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Four Suggested New Year's Resolutions for Coal Plants

January is a time when we all think about changes and improvements in the ways in which we can improve our businesses and our personal lives for the next year. For your company, especially if you operate or maintain a large electrical generating plant fueled by coal let us offer a suggested list of, in my opinion, the top four good ideas to implement in 2009. These may seem bold and difficult but because they can be so cost effective and beneficial they are worth considering:

1. Abolish New Source Review

For the last ten years or so, the terms "Upgrade" or "Uprate" have been banned from our report recommendations for fear of triggering NSR (New

Source Review). Known in the industry to be absurd and counterproductive, now is the time to get rid of NSR. If we all work together to educate our friends and elected officials, I think we can get a ground swell of public pressure on our Congress to get rid of NSR. Why? Because it is the right thing to do! Once removed as an obstacle to plant "Upgrades" most of the existing fleet of coal plants could be uprated and upgraded for increased reliability, capacity, efficiency, reduced carbon dioxide emissions and reduced power production costs. All of these goals could be possible if "upgrading" the existing 335,000 MW USA coal fleet was made possible. In my observations, at least 5% in capacity and 5% in efficiency improvement is possible. By upgrading coal pulverizers and other auxiliaries,

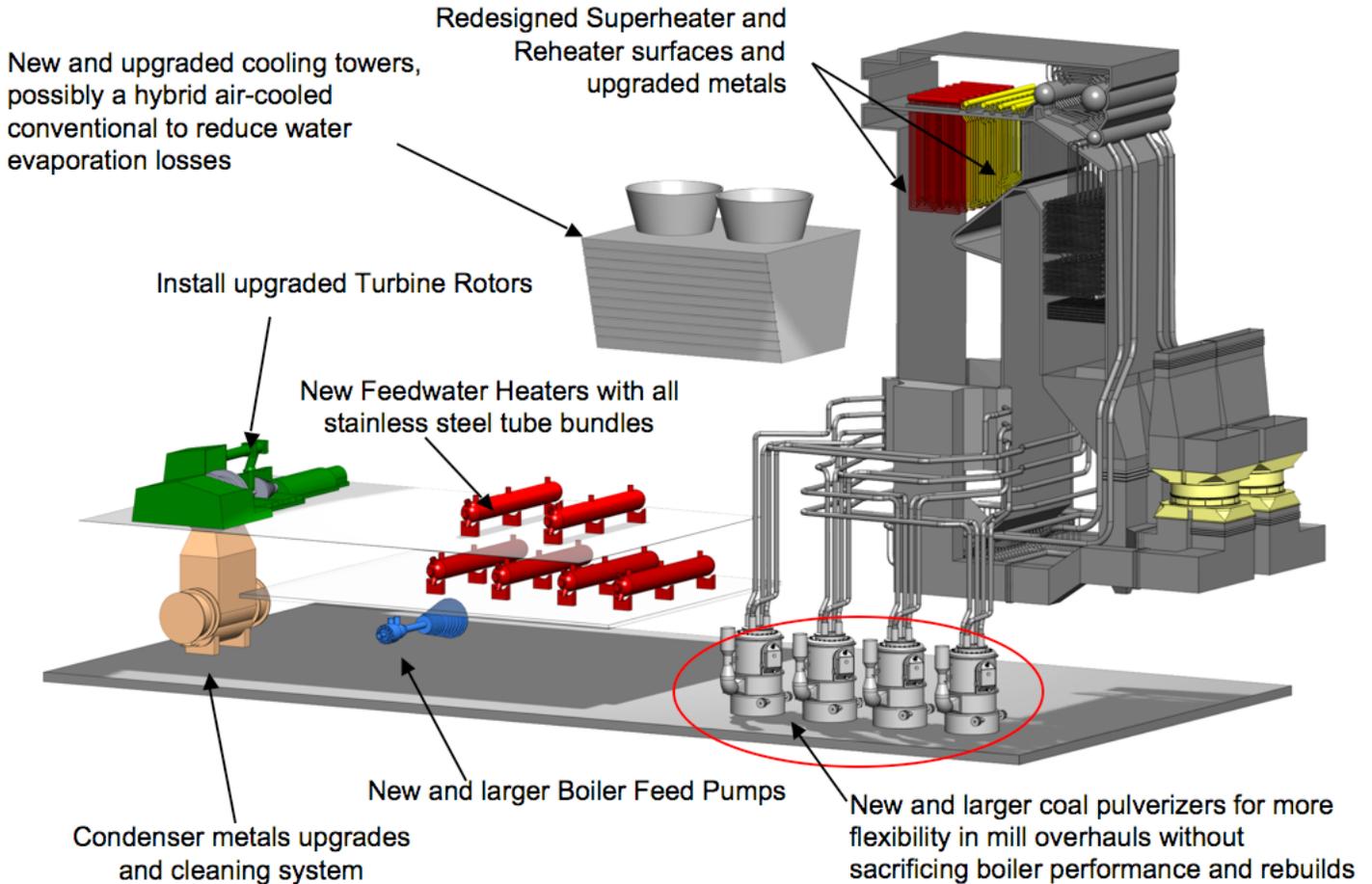


Figure 1

STORM™ “Performance Driven Approach” is Condition Based Maintenance

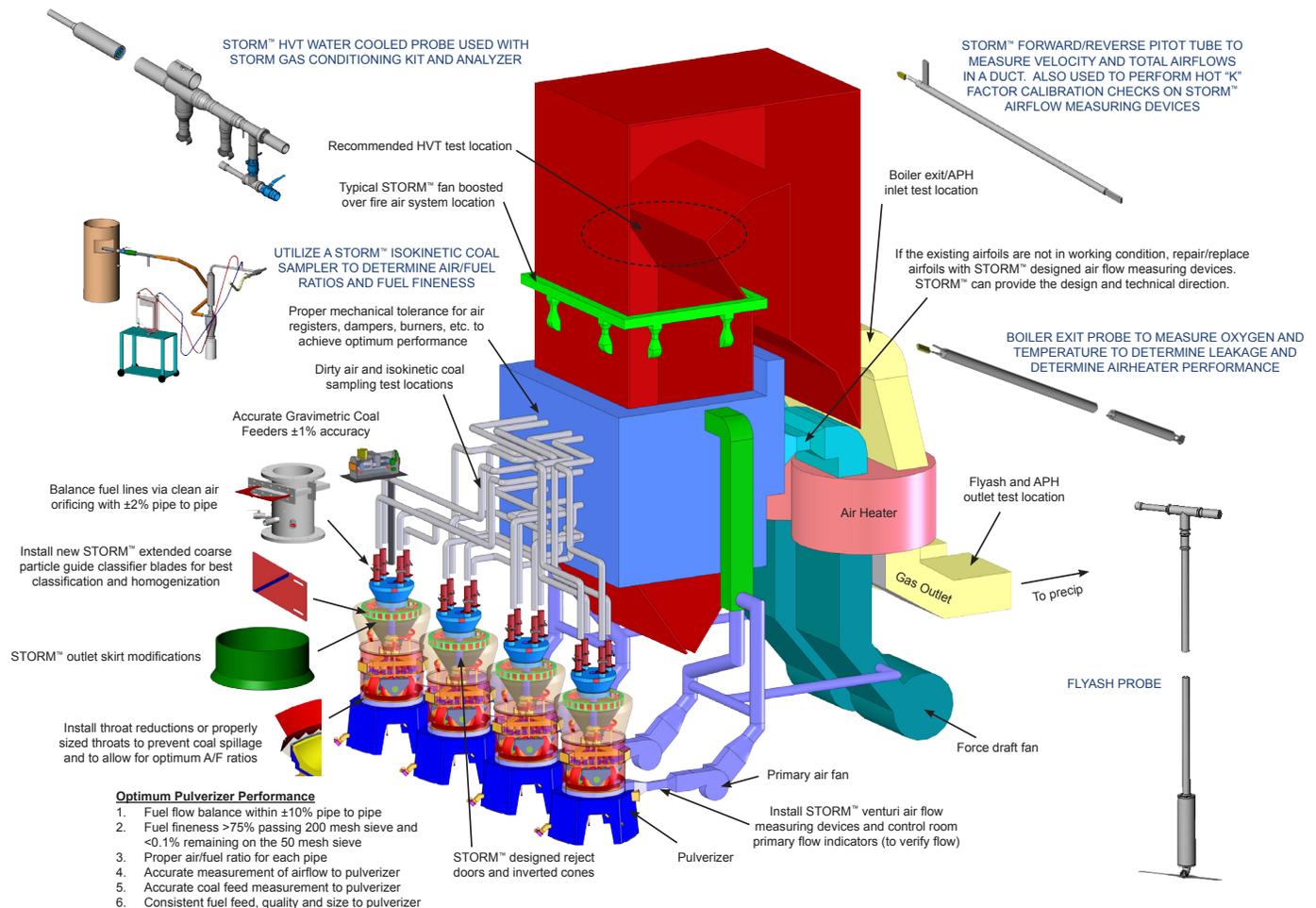


Figure 2

fuels flexibility could further reduce production costs. I sincerely believe this is realistic, achievable and possible at far less cost than the cost of any form of new generation.

The approximate published costs of new generating capacity is in the range of \$3,000/kWh for new clean coal plants, \$3,300/kWh for new nuclear plants, \$3,750/kWh for Bio-Mass plants, between \$6,000 - \$10,000/kWh for solar and wind. Upgrading of the existing fleet for significant gains can be done for less than any other new capacity increases. I will be presenting my views on this subject at the February EPRI Heat Rate Conference in Albuquerque.

Just to make the point of “How Right” this is, consider this: If 17,000 MW of old coal power generation efficiency were made possible, the changes that make the efficiency possible would be carbon free and would be equal to the total installed wind generation up to Dec. 2007. Better yet, coal power generation, unlike wind or solar, is “Base Load” and can generate at a predictable and high load factor. Renewables are

good to do where practical. I think applying upgrades to the existing fleet is also practical and good thing for America.

There are some specifics of boiler changes that could be completed to improve performance, fuel flexibility, reliability and heat rate of existing coal plants. Figure 1 shows a typical example of the benefits of “upgrading” a 35 year old 500MW pulverized coal fired unit.

According to all experts, including the DOE, EIA and EPRI, America will depend on coal for decades to come. Reasonable cost electricity from Domestic fuels is needed to save what is left of America’s industrial manufacturing base. New nuclear power plants will take a decade or more to come on line and natural gas is likely to pressure prices up as the economy recovers. Coal is the most cost effective fuel in America for electricity production. We need more of it and we need new capacity soon (the EIA says 30% increase in electricity capacity is needed by 2030). Upgrading the existing plants is the low hanging fruit, in my observation.

2. Apply the Fundamentals of Getting the Inputs Right First!

When preparing for this newsletter, I paged through many years of previous newsletters and technical papers to become aware of their content. At first I wanted to write something “New”. Then, I remembered that applying the fundamentals has been at the core of our success. Applying the fundamentals of reducing air in leakage, improving fuel fineness and distribution, accurate combustion airflow measurement and control are what we do. Our team has been hammering the fundamentals for many years. Speaking for myself, I have been advocating the fundamentals even before Storm Technologies, Inc. was founded. We believe in them and they work, so let it suffice to say, first apply the fundamentals. Some of the fundamentals and “How to” identify opportunities are outlined on Figure 2.

