



Meeting of the Management Committee & Working Groups of COST Action TU1205 "Building Integration of Solar Thermal Systems (BISTS)"

20-21 July 2015, Guimaraes, Portugal

MINUTES OF THE MEETING

Place: University of Minho School of Engineering Civil Engineering Department Av. da Universidade 4800-058 Guimarães

Portugal

Room: B1.15

Participants

Number	Name	Country	20-7-2015	21-7-2015	WG
1	Aeleni Laura	Portugal		\checkmark	WG1
2	Agathocleous Rafaella	Cyprus			WG3
3	Almeida Manuella	Portugal		\checkmark	WG1
4	Ayompe Lacour Mody	IE			
5	Belis Jan	BE			
6	Blagojebic Mirko	Serbia		\checkmark	
7	Bojic Milorad	Serbia			
8	Bonnet Jean	France			
9	Borg Simon Paul	Malta			WG3
10	Braganca Luis	Portugal		\checkmark	
11	Buhagarian Vincent	Malta		\checkmark	WG1
12	Buonomano Annamaria	Italy		\checkmark	WG2
13	Cabeza Luisa	Spain			WG3
14	Cappol Christoph	Germany		\checkmark	WG2
15	Chemisana Daniel	Spain		\checkmark	WG2
16	Christofi Constantinos	Cyprus		\checkmark	WG2
17	Chwieduk Dorota	Poland		\checkmark	WG1
18	Coronas Alberto	Spain			
20	Cristofari Christian	France		\checkmark	WG1
21	Deb Mondol Jayanta	UK			WG2
22	Farkas Istvan	Hungary	\checkmark		
23	Fedrizzi Roberto	Italy			WG2

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24	Florides Georgios	Cyprus			WG1
25	Ford Andy	UK			WG1
26	Georgiev Aleksandar	Bulgaria			
27	Ghosh Aritra	Ireland			
28	Goger Thierry	Belgium			
29	Grobman Yasha Jacob	Israel			
30	Hyde Trevor	UK	\checkmark		
31	Kalogirou Soteris	Cyprus			
32	Kennedy David	Ireland			WG1
33	Keys Donal	Ireland			
34	Kilik Muhsin	Turkey			
35	Kosic Tatjana	Serbia		\checkmark	WG3
36	Kramer Korbinian	Germany			
37	Krstic Furundzic Aleksandra	Serbia			WG1
38	Lamnatou Chrysovalanto	Spain	\checkmark	\checkmark	WG1
39	Leindecker Gerald	Austria			WG3
40	Lopez Lorenzo Jose	Spain			
41	Mateus Ricardo	Portugal			WG2
42	Maurer Christoph	Denmark		\checkmark	WG3
43	McCormack Sarah	Ireland			WG3
44	Miletic Ivan	Serbia			WG1
45	Monteiro Da Silva Sandra	Portugal		\checkmark	WG3
46	Nikolic Danijela	Serbia			WG2
47	Norton Brian	Ireland			WG4
48	Norvaisiene Rosita	Lithuania			WG1
49	Notton Gilles	France		\checkmark	WG1
50	O'Hegarty Richard	Ireland			
51	Ochoa Carlos	Israel			WG3
52	Oleary Tim	Ireland			
53	Palombo Adolfo	Italy		\checkmark	WG1
54	Platzer Werner	Germany			
55	Popov Rumen	Bulgaria			
56	Radulovic Jasna	Serbia		\checkmark	WG3
57	Ramke Stefan	Spain			WG3
58	Riverola Alberto	Spain			WG3
59	Rusowicz Artur	Poland			WG3
60	Savvides Andreas	Cyprus		\checkmark	WG1
61	Shiff Galit	Israel			WG1
62	Smyth Mervyn	UK			WG1
63	Tamasauskas Rokas	Lithuania			WG2
64	Tripanagnostopoulos Yiannis	Greece	\checkmark		WG1
65	Tsioutis Charalambos	Cyprus	\checkmark		WG3
66	Vassiliades Costantinos	Cyprus	\checkmark		WG1

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67	Vittoriosi Alice	Italy			WG1
68	Wansdronk Rene	Netherland	\checkmark	\checkmark	WG3
69	Zacharopoulos Aggelos	UK	\checkmark	\checkmark	WG3

Day 1: 20th July 2015

First Management Committee meeting

1. Welcome to participants

Prof. Kalogirou welcomed the participants. Also Manuela Almeida and the Head of the Civil Engineering Department, Prof. Jorge Pais welcome the meeting participants. Prof. Pais introduced the University of Minho which was established in 1974. At present there are 12000 undergraduate and 8000 graduate students. The Civil Eng. Dept. has 45 Professors and 20 staff members. He then proceeded in describing the courses, facilities, research and projects of the Department.

