

Market uptake of small modular renewable heating & cooling grids for communities

City of Sabac – Case study

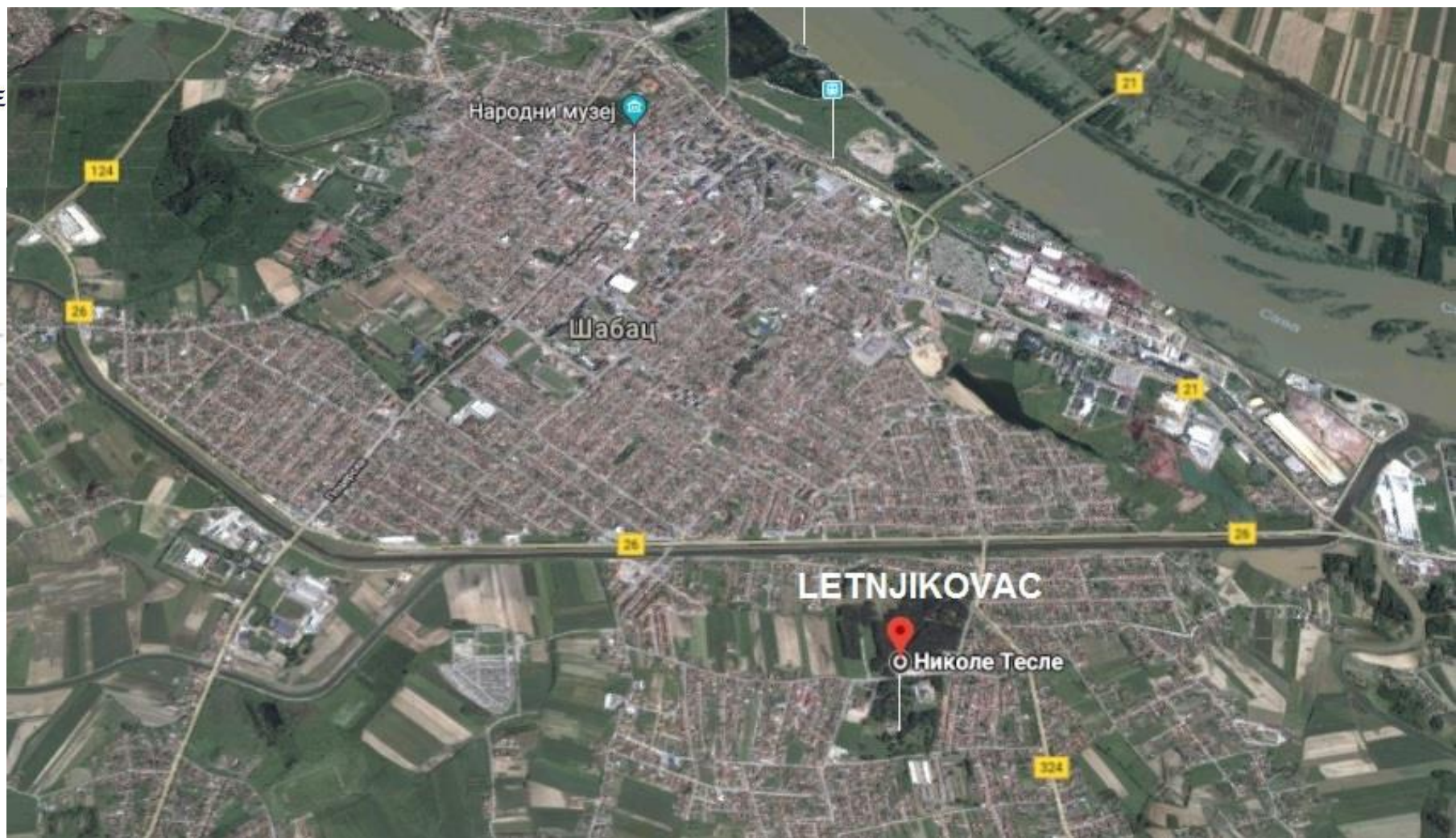
Brussels, November 2018



This Project (Contract No. 691679) is Co-funded by the Horizon 2020 Framework Programme of the European Union

CoolHeating.eu

City of Sabac – Case study



Location – Western Serbia

85 km far from Belgrade.