3. Apply the Storm APPLES Program

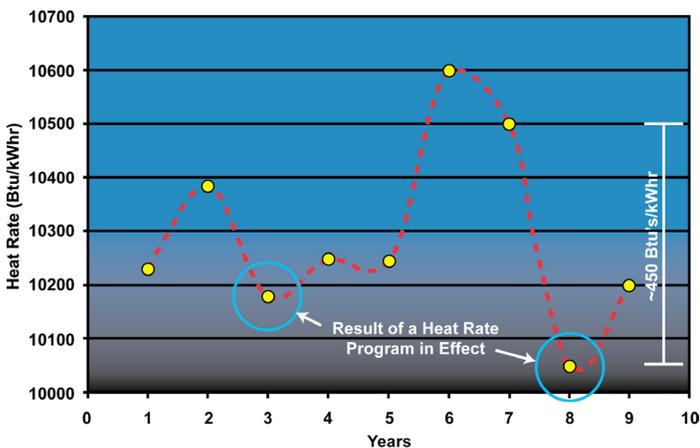


Figure 3

APPLES = Annual Plant Performance Longevity Evaluation Service

PURPOSE:

The APPLES program is a joint efforts program that incorporates Storm Technologies, Inc. (STI) involvement with the plant operations, performance, management & engineering teams. STI proven fundamental methodology for “performance driven maintenance” & “performance preservation” will be the guide for units involved. Furthermore, boiler efficiency, heat rate & environmental issues will become a part of each unit evaluation and program with solutions for improvement provided from a fundamentals & advanced technology standpoint.

BENEFITS:

- Considering the Joint efforts program, this will reduce STI Man Hour Costs Substantially; however, the main benefit based on our past experiences is the training & continuity of involving the plant team with the performance improvements by inspiring ownership.
- Improved Communication between Operations, Maintenance, Engineering & Management
 - » Storm Technologies, Inc. will Provide Sound Recommendations & Input for Budget Planning & Improved Reliability
 - » Data Interpretation - Overview of plant testing results w/ a focus on Validity & Red Flags for performance and/or reliability concerns; Evaluation of the historical performance of the units
 - » Comments on fuel changes or variations; review of the inter-related factors with measured plant performance data and/or operational issues
- Improved Performance Monitoring, Control & Reliability
- No Equipment Surcharges will apply if the Plant Purchases All of the Required Testing Equipment
- Improved Plant Knowledge of the Preparations Required for Performance Testing & Evaluation
- Involvement of Plant Personnel with Testing will improve awareness of the performance opportunities
- Includes awareness of controllable heat rate/ GHG variables along with the plants heat rate report

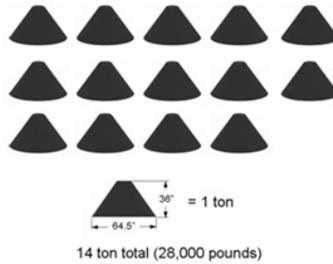
4. Spread the Truth on the Importance of the 4 E's

The environmental movement is out of control. It seems as though nobody gets the relationship between the 4 E's. **Energy** is required at reasonable cost and from secure sources. It should be used efficiently, productively and wisely. **Environmental Protection** is a must and all of us should support clean water and clean air. **Economic Prosperity** is driven by people, skills, manufacturing, harvesting natural resources or at least a combination of these factors. Coupled with the components of wealth building for economic prosperity is low cost or at least reasonable cost energy. All of the developed nations of the world, that I am aware use energy somewhat in proportion

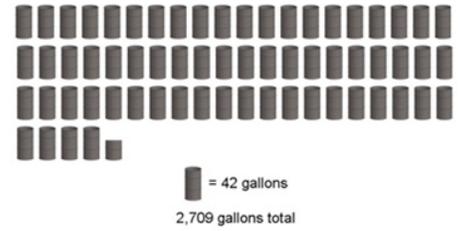
- There are over 300 million residents in the United States
- In 2007, the U.S. consumed 101.605 quadrillion Btu's
- That is 334.4 MMBtu/yr per person
- The equivalent of this amount of energy from each resource is shown

