LEGISLATION AND REGULATION ANALYSIS COUNTRY BROCHURES

CROATIA

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The brochure below presents the legislative and regulatory conditions applicable in Croatia for the real case study sites UNESCO Technical Museum in the City of Zagreb.

GEOTHERMAL LEGISLATION

Geothermal Energy is defined by technical definition only in the Energy strategy for the Republic of Croatia (2009) as energy contained in Earth's crust which is extracted via internal water energy or steam and exploited for energy purpose. It is also referred as a renewable energy source in the above mentioned strategy, as well as the national Energy Act.

No specific definition of shallow geothermal energy exists; a technical definition of shallow geothermal energy is used and defines the heat stored in ground up to a depth of 400 m (Official Gazette 56/15). This definition is used in the requirements and criteria for establishing a quality system for services and works for certification of installers of renewable energy sources, shallow geothermal systems and heat pumps.

LOCAL LEGISLATION

There is no specific legislation at local administration level.

LICENSING & PERMITTING PROCEDURES

LICENSING AND PLANNING APPLICATION

There is no dedicated licensing system in place for GSHPs. An obligation under the Water Act requires systems to obtain permission as well as undertake reporting and monitoring (volume) where groundwater is extracted from depths greater than 10 m. This includes heat pumps that use groundwater as a source. For these systems the Hrvatske vode is the licensing authority and the legal entity responsible for water management established by the Water Act (Official Gazette no. 107/95 & 150/2005). Permitting for groundwater systems takes approximately 30 days if no additional information is required and the typical cost is about €100.

There is no differentiation between different types of ground source system types in the regulations, however any heating and cooling system with an installed capacity greater than 30kW requires planning permission and a building permit (Ordinance on simple and other construction works - (Official Gazette No. 79/14, 41/15, 75/15).

DRILLING PERMITS

There are no specific permits required for drilling ground source heat exchanger boreholes.

EIA REQUIREMENTS

There is no requirement for the completion of an EIA for the closed loop heat exchangers.

MONITORING REQUIREMENTS

Monitoring and reporting requirements for used groundwater depend on the quantities extracted. The reporting frequency varies with once a year for <1000 m^3; every three months for 1000-10000 m3; every month for >10000 m^3. A monitoring cost of €1c per m^3 applies.

REGULATIONS

GSHP SYSTEM REGULATIONS

There are no specific regulations for ground source heat pump systems aside from those applicable under the Water Act as mentioned in the sections above.

ENVIRONMENTAL

Restriction to the development of ground source heat exchangers are in place in certain water protection zones defined in the Pravilnik O Uvjetima Za Utvrđivanje Zona Sanitarne Zaštite Izvorišta (Official Gazette 153/09 - http://www.propisi.hr/print.php?id=3947). The Technical Museum is located in an area classified as zone 3 of the water protection areas and open and closed loop system can be used.

Restrictions are applied to zone 1 water protection areas located close to groundwater abstraction points used as water supplies.

BUILDINGS

Technical regulations on energy economy and heat retention in buildings (Official Gazette 128/15; Building Act Official Gazette 153/13) are applied to building permits, subject to complying with the energy performance requirements. A permit application must be accompanied by a technical assessment on the integration of alternative energy sources for H&C (at least two different systems proposed).

Article 42 of the technical regulations sets the ratios of renewable energy and total delivered energy for operation of heating and cooling systems as minimum of 20%. Specific ratios for renewable energy sources for heating, cooling and DHW production of at least 25% for solar, 30% for gaseous biomass, 50% for solid biomass, 70% for geothermal energy, 50% for high efficient cogeneration system and district heating systems that comply with earlier mentioned ratios of used RES. These conditions do not apply if there are at least 4m^2 of solar collectors for heating or DHW installed.

In the case of retrofit buildings, at least 10% of energy needs must be met by RES. District heating and cooling systems are accepted as long as they utilise RES, except for times when use is not economically and technically justified.

Any other building including new residential developments, new non-domestic and public sector buildings must be designed and constructed in a way that enables the use of RES, with a condition that with GSHPs, the ratio of renewable energy from geothermal system and supplied heat energy for

HEATING & COOLING PLANTS

The European F-GAS regulations (EC517/2014) are covered by the Air Protection Act (Official Gazette No. 130/11, 47/14), Regulation on ozone depleting substances and fluorinated greenhouse gases (Official Gazette No. 90/14). These cover equipment and the training and certification of personnel working with F-Gases. Special restrictions at local level do not exist. There are no targets for the use of HFC alternatives or requirements; only the use of existing HFC gasses is gradually phased out as stated in ANNEX III of EC517/2014 directive

Specific technical regulations on heating and cooling systems in buildings and ground source heat pumps are covered in the Official Gazette 110/08. Technical regulation on energy economy and heat retention in buildings (Official Gazette 128/15).

POLICY CONTEXT

A target contribution of renewable heat from heat pumps (no specific target for geothermal) of 95.6 ktoe by 2020 has been set in the NREAP for Croatia. The recently published progress report in 2013 showed that the expected target for 2012 of 26.4 ktoe was achieved with a total contribution of 26.4ktoe reported.

The Ministry for Economy published an Energy strategy of the Republic of Croatia (Official Gazette 68/01., 177/04., 76/07. i 152/08.) in 2009. This highlights geothermal energy but does not set clear targets for GSHP systems, only heat pump systems using water are considered in prediction of energy production by 2020. Very little market data specific to ground source systems is available.

STANDARDS & GUIDELINES

The only national standards applicable to the GHSP collector equipment relate to pipe materials which must comply with the PE100-RC or PE100 specification used for drinking water pipes. Standards: HRN EN 12201-1, HRN EN 12201-2, PAS 1075 are applicable.

No specific guidelines were reported at the time of the analysis.

TRAINING & CERTIFICATION

No training schemes are applicable for designers or drillers in Croatia, however the 2016 Energy Efficiency Act (Official Gazette 127/14) sets out the requirements and criteria for establishing a quality system for services and works for certification of installers of renewable energy sources and specifically for shallow geothermal systems and heat pumps (Official Gazette 56/15).

A certification process for HVAC systems designer and for drillers is in place at national level. Drillers require certification. This is obtained if the company satisfies requirements set in Ordinance regulating drilling and hydrogeology works (Official Gazette 83/10, 126/12 i 112/14). The requirements include: financial and solvency status of the company, number of employed geology engineers with relevant experience, number of drillers and assisting staff, equipment available.

OTHER INFORMATION

A national database and register of systems is in place for those ground source systems utilizing groundwater below depths of 10m. These must be reported and quantities of groundwater used must be monitored. The database also includes registered heat pump systems coupled to ground heat exchangers.

Basic information about geothermal energy and GSHP systems is presented in a section related to the use of RES by the Ministry of Economy.

The Environmental Protection and Energy Efficiency Fund is implementing energy retrofit programmes adopted by the Government of the Republic of Croatia. The fund co-finances energy efficiency measures in buildings, with a view to reducing the consumption of energy at national level and reducing CO^2 emissions.

Building retrofit (renovation) programmes are in place for different types of buildings, and they are implemented for the renovation of family houses, multi-residential buildings, non-residential commercial buildings and public buildings.

As a part of improving building performance programme, GSHP as other RES, are periodically co-funded depending on location of building (40% or up to €1,600, 60% or up to €2,400, 80% or up to €3,200) at a national level.