Jeppo Biogas Ab

Jepuan Biokaasu Oy

Energi och växtkraft Energiaa ja kasvuvoimaa

Study visit in Northern Sweden and Western Finland 24-25 November 2014

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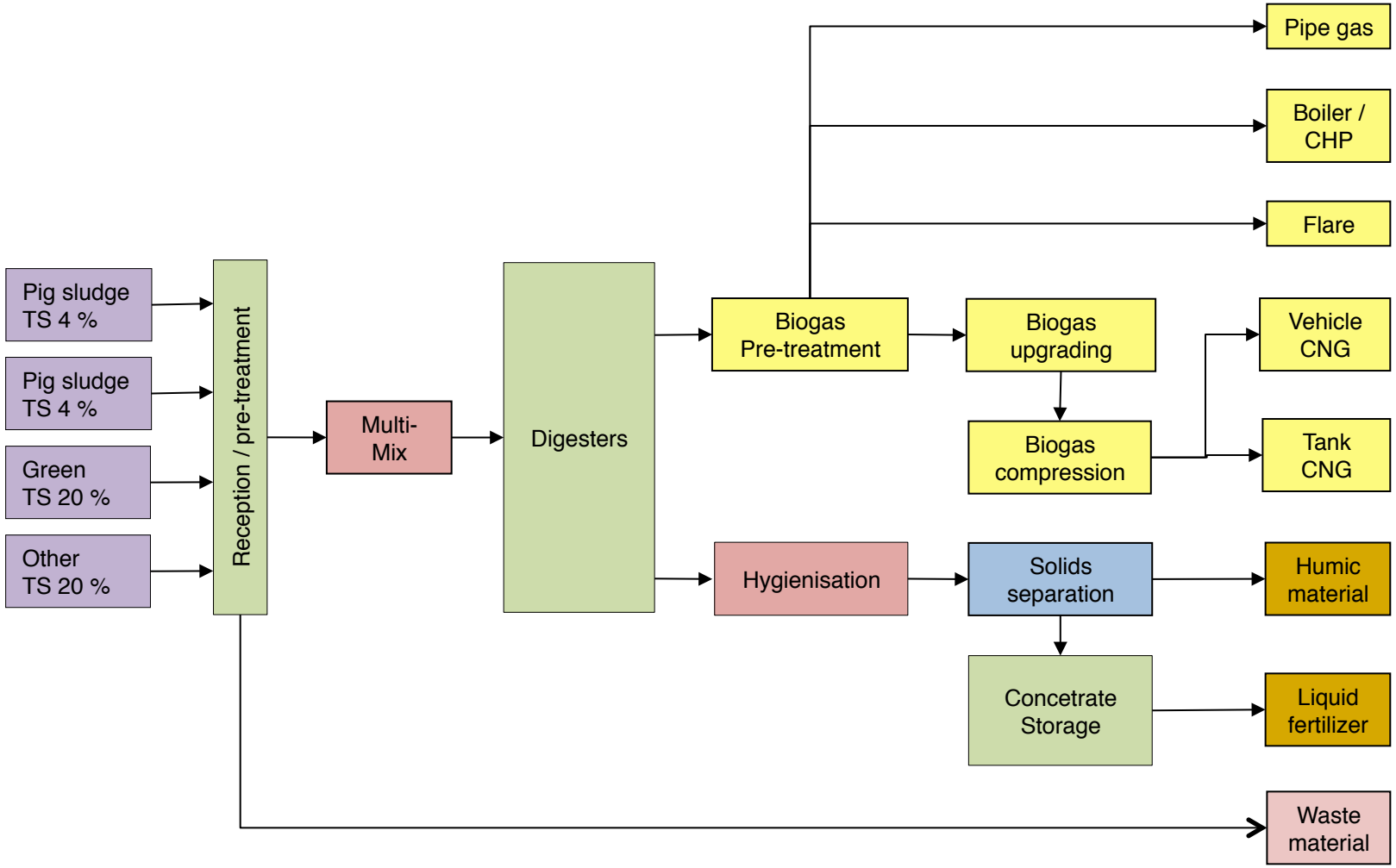
Shareholders

