

Local peat as supplementary fuel for biomass based boiler plants

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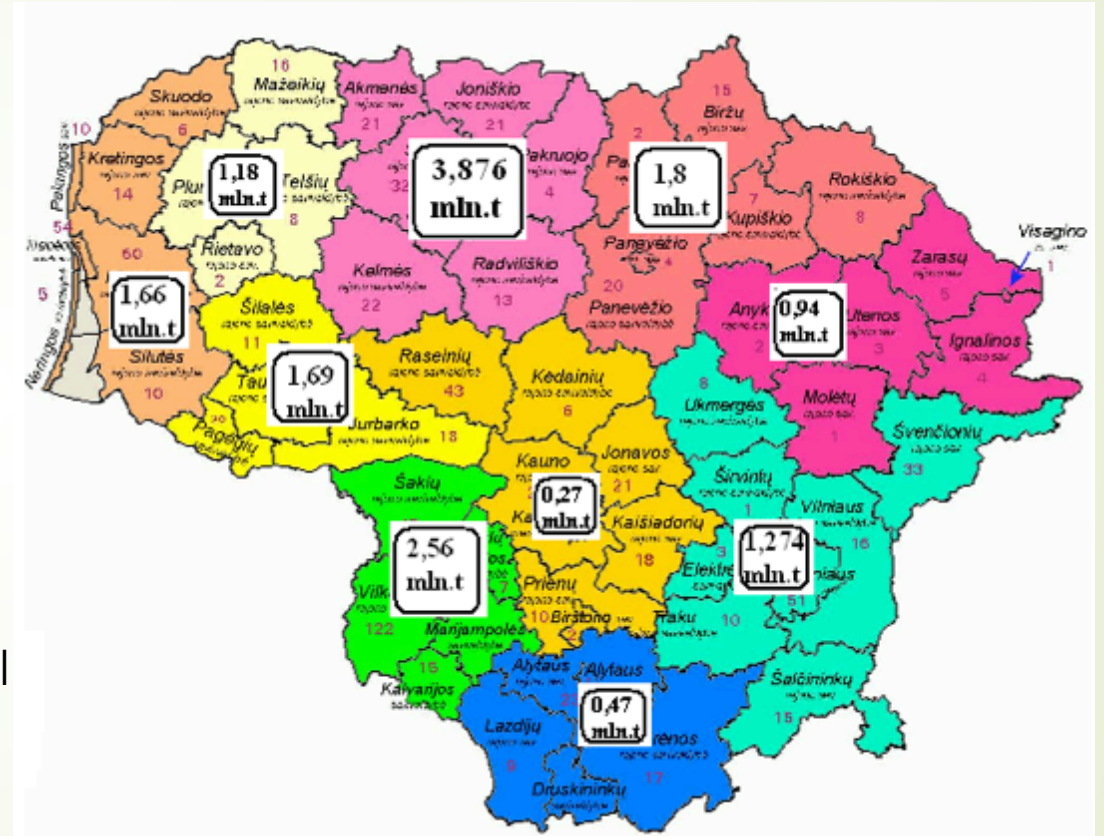
Reasons for promoting burning peat

- ▶ For the heat production company / user
 - ▶ Addition fuel - for the lowest level of heat production costs
- ▶ For the State
 - ▶ Accessed peatbog emits CO₂ emissions.
 - ▶ In Lithuania peatland area 13800 hectares ~56 tho. CO₂ per year
 - ▶ Local fuel - fiscal benefit for the budget

