



**Memorandum of Understanding  
between  
EGEE-III and EELA-2**



## **1. Background**

The EGEE-III (Enabling Grids for E-science) project<sup>1</sup> (hereafter referred to as “EGEE”) provides a production quality Grid infrastructure for a myriad of applications from various scientific domains, including earth sciences, high energy physics, bioinformatics and astrophysics. The project brings together scientists and engineers from more than 240 institutions in over 45 countries providing around 50 KCPUs and 5 PB disk storage. A summary of EGEE is attached as Annex 1.

The EELA-2 project<sup>2</sup> aims at building a high capacity, production-quality, scalable Grid Facility, providing round-the-clock, worldwide access to distributed computing, storage and network resources needed by the wide spectrum of Applications from European - Latin American Scientific Collaborations, with special focus on: (i) offering a complete set of versatile services fulfilling Applications requirements; (ii) ensuring the long-term sustainability of the e-Infrastructure beyond the term of the project. A summary of EELA-2 is attached as Annex 2.

Partners common to both projects are: CESGA, CIEMAT, CNRS, COMETA, INFN, UCM and UPV.

## **2. Purpose of this MoU<sup>3</sup>**

The purpose of this Memorandum of Understanding (MoU) is to define a framework of collaboration between EGEE-III and EELA-2 (hereafter also referred to as “the Party” or the “Parties”).

## **3. Joint Workplan**

The specific goals of the collaboration are:

1. Ensure provision of regional operational grid support and coordinated network support to the Latin American resource centres and users;
2. Support EELA-2 development work on gLite components to Windows porting and gLite-OurGrid interoperability and
3. Support the porting of EELA-2 applications to the projects’ infrastructures.

The specific activities to be carried out in the framework of the collaboration are:

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<sup>1</sup> <http://www.eu-egee.org>

<sup>2</sup> <http://www.eu-eela.eu/>

<sup>3</sup> A MoU is a written agreement that clarifies relationships and responsibilities between two or more parties that share services, clients, and resources.

**A.1: Ensure provision of regional operational grid support to the Latin America resource centres**

**Parties Involved:** EELA-2 SA1 (D. Carvalho)<sup>4</sup>; EGEE CERN ROC (D. Bosio)

**Description of work:**

Ensure provision of adequate operational grid support to the Latin American (LA) resource centres connected to both projects' infrastructures. EELA-2 SA1 leads this activity, via the EELA-2 Operations Centre (EOC), in close collaboration with the EGEE CERN Regional Operations Centre (ROC). The projects will work together in harmonising the procedures and tools used by the EELA-2 EOC and the EGEE ROCs.

EGEE DSA1.3<sup>5</sup>, which will report on the ROC activities, will need input from EELA-2 EOC to cover activities of the region. A.1 also aims to align the projects' Service Level Agreements (SLA), their monitoring and enforcement to the sites common to both. The SLA work will be described in EGEE DSA1.4<sup>6</sup> with input from EELA-2 EOC. EGEE CERN ROC will further support this activity by providing new and enhanced tools and processes from EGEE SA1.

**Expected outcome:**

Provision of adequate operations support to LA resource centres. EELA-2 EOC to provide input to EGEE DSA1.3 and DSA1.4.

**Milestone M.1.1:** Completion of EGEE DSA1.3

**Milestone M.1.2:** Completion of EGEE DSA1.4

**A.2 Support the porting of gLite components to Windows**

**Parties Involved:** EELA-2 JRA1 (D. Scardaci); EGEE JRA1 (F. Giacomini)

**Description of work:** Porting the gLite User Interface (UI) and Worker Node (WN) services to run on Microsoft Windows Platform. Consult EELA-2 webpage<sup>7</sup> for more details. EELA-2 JRA1 will lead A.2 with support from EGEE JRA1.

