

Application guidelines related to the model contract for heat trade

9 January 2024

The application guidelines are meant as support for drawing up the contract as well as help in drawing up and applying individual contracts concerning heat trade

- Separate specific application guidelines are described in this document, explaining the contents and the underlying purpose of the model contract in further detail. Therefore, the guidelines provide support for drawing up the contract as well as help in drawing up and applying individual contracts concerning heat trade. **The application guidelines are not part of the contract.**
- The model contract includes only the key topics that should generally be agreed on in a contract concerning heat trade or that should at least be assessed when drawing up individual contracts. In addition, it is possible to add individually agreed terms, price lists and technical instructions to the contract where necessary.
- In addition to the contract clauses in the model contract, individually agreed conditions and needs specific to each case in the heat trade in question must be taken into account. It is likely that it will be necessary to specify or deviate from the model contract with respect to an individual contract, and therefore it is generally not possible to draw up a comprehensive model contract that would suit every situation.
- In addition to the model contract for heat trade, there may be a valid heat contract between the heating company and the customer, concerning the heating of a property with district heating, agreeing on connecting the heat consumption site to the district heating network and supplying heat to the heat supply point. The general terms of contract for district heat shall be applied to the heat contract. The heat contract and the general terms of contract for district heat are not applied to the purchase of heat referred to in this model contract.

Utilising the guidelines

- The guidelines are meant for district heating companies and for district heat customers considering the possibilities of utilising waste heat. The objective is:
 - To help and activate district heat customers to offer waste heat to the district heating network.
 - To help and activate district heat companies to utilise waste heat.
 - To increase understanding of the functioning of the **district heating system** and its possibilities in utilising waste heat.
 - To present how it is technical possible to receive waste heat into the district heating network, which kind of technical boundary conditions the district heating network has for receiving waste heat and what it requires of the district heating system.
 - To describe factors having an impact on sales, production and agreement and to facilitate their assessment and observation.
 - To present technical operating instructions for district heating companies for the purpose of case-specific inspections to gain as harmonious good practices as possible, also taking into account the vendor's needs.
- In the interest of simplification, in these guidelines we have used the term “waste heat”. The subject is also referred to with many other terms, e.g. surplus heat, opening the networks, third-party access to the network and two-way district heat. In this context, waste heat generally refers to all excess heat which cannot be utilised in the property itself.

About the model contract and agreement in general

General

- Primarily, it is worth utilising heat produced or created in a property for one's own use.
 - Reception of waste heat into the district heating system is technically possible, taking the local conditions into account.
 - Even today, about one-third of heat transmitted in Finland's district heating network is procured through heat-trading
- District heating companies develop their systems in the long-term so that the utilisation of various waste heat sources is increasingly more possible.
- The supply and transfer of heat into the district heating network must be technically, environmentally and/or economically justified from the viewpoint of both parties and ultimately beneficial for all customers.
- When waste heat sources are connected to the network, *the situation from the network's viewpoint is the same as if the district heating company would connect its own new production units to its network.*
 - The connection of waste heat sources requires harmonisation of temperature and pressure levels and resolving of topics related to the secure and efficient use of the entire system.
- Every producer or heat source connected to the network is unique. Similarly, every district heating network is different with respect to, e.g. its size, network, production and customer structure, and operation.
- The need for heat transferred to customers in the district heating network depends largely on the outside temperature. There is almost always several heat production plants in a district heating system.
 - The impacts of connecting new heat sources to the network and that way the applicability of receiving waste heat, as well as the technical preconditions, terms and solutions, are always specific to each system and case.

