to-energy plant and briefly the regional waste guidelines
- Waste handling fees and taxes (based on weighing, who decides the prices, value added tax, waste tax)
- Reception of hazardous waste, collection, storage and pre-processing
- Reception of recyclable and electric and electrical waste
- Composting of oily soil
- Reception and pre-processing of oily water and waste oil
- Processing plant of liquid waste (separation of water and solid materials)
- Reception of un-sorted mixed and construction waste (sorting facility of Oulu Energy, fast visit)
- Reception of special waste (certain dead animals, etc.)
- Processing and sales of biogas
- Expansion based on circular economy – now and in the future
- Environmental protection

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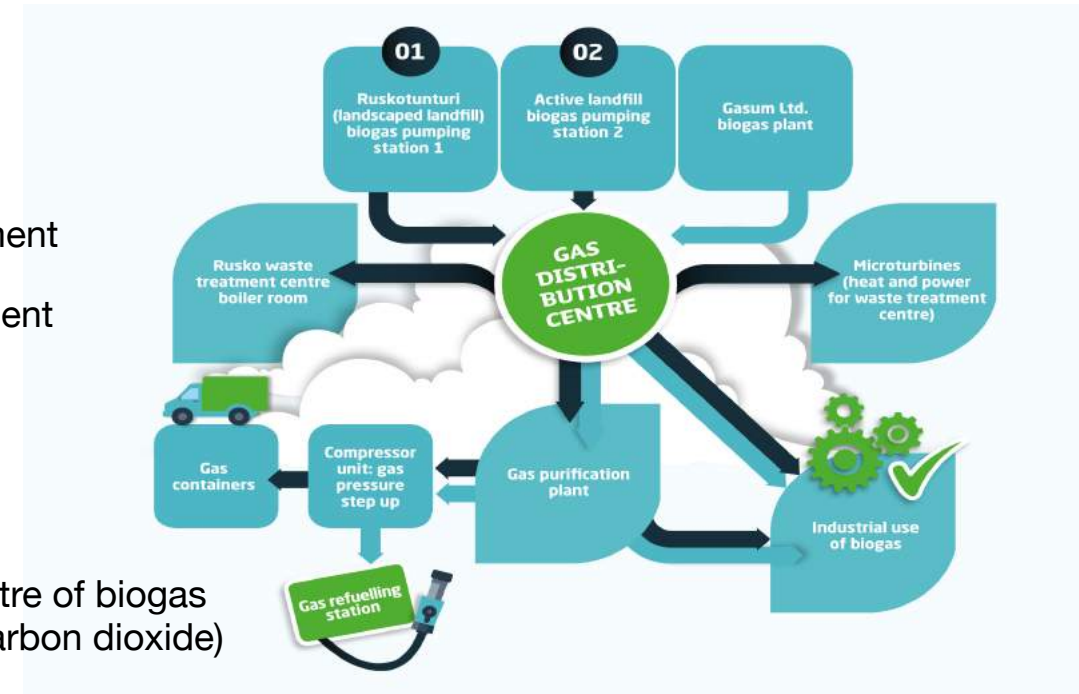
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Module 1 D

Biogas ecosystem

- Duration: 2 hours
- Basics of biogas
- Sources of biogas: landfills and treatment facility of biowaste and sludge
- Motivation: protection of the environment (law), energy production
- Processing of biowaste outsourced to Gasum Ltd.'s biogas plant
- Collection of biogas from landfill area (gas collection piping network, wells, pumping stations)
- Central collection and distribution centre of biogas
- Purification plant of gas (removal of carbon dioxide)
- Refuelling station
- Industrial use of biogas (laundries)
- Micro-turbine facility produces electricity and surplus heat is utilised in heating
- Potential of biogas now and in the future (Oulu region, whole Finland compared to e.g. Sweden)
- On site visits to biogas plant, microturbine plant, gas distribution centre, gas pumping station and refuelling station



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Module 1 E

Closing of program

- Duration: 0.5 hour
- Highlights of each module
- Feedback from visitors to trainers
- Diplomas



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Module 2 A

Excursion to Laanila waste-to-energy plant operated by Oulun Energia Ltd., location city of Oulu

- Duration: 1.5 hours
- Treatment of combustible waste has been outsourced to the local energy company
- The Laanila incineration plant annually receives 150 000 tons of municipal waste of which half come from the Oulu region
- Half of the received waste has been sorted by citizens at their homes
- No pre-processing of waste in the plant
- Output: steam, which is used as energy by a plant in the neighbourhood, as well as electricity and district heat
- Benefits: Incineration minimises the environmental load of waste and releases some of the resources of Rusko waste management centre for other use

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Module 2 B

Excursion to two producer responsibility sites in the Oulu region

- Duration: 2 hours (+ lunch)
- On site visit to Encore Ympäristöpalvelut Ltd (responsibility of paper waste)
- On site visit to Kuusakoski Ltd or Stena Recycling Ltd (responsibility of waste metal and disposal of car tyres)
- On site visit to a closed landfill area currently used as recreational centre (skiing resort “Ruskotunturi”)

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Module 2 D

Closing of program

- Duration: 0.5 hour
- Highlights of each module
- Feedback from visitors to trainers
- Diplomas