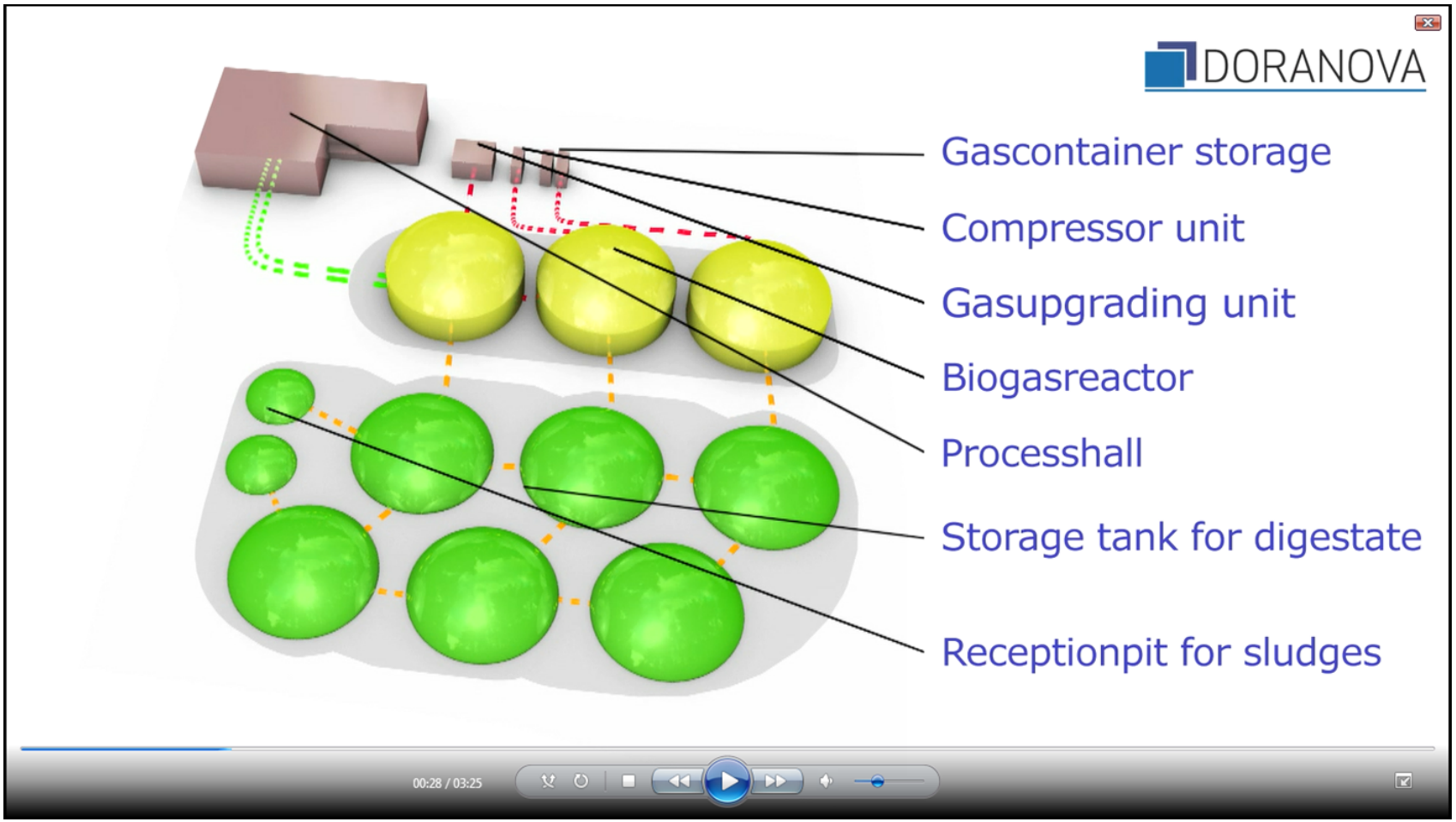
Jeppo Biogas Ab

• Jeppo Kraft Andelslag	35 %
• Snellman Ab	22,5 %
• Nyko Frys Ab	10 %
• Jeppo Potatis Ab	10 %
• Torp Frys Ab	10 %
• Norcar-BSB Ab	5 %
• Finespo Ab	5 %
• Fresh Servant Ab	2,5 %