Each US Resident uses an equivalent of

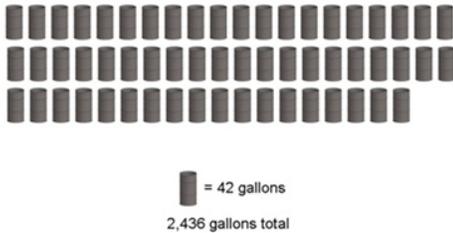
14 Tons of Coal



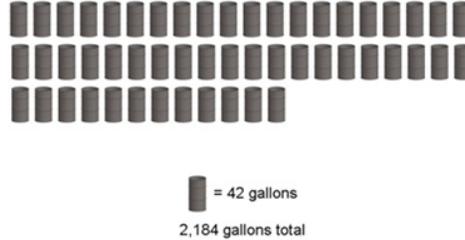
Each US Resident uses an equivalent of
64.5 Barrels of Gasoline



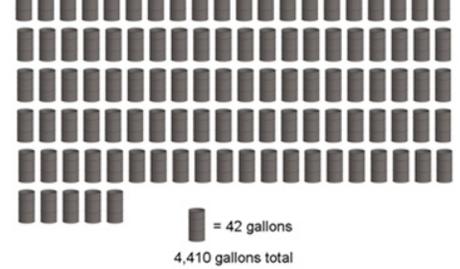
Each US Resident uses an equivalent of
58 Barrels of Diesel Fuel



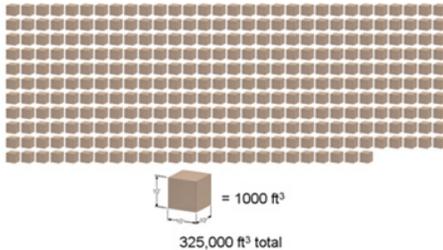
Each US Resident uses an equivalent of
52 Barrels of #6 Oil



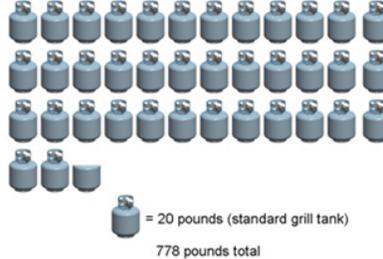
Each US Resident uses an equivalent of
105 Barrels of Ethanol



Each US Resident uses an equivalent of
325,000 cubic feet of Natural Gas



Each US Resident uses an equivalent of
778 pounds of Propane



Each US Resident uses an equivalent of
a 75'x75' Solar Panel

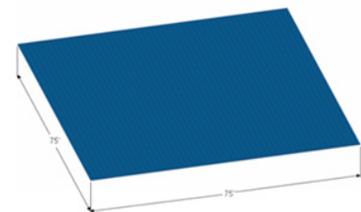


Figure 4

to the quality of life and living standards. More energy use leads to more economic prosperity. This is not to say we should waste energy, on the contrary, we must be "Good Stewards" of the energy we use. Highly developed countries use a lot of energy, and therefore, America should use our own vast supplies of Coal, Oil, Nuclear and Natural Gas. **Education** in science and engineering is necessary for America to maintain our technological edge on the rest of the world. It seems, in my opinion, America is being left behind. There are misguided people who believe that renewable power can keep America Strong. I am all for renewable power, in fact, our company plans to build renewable power systems.

However, we must not be penalizing America by allowing "Carbon Taxes" and anti carbon people to crush America's economic strength. As American citizens, we all should do our part and spread the truth and the facts of How and Where

our economic prosperity originates!