2. Adoption of agenda

The agenda of the meeting circulated by email to all members was adopted.

3. Minutes of the fifth meeting (Belfast, April 2015)

The minutes of the fifth meeting at Belfast, April 2015, were approved without any modification.

 Short presentation of new participants Romania was unanimously accepted as a new member. Also, Alberto from Spain was introduced as a new participant.

5. Report from the COST Office

a. News from the COST Office

A new version of e-COST system is now in place that is fully electronic. The OTRR forms should be electronically handled, submitted and signed. All documents should be uploaded properly and there is no chance for the management to do any corrections.

 b. Those who agree can sign the petition on webpage – against COST budget reduction by visiting <u>http://www.cost.eu</u> (right side)

c. Status of Action, including participating countries Prof. Kalogirou informed the participants that 22 COST countries are participating with Hungary and Romania newly added. There are 30 MC members and 14 substitute members, with 3 new MC members (1from Hungary and 2 from Romania). Additionally, two non-COST countries are participating, USA (with James Russell of Appalachian State University) and Canada (with Andreas Athienites of Concordia University).

d. Budget status, budget planning and allocation process

The third year's budget is 122,000 Eur. The main expenses are:

- Total for meetings 86,077 Eur.
- Training schools, 10,200 Eur.
- 4 STSM planned for a total cost of 6,000 Eur.
- Dissemination 1,850 Eur. (1500 Eur. for the webpage + 350 Eur. for the proceedings)
- 6. Meetings

For the third year the MC & WG First meeting at Guimaraes (July 2015) is combined with the Action Symposium. The MC & WG Second meeting will be at the Spring of 2016 and will be combined with a training school.

7. Critical managerial issues

The following points were raised:

- It is very important to pay more attention to received emails concerning deadlines.
- Emphasis on managerial issues concerning payments.
- Inform Prof. Kalogirou when there is a delayed reimbursement payment
- Follow reimbursement procedures
- All payments are carried out simultaneously. The claims should be completed in one month's time after the event.
- The attendance list must be signed on both days by the participants
- Reimbursement claims are now sent electronically through the e-cost system.
- Mr. Charalambos Tsioutis and Prof. Kalogirou can answer questions concerning details.
- Inform Prof. Kalogirou for any projects submitted/organised based on the Action such as New PhDs, local funded research, FP7/H2020 proposals even if they were not successful, etc. This is very important for the progress of the Action.
- 8. Progress report of working groups

The progress is as follows:

WG1. Development and characterisation of new BISTS

- Task 1.1 Review of the state of the art (Year 1)
- Task 1.2 Development of new BISTS solutions (Year 3 & 4)

- Task 1.3 Characterisation of BISTS developed in Task 1.2 (Y 3 & 4)
- D.1.1. Review of current STS and identification of problems associate with their building integration. This review will also be submitted as a joint partner publication in a peer reviewed journal (Month 12) - completed
- D.1.2. Annual STSM on BISTS development and characterisation for PhD students and Early Stage Researchers (Month 6, 18, 30, 42) ON-GOING
- D.1.3. Annual Training School for dissemination of expertise on BISTS development and characterisation techniques and new architectural solutions to PhD students and Early stage researchers (Month 18, 30, 42) ON-GOING
- D 1.4. Report on the evaluation technologies available for BISTS characterisation (Month 24) – NOT completed.

WG2. Modelling and Simulation

- Task 2.1 Development of new mathematical and numerical models for BISTS (Years 3 & 4)
- Task 2.2 Validation and implementation of codes developed in 2.1
- D 2.1. Review of current STS modelling techniques. This review will also be submitted as a joint partner publication in a peer reviewed journal (Month 12) completed
- D.2.2. Annual STSM for PhD students and Early Stage Researchers on theoretical modelling and numerical simulation of thermal behaviour of BISTS (Month 6, 18, 30, 42) ON-GOING
- D.2.3. Annual Training School for dissemination of expertise to PhD students and Early Stage Researchers (Month 18, 30, 42) ON-GOING
- D 2.4. Report on the validation of developed codes, both thermal and optical (Month 30)
- D 2.5. Report on the new models developed during the project and potential for adaptation for RES (Month 42).

