

**NOTICE INVITING EXPRESSION OF INTEREST
FOR
TRANSFER OF TECHNOLOGY FOR “STATCOM TECHNOLOGY”**

EoI No: NaMPET-III/STATCOM/EoI/2022

EoI release date: 10/11/2022



**Centre for Development of Advanced Computing (CDAC)
Thiruvananthapuram**

1. Introduction

National Mission on Power Electronics Technology (NaMPET) is a programme launched by the Ministry of Electronics and Information Technology (MeitY), Govt. of India in 2004, with a vision to provide the country with capability to become a dominant player in Power Electronics Technology. Through this Program, Research, Development, Deployment and Commercialization of Power Electronics Technology is envisaged by enhancing the indigenous R&D expertise and infrastructure in the country with active participation from academic institutions and industries. Centre for Development of Advanced Computing (CDAC), Thiruvananthapuram, a premier R&D organization under MeitY, is the Nodal Centre for coordinating the activities of NaMPET. Two phases of this National level program each with 5-year duration has been successfully completed. MeitY initiated the Third phase of NaMPET (NaMPET Phase-III) in January 2019 for five years aiming further strengthening of the power electronics technology base in the country, through this phase of NaMPET STATCOM for IT park and DSTATCOM has been successfully developed and commissioned.

2. About STATCOM Technology

Power Quality is a measure of deviation in voltage, current and frequency of an electric distribution system. Poor power quality leads to equipment damage/failure, derating of distribution network and associated subsystems, network losses leading to reduction in efficiency etc. Loads with large reactive power burden, nonlinear loads generating harmonics, unbalanced loads etc. are the major causes for power quality issues.

The STATCOM can be treated as a power electronic version of the synchronous condenser. It is also connected in shunt to the Point of Common Coupling (PCC) and is operated as a variable current source. The STATCOM physically comprises a three phase, voltage source inverter configured with fully controlled semiconductor switches. On the ac side, it is connected to the PCC terminals through series inductors, which is required to maintain two voltage sources at both ends. The inductors also filter the switching harmonics generated by the inverter switching. With this configuration, it is possible to transact both active and reactive power with the PCC. If active power is to be delivered, an energy source like a battery or a fuel cell needs to be connected across the dc bus. Otherwise, for only reactive power requirements, a capacitor across the dc bus is sufficient to maintain proper operation. The reactive power delivered is independent of the PCC voltage magnitude and it can deliver its rated reactive current even under subdued PCC voltages. In this respect, it is a good improvement over the SVC. If the STATCOM devices are able to switch fast enough, it can also be used to inject harmonic current into the PCC and operated as an active harmonic filter. The advantage of the active filter over the passive, tuned variety is that it can inject current of the multiple harmonic, can be made to track the harmonic current of the load by proper control and is immune to interference by resonant network modes. Therefore, it is an effective reactive power generator and a good harmonic filter, suitable for distorted utility conditions.

Technology features

- ✓ 4 – wire STATCOM topology
- ✓ Novel control scheme for Neutral Current Compensation
- ✓ Power converter packaging with multilayer bus plates

- ✓ DSP-FPGA based digital controller
- ✓ Maintains neutral current below 5% of Phase currents
- ✓ Ensures near Unity Power Factor at grid and brings down Maximum Demand (MD)
- ✓ Harmonic current filtering in compliance with IEEE std 519-1992
- ✓ Programmable task priorities for Neutral current, Unbalance current, Reactive current and Harmonic current compensation.

3. Application Areas

This technology will be very much suitable for IT parks, arc furnace, Process industries, Traction, hospitals, etc to mitigate PQ issues due to neutral current, unbalance current, harmonic current and reactive current present in the load.

4. Technology Transfer

The technology will be transferred on non-exclusive basis. The technology fee will be finalized at a later stage.

The ToT package contains the following

1. Document(s) for technology know-how and fabrication, schematics of the system
2. Bill of Materials of the system
3. Support for the development and function of proper unit testing and validation
4. Technical support for a period of 6 months

5. General terms and conditions

1. An expert committee constituted by MeitY/C-DAC will scrutinize the applications for follow-up action.
2. The applicants may be called for a presentation regarding their strengths and business proposals
3. All incidental expenditure incurred in preparation/ submission or presentation of the EoI shall be borne by the participating agency
4. Participation in this EoI does not guarantee any association with C-DAC unless notified by MeitY/C-DAC in writing.
5. MeitY/C-DAC reserves the right of rejecting any offer without assigning reasons.
6. There is neither a business guarantee nor any commitment for funding support from MeitY/C-DAC to the appointed/ empanelled agencies.
7. A Committee of experts constituted by MeitY/C-DAC will assess capabilities and strengths of the industry before finalizing the technology partners.
8. The industry willing to take technology for commercial production will be required to enter into a ToT agreement with C-DAC as per the terms and conditions approved by the competent authority in the MeitY in the prescribed format.

6. Eligibility

Industries with experience in productisation of Power Electronics Technology can apply. Professionally managed companies, Corporate and Startups are also welcome to apply for the technology.

7. How to apply

Interested companies/industries may send expression of interest with their details by filling the EoI form as per Annexure – I to the following address.

Aby Joseph
Scientist G
Power Electronics Group CDAC
Thiruvananthapuram Kerala
PIN: 695033
Ph: 0471-2723333-433 (extn)
Email: abypj@cdac.in

Details of Expression of Interest
(To be filled by the organization interested in technology transfer from C-DAC(T))

Sl No.	Description of Items	Details from Organisation
1	Name of the Organisation Address of registered office with telephone no. & fax	
2	Contact Details Name Designation Address for Comm. Email & Phone	
3	About Organization Website if available	
4	Any Additional Technology development request	
5	Readiness level to take the technology	
6	Any other information request	
7	Feedback on the information shared by C-DAC(T)	

Declaration

I/We hereby confirm that I/we are interested in the above technology and would productionise it as per terms and conditions. All the information provided above is genuine and accurate.

Authorized Person's Signature.

Name and Designation:

Date of Signature: