

Short presentation of Norsk Energi

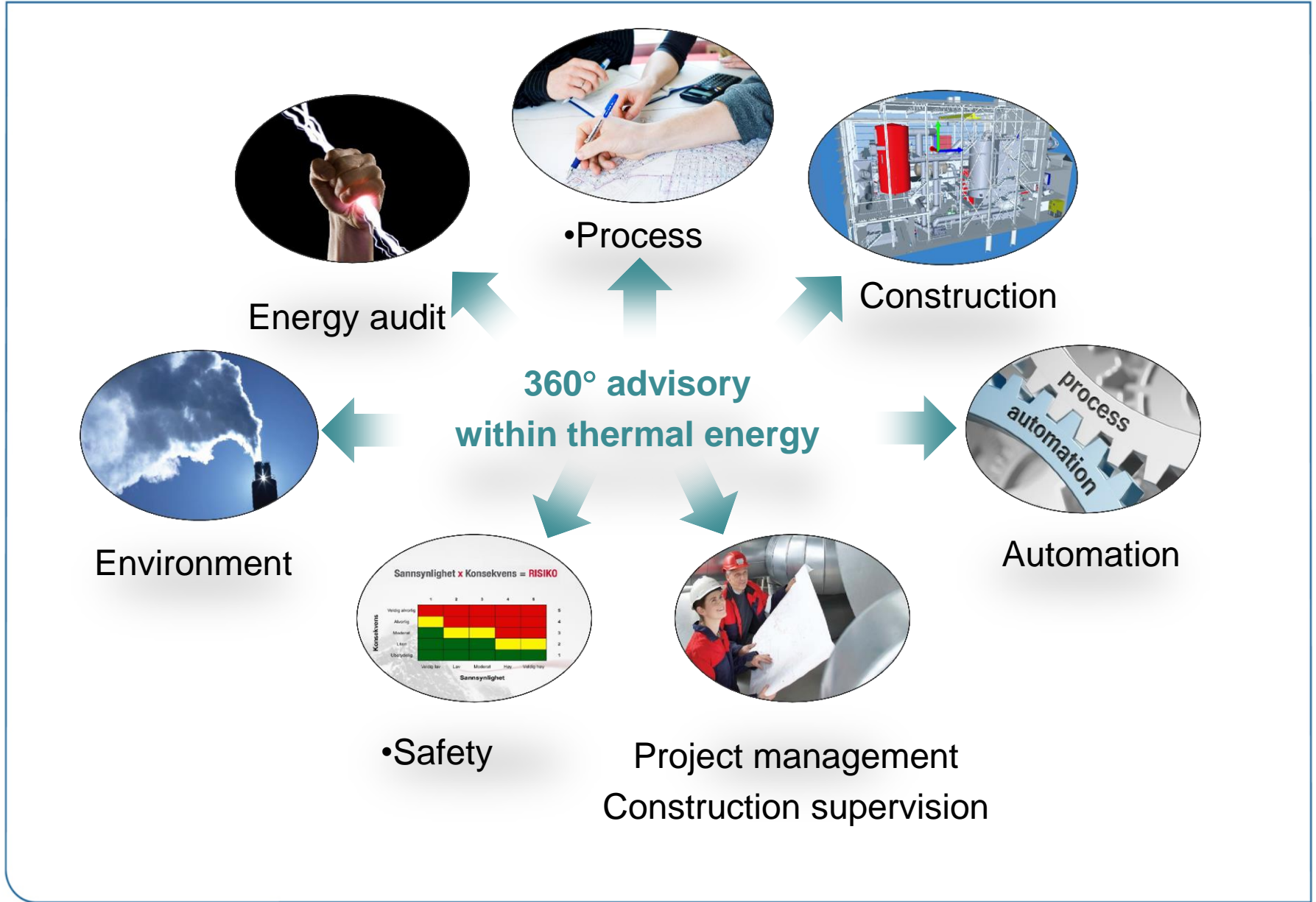
"Environment Protection and Climate Change" Programme 08-09 May 2019



