



भारत हेवी इलेक्ट्रिकल्स लिमिटेड

कारपोरेट अनुसंधान और विकास, विकासनगर, हैदराबाद - 500 093

Bharat Heavy Electricals Limited

Corporate Research & Development, Vikasnagar, Hyderabad - 500 093., INDIA

Kulvir Singh, Ph.D.
Addl. General Manager/ AMN

कार्या / Phone 040-23882371
निवास / Res
टेलिक्स / Telex
फैक्स / Fax 040-23776320
ईमेल / E-mail kulvir@bhelrnd.co.in

12.10.2015

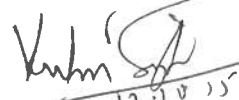
Dear Prof Parida,

Sub: BHEL-IIT Roorkee MoU signing - reg

Thank you very much for your help and support in getting the BHEL-IIT Roorkee MoU finalized at IIT Roorkee. Two sets of original MoU duly signed by Executive Director (R&D), BHEL, Hyd are enclosed herewith. It is requested to arrange for getting them signed. One set may be retained at IIT Roorkee and the other may be sent to us.

Thanking you and with best regards,

Yours sincerely,


(KULVIR SINGH)
12.10.15

Addl. General Manager/ AMN

Prof. Manoranjan Parida
Dean (Sponsored Research & Industrial Consultancy)
Indian Institute of Technology Roorkee
Roorkee-247667
Phone: 01332-285245

PS. Pl. incorporate date of signing on page 1 & 10.

AR (SRIC)

Pl. process



19.10.2015



తెలంగాణ తెలంగాణ TELANGANA

4364 Date: 20-04-2015 Rs. 100/-

D TO: Kulvir Singh s/o. Jagdish Singh
WHOM: -self. Ho. Secunderabad.

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CH. SHASHI REKHA
LICENCED STAMP VENDOR
Lic.No. 15-23-009/2011
Ren.Lic.No. 15-23-028/2014
H.No. 6-10-9/302, VINAYAKNAGAR,
BALANAGAR, R.R. DISTRICT
Ph.No. 9848470731

MEMORANDUM OF UNDERSTANDING (MoU)

This MEMORANDUM OF UNDERSTANDING FOR RESEARCH AND DEVELOPMENT (hereinafter referred to as the "MoU") is made and entered into on thisday of 2015 by and among:

BHARAT HEAVY ELECTRICALS LIMITED (a Maharatna Public Sector Undertaking of Government of India), having its Registered Office at 'BHEL House' Siri Fort, NEW DELHI-110049 acting through its Research & Development Centre at Vikasnagar, HYDERABAD- 500093 (hereinafter referred to as "BHEL" which expression shall mean and include its successors and permitted assigns) represented by Director (E, R&D)/ its duly authorized representative (*as applicable*), of the FIRST PART;

AND

Indian Institute of Technology, Roorkee, a Premier Academic Institution of International Repute and having its registered office/principal office at Roorkee - 247667 (hereinafter referred to as "IIT Roorkee", which expression shall mean and include its successors and permitted assigns) and represented by its Dean/ SRIC or a duly authorized representative, of the SECOND PART;

BHEL and IIT Roorkee are referred to as the "Party" individually or "Parties" collectively, as the context may demand.

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WHEREAS, BHEL is a premier Heavy Electrical Engineering company operating through several manufacturing units and power sectors in India and having large product manufacturing, marketing / servicing networks and a Corporate Research and Development (R&D) Division of international repute.

AND WHEREAS, BHEL has its Corporate Research and Development (R&D) Division at Hyderabad and Research and Product Development (RPDs) groups located at various manufacturing divisions engaged in R&D of steam turbines, gas turbines, hydro turbines, boilers, pulverizers, heat exchangers, turbo generators and alternators, equipment for transmission and distribution of power and industrial drives, non-conventional energy systems, transportation systems like electric locomotives and traction equipment, C&I systems etc. BHEL is equipped with extensive state of the art laboratories and pilot plant facilities for undertaking research and development projects in advanced materials for supercritical applications, nano materials, surface coatings, robotics, acoustics, noise control, turbo machinery, Computational Fluid Dynamics (CFD), electrical machines, cryogenics and similar other areas of relevance to BHEL. The strength of BHEL lies in its vast reservoir of highly qualified engineers and scientists.

