

59th EXECUTIVE COMMITTEE Meeting IEA Hydrogen Implementing Agreement

6-7 November, 2008
Athens, Greece

1.0 General Business

1.1 Chairman Welcome, Acknowledgment of Hosts and Overview of Meeting

Chairman Antonio G. García-Conde welcomed Executive Committee (ExCo) members, hosts and observers to the 59th Executive Committee (ExCo) Meeting of the International Energy Agency Hydrogen Implementing Agreement (IEA HIA) in Athens, Greece. **He acknowledged the Greek Ministry of Development and Dr. Elli Varkaraki of CRES for sponsoring and hosting the meeting.** He also introduced Ms. Carrie Pottinger from the IEA Secretariat who had recently assumed the duties of IEA HIA Desk Officer. The Chairman then outlined the meeting schedule and related activities. He thanked everyone who had participated in the previous day's Strategic Planning session. He also acknowledged IEA HIA participation in the 4 November workshop on Roads2HyCom sponsored by the Greek Ministry of Development and Dr. Elli Varkaraki of CRES.

1.2 Welcome Remarks by host Dr. Elli Varkaraki of CRES

Dr. Elli Varkaraki then welcomed the group to Athens with brief opening remarks. She summarized the program for the successful one day workshop on Roads2HyCom that was held 4 November. A copy of the agenda is attached or the record.

1.3 Introductions (Hosts, Newcomers and Observers)

After thanking the hosts and their organization, CRES, Chairman García-Conde welcomed the following newcomers and observers:

- **IEA** Ms. Carrie Pottinger, Desk Officer
- **Greece** Dr. Manos Loulios
Dr. Manos Stamatakis
- **Lithuania** Dr. Rolandas Urbonas
- **Norway** Dr. Stian Nygaard
- **UNIDO-ICHET** Dr. Nikos Lymberopoulos
- **UNIDO-ICHET** Dr. Mustafa Hatipoğlu
- **Taiwan** Dr. S.H. Chan

1.4 Agenda Approval

The Secretariat advised the ExCo that Dr. Cordelia Sita would not be giving a presentation as she was unable to attend.

1.5 Approval of the Minutes of the 58th meeting in Brisbane, Australia

Ms. Elisabet Fjermestad-Hagen noted that the minutes should reflect that she was in attendance on behalf of Norway. The minutes of the 58th meeting in Brisbane, Australia were then approved.

1.6 Brief Update by Members and Observers

1.6.1 Members

Ms. Fjermestad-Hagen of **Norway** reported that the HyNor Transport project was well underway with two new routes. Norway is the first to have secured a commercial contract with large supply of

hydrogen cars. The project began with the Prius and now includes Mazda. Thirty (30 more) cars are slated to arrive next year. Seven hundred (700 bar) refueling stations will service the vehicles. Norway is cooperating with Sweden and Denmark in this project. In May 2009 there will be a car race for fuel cell and electric vehicles.

Mr. Jan Jensen of **Denmark** announced that there will be more renewable energy R&D funding in Denmark. He emphasized the focus on reducing emissions and increasing efficiency. Further, a public private partnership on hydrogen and fuel cells will be announced soon.

Dr. Varkaraki informed the ExCo that two demonstrations have been proposed for **Greece** and are now pending funding. These demonstrations will involve wind, electrolysis and biogas transformation to hydrogen, as well as fuel cells. The project is expected to be funded later next year.

Mr. Jürgen Friedrich-Hake announced that there has recently been a conference in **Germany** (in German) on strategic aspects of hydrogen. Presently, Germany is occupied with preparations for the WHEC 18, which will be held 16-21 May, 2010 in Essen, Germany. Some 1,500 participants are expected. He promised to speak further about WHEC during the meeting.

Dr. Alper Sariođlan of **Turkey** informed the ExCo that hydrogen and fuel cells will be priority areas for support under the Ninth Development Plan. The Plan provides for priority areas rather than dedicated programs. The Turkish Ministry of Defense remains highly interested in hydrogen and fuel cells.

For **Japan**, Mr. Yasuhiro Kubota of NEDO announced that the Ministry of Economy and Tourism has invested 29 billion ¥ in energy, supplementing NEDO's investment in energy. Japan is preparing for the commercialization of fuel cell vehicles in 2015. The sale of residential fuel cell systems is expected in 2009. The Japan Hydrogen and Fuel Cell Demonstration (JHFC) is expected to add three more stations to the current complement of 12 stations; one of the three was recently completed in September. A 700 bar facility will also be completed.

For **Spain**, IEA HIA Chairman García-Conde reported that the Spanish hydrogen platform had not yet been adopted. However, a National Center for Hydrogen and Fuel Cells remained in the works for the near term. A recently completed project of interest is the Exposition in Zaragoza. It was conceived as an eight year project that will feature three minibuses and a fueling station. Relative to other projects, some 25 different natural gas and hydrogen delivery stations are planned for the east coast. In the north of Spain, hydrogen and fuel cells will be used for residential heat and power co-generation.

Mr. Agostino Iacobazzi had no announcements for **Italy**. The government is rethinking projects that are slated for completion at the end of 2009. The Joint Technology Initiative (JTI) has had an impact. Italy would like to relaunch the 2003 platform it prepared but never adopted. Meantime, some regional efforts are ongoing.

Dr. Heikki Kotila reported that **Finland** has started a fuel cell program that is expected to be active till 2030. It is investing 50 million € in this effort. PEM fuel cells will be investigated. In addition, it is cooperating with the Danish company Haldor Topsøe on development of Solid Oxide Fuel Cell (SOFC) stacks.

In the **Netherlands**, Mr. Frank Denys of SenterNovem reported that a new hydrogen program has been adopted. Under this framework, Amsterdam is reviewing transport opportunities in hydrogen while Rotterdam is reviewing production opportunities. A new program with three phases and 50 million € will be announced 20 November.

For **Korea**, Dr. Yongsug Tak reported that hydrogen and fuel cells are two of the biggest drivers for the energy program. The hydrogen program was established in 2003. A commercial installation built in southwestern Korea.

Dr. Carole Read reported that the presidential race in the **U.S.A.** had ended with the election of Barack Obama. The U.S. expects to continue an advanced energy initiative with bipartisan policy support. Funding for fiscal year 2009, which began 1 October, 2008, is expected to continue under “Continuing Resolution” conditions until March 2009. For hydrogen, significant funding is expected for key barriers in the following areas: hydrogen storage; hydrogen from coal; hydrogen from high temperature nuclear. Fuel cells are also expected to receive significant funding for key technical barriers. The Annual DOE Program Review will take place 18-22 May, 2009 in the Washington area. This year the Program Review will include the Hydrogen Program and the Vehicle Technologies Program.

For **Switzerland**, Dr. Stefan Oberholzer reported that no national innovation program had as yet been approved. However, the budget for hydrogen has doubled with an emphasis on basic research. The “PEC (Photoelectrochemical) House” is doing well. Switzerland also participates in the international project, NanoPEC (Nanostructure Photoelectrodes for Energy Conversion). Coffee makers in minibars on Swiss trains will be powered by hydrogen in the near future courtesy of the Swiss innovation promotion agency CTI. The hydrogen will be stored in metal hydrides and delivered by PanGas (part of the Linde group).

In **Lithuania**, Dr. Jurgis Vilemas reported growing interest in renewables, partly as a result of the uncertainty over fluctuating (\$80-400 USD/cm) natural gas prices. Similarly, interest in hydrogen is growing as a function of economics. Progress continues on the \$3 million USD investment in a new research institute whose areas of interest include storage for small applications.

Dr. Ian Plumb reported that the final version of **Australia’s** report on climate change (the Garnaut Climate Change Review) has been received by the government. It recommends an emission trading scheme (the Carbon Pollution Reduction Scheme). The level of emissions will be set following treasury modelling and it is expected that the scheme will be implemented in 2010. The Garnaut report did not mention hydrogen. An updated hydrogen roadmap is due for release early-mid 2009.

