

## DOCKETED

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## **Increasing California's Energy Efficiency**

California's commercial buildings and industry and the electricity generating power plants last year consumed approx. 1.9 Trillion cu.ft. of natural gas. How much of that was wasted, vented into the atmosphere as Hot exhaust, 40% ~ 60%? At what temperatures?

California is in a drought. In every 1 million Btu's of combusted natural gas are 5 gallons of recoverable distilled water, and this water is very useable.

To get at this water the Heat Energy has to be removed from the combusted natural gas exhaust. The Department of Energy states that for every 1 million Btu's of heat energy that is recovered from the exhaust of combusted natural gas and this recovered heat energy is utilized, 117 lbs of CO2 will Not be put into our atmosphere.

Increased natural gas energy efficiency = Reduced global warming

Increased natural gas energy efficiency = Reduced CO2 emissions

Increased natural gas energy efficiency = Water conservation

Increased natural gas energy efficiency = Reduced utility bills = Profit

Increasing natural gas energy efficiency is good for California's Environment and it's Economy.

Natural gas is California's "clean" energy source. Natural gas can be consumed to near 100% energy efficiency. It needs encouragement from the state to make that happen.

I hope you will include this in the Governor's Energy Efficiency Goals

*Additional submitted attachment is included below.*

## Proposal # 1

### Greenhouse Gas Reduction Fund Project

The EPA states that America's electricity producing power plants are the single largest contributor of Climate Change. Other major contributors in the order listed by the US EPA are large industry, large commercial buildings, medium size industry and then commercial buildings.

In California, these large contributors to Greenhouse Gas Emissions and Climate Change consume natural gas as fuel. These are stationary facilities which make it easier to recover and remove the byproducts of combustion, (1) the heat energy and (2) the CO<sub>2</sub> and (3) the water, all which otherwise is being vented into the atmosphere.

Three factors that need to be addressed to battle the effects of Climate Change are,

- (1) Reduce Global Warming
- (2) Reduce CO<sub>2</sub> Emissions
- (3) Conserve Water

The US DOE states that every 1 million Btu's of heat energy that is recovered from the exhaust of combusted natural gas, and this recovered heat energy is utilized in the building where it was combusted or for another application, 117 lbs of CO<sub>2</sub> will not be put into the atmosphere.

In 2013 California's electricity producers and industry and commercial buildings consumed approximately 1,853,000,000 cu.ft. of natural gas. Power plants operate at 30 to 40% efficiency, venting 60 to 70% of the combusted energy into the atmosphere. Standard commercial and industrial boilers operate at 70 to 80% energy efficiency, venting 20 to 30% of the combusted energy into the atmosphere. Conservatively if 30% of the combusted waste energy was recovered and utilized, CO<sub>2</sub> reductions could be 555,900,000 lbs. less per year going into the atmosphere. If California has goals to reduce CO<sub>2</sub> emissions in big numbers and at the same time wants to improve the economy, increasing natural gas energy efficiency is an important strategy.

For over 30 years the Sidel Systems SRU Flue Gas Condenser has been recovering heat energy from combusted exhaust. This energy saving technology transfers the heat energy from the combusted exhaust into water. This heated water can be used for building space heating or to heat domestic or industrial process water. At a hotel or university the recovered energy can even be used to heat the swimming pools.

Instead of venting Hot exhaust into the atmosphere Cool exhaust will leave these chimneys. There will be times in the summer when the exiting combusted exhaust will be cooler than the outside air temperature. We call this mass cooling.

In every 1 million Btu's of combusted natural gas are 5 gallons of recoverable distilled water. To access this precious resource, what is required is to increase natural gas energy efficiency. It is a Win –Win situation.

What is Wasted Energy? It is energy that was created that has not yet been assigned a purpose.

