

**8<sup>th</sup> Executive Committee Meeting of the  
IEA Technology Collaboration Programmes for  
Co-Operation on Tokamak Programmes (TCP-CTP)**

**Minutes**

**ITER HQ, France, Thursday 9<sup>th</sup> November 2017  
(13:00-15:15)**

Participants: Duarte Borba (Secretary-EU), Tony Donn  (Chair-EU), Lars-Goran Eriksson (EU), Ambrogio Fasoli (EU), Xavier Litaudon (EU), Rajesh Maingi (US), Charles Greenfield (US), David Hill (US), Shunsuke Ide (JP), Yutaka Kamada (JP), Jong-Gu Kwak (KO), Yong Su Na (KO), Richard Pitts (ITER-IO), Min Wang (CN), Min Xu (CN), Ge Zhuang (CN),

Tony Donn  (Chair) welcomed the participants to the 8<sup>th</sup> Executive Committee Meeting of the IEA Technology Collaboration Programmes for Co-Operation on Tokamak Programmes (TCP-CTP). The Chair reminded the participants that at the previous meeting, it was agreed that Europe would take the Chair, but that an issue had to be resolved before he could be officially nominated. The matter had been dealt with in the meantime and Tony Donn  therefore officially took up his duties as chair of the Committee.

*Decision: The IEA TCP-CTP Executive Committee noted the official nomination of Tony Donn  as a member of the committee and endorsed the proposal that Tony Donn  becomes the Chair of the Committee.*

1. Approval of minutes of the last meeting (ITER HQ, France, December 2016)

The minutes of the previous meeting were approved.

*Decision: The IEA TCP-CTP Executive Committee approved the minutes of the 7<sup>th</sup> Meeting in December 2016 "Agenda Point 1 - 7th IEA IA CTP Meeting Minutes".*

2. Change of Contracting Party (CP) "QST, Japan"

Following the written procedure launched on 24<sup>th</sup> October 2017 regarding the change of the Contracting Party "QST Japan", the TCP-CTP Executive Committee approved unanimously this change.

*Decision: The IEA TCP-CTP Executive Committee unanimously approved the change of the Contracting Party "QST Japan" "Agenda Point 2 - Change of Contracting Party (CP) "QST, Japan"".*

3. & 4. Reports on the completed workshops and personnel assignments for 2017 and Proposals for workshop, personnel assignments, and remote participation 2018

Duarte Borba (EU) presented the Report on EU personnel assignments for 2017 and proposals for personnel assignments for 2018. In the discussion, it was noted that a few assignments contained ITPA experiments that have been cancelled. Duarte Borba replied that it is possible that some of the proposals are outdated, but stressed that the process of updating this information is being carried out. Shunsuke Ide (JP) presented the Report on Japan personnel assignments for 2017 and proposals for personnel assignments for 2018. It was commented that the KSTAR programme starts only in September 2018 and the assignments foreseen for July 2018 do not come at a good time. In reply, it was stressed that the dates are only indicative and will be adapted if required. Rajesh Maingi presented the Report on US personnel assignments for 2017 and proposals for personnel assignments for 2018. Regarding the assignments to China, he emphasised the collaborations on long pulse, RMP effects, wall conditioning and disruption analysis. Regarding the collaborations with the EU, he stressed the participation in the JET, ASDEX-Upgrade, TCV and WEST Tokamak programmes and the increased number of collaborations from MIT. The collaborations with Korea focus on scenario development, disruption prediction and 3D fields. It was commented that the collaborations with China involving the University of Wisconsin were not listed, and it was acknowledged that the lists presented were incomplete on this point, but it was stressed that this will be completed. It was also discussed whether the assignments related to the ITER fellows should be listed. Jong-Gu Kwak (KO) presented the Report on Korea personnel assignments for 2017 and proposals for personnel assignments for 2018 emphasising the work carried out in collaboration with IPP Greifswald that led to the publication of an important paper. It was commented that the collaborations with the US and KSTAR regarding the klystron development for Helicon heating should be added to the list of collaborations. Regarding the India assignments, no Report was presented. Richard Pitts reported on ITER personnel assignments for 2017 and proposals for personnel assignments for 2018. Richard Pitts (ITER-IO) commented that the ITER staff is very active in writing the

Research Plan and that the lists contain mostly the assignments foreseen under the science division. Richard Pitts (ITER-IO) stressed that only the visits to JET are formally recorded. It was added that ITER is participating in the JET Campaigns, participating on the DIII-D programme and on the COMPASS tokamak experiments devoted to the study on the need to use correction coils and the impact on plasma performance and L-H transition.

Regarding the proposals for workshops, it was agreed to continue sponsoring the proposal by the US to organise a Workshop focussed on the validation of models for disruptions and the KSTAR conference that will take place on the 21-23 February 2018. The possible inclusion of additional workshops organised by ITER was discussed since this could facilitate the participation of some people. However, it was stressed that the difficulties come mostly for Russian participants and that Russia is not yet part of the TCP-CTP.

*Decision: The IEA TCP-CTP Executive Committee adopted the Personnel Assignment reports for Jan. 2017 – Dec. 2017 and endorsed the proposals for personnel assignments, and remote participation in 2018.*

*Decision: The IEA TCP-CTP Executive Committee agreed to continue sponsoring the proposal by the US to organise a Workshop focussed on the validation of models for disruptions and the KSTAR conference that will take place on the 21-23 February 2018.*

5. Request for Extension Working Party Feedback; Report from the IEA Secretariat and term of the new chair (All)

*Discussion on the request for extension Working Party feedback*

It was pointed out that the feedback was very positive and the Working Party acknowledged the extensive collaborative work carried out under the TCP-CTP. However, the Working Party made a comment on the present length of the term of the Chair and proposed that this should be increased to ensure continuity. The Working Party recommended considering electing a deputy Chair. Having this in mind the Chair proposed a period of 3 years for the term of the Chair and to elect a Deputy Chair but only in the last year in order to have a one year overlap period. This proposal was unanimously approved.

