

SURVIVING THE BLACKOUT OF 2003

(8/14/2003)

**Energy & Family Preparedness Tips, Tricks & True
Stories of Experiencing the Adventure of the Disaster.**

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This class will enable you to make food at home from stuff that costs pennies at the grocery store . You can be eating in minutes, and it's so good that the kids will love it.

Anyone can download the classes for free.

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Stay Safe, Stay Informed, Stay Safe.

The Start of the Adventure - The Detroit Michigan Area.

This document will tell the personal adventure of the author, Steven Harris, through the blackout of 2003. It will chronicle some of my work with emergency services and how an energy expert and civil defense expert handled the adventure. Note: At this time, it is called the Blackout of 2003, with the power grid vulnerability, international terrorism and computer terrorism, it COULD become named the FIRST Blackout of 2003 or the SHORTEST Blackout of 2003.

It was about 4:14pm, I had just eaten a light lunch and was on the couch for a few minutes looking at the news, or the history channel, when the power failed. It came back on about four seconds later and stayed on for a few moments and then it went out and stayed out. It was Thursday August 14th, 2003.

There were no thunderstorms, no rain and it was a sunny clear day with a high pressure system located over / near Michigan. Why do I know this? Because I do solar research and development work. I always

know when sunny days are occurring because I usually have tests running on solar ovens / heaters / solar coolers and other items. (I don't work on solar photovoltaic [PV], the worst thing that ever happened to the solar business).

I have a significant background of extensive training and work in the civil defense field , and the effects of nuclear weapons, chemical agents and biological terrorism on a civilian population. One of the key things a person with these types training ALWAYS does when the power fails is to turn on a battery radio / TV to see if there are any stations on the air. The other thing we do is to pick up the telephone and see if there was dial tone. Why do we do this?

If a large Soviet style nuclear device was detonated at high altitude it creates an Electro Magnetic Pulse (EMP) that would fry the majority of the non-hardened electronic circuits in the USA, this would include about 90% of the power grid. This is always a prelude to a full nuclear attack coming. So we al-

ways pick up the phone or turn on a radio to see if the power failure is just us or if it is much larger.

I hopped in my car and turned on the radio and half of the radio stations were just static. Now I knew this was MUCH larger. I went inside and turned on a battery powered radio to the large news channel and started listening...they were having traffic and weather together and just chatting away. A few minutes later they finally announced there was a major black out in the Detroit area and the AP wire was reporting blackouts in other states. Now certain that this was serious, I began to get my emergency communications (Amateur Radio) equipment together because I knew that I'd be needed in the City of Warren Michigan Police Emergency Operations Center (EOC). I am a member of the Civilian Emergency Response Team (CERT), an organization President Bush made nationwide after the 9/11/2001 attacks. Each CERT team is a team of local individuals with training.



Traffic Everywhere.

This is what I find, grid lock. It was rush hour and the majority of the intersections were snarled up, traffic was horrible and moving slow. Luckily, I had already planned, and had ridden my bike many times, on a side-streets-route to the police station. So, avoiding all of the major intersections and arrived at the police station about 20 minutes after I left the house. It was taking people many HOURS to get from one side of the city to the other. In a situation like this, the highways were flowing very well but as soon as anyone tried to get off the highway it was jammed up. The traffic situation lasted for 3 or 4 hours, as soon as everyone

got home, no one left and the streets were very easy to travel. Communications systems were also VERY messed up. On 9/11/2001 many of the main phone lines did not work but the cell phones were working. This was because the majority of the NY city had power. 9/11 was a localized event covering square miles in each terrorist event location. This event covered entire states. All of the cell towers and communications centers lost power and those that did work were overwhelmed. In less than a minute after the event started I could not get a hold of the director of our CERT team. The default policy in an event like this is for all CERT personnel to report to the police station with their emergency equip-

ment and gear. On arrival at the EOC less than 30 minutes after the event began the EOC was getting set up and manned. The emergency telephones were being plugged in and the police have a dedicated diesel generator to power the building. We had a TV with other information available and all of the critical city people were coming in.

Since everyone's cell phones did NOT work, we relied on the regular phone lines. However, we had the Amateur Radio Emergency Service (ARES) station on the air with the flick of one switch as soon as I arrived and said into the radio, "Net control this is KA8WXR Warren EOC." The HAM ARES net was on the air and our unit at the EOC was ready to go. Why is this important? Historically, the regular phones will only have battery backup from the phone company for 4 to 18 hours. We had to plan on losing the landlines if this continued on through the day. The HAM radio network would allow us to talk to all of the other EOC's in the area and really, if we had to, to talk anywhere in the world we needed by relaying messages OUT of the affected area.



I should note that I was the only person who had his own personal water and food in my 'ready kit' in the EOC. Water became an issue FAST and I had my own that I could rely on.

The Warren EOC. Who shows up at an EOC? The director of emergency services, the mayor and his deputies, the police commissioner, the fire commissioner, directors of staff, public works, water and sewage, communications and all of the other city functors. The police chief and fire chief move in and out depending on what they are doing. An EOC is a central hub of control, logistics and information.

This is how the blackout started for me. Describing the events in the EOC is not all that educational because most people have to deal with the disaster themselves which is what this document is going to describe, what was missing and how we replaced lost abilities or dealt with the power failure and how to deal with what will be worse NEXT TIME.

We all got hungry later and had food brought in from a deli but I still was the only one with something to snack on in my backpack. There were a few people I ran into who just did not eat for 12-18 hours during the evening and night. The pizza they had the evening of the disaster in the EOC and the pizza they had at lunch time in the EOC was the only food they had to eat, partly because they did not have time to eat. If the EOC was unable to get food due to other circumstances, or if the disaster went for many days, workers would have been hungry. They would of still done their job, improvised and adapted, but it sure was easier to have some food with me under my own control (which I ended up sharing with others anyway.) The people in the EOC were hard working and dedicated and over came all problems.

WATER AND SANITATION.

