EUROPEAN COMMISSION

New Energy World IG
fuel cells & hydrogen for sustainability

Annual Implementation Plan 2008

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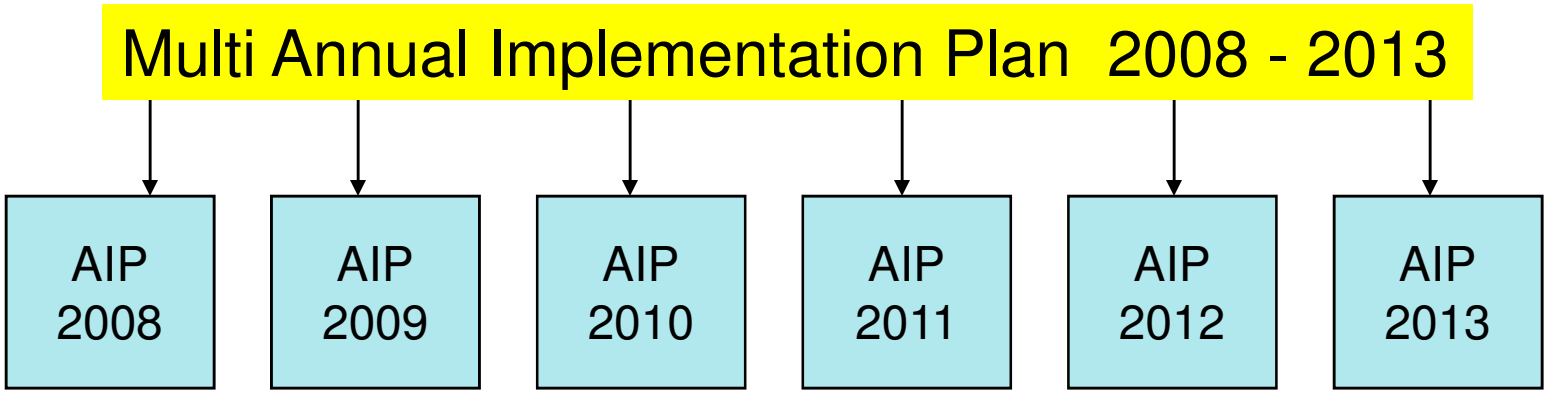
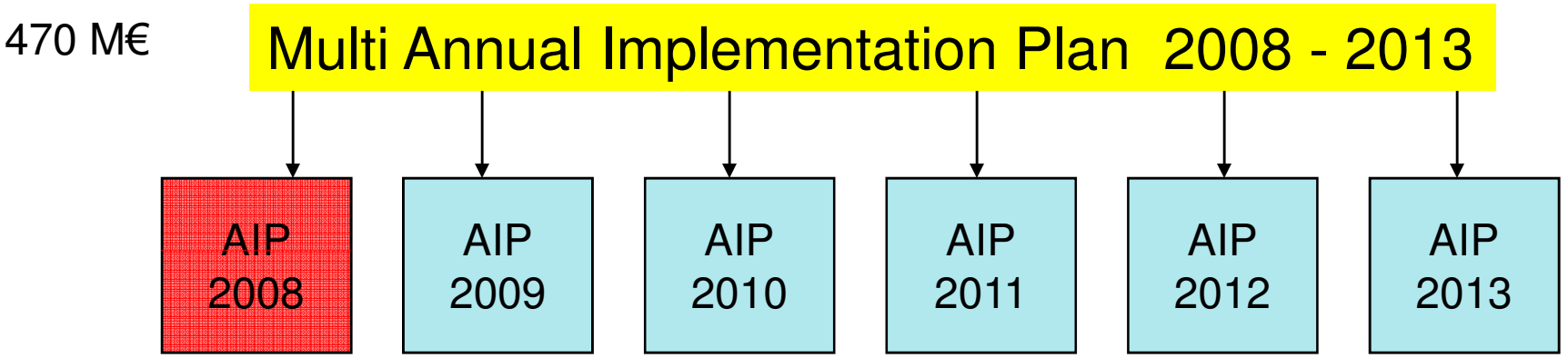
SEVENTH FRAMEWORK PROGRAMME

From MAIP to AIP



AIP sets:
Budget for Research, Technology Development, Demonstration and Support Actions
Subjects for calls to be launched
Joint Undertaking Governance Issues