In **New Zealand**, Dr. Steven Pearce reported that funding is secure for the next three years. New Zealand will soon sign on to Task 18. Under the terms of the New Zealand emissions trading bill, various sectors would be phased in to create credits. Contemplated also is a ten year moratorium on electricity generation except where required for energy security. New Zealand has an upcoming election on 8 November.

Mr. Nick Beck of **Canada** announced that the Honourable Lisa Raitt had been appointed by the Prime Minister as Minister of Natural Resources. He reminded the Executive Committee that WHEC16 will be held in 2012 in Calgary. Canada expects to produce a new electric vehicle roadmap soon.

In the **United Kingdom**, Mr. Ray Eaton reported that Mr. Edward Milliband is in charge of the new department of Energy and Climate Change, whose portfolio encompasses energy and environment. A new, 80% carbon free target has been set for 2050. Four projects are being demonstrated. Three hydrogen refueling stations opened this year in Birmingham, Loughborough and South Wales. A fourth station is being developed to support a ten (10) bus project in London.

Mr. Paul Lucchese reported that **France** is starting a three year hydrogen R&D program valued at ~10M €/year at the French research Agency (ANR). Further, it is expected that an industrial

Agreement, led by Air Liquide and named H2E, will soon be finalized on a 200 M€ demonstration by the French Innovation Agency. This demonstration will deploy hydrogen and fuel cells in small businesses. On 12 November in Paris the first meeting will be held to launch the French hydrogen platform called HYPAC. France is also actively involved in the JTI, both in Industry Grouping and Research Grouping (CEA in fact chairs N.ERGHY).

Dr. Chan reported that Taiwan has designated major funding to energy research. On the order of 1 Billion USD is allocated to fuel cell and hydrogen. He also noted that substantial funding has been provided for a 31 kW fuel cell demonstration. On the business front, Dupont has formed an alliance with a major manufacturing company in Taiwan to produce membrane electrode assemblies. China's relations with Taiwan are increasingly friendly. A trade and direct air agreement was recently signed and Taiwan participated in an energy conference in China.

On behalf of the **European Commission** (EC), Ms. de Valladares read aloud Dr. Estathios Peteves letter of resignation and farewell to the ExCo. The letter, attached for the record, names Dr. Marc Steen as Dr. Peteves' successor to represent the EC on the IEA HIA ExCo.

2.0 Special Topics

2.1 Country Member Report – Turkey

Dr. Sariođlan gave a special presentation on the TÜBİTAK Marmara Research Center (MRC). The Scientific and Technological Research Council of Turkey (TÜBİTAK) is the nation's leading agency for management, funding and conduct of research. It also acts as secretariat for the Supreme Council for Science and Technology (SCST), the highest S&T policy making body in Turkey. TÜBİTAK's in-house research capabilities include the MRC, which was established in 1972. The Turkish Republic designated MRC has been designated to join the IEA HIA.

Turkey's energy demand is projected to nearly double between 2010 and 2020 from 126 Mtep to 222 Mtep. Similarly, electricity demand is expected to double from 216 tWh to 406 tWh during this same period. Primary energy production was 26.8 Mtep in 2006, of which 10% came from renewables, including combustible biomass and hydro, and the balance came from fossil fuel.

The 9th Development Plan (2007-2013) recognizes hydrogen technology as part of Turkey's energy future; the nation's 2023 vision calls for an increasing share of alternative energy sources, including hydrogen. To carry out its vision, Turkey seeks bilateral and international cooperation, as well as cooperation with the European Union.

The MRC carries out numerous hydrogen research activities including: NATURALHY and Hy-PROSTORE, EU projects within the 6th Framework Programme; HYDEPARK, a 2005-2008 national demonstration; MICRO COGEN, a 2006-2010 Turkish Research Area Programme; and NATURALHY. Significant hydrogen R&D is also carried out at a half dozen Turkish universities. The Middle East Technical University is working on hydrogen from biomass through the EU FP6 HYVOLUTION.

2.2 Collaboration with IPHE – Annex I (Task 22); Annex II (Task 19)

Ms. de Valladares reported that **Russian Federation**, which executed Letters of Intent to join Task 22 and Task 19, **had not yet moved forward to accession.** She will continue to follow up.

2.3 Collaboration with IPHE – Task 18 – TBD

The IPHE Demonstration Task Force has expressed particular interest in Task 18. The Secretariat drafted an Annex on Task 18, which was accepted by Task 18, reviewed by the IEA Legal Office and sent to the IPHE. Unfortunately, no feedback on the draft was forthcoming for consideration at this meeting.

2.4 International Organization Report – UNIDO-ICHET (Dr. Lymberopoulos)

Dr. Mustafa Hatipoğlu, Managing Director, and Dr. Lymberopoulos, Associate Director, represented the United Nations Industrial Development Organization-International Centre for Hydrogen Energy Technologies (UNIDO-ICHET). **Dr. Lymberopoulos gave a presentation entitled *Review of Hydrogen Energy Strategies in Developing Countries*.** He prefaced his presentation with the observation that the developing world would soon overtake the developing countries in terms of energy demand. A 70% increase in world primary demand, with a concomitant increase in CO₂ emissions, is expected between 2004 and 2030 from developing countries. It is imperative, he explained, that developing countries “leap frog” over the conventional energy path to the “cleanest possible energy technologies, including renewables and hydrogen energy technologies.” Hydrogen strategies are now being formulated in developing countries. He reviewed China, India, Malaysia, Brazil, South Africa and Turkey’s impressive strategies. He then provided the background on UNIDO-ICHET, which aims to support developing countries and demonstrate hydrogen energy technologies. UNIDO-ICHET was created in 2003 through a trust fund agreement between UNIDO and the Turkish Government’s Ministry of Energy and Natural Resources. It began operations in 2004 with a budget of \$40 million for a five year period and has a current staff of 25. UNIDO-ICHET engages in: design and implementation of demonstration projects; R&D projects/test laboratories; Conferences and workshops; Training and education; Networking; and campus building. It also encompasses the National Boron Institute. **Dr. Lymberopoulos concluded by expressing UNIDO-ICHET’s interest in joining the Agreement.**

Ms. de Valladares reported that she had contacted the IEA Legal Office for guidance on this opportunity. The Legal Office opined that UNIDO-ICHET would be a Contracting Party under section 3.2 of the Framework and that the Agreement should consider the matters of voting rights, membership contribution to the Common Fund and type of task participation in considering the possibility of UNIDO-ICHET membership. Consequently, a draft framework that addresses participation was developed and agreed to by UNIDO-ICHET. According to the draft framework, direct participation of UNIDO-ICHET staff would be permitted in all tasks as is customary for all members; UNIDO-ICHET staff would be named as Representative and Alternate Representative to the Executive Committee. Further, at any given time, participation in IEA HIA by ICHET members would be limited to two ICHET members and all ICHET members must be approved by the Executive Committee. Each ICHET member might participate in two tasks; participation in all tasks would require approval of task members. The timeframe for ICHET member participation in any given task would be determined by the length of the task, typically a three year period. IPHE countries that are not currently IEA HIA members would be excluded from eligibility for participation via UNIDO-ICHET. Given that UNIDO-ICHET is not currently a member of any other implementing agreements, prior approval from the CERT would be required for UNIDO-ICHET’s membership.

An intense discussion within the ExCo then ensued. Mr. Hake was supportive of UNIDO-ICHET’s membership. However, he also remarked on a shortcoming in the proposal as it did not address the possibility that there would be more than two ICHET member applicants at one time. He encouraged the ExCo to extend an invitation but continue to work on membership conditions. Mr. Lucchese was also supportive, citing the value of linking Europe further with Mediterranean and other developing nations.