After the loss of the cell phones individuals started to notice the lack of water pressure. In the Warren area, which is close to Detroit where the pumping stations are, we had very low water pressure. It was flowing about 1/10th the normal rate. This was enough to flush the toilets, it was enough for average citizens to get water to boil for drinking. There was water. Further down the water distribution line (further from the lake) was Novi and other communities. They had NO water. NONE. Turn on the tap and nothing comes out. This means no water to drink, no water to bath with and NO flushing of toilets.

In this country NO ONE should be caught without water to drink in their house. In this day of terrorism and infectious disease and after the HUGE education everyone got about their vulnerabilities to the infrastructure prior to Y2K EVERYONE should have some water. This is so simple that every child would do it if only the idiot adults did not stop them from doing it.



SODA BOTTLES for WATER.

Soda bottles are a miracle of modern material science. There is hardly a plastic better than the formulation used for SODA bottles. These do NOT degrade, DO take hard impacts and can withstand very high pressures. All the average person in a city has to do is take an empty soda bottle, rinse it out well with fresh water from the tap, to remove any sugar or soda, and then fill it with cold tap water, cap it and put it away. NO chemicals, no bleach no anything added. The chlorine in normal city tap water is enough protection. Even most well waters will store JUST FINE without anything being added. The water does NOT need to be changed every 6 months, every year

or even every 10 years. If there are NO bacteria or growth medium for the bacterial in the bottle then there will be no water contamination issues. Plain water does NOT go bad. All water is at least as old as the last ice age and individual water molecules can be millions of years old, it does not spoil. Everyone caught thirsty has no excuse for not using empty soda or juice bottles for holding water. Don't use milk cartons for two reasons. 1: they degrade in 6 to 18 months and will leak. 2: Milk can never be fully rinsed out of the carton and it is a good growth medium for bacteria. Start storing some water TODAY. A gallon per day per person is the normal suggestion, more for very hot or cold climates. Generally 1/2 gallon will be

drank by a normal adult person and the other half will be needed for food preparation and sanitary reasons.

This photograph is from water at my house. I don't know if YOU want THIS MUCH, but I have a fair amount. Enough to share with people. I DID end up drinking MY water from MY supply during he blackout. It was VERY hot. I came home from the EOC in the middle of the night and was helping neighbors, I was running around a lot so I got quite thirsty. All I did was open a bottle, which was cool from being in the basement, and I had as much water as I wanted.

NOT THE BATHTUB.

Don't be stupid, don't fill the bathtub up with water to drink, maybe for flushing, but not drinking. Most bathtubs are either dirty (according to women) or have chemical residues. Want water fast? Put non-treated-non-scented plain plastic trash bags in boxes, drawers, plastic totes or any container and fill it with fresh water to drink before you loose all of your water pressure. Tie the bag shut. Dip in a glass or bottle for water when needed.

Sanitation Issues

THAT IS NOT ORANGE GATORAID!!

In a no water situation people tend to use the toilet and then cannot flush. The result is a cesspool of fecal material and urine that stinks the house up fast. This is easy to remedy.

First, piss in a bottle. For men, a gator aid bottle or a juice bottle with a WIDE mouth works best. 3 liter soda bottles work ok but require more careful aim. For women, get a large 99 cent funnel in the automotive department at Wal-Mart. This gives the squatting female a much larger target to hit and the urine still goes in the bottle. When done, cap the bottle and put it aside for re-use.

HOW TO MAKE URINE NOT STINK.

A little secret here, urine does NOT contain bacteria. It is STERIL when it leaves the human body. The urine contains nitrates and other minerals that are a growth medium for bacteria. The waste products of the bacteria is what stink. This is true for your underarm when you have body odor as well as when urine starts

to stink. Pouring a little hydrogen peroxide or isopropyl (rubbing) alcohol, or bleach or some other antibacterial substance in the bottle will prevent any bacteria from growing and the urine will NOT stink. If it stinks, you did NOT add enough, add some more. I HAVE tested this. I have added iodine treatment from a water treatment product called POLAR PURE (\$12 at a REI) and the urine did NOT stink even after 4 months of storage. Yes, I sniffed and tested it, it smells just like 'salt water'. No odor at all.

If people are going to have a hard time pissing in a bottle, then wait a half hour, they'll use it or.... use a bucket. A trash bag in a bucket with some of the antibacterial methods I just described can be used as a 'piss bucket' all day. Just go empty the bucket outside in the evening. Urine can be dumped almost anywhere, on the grass, down a drain etc... Fecal material should be buried.

Number one or Number two? Number two. The harder issue. Many people will be come constipated when there is a lack of bathroom facilities. This is fine, the body is capable of

holding this material for days with NO problems in a healthy person but the real answer is to either place a plastic trash bag in the toilet bowl (under the rim of the seat) or place a trash bag in a bucket (3 gallon to 5 gallons) and to place two 2x4's about 12" long across the bucket as a seat. Actually, 2 2x4's about 12 - 18" long over a bucket in a ' V ' shape is very comfortable and most people won't object. Either dispose of the fecal material outside right away or... place a few inches of water in the bottom of the plastic bag in the bucket and use a 1/4 to 1 cup of bleach in the bucket. This will inhibit the bacteria growth and dispose of this at the end of the day. For fecal material (and farts) it's the Hydrogen Sulfide (H₂S) that we produce that stinks (rotten egg smell). This dissipates rather quickly and then its bacteria growth that makes the cesspool begin to stink. Control the bacteria, and the stink will be controlled.

I don't know if this is TMI (Too Much Information) I simply want the reader to understand the PRINCIPLE rather than specifics. Better to read it here than to find out the hard way.

The Refrigerator

After people notice their cell phone is not working, the water is not working and the pressure on their bladder is increasing, they begin to notice their belly rumbling and you start hearing, "What about my refrigerator." Forget the refrigerator! It usually has a day or two of food in it and it usually takes that long for it to warm up and then even longer for items to begin to spoil.