NORSK ENERGI

- Association established in 1916
- About 100 corporate members
- 80 experts with BSc, MSc and PhD
- Consultancy, engineering, analysis, capacity building and training
- Independent knowledge centre
- 90% of turnover from Norwegian projects
- 5 % international projects

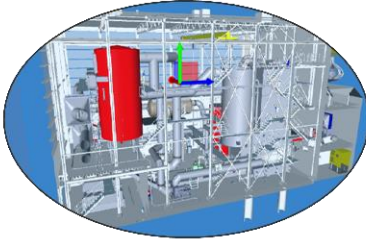




Energy audit



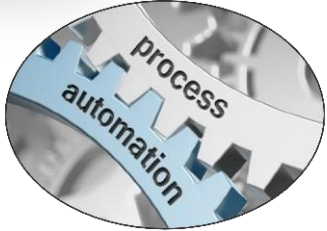
•Process



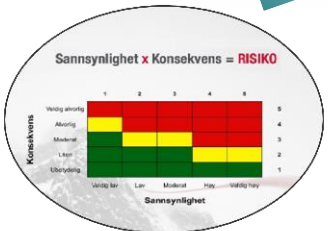
Construction



Environment



Automation



•Safety

Project management
Construction supervision

We promote green development



Energy efficiency in industry



Fossil free heating and cooling systems



Environmental friendly and energy efficient buildings

Expertise on industrial waste heat utilisation



Utilisation of industrial hot off gases

Heat recovery

Energy efficiency

Renewable energy

Analysis of energy- and production data

Development of technical solutions

Piping

Profitability analysis

Energy management according to ISO 50001

District heating boiler houses and distribution networks



Switch to renewable heating and cooling

Utilisation of low temperature waste heat sources

Simulation of distribution grids

Analysis of demand for heating and cooling

Recommendation of technical concepts

Piping

Investment and profitability analysis

Energy management according to ISO 50001

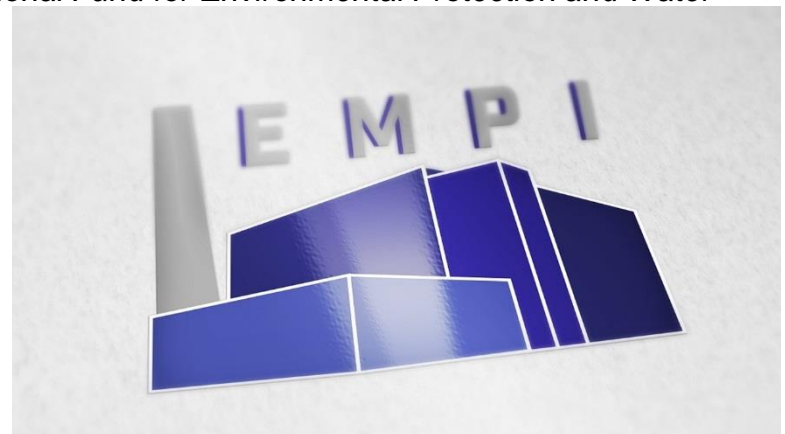
Energy management in Polish industry

Capacity building programme to implement energy management according to ISO 50001 in 9 Polish companies
In cooperation with National Energy Conservation Agency (NAPE)

- Project name: EMPI, Energy Management in Polish Industry
- Result: Establishment of energy management according to ISO 50001 in 9 Polish companies
- Budget: 500 000 EUR = ca. 4,5 mill NOK.
- Project period: Mars 2016 – Oktober 2017
- Financing: EEA Grants/Norway Grants under programmet PL04 «Energy saving and promotion of renewable energy».