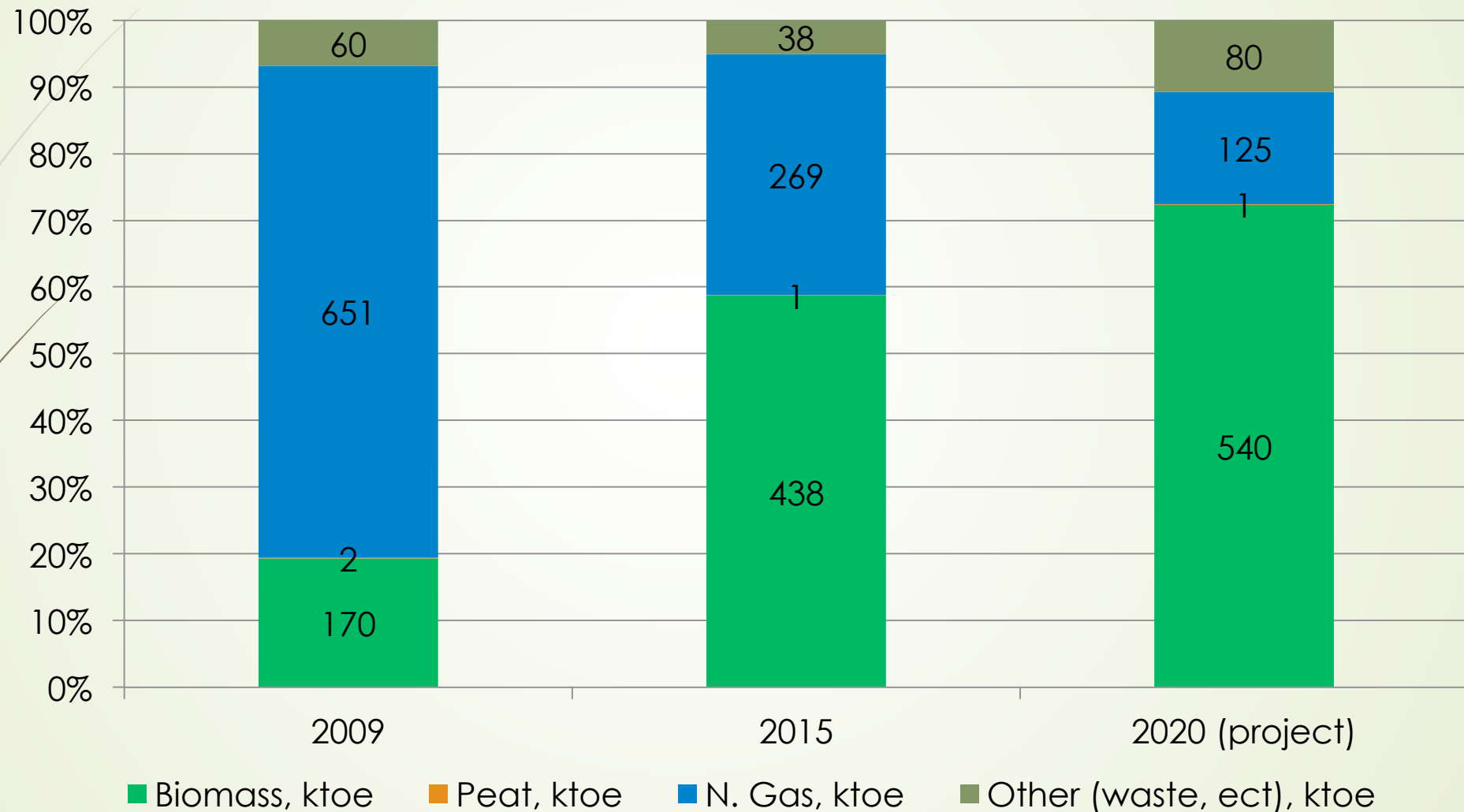
Peat for fuel resources in Lithuania

Available peat for fuel in Lithuania
~ 18 mio. tons (calorific value ~ 56 TWh)

Lithuanian manufacturers can reach
300-350 thousand. T (0,9-1,1TWh) annual
peat (fuel) extraction