Eat out of your refrigerator and freezer first and eat the ice cream first (twist your arm harder right?). Keep the dam door shut unless you need something and don't go spend \$500 on a generator for \$100 in food in a refrigerator or freezer. A large chest deep freezer full of 'high value meat' will stay frozen for 2, 3, 4 days. Throw some blankets over it to increase its insulation factor. If you do lose food, most of the time your home owners insurance will cover the loss.

The health department put out a notice that stated, "If food has been warmer than 40°F for two hours then throw it away." This is such bull crap that I cannot even begin to comprehend

the stupidity. In the middle of a potential power failure where food and water are potentially unavailable for days or a week (See the "You Have No Concept Page") why tell people to throw out the only food they have? This is like telling a person floating on the ocean after their ship sinks that their life jacket may spring a leak in a few hours so they should get rid of it now and tread water manually. My refrigerator is about 42°F most of the time, NOT below 40°F...

The ambient temperature of the house was 90-95°F during the day and my house had no power to the refrigerator. After 34 HOURS my refrigerator was 63.5°F and my freezer was 53.0°F. I just moved my milk and butter from the refrigerator to the freezer and it was nice and cool, not cold, but cool and I opened both doors about 10 times over those 34 hours. I just started eating my lunch meats, bread and drinking the milk. There is NOTHING wrong with 53°F milk, there are places in the world that WISH they had constant 53°F storage of milk. Most cheese and butter is pasteurized and does NOT spoil fast and eggs can stay just fine for OVER a month in the shell. Once eggs are

open and mixed (like in egg salad or mayonnaise) it can spoil, but not in a shell.

Just start cooking your meat on the BBQ or gas stove and eat it. If anything becomes stinky or has something growing on it or tastes funny then DON'T EAT it. In a world where we eat 'aged beef', which is rotted meat, and people order rare steaks it seems STUPID to throw out meat that has been above 40°F for two hours. Use common sense. If you have too much meat or ice cream to eat before it melts or really gets spoiled then give it to your neighbors to eat, especially if they'll cook it for you.

Putting food aside to store is VERY easy and the discussion on the subject is a little long. For a FREE, COMPLETE class on putting food away for an emergency, get the MP3 Audio of my last Family Preparedness class (FOR FREE) at **KnowledgePublications.com**

It is fun and easy to listen to and I cover ALL of the subjects needed for protecting your family and loved ones in time of a disaster. Remember, I gave the class BEFORE the black out, listen to what I have to say about multi-state power failures.

The Constant Drone of Generators

Generators are ok for thunderstorms that cause blackouts for a few days, or even a week but power failures that are statewide, multi-state or nationwide are a MUCH different story.

When a tornado hits and power is knocked out to 500,000 out of 2.4 million customers then generators can be helpful and many people run these for 24 hours a day. When all 2.4 million customers, and multiple states affecting 50 million people, are out of power then a generator should NOT be run for 24 hours a day.

A refrigerator or freezer does not even need to be run for 1 hour out of 4 to keep everything cool. Cheap gasoline generators are hogs when it comes to gasoline consumption and will use a great deal of precious gasoline that cannot be replaced. Even with a light load on the generator lots of fuel is used.

Generators should be saved and run only for a few total hours a day when a large TV, the refrigerator and/or freezer needs to be run or food needs to be made (mixer, grinder, blender, microwave, but not an electric stove). Starting the

generator and having the neighbors over for a movie party is a great idea. Pop some pop corn, get the food out of the freezer, cook it up and put in a DVD and enjoy yourself. This might be 3 or 4 hours per night.



This is a photograph of a man with a \$1000 generator to power his whole house and he owns 5 gallons of gasoline and he does not have any more.



His generator has just become a wheel barrel because he CANNOT GET any MORE GASOLINE. NONE is available. Not in Warren, not in Detroit, not in OHIO and even if it was 100 miles away most people did not have enough gas to drive 100 miles to Lans-

ing and back. (in very slow traffic with no traffic signals).

YOU ARE STUCK.

You cannot leave, you cannot drive OUT of the black out area. The airports are not working. On 9/11 the only way across the country in less than 4 days was to DRIVE. During the Blackout of 2003 there were NO FLIGHTS in the affected states and you COULD NOT drive out of the area due to lack of gas and initial congestion on the highway if you wanted to.

YOU ARE HOME AND STUCK and have a limited amount of gasoline. Don't waste the gas in the generator just to have the comfortable sound of its humming in the background as the kids watch cartoons so you can sit down and feel good. When are you sucking on a hose to get gas out of a car to run your 4 watt monster chasing nightlight all night long you won't feel so safe and comfortable.

After 3 or 4 days when you have no gas, no power, no food, no water and NO LIGHT and your kids look at you, you won't feel so good. Ration your fuel.

The P A N I C for Gasoline



This is a line for gasoline on Hoover Road south of the 696 Highway over 1/2 mile long. Any rumor of a gas station with power had people coming from tens of miles away. People ran out of gas while waiting in line. The police had to close stations and roads so fire trucks could use some of the main roads. The arrow points to the gas station.



Fights frequently broke out at gas stations. The worst was when the power was coming back on, a AAA survey found that 9% of the gas stations were open and pumping fuel. Before this 0% of the stations were open but people drove around looking for fuel even though Consumers Energy said that all 2.4 million of its 2.4 million customers had NO electricity. Black marketing was also common. People would fill up a 5 gallon can for

\$8 in gas and walk across the street and sell it for \$20. Special lines formed at pumps for people who ONLY had a gas can. Some of these lines were 300 people long! Any gas station that got power ran out of fuel in an hour or so. Those stuck in the 4 hour line would stay there in hopes of a gas truck coming soon. Some people stayed in line all day and got nothing but an empty tank from idling the car in the 95°F heat with the car



A/C on. Imagine if this was NOT a 36 hour black out, with the power starting to come back after 24 hours, but a ONE WEEK black out. The reaction of the public for gasoline was panic, they HAD to have it, even if they did not need it. They had to have it. It was FEAR driven. Please... don't let your generator run 24 hours a day and then go fight for gas to keep the Nintendo and DVDs going for the kids.