Ms. Pottinger objected to moving forward without further legal guidance as it was her belief that the CERT must be formally consulted about the matter of participation of non-IEA members in IEA HIA tasks before IEA HIA could move forward either to invite UNIDO-ICHET to join or ask for CERT approval. Such consultation would entail development of a formal position paper for presentation to the CERT. Ms. de Valladares explained that the proposal formulated for consideration by the ExCo at this meeting had resulted from her best understanding of the guidance from the IEA Legal Office. **Ms. Pottinger recommended**

another written opinion from the Legal Office; the Chair and Ms. de Valladares agreed to consult with the Legal Office without delay.

2 Chairman/Secretariat Report

3.1 Membership Recruiting

3.1.1 Membership Pending

Russian Federation membership in the IEA HIA is pending, based on its Letter of Intent (LOI) to participate in Task 22. The Russian Federation sent its regrets for not being able to attend the Athens meeting.

3.1.2 Countries with Invitations

The Secretariat reported on countries with invitations to join the IEA HIA.

Mr. Kun Yuan, one of the People's Republic of China representatives to the International Partnership for a Hydrogen Economy (IPHE), recently notified Ms. de Valladares that he has retired from this position but would encourage his colleagues to follow through and engage with the IEA HIA. Subsequent Secretariat efforts to communicate with the designated individuals had not produced meaningful results by the time of the Athens meeting.

There has been no substantive contact with Singapore. Mexico has not indicated any change in the position it articulated in May 2008. At that time, Dr. Jorge Huacuz-Villamar explained that Mexico would look forward to IEA HIA accession when its budget permitted. Hungary would appreciate the opportunity to be invited to future meetings.

3.1.3 Other Gleneagle 5 (China, India, South Africa, Mexico and Russia), IPHE countries and Taiwan

Of the Gleneagle 5 countries not previously mentioned, Dr. Cordelia Sita of South Africa and Dr. Anil Bhardwaj and Ms. Nuzhath Thomas of the India Oil and Natural Gas Corporation Limited's (ONGC) were invited to attend the 59th ExCo meeting. While Dr. Sita had hoped to attend and make a presentation, this was not ultimately possible. Neither were the Indian representatives from ONGC able to attend.

Brazil, the only not previously discussed IPHE country that is not an IEA HIA member, continues to be interested in the IEA HIA but was not able to attend the meeting.

The IEA HIA continues to appreciate Taiwan's interest in the Agreement, although its membership may not be considered until such time as China's prospective membership has been clarified.

3.1.4 Other Countries

Portugal had actually made plans to attend this ExCo meeting but withdrew due to scheduling conflicts. The Secretariat did research and invite Austrian representation to the meeting. However, no response was forthcoming.

3.1.5 Other Potential Members

Following on the Brisbane meeting, Dr. Nikolas Lymberopoulos of UNIDO ICHET had been invited to make and did make a presentation in Athens. To affirm UNIDO ICHET's interest in IEA HIA accession, UNIDO-ICHET Director Dr. Mustafâ Hatipoğlu accompanied Dr. Lymberopoulos to Athens.

3.2 IEA Paris Secretariat

3.2.1 NEET (Networks of Expertise in Energy Technology) Initiative (García-Conde and de Valladares)

Mr. Chair García-Conde reported that he had represented the IEA HIA at the 30 September-1 October, 2008 NEET workshop in Moscow, where he was able to express the enthusiasm with which the IEA HIA looks forward to welcoming Russian Federation to the Agreement. Ms. de

Valladares then explained that the IEA Secretariat is still pursuing a workshop in India. A plan to produce the workshop in a fall timeframe was not feasible due to short notice. A Mexican workshop is less likely. However, as of now, it is thought that IEA may hold a meeting in Mexico to reacquaint Mexico with the IEA.

3.2.2 IAHE, IEA and IEA HIA (de Valladares)

In her capacity as IEA HIA Desk Officer, Dr. Emi Mizuno was approached last spring by Dr. Andrej Zeman of the International Atomic Energy Agency (IAHE) about the possibility of co-sponsoring a workshop on “Application of nuclear methods to Studies for Fuel Cell and Hydrogen Cycle Technologies.” If successful, this workshop was expected to lead to possible cooperation on a Coordinated Research Project (CRP). Ms. de Valladares first conferred with Dr. Bjorn Hauback about this opportunity, as he had participated in the initial meeting on the proposed project. They favorably discussed the possibility of the project’s inclusion in Task 22, the storage task. Ms. de Valladares then followed up with Dr. Zeman. The IEA HIA was unable to provide the financial support (the initial request was 25K USD and the subsequent request was 5K USD) he requested. However, the following was agreed: Dr. Bjorn Hauback would attend the meeting on behalf of the IEA HIA; anticipating that a Coordinated Research Project (CRP) will result from the technical meeting, Task 22 (Storage) will propose to make the CRP a "project" within the framework of Task 22 and Dr. Hauback will ensure all members of his task are well aware of the workshop opportunity. Dr. Zeman also agreed to modify the conference title to read: "IAEA Technical Meeting organised in cooperation with IEA Hydrogen Implementing Agreement and Advanced Fuel Cell Implementing Agreement, and hosted by IEA headquarters."

3.2.3 Fossil Fuel Working Party – CCS and Coal

By way of Dr. Mizuno’s introduction, Dr. Sankar Bhattacharya, IEA Desk Officer for the Fossil Fuel Workshop Party, has extended an invitation for the IEA HIA to make a presentation at the WPF’s next meeting, scheduled for 11-12 December at the IEA Secretariat in Paris. Topics of mutual interest and concern include analysis, carbon capture and sequestration (CCS), biomass in general and IEA HIA Task 27 in particular. Ms. de Valladares is in the process of trying to confirm our participation.

A Clean Coal Roadmap workshop is being held 6-7 November at the IEA in Paris, concurrent with this meeting. It had been hoped that Dr. Mizuno might attend on our behalf. However, this might not be possible.

3.2.4 IEA Ad-Hoc Group on Science & Energy Technology

While she had no new news about AGSET, Ms. de Valladares does expect its activities to increase early in 2009.

3.2.5 IEA Secretariat Activities (Pottinger)

Ms. Pottinger addressed the group briefly, explaining that her predecessor, Dr. Emi Mizuno, was leaving the IEA by year-end to take a position in the UK. While she made no presentation, she did distribute a report from the IEA Secretariat that encompassed several important topics: 17-18 September, 2008 REWP meeting; the recently formed International Renewable Energy Agency (IRENA) whose first assembly is planned for 2010; the Global Renewable Energy Markets and Policies Programme (GREMP); Integration of Renewables into the Electricity Grid; Other Recent Activities on Renewable Energy; and other IEA Secretariat Activities, including Energy Technology Perspectives and the NEET Initiative. The report also explained the IEA Secretariat restructuring, undertaken to facilitate IEA functioning to changing market realities. It also reported on the IAHE “Contribution of Nuclear Methods to Material Studies of Fuel cell and Hydrogen Cell Technologies” workshop scheduled for 16-20 March.

3.3 Other Implementing Agreements

3.3.1 Advanced Fuel Cell IA

Ms. de Valladares reported that she gave a presentation entitled *IEA HIA Update* at the 27 October Advanced Fuel Cell (AFC) ExCo meeting. She took that opportunity to mention the possibility of collaboration on future IEA HIA analysis efforts. **The ExCo confirmed its interest in a joint**

session, which will take place in Essen in May 2010. Further, AFC Chair Mr. Lars Sjunnesson will attend our fall meeting in Spain. AFC Annex XIX Subtask 3 – Fuel for Fuel Cells, whose final report is pending, would be pleased to make a presentation for our Task 23. AFC Annex XX – Fuel Cells for Transportation – would be interested in attending the Task Definition meeting for the new IEA HIA Infrastructure and Mass Storage task.

3.3.2 ENARD IA

Ms. de Valladares was an invited observer for the afternoon session of the 22 September Electricity Networks Analysis R&D (ENARD) meeting at the margin of the Smart Grid conference in Washington, D.C. Appreciating IEA HIA interest in the ENARD portfolio, that implementing agreement plans to invite the IEA HIA to participate in an upcoming workshop on load balancing.

