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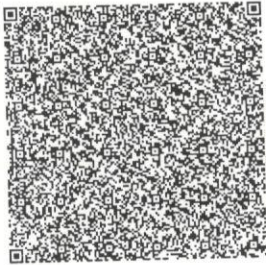
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INDIA NON JUDICIAL

Government of National Capital Territory of Delhi

e-Stamp

Certificate No.	: IN-DL202598626015180
Certificate Issued Date	: 26-Feb-2016 09:53 AM
Account Reference	: IMPACC (IV)/ dl804703/ DELHI/ DL-DLH
Unique Doc. Reference	: SUBIN-DL804703392132792532210
Purchased by	: NTPC LTD
Description of Document	: Article 5 General Agreement
Property Description	: Not Applicable
Consideration Price (Rs.)	: 0 (Zero)
First Party	: NTPC LTD
Second Party	: IIT DELHI
Stamp Duty Paid By	: NTPC LTD
Stamp Duty Amount(Rs.)	: 100 (One Hundred only)



Please write or type below this line.....

RESEARCH AGREEMENT

This Agreement is made and entered into as of 29th day of February 2016 at Delhi by and between

NTPC Limited, a company incorporated under the Companies Act, 1956, having its registered office at NTPC Bhawan, SCOPE complex, 7 Institutional Area, Lodhi Road, New Delhi 110003, (hereinafter referred to as NTPC which expression shall, unless the context requires otherwise, include its successors and permitted assigns), of the First Part;

AND

Indian Institute of Technology Delhi, a research and educational institution in technology and engineering disciplines established by a special Act of Parliament of Republic of India having its office at Hauz Khas, New Delhi-110 016, India, hereinafter referred to as 'IITD', of the SECOND PART.

NTPC and IITD are collectively referred to herein as 'Parties' and individually as a 'Party'.

Whereas **NTPC** is a premier power generating company in India having experience and strength in areas such as setting up, engineering, project management and its implementation and operation and maintenance of power projects and sale of power. NTPC has developed comprehensive in house expertise in various faces of power generation from concept to commissioning, efficient operation to nurturing of ecology, research and development. NTPC have considerable R&D experience in the area of Solar Thermal, Solar PV. Modelling and Simulation of power plant processes, Waste heat recovery, Robotics, sensors, water chemistry, environment etc. NTPC will be represented by its R&D wing "NTPC Energy Technology Research Alliance" hereinafter referred as NETRA.

Whereas IITD is among the premier research and development (R&D) institutions in India and a centre of excellence in higher learning, research and development.

Whereas both Parties hereto have agreed to jointly work on Projects in topics of mutual interest as defined below and develop Products under terms and conditions mutually agreed upon by the Parties and

Whereas the Parties desire to record the broad terms and conditions that are jointly accepted and agreed to in this Agreement as contained hereunder.

1. DEFINITION

- a. 'Projects' shall mean and include the individual Projects under the Agreement, the terms and conditions for execution of each of which shall be jointly agreed upon, in writing.
- b. NTPC know-how' shall mean and include all know-how of methods, material, software, designs, patterns, formats, proprietary technical literature, and information developed, owned and provided by NTPC, which are required for the Projects.

- c. 'IITD know-how' shall mean and include all know-how of methods, material, software, designs, patterns, formats, proprietary technical literature, and information developed, published or otherwise owned and provided by IITD, which are required for the Projects.
- d. 'NTPC Personnel' shall mean the personnel or research and development engineers of the NTPC deputed for the Projects.
- e. 'IITD Personnel' shall mean the faculty members and / or scientists and / or students and / or staff of IITD deputed for the Projects.
- f. "Principal Investigator" shall mean the individual, employee of IITD, having the responsibility of conducting and supervising the Project(s) under this agreement.
- g. "Co-Investigator" shall mean the individual(s) participating in the Project(s) under the supervision of Principal Investigator, including, but not limited to, students, employees, representatives, and agents.
- h. "Project Investigator Team" shall comprise the Principal Investigator and the Co-Investigators participating in the Project(s) under this agreement.
- i. 'Research Results' shall mean the results, software, hardware or other deliverable generated as a result of work to meet the objectives of the Projects funded by NTPC.
- j. 'NTPC-IITD Research Programme' shall mean the activities envisaged under this Agreement.