This is the definition of a Pedestrian. A person on foot, with no motor transportation. This man is walking and walking looking for gas. He might be a local resident needing gas for a generator or a driver looking for fuel in a now stranded car. He cannot get home. Either way, he's only got a

3 gallon can and that I guarantee you is empty. If you think people fight for gasoline, wait until a longer disaster, a 48 hour one and watch them fight for water. Wait for a 72 hour disaster and watch them fight for food. Wait for a 96 hour disaster and watch them kill for gas, water and food.

You have NO Concept, None!

For the people who were involved in 9/11/2001, for those who were involved in the Blackout of 2003. For the city officials, the police, the fire and the ordinary people; you have no concept of what a real disaster is.

If you are surprised to hear about people fighting for gasoline, wait until a longer disaster, a 48 hour one and watch them fight for water. Wait for a 72 hour disaster and watch them fight for food. Wait for a 96 hour disaster and watch them kill for gas, water and/or food

As I stated earlier, 9/11 was a disaster in terms of square miles. The 2003 Blackout was millions of square miles and 50 million people. It struck our hearts to watch 9/11 on TV but we were not thirsty or hungry or freezing.

It can't happen? We normally have 1 emerging infection every 40 years. We've had three new emerging infections in the USA in the last 3 years. West Nile Virus, SARS and Monkey Pox. We've had a power outage that was not seen on this scale since the 1970's. Think it can't hap-

pen again? It can happen next week only this time it could be 1/2 the country. Who's to say it wasn't computer terrorism bringing down the grid. We proved this could happen. Who's to say it won't be computer terrorism next time.

A 20 person terrorist operation (like the one on 9/11) could bring down multiple points of our power grid at key points across the country all at the same time. Once the grid is tripped, it takes about 18+ hours to start getting it going again. If main lines are damaged, or mined with explosives, snipers or chemical or biological weapons, it could take weeks to repair.

It's not the nuclear weapon that really kills people, it's the loss of the infrastructure that goes down from the blast wave and the fires that kill people. No power means no food, no water, no sanitation, no fuel, no communications, no transportation. This means no health care, rampant infection that always accompanies a disaster (cholera, dysentery, other infection) and without medical care people die. Lets try this exercise in the middle of

winter over 1/4 the USA in the northern portions like the 2003 Blackout. Many would die of the cold. No power means no heat.

Imagine a SARS outbreak in the USA this winter so bad that people do NOT want to go to work, to the grocery store, to school, to friends, neighbors or relatives. Try fixing a power grid in the middle of that. Masks are not going to protect you from other people. You better wear goggles as well. The ocular membrane (eye) is a prime route for infection. For a FREE audio class on SARS and protecting yourself, go to **KnowledgePublications.com**

In a speech given by one of the best professionals in the civil defense business at the 2002 Doctors for Disaster Preparedness, Dr. Wood was asked about smallpox by a man and in exasperation over the man not understanding the seriousness of the subject he said, "You're helpless. You don't have a chance, you'll die like slaughter sheep." A copy of the audio is available at USAHomeLandDefense.com Start your family Preparedness TODAY. You Have NO Concept!

Grocery Store, Money and ATM's

In the audio of my free Family Preparedness Seminar at StevenHarris.net you'll hear me ask the class to open their wallet and purse and tell me how much money they have. While a few people out of 40 had over \$100 the average was \$10 to \$25 per person. When the power went down and the cell phones went down and the water went down so did all of the credit card ability and the ATMs. You can only buy items with the money you have in your wallet. The event started after 4 pm EST on 8/14/2003. At 7 am on the 15th the Kroger's grocery store on Hoover south of 696 got their power back. I took this photo around 1 pm in the afternoon. The Kroger's Corporation and the area manager, Noah King, and their emergency operations team deserve a HUGE gold star for what they did. They packed their shelves and had special deliveries of food and water shipped all evening and night and morning to the store because people were in need AND they knew when the power came back on they'd be swamped. During the black out they only accepted cash and



checks. NO credit cards could be accepted. Imagine this going on for 3 days let alone a week. The shelves WOULD be bare, the lines would have been longer, fights would of occurred for food and water just like it DID for gasoline after ONE day. The grocery store was not even without power for 15 hours and look at the line of people. When I was there, bread was very low, so was milk, half the meats were gone (people with BBQ's) and the water shelves were empty BUT... water was coming in by the pallet load

and was up front and plainly available. Ever see piranha fish gut a cow to the bones?? That's what people did to the CASES of



water before my eyes. Do you want to be fighting the masses with \$20 in your pocket and a car running on fumes or do you want to have a little bit of your own preparation for a disaster.

There are words that describes these people you see in many of these photos; helpless, desperate, vulnerable and victims. After these words you'll find; casualties, incapacitated and dead.

Despite the role model quality exhibited by the Kroger corporation, this excellence will only benefit the people for so long. When the trucks cannot get in the food cannot make it to the warehouse and from the warehouse to the store and the people themselves cannot get to the store, then there are going to be real problems.



After you listen to the free Family Preparedness class you'll never go hungry again in your life. You'll be able to make the simplest food with the cheapest of materials that store for years and decades. The bread is gone, but you'll have your own bread in as little as 10 seconds. Enough bread for an meal for the entire family for the whole day for less than one dollar. It is worth listening to, or would you rather spend your time listening to the dixie chicks on the way to work.



People lined up at the bank when it finally opened.