National operatør for PL04 was *Ministry of Environment og National Fund for Environmental Protection and Water Management*

- Project web site: <http://empiproject.eu/index.php/home/>



Norsk Energi's environmental profile

- ❑ Environmental advisory
 - New Directives, applications for environmental permits
 - Environmental impact assessments
 - Air emissions dispersion modeling
 - Environmental audits
- ❑ Climate mitigation advisory
 - GHG accounting and emissions factors
 - Black carbon
 - Energy efficiency
 - Renewables
- ❑ Capacity building and training, international projects



Aker Kværner –use of biofuel for CO₂ capture at Kårstø - 15 MW boiler plant

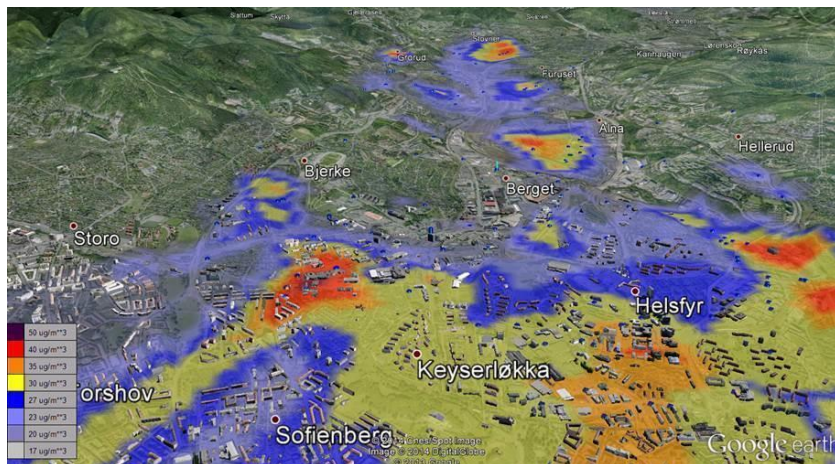


Emission measurements in Island 2007

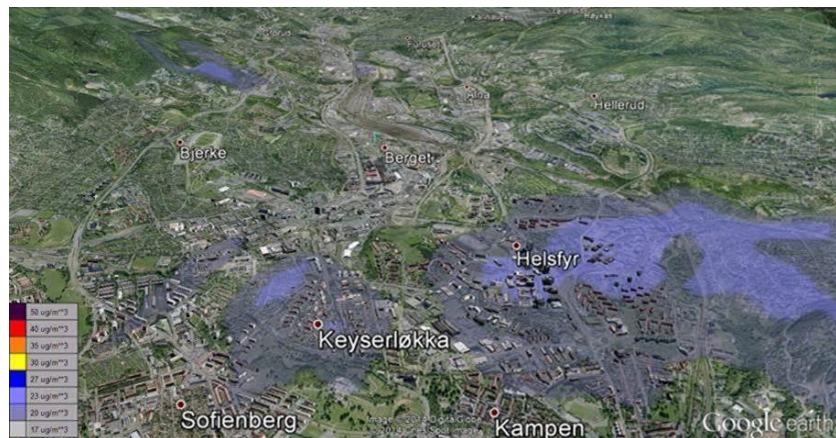


Capacity building and development of climate projects in Ukraine

Emission and dispersion modeling

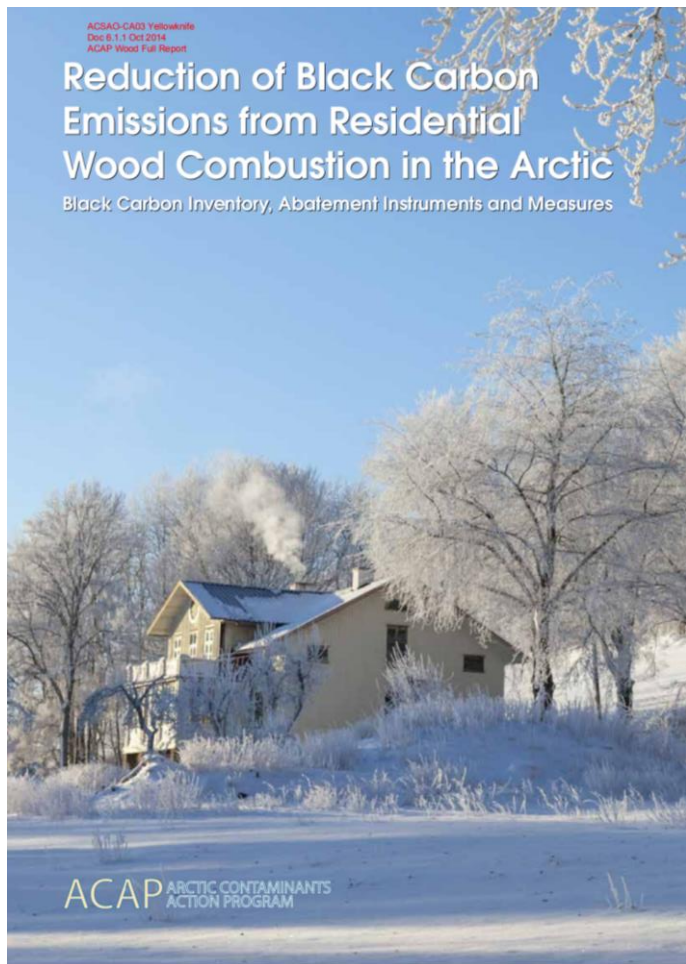