**Expected outcome:** A gLite UI and WN running on Microsoft Windows platform.

**Milestone M.2:** Demonstration of gLite UI and WN running on Microsoft Windows platform by end of 2009.

**A.3 Support gLite-OurGrid interoperability activity**

**Parties Involved:** EELA-2 JRA1 (F. Brasileiro); EGEE SA1 (N. Thackray); EGEE JRA1 (F. Giacomini)

**Description of work:** Support the activity enabling the interoperability between EGEE gLite with OurGrid middlewares. A.3 aims to demonstrate cross-submission of jobs between gLite-based and OurGrid-based infrastructures under the same X.509 authentication mechanism. Consult EELA-2 webpage<sup>8</sup> for more details. EELA-2 JRA1 will lead A.3 with support from EGEE SA1 and JRA1.

**Expected outcome:** Cross submission of jobs between gLite-based and OurGrid-based infrastructures.

**Milestone M.3:** Demonstration of cross job submission by end of 2009.

**A.4: Support the inclusion of EELA-2 services into the gLite and RESPECT software**

**Parties Involved:** EELA-2 JRA1 (F. Brasileiro, D. Scardaci); EGEE JRA1 (F. Giacomini); EGEE NA4 Steering Committee<sup>9</sup>

<sup>4</sup> Party leading the activity is underlined.

<sup>5</sup> EGEE DSA1.3 Report on the Status of ROCs and National/Regional Integration. Due 06/2009.

<sup>6</sup> EGEE DSA1.4 Progress report on SLA implementation. Due 08/2009.

<sup>7</sup> <http://grid.ct.infn.it/wiki/bin/view/EELA2/Grid2Win>

<sup>8</sup> <http://grid.ct.infn.it/wiki/bin/view/EELA2/OGMW>

<sup>9</sup> [project-eu-egee-na4-sc-contact@cern.ch](mailto:project-eu-egee-na4-sc-contact@cern.ch)

**Description of work:** Following A.2 and A.3, A.4 will investigate if developments within these activities can be integrated in the gLite software as well as EGEE SA1 operations tools. In addition, the EGEE NA4 Steering Committee will evaluate EELA-2 request for these developments to be included in the RESPECT<sup>10</sup> (Recommended External Software Packages for EGEE communities) software. EELA-2 JRA1 will lead this activity.

**Expected outcome:** Integration of services into the gLite software stack and/or inclusion in the RESPECT software.

#### **A.5: Support the porting of EELA-2 applications to the projects' infrastructures**

**Parties Involved:** EELA-2 NA3 (L. Ciuffo); EGEE NA4 Application Porting Support Group (G. Sipos); EGEE SWE ROC (I. Campos)

**Description of work:** Support the porting of EELA-2 applications to the projects' infrastructures. EELA-2 NA3 will lead this activity, which involves porting of EELA-2 applications<sup>11</sup>. The EGEE NA4 Application Porting Support Group will help developers to effectively port EELA-2 applications to the projects' infrastructures. EGEE DNA4.1<sup>12</sup>, which includes plans for the support, development and testing activities of each strategic cluster provide useful information for EELA-2 target applications. EELA-2 applications not yet ported on EGEE from institutions common to both projects are (8): bioNMF, DKESG, eMRT, GenecodisGrid, Miras+Gamos, Phylogenetics, PlyloGrid and SEMUM3D. In addition to these applications, two EELA-2 MPI applications – Heart Simulator<sup>13</sup> and FiresStation/CROSS-Fire – will be running on and supported by EGEE-III resources provided by EGEE SWE ROC.

**Expected outcome:** EELA-2 applications are running in the projects' infrastructures.

**Milestone M.5:** Present progress of work at the EGEE User Forum in 2010.

#### **A.6: Support LA plans in achieving sustainable regional e-Infrastructure**

**Parties Involved:** EELA-2 NA1 (B. Marechal); EELA-2 SA1 (D. Carvalho); EGEE SA1 (M. Barroso)

**Description of work:** Support LA transition plans to an operational model based on National Grid Initiatives (NGI), or similar structure, in achieving sustainable regional e-Infrastructure. This activity will harmonise EGEE and EELA-2 plans for the transition to an operational model based on NGIs for the future European Grid Infrastructure and LA Grid Infrastructure. A.6 is led by EELA-2 NA1 with support from EGEE SA1. EGEE SA1 will provide the EGEE perspective for the EELA-2 DNA1.11<sup>14</sup>, and conversely EGEE will use this document as one of the reference documents for its 2<sup>nd</sup> year federation review in 2010 and input to related discussions with other regions.