Power plants are often located in areas with adjacent vacant land. To make the most of the wasted energy from these facilities and reduce carbon emissions, the recovered heat energy from the exhaust could be utilized to heat or cool large commercial greenhouses. Inside these climate controlled facilities food crops can be grown. These greenhouse grown crops are “fed” higher levels of cooled CO2 to help produce bigger and faster growth. With the heat energy recovered from the exhaust and the cooled CO2 being utilized, what is created is water. This water will be treated, nutrients added and then used to irrigate these food bearing plants. Not only will this provide California with food crops that may be affected by Climate Change, but it will create a lot of employment.

Power plants operate 24 hours a day producing CO2. The plants in the greenhouse will only absorb CO2 during daylight hours. Sidel Systems USA Inc. has developed a Carbon Capture Utilization System that during these night time hours will transform the CO2 into useful - saleable products. Operating this system and handling the produced products, selling and delivering these products to the end user, will create more jobs.

The CA highway 99 corridor has a lot of food and beverage manufacturing as well as other manufacturing. A lot of natural gas is being combusted with the exhaust being vented into an atmosphere that is already having a lot of health issues.

California has a lot of prisons and a lot of hospitals that combust natural gas for building space heating and to heat domestic water. Colleges and universities and district heating plants are just some of the many other opportunities that the State of California can make energy efficiency improvements to that will make a big difference to our environment. It will also be good for California’s economy as a lot of jobs will be created auditing and engineering and installing these Condensing Flue Gas Heat Recovery Systems throughout the State.

The California Air Resource Board is looking for suggestions for their next round of Green House Gas Reduction Fund (GGRF) projects. The State has been very successful in selling Cap & Trade Credits. These proceeds were designated to further reduce the effects of Climate Change in this state. Much has been done to increase electrical energy efficiency. The State has made major strides forward at producing electricity with wind and solar. We are a Leader in so many ways that the world is watching. I would hope that now California would recognize the benefits of Increasing Natural Gas Energy Efficiency not only for the environment, but also for California’s economy. Let’s show America the next big step at reducing the effects of Climate Change.

I look forward to your reply.

Have a Fantastic Day!

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Proposal # 2 is To Test a New Carbon Capture Utilization Technology For The Purpose of Reducing CO2 Emissions and Removing Ash Particulate From Coal Fired Power Plants.

The US EPA has legislated the Clean Power Plan requiring new and existing coal fired power plants to greatly reduce their CO2 emissions.

Our Sidel Carbon Capture Utilization System will transform the CO2 in the combusted natural gas exhaust into useable - saleable products. It will also transform the CO2 in combusted coal exhaust into these same saleable – useable products.

We have located a 40 MW seasonal coal fired power plant near Bakersfield, CA. Sidel Systems USA Inc. would like to work with the State of California and North American Power Group Ltd. to demonstrate to America that where there is a located waste, this waste can be converted into a purpose. Our patented Sidel Particulate Recovery technology will remove the ash particulate from the combusted coal exhaust at a fraction of the electrical cost what an ESP consumes. From the Sidel Particulate Recovery unit the exhaust will be directed into the patented Sidel Carbon Capture Utilization Reactor where the CO2 will be transformed into other useful – saleable products.

Sidel Systems USA Inc. has estimated the cost to manufacture the components sized to handle the full exhaust flow, to deliver the components to site and to connect into the power plant chimney and do testing for 1 month will cost approximately \$3 to \$3.5 million dollars.

California is a Leader State. We would like California to be the State that will show the rest of America that it knows how to reduce Carbon Emissions and increase profit margins. We are requesting that the California Energy Commission and the California Air Resource Board would work together with us at putting this project together and doing the testing for (BSER) Best System of Emission Reduction?

This technology after testing will be used to reduce CO2 emissions and ash particulate at coal fired power plants nationwide. This will result in the development of new California based engineering and manufacturing, providing additional training and jobs.

I look forward to your reply.

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Have a Fantastic Day!

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<http://www2.epa.gov/carbon-pollution-standards/clean-power-plan-proposed-rule>