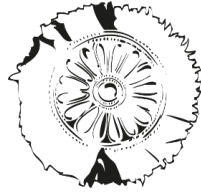




Bioenergy Retrofits for Europe's Industry



CERTH
CENTRE FOR
RESEARCH & TECHNOLOGY
HELLAS



UABIO



Supporting bioenergy retrofits for the Ukrainian energy sector



Webinar 1
22 September 2021

*Bioenergy retrofits for
Ukrainian fossil heating and
power sectors – European
technologies and examples*



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 817999.



BIOFIT Overall Objective & Consortium

Support and initiate bioenergy retrofitting opportunities in five industry sectors



combined heat and power



fossil firing power



first-generation biofuels



fossil refineries



pulp and paper

leading to an increase in the share of renewable energy in the final EU energy consumption

Project consortium:



Why bioenergy retrofitting?

- Lower CAPEX
- Short implementation times
- Reduction of CO₂ emissions & associated costs
- Proven, mature technologies
- Technical compatibility with existing infrastructure (to some degree)
- Others (e.g. employment)

Fossil fuel phase-outs in power & heat sector

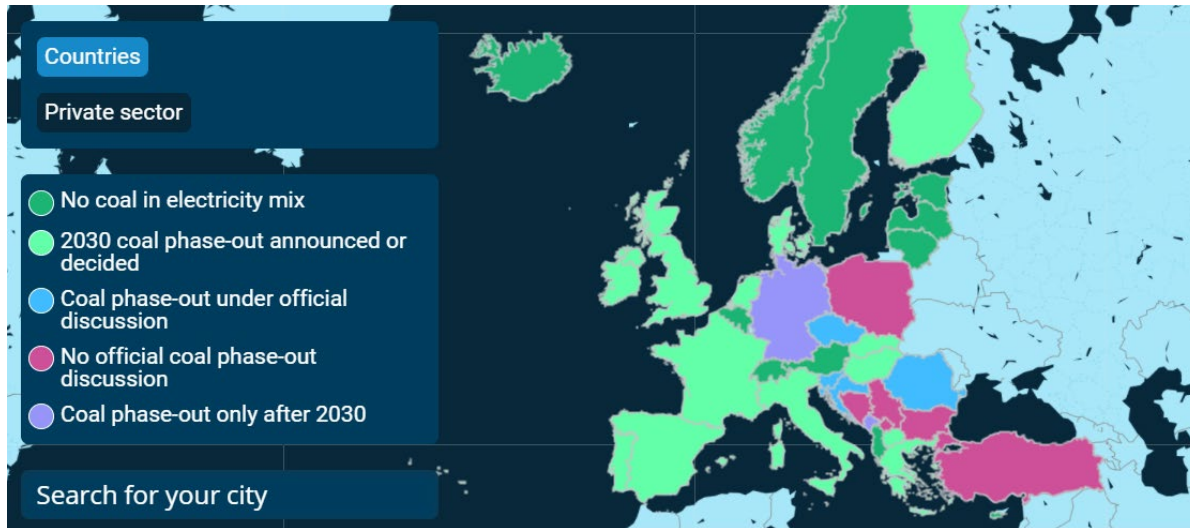
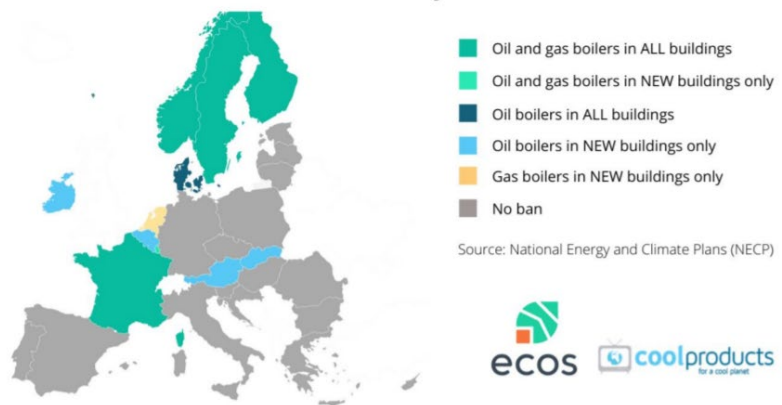
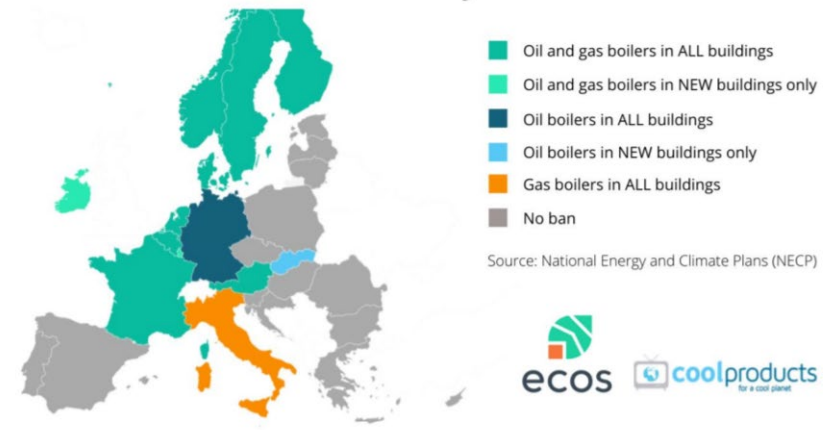


Image source: <https://beyond-coal.eu/>

End of fossil-fuel heating in the European Union. What types of boilers will be banned by 2024?



