## **ITER Organization** 2007 Annual Report

the way to new energy



### Foreword from the Chair of the ITER Council

It gives me great satisfaction to introduce the first ITER Annual Report. 2007 was an historic turning point for the ITER project. After decades of planning, discussions, meetings and reports, ITER has moved from the conceptual to the real. On 24th October 2007, the ITER agreement formally entered into force establishing the first major global scientific collaboration of the 21st century. Our goal of demonstrating the feasibility of fusion as an energy source is of crucial importance for the century and the manner of pursuing this goal, through global collaboration, will set new a new benchmark for large global projects.

I would like to express my gratitude to everyone who has contributed to the creation of ITER. I would also like to underline the tremendous contribution of the various advisory committees both to ITER Council and the ITER Organization and give particular thanks to the Provence, Alpes and Côte d'Azur Region for hosting the new laboratory.

I wish every success to everyone who works on ITER, hoping that you feel the same excitement as I do about working on a project that has the possibility of making a major impact on world society.

#### Sir Chris Llewellyn Smith F.R.S

Chair of the ITER Council

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### **Foreword from the Director-General**

Fusion is the process that powers the sun and stars. Fusion research aims to harness that power to help meet the challenge of providing for the future energy needs of our planet by developing a prototype fusion power plant that is safe and reliable, environmentally responsible and economically viable, with abundant and wide-spread fuel resources. Nations representing over half the world's population have come together to build an international project to demonstrate the scientific and technical feasibility of fusion power. The project is called ITER ("the way" in Latin).

ITER will be the first fusion experiment to produce net power and will test a number of key technologies, including the heating, control, diagnostic and remote maintenance that will be needed for a real fusion power station. ITER is situated on a site at Cadarache, in the south of France.

The construction costs of ITER are estimated at 5 billion Euros over ten years, most of which will be awarded in the form of contracts to industrial companies and fusion research institutions. Europe is contributing roughly half of the costs of construction, while the other six Parties to this joint international venture (Japan, China, the Republic of Korea, the Russian Federation, India and the USA), are contributing equally to the remainder.

Contributions to ITER from all member parties will primarily consist of components for the machine—known as in-kind contributions. Each Party has set up a Domestic Agency to organise and carry out procurement of their in-kind contributions to ITER. The Domestic Agencies employ their own staff and have their own budget and will place contracts with suppliers.

2007 was the first year of operation for the ITER Organization, and one in which the focus of work moved from design and planning, to the placing of contracts and the beginning of work on the construction site. I am particularly grateful to the Provence, Alpes and Côte d'Azur Region which has been such a hospitable host for this new collaboration. I am proud of the dedication shown by the members of the ITER Team to the formidable task of creating a complex international organization and scientific project. Our first Annual Report summarises the major activities of this extremely challenging period.



#### Organization

On 24 October 2007, the ITER Organization was formally established after ratification of the ITER Agreement (retrospective to 1 January 2007) by all Member Parties. One month later on 7 November the Headquarters Agreement with the Host Country was signed, setting out the terms of cooperation between the ITER Organization and France.

The second meeting of the Interim ITER Council was held in Tokyo 11 and 12 July, followed by the first Council meeting which was held at Cadarache in November. Sir Chris Llewellyn Smith was elected as Chairman and the Director-General was formally appointed, along with the Deputy Directors-General.

On external relations, the Council approved international cooperation agreements with CERN and the Principality of Monaco. An exploratory mission was made to Kazakhstan following the nation's wish to apply for full ITER membership. Discussions with Kazakhstan are ongoing.

#### Construction

Site preparation work progressed as planned during 2007. During the first three months of the year, work was carried out on ground clearance, archaeological surveys and the erection of the perimeter fence.

The application for the "Permis de construire" (Construction Permit) to the authorities of Saint Paul lèz Durance was submitted on 28 September. The aim is to have the construction permit awarded in mid-2008.

In December, the architectural competition for the permanent annex (office) buildings was won by Ricciotti-Bonhomme and Trouvin-CAP Ingelec. Also on the Cadarache site, additional temporary office buildings were erected to accommodate the increasing number of staff members.

#### **Licensing Process**

Work on supporting documentation needed to apply for ITER's license to the French nuclear safety authorities was conducted throughout the year by the Safety and Health Section of ITER. Working closely with Agence ITER France and its subcontractor AREVA, the Safety and Health Section underwent a regulated quality control process and all files, including the RPrS (Preliminary Safety Report), were ready for final printing towards the end of the year.