AND WHEREAS BHEL constantly explores and identifies technology resources to address specific science and engineering challenges. The challenges are resolved through collaborative research with academic experts / educational institutions. Specific research projects are undertaken based on the need, availability and willingness of identified knowledge experts. Usually the award of a collaborative research project follows from extensive techno-commercial discussions and agreements.

AND WHEREAS, IIT Roorkee, one of the premier academic institutions of the country, possessing a team of highly competent, motivated scientists / engineers, engaged in teaching and carrying out basic and industrial research of significance to develop cutting edge technologies have agreed to pursue joint opportunities for research & development in areas of interest to BHEL.

AND WHEREAS BHEL and IIT Roorkee have agreed to cooperate & collaborate and pursue industrial/ application oriented RESEARCH PROGRAMMES promoting education, industrial research, innovation etc through BHEL funding by supporting research programs / fellowships.

WHEREAS to pursue this co-operation and collaboration, BHEL and IIT Roorkee have arrived at the following general understanding on terms and conditions which would be further detailed in the project specific Memorandum of Agreement ("MoA").

NOW THESE PRESENTS WITNESS AND IT IS AGREED BY AND BETWEEN THE PARTIES HERETO AS FOLLOWS:

1. DEFINITIONS

Unless repugnant to the subject or context thereof, the following expressions with their grammatical variations herein used shall have the meanings ascribed hereunder:

- a) "Intellectual Property Rights" means the rights to patent(s), copyright(s), design(s) and other intellectual property whatsoever (whether qualifying for registrations or not) with respect to the research work.
- b) "Back ground Intellectual Property" refers to intellectual property already created by BHEL and IIT Roorkee prior to entering into this MoU.

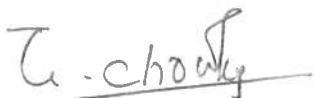




- c) "New Developmental Intellectual Property" refers to intellectual property developed during the research activities under this MoU.
- d) "Technical Information" means any and all information, confidential or otherwise, such as designs, drawings, data, process, know-how, software, algorithms and other information in whatsoever form, tangible or intangible, generated prior to and during the execution of this MoU.
- e) "BHEL Research Fellow" (BRF) refers to (i) Employees of BHEL selected as per the student admission guidelines of IIT Roorkee to pursue masters degree/research/ or post doctoral research with IIT Roorkee; (ii) regular research students of IIT Roorkee (non-BHEL employees) selected to receive a BHEL Research Fellow award (scholarship) in order to pursue their post doctoral program, research and/or masters degrees at IIT Roorkee and (iii) Employees of BHEL deputed to IIT Roorkee for undertaking Joint Research. All BHEL Research Fellows will abide by the guidelines in the student "hand book" of IIT Roorkee.
- f) "Research Project" shall mean each specific research project undertaken in collaboration by BHEL and IIT Roorkee.
- g) "MoA" shall mean Memorandum of Agreement to be executed for each Research Project by BHEL and IIT Roorkee.
- h) "Project Coordinator" shall mean representative appointed by BHEL/ IIT Roorkee to coordinate and monitor each Research Project and perform other functions as described in this MoU and or respective MoA.
- i) "Project Investigator" shall mean representative appointed by BHEL/ IIT Roorkee to undertake Research Project activities at BHEL/ IIT Roorkee and perform other functions as described in the respective MoAs.
- j) "Project cost and charges" shall have the meaning as described in para 3.1.1 herein below.
- k) "Project grant" shall mean external funding for the Research Project from GOI/ Govt agencies/ Foreign Govts and agencies/ Indian or Foreign Corporates or Not-for Profit organizations. In case of Contract research as per para 2.1 (i) Project grant shall mean funding for the Research Project provided by BHEL.
- l) "Project Review Committee" shall consist of representatives from both the Parties to review the progress of the areas covered under this MoU and respective MoA's.
- m) "Research areas" means list of mutually agreed areas of research for the Research Projects to be proposed by BHEL in consultation with IIT Roorkee during the tenure of this MoU.

