Market uptake of small modular renewable district heating and cooling grids for communities

Project No: 691679



Cooperation with the industry

Country: Slovenia

WP 4 – Task 4.2 / D 4.2

June 2017



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This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 691679. The sole responsibility for the content of this report lies with the authors. It does not necessarily reflect the opinion of the European Union nor of the Innovation and Networks Executive Agency (INEA). Neither the INEA nor the European Commission are responsible for any use that may be made of the information contained therein.

CoolHeating website: www.coolheating.eu



Company name:

CT Cevna tehnika d.o.o.



Fields of our activities for small district heating:

The supply of pre-insulated pipe systems:

- Flexible PEX and stainless steel pre-insulated pipes
- Rigid steel and stainless steel pre-insulated pipes
- Manufactured by Brugg Rohrsystem Ag

References:

Some of the major references

2000 Terme 3000 Moravske Toplice total of 1200m of laid pipes (Calpex and Premant)

2003 Dobrovnik total 2.400m of laid pipes (Calpex in Casaflex) 2009 Terme Olimje Podčetrtek 1550 m pre-insulated flexible pipes Calpex 2010 Toplifikacija v KS Lokovica 7125m pre-insulated flexible pipes Casaflex 2012 Apartmajsko naselje Golte 629m pre-insulated flexible pipes Calpex 2013 Kidričevo dvorec Sternthal 747m pre-insulated flexible pipes Casaflex Boiler room Brezje at Dobova, 744m pre-insulated rigid pipes Premant 2014 Boiler room Paloma Sladki Vrh 4.530m pre-insulated rigid pipes Premant

References published on our website: http://cevna-tehnika.si/index.php/reference/references/C16

General fields of our activities:

Sales, technical consulting, installation, pre-insulated pipes for district



heating

General description of our company:

CT Cevna tehnika is a company with eleven employees.

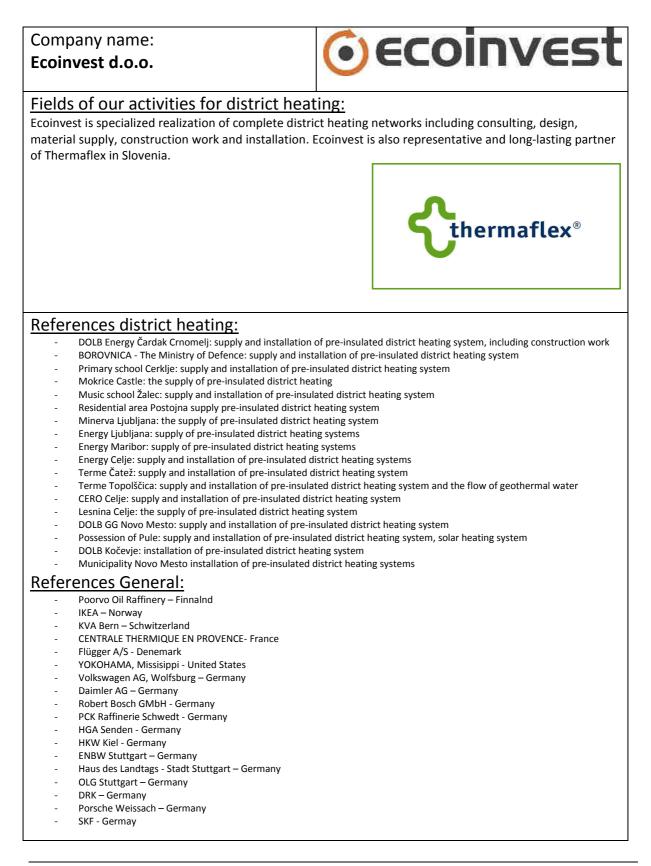
Our aim is to monitor the needs of the market, to address our clients' requirements and offer support in the selection of the desired products. The main strengths of the company are qualified staff, flexibility, quick responsiveness, and quality, which is always given priority.

CT Cevna tehnika d.o.o. as a general representative of the company Brugg Rohrsystem Ag aims at:

- Ensure the Slovenian market the highest quality of district heating

Contact	
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General fields of our activities:

Industrial and pipeline installations on refineries, thermal power plants, biomass systems, steam pipelines, district heating and cooling systems, hydropower plants and nuclear power plants. Foundation: 1991 Employees: 104

Owner and Director of Ecoinvest:

Matija Kitanovski, univ. dipl. med. kom.