#### **Design Review**

The Design Review was completed at the end of September. This 10-month review saw eight working groups, of more than 150 experts, examine over 500 issues, of which 55 were accepted in the ITER Baseline. The review was necessary because the only officially recognised documentation and technical specifications dated from 2001, while the design of the machine had developed and outstanding issues had to be addressed. As a result of the review, 14 major design changes were defined and issues were prioritized to allow for initial procurement to begin. Analysis and optimization of these key design issues continued to be a major task for the ITER Organization prior to submission for approval by the second ITER Council meeting that will be held in June 2008.

#### **Procurement Arrangements**

The first Procurement Arrangements for the Toroidal Field conductors between the ITER Organization and the Domestic Agency of Japan was signed in November and the second Procurement Arrangement with the EU was signed in December.

#### Staffing

Over the course of the year the organization changed and grew dramatically. January saw an influx of staff from the other two Joint Work Sites in Germany and Japan, both of which closed at the end of 2006. The ITER Organization started the year with 115 staff members and nearly doubled that number to 193 by the end of December. (See Staffing Tables)

Even with the increases in directly employed staff over the past year, some important areas of the ITER Organization remain understaffed. In particular, the large number of procurement packages that still need to be finalized. In other cases, most notably in finalizing CAD procurement specifications, shortages in short term effort were overcome by the employment of external service contractors.

#### Finance

The final total of commitment appropriations for 2007 were 46.492 Mio€, against which commitments of 46.085 Mio€ were made, leaving a balance of unused appropriations of 0.407 Mio€ to be carried forward to 2008. The payment appropriations for 2007 were set at 46.490 M€, against which 24.076 M€ was paid; leaving a balance of 22.009 M€, which has been transferred to the Special Account. (See Financial Tables)

In addition to the cash contributions, the resources of the ITER Organization also comprise in-kind contributions from the Members. During 2007 the in-kind contributions comprised only credits for staff seconded by the Members.

During 2007, a larger number of staff than foreseen maintained their secondment status, resulting in substantially higher contributions than foreseen in the initial budget of 6.868 Mio€. A breakdown of the in-kind contributions by Members is given in the financial tables.

#### International School

The International School for the children of ITER staff opened in Manosque in September with 104 pupils between the ages of 3 and 18. The children are taught in six language sections: Chinese, English, German, Japanese, Italian and Spanish. Parent representatives were elected to participate in the Conseil de Gestion of the school and the International Advisory council for the school set up by the Rectorate, including experts from each ITER Member, was formally established at its first meeting in November.







### 2007 Highlights by Department

#### **Department for Administration**

The Administration Department staff worked extremely hard in 2007 to meet the challenge of setting up the organizational infrastructure of the new project.

The Administration Department consists of four divisions: Human Resources, Procurement and Contracts, Finance and Budget, Communications and one Logistics Group. Two of the four division heads were appointed in the second half of the year. The Head of the Human Resources took up her post in November and the Communications Division Head was in post part-time from September.

The Human Resources Division had to manage the recruitment of a large number of direct employees, almost doubling the number of staff. Recruitment and other Human Resources procedures have been put in place and are being implemented; covering such issues as payroll, removal arrangements, missions, travel policies, etc.

The Procurement and Contracts Division started with a small staff in 2007 and was still preparing numerous major contracts, purchase orders for the supply of goods, consultancies and other services. The Procurement and Contracts Division drafted procurement rules and regulations based on the ITER Project Resource Management Regulations.

The Budget and Finance Division, with limited staff, dealt with commitments, payments, income transactions and the accounting for all of these items. This was not made easier because of the complex accounting rules of ITER and at the same time ensuring a proper audit trail.

The Department prepared reporting on administrative matters, internally and externally. Also, substantial effort has been made to draw up specification for a new information system, including SAP.

A logistics group was established to manage the facilities for the rapidly increasing number of staff, which necessitated the bringing into service of another two blocks of temporary buildings.

With the increase in staff during the year, ITER Communications was able to increase its activities in promoting the project through the *ITER Newsline*, media visits, press releases and participation in exhibitions. The team worked in close collaboration with the communications staff of the host country agencies.