General

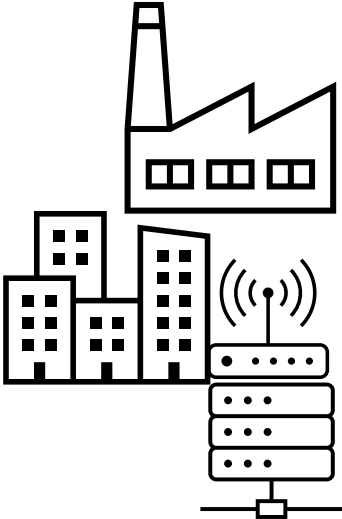
- The connection possibility and its implementation method is investigated in each case separately. This requires examinations of, e.g.
 - Value of heat to be bought for the network
 - Production replaced by the heat purchased
 - Network dimensioning and any bottlenecks
 - Connection point and method
 - Temperature and controlling the temperature of the feedwater
 - Pumping and network pressures
 - Network use and its management
 - Optimisation of the entire system's operation
 - Security of supply
 - Investment and maintenance responsibilities with regard to the devices and division of costs, also concerning the acquisition of peak and reserve power, as well as maintenance.
- The extent of the examination depends of the relation of the energy amounts fed into the network to the transmission capability of the district heating pipe.
- The district heating company/network operator is responsible for the quality and conformity of the heat delivered to customers. The district heating company/network operator manages and operates the system entity in all situations.
- In a possible fault situation in the district heating network, the capability of receiving heat may be diminished or cut off completely. The waste heat supplier must prepare itself for the situation and, if necessary, be able to suspend its production sufficiently quickly or direct the heat elsewhere on a temporary basis.

Connecting waste heat to the district heating system

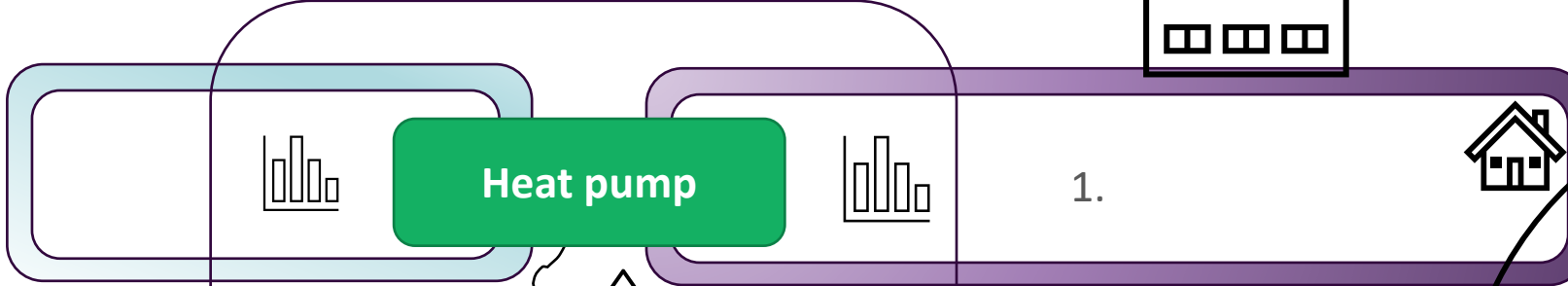
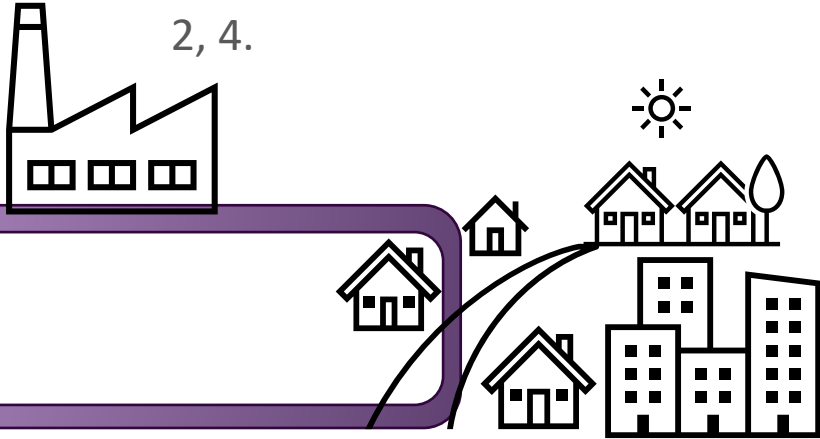
The connection, investments, use and maintenance of waste heats, as well as sharing of their benefits, shall be agreed upon.



