



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

WP1 Update and workshop Task 5.2 EU Supply Chain

Presentation prepared by Element Energy

Berlin, 20-21 February 2013
First Project Meeting

elementenergy



1. Objectives
2. Progress to-date
3. Workshop – facilitating agreement with utilities
 - Dissemination proposal
 - Schedule of requirements
 - Discussion of issues surrounding utility engagement
4. Task 5.2 EU Supply chain
5. Q&A

Key objectives of WP1

Deploy up to 1,000 fuel cell CHP units across Europe

Demonstrate the complete route to market

Establish principles for deployment across Europe

Run efficient local management for nine trial programs

Generate baseline energy demand and performance data

Capture issues from the various trials

Capture lessons learned for manufacturers

Establish co-operation between manufacturers

Baxi

Bosch

Ceres

Dantherm

Elcore

Hexis

RBZ

SOFCP

Vaillant



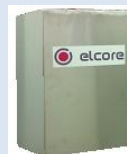
LT PEM



SOFC



SOFC+LT PEM



HT PEM



SOFC



LT PEM



SOFC

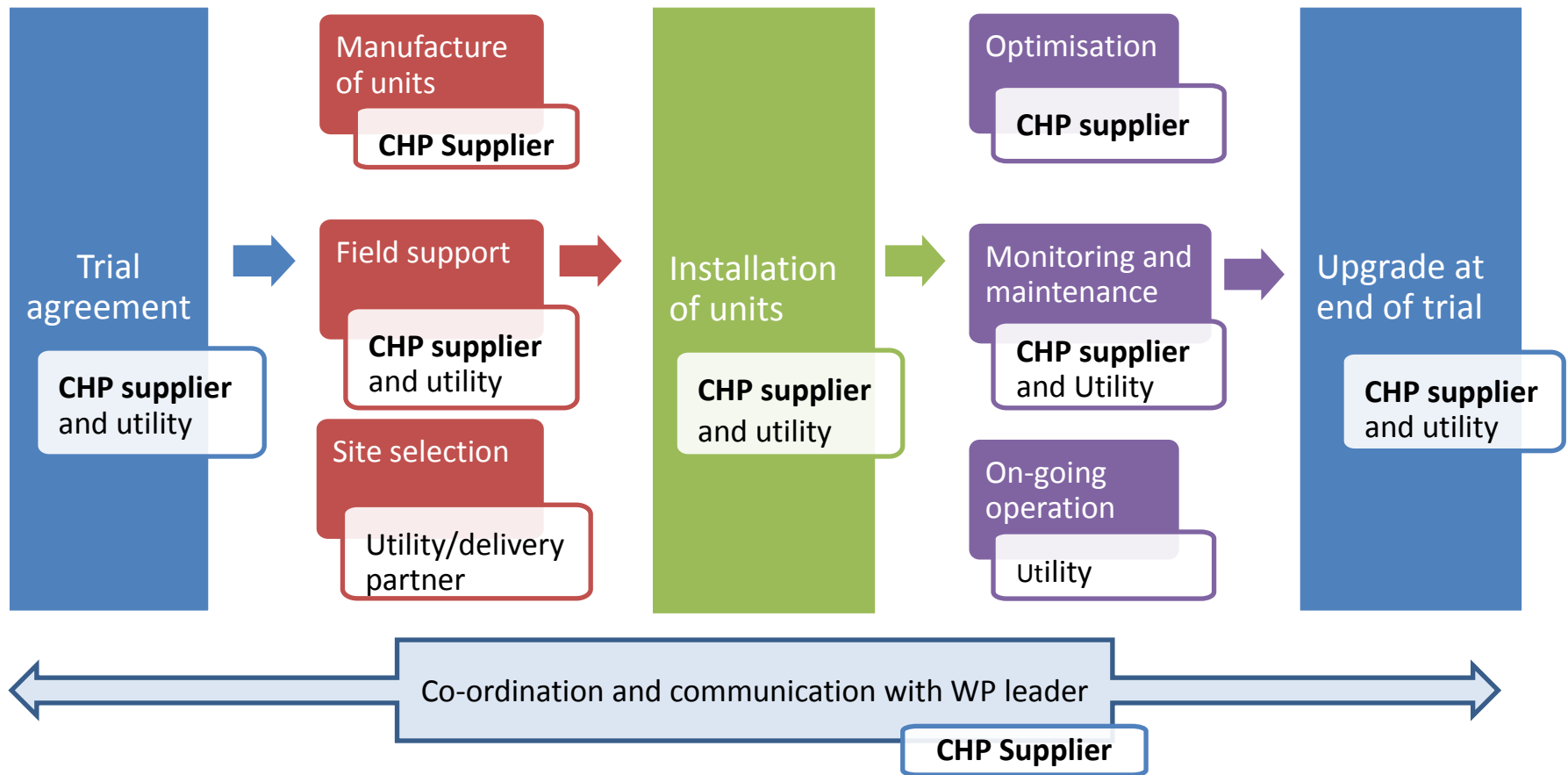


SOFC

Overview of WP1

WP1 is the main demonstration WP and contains all on the ground trial activities with a view to deploying 1,000 FC CHP units across Europe.

This WP will produce data for other work packages and for final reports. It is key to the success of ene.field.



Deliverable	Description	Date of Delivery
D1.1 – Summary of Installations Report	<ul style="list-style-type: none"> Each trial will provide a complete summary of the installations and the lessons learned during different phases. Responsible: Baxi, Bosch, Ceres, Dantherm Power, Elcore, Hexis, RBZ, SOFC, Vaillant 	On completion of installations + 1 month for manufacturers
D1.2 – Operational data	<ul style="list-style-type: none"> Each month a definitive dataset will be provided to WP2 Responsible: Baxi, Bosch, Ceres, Dantherm Power, Elcore, Hexis, RBZ, SOFC, Vaillant 	Monthly over the three year period
