Socio – Economic Aspect of Cogeneration in Krško NPP

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GEN energija mission and vision

Vision:
Building a safe, reliable, sustainable and competitive energy future for Slovenia

Mission:
Providing a reliable supply of low-carbon electricity from sustainable and renewable sources at competitive prices.
Cogeneration options in Krško NPP

District heating:
- Distance from NPP:
  - Krško ≈ 2.3 km / Brežice ≈ 7 km
- Population: 6,500 (Brežice) and 8,000 (Krško)
- Thermal power of the source: 70 MW
- Heat demand: 123,000 MWh/a

Process steam (pharmaceutical and paper industry):
- Distance from NPP ≈ 3 km
- Thermal power of the source: 60 MW
- The amount of steam: 630,000 t/a
- Operating time of production: 8,580 h/a
Economic analysis - District heating

Extraction on turbine

HEAT SOURCE
EXTRACTION 4 NEK (70 MW)

BACKUP SOURCES
EXISTING BOILERS + GAS BOILER+HST

DISTRIBUTION SYSTEM
HOT WATER PIPING (120/60 °C)

The heat price for consumers is regulated according to the special Act!
Economic analysis - a comparison with the current situation

The cost of unit of thermal energy produced by individual heating systems in Krško and Brežice

Current systems and equipment (excluding investments)

New devices and systems (with the investment)

Competitive prices!

Average SLO heat price: - 66 EUR/MWh (2013)
District Heating and the consumer

- Very competitive prices of heat
- Convenient heat without worries
- Connection on the grid free of charge
- Installation of a small heat exchanger in home
Economic analysis - Industrial Steam

Supply of steam is not regulated!

The cost price of steam from existing boilers: cca. **30 €/t** (mainly from coal) -> Vipap

The cost price of steam from new systems which are environmentally acceptable around **40-50 €/t** (natural gas) -> Krka and Vipap (in future)
Industrial steam and the industry

- Cheap, Reliable, safe and environmentally friendly source of energy
- Industry can focus on their primary occupation without concerns related to steam production
- Companies can advertise their environment friendly production
- Opportunity to attract new industry
WHY Nuclear Cogeneration in Krško?

- Economics
- Greater public acceptance of nuclear energy
- Environmental Benefits
WHY Nuclear Cogeneration in Krško?

Construction of NEW NPP in Krško JEK 2
GEN Visitor center:

A modern interactive multimedia visitor center

- A new visitor center, opened 2011 – near Krško NPP
  - Main focus on nuclear energy and technology, **explaining nuclear within the context of electricity production in Slovenia** (energy mix)
  - **Experimentarium**, for promotion of science and technology among youth

- **40,000 visitors** within the first five years

- Close cooperation with Krško NPP and Krško HPP for site visits and joint presentations

![Structure of visitors in 2015](chart.png)
www.eSvet.si
web portal on energy and the energy industry

Raising interest in, and improving the perception of, topics associated with energy and the energy industry
Conclusion

• Cogeneration could present new business opportunities
• Financial benefits
• Greater public acceptance of nuclear energy
• Cleaner and friendlier environment
• ...

Thank You