Waste heat comes from different processes and functions



Heat demand



Heat pump

3.

1.

2, 4.

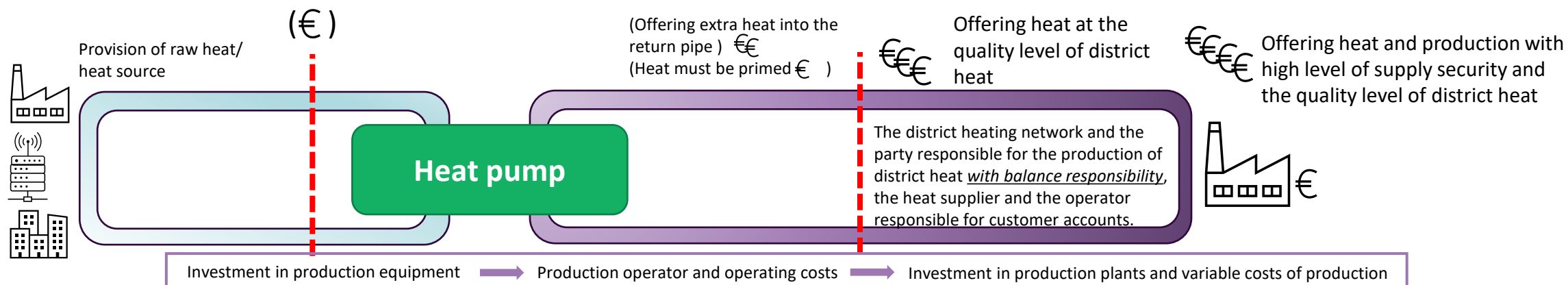
Technical arrangements and functions for heat transmission and distribution

The district heating network (1) and the party responsible for heat procurement in the district heating system with *balance responsibility* (buyer) (2), the heat supplier (3) and the operator responsible for customer accounts (4).

Rough value creation and business model

- Value of heat production ~~≠≠≠~~ Price of heat for the customer
 - There are often items of expenditure and taxes on top of the changeable costs of production, for example, financial items of plant investments, operation and maintenance costs, distribution costs and, e.g. value added tax.
- District heating companies need to stay competitive due to competition with other heating forms to satisfy customers' needs
 - All purchased production competes against existing production, as heat procurement is always based on the balanced evaluation of the whole with an emphasis on, e.g. price, security of supply, distribution of production methods, and environmental values. This is a complex entity, and every district heating company has its own roadmap and business plan to meet these challenges
 - Investments in waste heat projects compete with other investments concerning favourable prices in relation to other production investments and e.g. promised capacity level, availability and long-term existence of heat source.
 - The district heating companies have to ensure continuity and sufficiency of production in all situations, also in exceptional situations. This is commonly done by having multiple different sources of heat.
 - Waste heat has its own important place and value, but taking the projects to the implementation phase and the value of heat for each company are highly dependent on the extensive entity of variables and the timing of the project.

Rough value creation and business model



Raw heat market:

Passive provision of waste heat for utilisation competes with other free or low-cost heat sources; own flue gases, ambient heat sources such as air, sea-water, geothermal etc.

Waste heat is particularly valuable during cold season (October-March) when many natural heat sources are more challenging to utilise and district cooling or property-specific cooling do not produce high amounts of waste flows for utilisation.

District heat market:

Competes with the company's own production. In terms of permanent heat sources, the need to invest in own capacity can even be reduced.

What is particularly interesting is the possibility to acquire heat during the cold period in the heating season (November-March) when there is a high demand for production and it may be necessary to rely on peak production plants.

Production with high level of supply security (e.g. backup plant corresponding to the output/partial capacity, purchase of services in reserve production or ensuring demand flexibility corresponding to production) and **commitment as a long-term heat producer** will raise the value close to the same level as the company's own production and the investments needed by it.

The possibility of connecting the site control as part of the operation of a district heating system would also increase the value.