D.2.6. Report on the development of new models for innovative integrated STS applications (Month 46)

WG3 Investigation of new applications for innovative BISTS

- Task 3.1 Design of innovative BISTS designs
- Task 3.2 Fabrication of BISTS prototypes
- Task 3.3 Characterisation of novel BISTS indoors and outdoors to assess the actual performance in real conditions
- D.3.1. Review of current STS and the suitability of integration onto building structures for domestic, commercial and industrial buildings (Month 12). completed
- D.3.2. Annual STSM for PhD students and Early-stage researchers on design, fabrication and characterisation of innovative integrated STS/ RES (Month 6, 18, 30, 42) ON-GOING

- D.3.3. Annual Training School to disseminate expertise to PhD students and Early Stage Researchers (Month 18, 30, 42). ON-GOING
- D.3.4. Report on fabricated integrated STS prototypes optimised for increased efficiency and low cost. Full building services integration (e.g. into existing heating, cooling, hot water) or stand-alone operation but integral to the structure. This will depend on the extent of own research funding allows (Month 36. Must be almost ready by next meeting).

D.3.5. Report on the performance of new integrated STS/RES prototypes: A country performance comparison with geographic diversity (South, Central and North Europe), (Month 42).

D.3.6. Handbook for architects and building services engineers on the developed BISTS solutions for the design market ready products. (Month 46)

a. Handbook

WG 3 will coordinate the work for the HB. This will include new prefabricated products, a variety of mounting surfaces (vertical, sloped, horizontal) and the use of new materials, like PCM. The handbook will also include the development of BISTS through novel modelling techniques, fabrication and assembly of BISTS prototypes specifically tailored to building element integration, performance measurement of novel BISTS and the suggestion of standardised procedures and the determination of a range of applications for BISTS.

9. STSM status, planning of activities

These may have duration of 5 days to 3 months (max. 6 month for ESR) with a max overall cost of 2500 EUR for an STSM of up to 3 months and max 3500 EUR for over 3 months (ESR). The calculation is based on a Daily allowance of 60-90 EUR and 300 EUR for travelling.

4 STSM are planned for the third year which will be used almost exclusively to prepare Action deliverables. The Total Budget is 6,000 EUR (1500/stsm). Any applications to be sent to the STSM manager first. Then the application should proceed through the e-cost system.

- 10. Publications, dissemination and outreach activities-status of deliverables The following points were highlighted:
 - The First publications were due in month 12 (April 2014).
 - A book on BISTS was published
 - Next major event is the Action Symposium which is part of the present meeting and since it is normal activity of the Action everyone should participate. Unfortunately, very few papers (14) were submitted and

some of them were out of scope (not on BISTS). The symposium proceedings were published in a book form by the Action.

- Publication of the Handbook

During the WREC conference both Elsevier and Springer expressed interest to publish the final handbook of the Action (YR 4). The handbook should have state-of-the-art material and be arranged into sections (possibly one per WG) and chapters. The WGs should start discussing the content.

11. AOB

• Prof. Kalogirou thank the Action members for asking for his health condition after the accident he had in Belfast and apologized for spoiling a wonderful excursion to the Giant's causeway.

Presentation of projects

It was decided that the 5 Projects to be carried out by the Action members should be presented in the meeting. In this way the members who were not present at the Belfast meeting would be informed and declare their interest in contributing.

Prof. Kalogirou presented Project 1-Solar Thermal Façade System, Project 3 - Solar Plenum and Project 5- Evacuated Tube Collector integration. Aggelos Zacharopoulos presented Project 2 - Hybrid PV/T/solar Thermal façade module and Project 4 - Concentrating PV/T Glazing.

Working Groups (1-3) Parallel Sessions

Agenda for all WGs:

- 1. Welcome to participants
- 2. Adoption of the agenda
- 3. Progress of deliverables
- 4. Discuss 5 projects presented
- 5. Distribution of tasks
- 6. Promotion of gender balance and of Early Stage Researchers (ESR)
- 7. Time-table for future work
- → Minutes for WG are included at the end of the document.