3.4 End of Term (2004-2009) and Strategic Plan (2010-2015)

Ms. de Valladares reported that the current five year (2004-2009) term of the IEA HIA expires 30 June, 2009. The IEA’s extension requirements include submission of an End of Term (EOT) Report and a new Strategic Plan (SP) for the period 2010-2015. Key dates in the review and approval process are the REWP meeting, which will take place in the 24-25 March and the CERT meeting, which will take place 9-10 June 2009. Given the outcome of the 4 November Strategic Planning meeting, the Secretariat will circulate a follow-up document to elicit further input from both ExCo members and Operating Agents on potential activities for incorporation in the Strategic Plan. Meantime, she will prepare the draft End of Term Report. These will be circulated sequentially to the Strategic Planning Committee beginning with the End of Term Report. Following review and approval by the Strategic Planning Committee the documents will be then be sent to the Executive Committee for final review and approval in keeping with the overall schedule. In addition to preparation of the EOT and SP, the Strategic Planning Committee must also assess the implementing agreement’s performance against the CERT value criteria.

3.5 IEA HIA Analysis Committee (Hake and de Valladares)

Analysis Committee Chair Mr. Hake led the discussion on the IEA HIA Analysis Committee activities, following Ms. de Valladares brief PowerPoint update. Referencing the 17-18 March 2008 Analysis Committee Report that had previously been distributed to the ExCo, she described its three components: 1) the Literature Review; 2) the Market forecast/demand survey/trend analysis; and 3) the Market study for the supply side. With respect to the path forward, Task 18 had graciously agreed to perform the Literature Review (#1) if sufficient strategic direction were provided. That Literature Review is now underway and Dr. Susan Schoenung, Task 18 Operating Agent, was scheduled to provide a progress report during her presentation. On completion of the Literature Review, the Analysis Committee foresaw that Dr. Schoenung and Ms. de Valladares would prepare a proposal for the demand and supply components. The Secretariat has continued to make efforts to dialogue with IEA to ensure that the implementing agreement is engaged in IEA analysis efforts as early in the process as possible. On that point, she and the Chair had resolved to bring this matter to IEA’s attention during their imminent IEA visit. **The Analysis Group’s continuing progress has underscored the clear value and potential of a new IEA HIA analysis task, which would be formally defined in the new term.** Mr. Hake emphasized that the IEA HIA and the IEA should be on the “same page.” To make our case to the IEA, he said we should strive to “produce such valuable information that the IEA has no choice but to use our work.” IEA Desk Officer Pottinger said she advocates on behalf of the IEA HIA at the Secretariat.

4.0 Task Reports – In Definition

4.1 Near-Market Routes to Hydrogen by Co-Utilization of Biomass as a Renewable Energy Source With Fossil Fuel (Ms. Fjermestad Hagen)

Task Organizer Ms. Fjermestad-Hagen gave an oral update on the status of “Market Routes to Hydrogen by Co-Utilization of Biomass as a Renewable Energy Source with Fossil Fuel”, which had been previously approved but whose implementation was delayed pending resolution of Operating Agent funding. Pursuant to

the ExCo's June 2008 decision to extend the Definition phase until November to allow her to secure an alternative solution(s) for Operating Agent funding, she was very pleased to report that Mr. Frank Denys of the Netherlands had graciously agreed to provide 25,000 € in funding for Dr. Jan-Erik Hanssen's services as Operating Agent. Further, as a result of her efforts and in consultation with the Secretariat, she made the determination that it was appropriate to seek a Co-Operating Agent who would share management responsibilities with Dr. Hanssen. Ms. Fjermestad-Hagen was also very pleased to announce that Turkey had responded positively to her inquiries: Turkey was expected to formally nominate a Co-Operating Agent imminently. **She asked for and received ExCo approval to finalize these Operating Agent solutions.**

4.2 Large-Scale Hydrogen Infrastructure and Mass Storage – (Mr. Denys)

Mr. Denys reported on the proposed Hydrogen Infrastructure and Mass Storage Task, whose organization had been deferred due to Mr. Denys' other obligations. There is fresh interest in the task on the part of Dr. Jay Keller of the U.S. and Dr. Stathis Peteves of the E.C. Participation appears very promising and Mr. Denys expected to make a final go/no-go decision in December as to whether to proceed with the Task Definition meeting. **If affirmative, the Task Definition Meeting would be held early in 2009.**

4.3 Task 18 – Integrated Systems Evaluation – (Dr. Schoenung)

Dr. Schoenung reviewed progress in 16 member Task 18, whose second phase is scheduled to end in just over a year on 31 December, 2009, allowing time for two more expert meetings. Relative to task structure, the new Subtask A Leader is Ms. Emma Stewart of Sandia National Laboratories and the new Subtask B Leader is Ms. Maria Argumosa of INTA, Spain. The tenth expert meeting was held in Copenhagen, 15-17 September and featured a one day visit to Hydrogen Community Lolland, site of a Subtask B modeling and evaluation project, and a half day visit to Malmö. Activities during the past six months included preparation of bibliographies for the Literature Search for the Hydrogen Resources Study, which are being stored on Subtask A private site. In addition, the Subtask A Information Base continued to grow from this and other contributions. Subtask C published the *Survey of Support Mechanisms for the Development and Demonstration of Hydrogen Systems* by Mary Gillie and Karen Platt. Task 18 has a working relationship and has or hopes to hold joint meetings with Tasks 19, 23 and 24.

Subtask B has two analysis teams, one for Refueling Stations and the other for Stationary Power Systems. Subtask B Evaluation Projects include the Totara Valley, now in definition, which features a 2 km H₂ pipeline. An Intelligent Energy HCP bio-reformer project is likewise in definition. Evaluation and modeling of the hydrogen filling station at Expo 2008 in Zaragoza is now underway using HYSys Simulations; the station will be operating for the next eight years. Conference papers were being prepared for HFC 2009 and NHA 2009.

Subtask C has undertaken an array of seven activities, including trend analyses and continued production of case studies. Fifteen phase 2 case studies are planned. A Remote Communities Survey is also underway, as is a summary of permitting experiences for Task 18 projects.

Task 18 is seeking direction from the Analysis Committee on next steps after completion of the Literature Search and Bibliography, which is expected at year end 2008. Dr. Schoenung reported that **Task 18 has been invited to Germany in conjunction with WHEC for a new task definition meeting; one-two new tasks are expected. For one new task, Task 18 expects to spin off its work into smaller communities in order to make its simulations available and provide power and fuel to these communities.**

4.4 Task 24 – Wind and Hydrogen Integration (Dr. Correas)

Dr. Luis Correas gave the Task 24 presentation, beginning with the observation that the task had entered into a productive phase after consolidation of its team. The third meeting, hosted by IHT, was held 1-3 October in Switzerland and included 16 participants. Activities during the last six months included a meeting in Bex, Switzerland as well as an update of the Task 24 private site and seven (7) Task conference presentations. Subtask A on the State of the Art has produced a preliminary draft document entitled "State of the Art" of wind energy and electrolytic hydrogen that is now being review. Similarly, a draft report for

Subtask C, Business Concept Development, is now under review. The drafts are expected to be available at the end of 2008.

Dr. Correas review the vital statistics (e.g., wind capacity, electrolyser, H₂ storage medium, and generator) and configurations of the wind hydrogen demonstration projects associated with Task 24: Ramea Island (Canada); Prince Edward Island (Canada), Sotavento (Spain); Wind 2H₂ (USA); Wakkanai (Japan); Tahivilla (Spain); IOTHER (Spain); and RES2H₂ (Spain, Greece).

Potential new task members include Ariema from Spain and Dr. Attilio Pigneri from New Zealand.

