Consultation on the European Fusion Research Programme

Introduction - purpose of the questionnaire
In its proposal for the Euratom Programme 2014-18, part of Horizon 2020, the European Commission (EC) states: “The strategy to develop fusion as a credible option for commercial carbon-free energy production shall follow a roadmap with milestones towards the goal of electricity production by 2050. To implement that strategy, a radical restructuring of fusion-related work in the Union, including governance, funding and management, shall be carried out to ensure a shift of emphasis from pure research to designing, building and operating future facilities such as ITER, DEMO and beyond. That shall require a close cooperation between the entire Union fusion community, the Commission and the national funding agencies.”

Following the EU Council's initial reaction, the EC is planning to complement the proposal by preparing a Communication on the future implementation of the fusion programme. It is in this context that the EC would like to consult all stakeholders, and is inviting in particular key members of the fusion community to complete the present Web-based survey. The link will be available for a period of 12 weeks until 21/09/12 inclusive.

You should indicate in your reply whether the views expressed are yours alone or represent those of your organisation as a whole. As well as containing structured multiple choice questions, the survey allows for free format text input so that you can provide additional information or clarification.

The EC will report on the findings of the survey but this will be limited to aggregated statistics and, if relevant, will use non-attributed quotes from the free format text input provided by respondents.

Questions marked with an asterisk * require an answer to be given.

A. Information about respondent

A.1. Please enter your first name and surname *


A.2. Please enter your e-mail address *

A.3. Please select your country of residence/establishment *

- Austria
- Belgium
- Bulgaria
- Croatia
- Cyprus
- Czech Republic
- Denmark
- Estonia
- Finland
- France
- Germany
- Greece
- Hungary
- Ireland
- Italy
- Latvia
- Lithuania
- Luxembourg
- Malta
- Netherlands
- Poland
- Portugal
- Romania
- Slovakia
- Slovenia
- Spain
- Sweden
- Switzerland
- United Kingdom

A.4. Your involvement in fusion – please select the type of organisation you work for *

- national lab or research institute
- national funding agency or ministry
- other
- no involvement in fusion research

A.5. Please enter the name of your organisation *
A.6. What is your position in the organisation

A.7. Are your responses your own personal view or are you responding on behalf of your organisation as a whole?

- personal view
- organisation view

B. Objectives and strategy of the fusion programme over the period of Horizon 2020

B.1. Do you agree with the following statement? "The objectives of Euratom fusion research over the period of Horizon 2020 should be to make significant progress towards ensuring success of ITER and towards the generation of electricity from fusion by the middle of the century."

- Yes, totally agree
- Yes, tend to agree
- No, tend to disagree
- No, totally disagree
- Don't know

B.2. A research roadmap is currently being developed by EFDA (European Fusion Development Agreement) staff. Provided this roadmap is widely endorsed, do you agree with the following statement? "The majority of Euratom funding should be devoted to critical issues identified in the agreed roadmap."

- Yes, totally agree
- Yes, tend to agree
- No, tend to disagree
- No, totally disagree
- Don't know
B.3. How would you rate the importance for your institute / country of such an agreed long-term fusion energy roadmap in Europe?

- Essential, enabling better planning at institute/national level for the long term and/or better coordination with European partners
- Important provided the roadmap is aligned with institute/national priorities, otherwise it may be difficult to devote too many resources to the implementation of roadmap activities
- Not important since the bulk of the institute/national programme would still be decided on the basis of institute/national priorities
- Don't know

B.4. Do you agree with the following statement? "Pooling of resources as the EU level is the right way to address fusion research challenges and international competition."

- Yes, totally agree.
- Yes, tend to agree.
- No, tend to disagree.
- No, totally disagree.
- Don't know

B.5. Please add any further comments you may wish on part B): Objectives and strategy of the fusion programme over the period of Horizon 2020

C. Experience of the current implementation of the fusion programme (your organisation and/or EU as a whole)
C.1. How would you best describe your experience of fusion energy research in Europe, and related priorities? Please select up to a maximum of three statements from the following list.

* (between 1 and 3 answers)

- My institute/country is focused on sustainable and competitive energy production in the long term and is prepared to do the maximum possible to help Europe achieve this objective.
- Collaboration in Europe is beneficial for my institute/country and I think should grow in the future with even more institute/national resources devoted to common activities.
- Collaboration in Europe is beneficial, though I think my institute/country is now contributing as much as is practicable to common activities in view of the current priorities of the institute/country.
- The main interests of my institute/country do not correspond with EFDA priorities.
- Raising the institute's/national scientific prestige through, for example, publications in reputable journals is an important objective.
- Euratom co-funding is an important catalyst – the higher the Euratom budget allocated to EFDA collaborative activities, the more my institute/country is prepared to reciprocate.
- Euratom funding is important for the status of my institute/national programme and ensures continuity that safeguards jobs and/or services and/or investments in facilities.
- Don't know

C.2. How important is the ITER project for your own institute's/country's research effort?

