

	EUROPEAN COMMISSION RESEARCH AND INNOVATION DG	Review Report
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**Project No:** 262892

**Project Acronym:** ENDORSE

**Project Full Name:** ENDORSE (ENergy DOWNstReam SERVICES) -  
Providing energy components for GMES

## Review Report

**Period covered:** from 01/01/2013 to 31/12/2013

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**Duration:** 36

**Project coordinator name:**  
Dr. Lucien WALD

**Project coordinator organisation name:**  
ASSOCIATION POUR LA RECHERCHE ET LE  
DEVELOPPEMENT DES METHODES ET  
PROCESSUS INDUSTRIELS - ARMINES

**Version:** 1

# Review Report

## General Information

<b>Grant Agreement number:</b>	262892
<b>Project acronym:</b>	ENDORSE
<b>Project title:</b>	ENDORSE (ENergy DOwnstReam SErVICES) - Providing energy components for GMES
<b>Funding Scheme:</b>	FP7-CP
<b>Project starting date:</b>	01/01/2011
<b>Project duration:</b>	36
<b>Name of the scientific representative of the project's coordinator and organisation:</b>	Dr. Lucien WALD ASSOCIATION POUR LA RECHERCHE ET LE DEVELOPPEMENT DES METHODES ET PROCESSUS INDUSTRIELS - ARMINES
<b>Project web site:</b>	
<b>Type of technical review:</b>	Periodic regular/foreseen technical review
<b>Period covered - from:</b>	01/01/2013
<b>Period covered - to:</b>	31/12/2013
<b>Date of review meeting (if applicable):</b>	07/03/2013
<b>Type of review report:</b>	Individual
<b>Name of expert drafting the report:</b>	Javier DOMINGUEZ
<b>Name of the Project Officer:</b>	Mr Stijn VERMOOTE

## 1. Overall Assessment

### a. Executive summary: Comments, in particular highlighting the scientific/technical achievements of the project, its contribution to the State of the Art and its impact:

During the second year, the overall the project has progressed according to the DOW. This time, a special attention has been put to testing of early versions of products by prime-users. The goal of this test, according to the conclusions of task 2001, has been to check the full functionality of the services and to obtain feedback for refinement. In this section, quality control of products has had a very important role.

According to the recommendations that were made in the previous report, there has been put more attention to the collaboration of the prime-users in service specifications, as documented in D2.2 "Prime Users' Requirements for pre-market services assessment protocol".

Another of the recommendations set out by the reviewer was to involve new users. In this regard, this year ENDORSE developed a strategy based on the exploitation of the feedback given by the prime-users, the extension of users-panel, conducting workshops demonstration and preliminary analysis of the potential market for the products. This strategy has been checked with the Advisory Board.

Finally, in addition to the workshops listed in the previous section, other dissemination tasks have played an important role during this period. The information concerning activities has been made through international scientific journals, exhibitions and symposiums and, of course, through the Internet using the project website and through web services (SODA, for example) and others. All these activities have contributed positively to enhance and highlight the efforts of the group on environmental modelling.

#### Progress

Good progress (the project has achieved most of its objectives and technical goals for the period with relatively minor deviations)

### b. Overall recommendations (e.g. on overall modifications, corrective actions at WP level, or re-tuning the objectives to optimise the impact or keep up with the State of the Art, or for other reasons, like best use of resources, re-focusing...).

#### Strengths:

The project is developing in a satisfactory way. The deviations described in the "periodic report" appear to be justified and under control. The information provided by the Coordinator during the review meeting confirms it.

The first goals of this period have been achieved broadly, as well as milestones and deliverables (see recommendations below).

The tasks developed will be very useful and will contribute to self-sustainability of products and services.

A good cohesion of the partners and the consortium has been achieved.

The importance of the tools and services is relevant at international level (eg Scientific publications, international meetings, etc).

Need for some standardization and harmonization of the services and products: in fact the format is mainly driven by the needs of the users.

#### Weakness and recommendations:

The consortium should work hard on the finalization of some of the products and services (eg Biomass) in order to achieve the goal of prepares it for pre-market.

The problems detected in some validation processes (eg CSP) should be fixed.

