

**European Metrology Programme for Innovation and Research
(EMPIR)**

**Call 2016
Metrology for Energy (ENG)
Environment
Support for Impact
Metrology Research for Pre and Co-Normative projects
Research Potential**

**Report of the Independent Observer
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1. Introduction

1.1 Terms of Reference

This report provides the findings of the Independent Observer (Daria Julkowska), following completion of the EMPIR Review Conference held in Rotterdam, 15 – 24 November 2016.

The position of the Independent Observer is described in Section 6.5 of the EMPIR Call Process Guide 6: Evaluating EMPIR Projects, which states that:

The European Commission may send an ‘Independent Observer’ to the review conference and consensus group meeting(s). He/she does not participate directly in the evaluation procedure. He/she will have access to all areas of the evaluation process, and will report back his/her observations and opinions on the process to the European Commission. The European Commission may also send a representative to the review conference and consensus group meeting(s).

The main function of the Independent Observer is therefore to ensure that the EMPIR evaluation process is being implemented in accordance and compliance with the rules that are set out in the Decision.

The specific tasks of the Independent Observer were defined by the EMPIR Programme Manager as follows:

- To act as an independent observer during the EURAMET EMPIR 2016 selection process
- To prepare, and review the Call and Selection documentation
- To attend the Rotterdam Review Conference and Consensus Group on the 15th to 24th November 2016
- To provide a draft report to the EMPIR Programme Manager for factual checking by 9th December
- To take due regard of comments made by the EMPIR Programme Manager on the draft. EURAMET comments will be limited to factual matters, the opinions remaining those of the observer
- To produce a final report by the end of December 2015 (subject to timely response to the draft by EURAMET)
- The report should be produced in two parts, the first part reporting on the process and in a form that could be made public, while recommendations to EURAMET on improvements to the process that could be made in future years should be reserved for a second part, which would not be made generally available.

It was noted that:

- The final report will be provided - unabridged - to the European Commission by EURAMET and shall be of a suitable quality for this purpose
- All relevant personnel, including the Referees, will be instructed to provide full cooperation to enable completion of the task
- Full and unfettered access will be provided to all relevant aspects of the call and selection process to enable completion of the task
- The Independent Observer is bound by confidentiality, and shall only discuss the outcome and provide the report to those who have a legitimate right of access (which includes, should they so choose to contact him/her directly, the relevant Unit of the European Commission). EURAMET reserves the right to publish the report.

This report therefore deals with the process that was carried out to implement the Review Conference and arrive at the Single Ranked list of proposals submitted for each of the EMPIR 2016 Calls (Energy, Environment, Pre and Co-normative, Support for Impact and Research Potential). The recommendations to EURAMET are included in a separate report.

1.2 Approach of the Independent Observer

My observations are based on the following inputs:

- Briefing meeting with the EMPIR Programme Manager, 23 August 2016
- Review of Call documentation and briefing materials
- Review of Independent Observer reports and recommendations for 2014 and 2015 EMPIR calls
- Attendance at the Review Conference (15 - 24 November 2016), involving:
 - Day 1 & 2: Energy
 - Day 3 & 4: Environment
 - Day 6: Support for Impact
 - Day 7 & 8: Pre and Co-normative
 - Day 9 & 10: Research Potential
- Informal discussions during the Review Conference with Referees, JRP Representatives, the Programme Manager, other members of the Management Support Unit (MSU), the Chair and the Deputy Chair
- Close follow up of evaluation process of chosen (randomly) projects – from poster session, through development of questions, Questions & Answers session to consensus discussion and ranking.

I am satisfied that I had free and open access to all information, presentations and discussions that constituted the 2016 Stage 2 evaluation of proposals.

1.3 Structure of the Report

The report covers the whole of the 2016 Stage 2 process from launch of the Call to the decision on the projects that will be funded. It therefore covers the period from the opening of the Call in June 2016 to the EMPIR Committee meeting following the Review Conference in November 2016.

