



European-wide field trials for residential fuel cell micro-CHP

WP2 Data collection

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Berlin, 20-21 February 2013
First Project Meeting



- Objectives
- Current Tasks
- Deliverables to December 2013
- Progress to February 2013
- Timeplan first year
- Upcoming actions
- Aob
- Q&A

- Management of collection and aggregation of data from field trials
- Performance of technical analysis of the data both for fuel cells and households
- Forwarding of aggregated data to WP3 and WP5

- Build up system for data collection, anonymisation and processing
- Arrangement of ene.field – specific monitoring system
- Provision of dataset of the technical performance analysis
- Summarization of results of field tests and lessons learnt

- Task 2.1: Data collection specification (DBI + GWI, DTU) (M1-M5)
 - System for receiving, hosting, processing and providing data
 - Package of measuring equipment for in detail monitored systems
 - Approx. 20 % of units monitored with external sensors
 - 100 % data from fuel cell logging system -> try to match detailed monitoring data
 - 1 unit per supplier in test lab reference measured
- Task 2.2: Data and monitoring equipment protocol for trials (DBI + GWI)(M1-M5)
 - Protocols for equipment usage, set-up of sensors, data box
 - Training courses (webinar) for installation of equipment (if needed)
- Task 2.3: Energy demand data analysis (GWI + DBI)(M6-M57)
 - “household”-data
 - creation of ready to use database with analysed, compressed data

- Task 2.4 Technical performance data analysis (DBI + GWI)(M6-M60)
 - Database of analysed, compressed performance data
 - Critical issue for suppliers, will need lots of communication before publication
- Task 2.5 Summary of other issues encountered (GWI + DBI)(M5-M60)
 - Issues encountered during installation phase
 - Issues encountered during field trial (different levels of aggregation -> see presentation monitoring workshop 20.02.13)

Data handling agreement

Month 5

- Agreements for utilities and suppliers how data is collected
- What data is made public, how can data be accessed

- Data handling agreement → technical procedure!
- First draft end of January 13, discussion 20.02.13
- Results: see minutes that will be circulated, DBI and GWI will produce updated draft version with inputs from yesterday

Data and monitoring equipment guidelines for trials

Month 5

Delayed

- Directive to equipment and monitoring process
- Guidelines for usage and installation of equipment

- Basic directive will be included in data handling agreement document
- Guidelines for installation and seminar documents will follow as soon as data handling agreement is in first major version

- building up server / hardware system ✓
- Installation data system ✓
- assembling of sensor equipment ✓
 - testing of equipment-set in lab
 - mutual agreement on measuring equipment
- collecting final input from WP3 and WP5 of technical-data needs ✓
- Negotiation with WP1 on necessary data transfer
 - **What data** is exactly collected **from whom** and **at what time**?
 - **How** is data **transferred**? („20 % - 100 %“)
- Adaptation of Excel-questionnaire on already available data ✓
- Setup of whole data handling system
- Draft of technical procedure (data handling agreement) ✓
- circulation and replies evaluation of first draft of installation questionnaire ✓
- circulation and replies evaluation of first draft on issues encountered ✓
- Bilateral discussions WP2 – manufacturers 80% finished ✓
- Update on list of sensors and meters done according to discussions, final list will be available after project meeting in Berlin