D1.3 – Final operation report	<ul style="list-style-type: none"> At the end of each trial, a detailed report summarising the trial will be produced (high level achievements, issues, lessons learned, next steps to be taken by the CHP manufacturers). Responsible: Baxi, Bosch, Ceres, Dantherm Power, Elcore, Hexis, RBZ, SOFC, Vaillant 	On completion of 2.5 years of operation
D1.4 – Tracking system for trials	<ul style="list-style-type: none"> Element Energy will maintain a log of the trials, which will be visible to all partners. Responsible: Element Energy 	Month 4 and on-going
D1.5 – Annual report on trial progress	<ul style="list-style-type: none"> Annual summary report on the status of each trial and the demonstration as a whole. Responsible: Element Energy 	Months 12, 24, 36

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Populate trial tracker

EE to send templates

Suppliers to complete with current plan

EE to compile information from suppliers

confirm via bilateral discussion

Maintain

EE to send monthly information requests with templates

Trial managers to complete when required and return within a week

Use

Element to distribute on a quarterly basis to WP leaders

Communicate arising issues to Co-ordinator (and hence FCH JU)

Publish

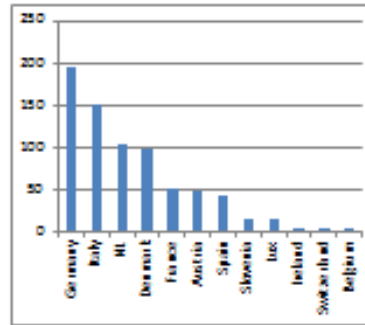
Element to publish summary of overall trial progress on project intranet

Cumulative operating hours and kWh

There are currently no units deployed

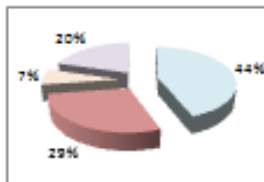
Total planned installation by country

Country	Units
UK	219
Germany	197
Italy	151
NL	105
Denmark	100
France	52
Austria	50
Spain	45
Slovenia	17
Lux	15
Ireland	6
Switzerland	4
Belgium	5
Total	960



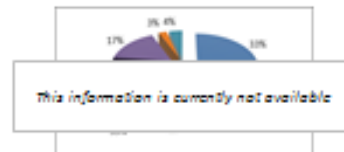
Installation by climate zones

Northern Europe	424
Central Europe	273
Eastern Europe	67
Mediterranean Europe	196

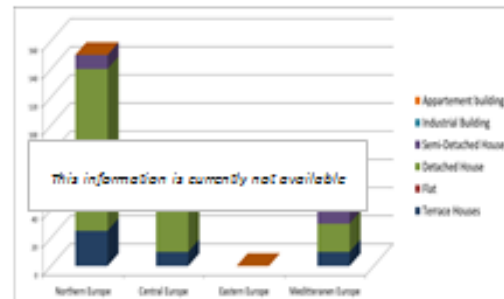


Installation by house types

Terrace house	0
Flat	0
Detached	0
Semi-detached	0
Industrial building	0
Apartment flat	0