2. REPRESENTATIONS AND WARRANTIES

Each of the Parties severally represents and warrants to the other as of date hereof that:

- (a) It is permitted by its respective charter and documents bringing it into existence / incorporating documents, to enter into this Agreement and is not restrained, prevented or inhibited by any contract or arrangement to which it is a Party from entering into this Agreement or undertaking the obligations herein contained.
- (b) Its signatory to this Agreement is duly authorized by the Party for and on whose behalf he/she is signing this Agreement to execute the same in a manner binding upon the said Party and all approvals and procedures necessary for vesting such authority in him/her have been duly obtained and complied with.
- (c) It has obtained all corporate authorizations and all other applicable Governmental, statutory, regulatory consents, licenses, authorizations, waivers or exemptions required to empower it to enter into this Agreement and to perform its obligations under this Agreement.

3. AREAS OF COLLABORATION

3.1 The parties agree to collaborate in, but not limited to in the following said areas;

- a. Simulation & Modeling
- b. Heat Transfer & Thermal Process
- c. Artificial Intelligence
- d. Computational Fluid Dynamics
- e. Solar PV
- f. Power Electronics & Renewable Integration
- g. Any other area of common interest

3.2 Support and Services:

- a. Strengthening of existing lab and infrastructure of NETRA
- b. Sharing of facilities and expertise.

4. SCOPE OF AGREEMENT

NTPC and IITD shall work jointly to carry out Projects in the areas mentioned in Sr no. 3 above with specific objectives, under terms and conditions to be jointly agreed under the agreement, other than the terms and conditions incorporated under this agreement.

5. ACTIVITIES AND OBLIGATIONS OF NTPC

- a. NTPC shall be responsible for providing the funds required for the Projects, as identified in each Project. NTPC may depute appropriate NTPC personnel to participate in the Projects, as per mutual agreement. NTPC shall bear all the costs associated for deputing its personnel in the projects.
- b. NTPC shall, subject to availability, consider providing accommodation to the IITD personnel during their visit to the premises of NTPC.
- c. NTPC will provide NTPC know-how, which may be deemed necessary for the Projects.

6. ACTIVITIES AND OBLIGATIONS OF IITD

- a. IITD will undertake the activities as defined in the individual Project objectives and schedules as agreed upon.
- b. IITD may depute appropriate IITD personnel to participate in the Projects, as per mutual agreement. IITD shall bear all the costs associated for deputing its personnel in the projects.
- c. IITD shall, subject to availability, consider providing accommodation to the NTPC personnel during their visit to the premises of IITD.

7. FORMATION OF JOINT WORKING GROUP:

The Parties, upon signing of this MoU, will constitute a Joint Working Group (JWG) to facilitate the initiation of collaborative Projects under this Agreement. JWG will have Heads from two

relevant departments at IITD and relevant member from NTPC at similar levels. JWG shall meet once every six months for a review of the status update on ongoing projects and recommendation of new projects. The Parties shall have the right to replace, at any point of time, the person nominated by it in the JWG.

8. PROJECT MANAGEMENT:

Each project shall be initiated by the preparation of a separate project proposal covering objectives, methodology, novelty, milestones, timelines, deliverables, licensing terms if any and division of responsibilities, schedule of payment, consultancy from third parties (if any), etc. and submitted to the JWG for its consideration. Proposals recommended will be then forwarded to NTPC for approval and sanction of funds. The approved proposals after sanction (Projects) will be included as Annexures to this Agreement. These Projects will be bound by the terms and conditions of this Agreement.

9. FINANCIAL AND OTHER ARRANGEMENTS

The consideration payable to IITD for individual Project cost and the schedule of payment would be as mutually agreed upon for each Project. Any other Project related payment will be as per mutual agreement. Financial arrangements related to Intellectual Property Rights sharing will be as spelt in clause 14.

10. ASSIGNMENT

The Parties hereto shall not transfer or assign any of their rights and obligations under this Agreement to any other party without obtaining prior consent in writing from other Parties hereto.

11. TERM / DURATION

This Agreement shall be initially valid for a period of five years from the date of signing of this agreement. The Parties may extend the term of this Agreement for additional periods as desired under mutually agreeable terms and conditions which shall be reduced to writing and signed by the Parties.

12. TERMINATION


Any of the Parties may terminate this Agreement by serving a written notice on the other Parties six months prior to the intended date of termination provided that the termination by either of the parties shall not relieve that party of its obligations accrued prior to such termination, under a specific Project.

