



Exorka ehf.

Húsavík, Ísland

pres. by Magnús Gehringer, CEO



# Strategy

... we design, build and ..... sell Kalina power plants,

both for geothermal and waste heat utilization. "Offering best available technology and after sales at reasonable prices".



# History

- Founded in april 2001
- Based on Husavik Kalina plant and further research on Kalina technology. Marketing company for power plants owned by power plant designers (VGK a.o.)
- Official license for the Kalina® technology in all of geographical Europe.



### General scope of activity

- Kalina power plants for geothermal and waste heat projects
- Turnkey power plants / Project management incl. general contracting
- Engineering f. geoth. and waste heat
- Feasibility studies
- District heating systems / utilization of residual heat
- ORC cycles and power plants where feasible.



#### Our basis

- Collaboration with Husavik Energy, operating the Husavik Kalina plant, grants best possible technical knowlegde.
- Full access to all research at the plant, also possible to make own research through our own "Kalina know-how Center" (our R&D dept.).
- Full collaboration and backup from VGK geothermal engineers and Prof. Valdimarsson, thermodynamics (University of Iceland)



#### Our reference

- ... Is the Kalina plant in Husavik, Iceland.
- It was poorly equipped at the time (2000), so most of the equipment inside has been changed.
- Running smoothly now to the full satisfaction of its owners, producing approx. 2 MW of electricity.
- Just connected waste incineration plant will increase output by approx. 25%.
- The plant and its technology along with the experience gained until now will be presented tomorrow by Prof. Dr. Valdimarsson.