People never really got the concept of NO MONEY in many of my classes. It did not hit home until they only had \$20 in their pocket and they had to buy 20 gallons of gas at \$1.50. Imagine how much gas you'd get if

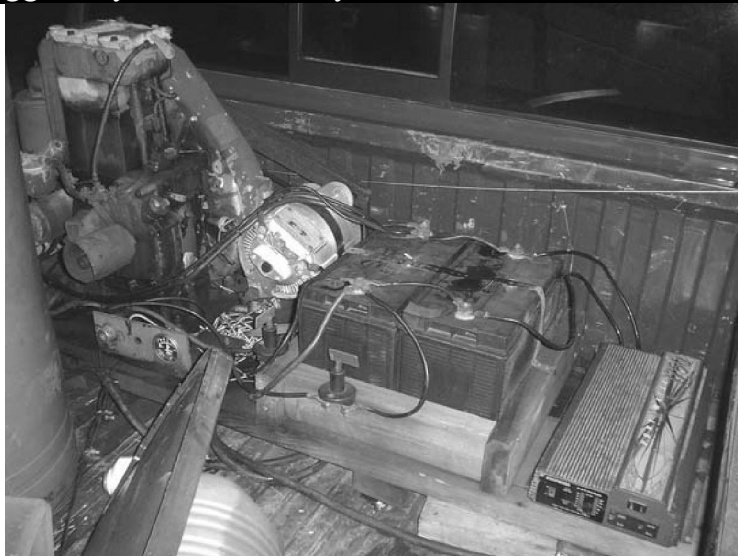
the price was \$5.00 a gallon due to prices being raised in a crisis. Some things will not be available at any price and all of the money in the world will not buy the food, water or gas you need. Even if you did have a bunch of money you'd be subject to the theft of it by someone who is hungrier than you are. Desperate people do desperate things. However, now that everything is "back to normal." Food, water, batteries, fuel, stoves, tools and more are at world record inexpensive

prices. It's a lot easier to buy the stuff you need now than to pay for it with dollars, your health or your life later.

Imagine going to dial 911 and the phone does not work. The cell phone does not work and maybe if you called 911 the operator may say that they could not get to you for hours. You are on your own. Time to take that Red Cross or American Heart Association First Aid and CPR class. What you have between your ears you cannot loose.

I Plugged My House Into My Car

This is a true statement. I really did this. I came home about midnight from the Police EOC and I plugged my house into my pickup truck. For those of you who don't know me, I was development engineer in the Scientific Labs of Chrysler / DaimlerChrysler Corporation. Not only did I work in vehicle development related functions but I worked around and knew the people in electric vehicle and hybrid electric vehicle groups. I now consult professionally in the hydrogen, solar, fuel cell, reformation field as well as other aspects of energy work and other automotive work. I understand energy very well. I travel the USA for a month every year in the summer and I usually go to the West and the desert Southwest. Its HOT there. 117°F during the day, 105°F at night. I like to sleep at 65°F so I have an A/C unit on my little trailer and I power it with a diesel series Hybrid electric generators I made. I came home and plugged my truck into the house and powered it up off the truck and batteries, I did not even start the generator. Not for lack of fuel, it only uses 1 gallon per 7 hours of running a 600 watt A/C unit



Diesel hybrid generator in my vehicle. Its mounted here all the time.

(yes, *I* measured this myself.)
If you

REALLY want details on the generator it is described in detail in my book "Sunshine to Dollars" available at

www.KnowledgePublications.com.

I'm not going to convince you to do the nerdy stuff I do for my research but I am going to show you how to do this with YOUR vehicle for as little as \$28 or less. The principle is sound and my neighbors used it to light their house quite well during the blackout. Your



My 1997 Dodge Dakota, 1963 Sierra II camper and a 1968 Benson AutoGyro on the back of the truck.

car is designed to drive over 100,000 miles and it costs many tens of thousands of dollars brand new. It is made better today than ever in history. It will sit in your driveway and idle just perfectly. It makes a heck of a generator.

The Harris Hybrid Home Generator Made SIMPLE.

In the photo you see a DC to AC "INVERTER". Plugging this into the car power outlet (looks like a cigarette lighter but does not require the key to be on for power) generates 120 volts of modified sine wave "AC" at the 120 volt outlets on the front of the inverter. Plug an extension cord into this and run it into the house. Any cheap cord from the store will work well. My favorite is the bright orange 16 gage, 100 foot extension cord for about \$8.00 from Home Depot. Get this through your head, it does NOT have to be a heavy cord, the inverter only produces 300 watts max and only 150 watts through the power outlet plug in the vehicle. If more than 150 watts is needed then the inverter needs to be connected directly to the battery with a pair of alligator clamps, but you don't need more than 20 watts most of the time. See that light bulb in the photo. That is a 7 Watt compact florescent bulb, and I think it is too big. I prefer to use 3 watt chandelier Compact Florescent (CF) bulbs. The 7 watt CF lights a large room up JUST



FINE. Its about as bright as the average Coleman lantern and it can be turned on and off on and off at will without relighting it and it is NOT a fire or a carbon monoxide threat. A small car battery is rated about 30 amp hours at worse. Lets say you only want to use half of this before you start the car to recharge the battery. Then two 5 watt bulbs plus the inverter power will be close to 12 watts. 12 watts divided by 12 volts is 1 amp of current draw. We have 15 Ampere Hours (AH) to play with so 1 amp for 15 hours is 15AH. That means you could run 2

bulbs for about 15 hours before starting and idling the car. Idle the car for about 1 hour to replace the energy lost. A truck battery would be closer to 60AH and thus would have about 30 AH to use. If a TV is to be powered (like a 19 inch TV) this could draw around 120 watts. 120 watts / 12 volts is 10 amps. DON'T even THINK of pulling this amount of energy from the battery by itself. You'll fall asleep and drain your car battery and then you'll be YELLING AT ME and I don't want that. If more power than...oh... lets say 15 to 25 watts is going to be

used then just let the car idle outside while the TV or the FAN or something larger than 15 watts of lights is being used. This will prevent the vehicle from getting a dead battery.

EVERYTHING THAT WAS USELESS BECOMES USEFUL AGAIN.

This is the real reason for the inverter. All of those personal electronic devices that were useless or did not have batteries are now useful. Power an AM/FM radio, small TV (like a \$20 black and white TV), charge your cell phone(if the cell phone system is working), or run your laptop computer. This method is NOT going to power your furnace, microwave, refrigerator, freezer or hair dryer BUT will give you back all of the little things you lost. Playing a jambox with some tunes does not use much energy and can be a big moral booster. During the first week of a disaster people are constantly listening to the news. This inverter can cost from \$20 to \$50 depending on the store. Walmart, Kmart, BestBuy and other stores all carry the devices. The one in the photo is a 300 watt inverter.