Rough value creation

Contract period	Investing	Temperature levels	Value / Interest / Ease of agreeing
Fixed term <5 years	Vendor will not make investments	Low-temperature raw heat ~1-15 C	€ ? ? ? ? ?
Fixed term < 5 - 15 years	Vendor invests in heat recovery at the site	Fairly low-temperature raw heat ~15-25 C	€ ? ? ? ? ?
Fixed term >15 years	Vendor invests in the heat pump equipment	Raw heat, waste heat ~25 C ->	€€€ ? ? ?
Valid until further notice	In addition to equipment investments, the Vendor takes care of operation and maintenance investments with respect to production	Almost directly utilised heat ~60-70 C	€€€€ ? ? ? ?
Valid until further notice, long period of notice/ permanent heat source	In addition to investments and operation, the Vendor's production includes continuous production (availability e.g. >90%) corresponding reserve capacity, corresponding demand flexibility or share of the capacity safeguarded	Heat directly available to utilise as district heat, in the summer >70 C, in the winter ~90 C	€€€€ ? ? ? ? ?
Heat source/production potential can be continued and the equipment can be transferred to the heat company's balance sheet	In addition to the above, production with high level of supply security accounts for [X]% of production, which the Buyer can direct as part of the district heating system.	Heat directly available to utilise as district heat, in the summer >70 C, in the winter ~90 C	€€€€€ ? ? ? ? ? ?

Application guidelines for contract sections

1. Contract data

1.1 Property owner as party to the contract

- *” In rented properties: E.g. a property company can also be added here as a party to the contract.*

Property owner x

Company name:

Address:

Business ID: ”

- In all cases, where the heat vendor is not the owner of the property where heat is produced. In addition to the district heating company and the heat vendor, it is also possible to have, e.g. a real estate company as a party to the contract because permanent pipelines and equipment are installed in the technical facilities of the property.
- The property owner may also be the only other party, offering, e.g. process facilities with waste heat recovery. E.g. data centres, commercial facilities, major shopping centres, cold storage facilities, etc.

1.2 Purpose and subject of contract

- **Alternative 1 (The heat sold fulfills the quality requirements of district heat)**
 - When selling heat as district heat, the Parties agree specifically on a level of quality and temperature that corresponds to district heat production.
- **Alternative 2 (heat is sold)**
 - The Vendor may also supply or offer other heat energy, in which case it does not even try to offer it as suitable for use as district heat. This section is suitable for use with various quality levels of heat, connection methods and further processing solutions in a flexible way.
 - The Vendor may offer, for example, waste heat for the Buyer to utilise with a heat pump.

1.3 Rights and obligations of the Parties

- **Alternative 1**
 - *[The Vendor has no production obligation.]* This is suitable for a site with a low possibility of having an impact on production or invest in the durability of production, as otherwise the vendor would have an unreasonable risk with regard to the production promise – for example, retail trade, service sector, small data centre, etc.
- **Alternative 2** (*it is described that a certain part of production is stable in terms of its duration, particularly in the heating season*)
 - For example, if part of the production at the site can be offered with particular certainty under normal circumstances, the heat company may reduce this share to replace its own normal production in a planned way. This may have special value especially in the heating season. The contract model does not have sanctions for missing production or an obligation for production in order to assess the production amounts and benefits of established operations in good co-operation, however, with a lower threshold for the producer. The outcome can be monitored at regular intervals, for example, with the update of the price appendix or contract values.
 - E.g.: [[XX]% of the nominal contracted capacity of the site is available in the heating season with [XX]% certainty. An example of this is a data centre, the operation of which has been established for a certain level, or small-scale industry with a certain constant production volume under normal circumstances, creating waste heat.
- **Alternative 3**
 - The Vendor and the Buyer can agree on a free-form description of production or describe a typical situation in heat production and describe the duration or seasonal variation of production.
 - If the parties so wish, it is also possible to agree on reserve capacity or production obligations.
 - If the site is large or otherwise significant in terms of the system, the Buyer must take care of the security of supply aspects and, when drawing up the contract, also take into account the procurement of reserve capacity or contingency arrangements. Reserve capacity may be part of the contract, but it does not need to be part of the contract as it can also be formed with other arrangements.

