Subtask A: Collectors and collector loop

- Who do what?
- Time schedule
- Corrections to work plan

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Subtask A: Collectors and collector loop

Lead: DTU, Denmark

Participating countries: Austria, Germany, Italy, Denmark, …….

Aim:

- To assure suitable components
- To assure proper and safe installation and operation

Possible activities

A1: Improve use and accuracy of collector test results
Collector type: Flat plates, PTC collectors (UNIFI, Italy), flow, tilt, fluid

A2: Define requirements and test methods for collector loop pipes
Durability, corrosion, thermal expansion, boiling, fluids, pressure

A3: Requirements to hydraulic design of collectors and collector fields
Flow distribution, pipe heat loss, regulation valves

A4: Precautions for safety and expansion
Stagnation, air escape, thermal expansion of fluid, drain back systems
(RE-source Renewable Energy, the Netherlands)

A5: Guaranteed performance of the collector loop
Method to check thermal performance

A6: Cost/performance improvement
Design, control and operation strategy

Possible deliverables

A-D1: Models for correction of collector efficiency depending on collector type, flow rate, collector tilt and solar collector fluid

A-D2: Input to EN 12975/ISO 9806-1

A-D3: Requirements and test methods for collector loops – prenormative work

A-D4: Guidelines for requirements for collector loop installation

A-D5: Detailed simulation models for solar collector fields

A-D6: Determination of optimum control and operation strategies for solar collector fields

A-D7: Procedure for guaranteeing performance of solar collector fields

A-D8: Procedure for guaranteeing performance of solar collector loop heat exchangers

A-D9: Proposals on improvement of cost/performance ratio of building integrated collector fields

A-D10: Proposals on improvement of cost/performance ratio of ground mounted collector fields

A-D11: Input to Task web site

A-D12: Input to ”Design Handbook”

A-D13: Subtask A Summary Report

Who do what?

A-D1: Models for correction of collector efficiency depending on collector type, flow rate, collector tilt and solar collector fluid

Participant	Hours
DTU, DK	
PlanEnergi, DK	
Brædstrup, DK	
Marstal, DK	
LOGSTOR, DK	
AGFW, D	
SOLID, AT	
AEE-INTEC, AT	
UNIFI, IT	25
Total	25

A-D1.1: Collector type

Participant	Hours
DTU, DK	200
PlanEnergi, DK	
Brædstrup, DK	
Marstal, DK	
LOGSTOR, DK	
AGFW, D	
SOLID, AT	
AEE-INTEC, AT	
UNIFI, IT	10
Total	210

A-D1.2: Flow

Participant	Hours
DTU, DK	200
PlanEnergi, DK	
Brædstrup, DK	
Marstal, DK	
LOGSTOR, DK	
AGFW, D	
SOLID, AT	
AEE-INTEC, AT	
UNIFI, IT	
Total	200

A-D1.3: Collector tilt

Participant	Hours
DTU, DK	200
PlanEnergi, DK	
Brædstrup, DK	
Marstal, DK	
LOGSTOR, DK	
AGFW, D	
SOLID, AT	
AEE-INTEC, AT	
UNIFI, IT	10
Total	210

A-D1.4: Solar collector fluid

Participant	Hours
DTU, DK	50
PlanEnergi, DK	
Brædstrup, DK	
Marstal, DK	
LOGSTOR, DK	
AGFW, D	
SOLID, AT	
AEE-INTEC, AT	
UNIFI, IT	
Total	50

A-D2: Input to EN 12975/ISO 9806-1

Participant	Hours
DTU, DK	
PlanEnergi, DK	20
Brædstrup, DK	
Marstal, DK	
LOGSTOR, DK	
AGFW, D	
SOLID, AT	
AEE-INTEC, AT	
UNIFI, IT	
Total	20

A-D3: Requirements and test methods for collector loops – prenormative work

Participant	Hours
DTU, DK	
PlanEnergi, DK	
Brædstrup, DK	
Marstal, DK	
LOGSTOR, DK	?
AGFW, D	?
SOLID, AT	
AEE-INTEC, AT	
UNIFI, IT	
Total	?