**Expected outcome:** Plans related to the transitions to an operational model based on NGIs. EGEE SA1 to provide input to EELA-2 DNA1.11.

**Milestone M.6:** Completion of EELA-2 DNA1.11.

#### **A.7: Ensure provision of coordinated regional network support and multi-domain network monitoring of LA and European resource centres and users.**

**Parties Involved:** EELA-2 ENSC (M. Stanton); EGEE ENOC (X. Jeannin)

**Description of work:** Ensure provision of regional network support and monitoring of LA and European resource centres and users utilising the projects' infrastructures. Monitoring refers to network monitoring task(s) that facilitate(s) troubleshooting of network backbone problems. EELA-2 SA2 will be responsible for LA network support and monitoring, through the EELA-2

<sup>10</sup> <http://technical.eu-egee.org/index.php?id=290>

<sup>11</sup> EELA-2 Applications <http://applications.eu-eela.eu>

<sup>12</sup> Workplan for Strategic Cluster Disciplines, <https://edms.cern.ch/file/925825/2/EGEE-III-DNA4.1-925825-v2.8.pdf>

<sup>13</sup> [http://applications.eu-eela.eu/application\\_details.php?ID=12](http://applications.eu-eela.eu/application_details.php?ID=12)

<sup>14</sup> EELA-2 DNA1.11 White paper for the long term sustainability of e-Infrastructures. Due 01/2010.

Network Support Centre (ENSC). EGEE SA2 will be responsible for European network support and monitoring, via the EGEE Network Operation Centre (ENOC). EELA-2 ENSC will lead A.7 which aims to harmonise the procedures and tools used by EELA-2 ENSC and EGEE ENOC, including coordination of the incident control procedures, access protocols and possible interoperation of multi-domain network monitoring systems. In addition, EELA-2 ENSC and EGEE ENOC aim, if possible, to collaborate on the advancement of end-to-end circuit provisioning technologies for the benefit of the communities served by the projects. Both groups will be involved in multi-domain network monitoring tests and development of support procedures. The outcome will be reported in EELA-2 DSA2.4<sup>15</sup> and EGEE DSA2.2<sup>16</sup>.

**Expected outcome:** Provision of coordinated network support to LA and European resource centres. EGEE ENOC to provide input to EELA-2 DSA2.4. EELA-2 ENSC to provide input to EGEE DSA2.2.

**Milestone M.7.1:** Completion of EELA-2 DSA2.4.

**Milestone M.7.2:** Completion of EGEE DSA2.2.

#### 4. Timeline and Reporting

The EGEE Collaborating Projects Liaison Office (CPLO) will coordinate the periodic review of the progress of the activities defined under section 3, follow-up the milestones defined below and distribute reports to both Parties.

Date	Activity	Additional Information
03/2010	Activity A.1	A.1 is completed.
12/2009	Activity A.2	A.2 is completed.
12/2009	Activity A.3	A.3 is completed.
03/2010	Activity A.4	A.4 is completed.
03/2010	Activity A.5	A.5 is completed.
03/2010	Activity A.6	A.6 is completed.
03/2010	Activity A.7	A.7 is completed.
06/2009	Milestone M.1.1	Completion of EGEE DSA1.3.
08/2009	Milestone M.1.2	Completion of EGEE DSA1.4.
03/2010	Milestone M.2	Demonstration of gLite UI and WN running on MS platform.
03/2010	Milestone M.3	Demonstration of cross job submission by end of 2009.
2010	Milestone M.5	EELA-2 presentation of results at EGEE UF 2010.
01/2010	Milestone M.6	Completion of EELA-2 DNA1.11.
09/2009	Milestone M.7.1	Completion of EELA-2 DSA2.4.
12/2009	Milestone M.7.2	Completion of EGEE DSA2.2.
09/2009	Publication	EELA-2 contribution to the EGEE and Collaborating Projects Achievements Booklet 2009.
09/2009	EGEE'09 Conference	Joint workshop
11/2009	2 <sup>nd</sup> EELA-2 Conference	Joint session(s)

