Final meeting

Monitoring system approaches

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Dubrovnik, August 28, 2015

Institut "Jožef Stefan", Ljubljana, Slovenija

WP5 Data monitoring

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The objectives of the work package five „**Monitoring and data mining**" were:

- to develop and test a method for operational data collection, organisation, communication and consolidation
- to use the organised data for performance and efficiency analysis of the related and applied technologies regarding the following aspects:
  - technical
  - economic
  - energetic, and
  - environmental aspect.
- to use the findings for the WP6 „Feasibility case study toolbox"

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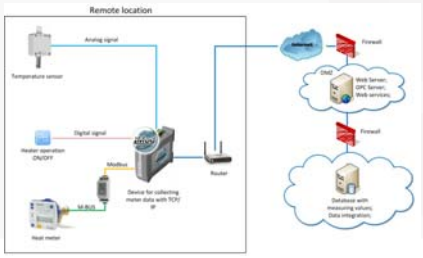
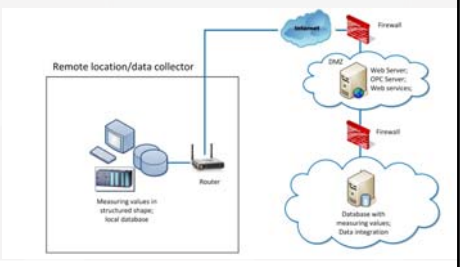
The steps to achieve the WP5 objectives were as follows:

- Preparation of the methodology (e.g. which effects of technology introduction will be measured and evaluated with respect to Adriatic region specifics)
- Preparation of an Automatic data acquisition and communication plan with several options:





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The project is co-funded by the European Union, Instrument for Pre-Accession Assistance.

Let's grow up together Adriatic IPA Cross-Border Cooperation 2007-2013

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The steps to achieve the WP5 objectives were as follows (cont'd):

- Feasibility survey results and recommendations for remote data access to the solar cooling systems:
  - **Basovizza, Rimini, Piran, Dubrovnik**: data access based on minute interval level using web service API (application programming interface).
  - **Crikvenica**: data access based on minute interval level using FTP service API interface.

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Basic information form for data acquisition on metered data

1. General information about the building				
1.1	Object title	building Q1		
1.2	Address	Basovizza - SS 14 km 163,5 - 34149 Trieste - Italy		
1.3	Contact person	Marcello Gasiano		
1.4	Phone number	+39 040 3755267		
1.5	Email address	marcello.gasiano@arcs.trieste.it		
1.6	Contact person for information integration issues	Mario Florani		
1.7	Phone number	+39 040 375 5145		
1.8	Email address	mario.florani@arcs.trieste.it		
2. Hardware unit for data metering		YES	NO	Comment (if necessary)
2.1	PLC	x		
2.2	smart controller with datalogger/web server	x		
2.3	computer system	x		
2.4	SCADA		x	
2.5	other			
		YES	NO	Comment (if necessary)
2.6	is hardware unit connected to local ethernet network?	x		
2.7	is hardware unit connected to internet?	x		
3. Type of metered data access		YES	NO	Comment (if necessary)
3.1	OPC server		x	
3.2	web service	x		
3.3	database access		x	
3.4	FTP access (ASCII files - csv, txt, prn)	x		
3.5	communication protocol (Modbus TCP, ...)	x		TCP between PLC and PC
3.5	other			
4. Time frame of local data logging on hardware unit		YES	NO	Comment (if necessary)
4.1	less then minute			
4.2	minute	x		Lower if necessary
4.3	hour			
4.4	no data logging is possible			
4.5	other			
5. Ability of regular (official) data reporting*		YES	NO	Comment (if necessary)
5.1	daily			
5.2	monthly	x		
5.3	other			
*There is no risk of the accurate data reporting, independent from on-line data monitoring. Accurate data reporting can be provided also by reading of memory meters (if done).				
6. Potential barriers on metered data providing		YES	NO	Comment (if necessary)
6.1	no internet connection	x		
6.2	[illegible] for achieving hour data logging			
6.3	other			

