

**The Center for BioEnergy Sustainability (CBES)  
At Oak Ridge National Laboratory (ORNL)  
is pleased to announce that we are holding a SPECIAL Forum on June 7<sup>th</sup>, 2012 in the  
Ocoee Room (Room 189) in Building 1505 at 3:30.**

**Forum topics are:**

**“Research Proposal about Power Generation From Biomass and Renewables in Ecopetrol”**

Presented by Ariel Uribe

**“Current Biofuels Produced in Ecopetrol (Ethanol and Biodiesel) and the Advanced - Biofuels Research  
developing in the Colombian Petroleum Institute”**

Presented by Dr. Edgar Castillo

**“Energy Efficiency Pilot Project in Upstream Operations”**

Presented by Ariel Uribe

**Guest Speakers:**

***Ariel Uribe and Dr. Edgar Castillo from ECOPETROL Colombian Petroleum Company***

Ariel Uribe is B.S. Chemical Engineering graduate at Industrial University of Santander. His undergraduate thesis was: “Heat exchanger network (HEN) synthesis design using genetic algorithms”. He is also Master in Computer Science at Industrial University of Santander. Ariel’s Master thesis was: “Sensor Network Design for Chemical Processes” under Dr. Miguel Bagajewicz supervision. From 2004 to 2008, Ariel was a professor in the chemical engineering school at Industrial University of Santander of the curses of Numerical Analysis, Chemical Process Optimization and Computers Programming Applied to Chemical Engineering.

With more than 8 years of experience in the development of computational tools for optimization and operational research in oil refineries, Ariel developed “SigmaRef”, “SigmaPlanning” and, “SigmaEnergy”. These computational tools have been issued as Ecopetrol’s technological products in use in Ecopetrol’s both refineries (Barrancabermeja and Cartagena) and are part of the competitive advantage of the refining research program at Colombian Petroleum Institute.

It is highlighted that “SigmaEnergy” is an operational planning energy model for oil refineries. Ariel Uribe has also worked in the use of PIMS models for strategic planning in Ecopetrol. Lastly Ariel led the development of the “Integral Model of Energy-MIE” for strategic energy planning in the whole supply chain of Ecopetrol. Currently Ariel is leading the creation and execution of the company energy efficiency program in the Ecopetrol’s upstream operations and doing research and development on biopower and renewable energies (wind, solar) applied to the Ecopetrol energy supply chain.

Edgar Fernando Castillo Monroy is B.S. Chemical Engineering graduate at National University of Colombia. His undergraduate thesis was: “Preliminary economic assessment for the deployment of ethanol mini-plants in rural areas”. Edgar Castillo is also Master and Doctor in Chemical Engineering at Industrial University of Santander. His doctoral thesis was: “Mathematical model for the environmental evaluation of the productive sectors in Colombia”. From 1991 to 2007: Edgar Castillo was a titled professor of the Chemical Engineer School at Industrial University of Santander. His lectures were in the following topics: Optimization, Process control, Transport phenomena and Numerical Analysis. From 1996 to 2006, Dr Castillo was the Director of The Environmental research and assessments center (Centro de estudios e investigaciones ambientales CEIAM). There he led research projects about Municipal waste water treatments, Environmental management of moorlands, Management of landfills and Air monitoring. From 1996 to 1998: Dr Castillo was first level consultant at Colombian agricultural and livestock research corporation (Corporación Colombiana de Investigación Agropecuaria - Corpoica). He also was a visiting professor at Università Degli Studi Di Genova from 1997 to 1998. In 1999, from April to June, Dr. Castillo was a professor in industrial internship at Ecopetrol – Barrancabermeja refinery. He was a visiting professor also at Universidad Federal de Itajuba from June to July of 2004.

In the period from 2007 to 2009 Dr Castillo was the director of the Colombian sugarcane research center (Centro de Investigación de la caña de azúcar de Colombia – Cenicaña), one of the most important centers of research and development of agriculture and biofuels in Colombia.

From 2009 until now, Dr. Castillo is the Energy Diversification Specialist at Colombian Petroleum Institute where he leads all the research activities of this research center in the topics of bioenergy (biofuels and biopower), renewable energies (wind, solar) and energy efficiency.