

Talk on “Renewable Energy: Potential and Pitfalls”

Date: May 23, 2017

Venue: CSTEP

Prof. Srinivasan, K. (R.A), Interdisciplinary Centre for Energy Research, Indian Institute of Science (IISc), discussed solar thermal power plants, photovoltaics (PV) and absorption and adsorption refrigeration processes, during his talk with researchers at CSTEP.

The session began with a discussion on the intricacies of power plants, such as thermodynamics, with a focus on the role of CO₂ within the process. Carbon-dioxide which has high global warming potential can be a solution to some environmental problems in the energy sector, Prof. Srinivasan said, considering that the emitted CO₂ from conventional energy sources is the most efficient working fluid in the energy sector.

Various case studies found that CO₂ is an excellent working fluid, and can be applied in refrigeration processes and other instances, where substances like ammonia cannot be used.

Prof. Srinivasan also added that a team at Indian Institute of Science (IISc) is working on how to produce CO₂ in an economical and efficient way.

In the area of PV, the efficiency of solar plants was discussed at length, with a particular focus on performance, as dust has been found to be a major factor in degrading the performance of solar panels. Lack of maintenance was agreed to be a key issue that led to inefficiency in operations; this has to be addressed very seriously, in order to fully realise the potential of any operating system or plant (for instance the efficiency of thermal power plants).

In case of conventional power plants, it is important to look into the processes at a micro level, in order to ensure technical excellence and process efficiency. This in turn will help achieve efficient, economical outputs. Prof. Srinivasan added that renewable energy has gone through multiple crests and troughs since the 19th century; however, the present scenario called for stronger efforts to make renewable energy a sustainable source.

According to Prof. Srinivasan, if renewables failed to gain attention and dependence in this decade, it was unlikely to get another chance.

The discussion ended with an overview of the current status of renewable energy: Reliability and long term sustainability of RE was a key challenge that stakeholders faced; maintenance was crucial, to ensure that equipment remained efficient and lasted longer.