Energy Efficiency and the Ukrainian paradox
Maria Grajcar

• **Paradox:** the situation in Ukraine has led to a renewed interest in energy efficiency in the frame of the high-level discussions on a 2030 climate and energy framework

• District heating and energy security

• Facts and figures – district heating and CHP in Germany

• Strategy for the sector: German experience, policy recommendations and the independence of the sector

• “give me 3 minutes for proving that IEA projects on district heating make sense”
ENERGY SECURITY VS. SECURITY OF SUPPLY

- IEA definition: uninterrupted availability of energy sources at an affordable price
- risk due to
  - poor energy efficiency
  - the limited number of suppliers and supply routes
  - rising prices
CONTRIBUTION OF DISTRICT HEATING. A LOGICAL SEQUENCE

- More efficiency in DH sector (CHP) + renewable energy →
- reducing primary energy use → reducing energy imports and
- enhancing energy security at the desirable level

- Energy efficiency calculated by: primary energy factor
- More relevant in Ukraine (DH covers cca. 60 % of heat and hot water demand, 39 % of citizens were supplied by DH in 2012) than in Germany
ABOUT OUR MARKET

... District Heating market share

Citizens served by DH

tag target expansion of the district heating market share to 25 - 40%
FACTS AND FIGURES – DISTRICT ENERGY IN GERMANY

Fuel use in CHP 411.915 TJ

- Natural Gas: 48%
- Lignite: 12%
- Hard Coal: 32%
- Biomass and waste: 7%
- Others: 1%

Fuel use in heat only installations 52.240 TJ

- Natural Gas: 77%
- Heating Oil: 6%
- Lignite: 1%
- Hard Coal: 6%
- Others: 2%
- Biomass and waste: 8%
GERMAN WAY TO SUPPORT CHP AND DHC

Rise proportion of RES in gross final energy consumption

District heating production including CHP, heat accumulators and electric boiler (P2H)

Energy system

- CHP plant
- Heat plant/boiler
- Power to heat
- District heating system
- Heat storage
- Wind
- Solar

Electricity system
The CHP Act (German KWKG) - today

» Increasing the share of CHP electricity in Germany to 25% until 2020

» Grid operators pay a fixed premium for CHP electricity (1.5 for conventional CHP to 5.11 ct/kWh for Micro-CHP) on top of the market price for a limited time

» Additional premium for CHP plants that take part in the EU Emissions Trading System (+ 0.3 EUR ct/ kWh)

» Support for district heating (DH) grids (30% of the construction costs) based on CHP as heat sinks within this support system

» Costs for the support are shared among all electricity consumers (currently 0.002 – 0.05 ct/kWh)

» Support for thermal storage (heating and/or cooling) used in conjunction with CHP plants for the integration of renewable energy sources in the energy system
What can you do with a 3000-page-book?

- Dead Souls by Nikolai Gogol
- Under Western Eyes by Joseph Conrad
- The White Guard by Mikhail Bulgakov
- The Radetzky March by Joseph Roth
- Requiem by Anna Akhmatova
- The Passion According to GH by Clarice Lispector
- Report from the Besieged City by Zbigniew Herbert
- Suite Francaise by Irene Nemirovsky

combined

2000 pages

Source: www.geek.com
» Why technical guidelines – our Target:

Technical self-administration of the sector as the foundation of lobbying activities.
AGFW Technical Guidelines

- Technical rules
- Technical bulletins

AGFW work sheets (W)
- AGFW work sheets (W)
- Technical rules from other organizations

AGFW fact sheets (L)
- AGFW fact sheets (L)
- AGFW notes (I)

AGFW notes (I)
Code of Practice - Structure / seven main fields

1. district heating in general
2. heat metering and billing
3. heat generation
4. heat distribution
5. customer installations
6. qualification requirements
7. operational safety and security
What does „compilation of the Code of Practice“ imply?

The AGFW Acknowledged Code of Practice is the result of a continuous cooperation of a multitude of voluntary employees from the public utility companies and the full-time employees of the association.

Some facts:

- Approximately 1,000,000.00 EUR worth of underlying technical expert reports
- About 10 employees of the AGFW office in „Engineering and Standardization“ as well as „Organizational and Operational Safety“
- About 700 employees from public utility companies are organized in 50 committees for the generation of the technical guidelines and the standardization
THOUGHTS ON POLICY RECOMMENDATIONS

• **Similarities in the ownership**: most DH systems in Germany are owned by multi-utilities (in German: Stadtwerke) providing electricity, natural gas, water, waste management.

• **Privatization issues**: the law on privatisation does not allow privatisation of district heating assets and pipelines cannot be privatised, the law on heat encourages private-sector participation in the DH sector, the trend in Germany: Remunicipalisation (putting energy infrastructure back into public hands)

• Supporting legal framework? Lean

• **Reforming DH sector** was not done on the same scale as power sector reforms – DH systems have been transferred to local authorities, improving policy issues within local authorities will contribute to better policies for DH

• **Cost allocation between power and heat production** – if all benefits are allocated to electricity, heat produced at CHP plats is sometimes more expensive than that produced in heat-only boilers
1. Standardized heat supply contracts according to Ordinance on general conditions for the supply of District Heating (AVB FernwärmeV)

2. Most of the partners of DH utilities are: companies, collection payment rate almost close to 100%

3. No price regulation, no tariffs.

Independence of the district heating sector through technical knowledge
‘Towards 4th generation district heating (4GDH)’
Shows systems can successfully be run at much lower supply temperatures

‘Integrating renewable energy and energy from waste’
Enables customers and businesses to devise strategies for renewable energy and waste heat in district heating networks

‘Improved maintenance strategies for district heating pipelines’
Produced a tool that will enable a marked improvement in risk management for district heating DH companies

‘Calculation tool for primary energy factors in DHC systems.’
The tool provides a quick and precise assessment of PEF and GHG indicators for specific DHC systems.
STRATEGIES ON THE MAINTENANCE OF DISTRICT HEATING SYSTEMS
Hypothesis that the degradation of PUR is caused by thermo-oxidation due to oxygen diffusion through PE casing was not confirmed. The shear strength decreases fast at the beginning and then reaches a constant value which depends on temperature but not time.
In bed its 6AM you close your eyes for 5 minutes, its 7:45. At the meeting, its 1:30, close your eyes for 5 minutes, its 1:31.

"Honey, I’m making a deposit into our retirement savings."

Before and After Marriage

Happy Independence Day!!!!!!

Happy Inde.. mm.. forget it..

Source: 2014independenceday.com
Thank you for your kind attention.

http://wallpaperswide.com/kiev_panorama-wallpapers.html
AGFW - WHO WE ARE

• **AGFW** is the independent and impartial association in Germany promoting energy efficiency, (district) heating, cooling and CHP at national and international levels.

• **AGFW** reunites more than 500 (regional and municipal) district energy suppliers, consultants, personalities and industrial operators of this industry (component and system manufacturers, manufacturing and assembling companies, testing institutes, …) in Germany and Europe.

• **AGFW** represents over 95% of the heat load connected to German district heating systems – the largest scale in Western Europe.

• **AGFW** means over 40 years of experience in this field. Established 1971 we have a long and distinguished track record of delivering energy efficiency solutions to our members and to the society.