In keeping with the structure of the previous reports. It consists of the following chapters: background/scope of the Call for proposals, selection of referees and the remote evaluation, the Review Conference and subsequent feedback from decisions at the post-evaluation EMPIR Committee meeting. The report concludes with my findings regarding compliance with the rules, quality of the process.

A separate report has been prepared for EURAMET with comments and suggestions for improvement of the procedures.

2. Call for Proposals

The EURAMET Calls for joint research in 2016 included Metrology for Energy (ENG), Environment (ENV), Metrology Research for Pre- and Co-normative projects (NRM) and Research Potential (RPT).

These calls followed a two-stage process. Stage 1 (launched on 18 of January 2016) requested the contribution of Potential Research Topics (PRTs). Stage 2 (launch on 16 of June 2016) requested project proposals against the Selected Research Topics (SRTs) that EURAMET published following Stage 1. In addition, on the 26th July 2016 EURAMET issued a Call for Support for Impact (SIP) designed to increase the impact from completed iMERA-Plus and EMRP projects.

Metrology for Energy

The Call was focused on metrological research supporting steps towards a safe, secure, sustainable and affordable energy system while increasing the competitiveness of Europe's industries. It was open to potential metrology research topics related to all sources of energy, traditional as well as novel types of sources and technologies with longer-term potential. The whole energy chain comprising generation, conversion, transport, storage, and consumption of energy was included. In addition, the Call targeted potential metrology research topics that support the increase of energy efficiency as well as the reduction of emissions of greenhouse gases. Finally, topics, which support the security of supply of energy for the European consumer, were also in scope. Importantly, to enhance the impact of the R&D work, the involvement of the user community such as industry, and standardization and regulatory bodies, as appropriate, was strongly recommended.

Environment

The Call focused on metrological research to improve the quality of data to stimulate technological innovation, and to disseminate traceability to, and make traceable measurements in the field of environmental sciences. It was based on the Europe 2020 strategy for "A resource-efficient Europe", which sets out the key challenges facing Europe in its overuse of natural resources and the benefits to come from addressing those challenges. It addressed both local environmental challenges such as those related to:

- Contamination of water, air and soil
- Radiation measurement and protection, and acoustic noise
- Local pollutions and emissions measurements
- Monitoring of key parameters to detect local climate evolution

As well as, global metrological challenges for climate monitoring such as those related to:

- The essential climate variables of the atmosphere, land and water, including their constituents, contamination, transport and other parameters, and their time evolution and comparability
- Emission control; measurement of gases and particles that have an effect on climate and health
- Validated remote sensing data and products for environmental and climate monitoring, taking into account ground based instrumentation networks
- Measurements in extreme environments and challenging conditions.

Pre and Co-Normative

The overall strategic aim of the Targeted Programme (TP) "Pre- and co-normative research" is to develop metrological methods and techniques required for standardization. Under this call the proposed topics should address one of the following strands:

- Specific documented demands of European and international Standards Developing Organizations (SDOs) for metrological research in any area, e.g. development of traceable measurement methods or the provision of validated data sets, which are required for documentary standards. Proposals in this strand are expected to be mostly "co-normative" in nature, i.e. addressing actual standardization development work.

It was expected that projects selected for funding will have fewer partners and lower eligible costs than Joint Research Projects selected under other TP calls (e.g. industry, health, energy or environment).

- Identified standardization needs for metrological research with a potential for high impact. Proposals in this strand should address "grand challenge standardization" and strategic priorities for European standardization, e.g. as identified by the European Union or as supported by European and international SDOs, e.g. by letters of support.

Proposals were expected to group different metrological R&D needs under a comprehensive theme or field such as smart grids, the Internet of Things, climate change and resource efficient Europe, etc. It was expected that the projects selected for funding will be similar in size and budget compared to Joint Research Projects selected under other TP calls (e.g. industry, health, energy or environment).