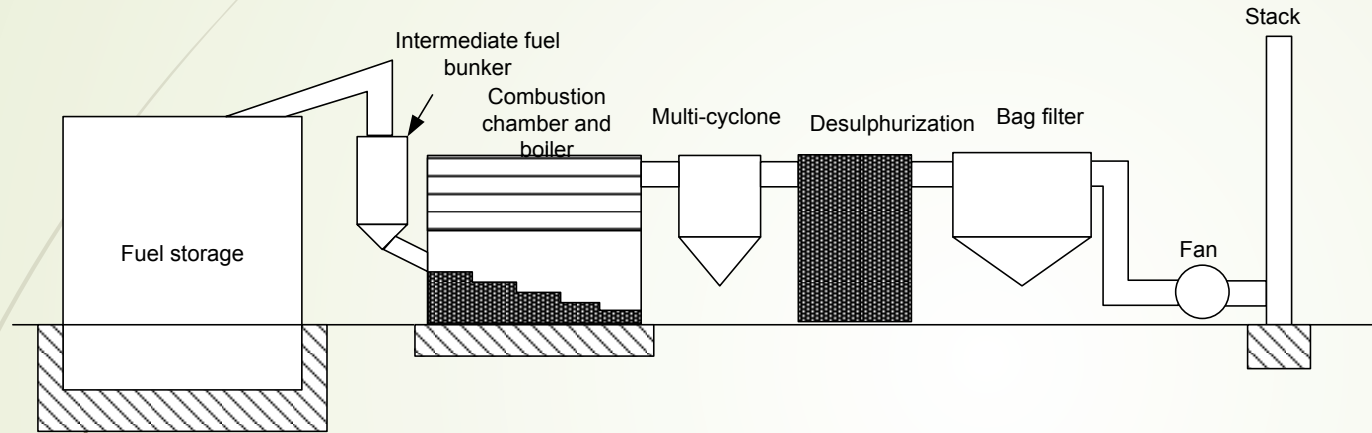


Peat in Lithuanian district heating sector



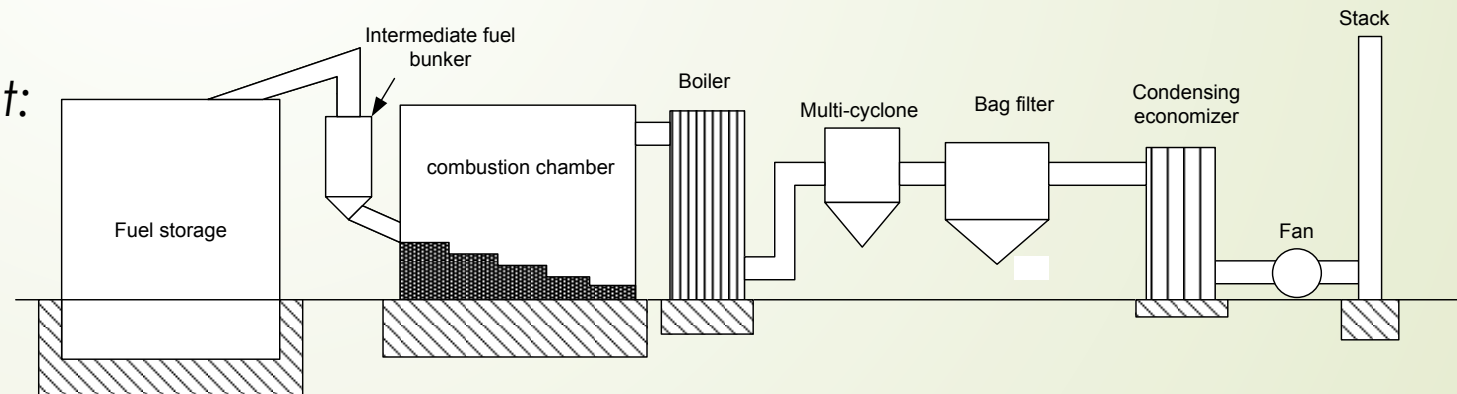
Peat in fuel structure ~ 0,1 %

A comparison of peat and biomass boiler plants



Extra for peat boiler plant:
Flue gas desulphurization
Efficiency (LHV) ~88%

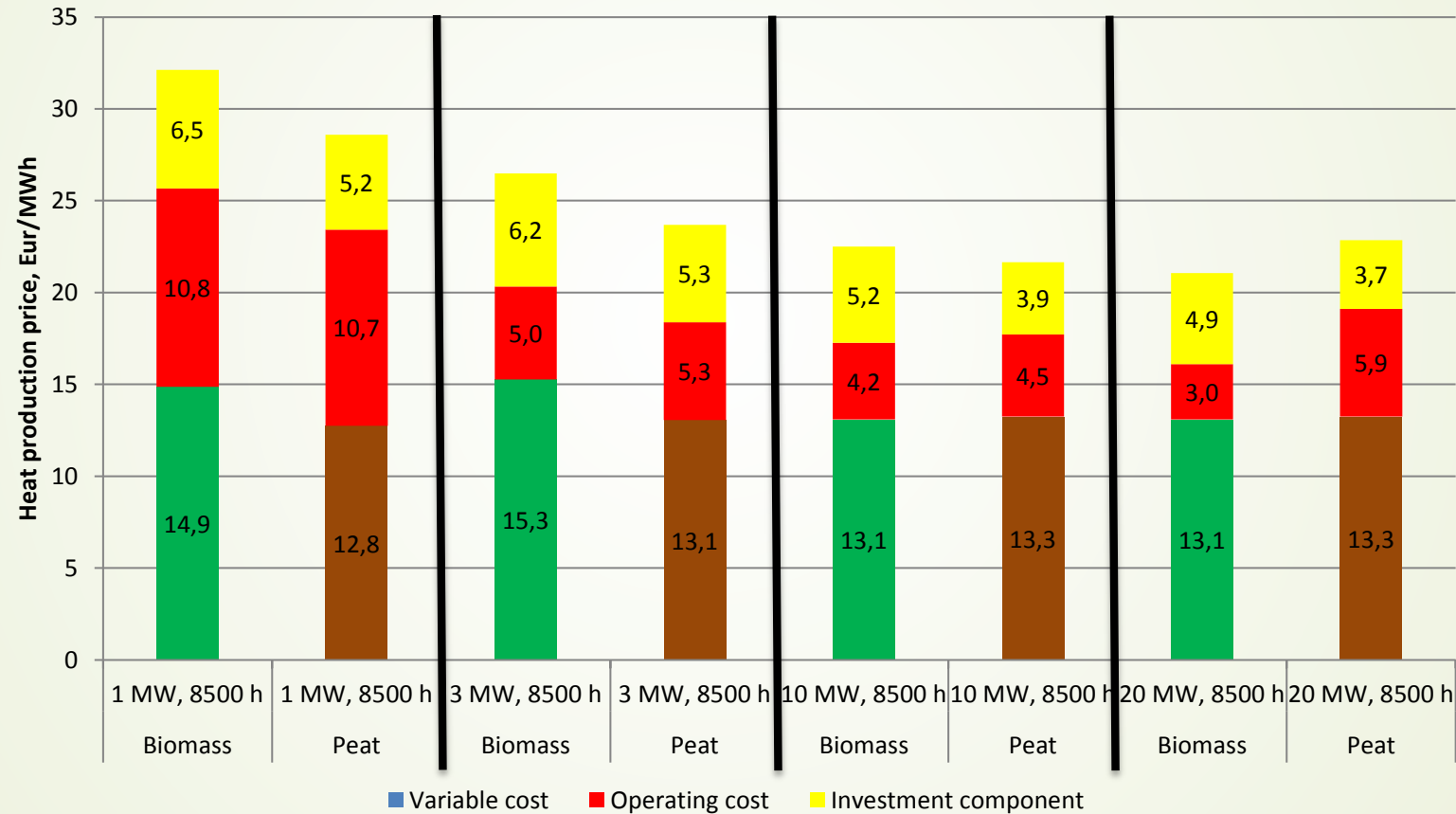
Extra for biomass boiler plant:
Separate boiler
Air preheater
Condensing economizer
Efficiency (LHV) = 95-105%



A comparison of peat and biomass boiler plants investment cost

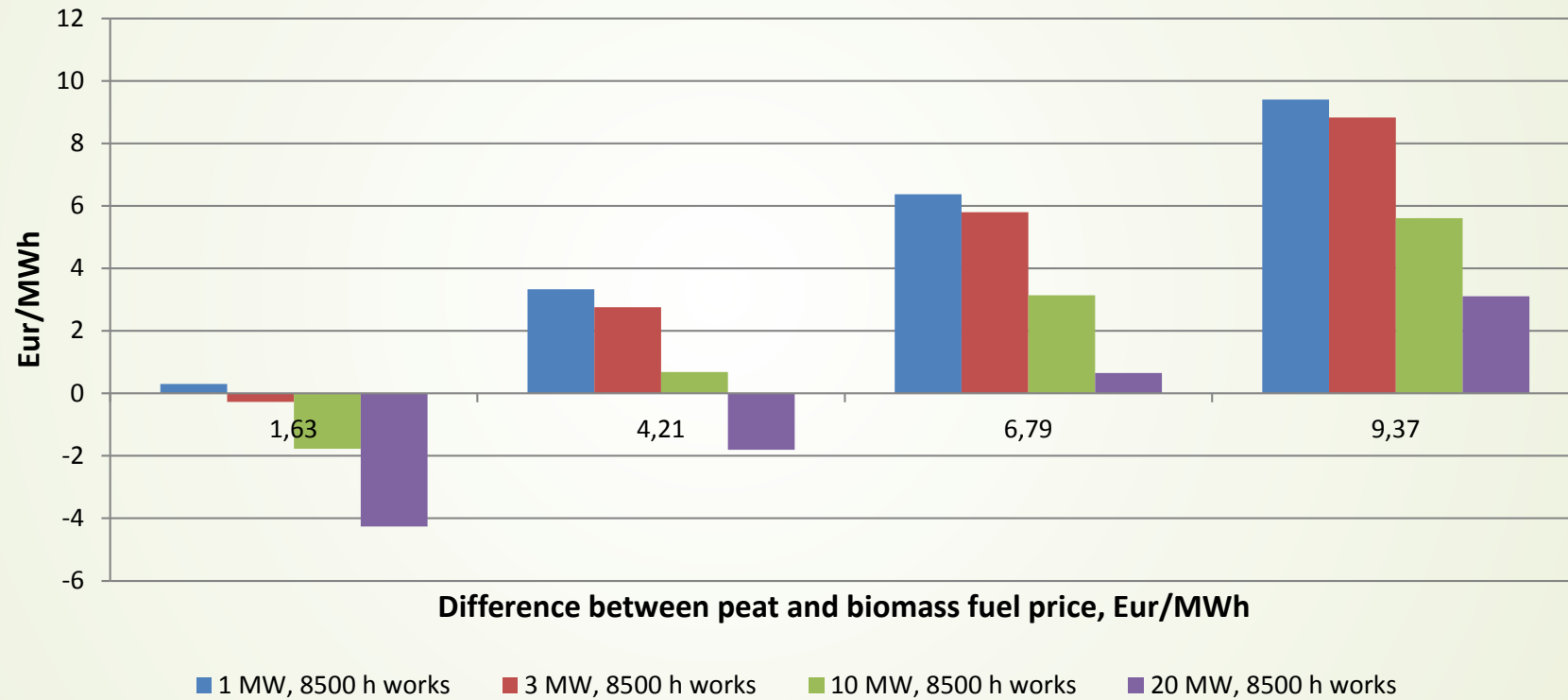
Capacity	Index	Biomass boiler, EUR/kW	Peat boiler, EUR/kW	Difference
<1MW	Equipment and boiler	450	360	
	Total < 1 MW	450	360	20%
1-5 MW	Equipment and boiler	400	320	
	Flue gas cleaning from dust	30	30	
	SO2 cleaning	0	20	-
	Total 1-5 MW	430	370	14%
5-20 MW	Equipment and boiler	290	235	
	Condensing economizer	60	0	
	Flue gas cleaning from dust	15	25	
	SO2 cleaning	0	15	
	Total 5-20 MW	365	275	25%
>20 MW	Equipment and boiler	270	220	
	Condensing economizer	60	0	
	Flue gas cleaning from dust	15	25	
	SO2 cleaning	0	15	
	Total > 20 MW	345	260	25%