Some Facts that should be publicized are as follows:

America's economy functions on energy. Our Chief Engineer, Adam McClellan has prepared Figure 4 to show how much energy is used by every American. According to the EIA, America uses 101.605 Quadrillion Btu's of energy. Dividing this total energy consumption by 300 million people yields an average energy consumption in Btu's of 334 .4 Million Btu's per person per year. Of course this is an average and it includes energy used for transportation, electricity production, industry, commercial and residential consumption. We point this out to help underline the importance of using all forms of America's domestic energy supplies. To exclude domestically supplied oil, gas, coal and nuclear will further weaken America. Renewables are great, but the heavy lifting of

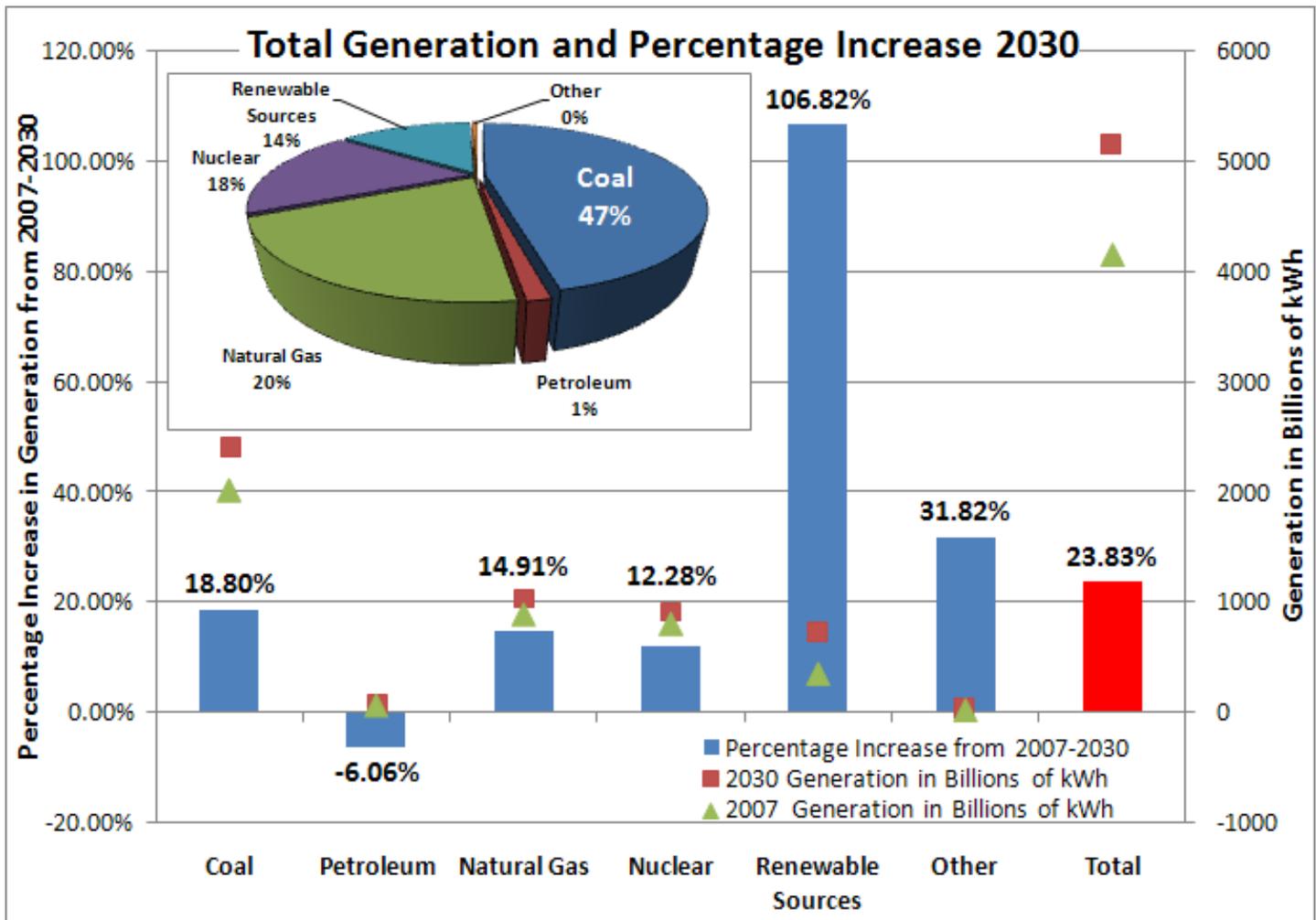


Figure 5

America's economy has been and shall continue to be with thermal fuels, coal, nuclear, oil and natural gas. These provide over 93% of America's energy now and need to be counted on for the next few decades.

