**Annex 1**

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| **ITU Centres of Excellence Network for Asia-Pacific Region****Training on****Green ICTs and Smart Grids****15-18 September 2015****Bangkok, Thailand****TRAINING OUTLINE** |

**COURSE DESCRIPTION**

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| Title  | Green ICTs and Smart Grids |
| Method of delivery | Face to face (Workshop mode) |
| Objectives | Information and communication technologies (ICTs) are now used by the entire society to improve the quality of life and ensure sustainable development. Social, economic and environmental issues have become tightly interconnected and there is growing application of these technologies in areas such as power generation, transport, health, education and commerce. ICT stakeholders have a major role in the response to climate change at all levels. Whilst facilitating deployment of the underlying fast broadband infrastructure and the coming ‘Internet of Things’, they also play pivotal role in developing ICT technologies to reduce Greenhouse Gases (GHGs) in other sectors. Study Group 5 of ITU-T on Environment & Climate Change has been exploring this relationship for 6 years and has developed standards for the technologies that can be used to tackle climate change. Smart Grids are one of the most important technologies for this as they can improve energy efficiency and reduce GHGs from the power network by up to 30%. ITU-D Study Group 2 has studied ICT and Climate Change (SQ 24/2) in the previous cycle and continues to study this under the current [ITU-D Study Group](http://www.itu.int/en/ITU-D/Climate-Change/Pages/default.aspx) Cycle “SQ 6/2 - ICT and Climate Change” as well as “SQ 8/2 Strategies and policies for the proper disposal or reuse of telecommunication/ICT waste material. ICT and Climate Change as well as e-Waste are also the priority areas identified for the human capacity building initiatives as noted in the call for application for the Centres of Excellence in 2014.This training will build skills on the required actions for Climate Change mitigation and adaptation and the role that ICT plays in tackling it. It will explain the underlying concepts and the role that a wide range of stakeholders can play in developing the policies, technologies and standards that will improve energy efficiency and reduce GHG emissions through a range of mitigating technologies with a focus on smart grids, and enable countries and societies to better adapt to climate change.  |
| Dates | 15-18 September 2015 |
| Duration | 4 days |
| Registration deadline | 31 August 2015 |
| Training fees | Free of charge |
| Course code | **15WS14261ASP-E** |

**LEARNING OUTCOMES**

Upon completion of this training, participants will be able to:

* Understand the roles of stakeholders in ICT & Climate Change, with focus on Policy Makers & regulators and Telecom Service Providers and IT Service Providers
* Comprehend the telecom/ICT Service Provider Strategies in relation to Green ICTs
* Understand the details of smart grid implementation and its role in GHG reduction

**TARGET POPULATION**

Detailed information on this training is described in the training outline which can be downloaded from the ITU Academy Portal at the following link <https://academy.itu.int> and at <http://www.itu.int/itu-d/asp>. This training is targeted at policy makers, regulators, service providers interested in learning how they can shape their ICT strategies to address climate change issues and develop green ICT strategies.

**TUTORS/INSTRUCTORS**

The training would be led by ITU and industry experts. Detailed agenda will be available at course website.

**METHODOLOGY**

The training will be led by instructor and would include presentation slides, case studies and group exercises. The material will be made available in the electronic format. Participants are advised to bring their own laptops and notebooks.

Tests would be conducted during the training to assess the participants.

**TRAINING COORDINATION**

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**REGISTRATION**

Registration should be made online at <http://academy.itu.int/>. The training **is free of charge**. All the participants who wish to attend should responsible for their travel expenses, accommodation and allowances.

Application to participate in this course should be made at "<http://academy.itu.int>” by following the steps mentioned at

[**https://academy.itu.int/index.php?option=com\_content&view=article&id=94&Itemid=625&lang=en**](https://academy.itu.int/index.php?option=com_content&view=article&id=94&Itemid=625&lang=en)

**EVALUATION**

The overall assessment is made up of three components.

* Participation – The trainer allocates marks based on the participants’ level of involvement in group work and spontaneous quizzes during the course of the training. This component provides 30% towards the learner’s overall score.
* Attendance - The trainer awards marks based on the rate at which the participant shows up in class based on the requirements of the course. This component provides 10% towards the overall score.
* Exam - The exam is the final assessment of knowledge gained during the training. For this reason, it contributes the highest percentage of 60% to the overall score.