<sup>15</sup> EELA-2 DSA2.4 Network Resource Provision Assessment for the 3<sup>rd</sup> Semester. Due 09/09.

<sup>16</sup> EGEE DSA2.2 Assessment of the EGEE Network Operations Centre. Due 12/09.

## **5. Communication**

The primary point of contact for each Party is:

EGEE-III: CPLO [project-eu-egee-cplo@cern.ch](mailto:project-eu-egee-cplo@cern.ch)

EELA-2: MB [mb@eu-eela.eu](mailto:mb@eu-eela.eu)

Questions of principle or problems which cannot be solved at primary contact level are escalated to the EGEE-III Project Director and the EELA-2 Project Coordinator.

## **6. Rights and Responsibilities**

The procedure is set out in Annex 3.

## **7. Effective date, Duration and Amendments**

This MoU will become effective when signed by the authorized representatives of the Parties. Amendments shall be valid only if signed by the authorized representatives of the Parties.

The MoU shall remain in effect until completion of the activities identified in Sections 3 and 4, or upon termination of the projects in which the Parties participate, or upon three (3) months prior written notice by one Party to the other.

## **8. Governing Law - Dispute resolution**

The terms of this MoU shall be interpreted in accordance with their true meaning and effect independently of national and local law. Provided that if and insofar as this MoU does not stipulate, or any of its terms are ambiguous or unclear reference shall be made to the substantive laws of Belgium.

Disputes shall be resolved by amicable settlement or failing which by arbitration in accordance with the procedure set out in Annex 4.

## Memorandum of Understanding between EGEE-III and EELA-2

The following agree to the terms and conditions of this MoU:



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**Bob Jones**  
**EGEE-III Project Director**

07 July 2009

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**Date**



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**Bernard Marechal**  
**EELA-2 Project Coordinator**

07 July 2009

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**Date**

## **Annex 1 – EGEE**

EGEE-III has two complementary objectives that are essential for European research infrastructures:

- To expand and optimise Europe's largest production Grid infrastructure, namely EGEE, by continuous operation of the infrastructure, support for more user communities, and addition of further computational and data resources; and
- To prepare the migration of the existing production European Grid from a project-based model to a sustainable federated infrastructure based on National Grid Initiatives for multi-disciplinary use.

### **Background to EGEE-III**

The Grid concept involves establishing an infrastructure that allows existing IT installations to connect and share their computing power and storage capacities. For a wide range of applications, this enables dispersed groups of users to collaborate on common challenges. This concept has been implemented in a variety of ways, including 'Capability' Grids combining supercomputers (e.g. DEISA), 'Capacity' Grids, comprising clusters of commodity computers (e.g. EGEE), 'Enterprise' Grids linking together resources of a single company, and 'Volunteer' Grids, linking individual home computers (e.g. BOINC). Of these, 'Capacity' Grids offer a general purpose, dependable, cost-effective and pervasive infrastructure, suitable for the needs of collaborative European science.

The concept of a European Grid Infrastructure emerged in 2000. In Framework 5, the EUDataGrid project and related initiatives proved a European Grid system was capable of supporting different user communities. In Framework 6, the EGEE project built on these results to establish a continuously available production quality Grid infrastructure. Since 2006, EGEE-II focuses on consolidating the operating procedures, expanding the resources, enlarging the Grid to more countries and attracting more user communities. EGEE-II has improved the scalability of the Grid, and its reliability in supporting a wide range of applications.

