



City of Bihać Bosnia and Herzegovina

STUDY: RENEWABLE ENERGY POTENTIAL AND RE PROJECT DEVELOPMENT WITHIN CITY OF BIHAC

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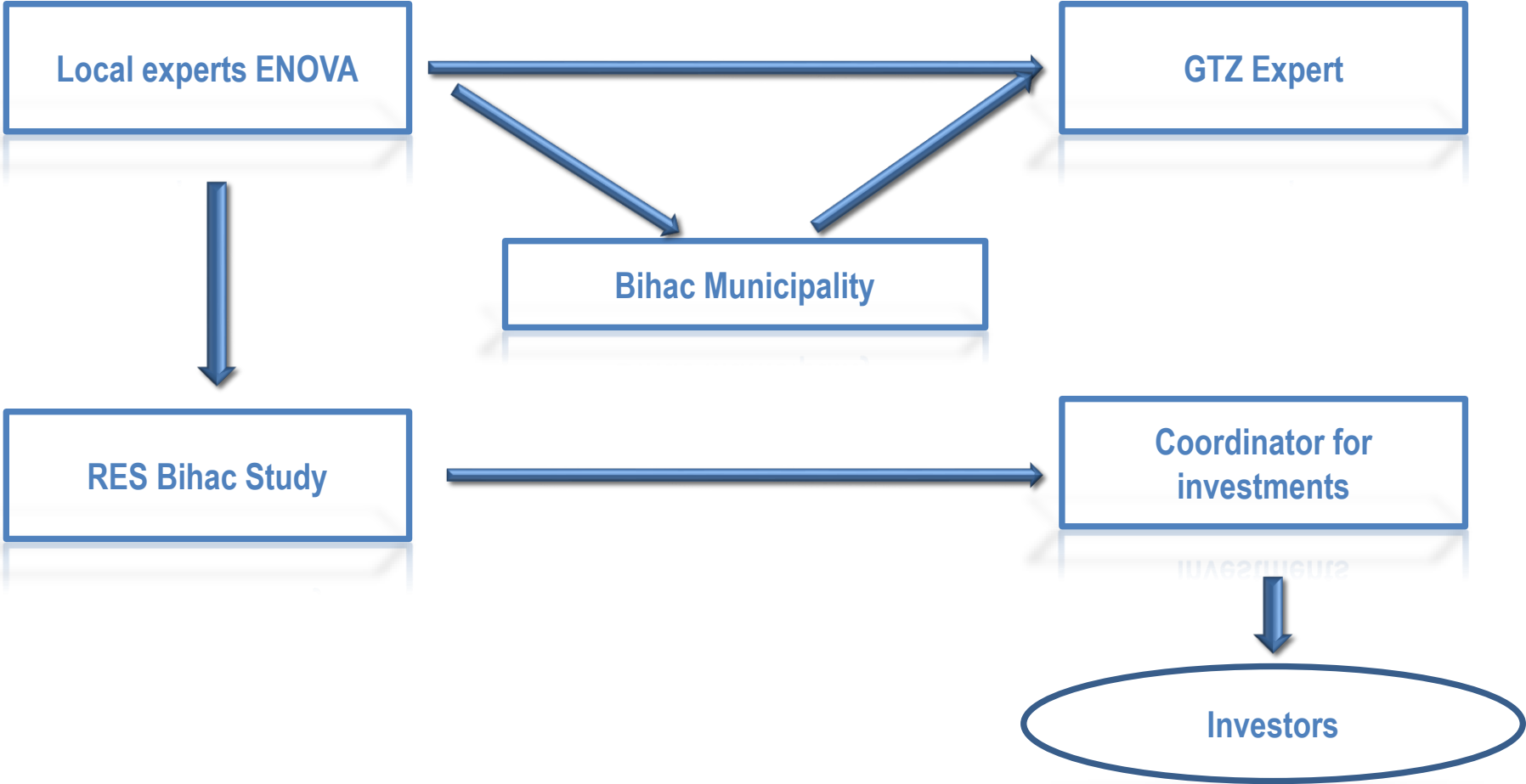