Installations by house types and climate zones



Utilities and organisations involved in the field trials

Organisations logo to be added

These are currently as mentioned utilities and organisations

Organisations logo to be added

Manufacturers involved

Products involved

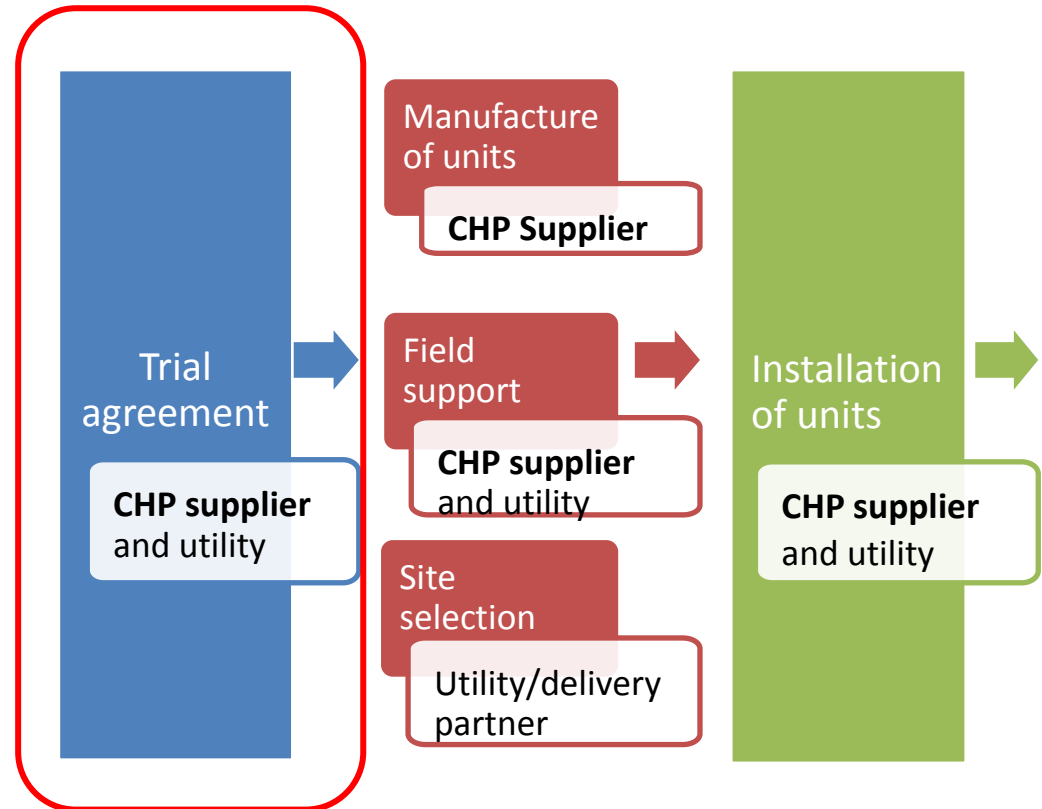
Hours and events

<i>Trial 1</i>	
<i>Trial 2</i>	
<i>Trial 3</i>	
<i>Trial 4</i>	
<i>Trial 5</i>	
<i>Trial 6</i>	
<i>Trial 7</i>	
<i>Trial 8</i>	
<i>Trial 9</i>	

Contact details

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- Local trials will mainly be established with utility partners or through local managers (e.g. network, housing association)
- But only 10% of the units have a finalised agreement with utilities at the moment*
- First installation of units in the field is foreseen for April/May 13*



* Estimated from data provided by trial managers over Dec12/Jan13

Currently the main focus is on:

- Finalising agreement with utilities -> Trial managers
- Finding further utilities with an interest in participating -> Trial Managers / EE

Conversations with facilitators have been initiated:

Envipark (Italy)	Energy Matters (NL)	Hungarian FC Association
<ul style="list-style-type: none">• Confirmed expression of interests from negotiation phase.• Potential for further collaboration.	<ul style="list-style-type: none">• Consultancy (FC and CHP specialist groups and network).• Interested in making contacts with suitable utility or other partners (i.e housing associations).	<ul style="list-style-type: none">• 2 potential trials:• As part of Msc programmes in Universities and Research institutions.• As part of the “hydrogen village” project. Governmental funding.