#### Department for Central Engineering and Plant Support

The primary activities within the CEP Department during 2007 were:

- 1. To increase staff levels to match the increasing work load.
- 2. To work through the outcome of the design review process that took place from March–November 2007.
- 3. To support initiatives relating to the overall planning and management of the ITER Project.

All departments were heavily involved in the Design Review of ITER that took place from March to November 2007, the necessary Design Change Requests that resulted and the definition of the new technical baseline.

For the Plant Engineering Division, six Design Change Requests and one Task Agreement arose. Major Design Change Requests included cryoplant modification for Heat Transfer System current leads; investigation and design modification of cryo-distribution box and cryolines for cryopumps; a review of waste processing and on-site storage processes, the Low Level Radwaste Building and initiation of a Hot Cell design study to ensure the Hot Cell Facility meets project needs.

For the Fuel Cycle Division, there were eight Design Change Requests, two contracts, two major R&D projects and eight Task Agreements. Several major items affecting the entire fuel cycle, such as ELM Pacing and Disruption Mitigation were identified. Almost without exception, the fuelling cycle has gone through major redesign. The new gas gun pellet injection system, the new Detritiation System a Non-Active Gas Supply System and the Tritium Plant building re-design are examples. In addition to work focused on improvements to the fuelling cycle, the division has had major participation in several efforts in support of the ITER general work such as; heating ventilation and air-conditioning redesign, Confinement strategies, RPrS input, Integrated Port Schedule input, safety basis for nuclear facilities, port cell design and Tokamak building layout. The Electrical Power Supply Division completed the review of the technical documentation required by Agence ITER France to start the formal procedure for the construction of the 400 kV line and switchyard for the electricity supply of ITER. The operation of the 400 kV line is planned to start during the second half of 2012. Until then, electric power will be provided by a temporary line fed by the CEA electrical network. The revision of the Steady State electrical consumers is in progress which is one of the most important data bases required for the design of the Steady State Electrical Power Network.

The Design Office provided services to both ITER Responsible Officers and Domestic Agencies in all area of CAD systems, methodologies, data manipulation, checking and storage. In 2007, starting with eight professionals and 30 CAD designers, the Design Office quickly developed, thanks to engineering assistance contracts, to reach about 20 professionals and 50 CAD designers by December. Additionally the Design Office consolidated the development of collaboration with the Domestic agencies, who will be involved in the design effort. The protocol of design collaboration has been approved by all the CAD Working Group Members.

#### **Civil Construction and Site Support Office**

ITER site preparations started in 2007 with clearance of designated areas of forest and erection of the temporary construction site perimeter fence during the first three months of the year through Agence ITER France contracts. Archaeological surveys were also carried out at this stage, but nothing significant was found. Work progressed as planned throughout the year on temporary and permanent access roads, site levelling, annex buildings and temporary construction offices.

Work on adaptation of the generic ITER site layout continued to be a main strand of the Department's work in conjunction with changes following requirements of the Design Review, to which the Department made a strong contribution.

At the end of September 2007, the request for the Permit to Build (Permis de Construire) was formally submitted to the Mayor of Saint Paul-lez-Durance. Discussions continued with the French authorities with the result that updated drawings and design descriptions were submitted and additional documentation was requested mainly on the impact study of the Project and the environmental file regarding the architectural project integration.

Specification of contracts played a large part in the Department's work in 2007:

- In autumn, the ITER Organization was notified by the European Domestic Agency that ITER would be the sole procurement agent for the preliminary architect/engineering design (Pre-A/E) contract. Following the preparation of the necessary documents and invitations to companies on a European database to submit expressions of interest, fifteen returns were received by the end of the year.
- Work on specification of an engineering design study contract for the Tokamak Seismic Isolation System was undertaken. The purpose of the contract is to confirm the suitability of the isolation system and to prepare a preliminary design of the Tokamak pit excavation support structure.
- By the end of the year the contractor for the main platform levelling works had been selected with work scheduled to start at the beginning of 2008.

### 2007 Highlights continued

#### Department for Codac and IT, Heating and CD, Diagnostics

2007 was a very productive year and a good beginning for the department. Emphasis was put on team building and finalization of the base line design for heating and current drive and diagnostics systems. The team of 19 in the beginning of the year grew to 27 by the end of 2007.