(Above) This is a little 75 watt inverter I got at Gander Mountain for \$20 on sale. I've seen it at Bestbuy for \$30. I've also gotten 400 Watt inverters at Sams Club for \$28.00. I'm using this little 75 watt unit to run a small 5 watt CF lamp in my den.

As a different method, I used a simple 115AH deep cycle marine battery (\$55

at Costco, \$65 at Autozone) hooked up the 75 watt inverter making 120 volts for the 5 watt CF bulb (in the lamp) and the 12 volts from the battery is charging my cell phone (not pictured but you can see the cord) and it is powering a 120 volt /12 volt / or battery operated black and white TV / AM / FM radio (\$25 at Walgreens). It also powers a 1 hour NiMH AA/ AAA battery charger that I used to power smaller HOME radios and lights. I'll describe the selected usefulness of AA's around a house, but AA's are NOT for a ' real ' emergency. I did use this marine battery method during the blackout even when I had my truck powering the house.



Illumination Around the House (14 Years of Light)

In this book when I talk about flashlights and radios and in my classes I give (free audio version at <http://www.KnowledgePublications.com>) I'll say that if I find one of these SILLY LITTLE LED lights with AA or AAA batteries in it in your EMERGENCY KIT that I will firmly place my foot in your rear end. If I find rechargeable batteries of ANY type in your EMERGENCY KIT I will do the same thing. ONLY D CELL Alkaline batteries are to be in flashlights and radios for your emergency kit that you will entrust your life with. Sitting around the house and sleeping is not a LOST CHILD emergency or a HELP ME NOW emergency. We all have a great deal of items around the house that use AA or AAA batteries. CD players, color LCD TV's, game boys, small flashlights and even silly little LED lights and head lamps. Listen CAREFULLY. This is for AROUND the HOUSE ONLY when your are 'waiting' for the disaster to calm down. Disasters are like combat and can be 98% boredom and 2% terror. There are MANY AA/AAA



NiCD and NiMH battery chargers and the ONLY two I like are the Rayovac 1 HOUR charger (it MUST say 1 hour) and the brand that says DIGITAL on it which is really a MAHA brand charger. The MAHA charges in about 2 hours. Many of the 'others' can take 8 to 16 hours and this is TOO LONG for a disaster home situation. The light on the left is a Rayovac 3in1 headlight that runs for about 100 hours on 1 white LED, 150 hours on 2 red LED's and about 2 hours on the incandescent (brighter) bulb. These times are for the 700mAH NiMH batteries I have in it. Use it for 50 hours and then put the 3 AAA batteries in the charger and the batteries are charged in less than an hour. The charger can be plugged into the car or the

marine battery and don't even think of needing to run the vehicle while this charges. It sips power. Get 8 to 16 AA NiMH batteries and use them all you want, all can be recharged FAST and with almost NO effect on your car. I did the math, and remember I'm an automotive and energy professional. If 1 gallon of gasoline was used to idle a car and then to charge the AAA batteries for the Rayovac headlamp and the batteries would last for 100 hours on the single white LED, then after ALL of the HORRIBLE efficiencies of idling the engine, alternator, battery, charging etc...one gallon of gas would give 14 YEARS of illumination (24 hours a day.) Your car, some gasoline and a ONE or TWO hour AA/AAA charger and 8 or more bat-

teries will give the average home a great deal of energy to be used in all of the little things around the house that make a disaster much nicer. The Rayovac 1 Hour charger costs about \$30 to \$35 and it is at Wal-Mart and at Walgreen's as well as Target. It comes with a plug for 120 volts AC as well as 12 volt DC cord for the car. The "Digital" version is at Wal-Mart for less than \$17 and is in the photo department. This may or may not be on clearance but in July I saw them in Wal-Mart's from Michigan to Oregon to California to Arizona, Texas and the back to Michigan on my trip around the USA. I suggest the 1800mAH "Digital" brand batteries from OfficeMax, 4 for \$10 or from Walmart or Target. The "Digital" charger is also at OfficeMax but it is \$30.00 and comes with 4 batteries. The Rayovac headlamp I described takes AAA batteries but the little white LED fold up light next to it takes 4 AA batteries. This is \$8.00 at Walmart and it is an Eveready product. I thought this was the most stupid, worthless light when I saw it, but I bought one of each light, CF bulb, AA, AAA NiMH battery and NiMH charger I saw and I ended up falling in love

with this light. I've read by it every night for months and found it to be very adequate for working on a table or reading or making sure I don't trip over something in the dark. Again, AROUND HOME ONLY, not for searching for lost children and NOT to be used in a 'REAL EMERGENCY' emergency kit.

ONLY D CELL ALKALINES. Why?

A "D" cell alkaline battery has about 14,250mAH (mili-Ampere Hours) of capacity when it is fresh. A AA alkaline has about 2400 and a AAA alkaline has about 1100. See that date on the alkaline battery? It means on that date the battery will have between 82% and 84% of its energy from the day it was made. So if the little LED light would run for 100 hours when the battery was fresh, in about 5 years (on the date) the light would run for about 80 to 85 hours. This is ONLY if the battery is stored at ROOM TEMPERATURE. If the battery is in a refrigerator, freezer or in HOT temperatures (your car, Tucson etc...) then it will have LESS energy. it's a MYTH to put a battery in a refrigerator or a freezer. I don't care what you read or were told. I did the test

myself and I spoke to the head chemist at Duracell on this issue many years ago when I was doing some battery research. (Also, I LOVE Duracell batteries, if you life has to depend on ONE brand of battery, make it the coppertop.)

