# HB ENGINEERING, INC.

## American Clean Energy and Security Act of 2009 H.R. 2454
## National Carbon Cap-and-Trade System
## Greenhouse Gas (GHG) Emissions Reduction

**September 28, 2009 Update**

## Greenhouse Gas Emissions and Your Business

- *In September 22, 2009 US EPA Finalized the Nation's First Greenhouse Gas Reporting System/Monitoring to begin in 2010 requiring suppliers of fossil fuels or industrial greenhouse gases, manufacturers of vehicles and engines, and facilities that emit 25,000 metric tons or more per year of GHG emissions to submit annual reports to EPA. The gases covered by the proposed rule are carbon dioxide ($CO_2$), methane ($CH_4$), nitrous oxide ($N_2O$), hydrofluorocarbons (HFC), perfluorocarbons (PFC), sulfur hexafluoride ($SF_6$), and other fluorinated gases including nitrogen trifluoride ($NF_3$) and hydrofluorinated ethers (HFE).*

- *On June 2009, the U.S. House Representatives passed **H.R. 2454** that requires any entity of 25,000 $tCO_2E$ to cap and reduce emissions annually so that GHG emissions from the capped sources are reduced to 97% of the 2005 levels by 2012, 83% by 2020, 58% by 2030, and 17% by 2050. H.R. 2454 requires U.S. EPA to establish a federal GHG registry.*

- *The U. S. Senate is now working on its own form of the bill, with a package aimed at coming to the floor in the fall.*

- *Carbon Dioxide Equivalency $CO_2E$ is a value used to convert 1ton of GHG to its equivalent Carbon Dioxide in metric ton. As an example 1Ton of Methane equals 25 Tons of Carbon Dioxide, 1 Ton of Sulfur Hexafluoride equals 22,800 Tons of Carbon Dioxide. See Attachment **"Part B – Designation and Registration of Greenhouse Gases" for $tCO_2E$ values of GHG.***

- *For every 1 ton of carbon in fuel, considering stoichiometric complete combustion will produce 3.67 tons of Carbon Dioxide. For every 1 million BTU of natural gas of 1050 BTU/$ft^3$ gross heating value it produces 117lbs of Carbon Dioxide.*

- *The 10,000 metric tons of $tCO_2E$, as an example would cover facilities that would consume, based on your location and source of natural gas roughly 188 MMCF of natural gas (equivalent to 22.5 MMBTU/HR for 8,760 hours per year for natural gas with 1050 BTU/$ft^3$).*

- *Carbon content of Natural Gas 76.1%, Gasoline 84.3%, Fuel Oil 85.6%, Anthracite Coal 80.6% with 9.5% Ash, and Bituminous Coal 80.1% with 7.2% Ash. (North American Combustion Handbook, 1965 & Second Edition).*

- *The option to switch/change fuels based on their carbon content has limited application to reduce large tonnage of $tCO_2E$. There may be a need for some facilities in order to reach the required reduction to look into the use of Renewable Sources of Energy, Process and Combustion Systems Optimization, Heat Recovery Systems, and possibly changing the operational limits in the facility's environmental permits to use less fuels.*

## HB Engineering staff can assist you with a variety of mitigation options:

- **Evaluate Your Facility's GHG Emissions,**
- **Evaluate GHG Reduction Options,**
- **Evaluate Technologies to Reduce GHG Emissions, and**
- **Work with your facility throughout GHG permit process, which includes trading, banking and borrowing, auctioning, selling, exchange, transferring, holding, or retiring emissions allowances.**

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