Information on the commercial offer is needed to move discussions forward

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Creation of tools for interactions with non-partner utilities

- Request from partners for additional material to help with negotiation with non-partner utilities
- Two “tools” have been discussed With the Steering Committee and the trial managers:

1

A proposed dissemination offer for non-partner utilities

2

A standard schedule of ene.field project requirements for inclusion in contracts

** Statistics from data provided by trial managers over Dec12/Jan13*

Deliverables are classified in 3 dissemination levels in the DoW:

Public (PU)

- Field support report
- Position paper on RCS
- Position paper on grid connection
- General information pack

At the moment, non-partner utilities will only have access to the public deliverables

Restricted to other programme participants (PP)

- Report on summary of installations from trials and final operational report
- Annual report on trial progress
- Database of energy demand profiles
- Summary of other issues encountered
- Non-economic barriers report
- LCC & LCA

We propose the utility dissemination offer should be close to the partner level.

Restricted group specified by Consortium & FCH JU office (RE)

- Operational data from trials
- Report on technical performance of all units
- Engagement plan for industrial stakeholders

Reports that could be made available for utilities

Utilities will contribute to the collection of data necessary for the analysis work packages and that will underpin many of the deliverables. These deliverables could be made available to the utilities.

Deliverables	Current level of diss.	To be shared?
D2.3 Database of energy demand profiles	PP	YES or NO?
D2.4 Report on technical performance of all mCHP	RE	YES or NO?
D2.5 Summary of other issues encountered	PP	YES or NO?
D3.2 Surveys and Barriers Report	PP with PU summary	YES or NO?
D3.3 LCC assessment	PP with PU summary	YES or NO?
D3.4 Environmental LCA	PP with PU summary	YES or NO?
D5.1 Report on economics of mCHP to 2030	PP with PU summary	YES or NO?
D5.2 report on EU FC mCHP supply chain	PP with PU summary	YES or NO?
D5.3 Report on the policy requirements for mCHP	PP with PU summary	YES or NO?
D5.4 Report on macro-economic & environmental impact	PP with PU summary	YES or NO?

- Agreement is required on what data should be disseminated to non-partner utilities.
- The Steering Committee felt that the level of dissemination for the utilities should be equivalent or close to that of the Consortium, e.g.
 - Anonymised overall results of the field trials:
 - *number of systems installed,*
 - *outage rate,*
 - *CHP runtime/backup burner runtime*
 - *Energy demand database*
 - *etc.*
- Potential to use ene.field branding, e.g. logo on website
- Utilities will sign NDAs with CHP suppliers and Coordinator

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- Element Energy is drafting a list of (contractual) requirements for ene.field to be added to the basic contracts of the manufacturers
 - Clarify the ene.field specific requirements and ensure a common understanding among utilities
 - Simplify the discussions for trial managers
- The draft schedule has been presented to trial managers and work package leaders for comments
- The data monitoring protocol and data handling agreement being developed by DBI / GWI will form an important part of this schedule
- Comments on the draft schedule will also be invited from WP2 and WP3 to ensure that all requirements are taken into account before finalising.

The intention of the schedule is to define the ene.field specific conditions that need to be included in the contracts.

The draft schedule currently has the following sections:

- 1. Overview of utility role in the project**
- 2. Monitoring equipment and data transfer protocol**
- 3. Installer questionnaire**
- 4. Quantitative surveys for householder and utility (at installation and after 1 yr of operation)**
- 5. Report on issues encountered**
- 6. Delivery programme**
- 7. Installation and maintenance schedule**
- 8. Training programme**
- 9. Decommissioning (post ene.field arrangements)**

We need to discuss what other specific requirements need to be in this schedule.

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A number of issues regarding attracting utility involvement and facilitating contract negotiations have been identified for discussion with the group.