Battery 'Self discharge' time is very important and you MUST understand this. The alkaline will have 80+% after 5 years, the NiMH batteries I just suggested for HOME use loose over 1% PER DAY. That means you'll be at 80% in about 15 to 20 DAYS! NiMH batteries are charged and then used, charged and then used and NOT put away charged for an emergency. Understand?! With the advent of our great NiMH technology, don't bother with NiCD batteries. A NiCD AA is about 600-1000mAH, a new AA NiMH battery is 1800-2000mAH. Watch out for D cell NiMH, many times it is only a AA in a D cell shell and is not over 2200mAH in size. 'REAL' D Cell NiMH batteries are 8000 to 10,000mAH and take a special charger, but Rayovac makes one of those too but it can take 2 days to charge 4 10,000mAH NiMH D cells in it.

Illumination and Power at the Harris House

My name is Steven E. Harris and most people who know me think the E. stands for ELECTRIFIED. I'm a professional in the energy business and I understand electricity and safety associated with electricity. I have a way that I energize my house from my power sources during a blackout that are dangerous for a non-electrician type of person to do. So I'm NOT going to tell you how I do it because I don't want some idiot to electrocute him/herself or their children or pet goldfish. So if you want to energize your whole house contact an electrician and have him put in a disconnect box that is up to code. With that said I'll show some of the advantages to having a house that is energized from an inverter or a generator or a hamster running in a cage.

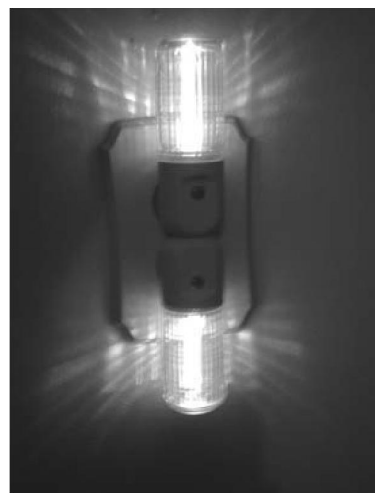


These are the lights in my

bathroom. I have six CF 15 watt bulbs in the fixture and each 15 watt bulb puts out the illumination of a 60+ watt incandescent bulb. Since my house was being powered from an inverter and a battery bank I did not want to waste my battery energy. I manually unscrewed 5 of the 6 lights and just had one working. Even this one is too bright for the bathroom when I'm on battery energy but I did not leave it on long. ALL the lights in my house are CF bulbs and I could walk around my house and just flick on the light switches and I'd have light in the room. This made life MUCH easier.

At COSTCO I found a new white LED nightlight and I had to play with it. The lights were 6 for \$10. I got some, loved the light and wanted to buy more just in case I had a blackout (before the blackout). The day of the blackout I bought 12 more. When the blackout happened I had 18 LED nightlights. I would plug one or two into each unused outlet in a room. The lights draw 0.15 watt EACH. Not 15 watts, 1/100th of that. 0.15 watts.

This gave enough light in each room that I could walk around and not trip over stuff and I could still see everything in the room. The power consumption of all 18 was less than 3 watts. Below you see TWO lights in an outlet, one right side up and one upside down.



RADIOS

During a disaster people will be glued to what ever information source available. One of the items I DETEST are the \$50 - \$100 wind up radios. These promote a false sense of security. The spring life of wind up radios is about 3000 hours. This is about 4 months when used 16 hours a day. Winding one every 30 minutes means winding it over 30 times in one day. I do planning for people and companies who want over a YEAR worth of food, water, fuel and emergency supplies. Having a radio go SPRONG!!! as the spring breaks is just NOT acceptable. The radio on the left is a COBY AM/FM/TV/Weather radio that I got at a discount store for \$8.00. It runs on 2 D CELL batteries and will play for over 3 MONTHS, yes, 3 months, 24 hours a day. Yes, I DID the test myself. This is on low volume, not blaring audio. This means that 4 dollars worth of D cells will play this radio for LONGER than the spring life of the wind up radio. This radio uses 2 D cells so 4 D cells will play this radio for about 6 months. This AM/FM/TV/ Weather radio would be worth it if purchased at \$30.00. I never used a radio with TV



audio on it during an emergency but we found ourselves listening to it in the EOC all day. Even when we had CNN on the main TV, the communications director would have the radio on the right on the local AM radio station (listening to it on low while on the phone) and the police commissioner liked to listen to a local TV station while he was doing his job and glancing at CNN on the big TV. EOC's are KNOWN for INFORMATION OVERLOAD. The radio on the right is a radio shack AM/FM and short-wave radio. It costs over \$50 and I do NOT think this is needed. I had it with me but we never listened to short-wave and since I have a ham radio license and equipment I have better ways of listening. A dear friend and mentor of mine

is an AM radio EXPERT. He does what is called Dxing. That is listening for AM radio stations all around the world. He has done this all his life with what we think of as 'old tube type radios.' Back in the old days AM radio was all there was. Not only is he a radio expert but he is an antenna expert. Dave confirms for me that the most simple \$8 radio shack AM/FM transistor radio will be able to pickup AM radio stations AROUND THE WORLD if 95% of the other AM stations are off the air (major world disaster.) So the simplest AM radio will always be able to pick up signals from someplace that has power. If I'm in Michigan that means I could listen to California, Texas. Even Australia if the whole USA was out.

COOKING.

I have a whole section on food and cooking in my Family Preparedness Audio Class in MP3 format on my KnowledgePublications.com website so I won't repeat it here (the class is FREE.). However I will mention that I have a natural gas stove. Since my stove does NOT have a pilot light and there was no electricity, the electric spark ignition device does not work. So I had to light a match and then turn on the gas and light the stove. Don't reverse this order unless you want to lose the hair or skin on your hand. I used my stove for boiling water (in the blue tin cup) and I put boiled some hot dogs and I still had some bread and buns and I snacked on this in between my work at the EOC and helping around home. If you have an apartment or an electric stove or just need a very good, reliable and SAFE source of cooking then I really LOVE a simple \$15 to \$20 propane burner that goes on a propane bottle. It works just like a gas stove that almost everyone knows how to use. The propane stores forever. The bottle is so safe it is incredible, the burner is cheap and the bottles of propane are cheap as well. \$1.50 to \$3.00 each

(before a disaster!) and will burn on FULL (or high) for about 2 hours. My hot dogs boil in about 3 minutes. This is simple, cheap, safe and will be there when you need it.