Contact: *Ecoinvest d.o.o.* Contact person: Matija Kitanovski Address: Milčinskega 14, 3000 Celje Country: Slovenia

E-Mail: matija.kitanovski@ecoinvest.si Phone: +386 41 375 632





Company name:		
INEA d.o.o.	INEA	
Fields of our activities for small district heating:		
 Natural gas CHP systems Monitoring systems of energy flows 		
 Monitoring systems of energy nows Management systems (PLC, SCADA) 		
- Feasibility studies		
References:		
2011 SILKEM, Kidričevo A complete CHP plant Pel = 1.600 kW, district heating		
2012 SILKEM, Kidričevo A complete natural gas CHP plant Pel = 1.000 kW, district heating		
2014 GGE d.o.o. / Thermana, hotel and pool complex, district heating		
Installation of the system for the simultaneous production of heat and electricity with a gas engine Pel = 800 kW		
2014 GGE d.o.o. / Sava hoteli Radenci, hotel and swimming pool complex Installation of the system for the simultaneous production of heat and electricity with a gas engine Pel = 889 kW		
2014 TAMES / Komunala Slovenj Gradec, district heating Installation of the system for the simultaneous production of heat and electricity with a gas engine Pel = 999 kW		
General fields of our activities: - Automation of production lines		
 Process control systems for continuous and batch processes 		

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- Solutions for manufacturing informatics (planning and monitoring of production)
- Systems for monitoring, analysis and optimization of energy consumption
- Systems for balancing peak electricity demand
- Conducting energy audits and energy feasibility studies for industry

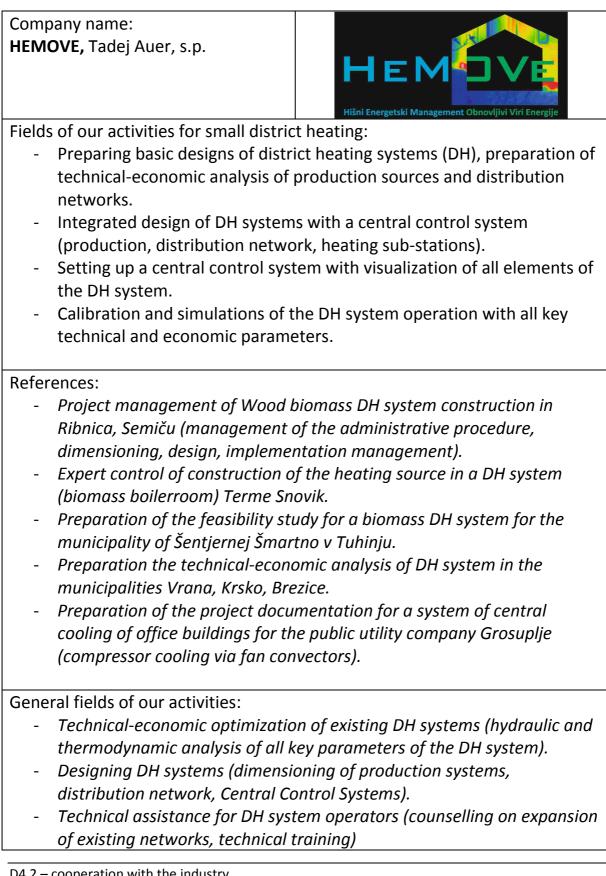
In the context of development activities in the company, using our experience in industrial energy management systems, we are developing an advanced platform of virtual power plants on the basis of management of consumption of electricity and heat.

General description of our company:

INEA Ltd., a company located in Ljubljana. Since the establishment in 1987 we are assisting numerous companies at national and international level in solving technical and business challenges in the areas of process automation and efficient energy production and energy use. Today we employ over 60 top experts, mostly masters and engineers from the technical field. The company maintains partner relationships with professional organizations and suppliers of high quality technological equipment. Group INEA has over 8 million annual turnover and has its own companies in Serbia, Macedonia and Croatia.

