Alternative Energy Series Cheap, Clean Energy Everywhere Now!

By Ed Howes

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I had sincerely hoped to profit from the things I have learned about energy over the past 20 years. Much time has passed without progress. I never found anyone to help or encourage me to bring these not so new technologies to market, so here I will offer them to the world and see if anyone might find value in free information.

The combustion process 19th Century engineering gave us, I call slow burn. Over the past century this technology has been retained because it provided great profits to Big Oil, Big Energy, Big Banking and Big Government, through fuel taxes; a very big conspiracy to rip off global consumers. All have agreed on the desirability of using more than twenty times the fossil fuel needed for inferior performance that poisons the world's air, soil and water. Indeed, it may be demonstrated in the near future that liquid fuel technology has squandered fifty times more fuel than needed per developed horsepower.

Fast burn technology, developed by Canadian, Charles Pogue, in the late nineteen forties, bought and suppressed by automakers, is a fifty five year old solution.

Charles had easily solvable power problems with his hot vapor, fast burn, gasoline fuel system. But he refused to address the performance problem in his quest to achieve 300 mile per gallon fuel economy, after successfully surpassing 200 miles per gallon with a 1937 Ford V−8 sedan. This at a time when fuel was relatively cheap in North America and few would trade power for economy. I solved these problems in a simple fashion and never built a conversion to demonstrate the solutions. This was due partly to fear of the opposition and an unreliable sense of market timing.

The old slow burn technology makes just enough vapor in a combustion chamber to light the mixture with a spark or compression heat in a diesel engine. At the same time heat begins to vaporize liquid fuel to a combustible state, pressures build to great heights and prevent rapid vaporization of the remaining fuel. In addition, the unvaporized fuel absorbs great amounts of heat that cannot contribute to combustion pressure, which creates power. This rich or fuel heavy mixture serves to lower and regulate the peak and average combustion temperatures throughout an unnecessarily long combustion cycle. This process uses a surplus of fuel that passes out to atmosphere unburned. The catalytic converter was the industry response to cleaning this unburned fuel.

Fast burn technology does just the opposite of slow burn. In a slow burn four stroke combustion engine there is fire in the cylinder for more than one complete crankshaft revolution. That is, somewhere between 360 and 420 degrees of rotation. The power stroke is a 180 degree event and if we use a bicycle crank for comparison, we can see that most of the power is delivered in half of the full stroke, centered on the mid point. That is, cylinder pressure creates the greatest torque when the piston is half way through the power stroke. The engine will easily provide all the power needed for cruise and moderate acceleration if there is only enough fuel available to make cylinder pressure fifteen or twenty degrees before and after the midpoint of the power stroke; a controlled power stroke of thirty to forty degrees. This is controlled by metering fuel so all fuel is burned up in an oxygen rich environment and the emissions will now be hot air and trace amounts of oxides of nitrogen.

Most children learn at a young age, they can pass their finger through a candle flame without pain or injury by moving their finger through the flame quickly. Such is the secret of fast burn technology. Temperatures that would melt engine parts like valves and pistons if maintained for four hundred degrees of crankshaft rotation are no problem if the burn cycle only lasts for a maximum of one hundred degrees in the case of maximum power. Performance enthusiasts looking for that extra 50 horsepower by adding fuel, are the ones most likely to melt parts. For these people − racers, hot rodders; engines likely to melt at high power outputs and too much fuel can and should be assembled with readily available thermal barrier coatings to prevent melt downs.

About ten years ago I read that the slow burn performance engine developed peak cylinder pressure at 15 to 18 degrees after top dead center, early in the power stroke. What if we could develop just twice that amount of cylinder pressure, three times as late in the power stroke? That is, at 45 − 54 degrees after top dead center. The answer is we would have more than three times the power at the point of greatest mechanical advantage in the power stroke as we do with the bicycle crank in the middle of its down stroke.

When there is absolutely no liquid fuel in our air/fuel mixture, the rate of combustion is many times greater than when there is an abundance of liquid fuel, as in the 19th century slow burn technology. This means we can supply spark much later and burn all the fuel in thirty degrees or less crankshaft rotation. An engine that can burn all its fuel in twenty degrees of crankshaft rotation will deliver twenty times the fuel economy of an engine that does not burn all its fuel in 400 degrees of rotation. Although the fast burn engine might generate peak temperatures and cylinder pressures three times higher than a slow burn engine, the burn time is so dramatically shortened that the engine will actually run cooler than slow burn engines. Smaller cooling systems will do the job at lower water temperatures, like the 160 degrees of old days.

It has never been the case that piston engines are inefficient and they could serve us very well into the Twenty Second Century as soon as we deep six their liquid, slow burn fuel systems. The reasons Charles Pogue never realized the tremendous power potential of his fast burn, 200 mile per gallon Ford sedan, was likely two things. The hot gasoline vapor made with exhaust system heat and inappropriate spark timing for an engine that required the spark to come about eighty crank degrees later than the timing it had as a slow burn factory engine. Combustion performance enthusiasts the world over, know the coldest, densest air/fuel mixture makes the best power. These people can also understand that making peak cylinder pressures when the piston is near the top of the power stroke, only tries to push the crankshaft out of the engine, onto the ground − wasted energy like standing on the bicycle pedal at the very top.