Problems related with human resources have been reported (delays due to workload of coordinator and maternity leave of some partners). In order to limit the potential impact for the final reporting year, please provide to the Project Officer of monthly updates on the status of milestones and deliverables.

## 2. Objectives and Workplan

### a. Progress towards project objectives: Have

Yes

**the objectives for the period been achieved? In particular, has the project as a whole been making satisfactory progress in relation to the Description of Work (Annex I to the grant agreement)?**

**Comments**

The objectives and the work plan have been developed according to the description in the DoW. The analysis of the Second Periodic Report and the Review Meeting confirmed this. The management of ARMINES has played a key role during this period (of course, it is a positive aspect; although, how I've reported in the first point of this document, the workload of the coordinator could be a problem for the final period).

Specific objectives for 2012 were:

- Test of products by the prime-users leading to further refinements. This objective has been much developed during the period, with a great improvement in this relations and feedback.
- Specifications of services and definition of a protocol for assessment. Validation and calibration has had an important role in 2012.
- Research in environmental modeling focused on the development of product and services. As the previous task to the development of products and services, this goal has been achieved successfully.
- Extension of the panel of users and organization of workshops to demonstrate products and services. Panel of users has been extended, several workshop have been carried out with some target-groups and thematic.

**b. Progress in individual work packages: Has each work package (WP) been making satisfactory progress in relation to the Description of Work (Annex I of the grant agreement)?**

Partially

**Comments**

WP2: has a delay of four months (definition of products and services), though development of services began in June 2012 and didn't imply a major impact.

WP3: in 2012 task 3002, 3003 and 3004 has been completed. Task3005, Interface to GMES Core Services (Armines, DLR), is ongoing, and will be concluded by the end of the project

WP4: WPs 403 (Methods for improvement of service S3 "Irradiance forecasts"), 408 (Product development B1 "Mapping biomass potential") and 409 (Product development B2 "certification of sustainable bionergy use") are not finished yet. The development has followed its natural course, following needs and comments by users. A proposal for combining WP 4 and 6, for these three services, has been made in the meeting. As such, these tasks can be finished as planned for WP6 (products and services available in March 2013).

Consortium should consider that the transition from WP4 to WP6 implies moving from the development of products to services providing (from these products), and it is a significant step. The option of joining the WP 403, WP408 and WP409 to their equivalent task in the WP6 is viable, since many of these products are designed almost as services; and, in addition, the conceptual and methodological development, and the procedure for validation, is almost completed for S3, B1 and B2. In every case, ENDORSE must pay special attention to those aspects defined by the requirements of the users, who will be the recipients thereof.

WP 5: A delay of three months (assessment of products) has occurred; the delivery of D5.1 was in June instead of February, although their quality is high and has not had a major impact on other WP.

WP5 and WP8: need to involve other users, need to strengthen the analysis of the market, competition analysis, etc.

**c. Milestones and deliverables: Have planned milestones and deliverables been achieved for the reporting period?**

Yes

**Comments**

During this review period, milestones 7 to 11 have been achieved. According to the DOW, for the last period, just one critical milestone should be done, MS13: “Services and final versions of products are available”.

With respect to the Deliverables, at the moment 32 have been finished. For 2013, the last reporting year, 20 more should be done, all of them before June, including last version of the products and services (MS13).

Although some minor delays in deliverables were being occurred during this reporting year, there shouldn't be a problem in the remaining course of the project.

