COURSE OVERVIEW NE0013
Energy Technology Forecasting & Assessment

Course Title
Energy Technology Forecasting & Assessment

Course Date/Venue
August 12-16, 2024/Fujairah Meeting Room, Grand Millennium Al Wahda Hotel, Abu Dhabi, UAE

Course Reference
NE0013

Course Duration/Credits
Five days/3.0 CEUs/30 PDHs

Course Description

This practical and highly-interactive course includes real-life case studies where participants will be engaged in a series of interactive small groups and class workshops.

This course is designed to provide participants with a detailed and up-to-date overview of Energy Technology Forecasting and Assessment. It covers the role of energy technology in achieving sustainability and mitigating climate change; the basic concepts, methods and tools used in forecasting the development and adoption of new technologies; the energy demand and supply dynamics; and the scenario planning techniques to explore various future energy landscapes.

Further, the course will also discuss the identification and analysis of key stakeholders in the energy sector including their roles and influences; the current energy technology mix and its effectiveness in various regions; the emerging technologies like solar photovoltaic advances, wind energy innovations and next-generation nuclear power; the technological innovations in energy storage including smart grids and energy systems integration; the impact of digitalization on energy systems; and the quantitative methods in technology forecasting and qualitative forecasting techniques.

During this interactive course, participants will learn the economic analysis of energy technologies, environmental and social impact assessment; the policy analysis in energy technology assessment; the strategic planning for energy technology implementation; identifying and overcoming potential barriers to the adoption of new energy technologies; the strategies for facilitating innovation and transferring technology across borders and sectors; the funding options and financial models for energy technology projects; the importance of global partnerships and collaborative frameworks in energy technology progress; how energy technologies can help achieve sustainable development goals; staying adaptive and responsive to rapid changes in technology; and building resilience against technological, economic and environmental changes.

Course Objectives

Upon the successful completion of this course, each participant will be able to:-

- Apply and gain systematic techniques on energy technology forecasting and assessment
- Discuss the role of energy technology in achieving sustainability and mitigating climate change
- Identify the basic concepts, methods and tools used in forecasting the development and adoption of new technologies
- Recognize energy demand and supply dynamics as well as apply scenario planning techniques to explore various future energy landscapes
- Identify and analyze key stakeholders in the energy sector including their roles and influences
- Discuss the current energy technology mix and its effectiveness in various regions
- Explain the emerging technologies like solar photovoltaic advances, wind energy innovations and next-generation nuclear power
- Apply technological innovations in energy storage including smart grids and energy systems integration
- Discuss the impact of digitalization on energy systems as well as apply quantitative methods in technology forecasting and qualitative forecasting techniques
- Carryout economic analysis of energy technologies, environmental and social impact assessment and policy analysis in energy technology assessment
- Employ strategic planning for energy technology implementation and identify and overcome potential barriers to the adoption of new energy technologies
- Apply strategies for facilitating innovation and transferring technology across borders and sectors
- Identify the funding options and financial models for energy technology projects
- Explain the importance of global partnerships and collaborative frameworks in energy technology progress
- Discuss how energy technologies can help achieve sustainable development goals
- Stay adaptive and responsive to rapid changes in technology and build resilience against technological, economic and environmental changes

Exclusive Smart Training Kit - H-STK®

*Participants of this course will receive the exclusive "Haward Smart Training Kit" (**H-STK®**). The **H-STK®** consists of a comprehensive set of technical content which includes **electronic version** of the course materials, sample video clips of the instructor's actual lectures & practical sessions during the course conveniently saved in a **Tablet PC**.*

Who Should Attend

This course provides an overview of all significant aspects and considerations of energy technology forecasting and assessment for energy professionals, utility operators, energy analysts, government and regulatory professionals, energy consultants and other technical staff.