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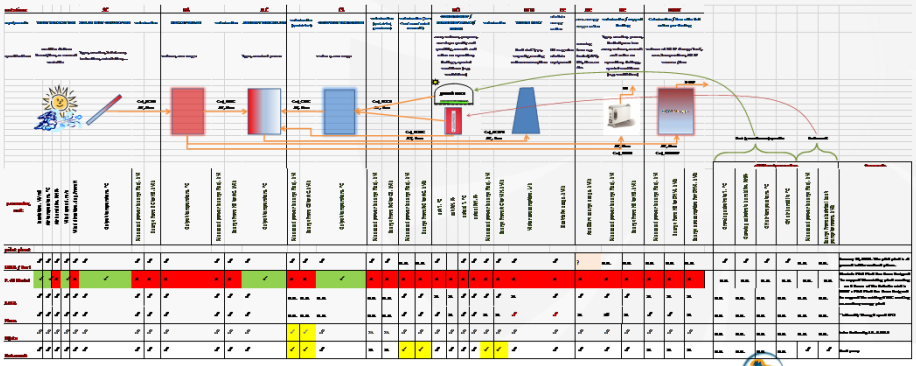
The steps to achieve the WP5 objectives were as follows (cont'd):

- Preparation of general monitoring equipment requirements for partners to use in their tenders (as minimum requirements)
- A schematic of the solar cooling plant with the required variables to monitor, with inputs (and commitments!) of all the partners.



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After installation and start-up of the plants

the data was monitored, locally stored, and communicated to the national „data collection partner", where a first check and organisation of data took place, and afterwards communicated to the WP5 lead partner where in-depth data checks and data consolidation was performed. The consolidated data is used for analysis, data display and efficiency and performance evaluation.

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Automatic data collection and integration

An upgrade of the data monitoring system was proposed by several partners and the task change was accepted by the partners' vote in May 2014 – the feasibility and implementation of an automatic data retrieval and integration on a central server with web application for data display, analysis and performance reporting.

This was implemented in June 2015 with the database organised on the AREA server, and the web application CSRE was installed in order to facilitate data access, storage, organisation and display…

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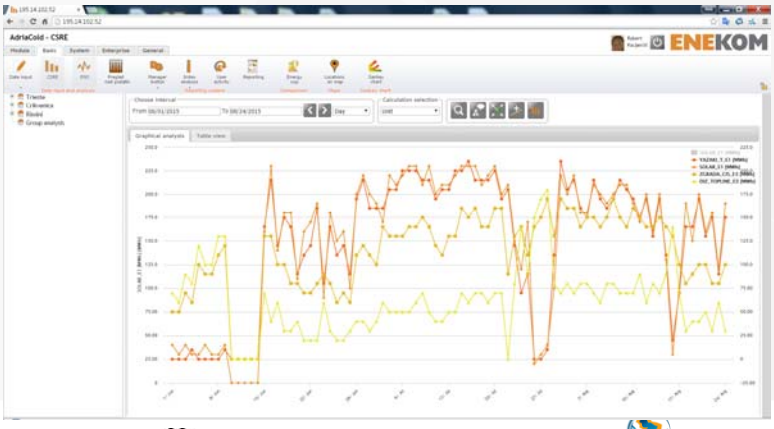
Automatic data collection and integration

The CSRE (Targeted monitoring of energy) application was established on the AREA server. The IP address is http://195.14.102.52/, which will be referenced from the http://adriacold.eu, the entry by user login is (for now) available for the partners, but will be available to the interested general public upon request



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Automatic data collection and integration

The data is still being updated and consolidated, although the system already assures a sound analysis base tool.

The data will be gathered for additional two years, and there will be a lot of possibilities for

- inter-plants comparison,
- control algorithms optimisation,
- improvements in equipment,
- early identification of faults,
- new projects with addition of similar plants already operating
- research and performance analysis
- etc.

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project coordinator

AREA ScienceParK

project partners

Cortea, Provincia di Rimini, ENEA, GO LEA, Institut "Jožef Stefan" Ljubljana, Slovenija, Občina Piran Comune di Pirano, FSB, REA Kvarner, DURA, Economics Institute Banja Luka, Bashkia Durres

Thank you for your kind attention!

Questions?

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