Research Potential

Interested parties were invited to submit PRTs, which should identify:

- The particular metrology needs of stakeholders in the region
- The research capabilities that should be developed (as clear technical objectives)
- The impact this will have on the industrial competitiveness and societal needs of the region, and how the research capability will be sustained and further developed after the project ends
- The development of the research potential should be to a level that would enable participation in other TPs.

The programme funds the activity of researchers to develop the capability, not the required infrastructure and capital equipment, which must be provided from other sources.

It was underlined, that while PRTs can focus on national needs, the Joint Research Proposals must combine the strategic priorities of several states and develop an integrated and coordinated response ("smart specialization") at the European or regional level.

Support for Impact

The Support for Impact is a single-stage call. Support for Impact actions are coordination and support actions with a clear focus on dissemination and exploitation activities. Thus, research and development activities are not eligible to be funded in SIPs.

While the Joint Research Projects should plan to make this contribution during their lifetime, sometimes an opportunity for further significant exploitation and stakeholder uptake occurs after the research is complete. Support for Impact (SIP) projects can fund this further exploitation.

Such further exploitation may include:

- An identifiable contribution to a documentary standard in response to a request from a Technical Committee or Working Group of a European or International standards developing organization

- An identifiable contribution to a regulatory process in response to a request from a European or International regulatory body
- Transfer of specific technology or knowledge to a commercial business in response to a request to progress their innovation activities (e.g. product or process development).

A key requirement in SIPs is an external request for the work from an organization ready to take up the outputs of the project and move them on to impact outside the metrology community. The organization making this request is called the Primary Supporter. Without such a willing recipient expressing support for the proposal and identifying the actions they will take with the outputs of the project, the proposal would have no evidence of the route to impact and should not be funded. In addition, SIPs must be based on research outputs from a completed iMERA-Plus, EMRP or EMPIR Joint Research Project, referred to as the 'Related JRP'.

The EMPIR Committee received 132 PRTs (49 ENG, 43, ENV, 30 NRM, 10 RPT) and selected fifty-seven of them (18 ENG, 18 ENV, 15 NRM, 6 RTP). It was underlined that some SRTs contained inputs from more than one single PRT as similar ideas have been combined where appropriate. Some countries have declared a strategic priority for inclusion in particular projects. Coordinators were requested to seek the involvement of partners from these countries. The list of priorities identified by country was provided on EURAMET website.

Three of the proposed 57 SRTs remained without response:

- ENG, g10: Next generation solar cell calibration and characterization techniques
- ENV, v02: Metrology for high impact greenhouse gases 2
- NRM, n10: Protection from accelerator based high-energy ionizing radiation fields.

54 proposals for JRPs covering 17 ENG, 17 ENV, 14 NRM, 6 RPT were received and put forward for evaluation during the EMPIR Revue Conference in Rotterdam (15 – 24 November 2016). Each JRP was represented by one proposer (coordinator).

In addition, 7 SIP proposals were submitted and assessed remotely. The Consensus Group meeting took place on the 20 of November 2016 without proposers attending.

3. Selection of Referees

The referees chosen for evaluation of proposals submitted to EMPIR calls are selected from the EURAMET Referee Database, which was set up in January 2014 for the EMPIR programme. This database is continuously open to the new candidates that may apply to become the referee for EMPIR calls. In addition, EURAMET maintains privileged access to the European Commission's Horizon 2020 Expert Database, which may be used in certain circumstances to identify potential referees.

All registered referees were asked to specify their expertise using dedicated form provided by the MSU (on the 26 of June 2016). They were considered as specialists only if declared at least four years of experience/work in the relevant field. The selection process for the EMPIR 2016 calls involved matching of referees to the selected SRTs. In addition, the choice of experts takes into account nationality, representation from different organizations and gender (as far as possible), private and public sectors (where appropriate) and an appropriate turnover of referees from year to year. Experts selected for evaluation of ENG, ENV, NRM and RPTs proposals were notified on the 12 of

September 2016 and those chosen for evaluation of SIPs on the 6 of October 2016.