Deliverables						
WP no.	Del. no.	Version	Deliverable name	Reviewed Yes/No	Status	Remarks
2	1	1.0	Prime-users requirements for products and assessment protocol	No		
2	2	2.0	Prime-users requirements for pre-market services and assessment protocol	Yes	Accepted	v 1.1The deliverable is correct. The contributions of the "prime users" are valuable. Although there has been a delay of four months, but it has not made a major impact on the progress of the project, as evidenced by the fact that the results have been utilized in other packages (eg 5, 6 and 8). Quality control and validation of the products has been realized. Being a wide range of products, the results show some dissimilarities. In the case of S2 (Design CSPS) the absence of the CSP plant for validation is important. In general, a higher resolution can be interesting. The absence of metadata and output in the form of maps may also be a problem in some cases and products.
3	1	1.0	A library for computing the relative position of the Sun and the Earth	No		
3	2	1.0	Report on the harmonization and qualification of meteorological data	No		
3	3	1.0	Assessment of air temperature at 2-m height	Yes	Accepted	Good work from the scientific point of view. Very useful and high impact for the photovoltaic industry. It has prepared a draft for an article in a scientific journal that is annexed.
3	4	1.0	Post-processing of surface solar irradiance	Yes	Accepted	The deliverable addresses the work carried out in five activities for task 3003. Regarding the task 3003-1 (Collection of data), an in depth description of the new database could be interesting (although the task is only for "collect to data" and obviously the description suggested isn't compulsory). With respect to task 3003-2, the conclusions carried out in D3.4 are in agreement with the goals of the WP for this task. D3.4 for task 3003-3 includes an article which will be submitted to "Advances in Sciences and Research". Conclusions for this task are okay too. It's valid for task 3003-4 and 3003-5 (Notice that there is a mistake with WP numeration, see page 47 and 67 of the deliverable).
3	5	1.0	Methods for data fusion	Yes	Accepted	The objective was to develop methods for merging data from multiple sources (MACC: HelioClim 1 and 3 and SOLEMI), improving spatial and / or temporary resolution. Although the findings of work don't confirm the stated objective, however, they have a great value from the point of view of cartographic generalization, allowing progress in the quality of data derived from these multiple sources of information and reinforce the ways in which future research conduct, and providing recommendations to users of solar irradiation data from satellites. In this sense, the document provides a comprehensive description of the processes performed; problems encountered and needs to address the study of data fusion. In my opinion,

Deliverables						
WP no.	Del. no.	Version	Deliverable name	Reviewed Yes/No	Status	Remarks
						D3.5 is a valuable tool for future work.
3	6	1.0	Report on the interface to GMES Core Services - 1st version	Yes	Accepted	The purpose of the Task 3005 is twofold: on one hand, it makes the beneficiaries aware of the catalogues of products of the Core Service. On other hand, it organizes and collects the feedback from beneficiaries regarding the products and the quality of service, in a broad sense, delivered by the GMES Core Services. The task focused on the interoperability of data and services and considered metadata as a very important piece in the interchange and use of the information. This task is an on-going activity. These are very important aspects related to cartographic production and improvement in the use of satellite data.
3	7	0.0	Report on the interface to GMES Core Services - Final version	No		
5	1	1.0	Summary of the assessment of products by users	Yes	Accepted	The deliverable highlight the capacity of the ENDORSE consortium to actively involve the prime users and to exploit their support for the assessment and refinement of the developed products. It is reinforced by the fact that "all the consulted prime users expressed a very favourable assessment of the developed ENDORSE products". It has had some problems with S2 (site-specific design of a CSP plant) validation because there is a delay in the prime user's CSP plants construction program (Enel Green Power Spa). Overall, D5.1 is very interesting and provides very detailed information on the procedures developed in this task.
5	2	0.0	Summary of the assessment of pre-market services by users	No		
7	2	0.0	Report on users workshops	No		
8	1	0.0	"Towards the market" report	No		
9	1	1.0	Web site of the project	No		
9	2	0.0	Report on the activities for scientific dissemination and results attained	No		
9	3	0.0	CD comprising the publications made (communications, articles)	No		
101	1	1.0	Roadmap of milestones and deliverables for monitoring	No		
101	2	1.0	Briefing on the ENDORSE project (v1)	No		
101	3	0.0	Briefing on the ENDORSE	No		