## Husavik plant from the outside

View over Skjalfandi Bay to the west





# The west side





# Inside



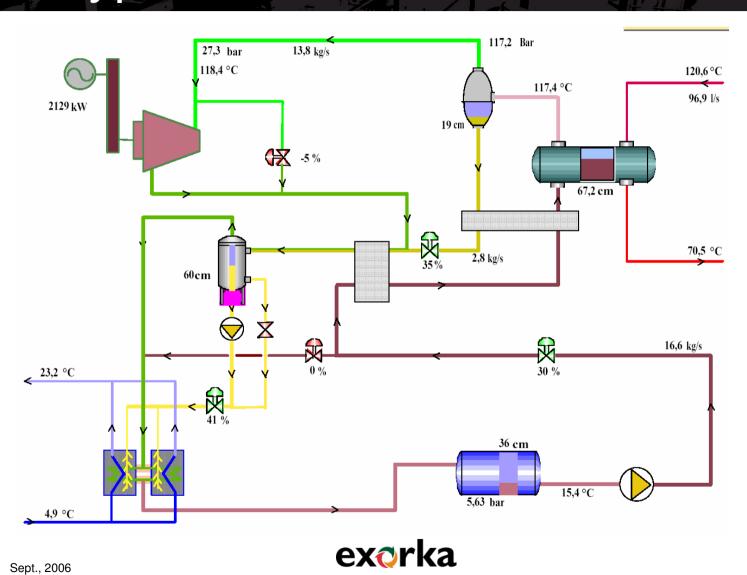


## Turbine, tank, pump, separator, ....



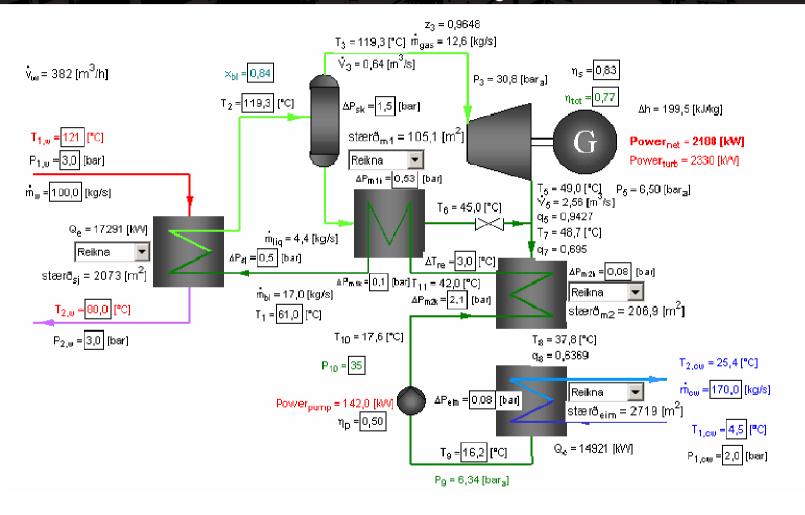


### Typical control monitor view



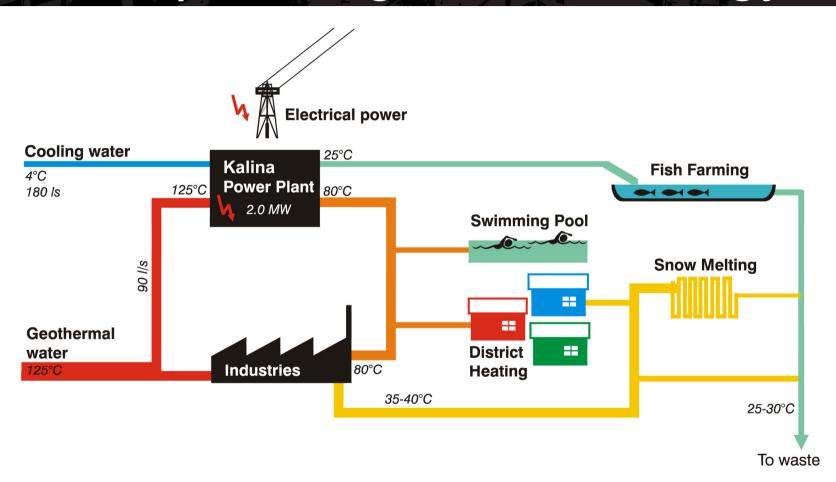
#### Design Software

Kalina Process Diagram





# Multiple usage of the energy





## The company today

- Headquarters in Husavik, N-Iceland
- Office & eng. dept. in Reykjavik
- Co-operating eng. office in Akureyri
- Exorka GmbH in Augsburg, Bavaria (okt.)
- Daughter company in Baden-Baden, end of 2006
- Exorka Benelux b.v. in preparation



#### Actual situation

- Actual projects with offers made or being made:
- Mauerstetten Bavaria: sales-contract about 5
   MWe turnkey geothermal plant signed 17.11.05,
   value 10,4 mio €.
- Holland, several waste heat plants 1 MWe
- Several 5 MWe plants in Bavaria coming up.
- Bruchsal: participation in ongoing tender.
- Own concession "Weilheim" Bavaria for 3 years.
- Our projects usually feature Cryostar turbines, closer collaboration with Cryostar is expected.



## Future projects

Bavaria Germany: 10 – 15 other projects 3,5 to 5 MW.

Rhine-Valley and Switzerland: 3 projects next 3 years.

Turkey: 3 plants 3 MWe next year

Rumenia, Hungary, Russia and other countries.

Iceland: 2 plants with a total of 20 MWe.

Great Britain & Holland: huge waste heat market

While oil prices increase, environmental aspects get more important and C0<sub>2</sub> emminsions are expensive (Kyoto), we have a future.



#### **Bottom line**

 Exorka is still the only company in the world having real practical experience in designing <u>and</u> operating a geothermal Kalina plant. This is an advantage both for us and (not least) for our customers.



#### **FAQ: License situation**

- To my best knowlegde....
- ...only three (3) companies hold a valid license to build Kalina<sup>®</sup> power plants in Europe.
- ...Kalex SG-2, SG-4 a.o. cycles are based on different patents and therefore should not be confused with the Kalina<sup>®</sup> cycle.
- ...no Kalex power plants have ever been built.





Thank you for your attention!
 Please contact us if you have any questions:

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