

<b>Concept Paper</b>
<b>Online Training on “HOMER Software”</b>
29 <sup>th</sup> Nov - 3 <sup>rd</sup> Dec, 2021 : 1000-1200 hrs Pakistan Standard Time (PKT)

**Introduction:**

The SAARC region has significant Renewable Energy resources. If properly developed, these could greatly reduce dependence on imported fuel and lower the high electricity costs. Achieving high shares of Solar PV and Wind generation requires energy storage, flexible generators or other measures to compensate for the variable nature of solar and wind resources. However, significant PV and wind generation can also be deployed without these measures through installation of specific combination of technologies that can best support high shares of renewables. The HOMER (Hybrid Optimization of Multiple Energy Resources) software with its versatility and flexibility offers a better energy solution.

HOMER is the global standard for optimizing micro-grid design in all sectors, from village power and island utilities to grid-connected campuses. The HOMER micro-grid software navigates the complexities of building cost effective and reliable micro-grids that combine traditionally generated and renewable power, storage, and load management. This software evaluates different technologies on the basis of economic optimization modelling. The evaluation which includes sensitivity analysis is conducted based on factors such as available resources, size and variability of loads, equipment prices, performance of technology, grid availability, and on ground conditions. The professionals of SAARC region lack the skills for designing their renewable energy projects using HOMER software.

In order to enhance expertise of SAARC professionals, SAARC Energy Centre is organizing a Five (05) days Online Training on “HOMER Software”. The training shall feature presentations, interactive discussion sessions and may include short questionnaires/quizzes. It will be attended by professionals from SAARC Member State who will join the training virtually.

**Training Sessions and Learning Objectives:**

The objective of training is to introduce the design and functionality of HOMER software to the professionals, and consequently to enhance their capacity on using it. This online training shall provide information and tools on the key parameters of this software associated with design and simulation of Renewable Energy projects.

This activity will also give an opportunity to SAARC professionals and international experts for sharing knowledge, engaging discussions, and interacting with each other. The contents of training have been tabulated below:

Day #	Training Contents
Day-1	<b>Foundations of HOMER Pro I</b> Introduction to HOMER Pro, demonstration of Simulation and Optimization, modelling small community system, simulating a diesel system, building hybrid micro-grid with solar PV, Sensitivity Analysis (fuel price, capacity shortage), payback and internal rate of return.
Day-2	<b>Foundations of HOMER Pro II</b> Refining design, developing a customized load, sizing diesel generator, size technologies using specific sizes, exporting data.
Day-3	<b>Foundations of HOMER Pro III</b> Interconnected mini-grid design, Net-metered PV system, Feed in Tariffs, PV and Storage for interconnected micro-grids.
Day-4	<b>Advanced Session I: Wind and Solar</b> Solar and Wind design, Multiple Solar arrays, Maximum power point tracker and dedicated inverter, Understanding wind data and turbine models, Scheduled maintenance, detailed modelling techniques.
Day-5	<b>Advanced Session II: Large Systems with multiple Diesel Generators</b> Islanded utilities and large village systems, Operating reserves, Solar in large grids, Values of storage in multiple generator systems.

### Target Audience:

Expected target audience will be policy and decision makers, regulators, project developers, project managers, academia and researchers.

### Training Dates and Timings:

The training will be conducted online from Monday 29<sup>th</sup> November till Friday 3<sup>rd</sup> December, 2021. The detailed training schedule will be shared with the participants one (01) week before the training.

### Training Venue:

This online training shall be broadcasted from the office of SEC, Islamabad. The participants will be provided with the weblink to join the training. For more information, please contact the following SEC professional:

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