Contact person: Uroš Glavina Address: Stegne 11, 1000 Ljubljana Country: Slovenia E-Mail: uros.glavina@inea.si Phone: 031 750 808 Website: www.inea.si







- Management of administrative procedures for the purpose of plant/system erection and development for the local or urban communities.

General description of our company:

The company was founded in December 2011. The main customers of our services and partners are operators of DH systems, local and urban communities who are planning a district heating system, and large plant erection companies in the field of DH systems. With our activities we contribute to the efficient use of energy and use of renewable sources, where this is possible. Currently, we operate with 1 employee and 3 external collaborators.

HEMOVE, Tadej Auer, s.p. Puterlejeva ulica 24 1000 Ljubljana MŠ: 7022301 ID: 37490931

Contact:

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Company name:

PETROL, Slovenska energetska družba, d.d., Ljubljana Dunajska cesta 50, 1527 Ljubljana



Fields of our activities for small district heating:

We offer a complete service - from planning, construction and management of the district heating systems (DH), including the financing – based on the principle of contractual supply of heat. We provide customers with a reliable, safe, environmentally acceptable and cost-effective supply of heat and / or cold.

- We develop the basic design, based on the knowledge of the relevant technical solutions and ongoing monitoring of the state of the art technological solutions, which are thoughtfully introduced into practice. At the same time we always check the economic viability of the project. Our principle is to offer solutions that are optimal both technically and economically throughout the lifetime of the district heating system.
- We produce all the necessary documentation: documentation for obtaining the building permit, detailed design, documentation for preparation of the tenders and other documentation. At the same time we acquire the necessary documentation in administrative procedures (project conditions, consent to construction, to connect ...).
- We carry out all necessary works for erection of district heating systems, including supply of all necessary equipment. In doing so, we also cooperate with other contractors. We carry out certain works on electrical and mechanical installations, in particular in the introduction of remote monitoring and control software including equipment for optimization of the district heating systems. We carry out management of all works and supervise the works according to the Construction Act.
- Effective management of district heating systems, including servicing and maintenance is vital after system erection. Our technical and economic optimization of the district heating systems is based on the actual operation and on the calibrated models and the real time data, unlike competing companies whose operations are based on static models and design data. This allows the system operator effective monitoring and control, and easy management, and especially it allows achievement of strategic goals: lowering of costs of the operation and maintenance, reduction of primary energy use and improvement of the quality of the service for customers.

References:

At the end of 2015, the Petrol Group operated 25 district heating systems in Slovenia. Of these, 16 were organized as an optional public service - a concession contract with the municipality. The remaining nine district heating systems are operated on a commercial basis or equity distribution system, which means that the contracts are signed with the end-users.

At the same time Petrol performs services in other countries, together, we are present in 36 district

energy systems. These systems have, in recent years, supplied a total of 9100 heating substations.

Administered through our SCADA systems are 1300 installations in 23 systems with a total output of 7,500 MW and are continuously optimized.

References by type of resources and systems:

- DH systes cities: Ljubljana, Beograd, Novi Sad, Zagreb, Maribor, Celje, Ravne, Hrastnik, Sisak, Osijek, Velenje, Tuzla, Gradec, Celovec, Dunaj, Bolzano, Plovdiv, ...
- DH systes biomass, natural gas: Železniki, Preddvor, Nazarje, Luče, Mozirje, Solčava, Postojna, Ribnica, Ivančna Gorica, Mojstrana, Hrušica, Maribor Pobrežje, Metlika, ..
- Biomas boilerrooms: Besnica, Koper (2), Piran(2), Pivka, Gorje, Gorenja vas Poljane, Cerkno, Brda, …

By technical economic optimizations for example - only in Belgrade we save 1.5 million euros of costs per year.

General fields of our activities:

The primary areas of operations of the Petrol Group are the oil trade activities. The core development area is the introduction of new energy-related activities, including the marketing of gas, heat and electricity, the management of major environmental projects in the long term marketing of renewable energy sources. In Petrol Group has 2015 sold 120.9 million m3 of natural gas and 14.1 TWh of electricity. In 2015, the Petrol Group operated 30 concessions for gas supply; customers were supplied from a number of depots for liquefied petroleum gas.