Each proposal is evaluated by at least three appropriate referees.

The referees are independent experts, acting in a personal capacity and must declare any links to a particular consortium or institution. They are bound to sign the Form 6a (Code of Conduct and Declaration) prior to commencement.

The referees are responsible for evaluating each proposal in confidential and fair way. They assist EURAMET to the best of their abilities, professional skills, knowledge and applying the highest ethical and moral standards. They must follow any instructions and time-schedules given by EURAMET and deliver consistently high quality work. The referee may not delegate another person to carry out the work or be replaced by any other person.

The EMPIR analysis of Referees was provided for review:

56		total number of referees			
Male	44	78.6%	Nationalities		
Female	12	21.4%	22		
Average age	52		Albania	0	0.0%
Age <30	0	0.0%	Austria	2	3.6%
Age 30-34	0	0.0%	Belgium	0	0.0%
Age 35-39	4	7.1%	Bulgaria	0	0.0%
Age 40-44	9	16.1%	Denmark	1	1.8%
Age 45-49	14	25.0%	Finland	2	3.6%
Age 50-54	9	16.1%	FYR of Macedonia	1	1.8%
Age 55-59	8	14.3%	France	4	7.1%
Age 60-64	7	12.5%	Germany	5	8.9%
Age 65-69	3	5.4%	Greece	4	7.1%
Age 70-75	2	3.6%	Hungary	0	0.0%
Org country	9		Ireland	1	1.8%
Consultancy firms	0	0.0%	Italy	7	12.5%
Higher Education Establishments	23	41.1%	Lithuania	1	1.8%
Non-research Commercial sector including SMEs	6	10.7%	Malaysia	0	0.0%
Non-research International Organisations (Association of States)	3	5.4%	Malta	1	1.8%
Non-research Public Sector	0	0.0%	Montenegro	0	0.0%
Private / Commercial Research Centres	8	14.3%	Netherlands	2	3.6%
Private Non-profit Research Centres	3	5.4%	Poland	4	7.1%
Public Research Centres	9	16.1%	Portugal	3	5.4%
Others	0	0.0%	Romania	3	5.4%
No information given	0	0.0%	Serbia	2	3.6%
Previous EURAMET referee	35	62.5%	Slovenia	1	1.8%
Previous EC evaluator	38	67.9%	Spain	4	7.1%
			Switzerland	0	0.0%
			Turkey	2	3.6%
			Ukraine	0	0.0%
			United Kingdom	4	7.1%
			United States	0	0.0%

As presented in the table, the group of referees was composed of members representing diverse field of expertise, type of organization, nationality, age and gender. The balance between public and private sector reflects well the nature of EMPIR calls focusing on excellent research with high-level involvement of the user community such as industry and standardization and regulatory bodies. The renewal of the evaluation committee was ensured by the presence of more than 30% of newcomers. Finally, one out of five referees was a female.

4. Remote Evaluation

The closing date for submission of phase 2 JRP proposals of ENG, ENV, NRM and RPTs was 30 of September 2016. The remote evaluation started on the 21 of October 2016. The referees were thanked and informed by the MSU (by e-mail) about the details of the procedure including:

- List of proposals they should focus on as main expert or generalist (This meets the EC requirements, and aims to balance the tendency to mark favorite subjects slightly higher)
- The role and obligations of a JRP referee
- Other documentation to read:

- Guide 4 “Writing Joint Research Projects (JRPs)” explaining what a proposal should look like
- Guide 6 “Evaluating EMPIR projects” (which explains the evaluation and marking process)
- Form 6c “JRP Evaluation (the JRP marking sheet)
- It was clearly explained which are the sections of the proposals that the referees must read
- The referees were also informed that they might read other proposals than those assigned to them, for the purpose of comparison.