Sarajevo Business Forum
May 4-5, 2016



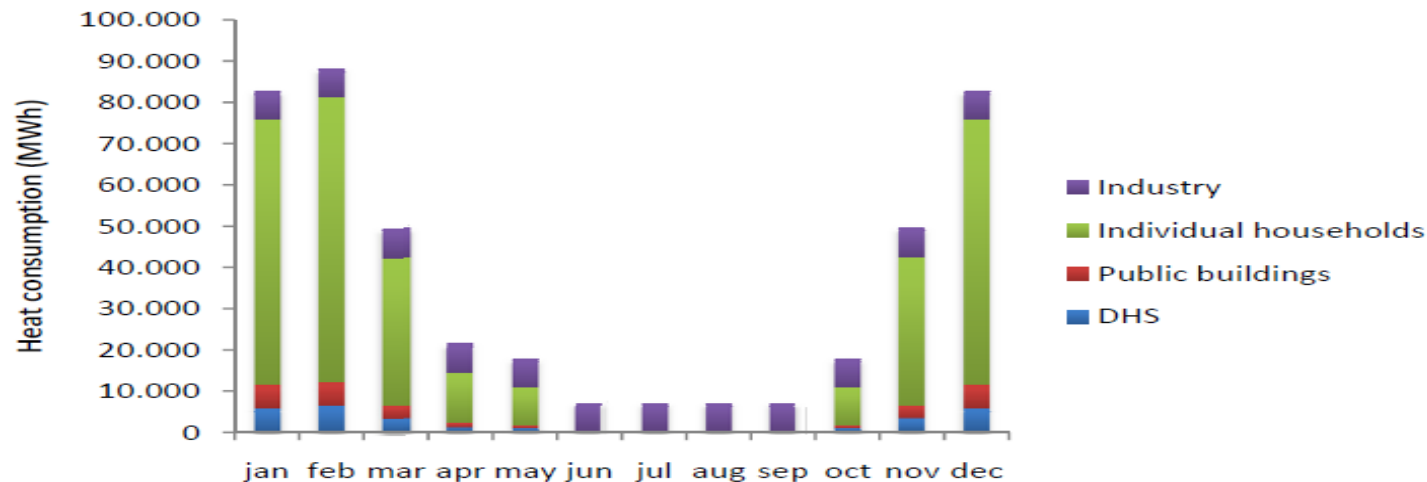
ENOVA Sarajevo
Franca Lehara 14
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RELATION: EXPERTS - INVESTORS