2. OBJECTIVES OF THE MoU

The Parties agree to strive to achieve the following objectives:





- 2.1 The mode of collaboration could be in the form of (i) contract research wherein research work is assigned to IIT Roorkee by BHEL, (ii) joint development involving both the parties and/or (iii) undertaking "Research Projects" along with mutually agreed other chosen partners which could include academia / research institutes/ industry in consortium approach or any other special arrangement.
- 2.2 To jointly initiate Research and Development (R&D) relevant to Energy, Transportation, Transmission and Industry Sectors and other areas with involvement of both academia and industry,
- 2.3 To collaborate for promotion of research, innovation and education and provide a model for industry-academia partnership,
- 2.4 Collaborate to identify key R&D areas (knowledge generation, know-how update, technology exploration, systems development, novel or new technology resources, applied research etc.) for the immediate and future requirements of BHEL.
- 2.5 Enhancement of capabilities of available BHEL staff and quality of research work at BHEL R&D Centres.
- 2.6 BHEL to provide practical research topics and facilities to IIT ROORKEE's students/ researchers to enable them to take up studies/Research Projects in the areas of BHEL's interest. IIT ROORKEE and BHEL to extend their technological and infrastructural facilities to each other according to mutually agreeable terms.
- 2.7 To facilitate exchange between technical experts of BHEL and faculty from IIT ROORKEE giving each other an opportunity to learn and contribute leading to knowledge enrichment for mutual benefit.
- 2.8 Any other objective promoting these causes as mutually agreed between the Parties.
3. SCOPE OF MoA

For each Research Project, a Memorandum of Agreement shall be entered into between the Parties covering specific and detailed objectives of the Research Project, respective scopes of IIT Roorkee and BHEL (deliverables from both the parties), details of equipment, instruments, software and Background Intellectual Property that may be required for the research work (purchased / leased from open market), details and extents of specific man-power to be deployed, sequence of activities (e.g.; literature survey, discussions of state-of-art of any technology, experimentation, simulation, modeling, analysis, data interpretations, validation, discussions on results, conclusion, etc).

The MoA shall spell out the intended research programme, the activities and time schedules, total duration of the project and project milestones, names & role of Project Investigators involved (from either side), other special terms & conditions (linked to milestones and part payments), date of commencement of research work and planned dates of completion of research programme etc. A specimen MoA blank format is attached at the end of this document.

The terms and conditions of this MoU are incorporated by reference into each MoA executed by the Parties. This MoU and the respective MoAs shall together comprise a binding written





Agreement between the Parties, effective as of the date of mutual execution of the MoA. However, in case of any conflict between the MoU and MoA, the MoA shall prevail.

Parties may extend the validity of this MoU till such time any of the MoAs are subsisting.

4. FINANCIAL TERMS

4.1 Research Project cost and charges

4.1.1 The Research Project cost and charges for the scope of work of IIT Roorkee (hereinafter referred to as "project cost") include inter alia payment to technical and non-technical manpower, expenses for equipment utilization, IIT Roorkee's overhead costs, cost of local and out station travel, accommodation, contingencies, taxes, additional taxes (like CESS etc), duties and other costs not expressed or identified or as agreed in the MoA.

4.1.2 Payment of the project cost will be made to IIT Roorkee, for each MoA in three installments as given hereunder, unless otherwise specified in the respective MoA:

i. First installment : 25% of the total project costs as agreed in the MoA to be paid on identification of research team/commencement of the work and submission of a preliminary/feasibility report (First Milestone).

ii. Second installment: 50% of the total project cost as agreed in the MoA to be paid on IIT Roorkee's claim and BHEL's acceptance of completion of a group of agreed activities (Second Milestone).

iii. Third and Final installment: 25% of the total project cost as agreed in the MoA to be paid on submission of project status report and IIT Roorkee's claim for this installment and BHEL's acceptance of completion of a group of agreed activities (Third Milestone).

