



EUROPEAN UNION



Tiruchirappalli Regional Engineering College  
Science and Technology Entrepreneurs Park  
Tiruchirappalli - 620 015.

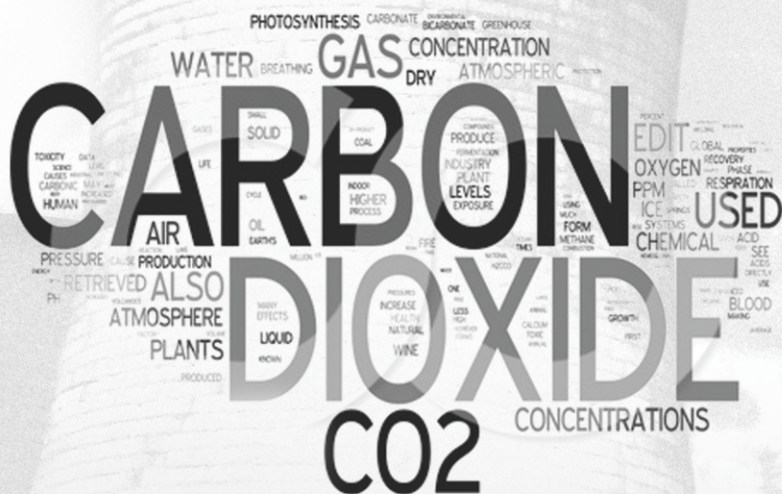
Knowledge Partner



## Technologies for Carbon Capture, Transport and Storage and Cleaner Coal

Skill Leverage Programme on CCT - CCS Technologies

Project funded by the European Union



23<sup>rd</sup> - 25<sup>th</sup> January, 2012  
at Trichy



## The Project ...

The Indian Thermal Power Sector is poised to grow exponentially to meet the country's huge power demands. It is envisaged that there will be nearly 6 fold increase in power requirement in the next 20 years. India being the third largest coal mining nation in the world, its share of coal energy generation stands at 55%, compared to that of the world's share of 20.3%. Similarly, India's share of carbon emission due to coal is 69.78%, while that of globe is 41.2%. However, India has voluntarily committed to reduce its CO<sub>2</sub> emissions by 20 to 25% from its 2005 level. This is highly challenging, considering the facts that the per capita consumption of the power in India is very low, the whopping demand for energy and its per capita CO<sub>2</sub> emission being 20 times lesser than US and other developed countries.

India's heavy dependence on coal based power generation, criticality of energy demands and ambitions of CO<sub>2</sub> emission reduction targets, all warrant concerted efforts in capacity development in CCT and CCS technologies, primarily aimed at the country's Thermal Power sector, the CO<sub>2</sub> emission major.

In order to assist the Indian Thermal Power Sector to address the challenges of reducing CO<sub>2</sub> emissions, TREC-STEP, in partnership with Bharat Heavy Electricals Ltd, India's largest public sector manufacturer of power plant equipments, has taken up a major development initiative, funded by the European Union, under its project for 'Developing a Cluster for Clean Coal Technologies (CCT) and Carbon Capture and Storage (CCS) for the Indian Thermal Power Sector'. This would be a first-of-its-kind initiative in India, for launching CCT - CCS initiatives and a new set of innovative actions in this vital development front. With a comprehensive set of actions covering awareness building, capabilities development, demonstration and deployment projects, innovation development and dissemination platforms, this project is expected to promote a groundswell for CCT and CCS initiatives in India.

## Capacity Leverage Programmes in CCT and CCS

Under this unique EU supported project, among other project initiatives, TREC-STEP has planned to organize a series of Capacity Leverage Programmes in CCT and CCS domains, for the benefit of the Indian thermal power players, policy makers, entrepreneurs and innovators, academicians, etc. This Skill Leverage Programme in CCT - CCS technologies, for the Indian Thermal Power Industry, 'Technologies for Carbon Capture, Transport and Storage and Cleaner Coal', in association with Ernst and Young as the knowledge partner, is aimed at facilitating 'Change Champions' and building a constituency for CCT - CCS agenda in the future, for the Indian Thermal Power Sector.