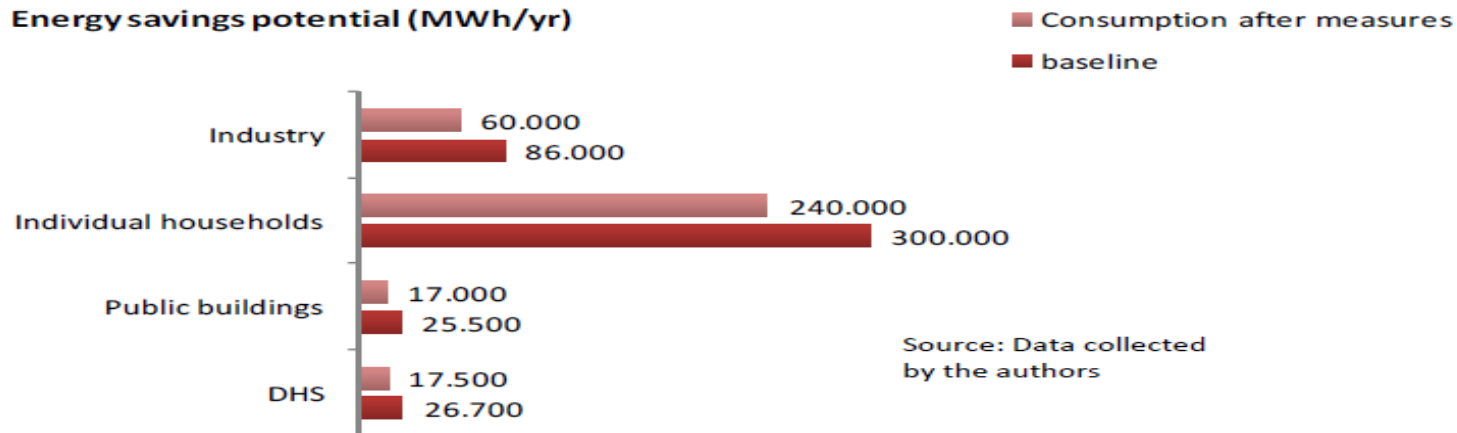
HEAT CONSUMPTION AND ENERGY SAVINGS

Estimated heat consumption in the city of Bihac by months



Energy savings potential in the city of Bihac

Energy savings potential (MWh/yr)