All experts received the link to the password protected website where they can access proposals and other documentation including:

- Guide 4: Writing Joint Research Projects (JRPs): a set of instructions given to the proposers on what to include in their proposal
- Guide 6: Evaluating EMPIR Projects: explains how the evaluation process will work, explains role and gives marking guidance for JRPs
- Form 6a: Code of Conduct and Declaration
- Form 6b: Payment to Referees
- Form 6c: JRP Evaluation (marking sheet)
- Call Budget and Features: EMPIR Call 2016
- JRP Proposals in zip files: documents submitted by the proposers together with the respective SRTs
- Logistics information for the Review Conference or Consensus Group Meeting including agenda and hotel/travel information
- Link to the Call web page so that they could see the briefing information for the proposers

Finally, the referees were reminded about declaring any conflict of interest as soon as they discover it.

The closing date for submission of SIPs was 26 of September 2016. The reviewers were instructed by e-mail on the 17 of October 2016. They received the following information:

- Explanation on the character of the SIP proposals:
 - Coordination and support actions focusing on dissemination and exploitation activities with research and development tasks considered as non-eligible
 - Must be based on research outputs from a completed iMERA-Plus, EMRP or EMPIR JRPs
 - SIPs need an external request for the work from an organization ready to take up the outputs of the project and move them on to impact outside the metrology community
- List of proposals to evaluate
- Role and obligations of the SIP referees
- Instructions on which documents to read (Guide 7: “Writing Support for Impact Project (SIPs); Guide 6: “Evaluating EMPIR Projects; Guide 6d: “SIP Evaluation Form”)
- The link to the password protected website where they can access proposals and other documentation including above mentioned documents as well as:
 - Form 6a: “Code of Conduct and Declaration”
 - Form 6b: “Payment to Referees”

- Call Budget and Features: EMPIR Call 2016
- All SIP proposals in zip files containing Protocol and Support letter submitted by the proposers
- Logistics information for the Consensus Group Meeting including agenda and hotel/travel information
- Link to the Call web page so that they could see the briefing information for the proposers.

The collated referees evaluation forms for SIPs were made available on the 31 of October 2016. The referees were informed about this by e-mail.

5. Review Conference: Introduction

The Review Conference and Consensus Group meetings were scheduled over 10 days from 15 to 24 November 2016 (with Day 4 on 19 November being a free day) to cover all aspects of the 2016 Call. A specific book with relevant information and content adapted to the type of receiver was provided to all participants (Referees, JRP Representatives, MSU and Observer). The conference was divided into the following blocks:

- Day 1 & 2: Energy
- Day 3 & 4: Environment
- Day 6: Support for Impact
- Day 7 & 8: Pre and Co-normative
- Day 9 & 10: Research Potential

Throughout different days participants included: the MSU staff (that accompanied all participants during 10 days), the EMPIR deputy Chair and Vice-chair, the EMRP Programme Manager, the EU Commission representative, the Referees, JRP representatives and the Independent Observer.

In contrast to other calls, the SIP call was the only one when proposers were not invited to attend as SIP proposals were evaluated remotely.

Each call session started with Welcome address by the EMRP Programme Manager to all participants, followed by two parallel sessions focusing on briefing of Referees and JRP Representatives.

The Welcome address included information on:

- EURAMET and the EMPIR objectives and role within European and international landscape
- The 2016 call process so far
- Budget
- Outcomes of the Review Conference and the fact that the Review Conference does not formally decide which projects are funded – that falls to the EMPIR Committee
- Agenda of the day.

The Referees were reminded about the conditions of confidentiality and their obligations.

5.1 Briefing for the Referees

For ENG, ENV and NRM the Referees were split into their allocated Groups with the MSU facilitator and note-taker. RPT had one single group. The MSU facilitator led the discussion. Each of the Referees presented his/herself giving the scientific background and institutional affiliation. The moderator explained that three proposals were allocated to each of the experts but that referees will examine all proposals from the group during the poster session where experts will have 25 minutes for each of the allocated proposals and 20 minutes for the remaining proposals from the group.

Finally, the referees were also invited to familiarize themselves with the posters from other groups (specific “open” session was dedicated to that part of the projects’ review).