**The overall pass mark to be attained by participants in a face-to-face training is set at 60%.**

**TRAINING SCHEDULE AND CONTENTS / AGENDA**

# Agenda (for face-to-face trainings)

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| 15th September (Day-1) |
| 0830-0900 | Registration |
| 0900-0930 | Opening Session - ITU- MICT, Thailand- NBTC- Group Photograph |
| **Skill: To have a comprehensive understanding of Climate Change, underlying policies and framework and the role of stakeholders** |
| 0930-1030 | Session 1: introduction to Climate Change AND ENERGYObjective: To provide an overview of the impact of Climate Change, its causes and what we can do about it. Will include an overview of how energy is generated and consumed including best practices.  |
| 1030-1045 | COFFEE BREAK |
| 1045-1145 | Session 2: roles of ICT in tackling Climate ChangeObjective: To provide comprehensive understanding of how ICT can help tackle climate change with an overview of energy efficiency, mitigation and adaptation. |
| 1145-1245 | Session 3: Roles of Stakeholders in policy and StrategyObjective: To provide a comprehensive understanding of the policy and regulatory issues around climate change and the roles of different types of stakeholders including policy makers, telecommunications and IT service providers. |
| 1245-1400 | LUNCH BREAK |
| 1400-1500 | Session 4: GREEN ICT Policies and strategiesObjective: What can be achieved through green ICT policies and strategies using current examples from different countries. |
| 1500-1530 | COFFEE BREAK |
| 1530-1700 | Session 5: WORK GROUP EXERCISE Objective: The objective of each Work Group will be to draft a top level response to climate change based on Green ICT policies and strategies. This could include the design of a National Energy policy to e.g. maximise the use of renewable energy sources.  |

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|  | 16th September (Day-2) |
| 0930-1100 | Session 6: Green ICT technologies and how they help Mitigate the Effects of climate ChangeObjective: To understand the key technologies, applications and services that will help mitigate climate change and identify which are the most important in different contexts. Introduction to Telecom and IT Service Provider Strategies. |
| 1100-1115 | COFFEE BREAK |
| 1115-1200 | Session 7: roles of Telecoms and IT service providersObjective: To understand in detail the role of telecommunications and IT service providers in tackling climate change including their impact on energy efficiency, mitigation and adaptation. Includes a close up on the regulatory issues around broadband rollout. |
| 1200-1230 | Session 8: Regulatory responses: Do we need Targets and KPIs?Objective: To understand the specific actions that regulators in both the telecommunications and energy fields can contribute to tackling climate change.  |
| 1230-1400 | LUNCH BREAK |
| 1400-1430 | Session 9: The role of Smart Metering and Smart GridsObjective: To show how smart metering and smart grids can help to reduce energy consumption. |
| 1500-1515 | COFFEE BREAK |
| 1515-1600 | Session 10: The Components of a Smart GridObjective: To identify the components of a smart grid and when and how they can be deployed. Who are the stakeholders and what are the barriers? |
| 1600-1730 | Session 11: WORK GROUP EXERCISE Objective: To design a smart grid and understand its opportunities, limitations and costs (and any regulatory barriers) and build a roadmap for their deployment in a regional/national context |

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| 17th September (Day-3) |

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| 0930-1100 | Session 12: How renewables and Electric vehicles fit into the smart gridObjective: To understand the role of energy storage in the smart grid and what is practical now. |
| 1100-1115 | COFFEE BREAK |
| 1115-1200 | Session 13: Smart Grid ImplementationsObjective: Case studies on smart grids with examples from worldwide. |
| 1200-1230 | Session 14: Regulatory responses to Smart GridsObjective: What is needed from regulators to allow all elements of the smart grid to come together and work harmoniously. |
| 1230-1400 | LUNCH BREAK |
| 1400-1430 | Session 15: Decarbonising transport and Other green ICT TechnologiesObjective: To understand how transport can be made more sustainable and identify other ICT technologies and their contribution to mitigating climate change. |
| 1500-1515 | COFFEE BREAK |
| 1515-1600 | Session 16: The role of SMART SUSTAINABLE CITES Objective: To provide practical examples of smart city solutions which help to reduce energy consumption and alleviate climate change. |
| 1600-1730 | Session 17: WORK GROUP EXERCISE Objective: To brainstorm examples of new e-services that could be offered in a smart sustainable city, how much energy they might save, what functionality they would need to work, and what policy and regulatory issues they might face, e.g. open data. |

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| 18th September (Day-4) |
| Smart City – Examples |
| 0930-1100 | Session 18: The Circular Economy: What should we do with e-waste?Objective: To identify the barriers and opportunities to e-waste disposal and how regulatory policy is key to achieving a successful result.  |
| 1100-1130 |  COFFEE BREAK |
| 1130-1230 | Session 19: ICT ROADMAP and its role in preventING Climate ChangeObjective: To understand the methods and processes to create a roadmap for ICT & Climate Change and what should be done by the course attendees when they get home. |
| 1230-1300 | Session 20: CLOSING |
| 1300-1400 |  LUNCH |