Source: Data collected by the authors

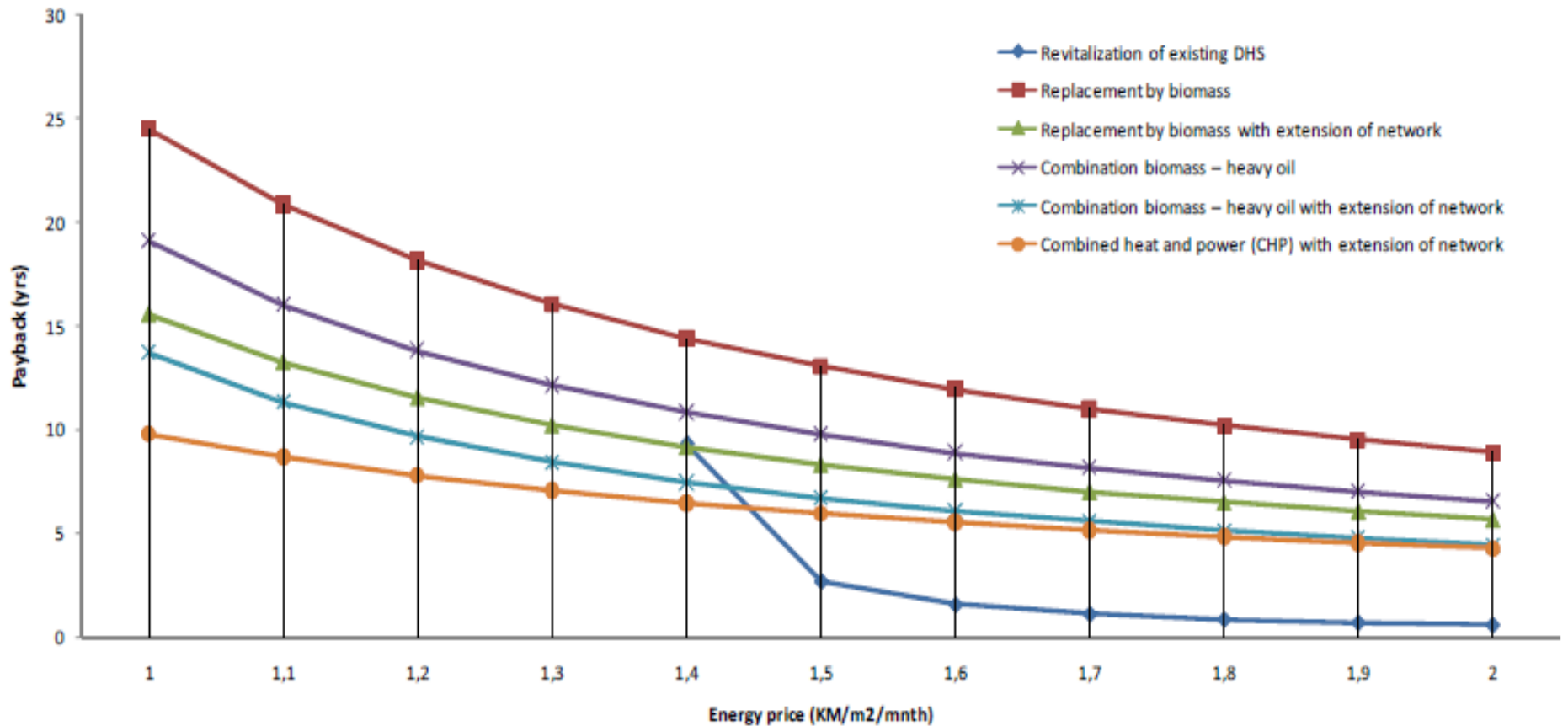
PRELIMINARY COST BENEFIT ANALYSIS

	Measure	Investment	Payback period	IRR (20 years)	NPV (8%)
District Heating system	Revitalisation of existing DHS	600,000 KM	36.3	0.0%	-405,374 KM
	Replacement of Biomass	22,400,000 KM	18.2	0.9%	-9,529,871 KM
	Replacemnet of Biomass with extension network	24,400,000 KM	11.5	5.9%	-3,345,387 KM
	Combination biomass – heavy oil	16,000,000 KM	13.8	3.8%	-4,294,852 KM
	Combination biomass – heavy oil with extension network	18,000,000 KM	9.7	8.2%	216,911 KM
	CHP with extension network & EE measures in buildings	21,000,000 KM	7.8	11.3%	5,075,470 KM
	Combined CHP with ext. network and EE measures	32,100,000 KM	9.4	8.6%	1,288,578 KM
Public buildings	EE measures for PB (Sc 1) 870,000 KM annual savings	8,700,000 KM	7.0	13.2%	3,308,041 KM
	EE measures for PB (Sc 2) 500,000 KM annual savings	8,700,000 KM	10.9	6.75	-782,854 KM
	EE measures for PB (Sc 3) 270,000 KM annual savings	8,700,000 KM	17.4	1.4%	-3,510,117 KM
	Geothermal energy for “Gata” medical center	150,000 KM	2.4	42.0%	433,836 KM

