



SDHplus
Solar District Heating in Europe

*WP2 – SDH enabling buildings with high energy performance
Task 2.1 – Survey and horizontal review of the existing models*

**D2.2 – Information sheet on
building legislation and district heating**



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Country

Poland

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1. How DH is accounted for in the calculation of energy performance of buildings according to national laws, with specific attention to SDH.

The general regulations that apply to construction processes is Construction Law (1994), which normalizes all processes referring to design, construction and deconstruction of buildings. The act also defines the actions that public entities can undertake. Technical standards and norms are defined by specific regulations. In the area of renewable energy technologies in construction process the most important part refers to energy performance of buildings and implementation of EU regulations (directives 2006/32/WE and 2010/31/WE).

The document that implements directive 2010/31/WE regarding energy performance of buildings is act issued by Minister of Transportation, Construction and Maritime Economy on 21st of June 2013, which implements changes the scope and form of construction projects. (Dz.U. 2013 nr 0 poz. 762, 2013). Several new annotations were added to the law regarding the analysis of possibility of implementation of alternative, high efficiency energy and heat supply systems, provided specific technical, environmental and economical conditions are met. Alternative systems are defined as decentralized heat supply systems based on renewable energy technologies, cogeneration, district heating or cooling, especially if it is fully or partially based on renewable energy technologies. The analysis stipulates the requirements based on building energy performance, fuel sources available, conditions of connection to external network, optimization and comparison calculations and system selection. In case when buildings with same purpose and similar technical and utilization parameters are taken into consideration, one analysis may consider all of them. The Energy Efficiency Act from 15th of April, 2013 (Dz.U. 2011 nr 94 poz. 551, 2011) defines the target of energy savings taking into consideration the leading role of public sector and sets mechanisms for support, monitoring and collection of data. The act is an implementation of directive 2006/32/WE on energy use and energy services.

2. Practical example of calculation.

Heat demand calculations (heated water, heating and ventilation) are conducted accordingly to the methods introduced in the act of Ministry of Infrastructure (see diagram 1), (Dz.U.2008.201.1240, 2008). The act consists also of most reference values, coefficients and factors. For the purpose of projects specific methods and industry standards are used (see literature). The reference values and guidelines that are used for calculations are presented in the supporting programs/documents, which are regularly updated in regard to the current legislative status.