A comparison of peat and biomass heat production price (max load)

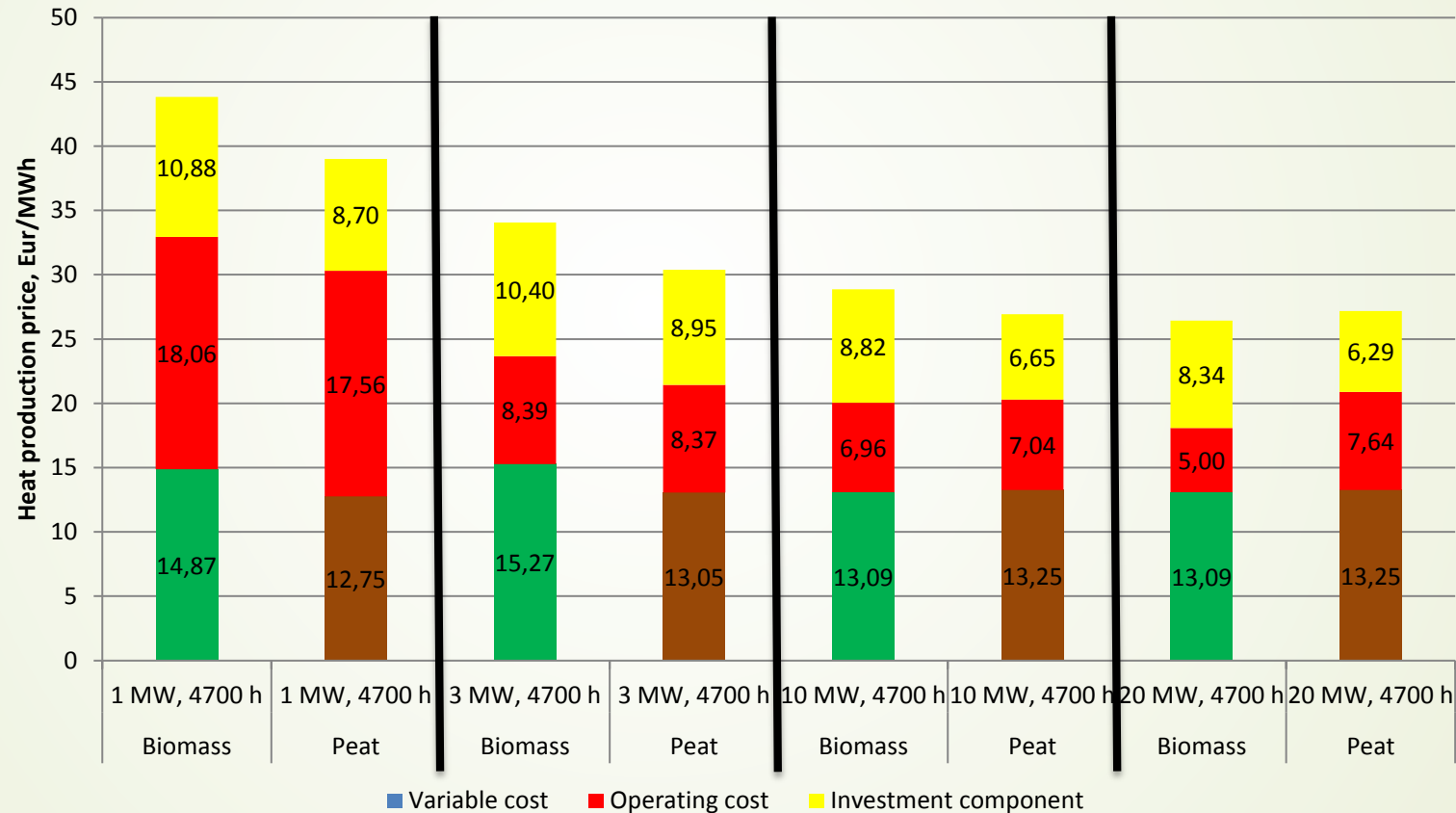


CO₂ – 6 EUR/tCO₂, Peat – 10 Eur/MWh₍₂₀₁₅₎, biomass – 11,6 Eur/MWh₍₂₀₁₅₎