*NPV value is calculated with 8% discount rate and 20 year period

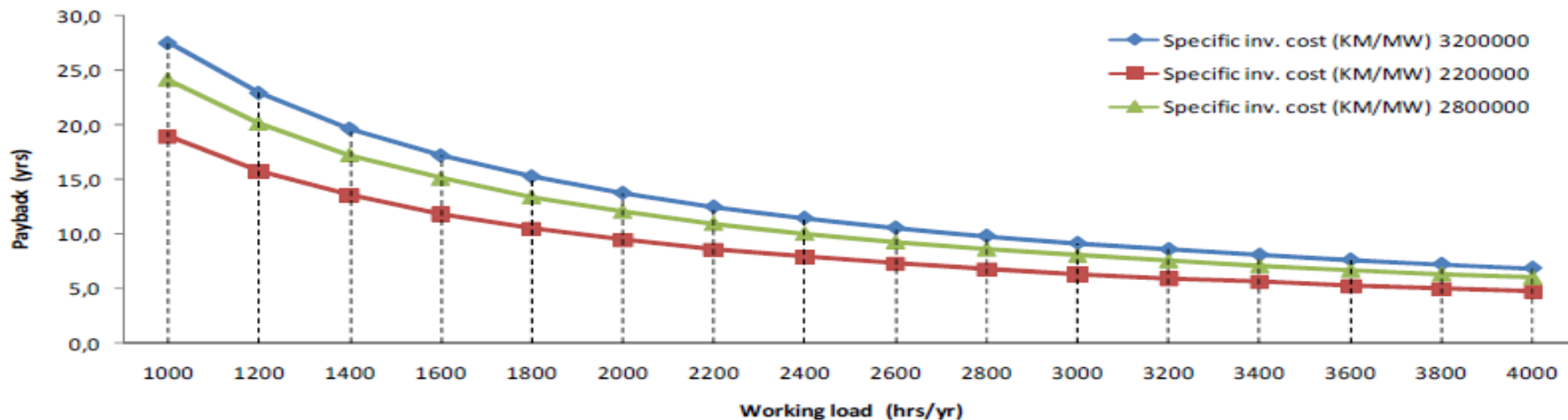
COST BENEFIT ANALYSIS

Payback sensitivity by energy price for different scenarios (District Heating System)