13. NOTICES

All communications by NTPC involving financial, administrative and other matters shall be sent to Dean R&D, IIT Delhi. All communications by IITD involving financial, administrative and other matters shall be sent to Executive Director NTPC-NETRA. All information of scientific and technical nature may be exchanged directly between the Project Investigator from IIT Delhi and appropriate NTPC personnel as identified in writing, for the Project concerned.

14. INTELLECTUAL PROPERTY (IP) AND COMMERCIAL RIGHTS

- a. Any foreground IP generated including inventions or discoveries made or conceived during the performance of a Project under this Agreement, or any patent granted on such invention, shall be owned jointly by NTPC and IITD. NTPC and IITD can utilize the IP for their internal non commercial use.
- b. With regard to commercialisation of the foreground IPs generated under this Agreement, the parties agree as follows:
 - i) Every foreground IP generated out of a Project undertaken under this MoU will be disclosed by IITD to NTPC, based upon disclosure made by the researchers to IITD.
 - ii) NTPC will be granted a first right to receive an exclusive license in respect of foreground IPs, if any, created hereunder, in order to commercialize the technology solutions provided under this Agreement, in consideration of compensation to IITD as under.
 - iii) NTPC will notify IITD its intent to commercialize within one year from the date of disclosure of such foreground IP to it or within such extended time as may be mutually agreed thereto between the Parties.
 - iv) For commercial use of the entire foreground IPs created or conceived in the performance of each Project under this MoU by NTPC on exclusive basis, the amount of compensation shall be a one-time payment of 100% (One hundred percent) of the total cost of the said Project, exclusive of taxes. Other details of the license will be governed through a separate license agreement under terms mutually agreed to. Such payment of compensation shall be due at the time of entering into the said license agreement.
 - v) If NTPC conveys that it does not intend to commercialise the foreground IP, as stated in clause i) hereinabove, within a period of one year or any other mutually agreed further periods, IITD shall, with prior permission from NTPC, which permission shall not be unreasonably withheld, be permitted to offer the relevant foreground IP to any other third party for commercialisation.
 - vi) Any revenue generated resulting from such licensing of foreground IP as in v) shall be shared equally between IITD and NTPC.
 - vii) The aforesaid provisions shall survive the termination of this Agreement.


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- c. All expenses incurred in obtaining and maintaining the entire joint foreground IP including patents in India / outside India, shall be borne by NTPC.
- d. In the case of joint Intellectual Property between IITD and NTPC, neither party may assign any rights to any third parties without the consent of the other party, which shall however not be unreasonably withheld.
- e. Any modification / further development of the Results obtained from the Projects under this agreement, by the NTPC shall be done with the explicit written consent of IITD.
- f. This agreement does not affect the ownership of any Intellectual Property in any background IP already owned by either party or in any other technology, design, work, invention, software, data, technique, know-how, or materials that are not Research Results of projects carried out under this agreement. The Intellectual Property in them will remain the property of the Party that contributes them to the Project.
- g. For commercial use of any background IP of IITD by NTPC on exclusive basis, NTPC shall pay fair compensation as agreed to mutually on a case to case basis.

15. CONFIDENTIALITY

- a. It may be necessary for IITD and NTPC to disclose to or exchange with each other proprietary information relating to IITD know-how and NTPC know-how, which are confidential and proprietary. The disclosing party shall advise authorized personnel of the receiving party appropriately regarding the confidential nature of the information disclosed. The Party receiving such confidential or proprietary information shall not, unless specifically permitted in writing by the Party providing the said information, disclose in whole or part any such confidential or proprietary information or divulge any information thereon to any person other than its Personnel for fulfilling the purpose of this Agreement. The disclosure to any such Personnel as aforesaid, of any such confidential or proprietary information, shall be in confidence and only to the extent necessary for carrying out the obligations herein.
- b. The obligations of confidentiality set forth above shall be applicable for two years from the termination of the relevant Agreement
- c. The obligations of confidentiality however shall not apply to information that:
 - i. is not disclosed in writing or reduced to writing and marked with appropriate confidentiality legend within thirty (30) days after disclosure;
 - ii. is already in the recipient party's possession at the time of disclosure;
 - iii. is or later becomes part of the public domain through no fault of the recipient party;
 - iv. is received from a third party having no obligations of confidentiality to the disclosing party;
 - v. is independently developed by the recipient party; or
 - vi. is required by law or regulation to be disclosed.

