EMFAC-HK April 2012 Training - Advanced Syllabus/Outline

Advanced DAY 1. April 26th, 2012

Location: 1008 & -1012, 1/F Hong Kong Productivity Council, HKPC Building, 78 Tat Chee Avenue, Kowloon Tong, Kowloon (Computer Room 1012, is available for those need extra help on the exercises)

AM- 9:30 -12:30

- **Welcome and Introductions, Dr. Carol Wong, Senior Environmental Protection Officer, Environmental Protection Department**

- **Training Agenda – Sandeep Kishan, ERG**

- **Detailed discussion of EMFAC-HK calculations**
  - How EMFAC-HK is structured
  - How local data is being added to EMFAC
  - Use of PEMS data in EMFAC-HK Development

- **EMFAC-HK V2.1 Model Overview Arney Srackangast, ERG**
  - Model History and Upgrade
    - From US EMFAC to EMFAC-HK
    - From EMFAC-HK 1.2 to EMFAC-HK V2.1
  - Using the Program
  - Program Installation

Lunch 12:30-2:00 PM

PM- 2:00-5:00

- **EMFAC-HK V2.1 Input Formats**
  - Use of GUI
  - Use of Input files
  - Structure of input Files
  - Batch mode use of EMFAC-HK

- **General Guidelines for Input Data**
  - Implementation of Vehicle Emission Standards
  - Exhaust Technology Group Indexes
  - Vehicle Fleet compositions
  - EMFAC vs Burden mode
  - Speed Fractions
  - Hourly temperature and relative humidity data

- **EMFAC-HK Application at the Project-Level**
  - Overview of Steps to run EMFAC-HK at the project level
  - Defining Scenarios
  - Road Links
  - Discussion of Hong Kong road types
  - Annual Traffic Census (ATC) Data from the Transport Department (TD)
    - Vehicle Population: Annual Average Daily Traffic (A.A.D.T.)
    - Speed Distributions: Link/Speed Flow Data
    - Converting ATC Vehicle Classes to EMFAC-HK V2.1 Vehicle Classes

- **EXERCISES (EMFAC-HK V2.1)**
  - Exercise 1: Simple Road Link Scenario - users setup, execute, and review a application for two road links using EMFAC-HK V2.1 and convert EMFAC-HK output to CALINE4 input.
  - Lecture followed by problem statement
  - Time for attendees to work on problem
  - Detailed discussion of problem and output

Advanced DAY 2. April 27th, 2012

Location: 1008 & -1012, 1/F Hong Kong Productivity Council, HKPC Building, 78 Tat Chee Avenue, Kowloon Tong, Kowloon (Computer Room 1012, is available for those need extra help on the exercises)

AM- 9:30 -12:30

- **EXERCISES (More Examples for developing Inventories)**
  - Exercise 2: Future Projections Scenario
    - Use of Future Technologies
    - With and without increase in Population and VKT
  - Exercise 3: Build/No-Build
    - This example would use some portion of a Future scenario (say CKR 2021 from EIA) as the "BUILD" scenario), then devise a "no-build" scenario via assumptions about activity and congestion. No-Build Activity Data
      - 5% less Population
      - 4% less VMT
      - 5% fewer trips
      - Move speed fractions from "faster" to "slower" categories to simulate present congestion

      Compare emission factors using EMFAC mode

PM 2:00-5:00

- **EXERCISES (continued)**

- Exercise #4: EIA Example. Perform EMFAC-HK 2.1 run for three road types and several links. Determine emission rates and CALINE4-compatible input data.

- **Local use of transportation data – Dr. Carol Wong**

- **User Forum / Future Enhancements**