Benefit of using a peat for heat generation

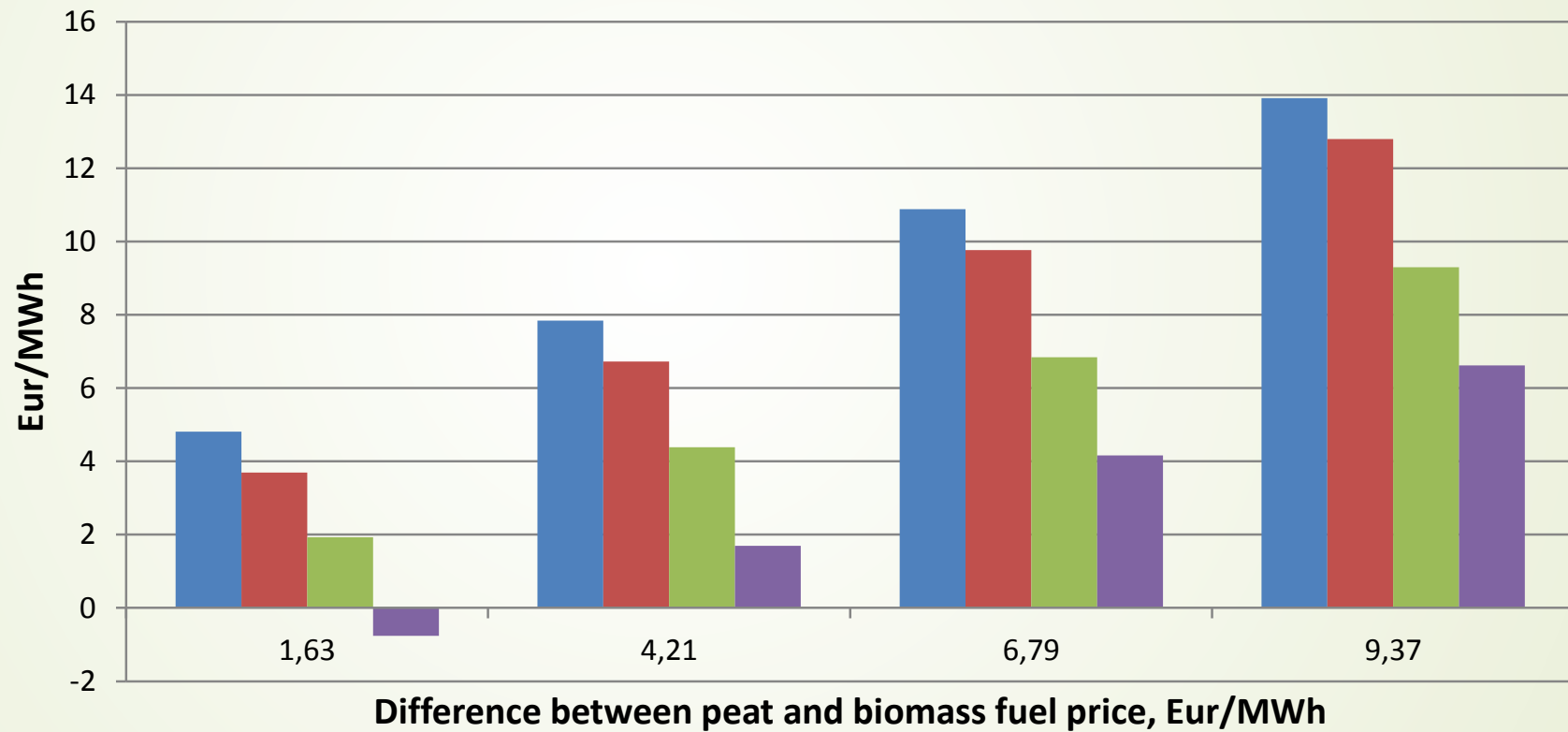


A comparison of peat and biomass heat production price (heating season load)