Deliverables						
WP no.	Del. no.	Version	Deliverable name	Reviewed Yes/No	Status	Remarks
			project. Final version			
102	2	0.0	Contractual Annual Report Period 1	No		
102	3	0.0	Contractual Annual Report Period 2	No		
102	4	0.0	Contractual Annual Report Period 3+Final	No		
401	1	1.0	Report on the product S1 "Local atlas for Provence"	Yes	Accepted	The deliverable describes the product S1 (Solar Atlas region Provence-Alpes-Côte d'Azur, in France). The explanation of the process of development and validation is successful. The product has been reviewed by end users. During my review there have been some problems with the connectivity of map-server.
402	1	1.0	Report on the product S2 "Design CSPS"	Yes	Accepted	Yes Accepted In S2 no interactive man-machine interfaces are available but it could be interesting to develop. By the moment, the validation of S2 has been made by numeric simulation, because there is not available a CSP plant for validation. It is necessary a new validation process when Priolo Gargallo's CSP plant is available.
403	1	1.0	Report on methods for improvement of service S3 "Irradiance forecasts for electricity production"	Yes	Accepted	According to the presentation of WP4 during the Meeting Review in Brussels "the final version of the products S3, B1 and B2 will be developed by March 2013; this will have no impact on the S3, B1 and B2 services development". D403.1 reporting the state of S2, in this sense, the deliverable is accepted, but I'll wait for news about the final version of the product.
404	1	1.0	Report on the product S4 "TMY"	Yes	Accepted	D404.1 reports a good development of S4, which is a useful tool for users in the field of solar energy conversion systems. In fact, from the users' point of view "it seems to be more product/technology oriented than the other TMY concepts developed".
405	1	1.0	Report on the product S5 "CSP-GIS" for Morocco	Yes	Accepted	The development of S5 is correct. The deliverable contains some minor misprints. We have detected some problems with the access to the application. The validation criteria can be improved in future versions.
406	1	1.0	Report on the product W1 "Wind AEO"	Yes	Accepted	During the review meeting, 3E made a demonstration of "Wind AEO". I suggest for future versions considering several aspects such as: the interaction and user interface, including small wind turbines or improved the continuity of the wind map.
407	1	1.0	Report on the product E1 "Load balancing"	Yes	Accepted	E1 and D407.1 are okay, but it has limitations, especially in relation to the confidentiality of the information sources that it uses.
408	1	1.0	Report on the product B1	Yes	Accepted	The Deliverable reports the development state of B1. An improvement



Deliverables						
WP no.	Del. no.	Version	Deliverable name	Reviewed Yes/No	Status	Remarks
			“Mapping biomass potential”			version will be delivery this year. Resolution and accuracy are topics to take into account in the new version.
409	1	1.0	Report on the product B2 “certification of sustainable bioenergy use”	Yes	Accepted	The final service will include high resolution data for areas where potential illegal land use could be happened. Further developments requested by users of S3, B1 and B2 should be done until March 2013.
410	1	1.0	Report on the product D1 “lighting energy savings”	Yes	Accepted	D1 is a very interesting product, next to industry, with a great valuation by prime users.
601	1	0.0	Report on the pre-market service S1 “Local atlas generation”	No		
601	2	0.0	Service S1 “Local atlas generation” and final version of product	No		
602	1	0.0	Report on the pre-market service S2 “Design CSPS”	No		
602	2	0.0	Service S2 “Design CSPS” and final version of product	No		
603	1	0.0	Report on the integration of improvements into the existing service S3 “Irradiance forecasts”	No		
603	2	0.0	Improvements of the existing service S3 “Irradiance forecasts for electricity production”	No		
604	1	0.0	Report on the pre-market service S4 “TMY generation”	No		
604	2	0.0	Service S4 “TMY generation” and final version of product	No		
605	1	0.0	Report on the pre-market service S5 “CSP-GIS”	No		
605	2	0.0	Service S5 “CSP-GIS” and final version of product	No		
606	1	0.0	Report on the pre-market service W1 “Wind AEO”	No		
606	2	0.0	Service W1 “Wind AEO” and final version of product	No		

## Deliverables

WP no.	Del. no.	Version	Deliverable name	Reviewed Yes/No	Status	Remarks
607	1	0.0	Report on the pre-market service E1 "Load balancing"	No		
607	2	0.0	Service E1 "Load balancing" and final version of product	No		
608	1	0.0	Report on the pre-market service B1 "Mapping biomass potential"	No		
608	2	0.0	Service B1 "Mapping biomass potential" and final version of product	No		
609	1	0.0	Report on the pre-market service B2 "Certification of sustainable bioenergy use"	No		
609	2	0.0	Service B2 "Certification of sustainable bioenergy use" and final version of product	No		
610	1	0.0	Report on the pre-market service D1 "Daylighting energy savings"	No		
610	2	0.0	Service D1 "Daylighting energy savings" and final version of product	No		

**d. Relevance of the objectives in the coming periods: Are the objectives for the coming period(s) i) still relevant and ii) still achievable within the time and resources available to the project?**

**d.i) still relevant?** Yes

**d.ii) still achievable?** Yes

#### Comments

The objectives of the project for the last period are still relevant and achievable, as was stated in the second review meeting.