The design review was successfully concluded for the Heating and Current Drive systems. In the area of the Neutral Beam Cell, change of maintenance of the Neutral Beam injectors has been incorporated and change in the design of the power supply has modified the Neutral Beams Power Supply lay out. The Radio Frequency based ion source is now included into the baseline. Progress has been made on discussions on the Neutral Beam Test Facility. Ion Cyclotron Heating and Current Drive system design also made substantial progress. The design of the Ion Cyclotron antenna has converged and an appropriate task agreement will be generated to deliver the Build to Print design of it. In Electron Cyclotron Heating, the ITER prototype gyrotrons are now all in testing phase. ITER Gyrotron required output power of 170 GHz has been achieved by the Japanese Domestic Agency. Other Domestic Agencies have also made progress in this area. A high power Electron Cyclotron test bed has been completed at Lausanne. Many Design Change Requests are being studied to reconfigure the launcher interfaces.

The Design Review working group W6 recommended a separate Radio Frequency building to house the Radio Frequency sources and the power supplies close to the assembly hall. The same has been approved for study and the design is underway. This will also house the port plug test facilities which will be required to perform the acceptance tests at site before final integration and commissioning. New issues raised during STAC meeting are under study in a new working group. They primarily relate to installed power capability of 73 MW of the heating systems and their integration with the ITER research plan.

Work on procurement arrangements have started. Many ITER Task Agreements are in progress. The Procurement Arrangement for the Neutral Beam Power Supplies is under development; the aim is to have it signed by summer of 2008. The Japanese Domestic Agency started the prototypical construction of the Heating Neutral Beam bushing insulators. In the Diagnostics division, we made substantial progress during the year. A design review was held to finalize the baseline diagnostics and revised cost sharing has been approved among the parties. Now we have all the diagnostics allocated to all the ITER parties. Port engineering working group consisting of experts from the Domestic Agencies have made progress in generating requirements for the generic design of the diagnostics port plugs. R&D in many important areas in the Domestic Agencies also have made substantial progress during the year. All in all, it has been a very productive year for the division.

The Codac team was formed. Staff members have been selected and will hopefully join the team in the beginning of 2008. During the year work has progressed and a review of the conceptual design was held in person. As a result of this review, some modifications have been made to the concept. Prototyping activities will be initiated during the next year. Work on a Plant Control Design Handbook has been initiated which will be referred to in the procurement arrangements of the plant systems.

The 'Virtual Private Network' connections to the old ITER sites at Garching and Naka were closed during the year. A high availability connection for the 'Collaboration Network' connecting the ITER Organization and the Domestic Agencies has been introduced. The new ITER unified collaboration platform is a web-based tool to manage ITER Documentation, share ITER Phone Book, communicate user requests to IT helpdesk; Drawing Office support and Logistic team via a Tickets System and coordinate complex project tasks via an Action Tracking System.

The new IBM Blade Centre provides an easy-to-use, integrated platform with a high degree of flexibility, scalability and manageability. ITER centralised and consolidated data storage capacity has been doubled.

#### **Department for Fusion and Technology**

Fusion Science & Technology activities during 2007 were dominated by the requirements of the ITER Design Review. The department contributed across a range of key issues and played, in particular, a major role in the Working Group on Design Requirements and Physics Objectives. The principal areas in which Fusion Science & Technology was active related to the analysis of the ITER Q=10 reference scenario and its implications for the shape control and vertical stabilizations requirements, the need for ELM mitigation or suppression, the design of Plasma Facing Components and the selection of Plasma Facing Component materials, including the redefinition of heat load and electromagnetic load specifications, the definition of wall conditioning requirements, and the development of the ITER Research Plan. This last document will provide guidance to the R&D activities which need to be pursued during the construction phase and define the overall priorities and programme for ITER operation. These activities involved the coordination of studies by a substantial number of experts in the Members' fusion communities who contributed detailed design analysis and results of R&D to the Design Review.

Publication of the "Progress in the ITER Physics Basis", which included a preface by ITER Director-General Ikeda, in Nuclear Fusion in June 2007 was a major milestone in Fusion Science & Technology's activities, representing the culmination of several years of work by experts of the International Tokamak Physics Activity and current members of the department.