The moderator reminded the rules of the evaluation of proposals:

- Should fit with the scope of the SRT otherwise any differences should be clearly justified
- Operational capacity
- Criteria: excellence, impact and quality of implementation.

Each of the experts is free to form his/her own opinion on the posters. However, at later stage the whole group will be responsible to prepare the list of formal questions to each of the applicants. The moderator allocated “chair” person for each of the projects chosen among the referees in the group. The chair is responsible to present the questions formulated by the group during the formal interviews of the applicants. MSU decided on the choice of chairs based on their scientific background as well as their experience with the evaluation in EURAMET calls (typically newcomers were chosen only exceptionally).

The referees were provided with detailed timetable (included in their book) and reminded that they should not take more time than allocated for each of the posters.

Finally, the MSU moderator explained the rest of the evaluation process, especially the fact that the final scores for each project must be based on multiple inputs: content of the projects themselves, results of the poster session and individual interviews. This should result in a single ranking list.

At the end of the briefing experts were asked again to report any (lately discovered) conflict of interest to the MSU staff.

5.2 Briefing for the JRP Representatives

A parallel briefing session was organized for the JRP Representatives. The Programme Manager outlined what should be expected at the Review Conference i.e. details of the evaluation process. The JRP representatives were informed about the oversubscription rate of the call as well as the attention that the MSU pays to the choice of referees and conflicts of interest. Since the JRPs were divided into several groups, the MSU Programme Manager ensured about the close monitoring of the equality of treatment and evaluation between the projects from different groups.

Projects’ representatives were encouraged to ask few questions to the referees at the start of each round in the poster session, as it is helpful to identify the background of experts and subsequent adaptation of the presentation.

Finally, the MSU Programme Manager explained the process that leads to the creation of single ranking list and how eventual ties will be solved.

The second part of the JRP Representatives briefing session was dedicated to familiarize them with the contracting process in case if their project is successful. This included details on:

- Timeline (especially timeframe for the starting date that is not negotiable)
- Implementation of eventual changes in the project
- Importance and role of the coordinator
- Reporting procedures.

5.3 Poster Sessions with the JRP Representatives

As indicated above the Poster Sessions were scheduled to allow 25 - 30 minutes of discussion between the Referees and the JRP Representative for each proposal. The experts followed closely the time schedule prepared in advance by the MSU. Each of the posters was visited by at least three referees (specialist and generalists). Importantly (this was particularly relevant for interdisciplinary projects in ENG and ENV calls showing high complexity and high number of participating institutions),

the applicants knew that in case of impossibility to respond to any of the questions during the poster session they will have the chance to consult project partners during the free timeslot before the official interview session.

The “open” slot in the poster session was fully exploited by the referees.

All poster sessions were facilitated in a time-efficient manner designed to prevent excess time being allocated to one poster over another. The posters were dispatched by group, in separated meeting rooms with sufficient space to allow non-disturbed presentation of posters and animated discussion with the referees.

5.4 Preparation of Formal Interviews

After the poster sessions, the JRP Representatives had a 2.5 hours period prior to their formal interviews during which they could consider the content of their poster discussions with the Referees and to contact other consortium members if needed.

At the same time, the Referees returned to Breakout Sessions chaired by the MSU moderators to discuss their first impressions of the proposals and develop questions for the subsequent Q&A Sessions with the JRP Representatives. The purpose of this session was to agree on a shortlist of 5-8 final questions for the formal interviews with the JRP Representative. All referees contributed to the development of questions and agreed on their importance and order in which they should be asked. For each JRP proposal, as previously decided, the “chair” referee was invited to lead the process and ask questions in the name of the group. MSU moderators were very helpful to focus the discussions and to formulate adequate questions based on the comments of the referees.

The experts that were in minor conflict of interest were asked to abstain from debating the project and had a possibility to leave the room.