1. Contract schedule of ene.field specific requirements
2. Dissemination to consortium member utilities – what’s in it for the utilities?
3. What is the offer to non-consortium utilities?
 - *Dissemination offer*
 - *Better understanding of mCHP technology and benefits*
 - *Insight into how mCHP fits into future business models*
4. Level of access of utilities to the data
5. Financing the unit
 - *Do the manufacturers need to agree the principles of how the remaining financing is split between utility / manufacturer / end-user*

6. What is the promise to the customer post-2017 (i.e. after ene.field ends)
7. Multiple utility partners for an installation
 - *Who owns the customer?*
 - *Who is the contract with?*
 - *What access to ene.field data?*
8. Creation of a utility working group
 - *Facilitate sharing of data between utilities*
9. Multiple manufacturers approaching the same utility
 - *Is there a need for a coordinated approach?*
10. How to make ene.field more publicly visible
11. Development of Codes & Standards – benefit to utilities

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This task will consider the supply chain issues related to product manufacturing.

It will assess:

- (a) opportunities for synergistic development of key components,
- (b) synergies in procurement which might allow component suppliers to move to lower cost higher volume production, and
- (c) potential pinch points in the supply chain where component suppliers may create bottlenecks in the expansion of the supply chain.

Bilateral calls

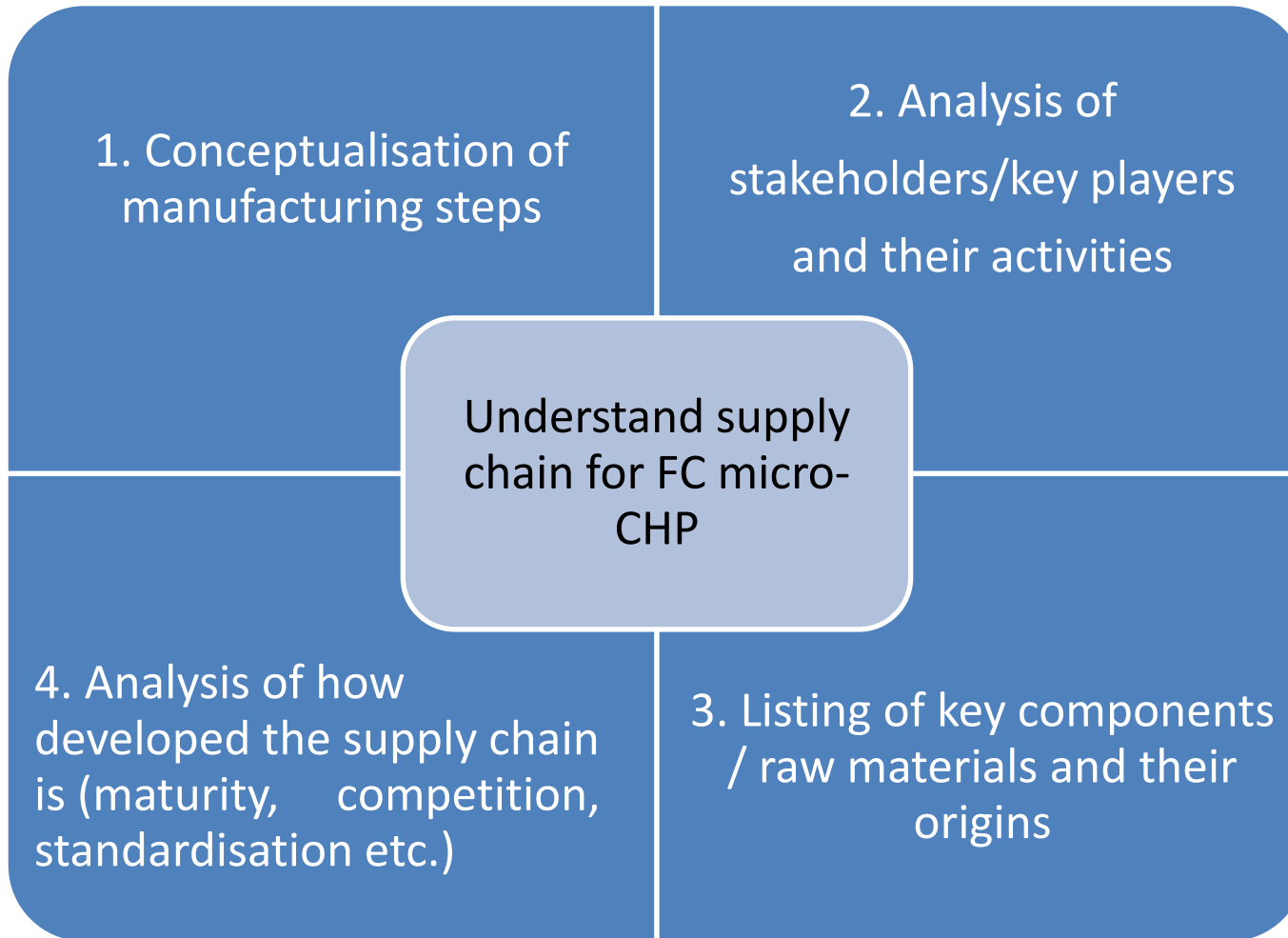
- Manufacturers will be contacted bilaterally to develop an understanding of the supply chain issues they face
- A presentation with the data which can be shared on their supply chain issues will be prepared