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- Essential – if ITER suffers serious setbacks or is cancelled, this would probably mean the end of my programme
- ITER is important, but it would not be the end of the world if it were cancelled
- My institute's/national programme would survive almost intact if ITER were cancelled, although I recognise the importance for Europe and for global scientific and technological cooperation in general.
- Don't know

C.3. How important for you is the Contract of Association (CoA) between the Commission and your institute/country?

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- Essential – without the CoA it would probably be difficult to secure national funding
- Useful – the CoA is a sign of the quality of the institute/national programme, but other schemes could provide a similar assurance
- An additional source of income only – the CoA is not an element of the process of deciding funding at national level
- Don't know
C.4. What is your experience of the EFDA Implementing Agreement instrument as a means of promoting collaborative efforts? (in view of the special nature of the JET Implementing Agreement, you should consider only the HPC and PPPT IAs in your response).

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- Positive, and I would be happy to see this type of instrument be the cornerstone of future enhanced collaboration in the European Programme.
- Positive, but other schemes could provide similar or even better outcomes.
- My institute/country is still developing its opinion, and institute/national involvement so far has been at a minimum or modest level to allow an assessment of how effective and/or appropriate the instrument is before committing further resources.
- Not positive, and I would not support continued use after the expiry of current activities, though my institute/country remains open to other means of multilateral cooperation.
- Don't know

C.5. Please add any further comments you may wish on part C): Experience of the current implementation of the fusion programme

D. Means to achieve the objectives of the fusion programme in Horizon 2020
D.1. Joint Programming means the coordinated planning whereby public institutions in EU Member States decide collectively on a distribution of activities in order to achieve common goals, each institution's contribution being included in its own annual work programme with assured resources from its national funding agency. For more information on what is entailed and the importance for Europe as a whole, please refer to the following Website: http://ec.europa.eu/research/era/areas/programming/joint_programming_en.htm. To what extent do you think your institute/country would be prepared to participate in the Joint Programming activities with other national labs/programmes?

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- Though this would depend on the details of an agreed European fusion roadmap, I'd be happy for the majority of my institute's/national programme to contribute to Joint Programming activities.
- I'd be happy for a significant part of my institute's/national programme to contribute to Joint Programming activities.
- My institute/country would seek to collaborate though Joint Programming in only a very limited number of areas since the vast majority of institute/national resources would continue to be devoted to national priorities.
- My institute/country is not interested in Joint Programming
- Don't know

D.2. In order to carry out the joint activities under an agreed roadmap, the competencies in the EU fusion community may have to evolve significantly (e.g. owing to the need for increased focus on power plant physics and technology). What do you think is the level of preparedness in your institute / country for such an evolution?

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- My institute/country is prepared to take the necessary steps to ensure that the composition of personnel evolves at the pace required in order to implement the roadmap, which will probably mean significant evolution during the period of Horizon 2020
- While agreeing that an evolution is necessary, in view of the inertia in the national system and the specificities of fusion research, I believe that the necessary changes in the composition of personnel would take significantly longer than the period of Horizon 2020
- There is little prospect for the structure of the domestic programme to evolve significantly and my institute/country would therefore seek to continue its collaboration on the basis of its existing competences, while accepting that these may be less needed in the implementation of future joint activities.
- Don't know

D.3. What do you believe is the long-term role of the European Commission (EC) in the fusion programme?

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- The EC should continue in its current role as the central organisation in view of its traditional neutrality and as a guarantor, as the executive body under Euratom, of the prestige of the programme.
- In view of the current trends – e.g. simplification in the implementation of European research in general and reduced EC resources – I accept that the EC will no longer be able to play the same role as in the past, but it should continue to act in a catalytic and leveraging capacity in order to promote cooperation in implementing the roadmap
- The EC should act as a funding agency in support of a fully integrated externally managed European fusion research programme that implements the roadmap
- Don't know
D.4. Would your institute/country be prepared to investigate the possibility of establishing, with other partners in Europe, a new legal entity under national law to act as the central organisation for implementing the fusion research programme in Horizon 2020?

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- Yes.
- Yes, but unlikely on the timescale of 1/1/2014.
- No, unless it can be clearly demonstrated that this is the best option for the fusion research programme in the long term and there is support from a significant number of current EFDA members.
- No.
- Don't know.

D.5. Currently, the Euratom funding instruments include Contracts of Association (CoA), concluded between the EC and national labs, and EFDA instruments (in particular Implementing Agreements) providing coordination of and support for multilateral activities. Both the current CoA and EFDA expire at the end of 2013. The vision expressed in the EC's Horizon 2020 proposal is to establish, in view of the evolving priorities and objectives within fusion energy research, a more appropriate governance and funding structure, though temporary arrangements could be put in place to ensure continuity during a transition period. Regarding this post-2013 programme, which is your preference?