4.1.3 IIT Roorkee shall provide necessary information, certificates and documents to BHEL regarding any concessions / exemptions applicable under Customs, C-excise, Service Tax and Income Tax Laws. The rebate, if any, shall be transferred fully to BHEL by way of reducing the total project cost.

4.2 PROJECT GRANT FELLOWSHIPS

4.2.1 To carry out work for the Research Project within the specified duration, IIT Roorkee is free to engage personnel (project associates) besides the BRF's who would be engaged exclusively for an the Research Project. BRFs identified to work on Research Projects related to this MoU can be working on masters, doctoral or post doctoral program of IIT Roorkee as per IIT Roorkee rules and regulations. The BRFs shall not engage themselves with any other project/ activity at IIT Roorkee and shall solely work for Research Project

4.2.2 BRFs/ project associates identified under specific MoAs will be paid their scholarship or fellowship grant from Project grants until the tenure of the Research Project. The decision regarding the grant amount for a BRF/ project associates will follow the IIT Roorkee guidelines.

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5. BHEL Endowment Chair:

BHEL may consider establishing a BHEL Endowment Chair at IIT Roorkee at considered one time lump sum payment, (as per IIT Roorkee's guidelines for endowment Chairs) subject to prior approval of competent authority of BHEL and IIT Roorkee.

6. INFRASTRUCTURAL FACILITIES:

6.1 A large part of Research Project shall be carried out at IIT Roorkee including academic courses, as the case may be. The BRF/ project associate may also carry out additional research work at BHEL utilizing available facilities, if required.

6.2 All BRFs/ project associates will follow the discipline and academic performance required by IIT Roorkee as per the guidelines of IIT Roorkee.

6.3 IIT Roorkee shall permit BRF/ project associate/ BHEL engineers access to all resources required to complete the project work including his or her thesis, as the case may be.

7. PERFORMANCE EVALUATION

7.1 BHEL and IIT Roorkee shall jointly review the technical progress of the research work either half yearly or annually with respect to the milestones as per respective MoA's and areas defined under this MoU. A "Project Review Committee" consisting of representatives from both the Parties concerned project managers/ supervisor from BHEL / IIT Roorkee may be constituted for this purpose.

7.2 BHEL shall bear all costs of its representatives in attending the meetings at IIT Roorkee. IIT Roorkee shall bear the costs associated with its representatives visiting or attending meetings held at BHEL, out of the project grant. BHEL / IIT Roorkee shall, subject to availability, consider providing accommodation to the representatives of each other during their visit to the premises of Parties.

7.3 IIT Roorkee Project Investigator will send a quarterly project status report to BHEL Project Review Committee members.

8. COMPLETION OF RESEARCH PROJECT

The completion of Research Project shall be marked by furnishing to BHEL, detailed final project report along with the soft copies and signed hard copies of the documents detailing the findings with the recommendations of IIT Roorkee Project coordinator. Based on the said recommendations by IIT Roorkee Project coordinator, BHEL Project coordinator shall declare the completion of the Research Project or otherwise.

9. INTELLECTUAL PROPERTY

9.1 All Intellectual Property (IP) that is developed or generated under this MoU will be secured and protected by taking all suitable steps by the Parties; BHEL and IIT Roorkee will be the joint owners of the IP and concerned individuals from BHEL and IIT Roorkee shall be the co-inventors/co-authors.

