



PROGRAMME FUNDED BY THE EU



"INOGATE Technical Secretariat & Integrated Programme in support of the Baku Initiative and the Eastern Partnership energy objectives" Project

**BUILDING PARTNERSHIPS FOR
ENERGY SECURITY**

www.inogate.org

INOGATE Study Tour/Workshop

Energy Efficiency & Renewable Energy Sources



**EE project:
Federal Computing Center (BRZ),
site owner's view of project**

May 15, 2013, Vienna, Austria

Andreas Kainrath - Head of Facility Management, BRZ

www.inogate.org



CURRICULUM VITAE



Andreas KAINRATH

- Born 1959 in Austria
- Married, 2 children
- EUREM Energy manager (2013)
- Technical engineer, university of applied sciences (2003)
- Expert third-party (1998)



BRZ

- Energy Manager (2012)
- Head of Facility Management (2008)

Career

- Leading positions in Austrian banking groups (Austria and CEE)
- Construction Company (Austria, south America)



MANAGEMENT SUMMARY (1/2)



Based on an energy reduction program in 2010, BRZ planed to reduce 25% of electrical energy from database 2009 within 3 years till 2013.

By the end of 2012 several tasks and projects have been initiated an finalized or are still on going to increase and continue the goal of implementing standard procedures.

- On the one hand we are very proud that we have achieved this goal of 25% reduction at the end of 2012. Savings of more than 4.5 GWh p.a. equal to approx. 950 tons CO₂.
- On the other hand and in addition we are able to fulfil European law, by a prohibition of using hazardous liquids (CFC chlorofluorocarbon) to operate cooling machines not later than 2015.



MANAGEMENT SUMMARY (2/2)



Finally several changes in daily operation took place.

- An environment policy was announced by our board of directors in November 2010.
- Environment teams were founded and are working in regular meetings.
- Our Procurement is forced to act in ecological form, based on European and national law.
- Internal and external communication about our environmental strategy was implemented.
- **Our Mission statement “BRZ goes green”**



FREE COOLING PROJECT (1/2)



Implementing a Free Cooling Unit to substitute conventional but not ecological heat exchanger equipment

AS IT WAS



IN PROGRESS



FREE COOLING PROJECT (2/2)

PLAN:

AIR COOLER



RÜCKKÜHLER

PUMPEN



VL KW
9° C

RL KW
16° C



PUFFER
KW 9° C



VL KW
9° C

RL KW
16° C

HEIZUNG BÜRO 22° C



WÄRMEPUMPE

Quelle: www.daikin.com

VL HZG
55° C



RL HZG
35° C

PUFFER
HW. 55° C



TECHNICAL FIGURES



Cooling capacity

- Cooling liquid R22
- (GWP100 global warming potential = 1.700)
[see R718 = H₂O ... GWP100 = 0 !]

Plan – Free Cooling unit with 1.250 kW

Operating hours: Data centre (365 days x 24 h)
= 8760 hours per year

Energy Failure Potential (Risk)

Potential of energy supplier by total blackout less than 30 minutes per year (covered by uninterruptable power supply generator and batteries)