5.5 Formal Interviews with JRP Representatives

The Q&A sessions were chaired by the lead referee with assistance from the MSU facilitators. The JRP Representatives were invited one by one to the room and had a maximum of 15 minutes to answer the prepared questions. The chair informed the JRP representative on how the methodology used to prepare the questions, as well as how many questions will be asked. The MSU moderators were responsible to take notes and act as timekeepers, in order to ensure equal treatment for all of the JRP representatives. In case some time was left the referees had the possibility to ask additional question that might have risen during the interview. If still some time was left, the project representative had the possibility to address the group and present any additional arguments.

The MSU moderators thanked the applicants for the effort and accompanied them outside the room.

All JRP representatives responded competently to the questions.

At the end of the formal interviews the Referees were reminded that they should not interact with the JRP Representatives after the session.

6. Marking sessions

6.1 Marking sessions for the JRPs

The sessions took place in the same meeting rooms, broken by groups, as on the previous day for Formal Interviews. At the start of the session the MSU moderator reminded the criteria and weight of scores for evaluation. In addition, it was mentioned to evaluate the proposals as they are and not as they could be (no comments on improvement, removal of WPs or budget cuts are allowed). All

comments of the referees are of high importance, as they will also serve the MSU to further discuss minor changes (e.g. lacks in risk assessment) to be addressed during the contracting phase by the projects. In a specific case of the NRM projects the MSU moderator reminded about the particular weight of Impact criterion and credible links to standardization bodies.

The referees had the responsibility to decide which proposals will be recommended for funding and which ones should not be funded even if some budget is still available. The discussion was divided into thirty minutes slots allocated to each of the proposals. The MSU moderator started with reading the questions and responses from the Formal Interview session as reminder for the referees. The discussion of each proposal always started with agreement on the compliance of the project to the SRT and operational capacity. Any deviations from the SRT were notified.

The MSU moderators initiated the discussion by inviting, on each criterion, the chair referee to start the discussion and express his/her comments resulting from all inputs received. Other referees could then present their arguments. The MSU staff was responsible for drafting (live) comments of the consensus report that were validated with the reviewers. A consensus mark was agreed for each proposal against the evaluation criteria and one marking sheet was completed per proposal.

A standard Marking Wall Chart (matrix sheet with all of the JRPs (vertical) and the criteria (horizontal)) was used to work up the scores. The EMPIR Marking Guidance (0 = Fail to 5 = Excellent; half marks may be given) was clearly displayed and frequently reminded to the referees by the moderators.

An agreed set of comments was then obtained with positive and negative comments against which a mark was proposed for each criterion. After reviewing all proposals within the group, the scores were adjusted (if necessary) adequately to the comments and finalized. At the end of the process, the draft consensus reports were printed and signed by each of the referees.

During the marking sessions the Programme Manager circulated between the Groups to draft emerging scores, to obtain a preliminary view of the Single Ranked List and to prepare for the subsequent presentation of the list to the Referees.

6.2 Marking session for the SIPs

In contrast to the JRPs the SIP proposals were pre-evaluated remotely and collated evaluation forms were available prior to the marking session. In order to avoid any association with individual opinions the names of the referees were removed from the circulated material. Approximately twenty minutes were allocated to discuss each proposal. The MSU moderator reminded the rules and criteria of evaluation. Particular attention was paid to put in mind the specificity of SIP proposals and their focus on industrial or research impact. On the demand of the referees the moderator explained the difference between the primary supporter and other contributors to the project. Each of the experts was assigned to three proposals but since there were no conflicts of interest declared all referees were invited to comment the proposals.

The MSU moderator presented shortly each of the projects before the start of discussion. At first, the allocated evaluators were demanded to comment on the operational capacity and conformity to the scope of the call. Further on, each of the assigned referees was asked to give comments on each of the three criteria starting with Impact. The group was involved in the discussion afterwards.

Once all projects were discussed the preliminary ranking list was shown for final consultation and eventual re-discussion of the project. At this stage 4 projects were considered above the threshold and 3 below. The experts decided to review the consensus reports again for each project and adjust some of the comments. However, this did not change the ranking order of the projects.