Significant progress was also made during 2007 in establishing the basis for the Physics research work programme which will be conducted in support of ITER construction, and in preparation for ITER operation. In July 2007, the Interim ITER Council endorsed the Director-General's proposal for the structure and implementing instruments for the Physics research activities. This incorporates the establishment of a framework for internationally coordinated physics research and a new framework, building on activities in the Members' fusion programmes, for the development of an integrated modeling capability for ITER. Discussions with the ITPA Coordinating Committee, which includes senior representatives of the Members' fusion communities, led to an agreement to accept the Director General's invitation for the ITPA to operate in the future under the ITER auspices, providing a framework for internationally coordinated physics research, and the ITPA Charter was redrafted accordingly.

The development of the second major area of Fusion Science & Technology's responsibilities, the Test Blanket Module programme, continued during the year with, in particular, the establishment of an Ad-Hoc Group at the request of the IIC. The Ad-Hoc Group's key goals are to develop a proposal for the implementation framework for the programme and to propose a distribution of technical leadership responsibilities in relation to individual TBM concepts and TBM Port Plugs.

### 2007 Highlights continued

#### **Project Office**

In 2007, the main focus of work centered around the establishment of project baselines, management systems for project execution and the implementation of procurement arrangements. Submission of the safety file, including the RPrS (Preliminary Safety Report), was another major milestone. The details of this are summarized in the report from the SAS Department.

In technical baseline, the basis of the reference design was developed through an extensive design review with the Domestic Agencies. As a result, the Project Specification was drafted and provisionally approved by the ITER Council. The Topical Working Groups organized with the Domestic Agencies are continuing the design studies on the priority issues identified by the Science and Technology Advisory Committee for further optimization of the reference design. The results will be discussed at the Science and Technology Advisory Committee meeting in April and May 2008.

In schedule baseline, the Planning & Scheduling Workshops were held with the Domestic Agencies for reconciliation of top-down and bottom-up schedules. Efforts continue to finalize a new project baseline schedule by April 2008. In parallel, the Project Office prepared templates for all ITER departments and offices to determine the work scope and activities at the Work Breakdown Structure Level 3—in order for the Management Advisory Committee to establish the Project Plan and Resource Estimates by May 2008. Also, the Project Office summarized the cost implications due to the design changes since 2001, improvements to the procurement packages and additional spares and started the discussion with the Domestic Agencies to finalize the overall project cost to be discussed at the Management Advisory Committee in May.

The management systems development for project execution progressed in line with the Project Resource Management Regulation. The guidelines for the management of procurements in-kind was provisionally approved by the ITER Council and the remaining issue on transfer of responsibility will be discussed at the Management Advisory Committee in May. The basic plan of the Configuration Management was supported by the Management Advisory Committee in November and the Change Control Boards are now in operation. Further elaboration on the change control procedures and thresholds is continuing with the Domestic Agencies. The Risk Management plan was also drafted for discussion at the Management Advisory Committee in May. The basic approach of the Earned Value Management for application to the in-kind procurements was endorsed by the Management Advisory Committee in November and further development is on-going.

The Project Office coordinated and managed project level meetings, including but not limited to, ITER Organization-Domestic Agency meetings, Change Controls Boards, design integration and review, Technical Advisory Group and Management Working Groups. Also, the Project Office established tracking systems for design changes, actions and task agreements and managed the technical web and documentation for effective communications with external bodies.

Based on the guidelines for the management of procurements in-kind, the Procurement Arrangement for the Toroidal Field conductors was developed in collaboration with the ITER Departments and associated Domestic Agencies. The first Procurement Arrangements were concluded with the Japanese and European Union Domestic Agencies. Further discussions are continuing with other Domestic Agencies for conclusion of the Procurement Arrangement early next year. A draft plan of the Procurement Arrangement Project Team and advanced Procurement Arrangement planning were developed for timely preparation of the Procurement Arrangements planned in 2008 in order to meet the new project schedule.

Finally, the Project Office promoted the project wide plan of the Reliability Availability Maintainability Integration operation, including on-site test facilities and system analysis. The Reliability Availability Maintainability Integration programme was set up based on technical risk approach and the Reliability Availability Maintainability Integration analysis of ITER specific subsystems.

#### **Department of Safety and Security**

2007 was a very intense year for the Department of Safety and Security. The main effort concentrated on achieving one of the first major milestones of the Project: starting the ITER licensing process. The first formal step in the licensing process is the application for the "Décret d'Autorisation de Création" (DAC). The DAC application files include different documents of which one of the most significant is the RPrS (Preliminary Safety Report). This document will be made available for public review. The Preliminary Safety Report (RPrS) provides a design description of the facility and a comprehensive safety analysis of ITER, aimed at demonstrating the adequacy of the design to satisfy safety requirements. The other documents consist mainly of ones that will be submitted for public hearing(s). During 2007 all these files were prepared and quality-controlled to satisfy 1984 French Quality order that applies to nuclear installations. With a strong effort on the part of all participants involved, (Safety and Health Section of the Project Office, Technical Departments, Agency ITER-France, AREVA and SAS Department), the files were completed. After then taking into account the advice of an Ad-Hoc Safety Commission, formed by external international experts, the documents were sent to French authorities-formally initiating the ITER licensing process. In parallel an informal but intense communication was maintained with Safety Authorities at all levels during 2007 that among other things allowed designing a process that practically disconnected construction permission from nuclear licensing, eliminating therefore the latter from the critical path of the project.

It must be mentioned the limited resources available during 2007 for the Department that dedicated also a strong effort to the consolidation of the Structure of the Department and the Head of the Safety Control Division and Section as well as the Head of the Quality Division were incorporated during this period. In the area of quality, two very important facts need to be reported: 1) the writing and approval of the ITER Quality Programme, and 2) the selection and approval of the Management Standard, based on IAEA-GS-R3, were completed.

#### **Department for Tokamak**

During 2007, the priority activities for the Department for Tokamak have been to build up staff levels, complete the design, complete essential R&D and finalize and issue Procurement Arrangements. Significant progress has been made in each of these areas.

During 2007, the number of professional staff in the Department for Tokamak increased from 27 to 40. Support staff increased from 1 to 3. This is still a very lean staff level and we currently supplement these levels with contractors, professionals from CERN, and continue to utilize Domestic Agency staff when possible. Communication within the ITER Organization and with the domestic agencies is very important: Department for Tokamak and Section Leaders meetings are held weekly, department meetings are held monthly and 5-10 coordination meetings/conference calls are held with domestic agencies each month.

The Department for Tokamak made a significant contribution to the design review activity and to the definition of the new technical baseline. Primary areas of involvement included; magnets, conductors, and cold testing; vacuum vessel, vessel supports, and blanket manifolds; plasma facing components and physics—particularly ELM coils. These activities were successfully completed in late 2007. Science and Technology Advisory Committee issues, following the design review, was another big area of involvement.

Completing critical R&D in 2007, allowing for the project to proceed with the Toroidal Field conductor procurement, was another important accomplishment. Conductor strand degradation was an issue that came to light in 2006. A full investigation of the issues, possible solutions, and a required R&D program was developed and implemented in cooperation with the Domestic Agencies.

# Staffing Tables

### by Nationality

Member	01/01/07	31/12/07
China	8	12
EU	62	121
India	1	4
Japan	13	16
Korea	8	14
Russian	13	15
USA	10	11
Total	115	193

#### by Department

Department I	Professional	Support	Total
Department for Administration (ADM)	13	7	20
Department for Central Engineering and Plant Suppo	rt (CEP) 32	14	46
Civil Construction and Site Support Office (CCS)	7	2	9
Department for Codac and IT, Heating and CD, Diagno.	stics (CHD) 22	4	26
Department for Fusion Science and Technology (F	5T) 9	-	9
Office of Audit Service (OAS)	-	-	-
Office of the Director-General (ODG)	5	2	7
Project Office (PRO)	28	2	30
Department of Safety and Security (SAS)	7	2	9
Department for Tokamak (TKM)	36	1	37
Total	159	34	193

### **Financials Tables**

### Summary of Commitments Account

2007	Budget	Committed	Carry forward to 2008
Title I: Direct Investment	-	-	-
Title II: R&D Expenditure	8.223	7.816	0.407
Title III: Direct Expenditure	38.269	38.269	-
Total	46.492	46.085	0.407

### Summary of Payments Account

2007	Budget	Paid	Cancelled	Transferred to Special Account
Title I: Direct Investment	-	-	-	-
Title II: R&D Expenditure	8.221	1.467	0.405	6.349
Title III: Direct Expenditure	38.269	22.609	-	15.660
Total	46.490	24.076	0.405	22.009

#### In-kind Contributions by Member

Member	In Mio Euro
China	-
EU	5.814
India	-
Japan	0.874
Korea	0.399
Russian	-
USA	0.923
Total	8.010

# the way to new energy



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