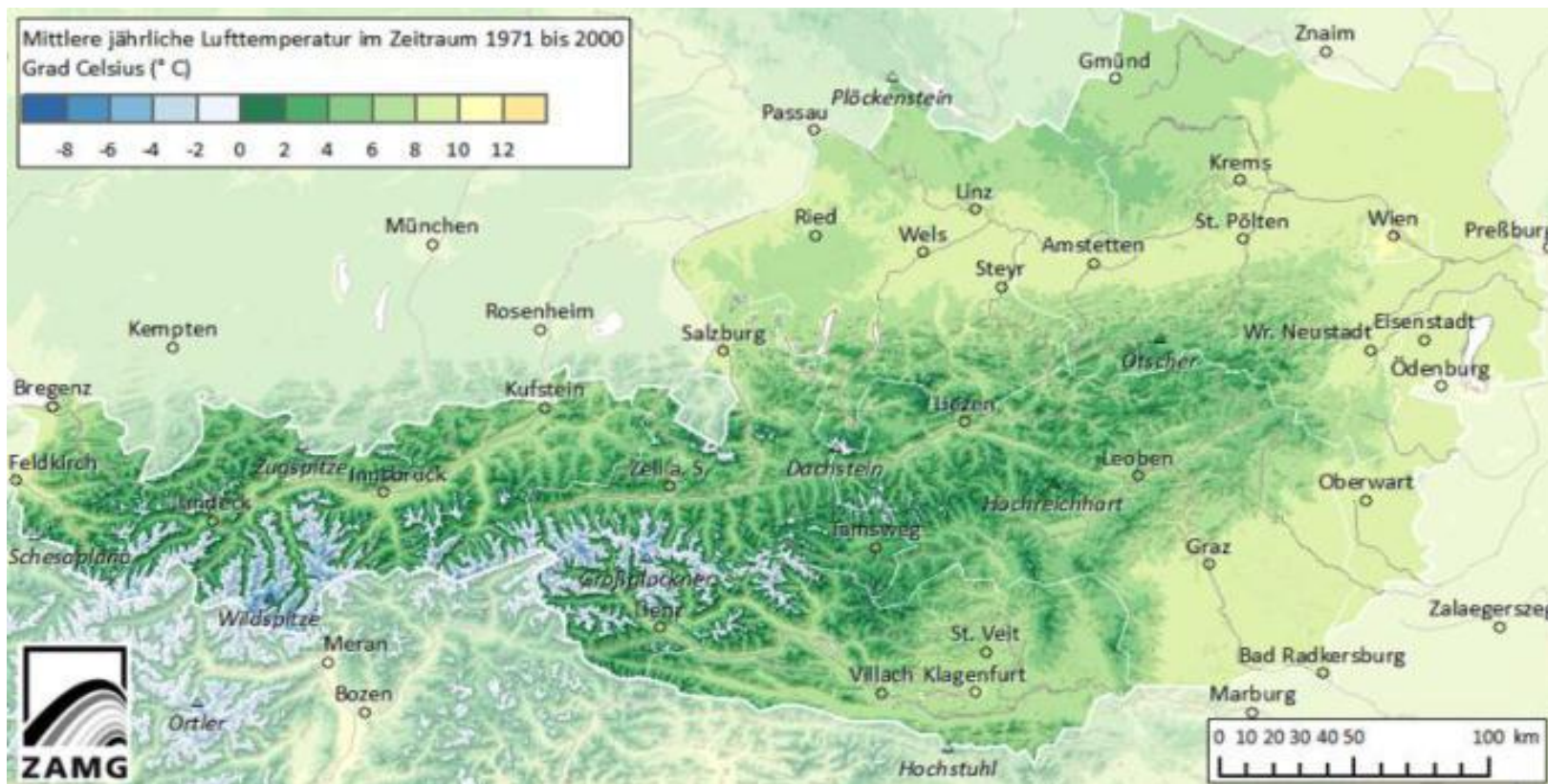


PROGRAMME FUNDED BY THE EU

WEATHER CONDITIONS

Weather Conditions: Austria, Vienna

Estimated 3,000 hours per year (October-March)
outside temperature will be less than 5° degrees C



BUSINESS CASE



- **Operational expenditure (OPEX)** Base 1,900 Mio. kWh electrical energy approx. 238 TEUR p.a.
- Plan 1,000 Mio. kWh electrical energy approx. 125 TEUR p.a.
- SAVING approx. 113 TEUR p.a.
- **CO² reduction potential**
- Base 1.9 Mio kWh equal to 648 t CO₂ [calc. 0.360 kg CO₂/kWh]
- Plan 0.9 Mio kWh equal to 324 t CO₂ [calc. 0.360 kg CO₂/kWh]
- SAVING approx. 324 t. CO₂ p.a.
- **Capital expenditure (CAPEX)**
- Free cooling equipment, pipes, transport (truck crane), implementation building system, permit INVESTMENT approx. 350 TEUR
- **Allowance for Depreciation** Fixed assets 10 years
- **Statically Amortization 350/ 113**
- RETURN ON INVESTMENT 3.1 years





IT for Austria

www.inogate.org



Andreas Kainrath
Andreas.Kainrath@brz.gv.at
Vienna, May 15th 2013