1.3 Vendor's and Buyer's rights and obligations

- Due to the nature of heat demand, heat has a value tied to the time. Therefore, the value of sold heat to the district heating company depends, e.g. on the network production structure, amount, durability and time of supply. For that reason, in terms of production, durability can be agreed on according to the presumed normal operation and variation of the site.
- Processes producing waste heat are very different: in some, waste heat is produced constantly and it may even be possible to replace some of the heating company's own production capacity with sufficient durability. In some processes production is more variable, in which case an contract with fewer obligations is more suitable and the purchase of waste heat will still reduce other need to produce heat.
- The agreed availability in this contract model is non-sanctioned, but the presumed production capacity and availability of the site especially in the heating season has a material impact on the value of the heat sold and it is therefore beneficial for both parties that a credible and reliable estimate is found for the site in co-operation, which is updated when necessary.
 - The parties may also agree on production obligations, the procurement of reserve capacity or sanctions when the availability of production is deviated from the agreed. This is only applicable to some sites: these kinds of sites normally have some kind of risk tolerance, a flexible production process and professional operations related to energy production, in which case it is possible to agree on a higher quality level – which in turn also has an impact on the attractiveness and value of the heat sold.
- The Vendor shall have the right to use and circulate heat flows within the facility for its own use [before feeding into the district heating network] OR [before the district heat production equipment] OR [before metering the heat to be sold]. No compensation from the Vendor shall be charged for heat transfer for the Vendor's own use before heat supply to the network.
 - Depending on the ownership, operation and heat supply point of the production equipment, the (metering) point is different, but the property's own use is possible and recommended

1.3 Vendor's and Buyer's rights and obligations

- *" The Buyer and the Vendor may also agree with each other on other situations where it is not compulsory to produce, supply or receive heat"*
 - This refers to situations where, for example, the price of electricity is high, in which case the cost of processing raw heat rises too high for the Buyer or Vendor, depending on the ownership of the production equipment.
 - Similar situations may be, for example, strikes and various planned production outages.

6. Access to the property and facilities by virtue of the Contract

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Alternative section:

" The Buyer shall be entitled to store keys handed over by the Vendor/ [Property owner] in a key safe located at the premises."

- Normally added to the contract whenever it is easy to arrange and does not contradict, e.g. with the property's safety instructions or there is no access to critical production facilities from the technical room.
- A similar entry is included, for example, in the general terms of contract for district heat. Usually it can be arranged that technical rooms with, e.g. equipment belonging to energy and water companies have separate locking, and maintenance and service visits can routinely be agreed on in these facilities.

8. Contracted capacity and water flow



8. Contracted capacity and water flow

- The highest water flow is a value related to the dimensioning of the equipment and the distribution network and estimated in the technical specification and, e.g. from temperature levels together with the output
- The expansion option is agreed only for expanding sites or sites that are built in sections
 - The expansion option is normally set for a fixed term, after which it is possible to agree on a new schedule or release capacity for other needs. The option can also be updated during the period in consensus between the parties at the request of the party.

9. Technical values and quality standard of sold heat

9.1. Temperature level of sold heat

- **Alternative 1 when selling heat**

- *[The temperature of sold heat in the agreed supply point (metering) must comply with the technical design values agreed between the Parties. The design values are specified in the separate Appendix 1.]*
- Here it is possible to agree without restrictions, e.g. on the provision of waste heat for utilisation in an agreed temperature.

- **Alternative 2 when selling district heat to the network**

- When heat is sold as district heat feeding it directly into the district heating network:
 - [The lower temperature limit used for produced district heat is 70–90°C, depending on the outdoor temperature. These are the same values used for the dimensioning of the district heating network and the dimensioning of district heating customers' equipment.]*
- Dimensioning criterion: [Rakennusten kaukolämmitys, määräykset ja ohjeet. Julkaisu K1/2021](#) (District heating of buildings. Regulations and guidelines. Publication K1/2021)

Technical limit values, that the heat sold as district heat cannot fall short of or exceed (see Alternative 1)

- The temperature of district heating water supplied to the **district heating** network at the heat supply point must be a minimum of 65°C and a maximum of 120°C under all operating conditions. The minimum temperature is governed by the general terms of contract for district heat, and the upper temperature limit is set by the design temperature for the components of the district heating network (=highest temperature duration and not operating temperature).]