Working Group 4: Dissemination Activities (all)

1. Website (Soteris)

The COST official web page can be found at:

http://http://www.cost.eu/domains_actions/tud/Actions/TU1205 and the Action web page at: http://www.tu1205-bists.eu/ (Password: cost 1234!). New members should provide a photo of each participant and the logo of his/her institution. Any new documents should be sent to Mr. Costas Christofi. Email: c.christofi@cut.ac.cy

The new additions to the website are the photos of new participants and their affiliation, all case studies received so far, the Book PDF and photos from previous meetings including Belfast photos.

2. Status of first deliverables

The First year deliverables are now completed. (WG1 deliverables with delay). A Book was published using the material from the 3 deliverables. Each participant received a copy. More copies are available if required.

Deliverable D 1.4. Report on the evaluation technologies available for BISTS characterisation (Month 24) is not completed. It was decided to extent the existing draft report and present it to the office by the end of the month. Additions will be made to this document and the final version will be circulated for comments. The end result will be ready by the end of September. D1.4 document on characterization methods for evaluating BISTS solutions includes an Overview of existing approaches and methods, Levels and scope of methods, Comparison of pros and cons and limitations, Geographic specific evaluation and Comparison using examples.

- STSM's 2015 (Soteris+Gilles) For the third year there is provision for 4 STSMs that will be carried out before the end of May 2016. These will be better to be combined with work on deliverables. The applications should be sent to Gilles (STSM manager).
- 4. Publications, dissemination and outreach activities (Soteris) Forthcoming deliverables are:
 - D 2.4. Report on the validation of developed codes, both thermal and optical (Month 30)
 - D.3.4. Report on fabricated integrated STS prototypes optimised for increased efficiency and low cost. Full building services integration (e.g. into existing heating, cooling, hot water) or stand-alone operation but integral to the structure. This will depend on the extent of own research funding (**Month 36**).

Anyone can contribute offering material to the WG3 members or joining the group.

5. Discussion About The Handbook

• The Handbook should be ready in month 46. Its specifications are given in the BISTS proposal in paragraph D3.6 and will cover the BISTS from the Architectural and Engineering aspect. After a discussion it was decided that the Handbook will have the following structure (preliminary):

Chapter 1: Introduction-description of the Action (Soteris)

Chapter 2: Classification & Characterisation of BISTS (case studies) (Mervyn and Laura)

- 2.1 Installation options/strategies (Stefan)
- 2.2 Testing (standards) (Christoph)
- 2.3 Commissioning of systems (Stefan)
- 2.4 Maintenance (Stefan)

2.5 LCA (Disposal) (Daniel + Chrysa)

- 2.6 Economics (Mervyn + Chistoph)
- 2.7 Legal issues (Christofari + Gilles)
- 2.8 Roadmap of BISTS (Cappel)
- 2.9 New options (Dorota+Yiannis, Jasna)

Chapter 3: Design Process of BISTS

- 3.1 Architectural planning/integration (Aleksandra + Savvides+ Gerald + Vasiliades)
- 3.2 Solar Radiation analysis applied to BISTS (Gilles)
- 3.3 Solar system design (mechanical/optical/materials, control) (Christoph, Soteris, Aggelos, Mirko, Ivan)
- 3.4 Modelling and performance analysis (Daniel, Jayanta, Christoph, Aggelos, Adolfo, Danijela).

Chapter 4: Analysis of 5 projects (concepts/ideas)

- 4.1 Architectural integration (Aleksandra + Savvides+ Gerald + Vasiliades)
- 4.2 Testing methodologies (??)
- 4.3 New models (Annamaria)
- 4.4 New application options (??)
- 4.5 New materials (??)
- 4.6 New construction (external/internal part), different solutions (??)

4.7 Options for retrofit applications (e.g. extent SHW to space heating) (Trevor)

Appendix 1: Supporting material (Laura+Sarah)

- Codes
- Web sites, etc.
- This is a preliminary table of contents and will be discussed further in subsequent meetings and by the SG committee.
 - → Especially important to fill the missing names (??)

Day 2: 21st July 2015

Working Groups (1-3) Parallel Sessions

Planning of work to be done – Finalise Deliverables, Projects

Working Group 1 - Development and characterisation of new BISTS Working Group 2: Modelling and Simulation of BISTS Working Group 3: Investigation of new applications for innovative BISTS

Second Management Committee meeting

1. Action planning

Budget status, budget planning and allocation process
 There will be four STSM with a total budget of 6,000 EUR (up to 31/5/2016). It is better that new people will participate, if there is interest.
 There is a need to show more interest to send and accept students for STSM.