Jeppo Biogas: Process



Layout


DORANOVA
Gascontainer storage
Compressor unit
Gasupgrading unit
Biogasreactor
Processhall
Storage tank for digestate
Receptionpit for sludges
00:28 / 03:25

Planerade råvarufraktioner till rötningen
Planned input feedstock

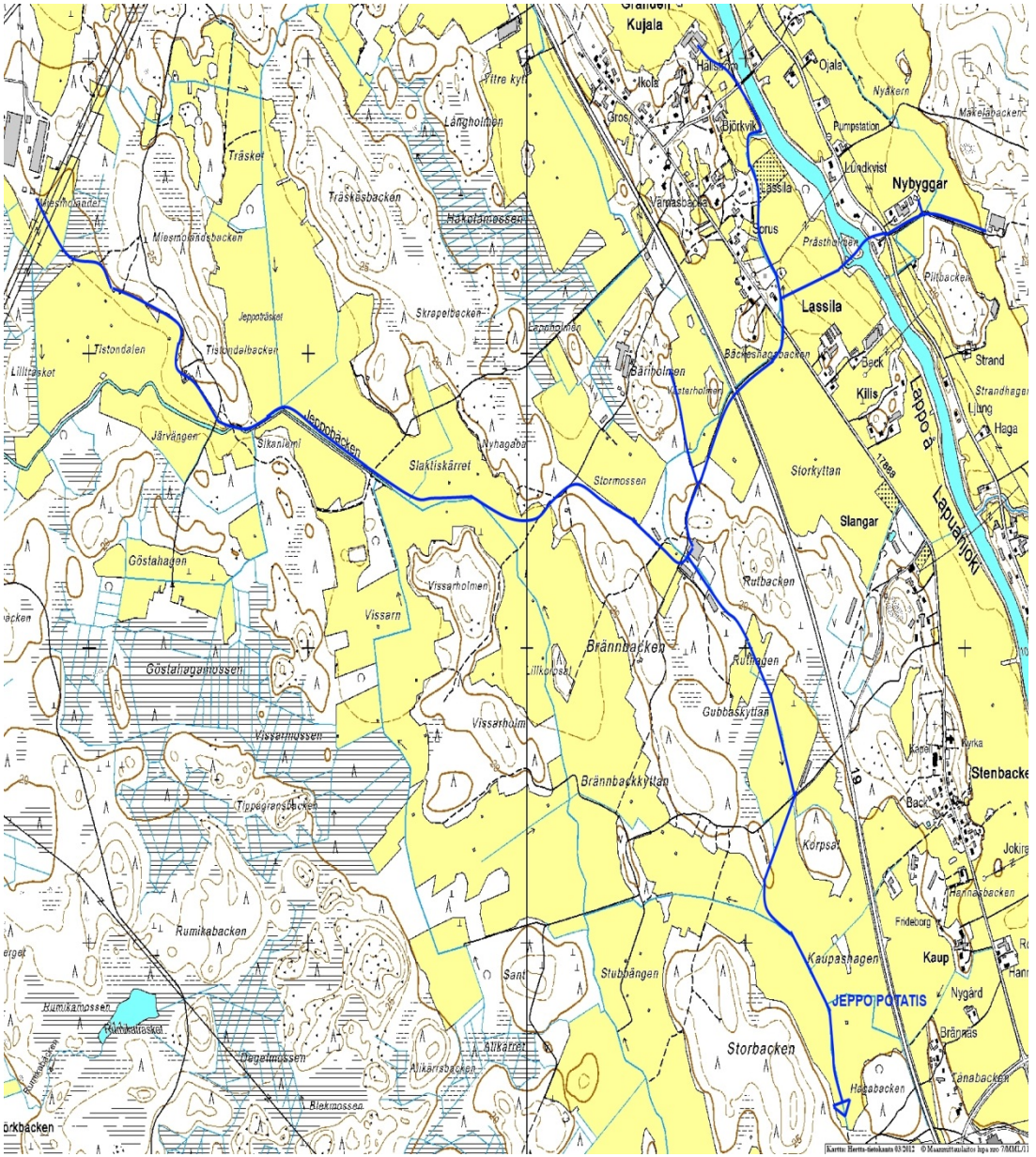
	Antal ton/ år Kapacity t/a	
Svinsväm	47 500	Pig slurry
Nötkreatursslam	9 000	Cow slurry
Pälsdjursgödsel	8 000	Fur animal manure
Förbehandlingsslam från pot.förädling	4 000	Potato waste sludge
Skalrester från potatisförädling	3 000	Potato peel waste
Hårslam från läderindustrin	2 500	Hair sludge fr. leatherind.
Livsmedelsindustrislam	96	Bakery waste sludge
Livsmedelsavfall	53	Bakery waste solid
Mag- och tarminnehåll	7 744	Stomach- and gut cont.
Slam från reningsverk	140	Sewage sludge fr. foodind.
Slam från fettavskrapning	3 500	Flotation fat
Gräs och halm	4 000	Grass and straw
SAMMANLAGT	89 533	