City of Sabac – Case study



Buildings at the site

A – Boiler house

B – School building

C – Education center

D – Orthodox church

E, F – Kindergarten


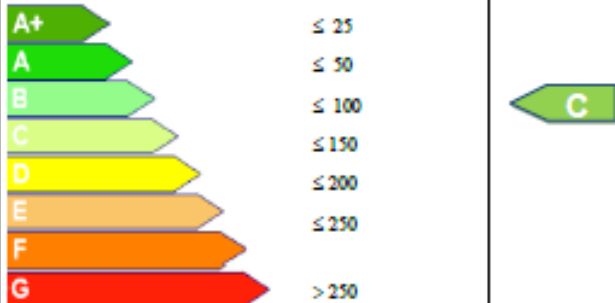
G – Scouts building

H – Health center

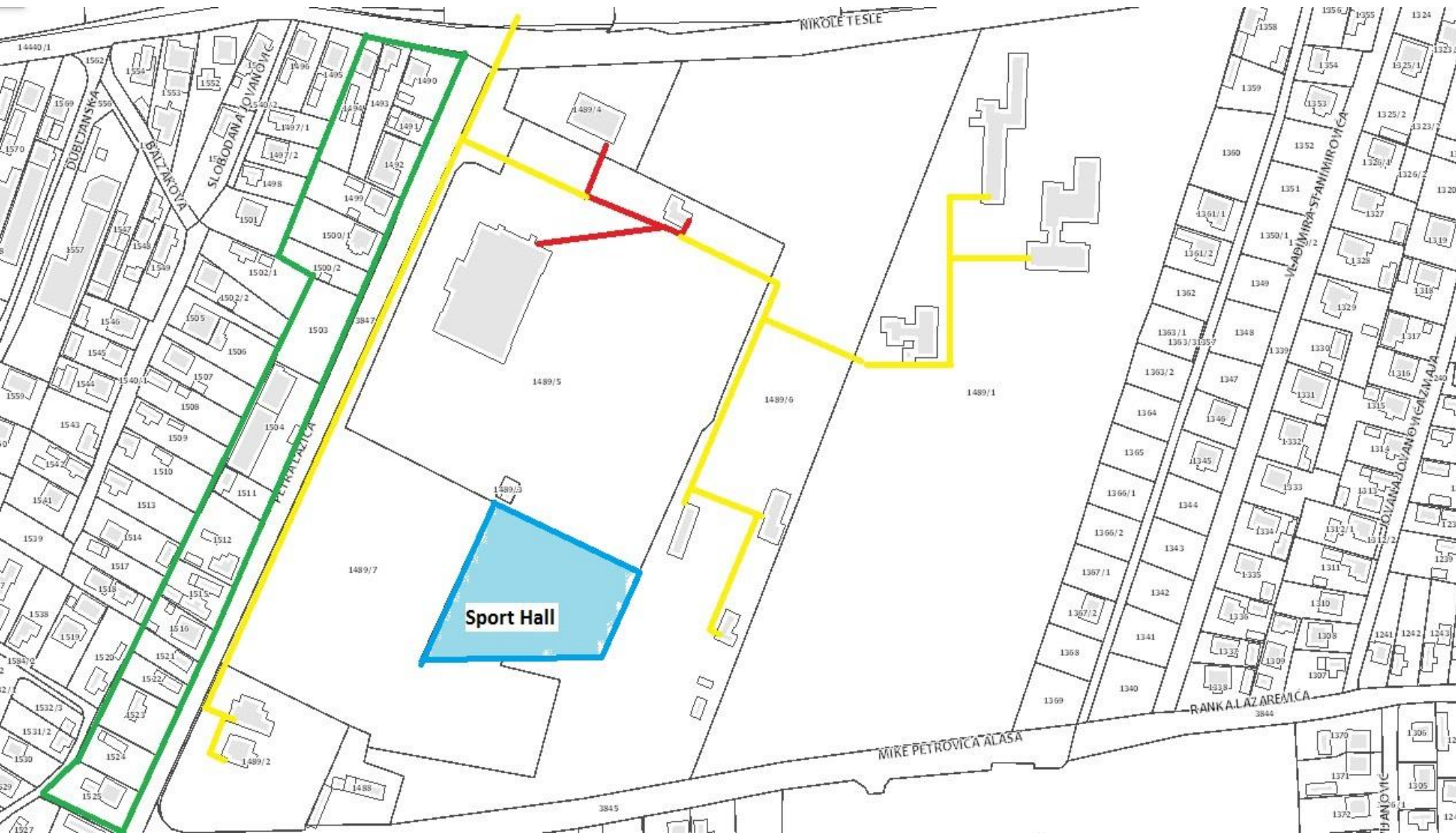


Elementary school ``Stojan Novakovic``

School building

	ЗГРАДА	<input type="checkbox"/> нова	<input checked="" type="checkbox"/> постојећа
	Категорија зграде	Зграда намењена образовању и култури	
	Место, адреса:	Шабач, Петра Лазича 38	
	Катастарска парцела:	КП 1489/5 КО Шабач	
	Власник/инвеститор/правни заступник:	ОШ Стојан Новаковић, Шабач	
	Извођач:	-	
	Година изградње:	2002.	
	Година реконструкције/ енергетске санације:	-	
	Нето површина A_n [m^2]:	3,039.38	