The budget for the third year is 122,000 Eur. and is reduced from previous years.

- Action planning
- The next meeting (7th) has to be combined with the second training school. It was decided that they will take place in Barcelona at the University of Leida.
 Dates: 31-2/4/2016 (Thu-Sat for the Training school)

 4-5/4/2016 (Mon-Tue for the Meeting)
- 2. AOB

If necessary a SG meeting maybe organized towards the end of the year in order to examine the progress of the various projects.

3. Closing

Symposium Session I

Presentation of papers that are <u>not</u> included in the Conference proceedings (7 papers)

Symposium Session II

Presentation of papers that are included in the Conference proceedings (7 papers)

COST WG 1 Minutes

Agenda

- Welcome to WG1 participants
- Adoption of agenda
- Objectives and work programme
- Progress of Deliverables
- 5 Projects
- Distribution of tasks
- Work to do

Participants

Florides George Christofari Cristian Gilles Notton Farkas Isvan Tripanagnostopoulos Yiannis Savvides Andreas Krstic Furundzic Aleksandra Lamnatou Chrisovalantou Aelenei Laura Miletic Ivan Chwieduk Dorota Norvaisiene Rosita Palombo Adolfo

• Werner Platzer welcomed all participants. The meeting adopted the agenda and discussed the progress and work to do from the deliverables and the five projects defined in Dublin.

Objectives and Deliverables

- **Deliverables** include:
- D.1.1. Review of current STS and identification of problems associate with their building integration. This review will also be submitted as a joint partner publication in a peer reviewed journal (Month 12)
- D.1.2. Annual STSM on BISTS development and characterisation for PhD students and Early-stage researchers (Month 6, 18, 30, 42)

- D.1.3. Annual Training School for dissemination of expertise on BISTS development and characterisation techniques and new architectural solutions to PhD students and Early stage researchers (Month 18, 30, 42)
- D 1.4. Report on the evaluation technologies available for BISTS characterisation (Month 24)

Milestones:

- 1.1: Development of new and novel BISTS solutions To be done in the 5 projects
- 1.2: Characterisation of new BISTS for use in RES Related to D1.4 and the 5 projects

Progress of Deliverables

Achieved deliverables:

• D.1.1. Review of current STS and identification of problems associate with their building integration. This review will also be submitted as a joint partner publication. This is being done now as publication at SHC 2015 in Istanbul. The deliverable is achieved.

Deliverables with ongoing work:

D.1.2. Annual STSM on BISTS development and characterisation (Month 6, 18, 30, 42):

The first STSM from WG1 were not fully exploited. New proposals should be handed in for the coming period to th STSM manager (Gilles Notton).

- D.1.3. Annual Training School for dissemination of expertise on BISTS development and characterisation techniques and new architectural solutions (Month 18, 30, 42): Werner Platzer reminded that for the next training school there should be more interaction with the students.
- D 1.4. Report on the evaluation technologies available for BISTS characterisation (Month 24): Contributors are Laura Aenelei, Brian Norton, David Kennedy, Mervyn Smith, Christoph Maurer and Werner Platzer. The responsibility here on the different document versions had been a bit confusing. It is not completely clear which comments have been received and already digested in a new draft document. There has been the version of Laura from 6th July. On the other hand also Andreas Savvides has sent some material on architectural integration to DK. WP sent last remarks on 21st May. But some other line MS and CM was creating a new version. There should have been comments and remarks discussed in a meeting beginning of June, but no minutes have been received up to now.

DK was asked to produce a compiled version including solar thermal collector, building physical and architectural characterization, and leave out other topics which touch more the side aspects. WP suggested to leave out the topic of performance assessment, as this is more than characterization and testing. It includes simulation and that is part of WG2. Also the climate dependent evaluations, depending not only on climatic date but also on the different national and regional building regulations and codes could be left out, as this exceeds what can be finalized in short time.

The consolidated version (which is considered as a living document) should be delivered to the COST office SK soon (end of summer). DK should send consolidated version to LA and WJP for review. There is time for an update version until say the end of the year. Here also other aspects could round off the deliverable which then could be sued in the chapter of the Handbook, named "Characterisation and classification of BISTS".