Pipelines

Pipelines for slurry from 4 piggeries

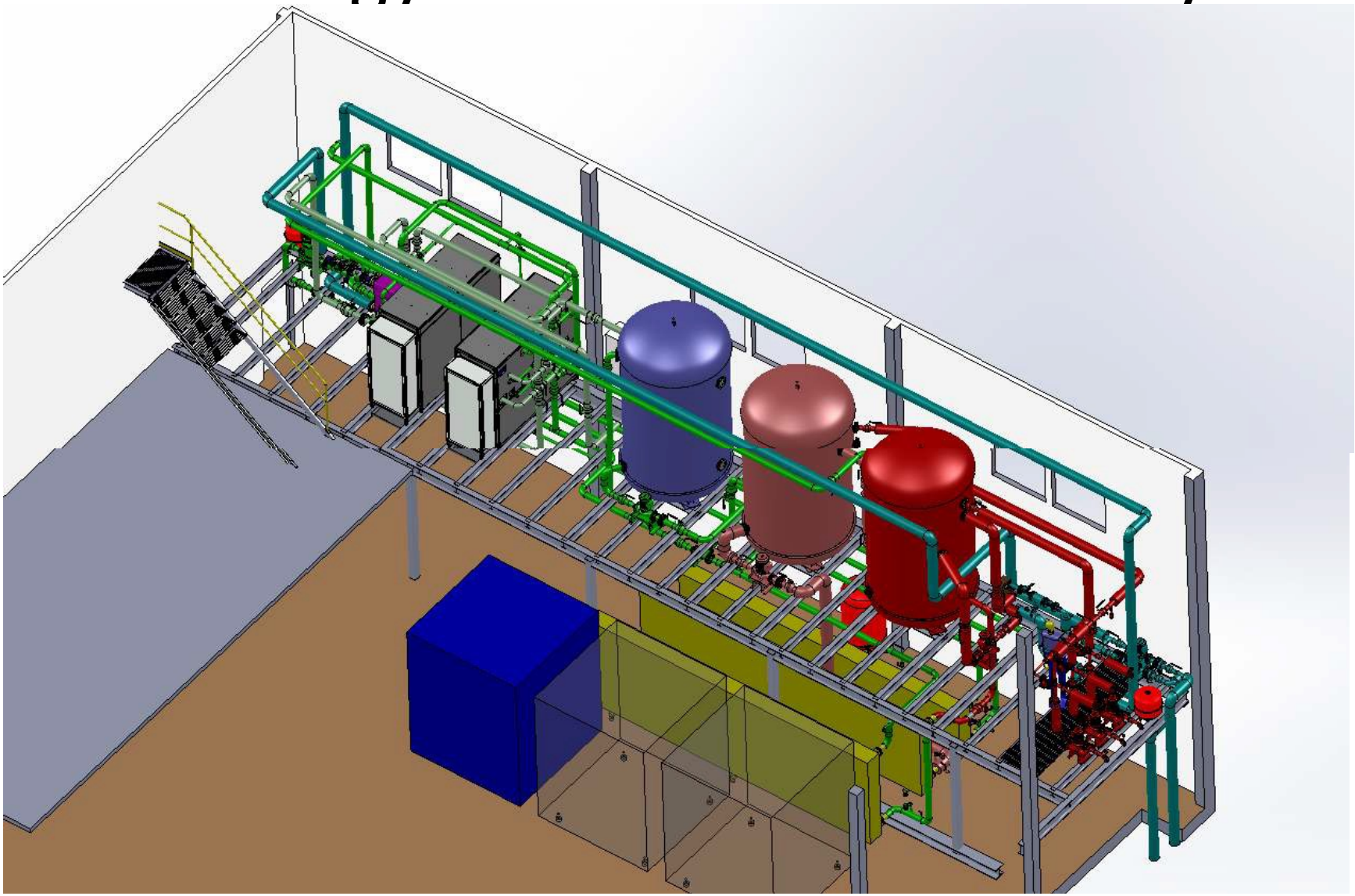
- Slurry transported by pipeline appr. 50 000 m^3/v.
- Pipelines 12 km
  - Jeppo Potatis-Biogas 3,1 km
  - Lantgris-Biogas 4 km
  - Bäriholm-Biogas 0,7 km
  - Blåmans-Biogas 1,7 km
  - Karlsborgs Gård-Biogas 1,8 km