End of fossil-fuel heating in the European Union. What types of boilers will be banned by 2050?



BIOFIT activities to support bioenergy retrofits

- Develop **10 concrete proposals (Case Studies)** for bioenergy retrofitting together with industry and market actors
- Obtain an overview of **options for bioenergy retrofitting**
- Involve, engage and support **stakeholders and market actors**, providing opportunity for dialogue, and developing best practices and tools
- Evaluate **framework conditions (legal, institutional and political)** to identify - generic and industry-specific - barriers and enablers
- Provide **advice to policy makers** at national and regional level to serve as input for more informed policy, market support and financial frameworks

BIOFIT case studies for power & heat sector

Sölvesborgs Energi peak/back-up boilers (10 + 6 MW)



- Conversion from fossil oil to heavy or light bio-oil

Elektroprivreda BiH / Tuzla Unit 6 (223 MWe)



- Co-firing of biomass (up to 30 % weight) with brown coal
- PF technology

Elektroprivreda BiH / Kakakj Unit 5 (118 MWe)



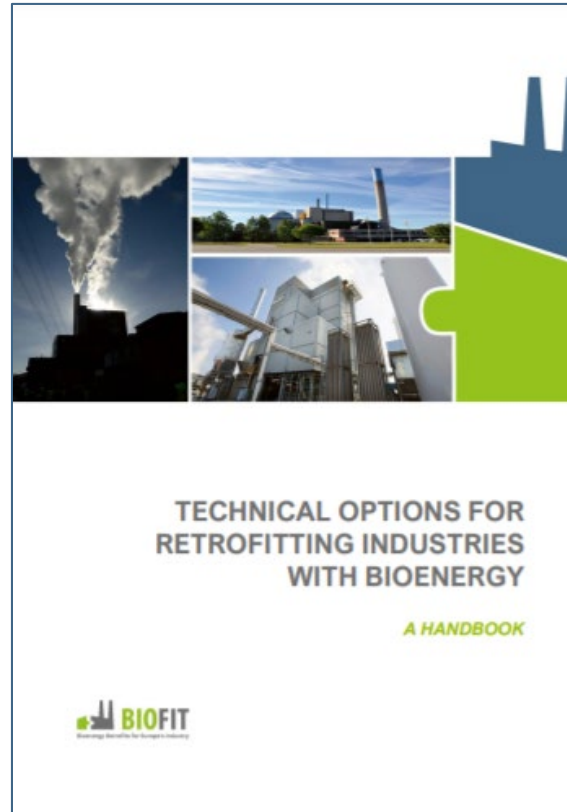
- From lignite firing to 100 % biomass conversion (various local biomass fuels)
- BFB technology

EP Produzione / Fiume Santo Unit 4 (320 MWe) in Sardinia, Italy



- From hard coal firing to 100 % biomass conversion (wood pellets)
- PF technology

BIOFIT project outputs



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HORIZON 2020
BIOFIT PROJECT

**BEST PRACTICE
FACT SHEET**

**RETROFIT OF
VILNIUS CHP PLANT - 2
(LITHUANIA)**

KEY INFORMATION

Leaseholder of plant: UAB "Vilniaus Energija" (Vilnius Lithuania)
 Lease period: 2002-2037 (35 years)
 Plant name: Vilnius CHP plant 2
 Location: Vilnius, Lithuania
 Industry sector: Combined Heat and Power
 Main product of plant: Electricity and heat
 Retrofit measure: one steam boiler (80 MW) changed from gas to biomass combustion
 Beginning of retrofit: 2008
 Start-up after retrofit: 2008
 Capital Expenditure: 11.7 million EUR

TECHNICAL DATA

	INITIAL STATE	AFTER RETROFIT
Electricity production capacity [MW]	24	28
Heat production capacity [MW]	929	929
Main fuel	Natural gas (used in 4 boilers)	Natural gas (3 boilers) and woodchips (1 boiler)
Estimated annual GHG emissions [tCO ₂ e]	260,000	217,000
Estimated annual specific GHG emissions [gCO ₂ e/kWh _{gross}]	210.6	158.1

DISCLAIMER: The information provided in this fact sheet refers only to the period from 2002 to 2037/2038 during which UAB "Vilniaus Energija", a subsidiary of the Veda Group, operated and operated the Vilnius CHP plant heating system under the lease agreement with UAB "Vilniaus Energetika" (the "Vilniaus Energetika" company) and the Vilnius City Municipality.