Situation before new district heating plant . NO₂ (hourly mean)



Situation after new district heating plant . NO₂ (hourly mean)

Reduction of Black Carbon Emissions from Residential Wood Combustion in the Arctic



ACAP ARCTIC CONTAMINANTS ACTION PROGRAM

SINTEF

NORSK ENERGI

Norsk Energis part:

Black Carbon Emission Inventory – methodology and results

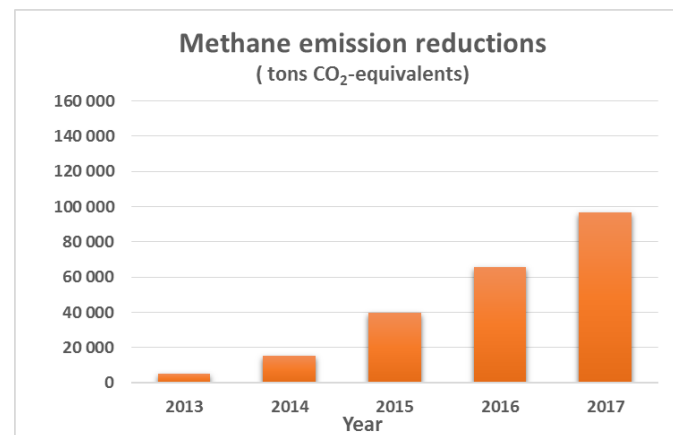
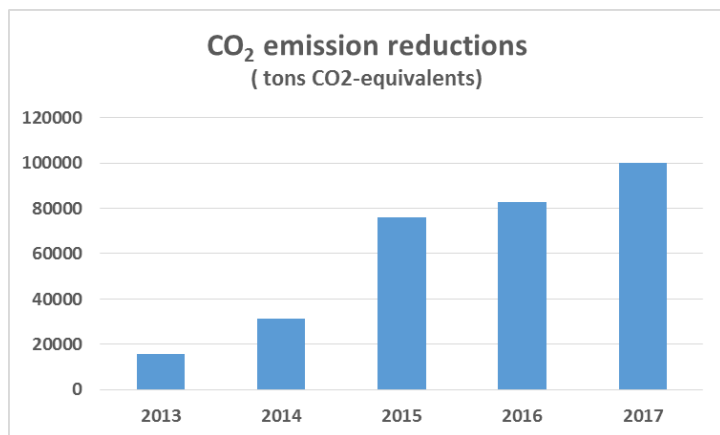
Hot Spot Ko7 Komi Bioenergy Program – Reduction of CO₂ emission from wood waste



Waste from timber and pulp and paper industry was mostly left at the landfills before 2013



75 boiler houses converted from coal and electric power to biofuel since 2013



Projects for Norwegian Environment Agency



Veileder skorsteinshøydeberegninger



*Guideline stack height/dispersion modeling
Norsk Energi , NILU*



*Measures for reduction of emission of
climate forcers from wood combustion
Norsk Energi , SINTEF*

