

# Financing energy efficiency in Bulgaria and other countries from Central and South-Eastern Europe

## Investments in energy-efficiency and reduction of CO<sub>2</sub> footprint in Solvay Sodi

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- The Bulgarian federation of the industrial energy consumers (BFIEC) is a non-profit organization, founded in 2006.
- We develop, represent and defend the associated interest of our members - large industrial consumers of electricity and natural gas in Bulgaria.
- BFIEC has 32 members from base industries that consume over 70% of industrial electricity consumption and over 92% of industrial natural gas consumption in Bulgaria.

Energy efficiency policies are implemented both by reducing consumption, ensuring security of supply in Europe and reducing CO<sub>2</sub> emissions, but also by creating jobs and saving costs for consumers. **Thus Energy efficiency is as a “source of energy” in itself.**

The big challenge – reducing greenhouse gas emissions, promoting the deployment of renewable energy and achieving significant results in energy savings, while **preserving the industrial competitiveness of base industries.**

- ✓ Industrial energy consumption in the European Union has decreased with 15% - from 327 tons of oil equivalent in 2005 to 277 tons in 2013
- ✓ According to the European Commission in 2012, industry accounted for a quarter of EU's final energy consumption.

# Some Energy efficiency measures implemented in BFIEC' member companies

## Mining:

- Changing the fuel for heating from oil to gas;
- Replacement of energy-intensive equipment with more efficient;
- Automation of production processes

## Cement production:

- Introduction of a system for monitoring and control of electricity;
- Construction of compressor facilities;
- Burning of a larger quantity of alternative fuels;
- Utilization of waste heat;

## Metallurgy:

- Installation of steam turbines;
- Installation of indirect heating station;
- Thermal insulation of pipelines and others.

20 ГОДИНИ  
СОЛВЕЙ В БЪЛГАРИЯ



SOLVAY SODI



# The Solvay Group



## Solvay Sodi is part of the Solvay Group

Ernest Solvay founded Solvay in 1863, based on a technological breakthrough; Today Solvay is an:

***International chemical group with headquarters in Brussels, represented in 61 countries, which employs over 25,000 worldwide;***

- A global leader in the production of chemical products.
- 21 global centers of research and innovation.
- The group has a total of 7 soda ash plants (6 in Europe, one in the US) and is the world number ONE producer of soda ash and sodium bicarbonate.





# Soda Ash Production in Bulgaria

- **08/29/1954:** Commissioning of the first soda ash plant in Devnya with a capacity of 80 000 tonnes
- **31/12/1973:** Commissioning of the new soda ash plant; Expansion of capacity to 1.2 Mt/y
- **04/14/1997:** The Government of Bulgaria and SOLVAY sign Privatisation contract of Sodi, Devnya. Major shareholders in Solvay Sodi: SOLVAY (~ 75%) and SISECAM (~ 25%)



**2000:** Solvay Sodi acquires suppliers of basic raw materials for soda ash production: TPP Solvay Sodi, Provadsol, Devnya Limestone



# Solvay Sodi today

- ✓ With a capacity of 1.5 Mt/y., Solvay Sodi is the **largest site in Europe** and within the Solvay Group for the production of synthetic soda ash.
- ✓ Direct employer of 600 people and indirectly more than 1,000 in subcontractors. Safety is **No 1 priority** (as within the Group)
- ✓ During the period 1997-2017 Solvay Sodi and affiliates have invested over **1.5 billion BGN** in the construction of new / upgrading of existing installations
- ✓ Investments achieved optimisation of the use of natural resources, higher energy efficiency, reduction of emissions and others.
- ✓ Of 12.09.2017 another **large-scale investment** was inaugurated: a new state-of-the-art circulating fluidized bed boiler





## 3 big projects

- **CFBB1** - 67,8 MEUR  
Investment, in operation since  
2009
- **DSV** - 24,7 MEUR Investment, in  
operation since 2015
- **CFBB2** - 43,4 MEUR  
Investment, in operation since  
2016



# CFBB at Solvay Sodi power plant: Technology with low emissions rates

- **Main target:**

Satisfy the greater demand of heat energy of the customers at Devnya industrial site by guarantying full compliance with the emission limit values defined by the IPPC:

Individual emissions limit values – 2017			
Parameter	Common stack (Boilers 2, 3 and 6)	CFBB 7	CFBB 8
Sulfur dioxide	< 800	< 200	< 200
Nitrogen oxides	< 1200	< 200	< 150
Total dust	< 100	< 20	< 10
Carbon oxide	< 100	< 100	< 100
Ammonia	-	< 5	< 5