Timeplan to end of December 2013

| | WP/Responsible | Tasks | Act | 2012 | | | | 2013 | | | | | | | |
|----|----------------|----------------------------------------------------------------------------------|--------------------|------|-----|-----|-----|------|-----|-----|-----|-----|-----|-----|-----|
| | | | | SEP | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG |
| | | | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| 2 | | develop and roundmail questionnaire concerning internal data | GWl | ● | | | | | | | | | | | |
| 3 | | adopt, specify and roundmail questionnaire concerning internal data | GWl | | | ● | | | | | | | | | |
| 4 | | specification of needed / favoured data for analysis | DBl, GWl, WP3, WP5 | | | ● | | | | | | | | | |
| 5 | | specification of possible issues encountered | GWl, DBl, WP1 | | | ● | ● | ● | | | | | | | |
| 6 | | develop questionnaire to be filled out while installing the units | DBl, GWl, ELEMENT | | | ● | ● | ● | ● | | | | | | |
| 7 | | specification of measuring equipment | DBl, WP1 | | | ● | ● | | | | | | | | |
| 8 | | set up data collection system | DBl | | | ● | ● | | | | | | | | |
| 9 | | work out data handling agreement | DBl, GWl, WP1 | | | | ● | ● | ● | ● | | | | | |
| 10 | | identify sufficient percentage for high detail monitoring | ELEMENT | | | | ● | ● | | | | | | | |
| 11 | | develop the "Clean Room process" | WP5 | | | | ● | ● | | | | | | | |
| 12 | | set up of laboratory teststand for reference measurement of sample units | DBl, GWl | | | | | | | X | X | | | | |
| 13 | | start reference measurement of sample units | DBl, GWl, WP1 | | | | | | | | | X | X | X | X |
| 14 | | D2.1 Data handling agreement (M5) | | | | | | ● | | | | | | | |
| 15 | | T2.2 Data monitoring equipment guidelines for trial | | | | | | | | | | | | | |
| 16 | | instruction manual for measuring equipment, sensor installation | DBl | | | | | ● | | | | | | | |
| 17 | | agree template for data transfer of internal data and issues encountered | GWl, WP1 | | | | ● | ● | | | | | | | |
| 18 | | laboratory test of measuring equipment | DBl | | | | | ● | | | | | | | |
| 19 | | supply of installation sites with equipment | WP1 | | | | | | | X | | | | | |
| 20 | | D2.2 Data and Monitoring Equipment Protocol(M5) | | | | | | D | | | | | | | |
| 21 | | T2.3 Energy demand analysis | | | | | | | | | | | | | |
| 22 | | information on fuel quality and energy prices (via questionnaire #6) | WP1 | | | | | | X | X | X | X | X | X | X |
| 23 | | begin monitoring and collecting energy demand data | WP1, DBl, GWl | | | | | | X | X | X | X | X | X | X |
| 24 | | D2.3 Database of energy demand profiles (M25) | | | | | | | | | | | | | |
| 25 | | T2.4 Technical performance analysis | | | | | | | | | | | | | |
| 26 | | begin monitoring and collecting performance data | WP1, DBl, GWl | | | | | | X | X | X | X | X | X | X |
| 27 | | D2.4 Report on technical performance of all mCHP units in the trail (M25) | | | | | | | | | | | | | |
| 28 | | T2.5 Summary of other issues encountered | | | | | | | | | | | | | |
| 29 | | begin collecting the issues encountered | WP1, DBl, GWl | | | | | | X | X | X | X | X | X | X |
| 30 | | D2.5 Summary of other issues encountered (M25) | | | | | | | | | | | | | |

- Bilateral discussions with each manufacturer
 - Learn about fc and current own monitoring setup
 - Learn about planned installations
 - Plan first actions once installation starts
 - Clarify misunderstandings on both sites
 - One on one discussion before Berlin meeting – only three manufacturers left!

- Technical procedure (Data handling agreement) final -> week 13/2013
- Lab-testing of monitoring equipment -> next weeks
- Installation and configuration guideline -> from week 13/2013
- Definition of detailed lab test program through GWI and DBI before the beginning of major field tests
- Setup of GWI data system according to overall monitoring data from suppliers
- Building of questionnaire and setup of analyse system at GWI
 - Suppliers need questionnaire template asap to include it in contracts

- Result from discussions with suppliers: no direct **collection of energy prices**
 - Prices often based on base rate plus consumption rate
 - Contract details confidential
 - Prices differ with contract
 - Alternative: sensitivity analysis based on average energy prices rather than exact prices of the households

- **Unit-ID – a tool for communication**
 - Needed for communication between WP2 – supplier, end-user – questionnaire, utility – supplier
 - Suggestion: Vai34, Bos12, SOF21
 - Visibly placed on unit for end-user to see
 - Used for input in trial tracker
 - Will be **replaced in clean room** by a **random number!**
 - Manufacturer will create unit-ID after installation is fixed contractual

Any questions?

Thank you!

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