EGEE has become a critical infrastructure for a range of top European scientific undertakings. Most European countries have Grid infrastructures, at varying levels of maturity. A limitation of national Grids is their lack of access provision to international science communities. Beyond the national level standards become important to allow ease of connectivity and sharing of applications. EGEE ensures that the European Grid infrastructure does not fragment into national and thematic Grid infrastructures, with less coherence at a European level. EGEE-III will provide a world class, coherent and reliable European Grid, ensuring Europe remains at the forefront of scientific excellence.

### **Details of EGEE-III**

The focus of EGEE-III is:

- To migrate the existing European Grid Infrastructure from a European co-funded project to a self-sustainable infrastructure that is under the governance of national initiatives;
- To ensure the continuous provision of a production quality Grid infrastructure to European eScience;
- To expand the usage of the infrastructure in terms of new user communities;
- To simplify the usability of the system for the end user;
- To provide active contributions to standardisation efforts for adoption at European and International levels;
- To work closely with businesses to ensure commercial uptake of the Grid, key to sustainability.

### **Consortium:**

The EGEE consortium consists of 43 beneficiaries, both academic and business. All EC co-funded countries have grouped their academic partners on a national level via Joint Research Units or National Grid Initiatives so that the 43 beneficiaries represent a total of more than 120 partners.

This has a structuring effect on the Grid communities across the European Research Area and is an important milestone for the planning of a sustainable Grid Infrastructure model. Beneficiaries are organized in regional federations, covering:

- Asia Pacific (Australia, Japan, Korea, Taiwan)
- Benelux (Belgium, the Netherlands)
- Central Europe (Austria, Croatia, Czech Republic, Hungary, Poland, Slovakia, Slovenia)
- France
- Germany/Switzerland
- Italy
- Nordic countries (Finland, Sweden, Norway)
- South East Europe (Bulgaria, Cyprus, Greece, Israel, Romania, Serbia, Turkey)
- South West Europe (Portugal, Spain)
- Russia
- United Kingdom/Ireland
- USA

Collaboration with additional countries in the Asia Pacific region (China, Brunei, Indonesia, Malaysia, Philippines, Singapore, Thailand and Vietnam) and in the Commonwealth of Independent States (Armenia, Ukraine and Uzbekistan) is also foreseen.

**Duration: 24 months**

**EC Contribution: 32,000,000 €**

**Total Budget: cca. 47,150,000 €**, with a further estimated 50,000,000 € worth of computing resources contributed by the partners.

**Total Manpower: 9,010 Person Months**, of which over 4,500 Person Months contributed by the partners from their own funding sources.

## **Annex 2 – EELA2**

### **Objectives:**

Four main objectives define the content of the EELA-2 Mission:

1. Build a powerful, functional and well supported Grid Facility by:
  - Expanding the current e-Infrastructure to consist of 41 Resource Centres (13 in Europe and 28 in Latin America) mobilising about 3000 computing cores and more than 700 Terabytes of storage space, at start of the project and to further grow by 20 % in computing and 15 % in storage over the duration of the project;
  - Providing the full set of Infrastructure and Application-oriented Grid Services needed by all types of applications in their scientific environment;
  - Building the support of the e-Infrastructure to provide high reliability services to partnerships spanning the Atlantic Ocean by:
  - Providing a complete set of Global Services from central EELA-2 Operation and Networking Support Centres (EOC/ENSC);
  - Targeting the creation of Regional Operation Centres (ROC) in Latin America, covering one or more countries;
  - Pursuing the aggressive EELA Training and Dissemination programme;
  - Creating a comprehensive knowledge repository on Grid operation federated with the EGEE ones.
  - Contributing to the implementation, operation and support of new Certification Authorities required in Latin America and to their coordination within the framework of TAGPMA.
2. Address a large community of users by:
  - Selecting a wide portfolio of Applications
    - Against well defined criteria (including suitability for Grid deployment, easiness to be grid-enabled, grid added value, outreach/potential impact, computing resource contribution);
    - Of various types e.g. from classical offline data processing up to control and data acquisition of scientific instruments, in several fields such as Life Sciences, High Energy Physics, Earth Sciences, etc.;
  - With the expected outcome of:
    - Getting Grid technology widely adopted in various scientific branches and promoting e-Sciences towards several publics (Scientific, Social, Industry);
    - Turning the Grid computing model to become the basic approach for scientific applications demanding high computing resources, i.e. make the e-Infrastructure an indispensable tool of research;
    - As a result, on the basis of the demonstrated usefulness of the Grid, get the full support of the EELA-2 user community for requesting its long-term sustainability.
3. Assert the financial & management schemes to operate and support the e-Infrastructure on the long range by:
  - Producing reference documents (4 deliverables at M06 and a White paper at M22), describing/costing the Grid infrastructure operation;
  - Working out possible financial operation models by:
    - Meeting decision makers at the level of Institutions, National Science Council, Ministry of Sciences & Technology, private Research-oriented Sectors,... to find the suitable financial scheme(s);
    - Keeping regular contact with the political authorities to get the necessary political support.