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**BEST PRACTICE
FACT SHEET**

**RETROFIT OF
AVEDØRE POWER STATION – UNIT1
(DENMARK)**

KEY INFORMATION

Plant owner: Ørsted (called Dong Energy until 2017)
 Plant name: Avedøre Power Station
 Location: Copenhagen, Denmark
 Industry sector: Fossil firing power
 Main product of plant: Electricity and heat
 Retrofit measure: Change from coal to biomass combustion and lifetime extension of unit 1
 Beginning of retrofit: 2015
 Start-up after retrofit: 2016
 Capital Expenditure including lifetime extension: 740 Million DKK (approx. 100 Million EUR)

TECHNICAL DATA

	INITIAL STATE	AFTER RETROFIT
Electricity production capacity [MW]	250	258
Heat production capacity [MW]	350	370
Main fuel	Coal	Pellets
Estimated annual GHG emissions [tCO ₂ e]	Not available	Not available
Estimated annual specific GHG emissions [gCO ₂ e/kWh _{gross}]	Not available	Not available

Visit: <https://www.biofit-h2020.eu/publications-reports/>

BIOFIT virtual business mission to Ukraine



Main goal: promote cooperation and exchange between European industry and private sector players with stakeholders from research, industry and the public sector in Ukraine



Today's agenda

<i>Time (CEST)</i>	<i>Presentation title</i>	<i>Speaker(s)</i>
11:00	Welcome & Introduction to the BIOFIT project (10' min)	Manolis Karampinis , Research Associate, Centre for Research and Technology Hellas (CERTH)
11:10	Setting the sector scene in Ukraine (20' min)	Georgii Geletukha , Head of Board, Bioenergy Association of Ukraine (UABIO)
11:30	Considerations for converting fossil fired steam or hot water boilers to biomass powder combustion (30' min)	Björn Forsberg , CEO & Global Market Manager, WTS AB Powder Burners
12:00	Utilizing present equipment for sustainable fuel conversions (30' min)	Johanna Lindén , CEO, Petro Bio AB
12:30	Coffee break (15' min)	
12:45	Coal to biomass conversions (30' min)	Preben Messerschmidt , Project Director, Power, Ramboll
13:15	Boiler conversions to Bubbling Fluidized Beds (BFBs) (30' min)	Joonas Hämäläinen , Sales Manager, Rebuilds and Conversions, Valmet
13:45	Experiences with bioenergy in district heating (15' min)	Kamila Wagieca , Director Energy & Public Affairs department, Veolia
14:00	Final Q&A / Conclusions (30' min)	Manolis Karampinis , Research Associate, Centre for Research and Technology Hellas (CERTH) & Georgii Geletukha , Head of Board, Bioenergy Association of Ukraine (UABIO)
14:30	End of event	

Next event: biomethane



Підтримка біоенергетичного дооснащення енергетичного сектору України

ВЕБІНАР 2
10 Листопада 2021

Біометан: передача технологій, законодавства та найкращих практик Європейського досвіду

Програма онлайн-семінару

Час	Доповідь	Спікер/спікери
11:00	Привітання та представлення проєкту BIOFIT	Маноліс Карампініс , науковий співробітник Центру досліджень та технологій Еллада (CERTH)
11:10	Перспективи виробництва біометану в Україні	Георгій Гелетуша , Голова правління Біоенергетичної Асоціації України
11:30	Ринок біометану в Німеччині: статус, використання, стимули та успішні приклади	Дірк Бонс , керівник відділу "Відновлювані гази", Fachverband BIOGAS
12:00	Зв'язок з європейськими зацікавленими сторонами в галузі біогазу: платформа зацікавлених сторін DiBiCoo	Домінік Руц , керівник відділу біоенергетики та біоекономіки, WIP Renewable Energies
Перерва (15 хв)		
12:30	Поточний технологічний статус покращення біогазу	Майкл Бейл , заступник начальника відділу технологій біоенергетичних систем, Інститут економіки енергії та технологій енергетичних систем IEE Фраунгофера
13:00	Зелений газ allrounder PlanET	Олексій Мозговой , менеджер із розвитку бізнесу, Міжнародний біометан, PlanET Biogastechnik
13:30	Органічна енергія у всьому світі	Володимир Богатов , менеджер з міжнародних продажів, WELTEC BIOPOWER
14:00	Заключні запитання/Підведення підсумків	Маноліс Карампініс , науковий співробітник Центру досліджень та технологій Еллада (CERTH) та Георгій Гелетуша , Голова правління Біоенергетичної Асоціації України
14:30	Закінчення події	

Information & Registration Link:

<https://uabio.org/events/10791/> & <https://uabio.org/en/events/10791/>

Дякую за увагу! / Thank you for your attention!

Contact

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