Projects

Project 1 - Solar Thermal Façade System, Soteris Kalogirou:

- Florides, Christofi, Savvides, Vassiliades, Palombo, Krstic Furundzic, Notton, Sarah, Cristofari, Norvaisiene, Almeida Manuella, Laura, Werner, Yiannis
- Status not advanced
- The above persons will be contacted by the Project leaders who will provide a list of requirements and ask them to help in any way possible. The persons should respond with suggestions.
- Some examples of previous projects and commercial façade collectors have been presented by the WP leader in his presentation.

Project 2 - Hybrid PV/T/solar Thermal façade module by Mervyn Smyth"

- Lamnatou, Palombo, Krstic Furundzic, Notton, Sarah, Cristofari, Norvaisiene Almeida Manuella, Yiannis, Laura, Istvan
- The above persons will be contacted by the Project leaders who will provide a list of requirements and ask them to help in any way possible. The persons should respond with suggestions.

Project 3 - Solar Plenum, Brian Norton:

- Yiannis , other participants asked to contribute
- Status: not advanced
- The MaReCo collector from Sweden was presented by the Wp-leader
- The above persons will be contacted by the Project leaders who will provide a list of requirements and ask them to help in any way possible. The persons should respond with suggestions.

Project 4 - Concentrating PV/T Glazing:

- Aggelos Zacharopoulos, Lamnatou, Florides, University of Minho, Savvides, Vassiliades, A. Georgiev, Aleksandra, Dorota, Yiannis
- The above persons will be contacted by the Project leaders who will provide a list of requirements and ask them to help in any way possible. The persons should respond with suggestions.

Project 5- Evacuated Tube Collector, Soteris Kalogirou:

Asking for contributions

Discussion on Handbook

- Coordination of Handbook template and process by WG3
- What is the contribution of WG1? It was discussed and decided that the chapter on named "Characterisation and classification of BISTS" should be compiled from a final version of D1.4
- Discussion about the Handbook (HB) followed. Gilles proposed to include a chapter on orientation and climate that he will prepare.
- Legal issues, training environment, skills etc. should also be included in a heading because of their importance and variety in different countries.
- It was also decided that the general HB breakdown will follow the form decided in the previous meeting and in every topic it will make reference to the five projects presented to the meeting. By giving a general introduction at the beginning and by closely analysing the various topics in respect of the five projects, general conclusions can be extracted at the end of the book.

WG2 meeting minutes

1. Agenda

- 1- Welcome to participants
- 2- Objectives, deliverables and working programme
- 3- Distribution of tasks
- 4- Timetable of work

2. Participants

Christoph Maurer (Ger) Christoph Cappel (Ger) Danijela Nikolic(Serv) Annamaria Buonomano (It) Rokas (Lith) Mirko (Serv) Ricardo Mateus (Port) Daniel Chemisana (Spa)

3. Deliverables and milestones

- Deliverables include:
 - D 2.1. Review of current STS modelling techniques. This review will also be submitted as a joint partner publication in a peer reviewed journal (Month 12) DONE
 - D.2.2. Annual STSM for PhD students and Early Stage Researchers on theoretical modelling and numerical simulation of thermal behaviour of BISTS (Month 6, 18, 30, 42)
 - D.2.3. Annual Training School for dissemination of expertise to PhD students and Early Stage Researchers (Month 18, 30, 42). This will include topics on theoretical modelling and numerical simulation of thermal behaviour of BISTS.
 - D 2.4. Report on the validation of developed codes, both thermal and optical (Month 30). DONE
 - D 2.5. Report on the new models developed during the project and potential for adaptation for RES (Month 42).
 - D.2.6. Report on the development of new models for innovative integrated STS applications (Month 46).
- Milestones:
 - 2.1 New validated mathematical and numerical models to predict the BISTS performance
 - 2.2 New validated models to optimize BISTS in innovative RES applications

4. Minutes

The next deliverables 2.5 and 5.6 will be focused on the 5 projects. In this regard:

Project #1:

In the next October the work concerning the project 1 is expected to be finished.

Project #2:

Feedback from UUIster will be sent in the next months in order to define the modeling and simulation procedures.

Project #3:

A strategy was discussed for simulating the project 3 system regarding the available data and the steps to follow up. For the next meeting it is foreseen to present some preliminary results.

Project #4:

DIT sent us the PhD thesis of the project 4 system. UdL will prepare a draft about the modeling part in September.

Project #5:

Probably the system of the project 5 is going to be changed; there was a discussion about different possibilities to select.