16. ARBITRATION, APPLICABLE LAW AND JURISDICTION

- a. Any disputes between the parties shall be resolved by mutual discussions. Unresolved disputes, if any, shall be subject to resolution by a panel consisting of the Director, IITD, who shall represent IITD, and Director (Technical), NTPC, who shall represent NTPC.
- b. If the dispute cannot be resolved by the said panel, the matter shall be referred to arbitration by a Sole Arbitrator mutually appointed by NTPC and IITD. The venue of arbitration shall be Delhi if either party initiates a dispute. The Arbitration shall proceed in accordance with Arbitration and Conciliation Act, 1996 in the English language.
- c. This Agreement shall be governed by the Laws of India.

17. GENERAL

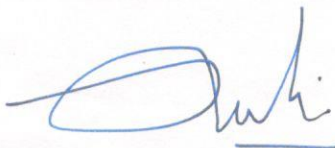
- a. The terms and conditions for publication of the research results in journals / conferences, and / or patenting or copyrighting the Research Results shall be mutually agreed upon.
- b. Any addition, deletion and / or alteration to this Agreement may be effected with a written agreement of all the Parties to this Agreement concerning the amendments. A document containing the additions, deletions and/or alterations, and signed by all Parties hereto, shall form an annexure to and be deemed to be a part of this Agreement.
- c. The headings of various clauses herein are inserted for convenience of reference and are not deemed to affect the meaning or construction of relative provisions.
- d. This Agreement and its Appendices constitute the entire agreement among the Parties' and supersede all other representations, understandings or communication whether written or verbal, with respect to the subject matter hereof.
- e. Assignment - This Agreement would be binding upon and would inure to the benefit of the Parties, their successors and permitted assigns and neither this Agreement nor any interest herein nor any rights or obligations hereunder, may be assigned or transferred in whole or in part by any Party without the prior written consent of the other Party.
- f. Partial Invalidation - If any term of the provisions of this Agreement to any extent, becomes/declared invalid or unenforceable under any circumstances, the remaining terms and provisions shall not be affected thereby and shall be valid, effective and enforced to the fullest extent as permitted under the Government rules and the law of this country.
- g. Schedules/Annexures - All schedules/annexures to this Agreement shall constitute an integral part of this Agreement.

18. FORCE MAJEURE

Neither party shall be held responsible for non-fulfillment of their respective obligations under this Agreement due to the exigency of one or more of the force majeure events such as but not limited to acts of God, War, Flood, Earthquakes, Strikes not confined to the premises of the party, Lockouts beyond the control of the party claiming force majeure, Epidemics, Riots, Civil Commotions etc. provided on the occurrence and cessation of any such event the party affected thereby shall give a notice in writing to the other party within one month of such occurrence or cessation. If the force majeure conditions continue beyond six months, the parties shall jointly decide about the future course of action.

IN WITNESS WHEREOF, the Parties hereto have set and subscribed their respect; hands and seal on the day, month and year first herein above mentioned.

FOR AND ON BEHALF OF IITD




(DEAN R&D IITD) 29 Feb 2016
Authorised Signatory सुनीत तुली
Name: PROF. SUNEET TULI
संकायाध्यक्ष, अनुसंधान एवं विकास
Dean (Research & Development)
भारतीय प्रौद्योगिकी संस्थान, दिल्ली
Address: Indian Institute of Technology, Delhi
हौज़ खास, नई दिल्ली-110016
Hauz Khas, New Delhi-110016

FOR AND ON BEHALF OF NTPC LTD

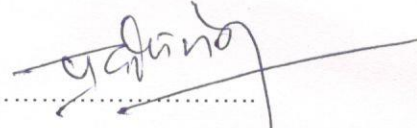


(Executive Director NETRA)
Authorised Signatory
Name: आर.के. श्रीवास्तव R.K. SRIVASTAVA
कार्यकारी निदेशक EXECUTIVE DIRECTOR
एन टी पी सी लिमिटेड / NTPC Limited
Address: भारत सरकार का उपक्रम / A Govt. of India Undertaking
Plot No. 3, Block-E, Udyog Vihar Ecotech-II
Greater Noida, Gautam Budh Nagar (U.P.)-201306

IN THE PRESENCE OF WITNESS

1. Signature 
Name: S.P. Singh
Dept of mercury
Address: IIT Delhi

IN THE PRESENCE OF WITNESS

2. Signature 
Name: Dr. Pradeep Jami
Address: NTPC - NETRA