From MAIP to AIP

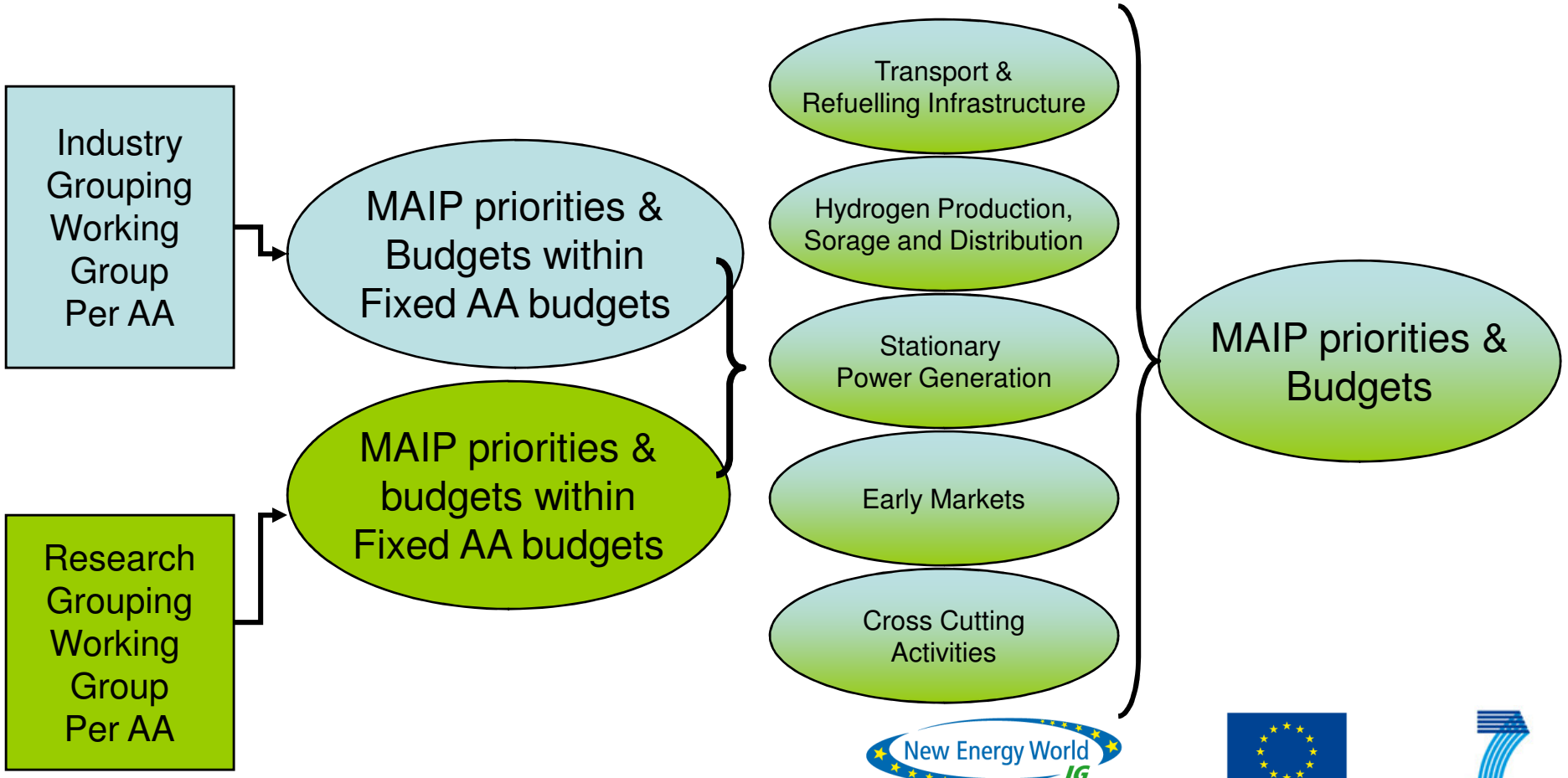


Budgets: 28.1 M€ (6%)

2008 Call closes: 15th January 2009 at 17:00:00 (Brussels local time):
Conclusion: from an RTD point of view, 2008 is another lost year.