Workshop

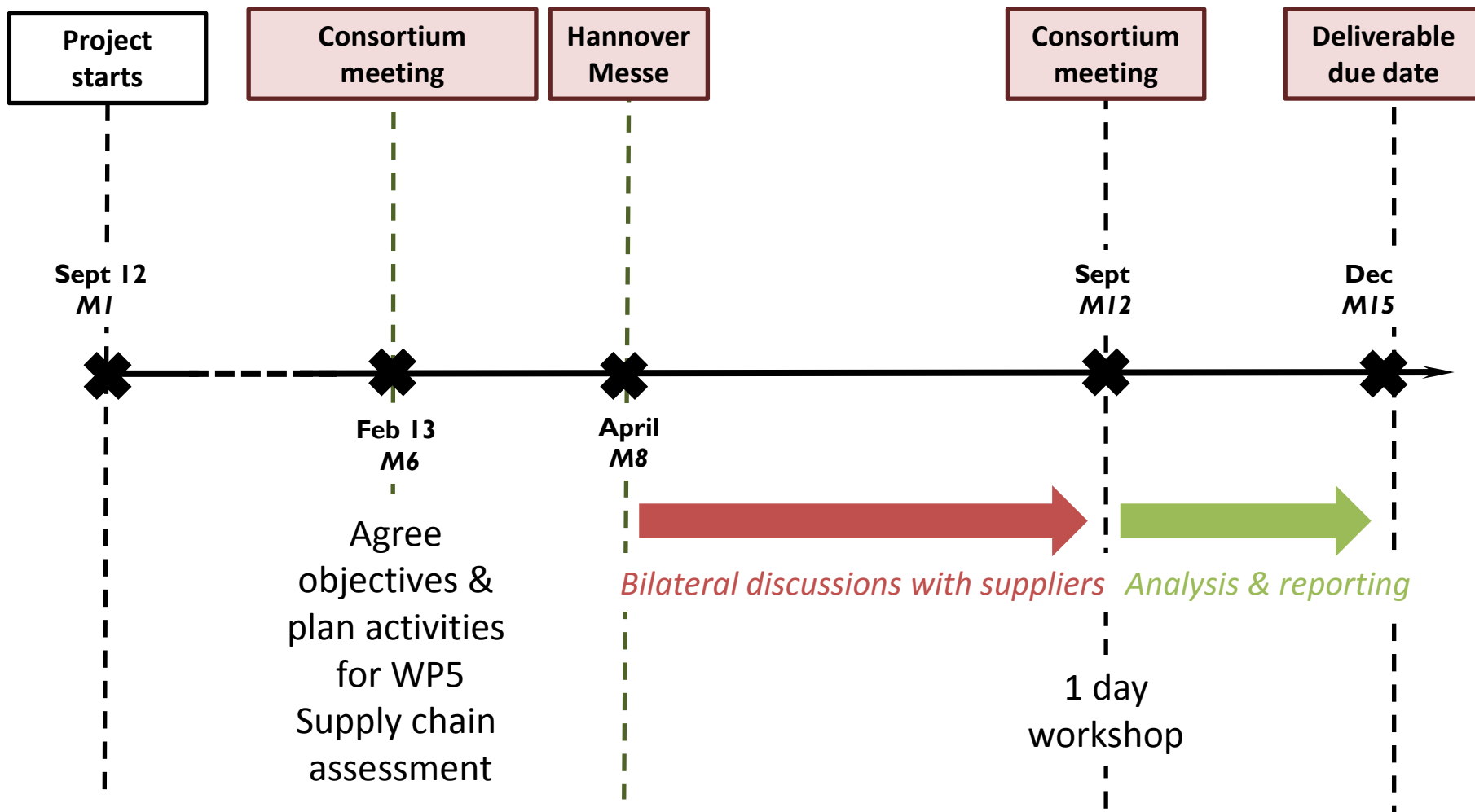
A one day workshop with all of the manufacturers will be facilitated to explore the opportunities for supply chain synergy