# CFBB at Solvay Sodi power plant: Technology with low emissions rates

## • CFBB advantages

- High efficiency rate
- Smaller construction dimensions
- Flexibility for different types of fuels
- Combustion of worse-quality fuels
- Combustion of wastes
- Low emissions of  $\text{SO}_2$  and  $\text{NO}_x$
- Less corrosion of the construction
- Easier separation of slag and ashes
- Low air excess
- High reliability
- Lower maintenance costs



# DSV at Solvay Sodi power plant: Technology with low emissions rates

- **Advantages of the vacuum distillation installation**

- total capacity 1000t. soda / day
- utilization of waste heat (steam): 67 t / hour
- significant reduction of the steam consumption
- lower solid fuel use
- reduction of CO2 emissions



# Investment in Energy efficiency

## Highlights

- **CFBB 1 and 2**
  - Total capacity - 485 MW
  - **Circulated Fluidized Bed Boiler** - new technology
    - Possibility to use different fuels - coal, biomass, RDF, etc.
  
- **DSV**
  - Capacity - 1 000 tSL/d
  - Distillation under vacuum
    - Possibility to recuperate low pressure steam released before in the atmosphere

## Lowlights

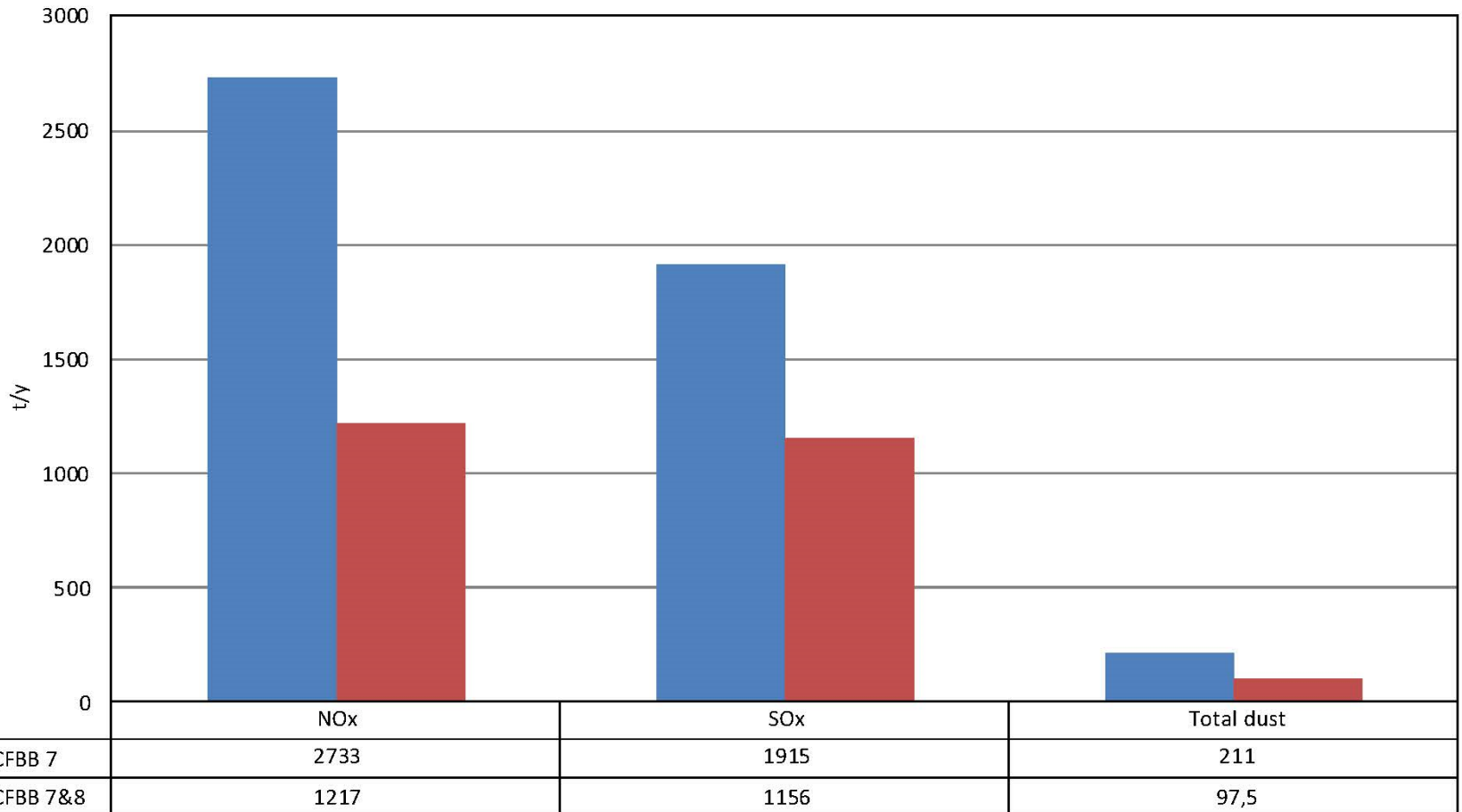
- Lack of biomass and RDF on the market

What we need from you

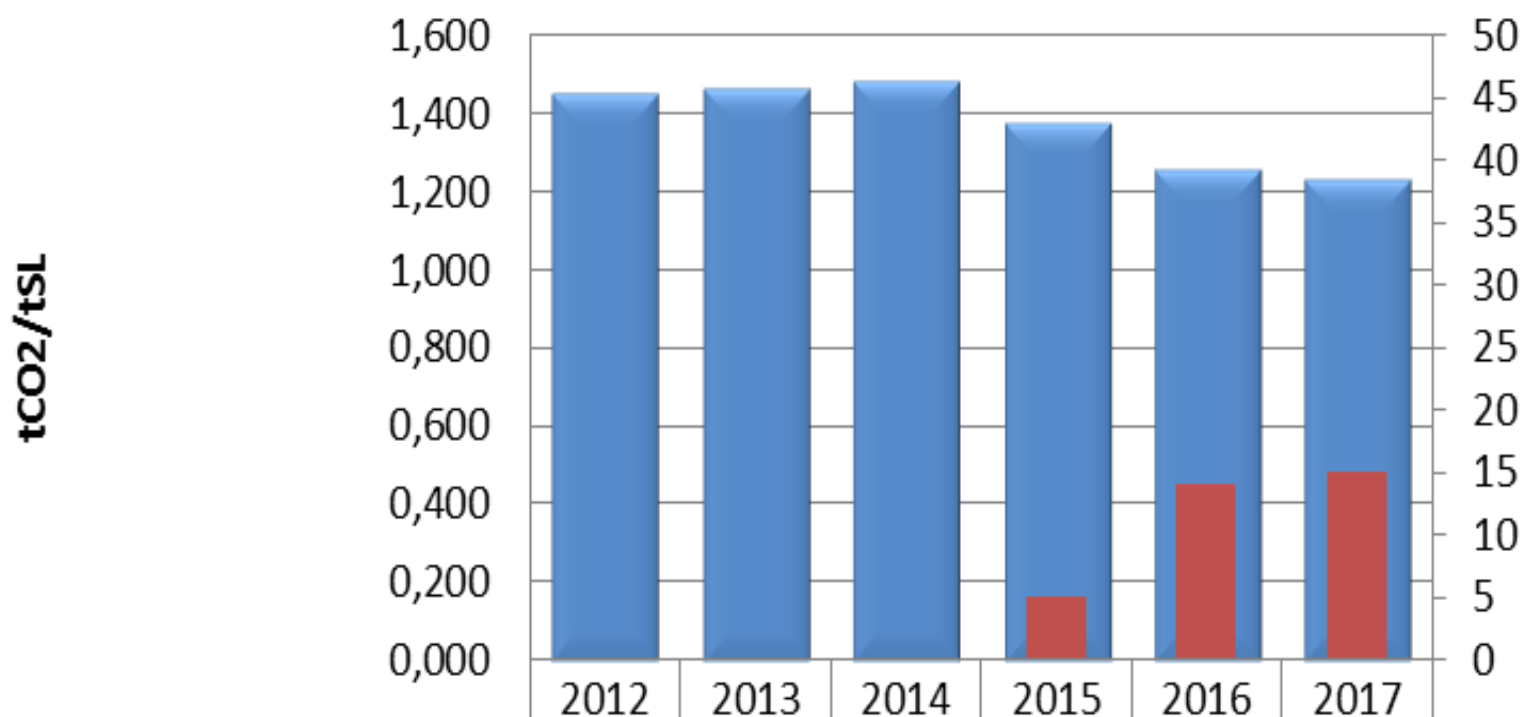


# Expected annual emissions values

Expected emissions values for NO<sub>x</sub>, SO<sub>x</sub> and dust [t/y] after the start-up of CFBB № 8



# CO2 emissions reduction



■ CO2 emissions, tCO2/tSL	1,449	1,463	1,482	1,375	1,254	1,227
■ Emission reduction, %				5	14	15

# Thank you!



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