- Helping the creation of a managerial framework by:
  - Supporting the ongoing creation of JRUs / NGIs with the mandate of operating National Grids;
  - Federating Latin American NGIs in a Latin American Grid Initiative (LAGI), following the model of, and interacting with, the European Grid Initiative Design Study (EGI-DS);
  - Keeping collaborating with NRENs and RedCLARA.
- 4. Anticipate the handover of the e-Infrastructure operation and support by:
  - Proposing and implementing a Transition plan, in close collaboration with stakeholders from EOC, ENSC, Resource Centres and User communities, to become operational early enough and including:
    - A management structure with people available to take responsibility beyond EELA-2;
    - The agreed scenario to be put in place and its deployment as a function of time;
    - The follow up of the transition phase by:
      - Monitoring the level of autonomy of each Resource Centre;
      - Identifying the emerging bottlenecks;
      - Providing the necessary support through the SA1 support scheme.

#### **Consortium:**

A total of 50 Member Institutions participate in EELA-2.

The following 16 ones, act either as single Partner or Partner Coordinator of a JRU - Joint research Unit (if there is more than one EELA-2 Member in the country).

- Centro de Investigaciones Energéticas Medioambientales y Tecnológicas (CIEMAT), Spain
- Centro de Gestión de la Información y Desarrollo de la Energía (CUBAENERGIA), Cuba
- Cooperación Latino-Americana de Redes Avanzadas (CLARA), International
- University College Cork - Coastal and Marine Resources Centre (UCC-CMRC), Ireland
- HLP Développement S.A. (HLP), France
- Centre National de la Recherche Scientifique (CNRS), France
- Istituto Nazionale di Fisica Nucleare (INFN), Italy
- Laboratorio de Investigación en Nuevas Tecnologías Informáticas (LINTI - UNLP), Argentina
- Red Universitaria Nacional (REUNA), Chile
- Servicio Nacional de Meteorología y Hidrología (SENAMHI), Peru
- Universidad de Los Andes (ULA), Venezuela
- Universidad de Los Andes (UNIANDES), Colombia
- Universidad Nacional Autónoma de México (UNAM), Mexico
- Universidade do Porto (UPORTO), Portugal
- Universidade Federal do Rio de Janeiro (UFRJ), Brazil
- Universidad Técnica Particular de Loja (UTPL), Ecuador

The following 34 Member Institutions are currently grouped into 9 JRUs :

#### **Argentina:**

- Instituto de Física de la Plata (ILFP)
- Laboratorio de sistemas complejos / Universidad de Buenos Aires (LSC / UBA)

#### **Brazil:**

- Centro Federal de Educação Tecnológica Celso Suckow da Fonseca (CEFET - RJ)
- Centro Universitário La Salle (UNILASALLE)
- Fundação Oswaldo Cruz (FIOCRUZ)
- Instituto do coração (INCOR/USP)