Analysis

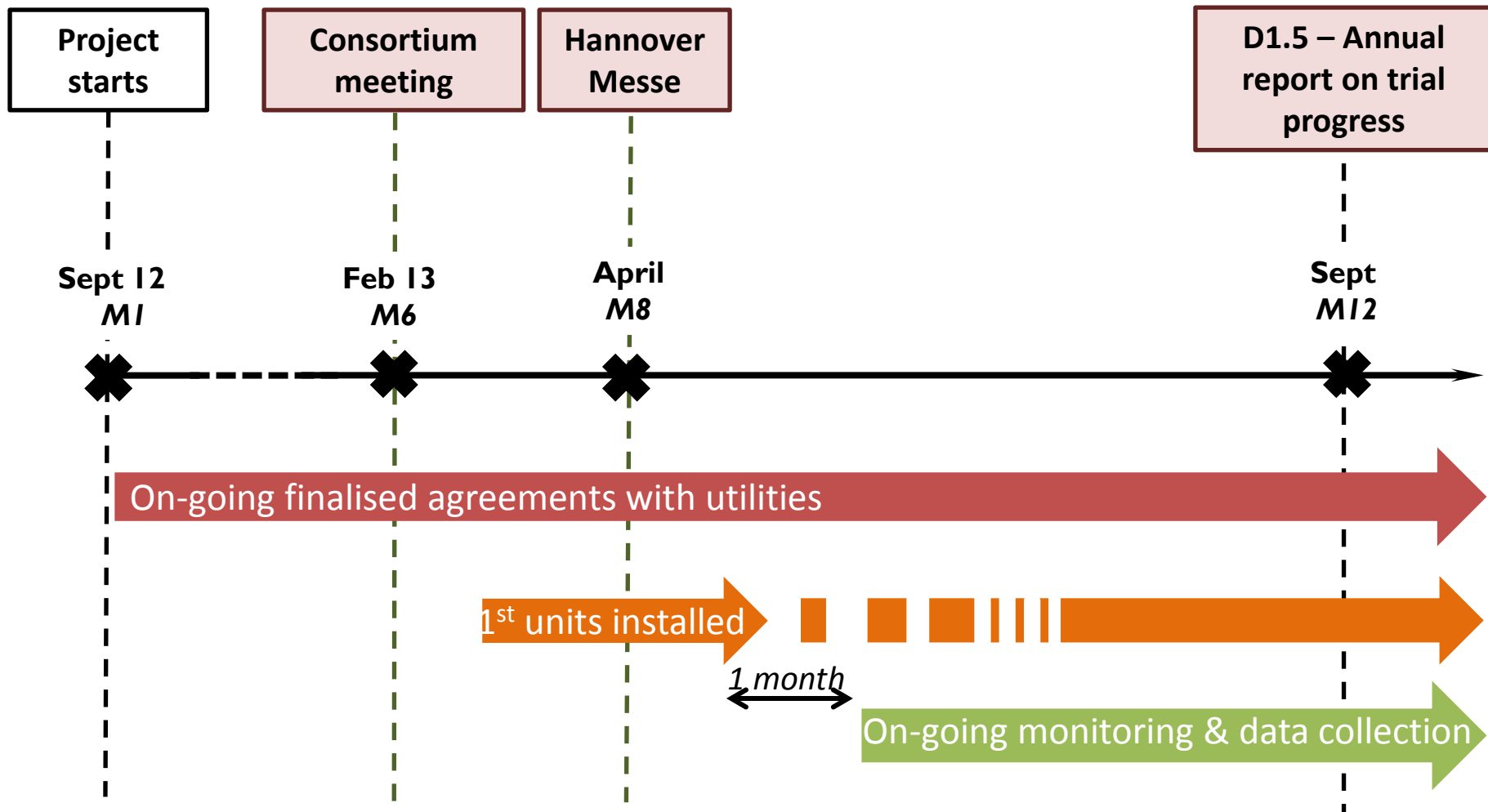
Analysis of the supply chain for representative PEM and SOFC CHP systems to explore existing European production capacity for each of the components and raw materials involved



- Any comments on the scope?
- What information is available on supply chains?



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