The delay in the schedule caused during the organization phase is expected to be recovered as the group works in a more structured fashion. **The handover of the Operating Agent role from the Foundation for Hydrogen in Aragon to Gamesa was scheduled for the second half of 2009.** Dr. Correas will soon be in contact with Gamesa to ascertain the status of the handover from their perspective. Observing that Ms. Ismael Aso's role in launching the task has been decisive, Dr. Correas suggested that Mr. Ismael Aso could continue to play this role as the official Operating Agent in the event Gamesa were to withdraw.

There was some discussion about electrolyzers. Mr. Hake posed several questions, including whether it was possible to electrolyze seawater. Dr. Lymberopoulos indicated that seawater electrolysis required ~1% extra energy. Mr. Lucchese suggested that it would be useful to involve utilities to further demonstrate impact and gains on the grid.

4.5 Task 25 - High Temperature Production (Mr. Le Naour)

Mr. Le Naour conveyed greetings from former Operating Agent Gilles Rodriguez and explained that his replacement, Ms. Sabine Poitou, was currently on maternity leave. Therefore, he would deliver the Task 25 presentation and the CEA team would assist with Task 25 administration in her absence. The second official meeting took place at ENEA in Rome, 9-10 October and included 26 experts from ten countries. All National Participation Letters (NPLs) save one (for the U.S.) have been received. The meeting included a technical tour of the I-S prototype loop and solar facilities of the thermodynamic solar place at ENEA-Casaccia.

Relative to progress, Mr. Le Naour reported on Subtask A development of the summary sheets for each process: five (of 15) are expected to be finalized by year end. These topics are: high temperature electrolysis; sulfur iodine cycle; Zn/ZnO cycle; Alkaline electrolysis; and catalytic natural gas decomposition. The sheets are structured as follows: page 1 – process principle; page 2 – types, flowsheets & experimentation or existing prototypes; page 3 – heat source, energy field, materials, H₂ cost evaluation; and page 4 (contacts, main initiatives & scientific references). For Subtask B, Processes Evaluation, application of evaluation methodologies is now underway on selected processes. For Subtask C, HTP R&D and future industrial deployment, the Figure of Merit was done by Subtask B. The subtask's aim is to ascertain industrial hydrogen applications, processes and schedules. Presently, the subtask has no leader. The deployment approach and generic R&D needs reference the Innovative High Temperature Routes for H₂ production (INNOHYP) review while demonstrations reference the European Joint Technology Initiative (JTI). Subtask D, the Communications Subtask, consists of a common documentation base that is open for all members.

Following on the discussion **about interactions and overlap with the IPHE, Mr. Le Naour relayed the findings of Christian Sattler, who participates in both groups.** Dr. Sattler explained that the two groups do not have the same goal. IPHE is now structured toward an R&D funded project (called THESIS) to demonstrate solar thermochemical H₂ production while Task 25 seeks to provide data, recommendations and expertise on high temperature production of hydrogen from solar and nuclear. Thus, **while they are clearly complementary, there is no overlap or duplication between the two efforts.**

4.6 Task 19 – Hydrogen Safety (Mr. Hoagland)

Mr. Hoagland began with a brief synopsis of Task 19, which was approved in October 2004 and extended for another three years in November 2007. Eight (8) participants were active from 2007-2010; three (3) more

joined in the second phase. Eight (8) meetings have been held to date. Mr. Hoagland reported that no IPHE members came to the last meeting. The task approach to meeting its objective is to provide a technically sound and credible basis for Risk Informed Codes and Standards that allows informed design choices and is not unduly restrictive, thereby facilitating approvals, permits and insurability. For the phase II extension, the following Subtask A activities are in full swing: Activity A.1 – Development of Uniform Risk Acceptance Criteria; A.2 – Develop a List of Appropriate Engineering Models and Modeling Tools (new scope developed, new leads and new name adopted – Modeling Tools and Realistic Physical Effects Models); A.3 – Develop methodology or consistent site risk assessment.

In the development of risk informed codes and standard, the use of a risk-informed process is one way to establish the requirements necessary to ensure public safety. This position is endorsed by the Fire Protection Research Foundation in its “Guidance Document for Incorporating Risk Concepts into NFPA Codes & Standards.” There is more than one way to incorporate risk and for a given evaluation, acceptable risks may vary considerably. The U.S. perspective on acceptable risk can be characterized as “do not harm.” Societal risk is measured in the FN curve (where N = Number of fatalities and F = frequency of N or more fatalities per 1000 people). Understanding and quantifying the consequences of unintended releases of H₂ is important. Overpressure is not an issue when there is a barrier. It has not been possible to ignite a flame at the lower barrier of 4%. An engineering model has been developed for the radiation heat flux and flame length of H₂ jet flames. Another model has been developed to predict flammability envelopes from high-momentum unignited H₂ jets. Modeling and validation will be undertaken for a slow leak regime. They are studying self ignition in H₂ releases. Self ignition occurs when released at 22 atm and above. Strategies are also being developed for modeling slow and fast leaks from LH₂ sources.

The Subtask B Workplan has three subtasks and three databases – HyTEF (Testing and experimental data); HyPRO (programs around the world); and HyTEX (links results of Subtask A to existing data). He discussed the February 2004 Italian motorway accident during which a gaseous hydrogen tube trailer went off a road into a field. He also discussed the 2003 Pistoia Italy accident in which three H₂ cylinder packages fell down from a truck due to the rupture of the blockage belts, causing H₂ release into the open air and deflagration although the ignition source was unknown. Lessons learned: there was a lack of equipment to evaluate the pressure inside the H₂ cylinders; there is a lack of protection in the back part of the tube trailer as well as a lack of lifting/anchor points in a tube trailer.

A work plan for Subtask C will be developed as soon as resources are determined. Mr. Hoagland informed the ExCo that the several NPLs remain outstanding. While the number of country participants in Phase 2 has increased, so has the scope of work, so their participation is absolutely requisite to completion of the work plan. Further, many experts are experiencing budget and/or funding problems that may require reallocation of responsibilities. Dr. Read acknowledged the importance of the work and the sensitivity associated with communicating results. Mr. Hoagland stressed that there is a strict process for vetting information.

Finally, **Mr. Hoagland brought the opportunity for IEA HIA sponsorship and branding of the Third International Conference on Hydrogen Safety (ICHHS), scheduled for September 2009 in Corsica, to the ExCo’s attention.** The conference enjoys an excellent reputation. Initially, HySafe funded the conference, but this support has come to an end as HySafe draws to a conclusion. The enthusiastic ExCo response included the direction to investigate EC funding (possibly through the JRC). The ExCo asked Mr. Hoagland to look into possibilities of funding for the conference and confer with the Secretariat about this opportunity.

4.7 Task 21 – Biohydrogen (Dr. Miyake)

Dr. Miyake provided a status report on the first three years of Task 21 from 2005-2008 as part of the formal request for a two year extension, as foreseen since inception of the task. This extension would provide a five year timeframe, which experts consider a sufficient for initiation of a significant research effort, realization of substantial technical advances and development of metrics for evaluation. He announced that Turkey will join

the task. Interest in the topic is now growing rapidly in the U.S. and Europe as well as Asia. Seven (7) meetings have been held thus far.

In Subtask A, several pure cultures have been studied using defined substrates. They include enterobacteria as well as mesophilic and thermophilic strict anaerobic Gram-positive microbes such as *Caldicellustiruptor*. Subtask experts are considering gene coding enzymes in order to enhance H₂ yields. Fermentative and electrohydrogenic approaches to H₂ production research focus on production of hydrogen from lignocellulosic biomass using corn stover as the model substrate, and steam-explosion or dilute acid hydrolysis as a model pretreatment technology. *Clostridium thermocellum* was reported to have the highest rate of cellulose conversion.