9.2 Pressure level and maintaining the pressure level

- Especially when selling to the district heating network, but also when offering waste heat for utilisation, the pressure levels and pressure differences must also be agreed on.
- This information is needed for component dimensioning and design.
- Pressure level shall not exceed 1.6 MPa as this is the maximum design pressure of district heating network equipment.

13. Price

13.1 Pricing structure for sold heat

- **Alternative 1**

- *[The Buyer pays for the [produced]/[supplied] heat in accordance with Price Appendix 2.]*
- The appendix to the agreement between the seller and the buyer, specifying the property-specific value of heat, along with potential update cycles and details related to value updates.
- Factors having an impact on value creation at a rough level have also been described in this presentation.

- **Alternative 2**

- *[In accordance with the public open price list.]*
- Some companies have a public purchase price list and terms for open district heat on their website. In such a case, this principle can be complied with and record it in the contract or as an appendix.

17. Validity of the contract

17. Validity of the contract

- A few alternatives for the period of validity of the contract have been included in the model contract. The parties may decide for themselves which alternatives in the contract is the most practical solution for them. Especially fixed-term contract types can be used for safeguarding the initial investments of both parties and to secure the commitment.
- **Alternative 1**
 - *[The Contract shall be valid for a fixed period of xx.xx—yy.yy. The fixed-term Contract can be continued for a new fixed period if the Parties so wish. Negotiations on continuing the Contract must be started well in advance before the end of the fixed-term Contract.]*
 - The Contract is first valid for a fixed term and the parties can continue its validity for a new fixed period.
- **Alternative 2**
 - *[The Contract shall be valid for a fixed period of xx.xx—yy.yy. The fixed-term Contract can be continued as valid until further notice if the Parties so wish. Negotiations on continuing the Contract must be started well in advance before the end of the fixed-term Contract.]*
 - The contract is valid for an agreed fixed period, after which the contract can continue as valid until further notice. The contract can be terminated when it is valid until further notice.
- **Alternative 3**
 - *[The Contract shall be valid until further notice.]*
 - The Contract is valid until further notice and the parties can terminate it by giving notice on the contract.

18. Contract expiry

18.1 Fixed-term contract

- "Here, the Parties may agree on the terms for expiring a fixed-term contract in further detail."
- A fixed-term contract is more binding to both parties until the end of the fixed term (please note: See Section 19 "Unreasonableness, in further detail).
- If they so wish, the parties may agree on the terms how a fixed-term contract can be expired prematurely and by invoking which terms it is possible for a party to terminate the contract.
- For example, the parties may agree on the amount of contractual penalty that must be paid to the other party as a result of premature expiration of the contract if the other party wishes to expire the contract.
 - For example, a few potential vendor parties have expressed that the option of withdrawing from the contract, if necessary, is important (for example, if operations are discontinued at the location). In such a case, it is understandable that unamortised investments and costs arising from the premature expiration of the contract are examined as part of the expiration process.

22. Signatures

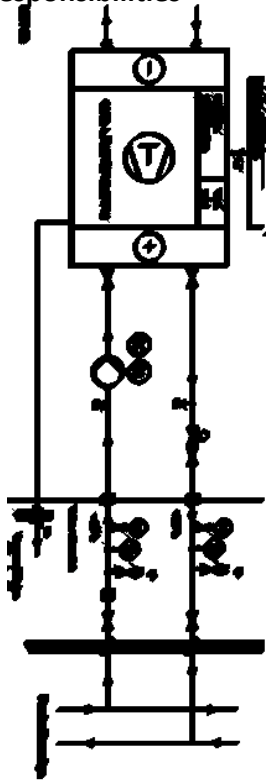
22. Signatures

- **”Alternative 1**
 - *The contract can be signed in writing.”*
- **”Alternative 2**
 - *The contract has been signed electronically by competent representatives of the Parties, and each Party has an identical electronic copy of the signed Contract.”*
- The Contract can be signed either in writing or electronically. The Parties shall choose the most appropriate way for them and the alternative suited for it shall be entered in the contract.