	Протопот	$Q_{k,net}$ [%] 79.7	$Q_{k,net}$ [$kWh/(m^2 \cdot a)$] 59.80
Енергетски пасош за зграде намењене образовању и култури			
	Подаци о лицу које је издало енергетски пасош		
	Организациона организација: ENERGETECH д.о.о. Шабач		
	Потпис овлашћеног лица и печат организације:		
	_____ М.П.		
	(потпис)		
	Одговорни инжењер: Слободан Јеротић, лиценца бр. 381 0550 13		
	Потпис и печат одговорног инжењера ЕЕ:		
	_____ М.П.		
	(потпис)		
	Број пасоша:	029/16	
	Датум издавања/рок важења:	15.11.2016.	

Energy certificate for school building was already issued.



Phase I

Connected:

**School building
Education center
Kindergarten
Health center
Scouts building**



Phase I I

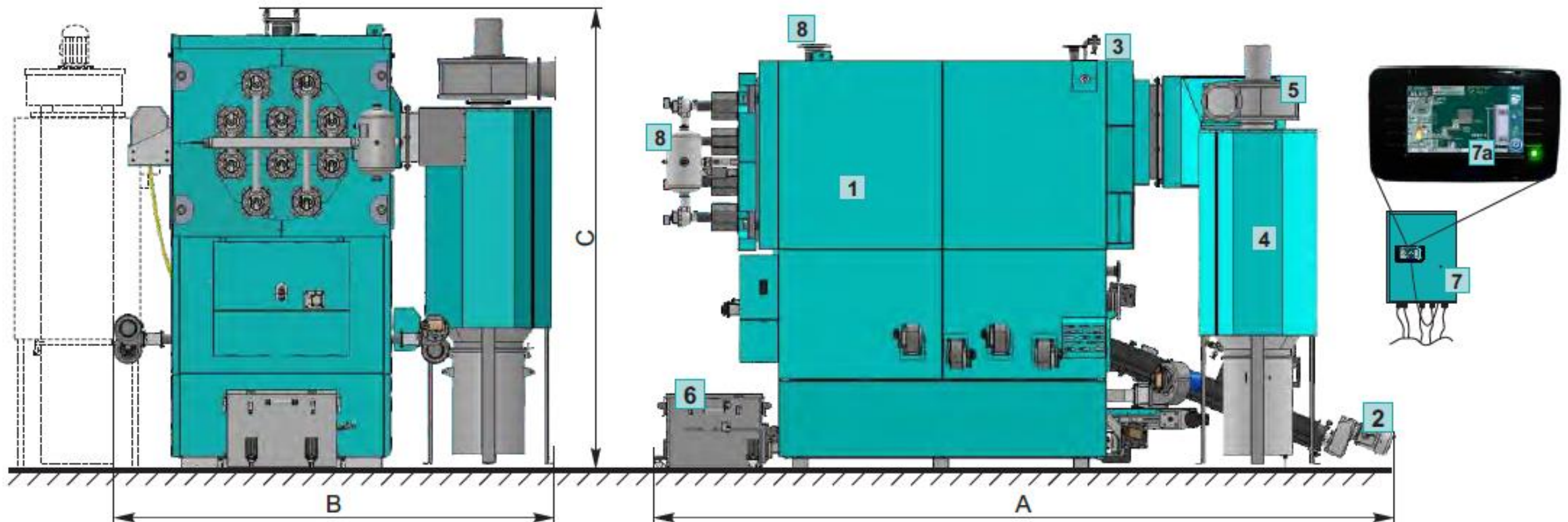
To be connected:

**300 households
within 3 apartment
zones**

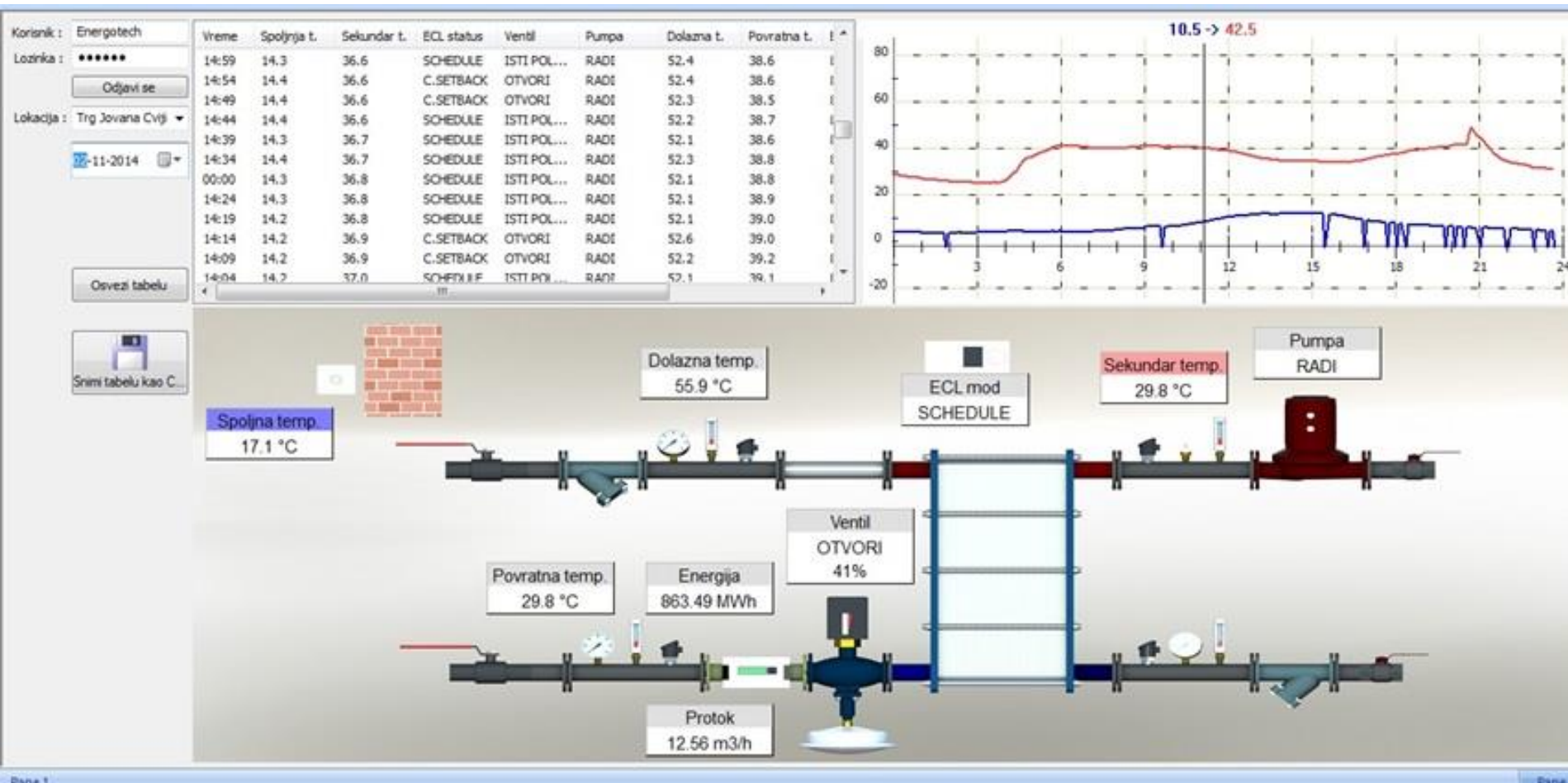
Diagram illustrating the heating system layout, including components like boilers (KOTAO 1, KOTAO 2), pumps, valves, and piping. The system is designed for a maximum pressure of 1.2 MPa and a maximum temperature of 120°C. The diagram shows the connection to a district heating network (SABIRNK and RAZDELNK) and a gas supply line (GAS).