What we want is cold vapor fuel which is much more easily created than Charles' exhaust heated fuel. The secret is the vaporizing power of vacuum. Success in cold vaporizing has been demonstrated by radio frequency vaporizing chambers. But the piston engine operates on a vacuum system. In the days of carburetors, vacuum drew in the air to the engine's cylinders and metered the fuel fairly accurately by means of that same vacuum and simple mechanical adjustments to fuel flow.

Modern electronic fuel injection is perhaps the most expensive incremental improvement to slow burn technology in the Twentieth Century. It served multiple purposes. It exchanged a good, simple system, with a slightly better complex system. Computer controls took auto repair out of the realm of backyard mechanics and restricted it to $50 − 70 per hour service centers − a great big bonus for the auto service industry and a big expense to the do −it −yourselfer.

I am no combustion engineer, nor do I wish to become one. I can only say I intuitively expect two horsepower per cubic inch displacement on any four stroke spark engine modified for cold vapor fuel, using an appropriately sized carburetor as would be done on a slow burn engine.

I further expect that a performance modification that would increase the power of a slow burn engine by fifty percent, will increase the power of a fast burn engine by sixty to one hundred per cent. All the common power boosting practices work on fast burn engines better than slow burn. Compression ratios are not critical as the octane of pure vapor is up around 110. A 12 to one compression ratio would be about 9 to 1 at 45 degrees after top dead center, when the spark would occur at full power. While misfire can occur as often as 3 − 4 cycles per hundred on a new V−8 engine, misfires would be very rare with fast burn engines due to the lower compression at ignition and the evenness of a lean air/vapor mixture. The fast burn engine may be supercharged with a draw through carburetor producing the vacuum to operate a fresh air bubbler at the bottom of the fuel tank. If a richer vapor is desired in the bubbler, a racing fuel cell can be used, packed with fuel cell foam, greatly increasing the surface area exposed to liquid fuel, vacuum will readily vaporize. Large metal fuel tanks should be reinforced top and bottom by epoxying bar stock or angle stock, so they do not collapse under vacuum.

Lastly, I would like to mention that fast burn technology is a multi fuel system. With a little experimenting and fine tuning of mixture and spark, a fast burn engine can burn gasoline, alcohol, diesel, kerosene, vegetable oil, propane and liquefied natural gas. The fuel with the greatest latent energy per pound will deliver the best performance and the least powerful fuel will deliver very adequate performance. If you are anxious to try a fast burn conversion, please read my Fast Burn Conversion essay for tips and details for a safe conversion. Here`s to big, clean, cheap power for the new age!

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An Introduction to Alternative Energy

By Peter Lenkefi

What are fossil fuels?

Essentially there are three fossil fuel sources available to the world but each of them are dwindling. The most abundant is coal; coal is widely used and inexpensively extracted. As such, we have come to rely exceptionally heavily on coal and while there is still quite a large amount of coal left it is estimated that America's remaining coal will sustain the country for the next 200 too 300 years but it is by no means a perfectly clean form of power.

The biggest problem is that coal is made up of carbon, like living beings, and the burning it needs to go through in the production of energy forms carbon dioxide. This carbon dioxides traps the earth's heat and is a major contributing factor that scientists believe to be causing global warming. On a more positive note, though, scientists have created a more effective method to burn coal that traps 99% of the impurities and harmful gases that are emitted.

Apart from coal we heavily rely on natural gas and oil that are also in limited supply, and this is where the problem lies. The human race is consuming more and more energy with every day that passes and our resources of fossil fuels are being seriously depleted thanks to the way we live. The answer to this problem seems to lie in alternative energy.

What is alternative energy?

Alternative energy are non fossil fuels and do not deplete the earth's resources of fossil fuels any further. Countries across the world are being pushed into investing money into the research and production of alternative energy and many countries already have natural energy sources producing usable energy.

Wind energy.

One of the first used forms of alternative was wind energy. Many countries have developed wind farms, both off shore and mainland wind farms. Turbines are turned by wind, creating a viable renewable energy source. The problem with wind energy is that turbines can't be located near housing districts because of the noise they create, although with further research and investment technologies associated with wind energy and wind turbines will undoubtedly keep improving.

Solar Energy.

In many countries grants are now available to help pay for photovoltaic tiles which collect the heat from the sun's rays and convert it into an exceptionally safe and renewable form of alternative energy. Whether used to create electricity or to simply heat water or a central heating system, solar energy is easily obtained and the technology is very affordable. With solar energy consumers are assist with the protection of the environment.

Biomass.

Biomass is still a relatively unused form of energy in many parts of the world but more and more money is being put into funding of biomass. Biomass is the creation of energy using plant materials, and is another source of clean, renewable energy. America is one country that uses Biomass to quite big effect, being the largest source of renewable energy every year since the year 2000.

These are only a few alternative energy sources that are available around the world, and more and more funding is becoming available for the production and research of these sources.

For more more information about alternative energy please visit