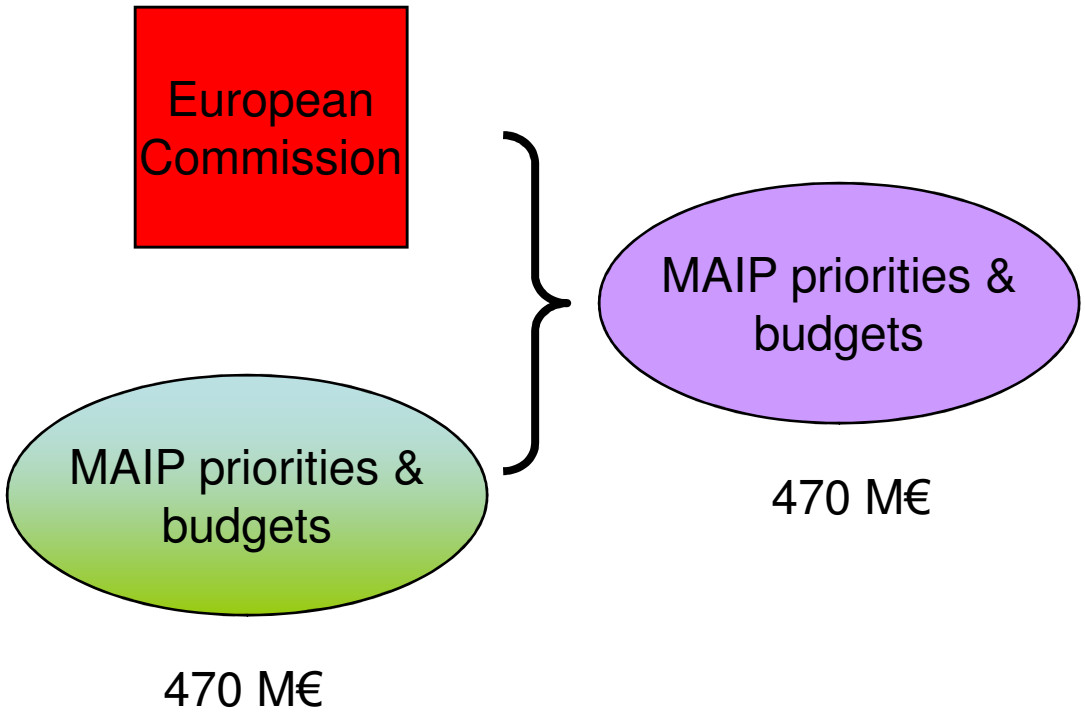
From MAIP to AIP: the process

Phase 1: Multi Annual Implementation Plan Drafting per Application Area (AA)
January 08 – March 08



From MAIP to AIP: the process

Phase 1: Multi Annual Implementation Plan Drafting (April 2008)



From MAIP to AIP: the process

Phase 2: Overall prioritization: criteria used
(May 2008, common workshop IG, RG, EC):

ROUND 1

Contribution of activity to EU policies:

EU 2020 targets on CO_2 reduction, Renewable Energy, Energy Efficiency
EU energy security
EU quality of Life: Local Emissions, inlcuding those in production
European Competitiveness (Lisbon Agenda)

ROUND 2:

Balance between Research, Technology Development and Demonstrations
Is there a prescribed sequence in activities?

Prioritization WITHIN Application Areas, not between!

From MAIP to AIP: the process

Annual Implementation Plan 2008 based on MAIP prioritization

Due to unclear budgetting rules, the budget in 2008 of 28.1 M€ cannot be spent as initially planned

In phase 1 & 2, cash flow budgetting system was used
(budget for actual annual spending)

It appeared that we had to work with commitment budgetting
(budget for multiannual commitments following from project contracts)

Consequence: The number of call topics is very limited!

For example: if a call for a large vehicle demonstration of 28.1 M€ is launched, the total budget for 2008 is spent, although the actual spending in 2008 might be less than 1 M€

From MAIP to AIP: the process

Annual Implementation Plan 2008 based on MAIP prioritization

Transportation and Refuelling Infrastructure	8.9 M€
Hydrogen Production, Storage and Distribution	2.9 M€
Stationary Power Generation and CHP	12 M€
Early Markets	2.6 M€
Cross Cutting Issues	1.7 M€
Total	28.1 M€

AIP 08 Topics: Transportation & Refuelling Infrastructure

Demonstration of 2nd generation hydrogen fuelled vehicles
(including activities on public awareness, environmental and social assesment, certification requirement)

Demonstration programme in 1 EU region/municipality
Plus 2 additional vehicles deployed on demonstration tours across EU

The candidate region needs to:

- demonstrate experience
- have commitment towards clean urban propulsion
- have an already operating hydrogen refilling infrastructure for >10 passenger vehicles, funded by its own country or region

AIP 08 Topics: Transportation & Refuelling Infrastructure

Feasibility study on large scale demonstration of second generation hydrogen fuelled vehicle fleets, including the development of criteria and framework for the selection of candidate regions