Training Methodology

All our Courses are including **Hands-on Practical Sessions** using equipment, State-of-the-Art Simulators, Drawings, Case Studies, Videos and Exercises. The courses include the following training methodologies as a percentage of the total tuition hours:-

30% Lectures
20% Practical Workshops & Work Presentations
30% Hands-on Practical Exercises & Case Studies
20% Simulators (Hardware & Software) & Videos

In an unlikely event, the course instructor may modify the above training methodology before or during the course for technical reasons.

Course Fee

US$ 5,500 per Delegate + **VAT**. This rate includes H-STK® (Haward Smart Training Kit), buffet lunch, coffee/tea on arrival, morning & afternoon of each day.

Accommodation

Accommodation is not included in the course fees. However, any accommodation required can be arranged at the time of booking.

Course Certificate(s)

Internationally recognized certificates will be issued to all participants of the course who completed a minimum of 80% of the total tuition hours.

Certificate Accreditations

Certificates are accredited by the following international accreditation organizations: -

- The International Accreditors for Continuing Education and Training (IACET - USA)

  Haward Technology is an Authorized Training Provider by the International Accreditors for Continuing Education and Training (IACET), 2201 Cooperative Way, Suite 600, Herndon, VA 20171, USA. In obtaining this authority, Haward Technology has demonstrated that it complies with the **ANSI/IACET 2018-1 Standard** which is widely recognized as the standard of good practice internationally. As a result of our Authorized Provider membership status, Haward Technology is authorized to offer IACET CEUs for its programs that qualify under the **ANSI/IACET 2018-1 Standard**.

  Haward Technology's courses meet the professional certification and continuing education requirements for participants seeking **Continuing Education Units** (CEUs) in accordance with the rules & regulations of the International Accreditors for Continuing Education & Training (IACET). IACET is an international authority that evaluates programs according to strict, research-based criteria and guidelines. The CEU is an internationally accepted uniform unit of measurement in qualified courses of continuing education.

  Haward Technology Middle East will award **3.0 CEUs** (Continuing Education Units) or **30 PDHs** (Professional Development Hours) for participants who completed the total tuition hours of this program. One CEU is equivalent to ten Professional Development Hours (PDHs) or ten contact hours of the participation in and completion of Haward Technology programs. A permanent record of a participant's involvement and awarding of CEU will be maintained by Haward Technology. Haward Technology will provide a copy of the participant's CEU and PDH Transcript of Records upon request.

- British Accreditation Council (BAC)

  Haward Technology is accredited by the **British Accreditation Council** for **Independent Further and Higher Education** as an **International Centre**. BAC is the British accrediting body responsible for setting standards within independent further and higher education sector in the UK and overseas. As a BAC-accredited international centre, Haward Technology meets all of the international higher education criteria and standards set by BAC.

Course Instructor(s)

This course will be conducted by the following instructor(s). However, we have the right to change the course instructor(s) prior to the course date and inform participants accordingly:

Mr. Karl Thanasis, PEng, MSc, MBA, BSc, is a **Senior Mechanical & Energy Expert** with over **45 years** of practical experience within the **Energy Sectors**. His wide expertise includes **Renewable Energy** (**PV & BESS**), **Energy Management International Standards, Energy Audit**, **Energy Efficiency, Industrial Energy Efficiency**, **Energy Efficiency & Management**, **Nuclear Power Plant**, **Renewable Energy**, **Solar Energy**, **Thermal Energy**, **Engineering Drawings**, **Codes & Standards**, **P&ID Reading**, **Interpretation & Developing**, **Drawing Interpretation**, **Oil & Gas Field Commissioning**, **Start-Up & Troubleshooting**, **Oil Field Operations & Water Treatment**, **Seawater & Reverse Osmosis** (**RO**), **Water Reservoirs & Pumping Stations**, **Water Storage Reservoir**, **Pumping** Systems, Interconnecting Pipelines, **Pump** Houses & Booster Pumping Stations, **Water Pipelines** Materials & Fittings, **Waste Water Effluent Treating** Facilities, **Sewage & Industrial Waste Water** Treatment & Environmental Protection Best Practices, **Process Plant Performance & Efficiency**, **Water Testing**, **Wastewater Treatment Technology**, **Industrial Water Treatment** in Refineries & Petrochemical Plants, **Piping System**, **Water Movement**, **Water Filtering**, **Mud Pumping**, **Sludge Treatment** and **Drying**, **Aerobic Process** of **Water Treatment** that includes **Aeration**, **Sedimentation** and **Chlorination Tanks**. His strong background also includes **Pump** Operation & Maintenance, **Pumps**, **Turbo-Generator**, **Turbine** Shaft Alignment, **Mud Pumping**, **Sludge Pumps**, Filters, **Metering Pumps**, **Steam Turbines**, Power Generator Plants, **Gas Turbines**, Turbine Shaft Alignment, Root Cause Failure Analysis (**RCFA**), **Boilers**, Process Fired **Heaters**, **Heater Fabrication**, **Thermal & Fired Heater** Design, Heat Exchangers, **Heat Transfer**, **Coolers**, **Boiler & Steam System Management**, **Chiller & Chiller Plant Design & Installation**, **Pressure Vessel**, **Safety Relief Valve** Sizing & Selection, **Valve** Disassembling & Repair, Pressure Relief Devices (**PSV**), **Hydraulic & Pneumatic** Maintenance, Advanced **Valve Technology**, **Design** and **Sizing** of all **Waste Water Treatment Plant Associated Equipment** such as **Sludge Pumps**, **Filters**, **Metering Pumps**, **Aerators** and **Sludge Decanters**.

Mr. Thanasis has acquired his thorough and practical experience as the **Water Engineer**, **Project Manager**, **Plant Manager**, **Area Manager - Equipment Construction**, **Construction Superintendent**, **Project Engineer** and **Design Engineer**. His duties covered **Plant Preliminary Design**, **Plant Operation**, **Write-up** of **Capital Proposal**, **Investment Approval**, **Bid Evaluation**, **Technical Contract Write-up**, **Construction** and **Sub-contractor Follow up**, **Lab Analysis**, **Sludge Drying** and **Management** of **Sludge Odor** and **Removal**. He has worked in various companies worldwide in the **USA**, **Germany**, **England** and **Greece**.

Mr. Thanasis is a **Registered Professional Engineer** in the **USA** and **Greece** and has **Master** and **Bachelor** degrees in **Mechanical Engineering** with **Honours** from the **Purdue University** and **SIU** in **USA** respectively as well as an **MBA** from the **University of Phoenix** in **USA**. Further, he is a **Certified Instructor/Trainer**.

Course Program

The following program is planned for this course. However, the course instructor(s) may modify this program before or during the workshop for technical reasons with no prior notice to participants. Nevertheless, the course objectives will always be met:

Day 1: ***Monday, 12th of August 2024***

0730 – 0800	*Registration & Coffee*
0800 – 0815	*Welcome & Introduction*
0815 – 0830	***PRE-TEST***
0830 – 0930	***Introduction To Energy Technology & Sustainability*** *Overview of the Role of Energy Technology in Achieving Sustainability and Mitigating Climate Change*
0930 – 0945	*Break*
0945 – 1030	***Principles of Technology Forecasting*** *Basic Concepts, Methods, and Tools Used in Forecasting the Development and Adoption of New Technologies*
1030 – 1130	***Energy Demand & Supply Dynamics*** *Global and Regional Energy Demand and Supply Trends and Their Implications for Future Technology Needs*
1130 – 1215	***Scenario Planning in Energy Forecasting*** *Scenario Planning Techniques to Explore Various Future Energy Landscapes*
1215 – 1230	*Break*
1230 – 1420	***Stakeholders in Energy Technology Development*** *Identification and Analysis of Key Stakeholders in the Energy Sector including their Roles and Influences*
1420 – 1430	***Recap***
1430	*Lunch & End of Day One*