- Instituto Militar de Engenharia (IME)
- Laboratório Nacional de Computação Científica (LNCC)
- Observatório Nacional (ON)
- Rede Nacional de Ensino e Pesquisa (RNP)
- São Paulo Regional Analysis Centre (SPRACE)
- Universidade de Brasília (UnB)
- Universidade Federal de Campina Grande (UFCG)
- Universidade Federal Fluminense (UFF)
- Universidade Federal de Juiz de Fora (UFJF)
- Universidade Presbiteriana Mackenzie (UMACKENZIE)

**Chile:**

- Centro de estudios avanzados en zonas aridas (CEAZA)
- Universidad de la Frontera (UFRO)
- Universidad Técnica Federico Santa María (UTFSM)
- Universidad de Valparaíso (UVALPO)

**Colombia:**

- Universidad Industrial de Santander (UIS)

**France:**

- Institut de Physique du Globe de Paris (IPGP)

**Peru:**

- Centro Internacional de la Papa (CIP)
- Pontificia Universidad Católica del Perú (PUCP)
- Universidad de San Martín de Porres (USMP)

**Portugal:**

- University of Aveiro (UAVR)
- Universidade do Minho (UMINHO)

**Spain:**

- Centro de Supercomputación de Galicia (CESGA)
- MAAT GKnowledge (MAAT)
- Universidad de Cantabria (UC)
- Universidad Complutense de Madrid (UCM),
- Universidad de Extremadura (UEX)
- Grupo de redes y computación de altas prestaciones (GRyCAP - UPV)

**Venezuela:**

- Universidad Simón Bolívar (USB)

### **Annex 3 – Rights and Responsibilities**

1. EELA-2 agrees to adhere to applicable EGEE policies and procedures.
2. A Party which makes material, equipment or components available to the other Party, for the purposes of activities under this MoU shall remain the proprietor of such material, equipment or components.
3. Each Party shall use reasonable endeavours to ensure the accuracy of any information or materials it supplies to the other Party and of any other contribution it makes hereunder and promptly to correct any error therein of which it is notified. The supplying Party shall be under no obligation or liability other than as stated above and no warranty or representation of any kind is made, given or to be implied as to the sufficiency, accuracy or fitness for a particular purpose of such information, materials or other contribution or as to the absence of any infringement of any proprietary rights of third parties through the possession or use of such information, materials or other contribution. The recipient Party shall be entirely responsible for its use of such information, materials or other contribution and shall hold the other Party free and harmless and indemnify it for any loss or damage with regard thereto.
4. Each Party shall remain full responsible for its own activities, including the fulfilment of its obligations under any grant agreement with the European Commission or under any consortium agreement related thereto.
5. Any publication by a Party resulting from the activities carried out under this MoU shall be subject to prior agreement of the other Party not be unreasonably withheld.
6. "Intellectual Property Rights" shall mean all intellectual creations including but not limited to inventions, know-how, layouts, drawings, designs, specifications, computer programs, reports, processes, protocols, calculations and any other matter and protected by intellectual property rights, whether registered or not, including patents, registered designs, copyrights, design rights and all similar proprietary rights and applications for protection thereof.
7. Intellectual property rights generated by a Party under this MoU shall be the property of that Party who shall be free to protect, transfer and use such Intellectual Property Rights as it deems fit.  
  
Notwithstanding the foregoing each Party shall grant the other a non exclusive royalty free, perpetual license to use the Intellectual Property Rights generated by it under this MoU for use within its project or for the exploitation the results thereof. Such license shall include the right to sublicense the entities involved in the project.
8. Results that were jointly generated by both Parties will be jointly owned by the Parties, hereinafter referred to as (“Jointly Owned Results”) and each of the Parties shall be free to use these Jointly Owned Results as it sees fit without owing the other Party any compensation or requiring the consent of the other Party. Each Party, therefore, for example and without limitation, has the transferable right to grant non-exclusive, further transferable licenses under such Jointly Owned Results to third parties. Each Party shall be entitled to disclose such Jointly Owned Results without restrictions unless such Jointly Owned Results contain a Joint Invention in which case no disclosure made be made prior to the filing of a priority application.  
  