*New projects:
Measures for reduction of CO₂-
emission from industry
Norsk Energi*

*Measures for reduction of NO_x,
PM_{2.5} and SO₂--emission from
industry
Norsk Energi*

*Measures for reduction of PM
emission from wood combustion
- municipalities*

Norsk Energi contributes to the Polish «Stop Smog» campaign

KONFERENCJA PODSUMOWUJĄCA PROJEKT

Kampania edukacyjna

STOPSMOG

18 LISTOPADA 2017 R.

w siedzibie WYŻSZEJ SZKOŁY KULTURY SPOŁECZNEJ

I MEDIALNEJ W TORUNIU,

przy ul. Droga Starotoruńska 3.



- Institute of Environmental Protection – National Research Institute (IOŚ-PIB):
- Multi-variant analysis of eliminating outdated, inefficient and high emissive sources of useful heat, produced by combustion of coal in individual households”.*

Examples of our Co-operation under Norway Grants



In Bulgaria Norsk Energi worked with 6 municipalities on energy efficiency in buildings



Norsk Energi has co-operated with Green Energy Innovative Biomass Cluster to promote increased used of biomass in Romania



Thermal rehabilitation of municipal buildings and boilers in Bulgaria

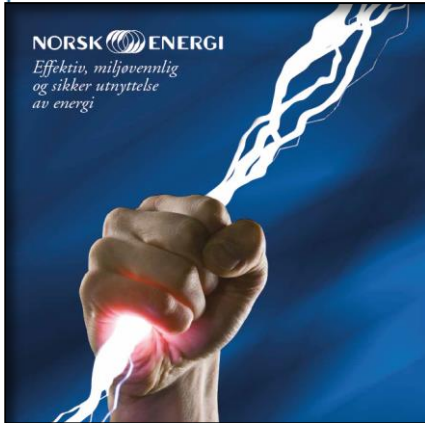
Thermal rehabilitation of municipal buildings and boilers in Bulgaria	
	Norsk Energi has assisted under the framework of the Norway grants programme PIUs of 4 Bulgarian Municipalities in implementation of energy efficiency and renewable energy projects in municipal buildings. 12 building and 2 boiler houses upgraded through this co-operation.
 Bulgaria	
Client: Municipalities of Dobrich, Vratsa, Gulyansty and Burgas (Bulgaria)	Dobrich: Boiler replacement and installation of heating sub-centrals in Municipal Social Complex a kindergarten and. Energy savings – 169 123 kWh/year.
Time Period: 2015 – 2017	Gulyantsy: Design and installation of solar collectors and a heat pump in local hospital of Gulyantsy. Reduction of approx. 100 tons eCO ₂ /year.
Value of Services: Approx. 110 000 EUR	Burgas: Replacement of two old oil boilers serving public buildings and rehabilitation of secondary heating system in 2 schools, with modern woodchip boilers of 1 650 kW in total capacity. Reduction of approx.. 600 tons eCO ₂ /year.
Objectives: <i>Improved energy efficiency of public buildings in Bulgaria</i> <i>Transfer of Norwegian practices on energy management in public buildings.</i>	Vratsa: Rehabilitation of 2 kindergartens and 4 schools with insulation of building envelopes, retrofit of building sub-centrals. Energy savings – 1 314 250 kWh/year. Scope of activities included assistance to the PIU at the Municipalities on all project related issues, including assistance to preparation of technical specification, communication with the Bulgarian Municipalities, reporting to the Programme's operator, advise on technical specifications and procurement, energy management and project management. Training of Municipal energy engineers.
Output: Energy Audit Reports, Project Implementation Documentation	Team members included: Sergei Fashevsky, Hallstein Brandal

Norsk Energi can contribute to:

***outcome 2.5 Systems developed for protection of marine environment**, within atmospheric deposition on marine environment

*** outcome 3, Improved municipal resource management** for example within waste incineration and emission

***outcome 4, first part:**
Increased ability of local communities to reduce emissions



Thank you for your attention

Effective, environmentally friendly and safe utilisation of energy