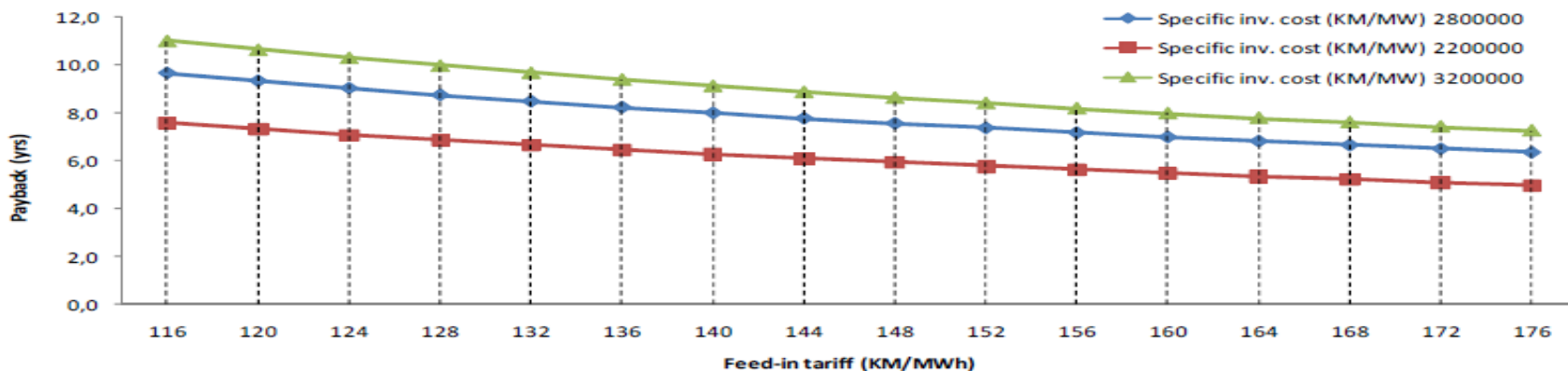


WIND ENERGY

Payback sensitivity by assumed working load for potential wind projects

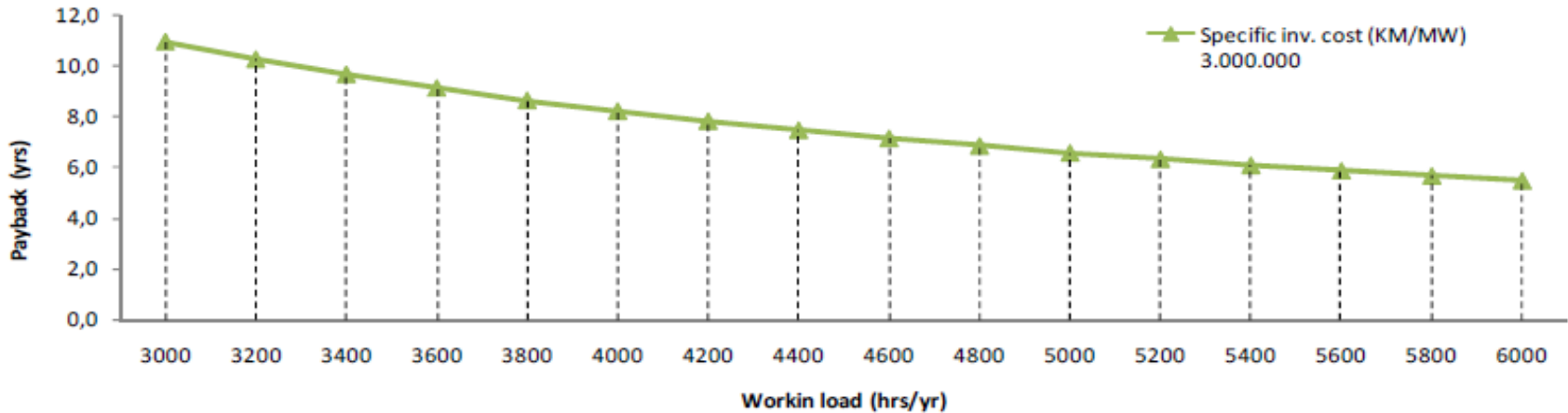


Payback sensitivity by assumed feed-in tariff for potential wind power projects

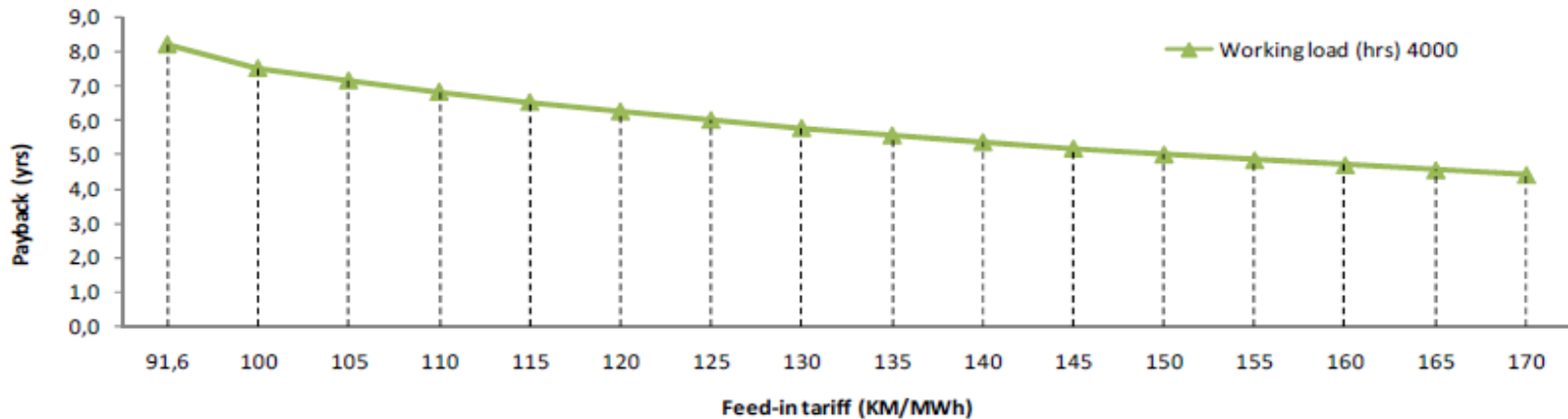


HYDRO POWER

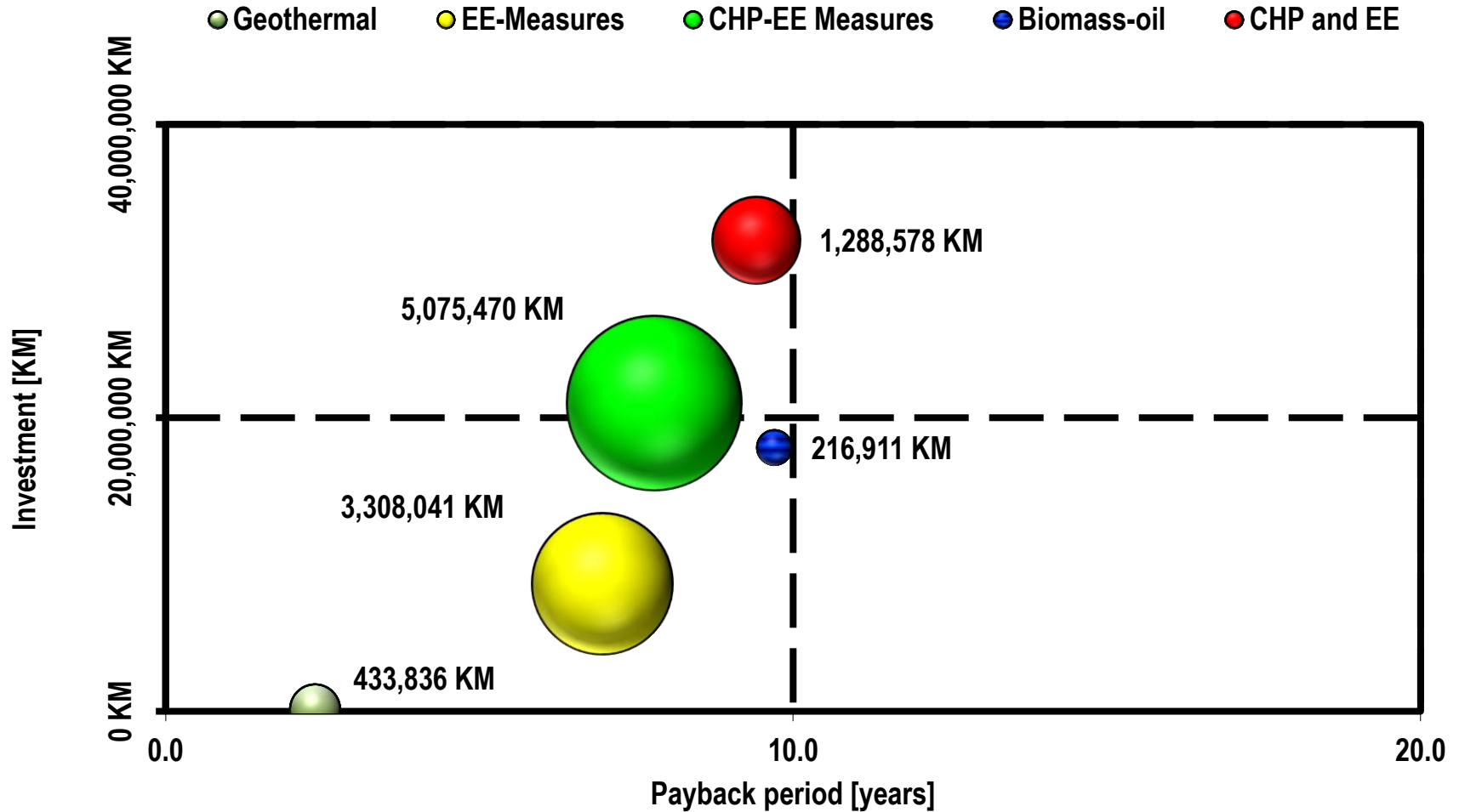
Payback sensitivity by assumed working load for potential hydro projects



Payback sensitivity by assumed feed-in tariff for potential hydro power projects



MOST FEASIBLE SOLUTIONS



INTERPRETATION OF GRAPH RESULTS

Position of circles is defined by Payback period (x-axes) and Investment (y-axes), while the size of the circle is proportional to the Net Present Value (NPV)

Best options are large circles, close to the coordinate system origin

Most feasible options are:
CHP with extension network and EE measures in buildings and EE measures for public buildings (Scenario 1)

**FURTHER
STEPS**



Contact



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