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- 9.2 BHEL shall have full and exclusive rights to use the IP in its existing and new products and services developed or generated under this MoU towards pursuance of its business processes and IIT Roorkee shall provide all necessary support and co-operation to BHEL.
- 9.3 Modalities of non-exclusive commercial exploitation, licensing out such IP developed or generated under this MoU to any other third party, sharing economic benefits arising out of such commercial exploitation etc will be finalized separately through mutually agreed terms and conditions as and when applicable and when needed.
- 9.4 Any publication arising out of the Research Work shall require prior approval of BHEL's Management. Such approvals shall be considered by BHEL on priority basis, preferably within a period of 30 days.
- 9.5 Prior to the publication of the results, all patentable invention/ results contained therein, the same shall be filed for registration at BHEL's costs. Subsequently BHEL will maintain these registered intellectual properties using its existing infrastructure and resources (Fees, Attorneys etc). Responsibility of identification, documenting and filing for registration of such intellectual property shall rest with BRFs, Project coordinators, Project Investigator, and BHEL employee identified for this purpose. BHEL and IIT Roorkee shall mutually ensure the completion of the said process.
- 9.6 Either party shall promptly inform the other party of any infringement or other infraction of the Intellectual Property Rights pertaining to the Technical Information to prevent further breach or infraction or to protect and maintain the Intellectual Property Rights.

10. CONFIDENTIALITY OF TECHNICAL INFORMATION

- 10.1 IIT Roorkee and BRFs/ project associates shall, at all times, treat the "Technical Information", generated and /or acquired by them pursuant hereto in the project as strictly confidential. The Technical Information shall not be disclosed, published, used or applied for any purpose other than those specified in specific MoA and in accordance with the terms and conditions specified herein and even so strictly only to those persons to whom such disclosure is necessary to operate this MoU and the specific MoA.
- 10.2 All information acquired by either party from the other party shall be treated as 'confidential' and shall not be passed on to any third party except with the consent of BHEL.
- 10.3 The terms and conditions of the NDA dated shall be applicable to any and all confidential information or data as described in clauses 10.1 and 10.2 hereinabove.
- 10.4 Disciplinary action will be taken against any BRF found violating confidentiality, his or her candidature may be liable for cancellation as according to the rules of discipline at IIT Roorkee.
- 10.5 On termination of the MoU, each Party shall return all Confidential Information provided by other party under the MoU within thirty (30) days from the date of termination. IIT Roorkee Project coordinator will certify that all Confidential Information from BHEL has either been returned or destroyed without retaining any soft or hard copies.

11. TERMINATION OF THIS MoU

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11.1 BHEL reserves the right to terminate this MoU at any time for reasons including but not limited to non-performance, changes in business scenario, product profile of BHEL, etc, failure to achieve the objectives in this MoU or MoA/s by giving two months notice in writing to IIT Roorkee.

11.2 In the event of premature termination of this MoU, the MoAs already executed under this MoU shall not be affected by such termination and termination of such MoA/s shall be effected only if they are specifically terminated by BHEL in terms of the respective MoAs on case to case basis.

12. FORCE MAJEURE

If either of the Parties suffer delay in the due execution of their contractual obligations due to the operation of the one or more of the force majeure events such as but not limited to, acts of Nature, war, floods, earthquakes, lock-outs, epidemics, riots, etc. the agreed time of completion of the respective obligations shall be then extended by a period of time equal to the period of delay occasioned by such events provided on the occurrence and cessation of any such contingency the party affected hereby shall within ten (10) days thereof give to the other party a notice in writing of such occurrence and cessation. In case, Force Majeure conditions prevail beyond 3 months, BHEL reserves the right to review the Research Project activities being carried out at IIT Roorkee and will be free to terminate this MoU or/and the respective MoA/s.

13. NON-EXCLUSIVITY

The relationship of the Parties under this MoU shall be non-exclusive and both Parties are free to pursue other agreements or collaborations of any kind. However, when entering into a particular MoA, the Parties may mutually agree to limit IIT Roorkee's right to collaborate with others on that subject.

14. GENERAL PROVISIONS

14.1 Subletting/ outsourcing of any part of the activity of the Research Project shall be done only after prior written consent of BHEL. The grant of permission in such cases will not absolve or affect the obligation of the Parties under this MoU.

14.2 Invalidity of any provision hereunder or contravention thereby of any law, rule or regulation shall not affect the validity of other provisions.

15. AMENDMENTS

Amendments: No amendment or modification of this MoU shall be valid unless the same is made in writing and signed by the authorized representatives of both the Parties. The modifications /changes shall be effective from the date on which they are made / executed, unless otherwise agreed to.