Day 2: ***Tuesday, 13th of August 2024***

0730 – 0830	***Current State of Energy Technologies*** *Overview of the Current Energy Technology Mix and its Effectiveness in Various Regions*
0830 – 0930	***Emerging Energy Technologies*** *Emerging Technologies Like Solar Photovoltaic Advances, Wind Energy Innovations, and Next-Generation Nuclear Power*
0930 – 0945	*Break*
0945 – 1100	***Technological Innovations in Energy Storage*** *Analysis of Advancements in Energy Storage such as Batteries, Hydrogen, and Other Storage Technologies*
1100 – 1215	***Smart Grids & Energy Systems Integration*** *Exploration of Smart Grid Technology, its Components and Benefits for Integrating Renewable Energies*
1215 – 1230	*Break*
1230 – 1345	***Impact of Digitalization on Energy Systems*** *The Role of AI and Big Data in Transforming Energy Systems Management and Forecasting*
1345 - 1420	***Case Study Analysis: Successful Technology Adoption*** *Examination of Case Studies where Technology Forecasting Successfully Predicted Energy Tech Adoption*
1420 – 1430	***Recap***
1430	*Lunch & End of Day Two*

Day 3:	Wednesday, 14th of August 2024
0730 – 0830	***Quantitative Methods in Technology Forecasting*** *Overview of Quantitative Forecasting Methods including Extrapolation, Trend Analysis, and Growth Curves*
0830 – 0930	***Qualitative Forecasting Techniques*** *Delphi Method, Expert Panels, and Interviews for Qualitative Assessments*
0930 – 0945	*Break*
0945 – 1100	***Economic Analysis of Energy Technologies*** *Techniques for Assessing the Economic Viability of Energy Technologies including Cost-Benefit Analysis and Return on Investment*
1100 – 1215	***Environmental and Social Impact Assessment*** *Methods for Evaluating the Environmental and Social Impacts of New Energy Technologies*
1215 – 1230	*Break*
1230 – 1420	***Policy Analysis in Energy Technology Assessment*** *How Policy Influences Energy Technology Development and Adoption*
1420 – 1430	***Recap***
1430	*Lunch & End of Day Three*

Day 4:	Thursday, 15th of August 2024
0730 – 0830	***Strategic Planning for Energy Technology Implementation*** *How to Develop Strategic Plans for the Integration of New Technologies Into Existing Systems*
0830 – 0930	***Barriers to New Energy Technology Adoption*** *Identifying and Overcoming Potential Barriers to the Adoption of New Energy Technologies*
0930 – 0945	*Break*
0945 – 1100	***Innovation Systems & Technology Transfer*** *Strategies for Facilitating Innovation and Transferring Technology Across Borders & Sectors*
1100 – 1215	***Financing Energy Technology Projects*** *Overview of Funding Options and Financial Models for Energy Technology Projects*
1215 – 1230	*Break*
1230 – 1330	***International Cooperation in Energy Technology Development*** *Importance of Global Partnerships and Collaborative Frameworks in Energy Technology Progress*
1330 – 1420	***Panel Discussion: Future of Energy Technology*** *Engaging Industry Experts in a Discussion on the Future Directions of Energy Technology*
1420 – 1430	***Recap***
1430	*Lunch & End of Day Four*

Day 5:	Friday, 16th of August 2024
0730 – 0930	***Future Trends in Energy Technology*** *Predictions for Future Breakthroughs and Shifts in the Energy Technology Landscape*
0930 – 0945	*Break*
0945 – 1100	***The Role of Energy Technology in Achieving SDGs*** *How Energy Technologies can Help Achieve Sustainable Development Goals*

1100 – 1230	***Adapting to Rapid Technological Changes*** *Strategies for Staying Adaptive and Responsive to Rapid Changes in Technology*
1230 – 1245	*Break*
1245 – 1345	***Building Resilience in Energy Systems*** *Methods for Building Resilience Against Technological, Economic & Environmental Changes*
1345 – 1400	***Course Conclusion***
1400 – 1415	***POST-TEST***
1415 – 1430	*Presentation of Course Certificates*
1430	*Lunch & End of Course*

Practical Sessions

This practical and highly-interactive course includes real-life case studies and exercises:-

Course Coordinator

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