## AMENDMENT TO PROJECT AGREEMENT

between

## THE UNITED STATES DEPARTMENT OF ENERGY

and

## THE MAX PLANCK INSTITUTE FOR PLASMA PHYSICS

on

## A COLLABORATIVE PROGRAM TO DESIGN, FABRICATE, AND TEST A TRIM COIL SYSTEM FOR WENDELSTEIN 7-X (W7-X) in the framework of the Wendelstein 7-X Project

THE UNITED STATES DEPARTMENT OF ENERGY and the MAX PLANCK INSTITUTE FOR PLASMA PHYSICS,

ACTING pursuant to Article 8.1 of the Project Agreement between the United States Department of Energy and the Max Planck Institute for Plasma Physics on a Collaborative Program to Design, Fabricate, and Test a Trim Coil System for Wendelstein 7-X (W7-X) in the framework of the Wendelstein 7-X Project of April 2, 2012 (the "Project Agreement"),

Hereby amend the Project Agreement as follows:

- 1. The fourth paragraph of Article 1 shall be deleted and replaced with the following new paragraph:
  - "Power supplies for the coils (such as five controlled AC-to-DC convertors, controls, cabling, switchgear): Starting from requirements provided by IPP, PPPL will complete the design, fabrication, acceptance testing, delivery to the W7-X site, and commissioning of five power supply units. The power supply units consist of controlled AC-to-DC convertors, local controls, and associated DC switches."
- 2. The chapeau of Article 2 shall be revised to read as follows:
  - "1. The preliminary milestone schedule for the coils is as follows:"
- 3. A new paragraph 2 of Article 2 is added, to read as follows:
  - "2. The preliminary milestone schedule for the power supplies is as follows:

"Table: Power Supply Fabrication

No.	Event	Preliminary Baseline	Status
PS-1.	Project kickoff meeting (U.SIPP)	9 Nov. 2011	Complete
PS-2.	Conceptual Design Review	5 Jan. 2012	Complete
PS-3.	Power Supply Units Final Design Review	15 July 2012	Complete
PS-4.	Award Contract for Power Supply Units	31 August 2012	
PS-5.	Supplier Final Design Review	30 Nov. 2012	
PS-6.	Award Contract for DC disconnect switches	31 Dec. 2012	
PS-7.	All Power Supply Unit received at IPP	30 Aug. 2013	
PS-8.	All DC Disconnect Switches received at IPP	30 Aug. 2013	
PS-9.	Final supplier's report issued to IPP	31 Oct. 2013	
PS-10.	Power supply commissioning completed	30 Sept. 2014	

- 4. Future revisions of Table: Coils Milestone Schedule and Table: Power Supply Fabrication may be made without amendment of this Project Agreement.
- 5. In Article 3, the last two sentences of the first bullet in Section 3.2 shall be deleted and replaced with the following text:

"PPPL will be responsible for design, fabrication, acceptance testing, delivery to the W7-X site, and commissioning (including *in-situ* testing at the W7-X facility) of five power supply units. PPPL will procure the power supply units from industrial suppliers. PPPL will maintain technical responsibility for the power supply units through completion of commissioning".

6. In Article 3, the last bullet of Section 3.3 shall be deleted and replaced with the following text:

"Installation of the U.S.-provided equipment in the W7-X facility at IPP."

7. In Article 3, a fourth bullet shall be added to Section 3.3 to read as follows:

"Implementation of W7-X Trim Coil Power Supply infrastructure, consisting of AC power, cooling water, and central controls; and supporting PPPL in the commissioning of the power supply units."

8. This Amendment to Project Agreement shall enter into force upon signature.

IN WITNESS WHEREOF, the Parties have executed this Amendment to Project Agreement in duplicate.

FOR THE UNITED STATES DEPARTMENT OF ENERGY:

Edmund Synakowski Associate Director

for Fusion Energy Sciences

Office of Science

FOR THE MAX PLANCK INSTITUTE FOR PLASMA

PHYSICS:

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Christina Wenninger-Mrozek

Managing Director

Date: Low 5, 202
Place: Washington D.C.