

Chapter:	Permissions, tendering, contracts and guarantees
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### Introduction

The coming owner(s) of the solar district heating plant normally wants prices from more than one supplier to be sure to get most value for money. If the coming owner is a utility and the expected costs are more than 4.845 million € the EU-directive coordinating procurement procedures of entities in the water, energy, transport and postal service sectors (Directive 2004/17/EC of 31 March 2004) has to be followed. The rules can be found at <http://ec.europa.eu/legislation>, but are normally available at national homepages in the national language.

If the price is lower than 4.845 million € the EU-directive can be followed, giving suppliers from other EU-countries a chance to give their bid, or national rules can be followed.

### How detailed design?

Many suppliers of solar heating panels are also able to design plants and to include piping, control systems, accumulation tanks, implementation and commissioning in their price and thus act as a total contractor.

Therefore the design phase for the owner does not have to be very detailed. If he knows where to place the solar collectors, the inlet and outlet temperatures and flows and the heat consumption on a monthly base for the district heating system that might be enough. But normally a design calculation has been carried out and therefore he can also point out collector area, size of accumulation tank(s) and needed flows for pumps, size of heat exchangers and control strategy. A total contractor is then able to give a price for the plant.

To be sure, that the quality of the plant will be as wanted by the building owner, the tender document should include specifications for

- Pipes and insulation of pipes
- Pressure level for components
- Temperature level for components
- Quality of steel for heat exchangers
- % of glycol in collector fluid
- Quality of pumps and ability to frequency regulation
- Pressure test of pipes and panels
- Alarm systems
- Security systems for boiling
- Guarantees of performance at system and/or at component level
  - System performance

## Tendering and contracts

- Collector efficiency
- Heat exchanger efficiency
- Control system

### Total contractor or more contractors

If the coming owner of the SDH plant details the project, it will be possible to have separate contractors for pipes, accumulation tank, control system etc. This will cost more time and money for coordination for the owner, but often the supplier don't produce for example steel tanks and therefore has to buy a tank from a sub-supplier. He will then take extra to cover his risk. This can be avoided by dividing the work.

The disadvantage is that if the work is divided into panels, piping, control system etc., it will be more complicated to coordinate the implementation process and commissioning, and it might be impossible to get a guarantee for the total system. Also the issue of who is responsible for what, is of high importance, when several contractors are involved.

A check list for the contract (provided by a total contractor) is seen in the next page.

### Check list for contract (total contractor)

1. Subject of the contract  
Fixes the basics of the solar energy supply and defines the partners.
2. Legal background
  - Tender documents
  - Offer from the total contractor
  - E.g. national rules for total enterprises
  - P&I diagram
3. Description of work
  - Definition of work delivered from the contractor
  - Definition of work delivered from the utility
4. Specifications for components and guarantees (if not already specified in the tender document)  
Especially the control system has to be detailed defined including precise definitions for when delays start.
5. Specifications for commissioning (if not already specified in the tender document)
6. Price and payment rules
7. Guarantees for pre payment
8. Time schedule and rules for calculation of compensation if the construction of the plant is delayed
9. Responsibility for damages during the construction process
10. Contact persons (responsible persons) for the total contractor and for the utility

┆ The SDH fact sheets addresses both technical and non-technical issues, and provide state-of-the-art industry guidelines to which utilities can refer when considering/realizing SDH plants. For further information on Solar District Heating and the SDHtake-off project please visit [www.solar-district-heating.eu](http://www.solar-district-heating.eu). ┆