Minutes of the WG3 meeting

List of participants present at meeting:

- 1. Charalambos Tsioutis Cyprus
- 2. Sarah McCormick Ireland
- 3. Gerald Leindecker Austria
- 4. Artur Rusowicz Poland
- 5. Rene Wansdronk Netherland
- 6. Sandra Monteiro Silva Portugal
- 7. Jasna Radulovic Serbia
- 8. Tatjana Kosic Serbia
- 9. Trevor Hyde UK
- 10. Alberto (Lleida), Spain
- 11. Jayanta Deb Mondol WG deputy leader, UK
- 12. Aggelos Zacharopoulos WG Leader, UK

Absent:

- 1. Manolis Souliotis Greece
- 2. Tim O'Leary Ireland
- 3. Carlos Ochoa Israel
- 4. Rafaela Agathokleous Cyprus
- 5. Luisa F Cabeza Spain
- 6. Yassa Israel
- 7. Simon Borg Malta
- 8. Stefan Remke Spain

1. Welcome

• The group leader welcomed and introduced Alberto (University of Lleida, Spain) to the members of the WG3

2. Adoption of the agenda

The meeting agenda proposed by the leader was adopted by the group members with no changes.

3. Deliverable D3.4

• The group leader presented the allocation of team members to work/report on each of the five case study projects (from Belfast meeting).

Project	Lead	Report	Contribute	Deadline
Porter building	Yassa	Sandra	Sandra	Oct-15
		Carlos	Carlos	
		Rene	Rene	
			Simon	

Mervyn	Jasna	Jasna	Dec-15
	Tatjana	Stefan	
		Sarah	
Soteris	Charalambos	Charalambos	Dec-15
	Rafaella	Rafaella	200 10
		Sarah's PhD	
Brian	Sarah	Sarah	Feb-16
	Trevor	Trevor	
Stefan	Jayanta Artur	STSM	Oct-15
Aggelos	Jayanta	Trevor	Dec-15
	Simon	Jayanta	
		Simon	
		Gerald	
	Mervyn Soteris Brian Stefan Aggelos	Mervyn Jasna Tatjana Soteris Charalambos Rafaella Brian Sarah Trevor Stefan Jayanta Artur	MervynJasnaJasnaTatjanaStefan SarahSoterisCharalambos RafaellaCharalambos RafaellaBrianSarah TrevorSarah's PhDStefanJayanta ArturSTSMAggelosJayanta SimonTrevorSimonSimon GeraldSimon

- Lead: the scientific lead of the technology being developed
- Report: WG3 participants responsible for reporting on the project for D3.4 and D3.5
- **Contribute**: WG3 participants that want to contribute to the work in the project
- **Deadline**: The estimated date for compiling the report on the individual project.
- We now need groups to start working on reports for deliverables. The first deadlines are coming up in October. The WG members allocated for reporting at each project should contact the project lead directly to collect the information for the deliverable.
- The following structure was proposed for the deliverable (Belfast meeting):
 - Introduction Rational
 - Novelty of the concept and applications
 - o Design/Description of system including architectural integration options
 - Fabrication methodology
 - Limitations-Recommendations
 - Material costs (labour costs if possible)
 - Integration approaches to the building's services
 - o Conclusions
- Jasna to e-mail Mervyn and discuss involvement in the HyPVT project.
- Jayanta to contact Stefan about info for case study 5.

- Sarah/Trevor to contact Brian about case study on solar plenum. Sarah has already provided a draft document on the fabrication of the IACPC-Air.
- 4. Deliverable D3.5

A similar methodology to D3.4 will be followed for the preparation of the deliverable. However the deliverable is due on month 42 so there will be little time for preparation after D3.4 (i.e. 6 months).

5. Deliverable D3.2 (STSMs)

An STSM will be required for the CoPVTG project. Aggelos talk to Adolfo for arranging a researcher from University of Naples to visit Ulster.

- 6. Following on from the CoPVTG Constantinos (Cyprus) presented the idea for a PV blind employing a Glass + PV profile similar to geometry for CoPEG system. The applicability of the technology and its relevant advantages and disadvantages were discussed amongst the members of the group. Aggelos will provide solar cells for Constantinos's prototype.
- 7. Gerald discussed a potential use of the CoPVTG technology for façade engineering. The idea will be discussed further in the next meeting of the group.