The discovery of three maturation genes required for the synthesis of active FeFe-H₂ase proteins has led to a number of studies that have facilitated Task 21 laboratory advancement of heterologous expression of H₂ase genes in different receptor organisms. Other studies have been initiated to understand the Fe-Fe H₂ase maturation mechanism in algae and bacteria. Advances have been made in understanding of H₂ase O₂ sensitivity that have allowed protein engineering approaches to improving the tolerance of H₂ase to O₂. With respect to *Chlamydomonas reinhardtii*, one U.S. laboratory has reported an immobilized system that can produce H₂ at greater than 1% light-conversion efficiency in a wild strain type.

For Subtask C, Bio-inspired Systems, H₂ase enzyme research has been widespread in Europe, Japan and the US. The biological functions are understood at the genetic and molecular level, but greater understanding of the protein is required for engineering. A new assessment method suitable for Biohydrogen is being screened for use in Subtask D: Overall Analysis.

Dr. Plumb asked whether Intellectual Property (IP) had become an issue and Dr. Miyake said no. There was also a question about comparison with the cost of biomass gasification. Dr. Miyake responded that the biological systems were useful because any scale is feasible.

There was no objection to the Task 21 extension proposal, so it was approved by consensus.

4.8 Task 22 Storage (Dr. Hauback)

Dr. Hauback reported that 18 countries now belong to Task 22. There are 55 official experts (although some NPLs are missing), 47 projects and an effort of ~64 person years/year. Presently, the task is scheduled to conclude at the end of November 2009 but there is clear interest from experts to continue if the Norwegian Research Council is willing to continue to support Dr. Hauback as Operating Agent. The last meeting was held in Villa Mondragone, Italy and perfectly hosted by Dr. Cantelli of La Sapienza from the Università di Roma. The next meeting will be held in Korea.

Also, the International Atomic Energy Agency (IAEA) will hold a technical meeting on “Application of nuclear methods to material studies for fuel cell and hydrogen cycle technologies” at the IEA Secretariat in Paris preparatory to IAEA creation of a Coordinated Research Project (CRP). **IAEA has agreed that the meeting would be billed as “IAEA Technical Meeting organised in cooperation with IEA Hydrogen Implementing Agreement and Advanced Fuel Cell Implementing Agreement, hosted by IEA headquarters.”**

Forty-five projects had been approved prior to the meeting in Italy. Dr. Hauback discussed promising results for several projects. In Germany, Dr. Fichtner isolated a formerly unidentified phase in the thermal decomposition of Ca (BH₄)₂. In Italy, Dr. Cantelli’s results showed higher transformation temperatures but slower kinetics for ND₃BH₃ and NY₃BD₃ than NH₃BH₃. In the U.S., Dr. Anton is working on a study to build a predictive capability to determine probable outcomes of hypothetical accident events. Mr. Hake asked about the pace of progress. Dr. Hauback explained that the approach is to test all possibilities. There has in fact been

enormous progress over the past five years and Task 22 is recognized as the world reference in the hydrogen storage field. Nevertheless, further work is required to reach the international goals for hydrogen storage.

NPLs from Sweden and Iceland are outstanding. The NPL from the Netherlands is expected to be updated and Greece is expected to join. No Russian IPHE expert attended the meeting in Italy. There were no objections to Dr. Hauback's request to begin the process of clarifying whether Task 22 could be extended for 2-3 more years.

4.9 Task 23 – SSR for Hydrogen (Dr. Schjøberg)

Task 23 has nine (9) member countries and substantial industry participation. The last meeting was in Tokyo. The next two meetings will be held in Paris, immediately following the ExCo meeting, and Norway in May. Task work is done both at meetings and between meetings.

Subtask 1, Industrialized Harmonization, has reached the following preliminary results. First, it is important for suppliers and end-users that norms and standards exist of size, footprint and capacity. For the end-user, standardization facilitates installation planning and system maintenance. For developers and suppliers, standardization could lead to reduced costs for vital components like compressors and valves, as well as design costs. For refueling stations, various parameters (reformer/electrolyzer footprint, appropriate feedstock input and purity of H₂ output) are being compared for two capacity ranges: small - <100Nm³/hr and; and medium – 100 Nm³/h-500 Nm³/hr). Subtask 1 will soon complete the list of reformer technology suppliers and compare the state of the art at the next meeting. Also at the next meeting, availability and reliability of JHFC stations will be compared to CUTE.

For Subtask 2, Sustainability and Renewable Sources, preliminary results confirm that small scale carbon capture and sequestration is mainly on at the research stage and the choice of capture technology depends on the reformer technology. Small scale CCS is an attractive alternative if a demand for CO₂ exists in the nearby area. The Subtask is now developing an overview of small scale CCS research as well as an overview on the use of biomass. It is also investigating the best use of biofuels, their reforming possibilities and availability.

Subtask 3 will prepare market studies for Japan, North America and Germany. Japanese market data have been collected. Input parameters have been very carefully defined. Data collection is underway for the U.S. market. The German market analysis is in progress and will take the HyWays report into account. The output from the market studies is expected to include a market comparison with hydrogen supply costs, energy efficiency and CO₂ emissions on WTT basis. It will also address the advantages of small-scale reformers over GH₂ transport and supply; LH₂ transport and supply; and on-site water electrolysis.

Dr. Schjøberg's concluding remarks underscored the significance of SSR to early market development and public acceptance. She also emphasized that local solutions offer flexibility.

4.10 Task 26 Advanced Materials for Waterphotolysis of Hydrogen (Dr. Miller)

Dr. Eric Miller, new Task 26 Operating Agent, reviewed "that stubborn PEC (photoelectron-chemical) challenge," which encompasses absorber material, interface design, integrated device development hydrogen production system development and cost. The "ideal" PEC semiconductor needs: low bandgap to absorb much of the solar spectrum; high enough bandgap potential; low carrier recombination for good electronic properties; stable in aqueous electrolyte; low cost and compatible with manufacture-scale.

A PEC materials R&D feedback loop is being implemented, bootstrapped onto the work of the robust US DOE PEC Working Group. A joint meeting of Annex-26 experts and the US PEC Working Group was held in Honolulu ("Hu'a Iki Meeting") 15 October. The organizational approach involves materials task forces that are now producing white papers. Relative to standardized testing procedures, Dr. Miller reported that thirteen (13) extremely detailed initial protocol documents have been initiated. Progress in this area includes identification of the top six PEC experiments for rapid screening of and informed decisions about

PEC materials. The PEC Techno-Economics Task Force has performed initial analysis on three systems (single and dual reactor slurry-phase, and photoelectrode.)

Potential IEA HIA participants may come from Australia and Denmark. Experts in Mexico have long been interested although Mexico itself is not now in a position to join. Relative to international participation, he articulated the four “c”s of international partnerships: collaboration, cooperation, coordination and *caution* (his italics). **Dr. Miller views international outreach as a key part of future efforts.** For example, he cited the Nanopec partners in the EC. The path forward involves continued focus on PEC standardized testing protocols work, enhanced focus on PEC materials theory task force and initial focus on PEC database task force. Dr. Miller reported that the task is now ready to be included on the IEA HIA website.

Dr. Read provided information relative to the delay in funding the Operating Agent for this task, explaining that it should have been included in basic research but was put into the applied research category.

5.0 Finance and Accounting (García Conde and de Valladares)

5.1 Current Financial Statements

Ms. de Valladares gave the financial report, beginning with the Statement of Cash Flows. Operating and Investment activities for the period January 1 through October 2008 resulted in a cash position of \$40,156.56 at the end of the period. The Balance Sheet dated October 31, 2008 showed \$40,156.56 the cash (checking account) portion of Current Assets; other Current Assets consisted of \$40,000.00 in Accounts Receivable for Common Fund dues. There was \$5,012.32 in Fixed Assets, all of which consisted of Accumulated Depreciation. There was \$84,868.88 in Total Assets as well as \$84,868.88 in total Liabilities and Equity. Relative to Profit and Loss, total expenses from January 1 through October were \$175,096.23 against scheduled revenues of \$215,000 in Common Fund dues. The scheduled revenues have been supplemented by \$1,415.42 that was reimbursed in connection with expenses for the Brazil NEET workshop.