The first objectives for 2013, showed in the review meeting, are:

- Completion of services and refinements of products (WPs 4, 6)
- Assessment of services (WP 5)
- Workshops to demonstrate products (WP 7)
- Guidance and recommendations for each service (WP 8)
- Interfacing with GMES (WP 3) and others (WP 9)
- Disseminate scientific results; communicate with other initiatives (WP 9)
- Final report

In order to achieve these goals, the consortium should work hard during this last year, finishing the WP and tasks included in the DoW.

### 3. Resources

**a. Assessment of the use of resources: To the best of your estimate, have resources used, i.e. personnel resources and other major cost items, been (i) utilised for achieving the progress, (ii) in a manner consistent with the principle of economy, efficiency and effectiveness. Note that both aspects (i) and (ii) have to be covered in the answer.**

**a.i) utilised for achieving progress** Yes

**a.ii) in a manner consistent with the principle of economy, efficiency and effectiveness** Yes

#### Comments

In my opinion, the human resources have been used in an appropriate manner. Some small deviations were clarified in the review meeting. I can't judge the financial resources as they have not been presented in detail during the meeting.

**b. Deviations: If applicable, please comment on large deviations with respect to the planned resources.**

n/a

### 4. Implementation of the Project

**a. Management: Has the project management been performed as required?** Yes

#### Comments

The project management has been performed as required from a technical/scientific and administrative-financial point of view.

Involvement of advisory board: In the Periodic Report, the role of Advisory Board is highlight: "A consistent approach has been developed that may apply throughout all of the ten ENDORSE services, bearing in mind their characteristics, to collect the necessary information to understand and express the strategic value and the market potential for the services. This approach has been presented, discussed and refined in face-to-face meetings with members of the Advisory Board"(2nd

Periodic Report, p 5). Notice that this aspect is important, steps for achieve the overall goal have been done, but it's fundamental not to lose this perspective and advance in this issue. Also in "2ND Periodic Report", is cited the next action: "The results of these activities were illustrated in a PPT presentation that was discussed with the Members of the Advisory Board in order to collect their feedback". (p.36). This presentation has made by Elena Gaboardi and Raffaella Moreschi (iCons srl ), and titled: "WP8 - The ENDORSE services "Towards the Market" A brief introduction to the Members of the Advisory Board". (December 2012). In order to achieve a better knowledge of the Advisory Board (AB) role, could be convenient to include minutes of AB meetings in the "workspace" section of ENDORSE Web Site.

**b. Collaboration between beneficiaries: Has the collaboration between the beneficiaries been effective?**

Yes

**Comments**

The collaboration between the beneficiaries has been effective with a strong cohesion into the partners.

**c. Beneficiaries' roles: Do you identify evidence of underperforming beneficiaries, lack of commitment or change of interest of any beneficiaries?**

No

**Comments**

There is not evidence of underperforming or lack of commitment in beneficiaries. Even though, excessive external commitments by the project coordinator and some problems with human resources from different teams have caused delays in the fulfillment of deadlines.

## 5. Use and Dissemination of Foreground

**a. Impact: Is there evidence that the project has/will produce significant scientific, technical, commercial, social, or environmental impacts?**

Yes

**Comments**

The aim of ENDORSE is to provide to the scientific community, business and society in general, products related with EO. In the second year of the project, advances in the development of products, as well as in testing it by final users, has been carried out. In this sense, the deliverable D5.1 "Summary of the assessment of products by users" is an important step on the consolidation of the results and capacities of ENDORSE.

In my opinion, the project will have significant impacts in some areas related to the exploitation of Copernicus/GMES (and others EO programmes) products and services, especially in solar resources.

**a.1. Is there an impact on participating Small and Medium Enterprises (SMEs)?**

Yes

**Comments**

The project will have a clear impact on improving skills and competitiveness of the participating companies. Concrete products as evaluating wind sites (WIND AEO, see D406.1) developed by 3E are a clear example.

**a.2. Is there an exploitation potential for the participating SMEs?**

Yes

**Comments**

As mentioned in the previous section, a number of products developed in the project have a high

potential for exploitation in the renewable energy market (eg S3, S4, E1, B2 or D1), both from the point of view of resource assessment and siting, and from the perspective of certification or improved operation and maintenance for renewable energy.