*Decision: The TCP-CTP executive committee unanimously approved the revision of the term for the Chair to 3 years, leading to the present term being from 1<sup>st</sup> March 2017 to 29<sup>th</sup> February 2020 and the election of a deputy chair on the last year of the term in order to have a one year transition between the outgoing and incoming chair.*

*Discussion on the report from the IEA Secretariat*

The report from the IEA Secretariat was discussed with emphasis on the communications Framework. It was stressed, that it would be required to provide IEA with a short-written report in the format approved one year ago and to give an oral report at the beginning of 2018. It was agreed that the Chair will contact Carrie Pottinger (IEA) in order to clarify the reporting requirements.

*Action on the Chair to contact Carrie Pottinger to clarify the annual report that the TCP-CTP Executive Committee needs to submit to IEA ((Completed)).*

*Discussion on the Request for Extension process.*

It was commented that the Request for Extension required more work than expected and that it would be important that some of the efforts translate into additional benefits for the Fusion Programme. In particular, it would be important to increase the visibility of fusion energy within the IEA, for example with the inclusion of fusion energy in the long-term IEA energy scenarios. The Chair commented that the people involved in the development of these scenarios are collaborating with EUROfusion, so this would be in principle possible.

6. Report from the TCP Universal meeting in Paris on 9 October (Lars-Göran Eriksson)

Lars-Göran Eriksson (EU) gave a presentation reporting on the TCP Universal meeting in Paris on 9 October which he attended, focussing on enhancing TCP-IEA collaboration, engagement with governments and private sector, interaction with multilateral activities, awareness, communication and visibility. In the discussion, the participation of fusion in the IEA Energy Scenario modelling, synergies on improving communication tools and the possible streamlining of the fusion related IEA agreements was addressed. It was commented that it would be welcome if the IEA could increase their assistance to the fusion TCPs in the areas discussed, not least in the area of communication. However, it was recognised that the manpower on the IEA side was limited. It was suggested that one way of making the processes more efficient would be to merge some of the fusion related TCPs, as had been done in the past.

7. Discussion of annual report (TBD, All)

Regarding the preparation of the annual report, it was agreed that the different parties would contribute by updating the report with respect to the results obtained, with the emphasis in providing some key publications.

*Action on the parties to update the Annual Report by the end of December 2017, including the list of publications (Completed).*

8. Contribution to IEA Article for Energy Technology Initiatives 2018

A number of proposals for the TCP-CTP contribution to the IEA Energy Technology Initiatives 2018 publication were discussed and it was agreed to focus the next article on Tokamak power exhaust collaborative experiments in particular, emphasising the experiments carried out and being planned.

*Action on David Hill (US) to contact the proposed author for the article on Energy Technology Initiatives 2018 on Tokamak power exhaust collaborative experiments.*

Other topics referenced in the discussion included the installation of the Shattered Pellet Injection on JET. It was agreed that this was an excellent topic for a future contribution, but at present one could only describe the installation of the system without experimental results. The other topic put forward for a future contribution was an article on the collaborative experiments on analysis of plasma heat and particle transport.

9. Further discussions on any outstanding issues (All)

*Discussion on the invitation of additional parties*

Richard Pitts (ITER-IO) send an invitation to Australia and a reply was received from Richard Garret on 12<sup>th</sup> September 2017. It was agreed that the Chair would follow up the exchange of letters with Australia aiming at facilitating the accession of Australia to the TCP-CTP as soon as possible.

*Action: The Chair to contact Richard Garret regarding the invitation to Australia to join the TCP-CTP. (Completed)*

Regarding the invitation to Russia to join the TCP-CTP, it was confirmed that the contact has been S. Konovalov and that this invitation will need to go through ROSATOM. However, it was stressed that no reply was received to the latest invitation letter and that no concrete progress has been made.

*Discussion on the impact of the UK leaving the European Union (BREXIT).*

It was clarified that no significant impact is expected until 2020, but beyond 2020 it is very difficult to foresee what agreement would be reached between the UK and the EU and what impact it would have on the Fusion programme. One possibility would be that the UK becomes associate member of EURATOM, in which case it could retain membership of the CTP-TCP is through EURATOM. However, it should be stressed that this remains pure speculation at this stage.

*Discussion on the Membership of the TCP-CTP Executive Committee*

China and ITER have announced that they would revise the membership of the TCP-CTP Executive Committee. It was agreed that the Secretary would send an e-mail clarifying the formal procedure for appointing new TCP-CTP Executive committee members. In the case of ITER, it was announced that Tim Luce and Richard Pitts would be officially nominated as members of the TCP-CTP Executive Committee.

*Action: Secretary to distribute the details of the formal procedure for nomination of new TCP-CTP Executive Committee members. (Completed: E-mail: Wednesday, November 15, 2017 6:30 PM)*

*Date of the next meeting*

The 9<sup>th</sup> meeting of the TCP-CTP Executive Committee is foreseen to take place on Thursday 6<sup>th</sup> December 2018 (13:00-15:00).