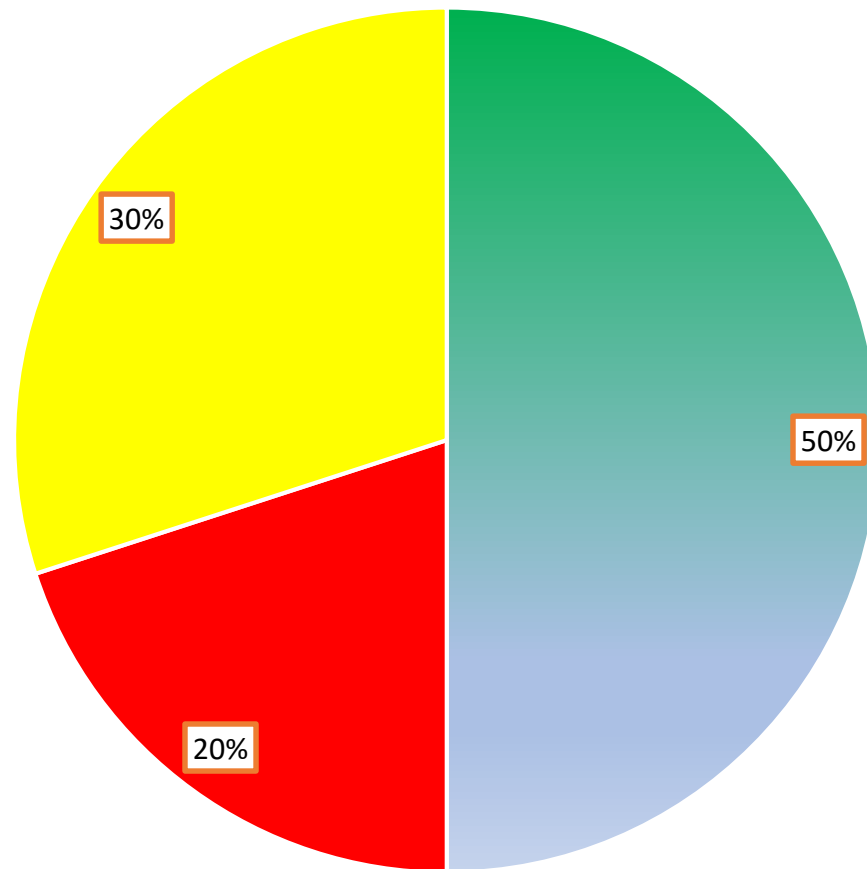
Wood chips boiler 500 kW capacity installed with auxiliary equipment, 6,000 liters buffer, remote control device. Wood chips boiler operates as base heat source, fuel oil boiler as back-up boiler.



SCADA for remote monitoring and controls foreseen as well as compact heat substations for each household.