An important segment of Petrol's integrated energy supply is also becoming heat supply, which is produced and distributed through the district heating systems and systems for cogeneration of heat and electricity.

General description of our company:

The company is distinguished in particular by quality of goods and its services, a high level of reputation, brand recognition, and a stable financial position. Including the franchised service stations, the Petrol Group employs 4,068 people, at the end of 2015. With 3.81 billion euros in net revenues from the sale Petrol Group is the largest economic entity in Slovenia.

From the Slovenian national oil corporation Petrol Group is developing into a comprehensive regional provider of energy and environmental services. With clear strategic orientations and development priorities we shape not only Slovenian energy market, but are becoming an important player in the energy market in Southeast Europe.

In Petrol we provide reliable, economical and environmentally friendly supply to end-consumers in Slovenia and SE Europe using a comprehensive offer energy and environmental products and services. Through the extensive network of service stations, drivers are offered everything they need for a safe and comfortable travel. We provide companies and local communities a comprehensive energy supply. We provide households all the energy they need for their home - at their home.

We want to become a leader in quality and the development of a comprehensive range of energy services and the "convenience" model of service stations in South Eastern Europe with very satisfied customers.

Cool-Heating

Contact Contact person: Robert Ostrelič, vodja trženja energetskih rešitev Address: Petrol d.d., Energetske rešitve, Pot na Lisice 7, 4260 Bled Country: Slovenia E-Mail: robert.ostrelic@petrol.si Phone: +386 (0) 31 357 021 Website: www.petrol.si





Company name: **PURLEN d.o.o.** Industrijska ulica 4b 9220 Lendava



Fields of our activities for small district heating:

- District heating pipes, fittings, components and accessories
- Pre-insulated pipes PURLEN-A (media pipe: steel, stainless steel, ductile iron, PE, PP, PB, PVC) manufacturing

References:

Supply and installation of district heating system - pipes:

Municipality Cankova, Biomass district heating system for municipality; Municipality Lendava, Geothermal district heating system for municipality; Municipality Kozje, Biomass district heating system for municipality; Municipality Pokupsko, Biomass district heating system for municipality

Supply of district heating system - pipes:

district heating system: Spa Lendava; Municipality Slovenske Konjice; from industrial zone to Nova Gorica city; Greenhouse Revital in Kidričevo city; Spa Čatež; Industrial zone Radlje ob Dravi; Ocean Orhids greenhouses Dobrovnik;

Steamline Helios Domžale;

Biogas plant district heating system: Ginjevec Radmožanci, Rakičan, Organica Dobrovnik; Biogas plant district heating system Vučja vas and Ormož;

District heating system for: Drying house Viševica d.o.o. Perušić; Tourist resort Crveni otok, Rovinj; Thermal power plant Obrenovac; the City Vogošće, connection of the Castle Vindija Varaždin; Biogas plant Rakičan to Hospital Rakičan

Supply of district cooling system - pipes:

District cooling system for Hospital in Kecskemet; District cooling/heating system for Hotel Prezident Dubrovnik; District cooling system for IKEA Zagreb

Supply of geothermal district heating system - pipes:

Thermal Spa Moravske Toplice; Thermal Spa Banovci; Thermal Spa Terme Olimija; Thermal Spa Tuheljske Toplice; Thermal Spa Terme Čatež; Thermal Spa Rivera Ilidža; District heating system for the City: Szigetvár and Lendava; District heating system for the Greenhouses Paradajz Renkovci; District heating system for the Congress Center Hotel Sarajevo

General fields of our activities:

- Producing pre-insulated pipes
- Technical support and consulting
- Project optimization
- Installation of pre-insulated pipes

General description of our company:

The company was founded in year 2002. We continue more than 35 years of manufacturing of insulation materials from poliurethan foam in Lendava. The beginnings were under the company Gorenje – Varstroj. Our main products are pre-insulated pipes and fittings for district heating and cooling. We sell them under the trademark PURLEN-A. We are the only manufacturer of pre-insulated pipes in Slovenia.

Till now we produced over 1,8 million meter of pre-insulated pipes and more than 400.000 pieces of fittings. Currently, we operate with 8 employees and 4 external collaborator.



Pre-insulated pipes PURLEN-A



Pre-insulated pipes – duktil



Installation of pre-insulated pipes PURLEN-A

Contact: PURLEN d.o.o. Contact person: Jutka Marič Vida Address: Industrijska ulica 4b, 9220 Lendava Country: Slovenija E-Mail: <u>info@purlen.si</u> Phone: +386 2 5788 255 Website: www.purlen.si



Company name:

Simon d.o.o. Taborska c. 34 1290 Grosuplje EU-Slovenija Tel.: (01) 786 49 15 (01) 786 49 14 Fax.: (01) 786 49 13 web: www.simon.si



Fields of our activities for small district heating:

Manufacturing of compact heating sub-stations for heating and cooling for all types of objects. Stations can be manufactured in a direct or indirect version. They can be prepared for different temperature and pressure regimes.

References:

SITULA Ljubljana (heating sub-stations), STADION, DVORANA STOŽICE (heating sub-stations), HOTEL PLAZA Ljubljana (heating sub-stations), HOTEL CUBO Ljubljana (heating sub-stations), SALUS Ljubljana (heating substations), MOLDAVIJA Kišinjev (56 heating sub-stations), BIOMASE POSTOJNA, SEMIČ, RIBNICA, GORNJA RADGONA (heating sub-stations), ŠPORTNA DVORANA PODMEŽAKLA Jesenice (heating sub-stations), EKO SREBRNA HIŠA Ljubljana (heating sub-stations), NARODNA GALERIJA Ljubljana (heating sub-stations), FRUCTAL AJDOVŠČINA (heating sub-stations), BOLNICA SLOVENJ GRADEC (heating sub-stations), DOM STAREJŠIH OBČANOV FUŽINE Ljubljana (heating sub-stations), OŠ POLJANE (heating sub-stations), OŠ MIRANA JARCA, OŠ DANILE KUMAR (heating sub-stations), ORL KLINIKA Ljubljana, NEVROLOŠKA KLINIKA Ljubljana, PEDIATRIČNA KLINIKA Ljubljana (heating sub-stations), BOLNICA GOLNIK (heating substations), CELOVŠKI DVORI Ljubljana (heating sub-stations), RAVNE NA KOROŠKEM (65 heating sub-stations) General fields of our activities:

In addition to compact heating stations our production company manufactures also the following products:

- Heat storage or boilers for heating, cooling, domestic hot water....

- The distributors / collectors for heating, cooling, hot water....

- Hydraulic separators

- Other products (bleed vessels, calming pipe, ...) for heating sub-stations, boilers, boiler-rooms

All of the above listed products can be manufactured in stainless steel version.

General description of our company:

We are a company that was founded in 1997. The founder Simon Virant began operating as a sole entrepreneur with two employees. The number of employees increased as it gradually established itself as one of the leading manufacturers of compact heating stations in Slovenia, while also the needs and requirements of clients increased. Thus, in 2002 the status of a sole entrepreneur was converted into a new company Simon Ltd., which today has 21 employees. Our main customers respectively clients are mechanical installers, distributors of thermal energy and end-users. Business partners with whom we work are recognized European and Slovenian companies in the field of heating / cooling technologies (Swep, Danfoss, Wilo, Grundfos Pumps IMP, Sauter, Belimo, Samson, genebra, Siemens, Herz, TA, IMP Fittings,).

Picture 1: Company Simon Itd.



Picture 2: Compact heating sub-station in the cabinet.





Picture 3: Compact heating sub-station for preparation of sanitary hot water



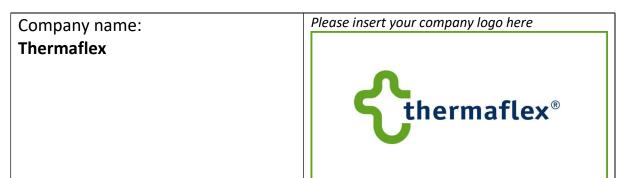
Picture 4: Distributor / collector for heating

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Contact Contact person: Žvegla Samo (director) Address: SIMON d.o.o., Taborska cesta 34, 1290 Grosuplje Country: Slovenia E-Mail: samo.zvegla@simon.si Phone: 031 336 144 Website: www.simon.si





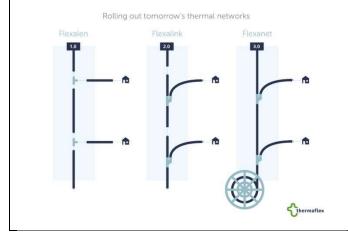
Fields of our activities for small district heating:

Thermaflex is the manufacturer of Flexalen pre-insulated pipes – diameter range d16-d225. The medium pipe is made out of Polybutylene, which is known for its flexibility and durability. Insulation and outer casing are made of PE. We strive for cost efficiency, fast installation and durability.