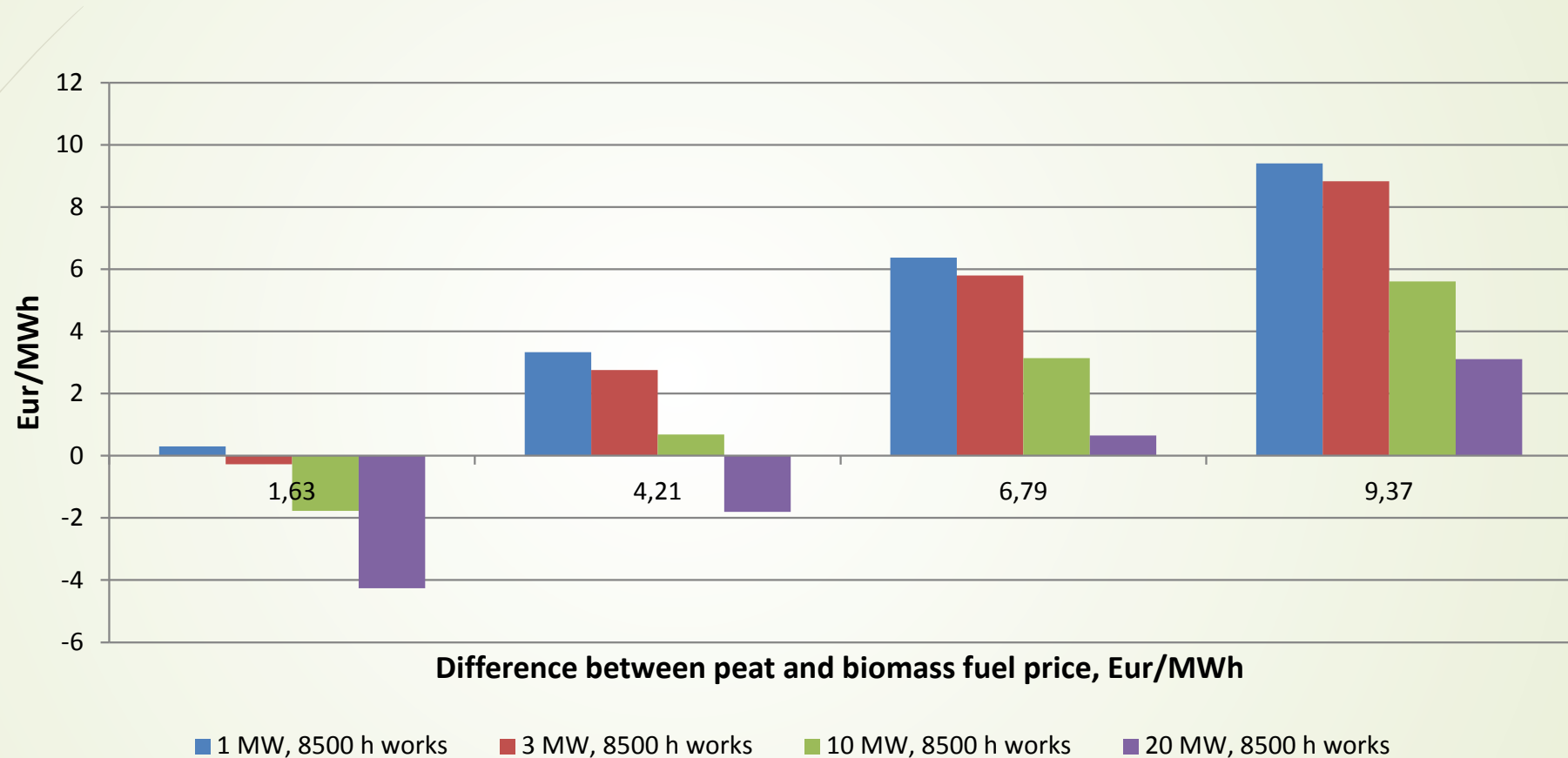
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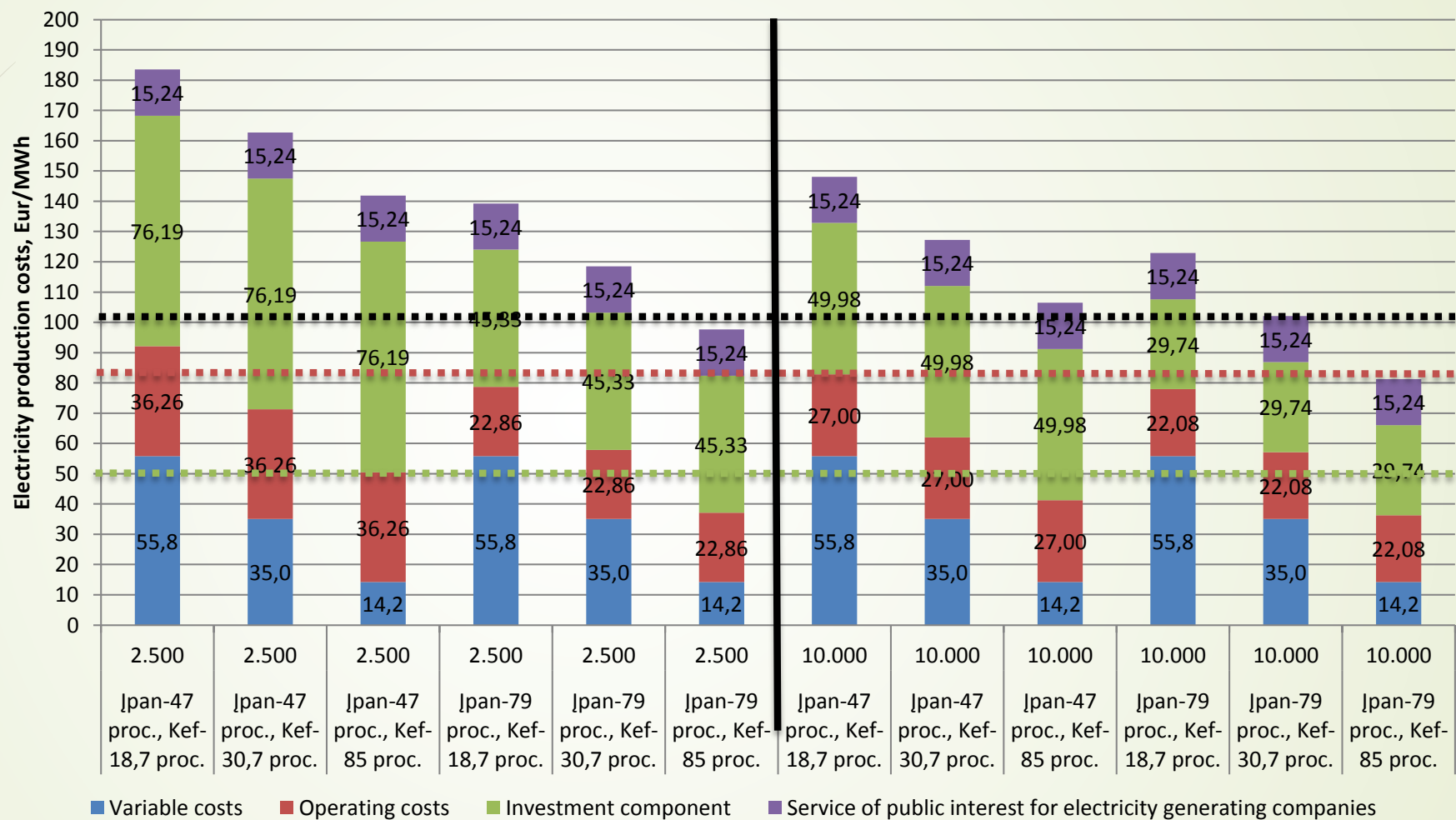
■ 1 MW, 4700 h works ■ 3 MW, 4700 h works ■ 10 MW, 4700 h works ■ 20 MW, 4700 h works

A comparison of peat and biomass heat production price (max load)



Investment support for biomass boiler plant - 50 %

Electricity generation cost in CHP



Green dashed line – electricity spot price ; Red dashed line – electricity price from TSO ; Black dashed line – electricity price from DSO

Conclusion

Peat is not renewable fuel.

- Emissions of CO₂
- Can't use EU investment support

Long term fuel peat price is 5 EUR/MWh lower than biomass

Fuel prices in Lithuanian district heating sector