A-D4: Guidelines for requirements for collector loop installation

Participant	Hours
DTU, DK	
PlanEnergi, DK	20
Brædstrup, DK	
Marstal, DK	
LOGSTOR, DK	
AGFW, D	
SOLID, AT	
AEE-INTEC, AT	150
UNIFI, IT	15
Total	185

A-D5: Detailed simulation models for solar collector fields

Participant	Hours
DTU, DK	
PlanEnergi, DK	
Brædstrup, DK	
Marstal, DK	
LOGSTOR, DK	
AGFW, D	
SOLID, AT	
AEE-INTEC, AT	200
UNIFI, IT	40
Total	240

A-D6: Determination of optimum control and operation strategies for solar collector fields

Participant	Hours
DTU, DK	
PlanEnergi, DK	20
Brædstrup, DK	20
Marstal, DK	20
LOGSTOR, DK	
AGFW, D	
SOLID, AT	
AEE-INTEC, AT	
UNIFI, IT	
Total	60

A-D7: Procedure for guaranteeing performance of solar collector fields

Participant	Hours
DTU, DK	
PlanEnergi, DK	60
Brædstrup, DK	
Marstal, DK	
LOGSTOR, DK	
AGFW, D	
SOLID, AT	
AEE-INTEC, AT	100
UNIFI, IT	10
Total	170

A-D8: Procedure for guaranteeing performance of solar collector loop heat exchangers

Participant	Hours
DTU, DK	
PlanEnergi, DK	40
Brædstrup, DK	
Marstal, DK	
LOGSTOR, DK	
AGFW, D	
SOLID, AT	
AEE-INTEC, AT	50
UNIFI, IT	20
Total	110

A-D9: Proposals on improvement of cost/performance ratio of building integrated collector fields

Participant	Hours
DTU, DK	
PlanEnergi, DK	
Brædstrup, DK	
Marstal, DK	
LOGSTOR, DK	
AGFW, D	
SOLID, AT	
AEE-INTEC, AT	
UNIFI, IT	
Total	0

A-D10: Proposals on improvement of cost/performance ratio of ground mounted collector fields

Participant	Hours
DTU, DK	
PlanEnergi, DK	
Brædstrup, DK	
Marstal, DK	
LOGSTOR, DK	
AGFW, D	
SOLID, AT	
AEE-INTEC, AT	
UNIFI, IT	35
Total	35

A-D11: Input to Task web site

Participant	Hours
DTU, DK	50
PlanEnergi, DK	
Brædstrup, DK	
Marstal, DK	
LOGSTOR, DK	
AGFW, D	
SOLID, AT	
AEE-INTEC, AT	
UNIFI, IT	
Total	50

A-D12: Input to ”Design Handbook”

Participant	Hours
DTU, DK	50
PlanEnergi, DK	
Brædstrup, DK	
Marstal, DK	
LOGSTOR, DK	
AGFW, D	
SOLID, AT	25
AEE-INTEC, AT	100
UNIFI, IT	50
Total	225

A-D13: Subtask A Summary Report

Participant	Hours
DTU, DK	50
PlanEnergi, DK	
Brædstrup, DK	
Marstal, DK	
LOGSTOR, DK	
AGFW, D	
SOLID, AT	25
AEE-INTEC, AT	
UNIFI, IT	10
Total	85

Time schedule

Activity	April-Jun'11	Jul-Sep'11	Oct-Dec'11	Jan-Mar'12	April-Jun'12	Jul-Sep'12	Oct-Dec'12	Jan-Mar'13	April-Jun'13	Jul-Sep'13	Oct-Dec'13
A1								Draft of report		Final report	
A2					Draft of report		Final report				
A3								Draft of report		Final report	
A4					Draft of report		Final report				
A5					Draft of report		Final report				
A6								Draft of report		Final report	

A1: Improve use and accuracy of collector test results
A2: Define requirements and test methods for collector loop pipes
A3: Requirements to hydraulic design of collectors and collector fields
A4: Precautions for safety and expansion
A5: Guaranteed performance of the collector loop
A6: Cost/performance improvement

Corrections for work plan?