

## Operation and maintenance of e-buses Online technical training | October 26-30, 2020

### AGENDA

#### Monday, October 26, 2020

09:00 - 09:30 **Opening session**

- **Martine Provost**, Executive Director, Global Sustainable Electricity Partnership (GSEP)
- **Maria Jara Risco**, President, Autoridad de Transporte Urbano de Lima y Callao (ATU)
- **Ángel Mendoza Aguirre**, General Manager, Asociación de Concesionarios de Transporte Urbano (ACTU)
- **Alejandro Barragan**, General Manager, Enel X Perú

09:30 - 11:00 **Module 1: Introduction to Electric Mobility**

This session aims at assessing participants' knowledge on electric mobility as well as presenting the basics for the operation of electric buses and the problems they may encounter. This includes a background on the technology and an introduction to the different parts and components of an electric bus compared to a diesel bus. During this session, participants will also learn about other jurisdictions around the world where electric buses are used, the perceived benefits, and the perceived concerns regarding electric buses.

Presenter:

- **Naeem Farooqi** - e-Mobility Expert

**Module 2: Electric Vehicles - Capital, Operation & Maintenance (Part 1)**

This session aims at explaining the operating range and life cycle of electric vehicles. The main differences between electric bus operation and traditional operation will be explored. This includes a study of the initial operational needs to successfully introduce electric buses and the flow of a reservoir according to power supply, usage and schedules.

Presenter:

- **Naeem Farooqi**, e-Mobility Expert

## Tuesday, October 27, 2020

09:00 - 11:00 **Module 2: Electric Vehicles - Capital, Operation & Maintenance (Part 2)**  
This session aims at explaining the operating range and life cycle of electric vehicles. The main differences between electric bus operation and traditional operation will be explored. This includes a study of the initial operational needs to successfully introduce electric buses and the flow of a reservoir according to power supply, usage and schedules.

Presenter:

- **Naeem Farooqi**, e-Mobility Expert

### **Module 3: Charging Infrastructure**

This session looks at the installation and operation of the charging infrastructure and the standardization of charger connections. The review of the different types of electric bus chargers will introduce participants to charging techniques and electrical systems. This will provide familiarity with handling the connector and establish understanding of charging time requirements, power transfer rates, and electricity usage during peak and off-peak periods.

Presenter:

- **Naeem Farooqi**, e-Mobility Expert

## Wednesday, October 28, 2020

09:00 - 11:00 **Module 4 : Safety, Training & Performance**  
This session provides an overview of the critical safety aspects of electric bus maintenance and operation. This includes the different types of protective equipment needed to work on high voltage systems and the protocols for emergency response in case of fire or other incidents. Proper battery lifting techniques and battery handling will also be discussed.

Presenter:

- **Naeem Farooqi**, e-Mobility Expert

## Thursday, October 29, 2020

09:00 - 11:00 **Module 5: National Appropriate Mitigation Actions (NAMA) Project of Peru in the sector of power generation and usage**  
This session provides information on the National Appropriate Mitigation Actions (NAMA) Project of Peru in the sector of power generation and usage, led by the Ministry of Energy and Mines and the United Nations Development Programme (UNDP), as well as an explanation of the decree that establishes the provisions for the implementation of future charging infrastructure for electric mobility. This session also explains the electric transport mitigation measure, including a demonstration of the measurement, reporting and

verification (MRV) platform to report the progress of the electric transport measure as part of the Peruvian commitments to fight climate change.

Presenters:

- **Daniella Rough**, Coordinator of the NAMAs Project, Ministry of Energy and Mines of Peru
- **Alfonso Cordova**, MRV Specialist for the NAMA Energy Project, Ministry of Energy and Mines of Peru

### **Module 6: Charging Infrastructure in Peru**

This session will provide information on the charging infrastructure available in Peru for electric buses and cars. The installation process will also be explained.

Presenter:

- **Alex Ascon**, Head of e-Mobility - Peru, Enel X

## **Friday, October 30, 2020**

09:00 - 11:00

### **Module 7: Case studies**

In this session, the people in charge of the implementation of the two most successful projects in South America will present the process of implementing a pilot project - phase 1 and the massification of electric buses - phase 2.

#### **1. Lima E-bus Project**

Presenters:

- **Luis Calzado**, Senior Project Advisor, GSEP
- **Vincent-Michel Duval**, Senior Manager, Integration of New Technologies, Hydro-Québec
- **Alex Ascon**, Head of e-Mobility - Peru, Enel X

#### **2. Electric mobility projects in Chile**

Presenter:

- **Jean Paul Zalaquett**, Head of e-Mobility - Chile, Enel X