7. Plenary session – Single ranked list

The Single Ranked List for the JRP / SIPs was developed by the EMRP-MSU using a pre-defined Excel template for ease of review and data sorting. The ranking list was presented to the referees in presence of the EMPIR chair(s) and EC representative. The EMRP Programme Manager explained the procedure to untie proposals with equal scores, and the line where the cumulated requested funding reached the available budget. There were no situations where proposals very close to the line had to be untied. All referees agreed with the proposed ranking and signed it. The proposed ranked lists were to be submitted to the EURAMET EMPIR Committee for final approval and funding decision that should take place on the 28 of November 2016. The Referees were thanked for their work by the EMPIR Chair. Finally, all experts were reminded to hand in all documentation and to delete all electronic files prior to departure. They were also invited to fill in a questionnaire to provide a feedback to the MSU team on their opinion about all aspects of the evaluation process.

8. Conclusions

The main conclusions that I can draw from review of the 2016 EMPIR Call documentation, the process and my attendance at the Review Conference and consensus meetings include the following:

- The process and procedures were carried out in accordance with the rules established in Decision No. 555/2014/EU of the European Parliament and of the Council on participation of the Union in EMPIR (15 May 2014), Regulation (EU) No. 1290/2013 of the European Parliament and of the Council laying down the rules for participation and dissemination in Horizon 2020 (11 December 2013, with one derogation for the funding rate) and the draft Horizon 2020 Model Delegation Agreement for Article 185 Initiatives (September 2014)
- The overall evaluation process was conducted in a very efficient manner and the referees were carrying out their work in full compliance with the guiding principles of independence, impartiality, accuracy, objectivity and consistency
- The Call documentation and all correspondence with the Referees were comprehensive, of a very high standard, in keeping with the maturity of the EMRP-MSU team and their procedures, which have been developed and refined over a substantial series of EMRP, iMERA and the EMPIR calls
- The Review Conference was organized in a highly professional manner, ranging from the logistics (selection of venue, scheduling of activities, quality of catering) to the facilitation of the individual sessions (time efficiency, technical competency and unbiased nature)
- The Call outcomes (Single Ranked Lists) were of high quality suited to submission to the EMPIR Committee for timely approval.

The Call process and procedures are fitting well with Horizon 2020 guidelines. It was also clear that all involved persons have now become familiar with the specific features of Horizon 2020 applicable to the EMPIR programme, in particular the limited grant preparation phase necessitating that proposals should be evaluated as submitted and not on potential if certain changes are made.

Based on the informal discussions with the referees and JRP representatives it was striking how important and appreciated are the poster and interview sessions which allow direct exchange between applicants and experts. All JRP representatives confirmed the quality and clarity of the evaluation. Similarly, the referees acknowledged the professionalism of the MSU team and excellence of the assessment process. The Poster Sessions were dynamic, engaging challenging discussions between projects' representatives and experts. The formal interview sessions

complemented this defending activity and could be viewed as a training ground for career development. In addition, I was particularly impressed by the capacity of the MSU moderators to manage discussion sessions of the reviewers leading to the fair outcome in each of the review groups. Although I recognize that it is not translatable to all conditions, as a professional with important experience in national, European and international evaluation methodology and practices I can confirm that the EMPIR review process is one of the most efficient and professionally organized I could assist.

As an independent observer, I am convinced that the whole process was conducted in full compliance with established rules, and that resulting ranked lists reflected, for those projects above the funding line, the best projects, which should be funded.

9. Acknowledgments

In closing this report, I would like to thank the EMPIR Deputy Chairs, the EMPIR Programme Manager and the entire Management Support Unit team for their excellent support before, during and after the Review Conference. Every effort was made to assist me, to explain the relevant context and to provide me free and unrestricted access to all information and documents. Their support and their assistance throughout the entire process were outstanding and contributed greatly to making the observation work not only a smooth but also a very enjoyable exercise.