Share



Financing model

50 % / UNDP fund for Energy Efficiency and renewable energy

20 % Budget fund of Republic of Serbia for Energy Efficiency

30 % City of Sabac administration.

DH Network operator – PUC ``Toplana-Sabac``

Boiler with auxiliary equipment costs 100,000 EUR



Thanks for your attention!

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Slobodan Jerotić

Slobodan.jerotic@sabac.org

Signing the letter of commitment: City of Šabac, Serbia

		
City of Šabac Assembly and Mayors Office	Public Utility Company Toplana-Šabac	
<p>European Commission - Innovation and Networks Executive Agency (INEA) Daniel MARAVER DE LEMUS, PhD Project Officer Horizon 2020 - Energy Research Chaussée de Woluwe 910 W910 03/26 B-1049 Brussels/Belgium daniel.mara-ver@ec.europa.eu http://ec.europa.eu/inea</p>		
In Brussels, 28. November 2018.		
Title: Letter of commitment of the involved stakeholders		
<p>In the framework of the project CoolHeating with the title "Market uptake of small modular renewable district heating and cooling grids for communities" (Grant Agreement No 691679), supported by the European Union's Horizon 2020 research and innovation programme, technical concepts, business models and feasibility checks have been elaborated by the consortium.</p> <p>We, City of Šabac, as the project initiator, City of Šabac assembly as the future system owner, and Public Utility Company (PUC) Toplana-Šabac, as the future system operator, want to bring the project to the implementation stage.</p> <p>We confirm that we were involved in the discussions about the elaboration of the project results, and that the results were presented to us. The feasibility check document "Letnjikovec, the smaller size implementation of the biomass-based district heating in the suburban area of the target City of Šabac", was presented to us during the information event for attracting the investors by prof. dr Nikola Rajković, from the University of Belgrade, School of Electrical Engineering (ETF), on 07.05.2018. at "Centar za stručno usavršavanje Šabac", Nikole Tesla 1, 15000 Šabac.</p> <p>We are highly interested in the realization of the small modular renewable district heating and cooling grids in City of Šabac, in order to contribute to the higher level of energy supply comfort for citizens, improved air quality, improved energy efficiency in biomass use, creation of the regional and national biomass market, and increased security of biomass supply and lower dependency on gas imports.</p> <p>After the finalization of the 1st phase of the project "Letnjikovec" (500 kW biomass wood chips boiler), the future system operator PUC Toplana-Šabac intend to initiate the tender for planning and construction of the 2nd phase which technical, economical and legal aspects, under following assumptions given in the feasibility check, and include: additional biomass base load boilers for wood chips, fuel oil peak boiler, buffer storage tank, heat distribution grid with total investment costs of around 2,000,000 €. Opening the possibility of shared ownership in the form of public private partnership financing scheme will be a mix of: private equity, credit line, connection fees and investment rebility. The average heating costs per household will be under 1,500 €, with year to year price increase index of no more than 2%, which will ensure the equity internal rate of return will be around 9% and the payback time will be around 9 years.</p>		
signature and stamp Dušan Kostadinović, Deputy Mayor, City of Šabac, Gospodar Jevremova 6, 15000 Šabac	signature and stamp Nemanja Pajić, President, City of Šabac assembly, Gospodar Jevremova 6, 15000 Šabac	signature and stamp Biskudin Jerović, Director, PUC "Toplana-Šabac", Bure Jakića br. 1, 15000 Šabac

- „We, **City of Šabac**, as the project initiator, **City of Šabac assembly** as the future system owner, and **Public Utility Company (PUC) Toplana-Šabac**, as the future system operator, want to **bring the project to the implementation stage.**“
- We are highly interested in the realization ..., in order to contribute to the higher level of energy **supply comfort** for citizens, improved **air quality**, improved **energy efficiency** in biomass use, creation of the regional and national **biomass market**, and **increased security of biomass supply** and lower dependency on gas imports.
- the future system operator **PUC Toplana-Šabac** intend to **initiate the tender for planning and construction** of the 2nd phase