With respect to any joint invention resulting from this MoU (i.e. any invention jointly made by employees of both Parties), the features of which cannot be separately applied for as Intellectual Property Rights and which are eligible for statutory protection requiring an application or registration (herein referred to as “Joint Invention”), the Parties shall agree on which Party will carry out any filing as well as any further details with regard to persecuting and maintaining of relevant patent applications.
9. Each Party shall be solely responsible for any personnel hired to carry out work under this MoU.
10. In case personnel employed by one Party temporarily carries out work under this MoU on the premises of another (hereafter referred to as “secondment”), the following provisions shall apply:
  - (a) The persons seconded shall be subject to all regulations, including, in particular, safety regulations, applicable on the site of the Party they are seconded to.

(b) The personnel seconded by a Party to another shall remain employees of the Party having seconded them and such Party, as employer, shall bear exclusive responsibility for the payment of salary and for the procurement of adequate social security and insurance, including third party liability insurance and health insurance.

(c) Unless otherwise agreed by the Parties concerned, Intellectual Property Rights generated by personnel seconded by a Party to another shall be owned by the Party having seconded such personnel.

11. The Parties may disclose to each other information which the disclosing Party deems confidential and which is (i) in writing and marked "confidential", or (ii) disclosed orally, and identified as confidential when disclosed, and reduced in writing and marked "confidential" within fifteen (15) days of the oral disclosure (hereafter referred to as "Confidential Information"). Confidential Information shall be held in confidence and shall not be disclosed by the receiving Party to any third party without the prior written consent of the disclosing Party.

Notwithstanding the foregoing a Party is entitled to disclose Confidential Information which it is required by law to disclose or which, in a lawful manner, it has obtained from a third party without any obligation of confidentiality, or which it has developed independently from any Confidential Information received under this MoU, or which has become public knowledge other than as a result of a breach on its part of these confidentiality provisions.

12. Except in case of gross negligence or wilful misconduct, neither Party shall be liable for any indirect or consequential damages of the other Party, including loss of profit or interest, under any legal cause whatsoever and on account of whatsoever reason.

#### **Annex 4 – Settlement of Disputes**

1. All disputes or differences arising in connection with this MoU which cannot be settled amicably shall be finally settled by arbitration in accordance with the procedure specified below which shall be adapted in the light of the number of Parties involved.
2. Within thirty (30) calendar days of written notification by a Party to the other Party of its intention to resort to arbitration, the first Party shall appoint an arbitrator. The second Party shall appoint an arbitrator within three (3) months of the appointment of the first arbitrator. The two arbitrators shall, by joint agreement and within ninety (90) calendar days of the appointment of the second arbitrator, appoint a third arbitrator, who shall be the Chairman of the Arbitration Committee.
3. If the second Party fails to appoint an arbitrator or the two arbitrators fail to agree on the selection of a third arbitrator, the second or, as the case may be, the third arbitrator, shall be appointed by the President of the Court of Justice of the European Communities.
4. Unless otherwise agreed by the Parties concerned within thirty (30) calendar days of the provision of notice referred to in Article 2 above, the arbitration proceedings shall take place in Brussels and shall be conducted in English. The Parties shall within one month of the appointment of the third arbitrator agree on the terms of reference of the Arbitration Committee, including the procedure to be followed.
5. The Arbitration Committee shall faithfully apply the terms of this MoU. The Arbitration Committee shall set out in the award the detailed grounds for its decision.
6. The award shall be final and binding upon the Parties, who hereby expressly agree to renounce any form of appeal or revision.
7. The costs including all reasonable fees expended by the Parties to any arbitration hereunder shall be apportioned by the Arbitration Committee between these Parties.