

Dedicated to the finish.

Case Mirka: Shifting from Heavy Fuel to Gas

The background of the slide is a photograph of a modern building's exterior. The building features a wooden slat facade and large, three-dimensional, light-grey letters spelling out 'MIRKA'. The sky is a clear, bright blue. On the right side of the image, there is a semi-transparent grey overlay containing the company's vision statement.

**Our vision** is to reach a market position, where customers and interested parties see us as a market leader and the most responsible company that drives innovation in our core business sectors.

# Our clean commitments

We are determined to make a difference and have defined our clean commitments. We take responsibility, and lead by example — in everything we do.

We want to make sure the future is sustainable for the business, our partners, employees and the environment.





## One excellent example: the bioenergy power plant

Sustainability is our priority. Thanks to the bioenergy power plant, we have stopped using oil as a heating source and thus reduced our greenhouse gas emissions considerably.

The plant began incinerating production waste in Jeppo in September 2013 and runs on a mix of abrasive waste and renewable materials.

# PIPO decree 750/2013, for 5-50MW energy plants.



- The limit value for SO<sub>2</sub> for heavy fuel oil, 850 mg / m<sup>3</sup>n for existing spare and peak load boilers.
  - Liquid fuels must be stored in a double-shell tank or in a container placed in a sealed containment tank:
    - The volume of the protective basin must be 1.1 times the volume of the largest container => requirement effective 1.1.2018
    - Handling and storage areas must be impervious to liquids and raised at the edges
- > Investment in new tank and handling area for HF in Jeppo and Oravais



## First steps for shifting from HF to Gas

2012 Mirka and Ekokem made a contract to build a 10 MW bioenergy plant in Jeppo.

2012 energy consumption in Jeppo factory was about 40 GWh/a and energy was produced by HF.

Bioenergy plant was taken in use in the end of 2013.

Peak load energy needed was made by HF, 5-10GWh/a.

HF Peak load boilers in smaller use => give us possibility to start the change from HF to gas.



## First steps for shifting from HF to Gas

Pipeline from Jeppo Biogas to Mirka was built in 2013. Biogas pressure 350mbar.

2013 Mirka and Adven start a project to convert one of (3MW) oil burners to biogas.

# 2016 Project to fulfill shifting from HF to gas



- 2016 Mirka and Adven agreed to convert HF boilers to gas.
- Adven made conversation for boilers, installed a bio methane station with pressure reduction station and pipe works for boilers.
- Mirka ordered a gas vaporizer station and pipe works.
- Planning of works for installation was made by Kaasusuunnittelu Lea Alho together with Mirka and Adven.

## 2016 Project to fulfill shifting from HF to gas



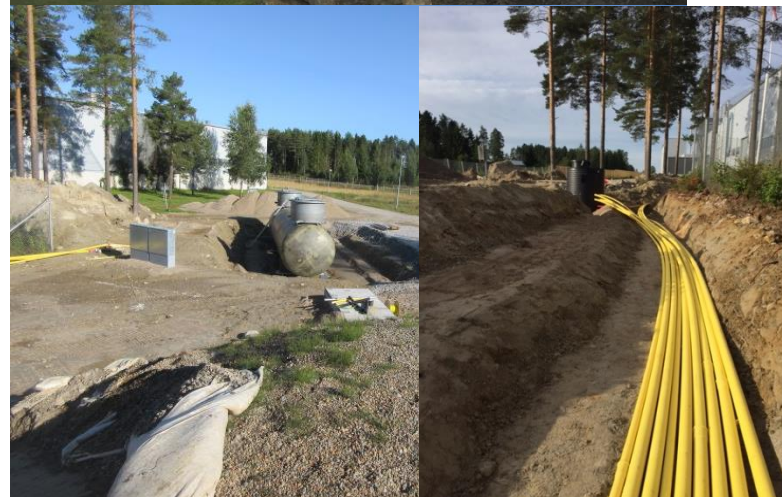
Bio methane containers, gas pressure 250 bar and pressure reduction station, built by Adven. Mirka is buying bio methane from Jeppo Biogas and Adven is processing it to steam for Jeppo site.