## Programme Structure

This three day Skill Leverage programme will provide an overview of global CCS initiatives covering all essential technologies, regulatory and policy interventions in carbon capture and storage and Clean Coal Technology domains. This programme is intended for Thermal Power Players, Policy makers, Academicians and other technical personnel with an interest in Clean Coal Technologies and Carbon Capture and Storage.



### DAY 1 23<sup>rd</sup> Jan '12

TOPICS OVERVIEW	
09:30 AM - 10:00 AM	<b>Inaugural Session</b>
	High Tea
Session I 10:15 AM - 11:15 PM	<b>CCS Overview</b> <ul style="list-style-type: none"> <li>Climate Change and CCS: CCS Requirement, Scale &amp; Context</li> <li>Stages of CCS project development</li> <li>Cost of typical project and possible finance mechanisms</li> <li>Regulation and Policies surrounding CCS</li> </ul>
Session II 11:25 PM - 12:45 PM	<b>CCS Value Chain</b> <ul style="list-style-type: none"> <li>Sources of CO<sub>2</sub>, present and future potential</li> <li>Aspects of end to end CCS programme management</li> </ul>
	Lunch Break
Session III 01:45 PM - 03:00 PM	<b>CO<sub>2</sub> Capture</b> <ul style="list-style-type: none"> <li>Basis for CO<sub>2</sub> Capture</li> <li>Power Plant CO<sub>2</sub> Capture Systems</li> <li>Post Combustion Capture Systems</li> </ul>
	Tea Break
Session IV 03:30 PM - 05:15 PM	<b>Oxyfuel Combustion and Pre-Combustion Capture Systems</b>
	Networking Dinner

**Venue:**  
The SRM Hotel  
Race Course Road,  
Khajamalai,  
Tiruchirappalli-23  
Tamilnadu

### DAY 2 24<sup>th</sup> Jan '12

TOPICS OVERVIEW	
Session I 09:30 AM - 11:00 AM	<b>Gasification , Adsorption and Emerging Technologies</b>
	Tea Break
Session II 11:30 AM - 12:30 PM	<b>Environmental, monitoring, risk and legal aspects of Capture Systems</b> <ul style="list-style-type: none"> <li>Cost of CO<sub>2</sub> Capture</li> </ul>
Session III 12:35 PM - 01:15 PM	<b>Transport of CO<sub>2</sub></b> <ul style="list-style-type: none"> <li>Pipeline Transportation</li> </ul>
	Lunch Break
Session IV 02:00 PM - 03:30 PM	<b>Transport of CO<sub>2</sub></b> <ul style="list-style-type: none"> <li>Marine Transportation</li> <li>Risk, Safety and Monitoring aspects of CO<sub>2</sub> Transportation</li> <li>Legal framework surrounding CO<sub>2</sub> transportation</li> </ul>
	Tea Break
Session V 04:00 PM - 05:30 PM	<b>Summary and Group Task</b> Roadmap for Indian Thermal Power Sector on CCS design
	Networking Dinner

### DAY 3 25<sup>th</sup> Jan '12

TOPICS OVERVIEW	
Session I 09:30 AM - 10:30 AM	<b>Storage of CO<sub>2</sub></b> <ul style="list-style-type: none"> <li>Underground Geological Storage</li> <li>Ocean Storage</li> </ul>
	Tea Break
Session II 11:00 AM - 01:00 PM	<b>Clean Coal Technologies</b> <ul style="list-style-type: none"> <li>Introduction and Need for CCT</li> <li>Types of CCT</li> <li>Clean Coal Technology in Coal Mining</li> </ul>
	Lunch Break
Session III 02:00 PM - 03:30 PM	<b>Clean Coal Technology in power Plants</b> <ul style="list-style-type: none"> <li>DeSOx</li> <li>DeNOx</li> <li>Fluidized Bed Combustion</li> <li>Combined Heat and Power (CHP) Generation</li> <li>Super critical Technology and Ultra Super Critical Technology</li> </ul>
	Tea Break
Session IV 04:00 PM - 05:00 PM	<b>Summary and Group Task</b>
	Networking Dinner

"The European Union is made up of 27 Member States who have decided to gradually link together their know-how, resources and destinies. Together, during a period of enlargement of 50 years, they have built a zone of stability, democracy and sustainable development, whilst maintaining cultural diversity, tolerance and individual freedoms. The European Union is committed to sharing its achievements and its values with countries and peoples beyond its borders."