We supply in 3 levels of prefabrication.

- 1. Separate pipes, joints and insulation kits.
- 2. Elongated flexible T-pieces, which form a network when connected.
- 3. Complete prefabricated network that can be rolled out in place.



References:

Flexalen pre-insulated pipes are in use all over Europe as well as in very demanding environments like Caribbean islands and Antarctic snow. Our solutions can for example be found in:

- Energie Steiermark, Austria
- Heiligenkreuz, Austria
- Otopeni, Romania
- Lucenec, Slovakia
- Novo Mesto, Slovenia
- Purmerend, The Netherlands-
- La Capelle Marival, France
- Lyngdal, Norway
- Wörgl, Austria
- Maldives
- Cancun, Mexico
- Rotorua, New Zealand

General fields of our activities:

Aside pre-insulated pipes for district heating/cooling and other thermal energy projects, Thermaflex has built a solid reputation in Technical Insulation products. We manufacture truly sustainable and extremely durable insulation, awarded the number one quality/suitability certificate: Cradle to Cradle.

General description of our group:

Thermaflex is a privatly owned company, where taking care of future generations has been in our very nature since 1976.

We are active in 45 countries and operate 5 production plants in Europe, Middle East, Russia and Thailand.

Contact: *Thermaflex-Flexalen* Contact person: Artur Klos Address: Vienna Country: Austria E-Mail: a.klos@thermaflex.com Phone: +43 676 523 7714 Website: <u>www.thermaflex.com</u>





Company name:
WVterm d.o.o.
Preredovičeva 22 SI – Maribor



Fields of our activities for small district heating:

Production and sale of pellet and wood chip boilers for up to W55 of humidity. We produce boilers from 25 to 6.000 kW. The program also contains Wood chips steam boilers from 120 to 4.000 kW, operating pressure of up to 16 bar. The Company also manufactures all feeding technology, fuel silo equipment and hot water heat storage. All supplied technology can be installed and put into operation by WVterm.

In the planning process we work closelly with the ingeneering Company and the investors in order to obtain the optimal solution according to the investors targets in accordance with the applicable standards and regulations. We also provide DVG schemes for basis for statics and architecture, ...

References:

- District heating Čardak Črnomelj, 2,2 MW boiler
- District heating Kozje, 1,5 MW boiler
- Small heating system Brezje pri Ljubljani 0,15 MW boiler
- Boilerroom Olimje, 2,2 MW boiler
- Boilerroom OŠ Puconci, 0,4 MW boiler
- Boilerroom Gorenje Marles, 2,0 MW boiler
- Grain drying Škaper, 3 MW boiler
- *Boilerroom* Inles, 2,5+1,5 MW *boilers*

General fields of our activities:

- Manufacturing of grain and cucurbits drying equipment
- Heat exchanger manufaturing
- Economizer manufacture
- Manufacture of various contructions
- Manufacture of chain and screw conveyors
- Production of firewood boilers with lambda probe and superior control
- Laser cutting
- Bending with CNC bending machines
- Rolling sheet metal with CNC machines
- Robot welding
- Cutting bar material with CNC machine
- Installation and maintenance of manufactured equipement

CooHeatir

General description of our company:

The company has over 150 years of tradition, until 1970 WVterm produced wagons and steam locomotives. After 1970 the production of boilers under license STADLER began. In 1985 we started to produce biomass boilers under the brand Bioflamm. The company has its own development and research group. Since 2015, WV term is a part of the NRG group from Germany and participates in production of boilers and components for steam and ORC cogeneration.





Office



Boilerrom Novo Mesto

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Telephone: 02/4292 810

Web page: www.wvterm.si

Boiler 1,5 MW Kozje