Gas vaporizer, 2x1500kg/h

- **Propane gas tank 2 (60m<sup>3</sup>)**

- Installation work for tank
  - Pipe works
  - Electrical installation, ATEX.
  - Compressed air for valves.
  - Authority inspections, Inspecta, Dekra
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- Change notification and permit application to Tukes for installing gas storage tank. Note application handling time 4-6 months.
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- **Finnish Safety and Chemicals Agency (Tukes)**
    - **Toimitaperiaateasiakirja, "Operation principle document"**
    - **Tukes audit every 3 year instead of 5 years.**



## 2017 New propane gas tank



- Benefits when gas storage tanks owned by Mirka, price comparison between suppliers.
- Gas supplement agreement done by Mirka, Adven processing the gas to steam => challenge to follow up gas amount in the storage tanks. Requires good cooperation between Mirka and Adven
- Tax refund for usage of propane gas which is directly in contact with the end product.

## Oil free production in Jeppo



- Yearly consumption of heavy fuel 2013 1200 t
- 2013 Bioenergy plant together with Ekokem, operated by Adven today
- 2016 conversion of Adven oil boilers to biogas, methane and propane us
- 30.05.2016 HF free production plant in Jeppo.

# Mirka's production locations and energy solutions

- **Jeppo:** bioenergy and recovery energy, biogas, bio methane and propane
- **Karis:** district heating made by wood chips
- **Oravais:** district heating made by pellets
- **Jakobstad:** district heating

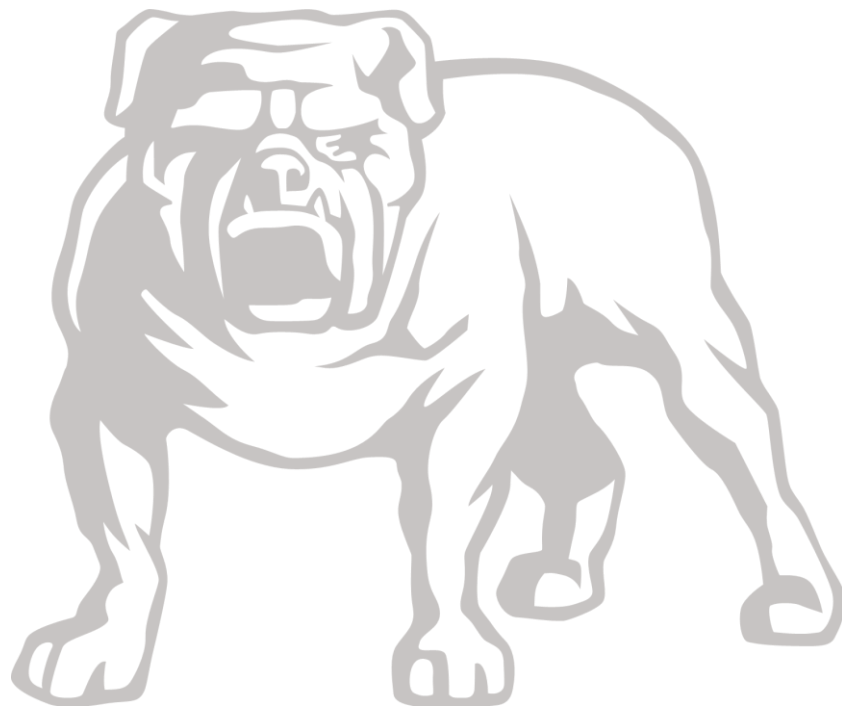
**MIRKA**



# Mirka Magic

"Dust-free sanding made by  
bioenergy, biogas, bio methane"





[www.mirka.com](http://www.mirka.com)