Chair García-Conde presented the proposed draft budget for 2009 using a format that displayed the following information: the approved 2008 budget; income and expenses projected through 2008; proposed changes in 2009 budget from the 2008 budget; and the proposed 2009 budget. This format also provided a balance sheet as of 1 November. On the revenue side of the budget, Mr. García-Conde explained that the Common Fund dues were expected to be \$215,000 as they were in 2008. He also explained that Accounts Receivable were listed as \$40,000, of which amount \$30,000 was attributable to 2008 and \$10,000 was attributable to 2007. On the expense side of the budget, the Chairman recommended a 10% increase in contact labor as a cost of living increase for the Secretariat as there had been no adjustment in compensation for the past five years. He pointed out that \$7,000 was budgeted in 2008 for the biennial financial review. Observing that expenses were budgeted at \$237,457 against \$215,000 in revenue, the Chair explained that the source of funds needed to balance the budget would come from cash on hand plus conversion of Accounts Receivable to cash.

There was an intense discussion in the ExCo about various aspects of the budget. The focus of the discussion concerned balancing the budget and the future sustainability of the budget. The Chair again explained that when the Accounts Receivable were paid, the balance would be balanced. With respect to sustainability, he also reminded the ExCo that in 2010, there would be no expense for a Financial Review, as that is a biennial occurrence. However, it was important to some members, including Dr. Read and Mr. Hake, to present a balanced budget proposal that did not rely on collection of Accounts Receivable. Mr. Beck questioned the increase in the Secretariat’s compensation and the utility of the office. To the former observation, Mr. García-Conde responded that cost of living increases were a normal part of doing business and typically included in all compensation arrangements. Other members expressed the viewpoint that an independent office is important for the image, current standing and future growth of the Agreement. Mr. Jensen said that if two more countries acceded to the Agreement, the budget would be balanced (and then there would be a surplus when the Accounts Receivable were collected.) He suggested that the situation could be analyzed again in 2009. Mr. Beck responded that growth should be strategic, which did not necessarily imply more members.

Rather, he encouraged the IEA HIA to focus on the quality of members. Observing that printing of the Annual Report was the second largest budget item, Ms. Fjermestad-Hagen encouraged a reduction in its size, especially in view of the fact that the CERT is asking for policy messages. Dr. Jurgis Vilemas and Dr. Urbonas suggested that the printing be outsourced to Lithuania where it would be less expensive. Mr. Hake also told the group that the Greenhouse Gas Implementing Agreement generates additional revenue from conferences. **Ms. Fjermestad-Hagen made a compromise proposal to balance the budget through accession of one member (a reasonable probability event) and reduction of the cost of Annual Report printing. This proposal was accepted by the ExCo and the budget was approved on the afternoon of the 6th.**

However, **on reconvening the morning of the 7th, the Chair reported that Dr. Read had approached him that morning to request that the ExCo go into Executive Session to reconsider the budget. On reconvening as a committee of the whole after the ExCo met in Executive Session, the Chair asked Mr. Pearce to develop language for the minutes on the ExCo's discussion, which appears below:**

“After analysing the details of the current relationship between the HIA Executive Committee and its Secretariat, the HIA ExCo decided to commit the chair, co-chairs and the US representative to prepare a draft Statement Of Work (SOW) for Secretariat Management Functions, to be presented to the ExCo during its San Francisco meeting. After discussion of the draft SOW proposal the ExCo will decide how it wishes to formalise its relationship with the Secretariat.”

6.0 Communication and Outreach (de Valladares)

Ms. de Valladares reported on progress in communication and outreach.

6.1 Annual Report

Guidance for the 2009 Annual Report will be sent out in the February 2009 timeframe. It will reflect the decision at this meeting to shorten the document. Ms. de Valladares will obtain an estimate from Dr. Urbonas for printing. Assuming a reasonable to significant cost savings, the report will be outsourced for printing.

6.2 Newsletter

The IEA HIA NEWS continues to be well received. The fall issue was published electronically but not in hard copy. The feature article of the fall issue of the IEA HIA News covered the award of the IEA HIA Prize to Dr. Gary Sandrock and a commemorative award for lifetime achievement to recently deceased Dr. Tapan Bose. It also reported on the all IEA HIA track at WHEC and the change in leadership with the election of Mr. Antonio G. García-Conde as Chairman, and Mr. Jan K. Jensen and Dr. Steven Pearce as Co Vice-Chairs. The Technology Spotlight section covered Task 19, Hydrogen Safety. The Publication Alert informed readers about the following Task 19 products: *Survey of Risk Assessment Methods (2008)*; the *Knowledge Gaps White Paper*, and the *Comparative Risk Assessment Studies of Hydrogen and Hydrocarbon Fueling Stations*.

6.3 IEA HIA Website

Using screenshots, Ms. de Valladares reviewed some of the features and organization of the public and private websites. She began with *News & Views* sub-tab, and going on to the HIA Angel Gallery and the Tasks pages which appear under both *HIA at a Glance* and *IEA HIA Research Portfolio* tabs. She also presented a website visitor report for the one month period 2 October-1 November. Pursuant to input at the previous ExCo meeting from Chairman García-Conde who suggested that a newsletter registration feature be added to the website and from immediate past Chair Mr. Beck that website visitors be asked to disclose contact information in order to access some (or all) of the IEA HIA reports on our website, the Secretariat requested guidance from IEA Legal Counsel on privacy issues. However, IEA Legal Counsel advised Ms. de Valladares that it did not possess expertise in this area. Consequently, Ms. de Valladares will investigate other sources of expertise.

6.4 HIA Prize

The Secretariat first reviewed the purpose and then the selection process for the Project Prize. The purpose is the same as for the Individual Prize: For Contribution to advancement of the hydrogen economy characterized by excellence in technical innovation and harmony in international cooperation. Process-wise, Operating Agents are to send one nomination per task to the Prize Committee via the Secretariat. ExCo members may also make (a maximum of) one project Nomination. Operating Agents should ask their experts to make nomination recommendations; Operating Agents can also make nomination recommendations for “intra-task” consideration. Operating Agents should engage their task experts in a “peer review” of candidate projects based on the Project Prize criteria. This effort should result in a single task nomination. To be eligible for consideration by the Project Prize Committee, all nominations must be sent to the Prize Committee, accompanied by a completed Project Nomination Form, by February 1. The Prize Task Force will then make a selection by 15 March, which would be ratified by the ExCo by 15 April. The Project Prize award is expected to be made in spring or early summer 2009. The Project Prize venue has yet to be determined. Dr. Read requested simplification of the Project Nomination Form. The Secretariat will comply and timely send out the simplified nomination criteria and Project Nomination form to meet the proposed schedule.

6.5 Conference Schedule 2008 and 2009

Since 2005, the Secretariat has kept a scorecard for implementing agreement conference participation, whether presentations or exhibits or a combination thereof, by audience/event type. The relevant list of audience/event categories spans markets that the IEA HIA may want to influence now or in the future. It begins with the IEA and the hydrogen. Planned conference events for 2009 (and late 2008) appear below:

Audience/Event Categories	Number	Event
• Internal IEA	3	Ministerial (mid October) WPFE – Working Party Fossil Energy (date TBD) ENARD Workshop (fall 2009)
• External IEA	2	Rural Energisation (date TBD) India NEET Workshop (event confirmation pending)
• Hydrogen	4	Hypothesis, Portugal (March 2009) IPHE Steering Committee Mtg. – (March- Jensen) HFC2009 – June, Canada WHTC – India - August
• Renewable/Sustainable	0	TBD
• Environmental	0	TBD
• Conventional Energy	0	TBD
• Transportation	0	TBD
• Utilities/Infrastructure	0	TBD

Ms. de Valladares explained the significance of each event and the activities (e.g., presentation, exhibit). She mentioned that WHEC 18 would held in Essen, Germany in May 2010. Dr. Lymberopoulos mentioned that UNIDO would hold a political conference in 2010.