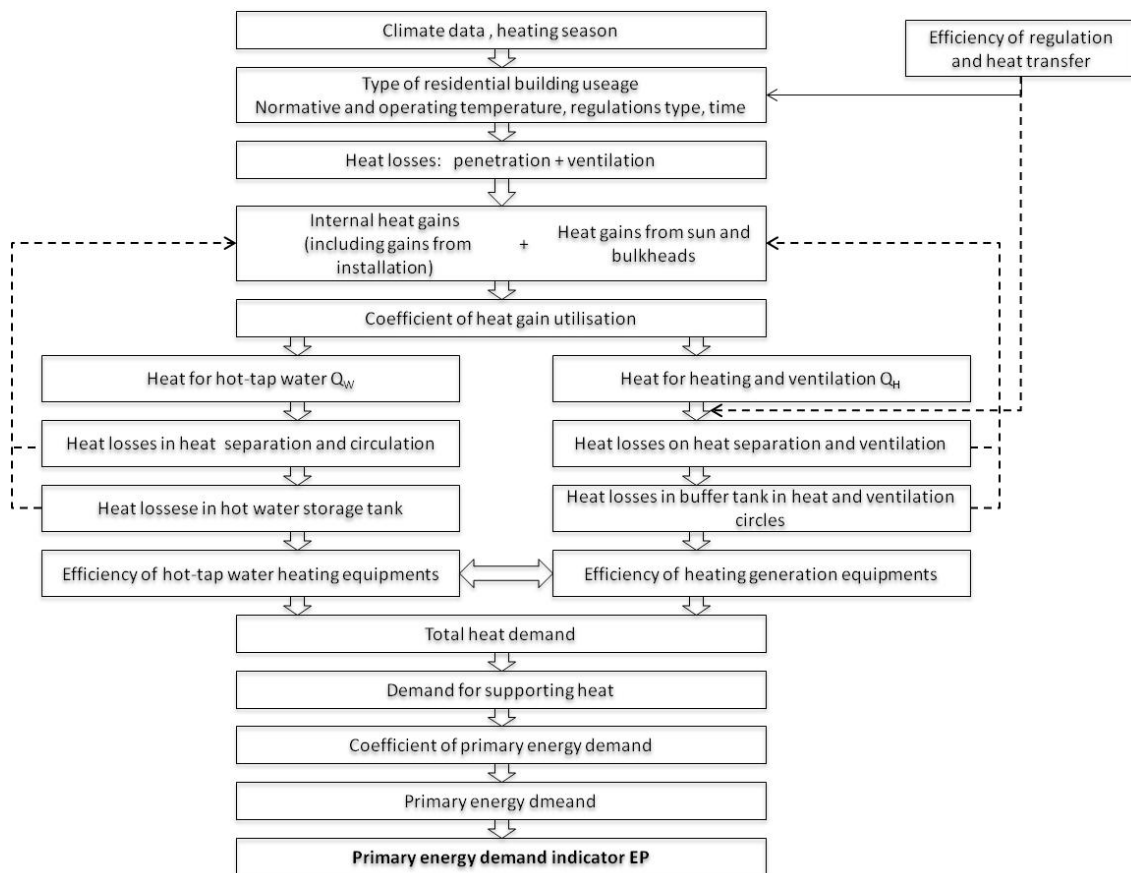


Fig. 1 Diagram illustrating calculation procedure for primary energy demand for heating and tap water (Dz.U.2008.201.1240, 2008, p. 10912)

3. Standard methods and software tools usually used for such normative calculations.

The reference values and guidelines that are used for calculations are implemented in the supporting software tools, which are regularly updated in regard to the current legislative status. Sample computer programs are Audytor OZE, Kolektorek 2.0, T*SOL, TRNSYS, CERTO, EXPERT Certyfikat Energetyczny+, BuildDesk Energy Audit.

4. Limits and opportunities for SDH according to the existing methodology.

The need to develop renewable energy technologies with a particular focus on cogeneration is pointed out as a one of the key challenges of the heating industry. Usage of solar-based systems can be incorporated in this challenge although in Poland, such systems are only used by individuals interested in lowering the costs of energy.

Any energy company that distributes heat is legally obliged to purchase any heat generated by systems based on renewable energy technologies in the amount not exceeding the demand of entities receiving heat from the company (Dz.U. 1997 nr 54 poz. 348, 2012).

Furthermore, a rule derived from the act allows any alternative suppliers, producers and receivers a unblocked access to grid infrastructure by Third Party Agreement.

The reasoning behind investments in solar-based systems are economic criteria, which includes requirements resulting from current climate policy:

- Full investment cost of solar-based system
- Full investment cost of alternative scenarios
- A comparison between scenarios in terms of economical and technical efficiency and selection of the best alternative

Profitability of solar-based investment may be indicated by:

- High demand on heated water during summer periods
- Lack of economic reasoning for using heat generators of higher capacity, when only small part of it output is used
- Long distances to the district heating network and a consideration of creating a separate, local heating network with a closer heating source
- High operating costs connected with i.e. increasing costs of heat

5. *Possible improvements for the methodology and for the current legislation.*

The most crucial aspect influencing the possibility of implementation of big-scale solar-based installations with current heat prices and costs is an economic support of said investments. The current regulations pose a possibility of connecting to the heating network and receiving heat. The greatest barrier remains the investment costs, which is also the aspect that should be properly addresses by specific regulations.

References

1. *Dz. U. z 2006 r. Nr 156, poz. 1118 z późn. zm., 2006. Prawo budowlane.*
2. *Dz.U. 1997 nr 54 poz. 348, 2012. Ustawa z dn. 10 kwietnia 2007 r. Prawo Energetyczne*
3. *Dz.U. 2011 nr 94 poz. 551, 2011. Ustawa z dnia 15 kwietnia 2011 r. o efektywności energetycznej*
4. *Dz.U. 2012 nr 0 poz. 462, 2012. Rozporządzenie Ministra Transportu, Budownictwa i Gospodarki Morskiej z dnia 25 kwietnia 2012 r. w sprawie szczegółowego zakresu i formy projektu budowlanego*
5. *Dz.U. 2013 nr 0 poz. 762, 2013. Rozporządzenie Ministra Transportu, Budownictwa i Gospodarki Morskiej z dnia 21 czerwca 2013 r. zmieniające rozporządzenie w sprawie szczegółowego zakresu i formy projektu budowlanego*
6. *Dz.U.2008.201.1240, 2008. Rozporządzenie Ministra Infrastruktury z dnia 6 listopada 2008 r. w sprawie metodologii obliczania charakterystyki energetycznej budynku i lokalu mieszkalnego lub części budynku stanowiącej samodzielną całość techniczno-użytkową oraz sposobu sporządzania.*