**b. Use of results: Is the plan for the use of foreground, including any update, appropriate? Namely, please comment on the plan for the exploitation and use of foreground for the consortium as a whole, or for individual beneficiary or groups of beneficiaries and its progress to date.**

Partially

#### Comments

Although several of the products developed have implicitly a plan for using and updating, this needs to be developed further in the last year of the project.

**c. Dissemination: Have the beneficiaries disseminated project results and information adequately (publications, conferences...)?**

Yes

#### Comments

ENDORSE has several WP specifically related to training (WP7), exploitation of results (WP8) and dissemination (WP9). As was stated by Claire Thomas at the last review meeting in some of these WP the activity has been intense over the past year. These WPs are closely related.

In the last year the activity in workshops has been important, with the compliance of several milestones.

In the case of dissemination through papers and articles, two papers in journals with a high impact have been published (“Solar Energy” and “Hydrology Earth System Science” respectively). In addition, 13 communications have been published in international fairs.

Other important aspect is related with webservices. Here, especially the participation in SODA web page is relevant.

An element for improvement during the final reporting year is the need for a better service description on the website.

#### **d. Please identify potential information that should be disseminated to**

##### **Policy makers:**

Capacities of the Consortium, as well as of the technology and data in order to improve the Public administration and management.

##### **The scientific community:**

The issues related with algorithms are very important for scientific community. It is the same for the use of information sources, providing valuable experience on their applicability, quality and usability.

Regarding information sources and databases, aspects related with “data fusion” (WP3) are relevant, but conclusions have not been carried out. Although the findings in this task not confirm the stated objective, it has a great value from the point of view of cartographic generalization, allowing progress in the quality of data derived from multiple sources of information and reinforce the ways in which future research conduct, and providing recommendations to users of solar irradiation data from satellites.

##### **The general public:**

Dissemination of technology and capacities as well as environmental impacts.

##### **A specific group of end users:**

There was described in D2.1. Deliverables (D401.1, D402.1, D403.1, D404.1, D405.1, D406.1, D407.1, D408.1, D409.1 and D410.1) describe specific aspects related with the dissemination in each target group. D5.1 is important too in order to understand which the specific groups of end users are.

**e. Involvement of potential users and stakeholders: Are potential users and other stakeholders (outside the consortium) suitably involved (if applicable)?**

Yes

#### Comments

During and after the Project, a strategy to involve new users and stakeholders is planned. ENDORSE is working hard in this area with high quality results by the moment. (See comments in the previous section).

**f. Links with other projects and/or programmes: Is the consortium interacting in a satisfactory manner with other related Framework Programme projects or other Research and Development national/international programmes, standardisation bodies?**

Yes

#### Comments

Indeed, ENDORSE is having a strong link with other programs and networks, as an example, may be cited the participation in IRENA international initiative for a World Atlas of renewable energies or in GEO & GEOSS, where ENDORSE is noted as one of the FP7 activities that could contribute to GEOSS and specifically to GEOSS Task EN-07-01: Management of Energy Sources and Task EN-07-03: Energy Policy Planning. In this sense, Dr. Alexia Massacand, from the GEO Secretariat, presented progresses in these two Tasks during the 9th GEO Plenary, 21-23 November 2012, Foz do Igauçu, Brazil, referring to ENDORSE project in her presentation.

## 6. Other Issues

**a. Have policy-related and/or regulatory issues been properly handled (if applicable)?**

Yes

#### Comments

Policy and regulatory issues have been included in each specific product.

**b. Have ethical issues been appropriately handled (if applicable)?**

No

#### Comments

Not applicable

**c. Have safety issues been properly handled (if applicable)?**

No

#### Comments

Not applicable

**d. Has progress on Gender Equality Actions been satisfactory (if applicable for this reporting period)?**

No

#### Comments

Not applicable

**7. Flag the Project - Not related to the 'certified as correct'**

Flag(s) for the project	No
Comments	

<b>Attachments</b>	
<b>Name</b>	
<b>Date</b>	

This declaration was visaed electronically by Javier DOMINGUEZ (ECAS user name ndominjv) on 22/04/2013