Assesment of the related social, environmental and regulatory requirements
Developent of criteria for the potential formation a cluster of regions & municipalities at EU scale

AIP 08 Topics: Transportation & Refuelling Infrastructure

Assesment of the potentialities for the formation of a European cluster of Industry, SME's and research oprganisations for the establishment of a European transportation stack industry

Overall scope and framework of the cluster
Key technical, commercial and social targets
Expertise, relevant players and their role and contribution to the project
Forms of collaboration between industry and research
Proposal for implementation of the concept

AIP 08 Topics: Transportation & Refuelling Infrastructure

R&D to enable application readiness of 70MPa Hydrogen storage

Enhanced materials, improved tanks and related components characterised by

- reduced weight and volume
- leading to lower production costs

Establishments and advancement of test methods

AIP 08 Topics: Hydrogen Production, Storage & Distribution

Development of low Temperature, high efficiency electrolyser based on PEM technology

Design and prototype of PEM electrolyser (100 Nm^3/h), with 40,000 hrs life

Efficiency > 75% LHV @ 1.2 A/cm^2

System integration with RES demo project to verify/quantify technology and get public acceptance

AIP 08 Topics: Hydrogen Production, Storage & Distribution

Development of low temperature, high efficiency electrolyser based on alkaline technology

New design and prototype (100s Nm^3/h), delivery pressure 3-5 Mpa

Efficiency > 80% LHV @ 0.75 A/cm^2

System integration with RES demo project to verify/quantify technology and get public acceptance

AIP 08 Topics: Hydrogen Production, Storage & Distribution

Thermo-chemical processes with solar heat sources

Development of new high temperature (<1500 ºC) reactors, components improvements

Simulation of components and systems

Design study of scaled up reactor in demonstration range 1-5 MW

AIP 08 Topics: Stationary Power Generation and CHP

Operation diagnostics and control for stationary power applications

Novel diagnostic technologies to identify potential failure situations for current commercial stack designs, in-service diagnostic tools for cell/stack health checking

Improved understanding of prediction and avoidance of failure mechanisms

Development of strategies allowing recovery of cell and stack performance

Control of stationary fuel cell systems to deliver low emissions and high network efficiencies

AIP 08 Topics: Stationary Power Generation and CHP

Component and system improvement for stationary power applications

Development of improved components which are viable for mass production and meeting performance and lifetime and cost targets for stationary applications.
Life > 10 years by 2015
Cost < €1500 for industrial and < €3000 for domestic CHP

AIP 08 Topics: Stationary Power Generation and CHP

Degradation & lifetime fundamentals for stationary power applications

Improved understanding of short and long term failure mechanisms,
establishment of accelerated test techniques
sensitivity matrix and lifetime prediction methods

AIP 08 Topics: Early Markets

Demonstration of portable generators, backup and UPS power systems

Early deployment of (portable) fuel cell based generators, backup and UPS power systems.

100% Reliability
Responsetime < 5 ms
Lifetime > 5 years
Cost €5000/kW
Start stop cycles 1,000

5-10 units per project

AIP 08 Topics: Early Markets

Novel approaches for fuel supply technology for portable and micro fuel cell systems

Development of new fuelling systems that meet application targets and the integration of the new fuel supply concept in a complete system

Development of test procedures, includes accelerated testing, and characterization protocols based on application specifications

AIP 08 Topics: Cross Cutting Activities

Planning of socio-economic activities

Update and harmonisation of all relevant datasets on hydrogen and fuel cell datasets including those of competing technologies

Analysis on socioeconomic planning for hydrogen infrastructure

Framework for monitoring of activities and dissemination of results

Development of a framework for Technology Monitoring and Assesments

Development of a framework for Life Cycle Assesment

AIP 08 Topics: Issues and Dilemma's

For some application area's (Hydrogen Production and Early Markets) AIP 08 budgets are subcritical

Budget breakdown from application area level to individual topics is absent. Consortia do not know what to aim at

Due to a long period without hydrogen and fuel cell framework calls, all stakeholders need RTD,D budgets to continue their activities at a "healthy" level

While some activities cannot contribute to EU 2020 goals, they must start anyhow to contribute on the long term
(2nd generation technologies for hydrogen production, storage, fuel cells)

MAIP and AIP

Not happy with the outcome?

The outcome is the result of a democratic process within the Joint Undertaking In which:

Industry Grouping represents Large companies and SME's
Research Grouping represents Research Institutes and Universities
The European Commission represents its Member States

Voting shares in JU: IG : RG : EC = 6:1:5

Join your Grouping for more influence on the process!