

Creating the business case begins with industry driven solutions

Solutions on district energy systems – Astana June 2017

Prepared by Oleg Pavlov – General Manager of Danfoss LLC Kazakhstan

Danfoss in brief

- 80 years of experience within energy-efficient technologies
- Solutions ready to combat climate challenge
- Global competence centers for energy efficiency – rooted in Southern Denmark
- Wide product range

Danfoss in Kazakhstan

- Since 2002
- 17 employees
- >7000 Individual Heat points equipped
- Understanding of local specific requirements



Urban leaders are embracing a new vision for supplying energy to their cities, one that combines local renewables, cogeneration plants and district energy in one low-carbon network.

RENEWABLE ENERGY



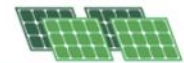
WIND



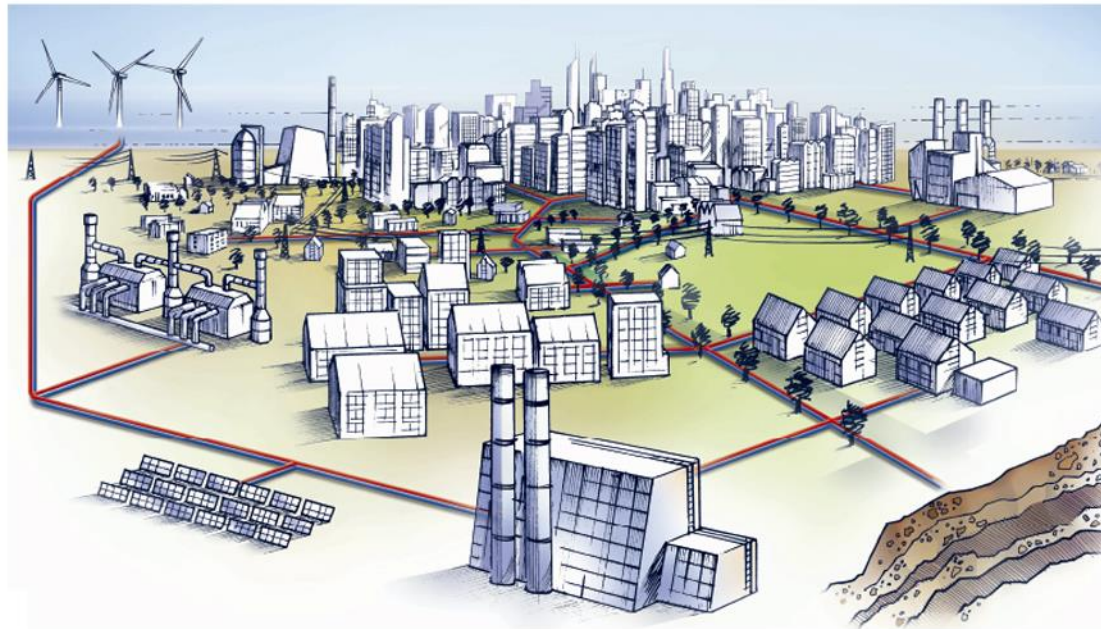
BIOMASS



GEOTHERMAL



SOLAR



SURPLUS ENERGY



INDUSTRIAL SURPLUS HEAT

WASTE-TO-ENERGY



COGENERATION



District Energy Recommendations

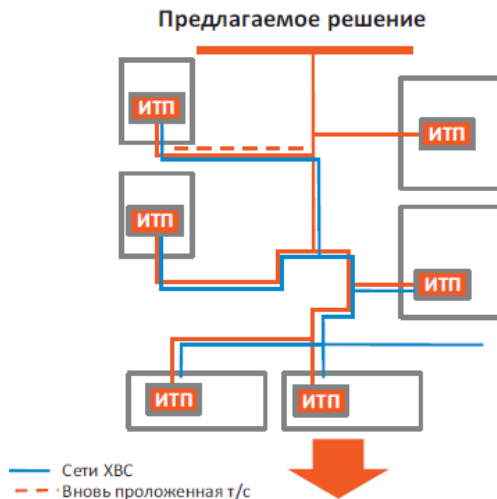
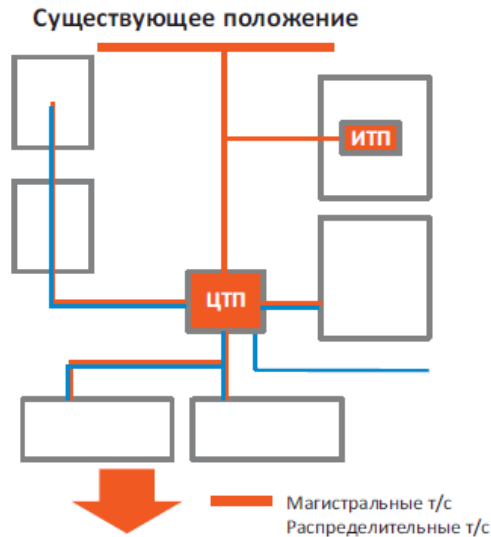
- Short-term investment decisions disfavour District Energy – Long term strategic thinking needed
- Legislation/tax benefits to promote and encourage local initiatives to use renewable energy and waste energy for heating and cooling
- Requirements and measures to be set up for energy efficiency improvements
- Cost transparency of various energy alternatives must be increased
- Create Heating and cooling “city master plans” for the community



