Concept Paper

On-line Training of Stakeholders on Digitizing Industrial Motor Systems for Energy Efficiency

December 6 – 10, 2021,1400 - 1700 Hrs Pakistan Standard Time

Introduction

According to International Energy Agency (IEA), around half of the electricity used globally is consumed in electric motor systems. Industrial motor systems account for around 70% of manufacturing sector electricity consumption in different countries. United Nations Environmental Program (UNEP) has suggested that, the motor systems have a potential of about 20% - 30% energy reduction through optimization and operational measures such as digitization. Digitization process is the incorporation of the latest technology including IoT to the industrial flow process for controlling, coordination and communication of industrial operations. However, awareness, familiarity and higher skill levels should be ensured before proceeding to digitization process.

In order to enhance the expertise of industrial stakeholders in Member States, SAARC Energy Centre is conducting an On-line Training of Stakeholders on Digitizing Industrial Motor Systems for Energy Efficiency. The training will be based on simulation/software platform along with presentations, lectures, training notes, videos and interactive discussions. The training shall be attended by industrial stakeholders from all SAARC Member States. The training will cover selection criteria of most efficient electric motor systems, basis of energy savings in digitized motor systems, industrial flow process control, control and communication strategy, application of latest IoT tools etc. The training will also focus on issues, challenges and opportunities pertaining to digitization in South Asian context.

Target Audience

The sessions are designed for relevant policy and decision makers, industrial professionals, manufacturers, academia/researchers from the SAARC Member States.

Training Sessions and learning objectives

The training shall be conducted in Five (05) interactive sessions (one on each day). Each session will comprise of two to three slots with total of three hours. Each presentation will be followed by Question-and-answer session of 10 to 15 minutes. Training will mainly cover the Industrial Motor and Motor System Efficiency, Industrial Motors and Application Technology, Operational Measures on Fan, Pump and Air Compressor System, Motor Systems Digitization and Industrial Communication Protocol

The main objective of the training is to spread awareness and to enhance the expertise of industrial stakeholders in Member States. The training will be helpful for the trainees to check and calculate the efficiency of motor systems, to select appropriate Variable Frequency Drive (VFD), belt/gears and other components, to equip the participants with adequate knowledge on industrial flow sequence, communication and control strategy, and to understand the industrial communication protocols etc.

The sessions of each day of training is provided below.

Day of training	Theme of each day	Broad Areas to be covered
Day-1	**Efficient motor systems approach**	• Motor system energy saving potential overview • Motor and motor system standardization • Motor system energy conservation projects management in factories • Assess factory motor saving potential with SOTEA tool • Manage factory motor systems with ILI+Tool • Calculate motor system efficiency with motor system tool
Day-2	**Digital pump system and smart solutions**	• Conduct remote digital live training via pump demonstrator training facility • Pump system operation and energy saving cases with pump demonstrator • ABB motor system IoT and application
Day-3	**VFD and motor system saving potentials**	• VFD application in system energy conservation and efficiency • VFD and motor efficiency • Motor system transmission efficiency, belt/gears • Introduction and demonstration of MEPSY online calculation tool for policy development • China motor and related system energy efficiency standardization and best practices • Motor system energy performance contracting
Day-4	**Digitalization of motor and energy systems**	• Smart meters application in motor systems • Electricity monitoring meters and technical solutions • Modbus protocol introduction demonstration and application • OPC UA protocol introduction • OPC UA protocol modeling • OPC UA protocol programming and application
Day-5	**Digitalization of motor and industrial communication protocol**	• ABB Ability Industrial IoT solutions • ABB motor system application cases • OPC UA protocol introduction, modeling, programming and application

Training Venue

This on-line training shall be broadcasted from the office of SEC, Islamabad. The participants will be provided with the web link to join the training.