



Preliminary Program

An Introduction to Greenhouse Gases

Friday, May 12, 2017

Hotel Blackfoot, Calgary, Alberta

8:00- 8:30 Registration and Continental Breakfast

8:30-10:00: Introduction to GHG-(Bruce Peachey)

1. The Theories – Evidence over geologic time
2. Links between Energy, Carbon and Water
3. Global warming potentials (Forcings) and feedbacks in modeling

10:00-10:15 Coffee Break

10:15- 11:15 Policy and Regulation (John Storey-Bishoff)

1. Existing provincial greenhouse gas for large emitters regulation
2. -Development of upcoming regulations of large emitters
3. -Renewable fuels standard
4. -Other carbon pricing instruments

11:15-12:15 Sampling GHG (Charles A. Odame-Ankrah,)

1. 1 Introduction to GHG measurements and units of GHG quantification
2. Trends in Greenhouse gas concentrations
3. Sampling methods for Greenhouse Gases
4. Distributed vs Stationary Emissions sampling schemes

12:00-13:00 Lunch

13:00-14:30 Measurement of GHG (Charles A. Odame-Ankrah)

1. A review of existing instrumentation
2. Emerging technology and greenhouse gas measurement
3. Looking into GHG measurements:
 - a. Stationary source GHG measurements
 - b. Measurement of fenceline, ambient or background concentrations
 - c. Satellite measurements, upper tropospheric and stratospheric measurement methods
4. Case study 1: A review of the Canadian Greenhouse Gas Measurement Program
5. Case Study 2: A review of existing measurement program by NIST

14:30-15:00 Coffee Break

15:00 to 16:30 Management of GHG (John Zhou)

1. Alberta's Emission Profile and Key Opportunities
2. GHG Reduction in Oil Sands Production
3. Methane Emission Reduction
4. GHG Reduction in Electricity Generation
5. Carbon Capture, Storage, and Utilization
6. Summary

Speakers



Bruce Peachey, P.Eng.

President & CEO New Paradigm Engineering Ltd., Edmonton

Mr. Peachey graduated with a BSc in Chemical Engineering ('76) from the University of Saskatchewan, and is a Fellow of the Engineering Institute of Canada (EIC) and the Chemical Institute of Canada (CIC). He has almost 40 years experience in the upstream energy industry, mainly on projects related to energy efficiency, water conservation and sustainable recovery of hydrocarbons.

After graduation, Bruce spent 16 years with Imperial Oil, with 12 of those years working on Imperial's Cold Lake and mineable oilsands projects, and the rest in conventional upstream oil and gas facilities, including both management and senior technical specialist roles. In 1991, he left Imperial and formed New Paradigm Engineering to "engineer new paradigms" or new ways of looking at chronic sustainability problems in the oil, gas and energy industries related to oil recovery, water management, methane vent reduction, energy efficiency and long-term R&D needs studies. He was a founding member of the Petroleum Technology Alliance Canada (PTAC) in 1996, and continues to be an active supporter of PTAC. He is a sessional lecturer at the University of Alberta, instructing 4th year Petroleum and Chemical Engineering students, as well as a Faculty of Extension course on "Environmental Stewardship – Energy, Carbon and Water".



John Storey-Bishoff, P.Eng.

**Director, Climate Change Compliance
Alberta Climate Change Office**

John Storey-Bishoff is the Director of Climate Change Compliance in the Alberta Climate Change Office and oversees the provincial large final emitter system as well as the provincial Renewable Fuels Standard Regulation. He has worked on the climate file with the department since 2008.



Charles A. Odame-Ankrah, P.Chem.

Charles started his career working as an Environmental Scientist in Ghana after an internship as a Scientist (Gold Assayer) at AngloGold Ashanti Limited. In his role as an Environmental Scientist, he provided technical assistance and project management leadership in one or more areas of environmental site investigations, including environmental site assessments, planning and implementation of remedial strategies, groundwater investigation and monitoring, and site reclamation and closure. Charles was responsible for effective project coordination and implementation while managing small multi-disciplinary teams, including multiple contractors and subcontractors for clients.

Currently, Dr. Odame-Ankrah is the Product Development Specialist for Global Analyzer systems Ltd. He has worked closely with Provincial and Federal regulatory bodies such as the Alberta Government, Metro Vancouver and Environment Canada during field campaigns to monitor pollutant transformations in the Lower Fraser Valley and the Alberta Oil Sands respectively. He has more than 6 years of experience working in air emission monitoring research.

Charles is a teacher, public speaker and a chemist with a specialization in air quality monitoring instrument development using cutting edge technology based on Cavity Ring Down Spectroscopy, system automation using LabVIEW and has extensive research experience in ambient air pollution issues relating to data reduction, policy and implementation. He is at the forefront of instrument development for monitoring a wide range of pollutants including greenhouse gases.



Zhihong (John) Zhou P.Geol.

Dr. Zhihong (John) Zhou is the Vice President Clean Energy at the newly amalgamated Alberta Innovates. In this role, John is responsible for Alberta's strategic direction and innovation in oil and gas industry, clean technology, and water and land management. Previously, he served as CTO and Acting CEO of Alberta Innovates – Energy and Environment Solutions (AI-EES).

John spent two years on nuclear energy at Ontario Hydro before joined the Alberta Research Council (ARC) in 1990. He worked at ARC as a researcher in energy and environmental technologies, and in 2000 became a business unit manager in Advanced Materials. He is an inventor with seven US patents, two of which led to commercial success. In 2009, John initiated a 25-member international industry consortium, Materials and Reliability in Oil Sands (MARIOS) and was its founding director.

At AI-EES, John was the Executive Director for Environmental Technologies (2010), and Water and Environment (2012) and Chief Technical Officer (2014). He was Acting CEO (2016) before AI-EES was merged into Alberta Innovates. He is a co-chair for Energy Collaboratory and Environment Collaboratory in Government of Alberta.

John earned his Ph.D. (Geology) from the University of Western Ontario. He served as an associate editor for an international journal, Applied Geochemistry, from 1997-2000, and was an associate editor for the Journal of Canadian Petroleum Technology, from 2015-2016. John is a board member of the Petroleum Technology Alliance of Canada (PTAC) and the Alberta Chamber of Resources (ACR). He is a professional geologist (APEGA) and a life member of Petroleum Engineering Society (SPE). In 2015, John was named an Energy Futures Lab Fellow, one of 40 influencers from across Alberta chosen by the Energy Futures Lab to help accelerate the transition to a more sustainable energy system.