Heating the sustainable city with District Energy

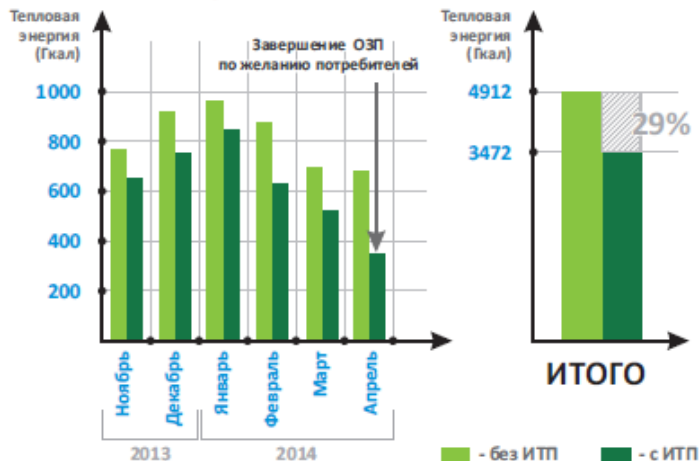
- The idea of district energy is to have an efficient and often large-scale production of heating or cooling in a **centralized, combined heat & power plant (CHP)**
- With a CHP plant the **heating or cooling is co-generated** with electrical power, which yields a very high efficiency utilisation of the energy input.
- The district energy system is unique in the way that it is a **multi-fuel energy system**, which lends itself to an endless range of fuels, renewable, present and future.
- Digitalization

Business case: Modernization of District Heating networks

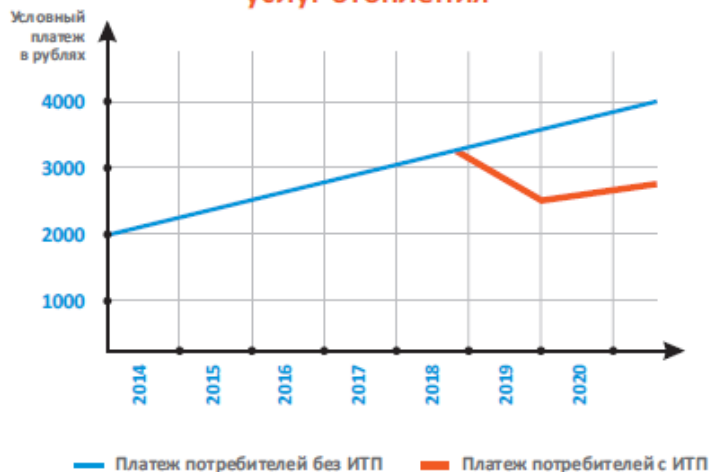


- Smart digital technologies set new standards in DH .
- Effective solutions for increasing system efficiency and integrating renewables energy sources into urban space
- Operation costs optimization.
- Optimal heat and hot water consumption.
- Reliable service based on solid reporting and analysis system

Эффекты по оптимизции потребления т/э (помесячно)



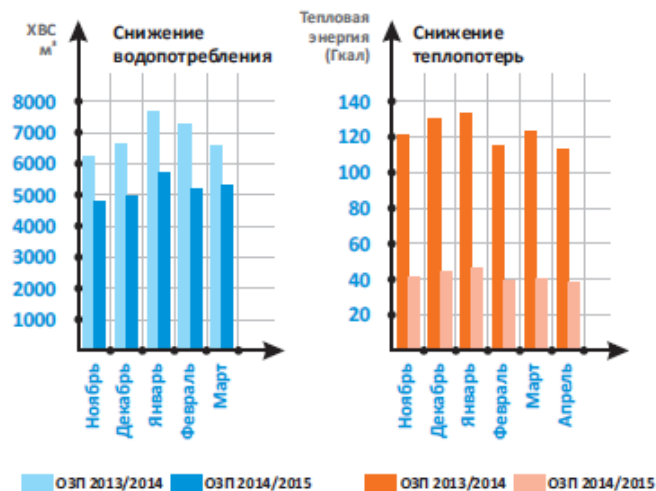
Эффект по оплате услуг отопления



Повышение качества горячего водоснабжения



Дополнительные эффекты



Central Heat Points modernization results

ЭР/ Должности	Кол-во ЦТП	Существующее положение на 01.05.2015		Проект на 01.01.2016		Оптимизация
		Штатная численность на 01.05.2015	Среднее кол-во операторов на ЦТП/мастеров на операторов	Штатная численность на 01.01.2016	Среднее кол-во операторов на ЦТП/мастеров на операторов	Штатная численность
ООО «Пермская сетевая компания»						
ОСП «Пермская» (без ЗТУ)	288	780		167		620
Мастер участка		47	0,06	10	0,06	37
Оператор ЦТП		740	2,72	157	0,6	583
ОСП «Губахинская»	17	37		9		28
Мастер участка			0,00			
Оператор ЦТП		37	2,47	9	0,6	28
Березниковская сетевая компания	26	80		17		63
Мастер участка		7	0,10	1	0,06	6
Оператор ЦТП		73	2,70	16	0,6	57
Итого операторы ЦТП	331	805	2,7	182	0,6	668
Итого численность персонала ЦТП		857		193		711



ENGINEERING
TOMORROW