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- During a transition period, and following a review of available instruments, continue with the present balance of Euratom funding, i.e. the majority devoted to broad-based support ('baseline support') of national programmes and only a small amount on activities implemented under multilateral EFDA-type instruments (excluding the JET Implementing Agreement), while at the same time introducing simplification in the system.
- During a transition period, and following a review of available instruments, alter the balance of Euratom funding, with more available under multilateral EFDA-type instruments and a corresponding reduction in broad-based support, thereby paving the way for a more appropriate structure while introducing simplification in the system.
- Move rapidly towards a new way of funding, concentrating exclusively on roadmap priority tasks ('missions') via a limited number of partnerships/consortia, with safeguards as appropriate to ensure opportunities for continued involvement of all national labs.
- Don't know
D.6. Regarding the involvement of industry in the Horizon 2020 fusion research programme, which of the following statements most closely represents your views?

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- In view of their competences and experience in complex engineering projects, and the innovative solutions they can bring, industrial organisations should play an increasingly important role in the programme and appropriate funding schemes need to be found and/or partnerships with public bodies created in order to ensure they can contribute effectively
- Industry will only become more involved once a DEMO programme has been defined and the returns on investment can be more accurately estimated; until that time the present situation should continue, with industry involved primarily via ad hoc alliances with current EFDA members and through specific procurement arrangements
- Don't know

D.7. Regarding the possibility of spin-off applications, which of the following statements most closely represents your views?

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- Technology spin-offs can be an increasingly important result of the fusion research effort, including as a means of showing an innovation spirit and value for money, and need to be appropriately supported and promoted by the European fusion programme as a whole.
- Technology spin-offs can be important, but the onus for such aspects should be left to individual EFDA members.
- I am not convinced that technology spin-offs will be a significant aspect of the programme, and believe they will remain a niche area in the foreseeable future
- Don't know

D.8. Please add any further comments you may wish on part D): Means to achieve the objectives of the fusion programme in Horizon 2020


E. Research infrastructures, mobility and education & training
E.1. In view of the expected orientations of the EFDA roadmap, which of the following statements most closely represents your view?

- JET is a major asset for the Euratom effort and is crucial for successful operation of ITER and can potentially provide an important training facility for future ITER operators as part of an international network of key facilities.
- JET can provide important data for ITER through the qualification of the ITER-like wall, but for the moment there is no clear justification for prolonged operation beyond this.
- JET may no longer be able to continue contributing to roadmap priority tasks in a cost effective way.
- Don't know

E.2. Which of the following statements most closely represents your view?

- Increased mobility is essential in order to allow researchers from smaller national programmes to access the key fusion facilities in Europe
- It is desirable for as many institutes as possible to have their own fusion devices, no matter how small, in order to provide local training and research facilities for students.
- Don't know

E.3. Do you agree with the following statement? "It is desirable to develop facilities of pan-European/global interest by pooling national resources."

- Yes, totally agree.
- Yes, tend to agree.
- No, tend to disagree.
- No, totally disagree.
- Don't know

E.4. The EFDA roadmap currently being developed may identify other fusion devices, i.e. in addition to JET, considered essential in reaching key milestones (these facilities may correspond to those already identified in the ‘facilities review’). To what extent should the Euratom programme foresee host support for the operation of these other devices?

- If a device is considered essential for carrying out parts of the roadmap then an appropriate amount of funding for host support should be provided through the programme.
- Host support may be justified in certain situations, but terms would have to be negotiated on a case by case basis by the central organisation, and would inter alia take into account funding provided in the past through the Euratom programme.
- In view of the limited available funding in the Euratom Horizon 2020 programme, it is unlikely that significant financial support could be provided, but mobility of researchers and/or secondment of staff should be supported to the extent possible.
- Don't know
E.5. Regarding the importance of education & training, which of the following statements most closely represents your views?

- Education & training is crucial for the success of the programme, and efforts in Europe need to be coordinated as much as possible at a central level and should consider both more basic research and future industrial/engineering requirements.
- Education & training, though important, can be addressed more effectively at the national level and should therefore be principally the responsibility of individual EFDA members.
- Don't know

E.6. What is your opinion of training initiatives currently receiving Euratom funding (Fusion Researcher Fellowships and Goal-Oriented Training)?

- Fusion Researcher Fellowships (or similar schemes) should be the priority.
- The current mix of Fusion Researcher Fellowships (broad subject areas) and Goal-Oriented Training is about right.
- Goal-Oriented Training should be expanded, including more links with industry as appropriate.
- Don't know

E.7. Please add any further comments you may wish on part E): Research infrastructures, mobility and education & training

F. Final comments

F.1. Please add any further comments you may wish on any aspects of this survey.