16. ADDRESSES OF THE PARTIES AND COMMUNICATION

16.1 All notices and other communications required or permitted under this MoU shall be deemed to be properly given when given in writing and sent by registered post, by facsimile and confirmed by mail postage prepaid, to the designated Party at the addresses set below, or at such other address as the addressee-PARTY may in writing designate from time to time for these purposes.

IIT Roorkee : Roorkee - 247667

BHEL : Corporate R&D, BHEL, Vikasnagar, Hyderabad-500093

16.2 Communications by BHEL involving financial and administrative matters are to be sent to Registrar/ Director, those relating to technical communication of Research Project activities sent to IIT Roorkee Project Coordinator. Information of a scientific and technical nature may be exchanged directly with and among scientists of the Parties.

17. EFFECTIVE DATE

17.1 The effective date shall mean the date this MoU is signed by both the parties and the MoU shall continue to remain in force for a period of 5 years unless terminated earlier.

17.2 The Parties further agree that if any MoA is in effect at the time of the expiration or termination of this MoU, then this MoU as it applies to such MoA/s only, the term of this MoU will be automatically extended until the expiration or termination of such MoA and all the terms and conditions of this MoU shall continue to apply to such MoAs during the subsistence of the respective MoA.

18. SETTLEMENT OF DISPUTES

18.1 In the event of disputes arising from this MoU or in connection with its execution, the Parties undertake to endeavour to settle these amicably. However, if the Parties fail to resolve the disputes amicably, all disputes arising out of or in connection with this MoU shall be finally settled under the Arbitration and Conciliation Act, 1996 or amendments thereof by a sole arbitrator appointed by Unit head of BHEL . The arbitrators shall be fluent and well conversant with the English language. The arbitration proceedings shall be conducted in English language. Documents shall be submitted in English. The arbitrators shall give a reasoned award. The decision of the arbitrators shall be final and binding upon the Parties. The seat of arbitration shall be New Delhi, India.

18.2 Work under this MoU shall be continued by IIT Roorkee during the arbitration proceeding unless otherwise directed in writing by BHEL, or unless the matter is such that the work cannot be continued until the decision of the arbitrator/s is obtained and save as those which are otherwise expressly provided in the MoU.

19. APPLICABLE LAW

This MoU shall be construed, interpreted and governed by the Laws of India, Courts at Delhi shall have exclusive jurisdiction. subject of course to the arbitration clause.

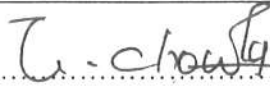






20. SIGNATURES OF PARTIES

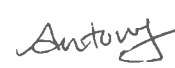
The MoU has been executed in two originals one of these has been retained each by BHEL and IIT Roorkee.

Signed on thisday of 2015 by the Parties to this MoU

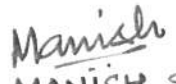

BHEL	IIT Roorkee
 <p>Name: Dr U K Choudhury Designation: Executive Director Corporate R & D (अनुसंधान विभाग) / Dr. U.K. CHOUDHURY Executive Director (R&D) बी.एच.ई.एल., अनु.एवं.वि. / BHEL (R&D) विकासनगर / VIKASNAGAR हैदराबाद / HYDERABAD - 500 093.</p>	 <p>Name: Prof M Parida Designation: Dean, SRIC कूलशासक / Dean Indian Institute of Technology Roorkee ROORKEE - 247 667 भारतीय प्रौद्योगिकी संस्थान रुड़की Indian Institute of Technology Roorkee Roorkee - 247 667, Uttarakhand, India</p>

Witnesses (Name & Address)

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KULVIR SINGH
AGM/AMN, Corp R & D, BHEL, Hyd-1.
- 

Antony Harrison m.c
Engineer/ MTL, Corp R&D, BHEL
Hyd- 93


 MANISH SHRIKHANDE
 Prof., Dept. of Earthq. Engg., IIT Roorke

 Pradeep Bhargava
 Professor, Civil ENCG IIT Roorkee