Examples of attaching technical values, equipment specifications and space reservations to the appendices of the contract

Appendix 1 Examples

Process and instrumentation diagram and point representing the distribution of responsibilities

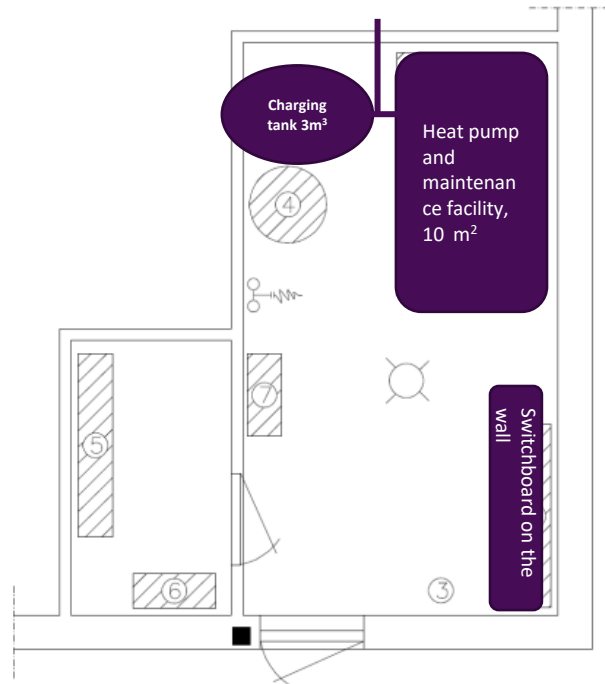


Operation description

A clear operation description ensures operations under all circumstances.

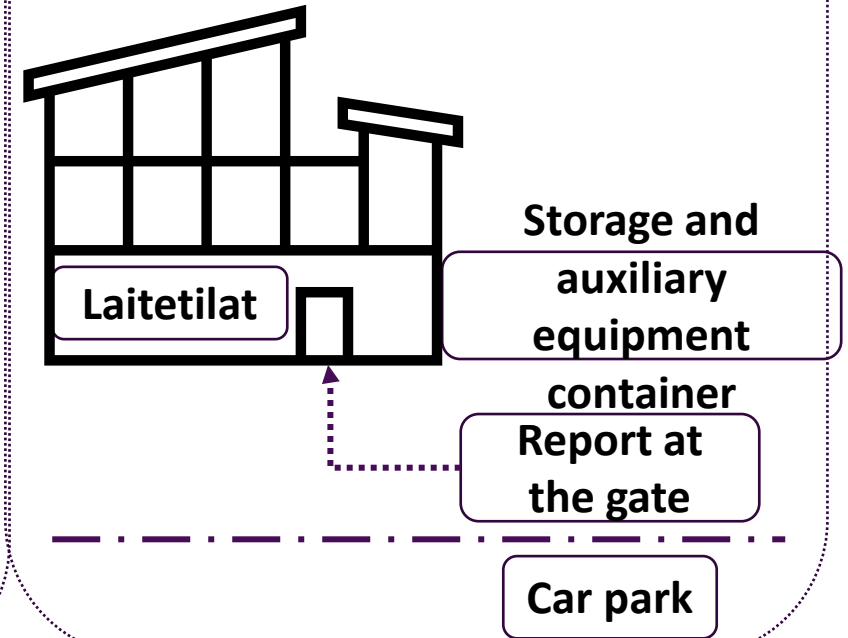
Which logic is used for the operation of pumps and valves, which temperatures are used, operational data of devices, safety functions, automation operations logic, etc.

Space reservations, marked, e.g. on the floor plans, and capacities, square metres, heights – space also on the walls as well as line routes



Rough spaces related to the equipment, access routes and areas in the property. For example:

- Areas, area map
- Equipment facility
- Access routes
- Key topics to be taken into account
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Questions, development proposals and feedback are welcome!

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