- Gas pipeline 2x160 mm for lokal industry 4 km



Recieving pit for dry substrates

Energy efficient heat recovery



Scancool Oy heatpumps 2x350 kW heat power

Hygienisation 3x10 m3
Hot water accumulators 3x10 m3

Gasproduction and -consumption

Energy production

- 3,5...4 MNm^3 raw biogas
  appr. 70 % methane+30 % carbondioxide
- Energy

  appr. 20...25 GWh/year
- Heat power

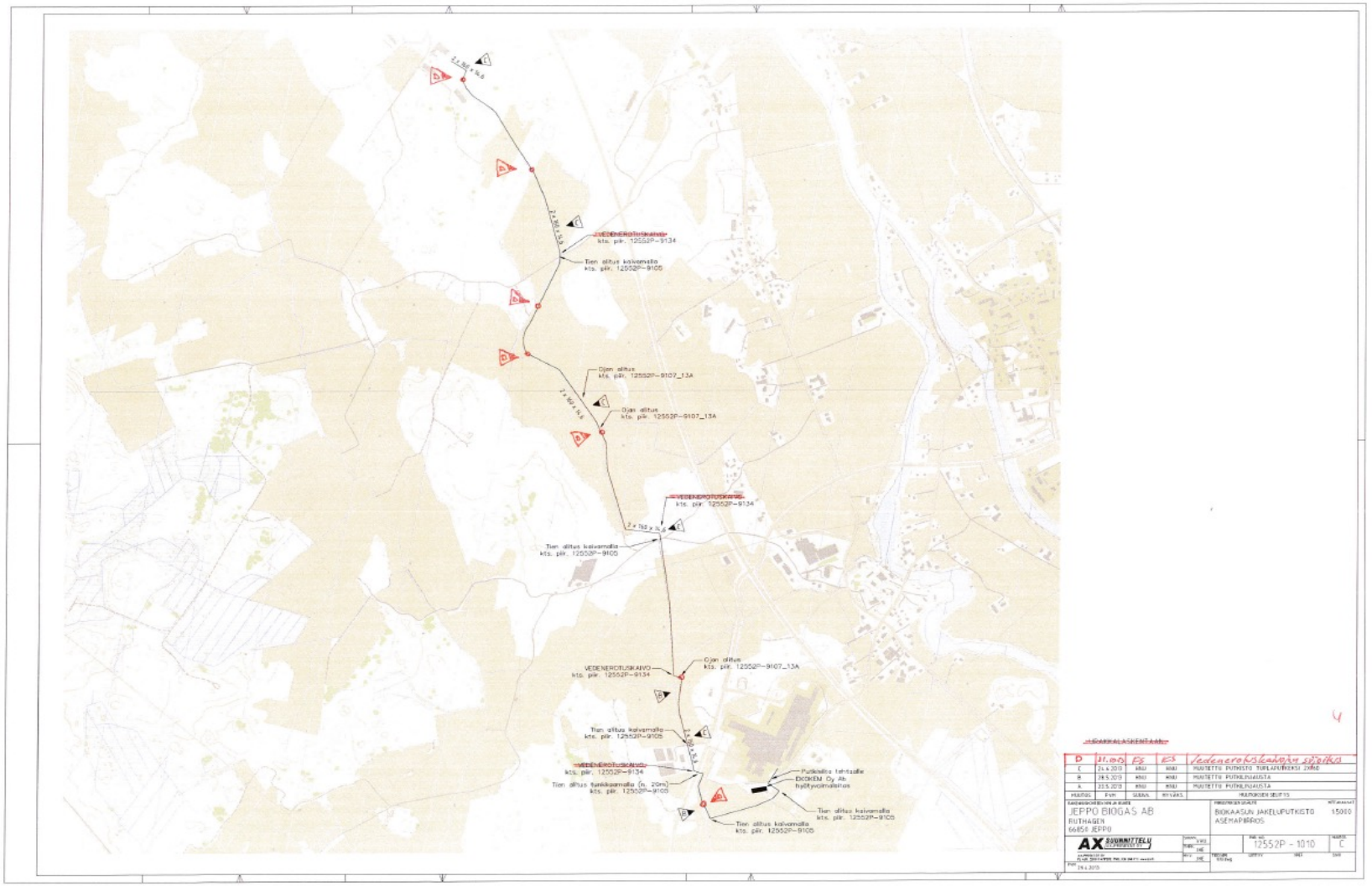
  appr. 2,5 MW
- Plant heat demand produced by heatpumps 2x350 kW.
- Heat recovery optimised.
- 800 kW gas/oil burner for peak/reserve