Coal will continue to fuel America's Economic Prosperity. Of course, we should be good stewards and use it cleanly and efficiently. No matter how energy is looked at for the next three decades, coal should be a large part of America's domestic energy supply. This is for many reasons, including; National Security, Economic Prosperity, International Industrial Competitiveness, and to provide more American Jobs.

We should all do all that we can to educate our neighbors, our friends and elected officials on the importance of Energy and the high cost of Environmental Extremism" America's Economic Woes are Partly and in my opinion, largely due to out of control environmental extremism.

While the US will continue to use increasing amounts of all energy, coal will still contribute the largest portion of electricity generation in the decades to come. Renewables will see a large percentage increase, but will only contribute a small portion of total generation, as shown in Figure 5.

Summary:

So, here we are. Four suggestions to consider for 2009. Please let us know when we can help you and your associates to improve capacity, Reliability, Fuels Flexibility, Heat Rate or problem diagnosis. We Love our work and we endeavor to have it show!

Wishing you a very good year in 2009,
Sincerely,

Dick Storm

Dick Storm
Senior Consultant/CEO
Storm Technologies, Inc.



Instructors:

Richard F. (Dick) Storm - CEO of Storm Technologies, Inc., is a registered P.E. with over 40 years experience in the industry. Experience has been accumulated as a results and start-up engineer for OEM's, as a principal engineer and superintendent of operations for a major utility and as a department head for a technical services department of a boiler maintenance contractor. These experiences preceded the last 16 years at Storm Technologies, Inc.

Stephen Storm is the Executive V.P. and head of Storm Technologies, Inc. Technical Field Services/Sales and Marketing. Stephen has worked throughout the United States and overseas with many service projects and has a passion for achieving boiler performance results. Stephen has authored and co-authored numerous technical publications and magazine articles for the industry, and over the last decade has been involved in numerous combustion optimization, heat rate and environmental projects.

Therefore, the topics presented and discussed are done from a perspective of design, best operation, maintainability, objectivity and with a practical focus on getting the most cost-effective RESULTS!

2 Locations

for the upcoming short courses

Location:

Charlotte Marriott SouthPark

2200 Rexford Road
Charlotte, NC 28211
Phone: 1-704-364-8220
Fax: (704) 554-8319
Date: January 13-15, 2009
Time: 7:00am to 3:00pm

Location:

The Westin Hilton Head Resort & Spa

Two Grassland Avenue
Hilton Head Island, SC 29928
Phone: (843) 681-1060
Fax: (843) 681-1065
Date: February 24-26, 2009
Time: 7:00am to 3:00pm

Our Large Combustion Optimization Course is a one of a kind course that has been presented to thousands of people worldwide. This course is approved by the N.C. and Florida boards of registration for engineers continuing professional development hours.

Participation in this short course is by invitation only

Registration:

To secure a seat for the seminar, please fill out the bottom information and either e-mail, fax, or mail your entry in. For any further information, please feel free to call the office at (704) 983-2040.

Name(s) _____

Title(s) _____

Company and Plant _____

Address, City, State, Zip _____

Telephone No. _____

Fax No. _____

E-Mail: _____

Method of Payment: Company Purchase Order, Check, or Credit Card (MasterCard/Visa)

PO _____ Credit Card No. _____

Expiration Date _____ Type of Card _____

Note: If claiming PDH's, please enter PE License No. _____

Please Specify which Short Course you would like to attend: _____

Specific Questions/Interests _____

Cost: \$1,150.00 per person.

Cost includes: Seminar materials, breakfast, lunch and snacks for each day (Hotel, transportation, and other meals not included).