There was a short discussion about the conference strategy and a broader discussion about audiences the IEA HIA should target in its outreach activities.

7.0 Closing and Adjournment

7.1 Unfinished Business

There was no unfinished business.

7.2 Executive Committee Meeting Schedule

The ExCo meeting schedule was agreed as follows:

7.2.1 2nd quarter 2009 60th ExCo Meeting – San Francisco, USA, 27-29 May.

Dr. Carole Read again extended an invitation to attend the 2009 Hydrogen Program Review will be held 18-23 May, the previous week, in the metropolitan Washington area in conjunction with the Office of FreedomCAR and Vehicle Technologies. Mr. Nick Beck then reminded the ExCo that the Canadian Hydrogen Conference will be held in Vancouver May 31-4 June following the ExCo meeting.

7.2.2 4th quarter 2009 61st ExCo Meeting

Chairman Antonio García-Conde confirmed **Spain as the location for the 61st meeting**. The meeting will be held during week 46, 18-20 November. The city has yet to be selected.

7.2.3 2nd quarter 2010 – Essen, Germany, June 2010

Mr. Hake reported that the **timeframe for the IEA HIA ExCo meeting has been fixed by WHEC organizers and will take place Thursday and Friday, 20 and 21 May, in Essen Germany** immediately following WHEC. Chairman García-Conde will confer with IEA Advanced Fuel Cells Chairman Lars Sjunnesson to confirm our date selection and pursue logistics that would allow a joint meeting of the two IAs to occur during that timeframe.

7.3 Closing Comments

On behalf of the entire ExCo, Chairman García-Conde thanked the host, Dr. Varkaraki of CRES and the sponsor, the Greek Ministry of Development, for their kind hospitality and organization during the meeting and related events. He acknowledged the hotel's superb service and the incomparable setting in the shadow of the Acropolis. He congratulated Dr. Varkaraki on the success of Roads2Hycom and again thanked her for the festive dinner with traditional cuisine. Finally, He then thanked the members, Operating Agents and observers for their contributions to the 59th ExCo meeting.

7.4 Adjournment

Chairman García-Conde thanked the ExCo and Secretariat for their support during his first meeting in the position of Chair. He then adjourned the meeting.

List of Presentations
59th EXECUTIVE COMMITTEE Meeting
Athens, 6-7 November 2008
IEA Hydrogen Implementing Agreement

IEA Hydrogen Annex XVIII - Task 18 Integrated Systems Evaluation
Dr. Susan M. Schoenung

International Energy Agency Hydrogen Implementing Agreement - Executive Committee Meeting
Athens, November 6-7, 2008 Task 19 –Hydrogen Safety
Mr. William Hoagland

Task 21 BioHydrogen – 59th Executive Committee Meeting, 6-7 November 2008, Athens, Greece
Australia
Dr. Jun Miyake

Semi-Annual Progress Report Task 22: Fundamental and Applied Hydrogen Storage Materials
Development, 59th Executive Committee Meeting, 6-7 November 2008 Athens, Greece, Australia
Dr. Bjørn C. Hauback

IEA HIA Task 23 Small-scale Reformers for Onsite Hydrogen Supply, ExCo Meeting 6-7 November,
2008
Dr. Ingrid Schjøberg

IEA HIA Task 24 Wind Energy and Hydrogen Integration-TASK REPORT – 58th Executive
Committee Meeting, Brisbane
Dr. Luis Correas and Mr. Ismael Aso

Task n° 25 High Temperature Processes (HTP) for Hydrogen Production, 59th Executive Committee
Meeting
Mr. Gilles Rodriguez and Mr. François le Naour

Advanced Materials for Hydrogen from Water-Photolysis IEA-HIA Annex 26, 20 June 2008
Dr. Eric Miller

Chairman/Secretariat Report – 6 November, 2008
Chair Antonio Garcia-Conde and Ms. Mary-Rose de Valladares, IEA HIA

Communication and Outreach – 7 November, 2008
Ms. Mary-Rose de Valladares, IEA HIA

TÜBİTAK MARMARA RESEARCH CENTER, 59th HIA Executive Meeting
Dr. Alper Sariođlan, Energy Institute

Review of Hydrogen Energy Strategies in Developing Countries
Oznur Tabakoglu, Project Engineer, UNIDO-ICHET and Nicolas Lymberopoulos, Associate
Director, UNIDO-ICHET

May 2009



EUROPEAN COMMISSION
DIRECTORATE-GENERAL
JOINT RESEARCH CENTRE
Institute for Energy
Energy Systems Evaluation

Petten, 03 November, 2008

ESE/SP/cvda
D(2008)/IEA

NOTE TO MR. ANTONIO GONZALEZ GARCIA CONTE, CHAIR OF THE HIA-IEA AND TO MRS MARY-ROSE VALLADARES, HIA-IEA SECRETARIAT

Subject: My involvement with the HIA-IEA Executive Committee

Dear Mary-Rose and Antonio,

I regret that I will not be able to join you in Athens on November 5-7 for the 59th ExCo meeting. As I had warned you I had difficulties for the 7th since a long time, due to the visit of our Director General on this date. However, last week it has also been decided that I should participate in the meeting of the Steering Committee of the Strategic Energy Technology Plan (SET-Plan) on the 6th in Brussels. I thought to at least participate in the SARS meeting on the 5th but soon came to the realisation that the travel possibilities from Athens were not to my favour.

I was really looking forward to joining you in this meeting! As I had warned you Mary-Rose this would be my last meeting with you and what a better occasion to give my farewell to the Group in Athens.

Indeed, given my new responsibilities and efforts to supporting the EU's SET-Plan, I have proposed to my hierarchy that I am replaced, yet advocating the need for continued involvement by the JRC in the HIA processes. Within the SET Plan I support a portfolio of low carbon technologies that includes H2 technologies. However, I am not, as in the past, focused primarily on these. Similarly, I have been associated with other IEA processes, e.g. roadmapping and R&D setting priorities that are more tuned to the SET-Plan agenda. Hence, another colleague would be better suited to contribute to and follow up the HIA work. This colleague will be Dr. Marc Steen (marc.steen@ec.europa.eu), whom I believe you both know. He leads the JRC efforts in supporting the work of the recently set-up EU public-private partnership, the Joint Technology Initiative on Fuel Cells and Hydrogen. Please include Marc in your mail-lists from now on. Marc will review also with you the JRC involvements in the tasks. For example, the affiliation with the Task 18 needs to be re-evaluated and whether or not efforts should be allocated to new hydrogen re-sourcing study. Further to your request for possible financial support of the biomass-to-hydrogen study, unfortunately I was not able to draw-up support from any Commission Services.

May 2009

Working with you and other colleagues has been very useful and rewarding to me. The HIA is in excellent position to my view to contribute to the global efforts for the development and deployment of low carbon technologies. Your continued efforts for membership expansion are being paying off, especially by reaching out the developing nations. I will be very curious to hear about how you will go about developing your strategies through your discussions on the 5th. To my view you should focus on the strengths of the HIA – cooperative research on future and emergent topics and non-competitive pre-normative issues.

I would very much appreciate that you offer my best wishes to all the Members, telling them that as friends and colleagues my door will always be open to them and that I would be delighted and looking forward to working with them in the future on matters of mutual interest. I am especially thankful to you Mary-Rose for your support, efficiency and dedication to the tasks in hand. As far as for you Antonio, I have strongly supported your candidature, hence my certainty for your leadership of the HIA to new levels of success.

Hope that we will be able to meet soon, my very best regards,

Stathis D. Peteves
Head of Unit

List of Participants
59th EXECUTIVE COMMITTEE MEETING
6-7 November, 2008 in Athens, Greece
IEA HIA

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