Energy sales

- KWH Mirka 5...10 GWh/year
- Oy Snellman Ab 10 GWh/year
- Traffic fuels 1...5 GWh/vuosi

(5 GWh compares to 590 000 gasoline litre ekvivalents or about 400 cars yearly consumption)

4 km gas pipeline PEH 2x160 mm



Upgrading unit and compressor 400/260 Nm3/h 250 bar

Reciewing-/processhall and upgrading

Digesters, upgrading unit and compressor unit

Transportfacility for biomethane 5045 Nm3/container 250 bar

Gascontainers for CBG-transport to customer in Pietarsaari

Dispenser for CBG

What is in sight for the near future ?

Raw material for digestate

- More slurry from piggery
- Manure from fur animal
- More greenmasses from non-food agriculture
- More slaughtery waste

More rawmaterials->one or two more digesters->more digestate as fertiliser need to be transported

- Need to concentrate the fertiliser due to longer transports.
- In the best of worlds even a small income from the fertiliser (in the future).

More feedstock->more gas

- A few more fuel stations in the near region
- More heat for the industry,
- New customers
- LBG for longer transports or for export

SCANIA

Major co-operators during construction and building

- Biogas plant
  - *Weltec Biopower Gmbh*: designing, delivery and assembly of biogasmachinery
  - *Doranova Oy*: planning, design and project coordination, some machinery deliveries
  - Local constructing companys: recieving- and processbuilding, digesterbases, slurry- and digestate tanks, all other construction works
  - Ventilation, water, heat and electrical/ automation by local entrepreneurs.
  - Ground- and excavation works by lokal entrepreneurs
  - *GS-Consulting*: project coordination
  - *Marinex Ab*: lay-out, design and controller

- Upgradingunit from *Malmberg Water Ab*
- Compressor from *Fornovo Gas S.r.l*
- Gascontainers from *Luxfer Gas Cylinders*
- Boiler from *Robert Bosch Gmbh*
- Dispenser from *NPS Service Ab*
- *HÖYRYTYS OY* coordinator of items above
- Main automation designed by *Insta Automation Oy*
- Pipelines delivered by *UPONOR OY*, excavation works by lokal entrepreneurs.
- Pumping stations at piggeries delivered by *Grundfos Oy*
- Heatpumps and heating from *Scancool Oy*

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