NATURAL GAS.

I had a LONG talk with a 30 year expert from Consumers Energy about the natural gas system, at least our system in Michigan. The short story is that the natural gas system is OLDER than the electrical power system. Part of it still has WOOD pipes. Now this sounds funny but the answer is that it is INCREDIBLY reliable. All of the backup systems for the natural gas system are powered by natural gas. We went through EVERY possible disaster all the way up to a mass smallpox plague and 100 million Americans DEAD and no one showing up for work in the control room or doing maintenance. The system will stay up for many months in these scenarios and if the workers can get anywhere near the system for some basic fixes, it'll stay up for YEARS in a disaster. This means your natural gas oven and stove will work through all but the worst disasters. Listen to the Family Prep class and



why this is important will be fully understood.

Despite knowing this, I still have my propane stove and my other stoves that I have. (yeah.. I have to buy one of every stove so I can tell people which ones are good and which ones are a waste.)

As a fun note, I used the above propane stove for 3 years doing 10,000 miles in one month each year going around the USA. When I travel I eat out of a cooler that I stock from the grocery store and I'm on the back roads SEEING America, not on the highways. So I cook in this burner from one to three times a day and it has never failed me. I even melted the knob and it still works.

MICROCLIMATING

Heating or Cooling JUST YOU in a Disaster

This is a photo of myself Snow Camping. It was 15°F, 30 mph wind and 14 inches of snow falling overnight, and we were warm. In an ideal energy situation we would just heat or cool the air or fabric a few millimeters from our skin. We don't need to cool a whole building or a room, just our bodies. The walls don't care if they are warm or cold.



trailer with the AC (as I do in a 105°F desert at night) but I KNEW that I would be having to TEACH my experiences and adventures to others and I made sure that my experiences would be similar to those of the average person who wanted to be prepared

The same applies in a disaster. We want to heat or cool the person. In the case of the 8/14/2003 blackout and it being SUMMER and 95°F we want to COOL ourselves. During the blackout I would turn on ONE of the dual fans in the window and cool off the bedroom with the cool air from outside, this draws about 45 watts on high. When I went to bed I would use the small fan on the books on low, about 25 watts, to direct air onto me. I would put the window fan on low, about 28 watts and keep the direct fan going. This moved cooler air into the room and then put it onto me. I slept very well. Keep in mind I could of started my diesel hybrid generator and slept in the



for such a disaster. Have you seen those little hand held fans that run on 2 AA batteries in the store with a little fan about 1 inch in size. A person would be crazy to use expensive AA alkaline batteries in a fan like this during a disaster when the batteries are needed for radios and other devices but since I just showed everyone how to have an unlimited supply of AA batteries with the 1 hour charger, this device is NOW a REAL microclimate tool. Give everyone a \$2 personal hand fan to cool themselves and just recharge the batteries. The AA's will run for 4 to 8 hours in one of those little \$2.00 hand fans. You can recharge 4 batteries in 1 hour. (the hand fan is not pictured).



MICROCLIMATING

Heating or Cooling JUST YOU in a Disaster

In any disaster, what is the most important item or subject for your preparedness? What is the MOST important thing to have? Most people would say water and they are wrong.

Clothing. Winter weather can kill a person in minutes, lack of water can kill in 3 to 7 days in most cases and lack of food can kill in 2 to 4 weeks. Lack of vitamins can kill in 6 to 18 months. Weather kills in minutes.

As winter weather expert Jim Phillips says, "Clothing is your mobile personal shelter." This blackout was in the summer and it was NOT cold but the next blackout or disaster is not guaranteed to happen only in the summer. The concept of microclimate applies to winter even more than it does to summer cooling. Most people don't have the right clothing to stay in a house that is below 0°F for a long period of time. Sometimes blankets and sleeping bags are not enough. I have done experiments with electric blankets below 0°F in the wintertime, BUT... the blanket MUST be close to the body (maybe just one

thin blanket away) and it must have a bunch of blankets or sleeping bags above it for insulation. It is best to have a new, modern, computer controlled blanket that monitors the temperature of the blanket

I actually got a blanket to use less than 60 watts of power (on an average basis) and it got me so warm at 0° F that I had to turn it down even more. 60 watts is the same amount of power the double fan in the window uses. Sleeping bags and electric heating pads on low can be used with an inverter / marine battery or an inverter / car to keep people warm in a disaster.

The other thing that works really nice is to put HOT water into a soda bottle, don't put BOILING water in the bottle. This can burn a person. I use put 130°F water from the tap into a 2 liter bottle and wrap it in a towel for a girl friend of mine who was born in the tropics and had perpetually thin blood. She was always cold in Michigan in the winter. Heating water over a burner, putting it in a bottle and then putting the bottle under the blankets or in

the sleeping bag is an excellent way of helping someone keep warm at night, or during the day, in a very cold disaster. Just make sure the water is not too hot and they don't get burned. A burn during a disaster can be deadly. Burns get infected and during a disaster there are lots of extra sources of bacteria and a lack of medical care.

Use the intelligence and common sense God gave you and make your own judgments. Remember, I cannot outline every possible detail in this document.

People who need Electricity to Medically Stay Alive

Some people who are desperately affected by a black out are the people who have home oxygen generators and feeding tubes / systems and those who have a nebulizer for asthma treatments.

It is obvious that most people can go to the hospital and get oxygen or to plug in and get an asthma treatment but there may be a time when the hospitals are overwhelmed or have diseases that you don't want to get within a mile of. In this case there are other places that have backup power. Most fire stations have a backup generator and will accommodate people who need run an oxygen machine or to run a feeding tube or asthma machine. In a disaster the fire department / EMS are pretty busy and it would be best NOT to go there unless it was really necessary. Many large grocery stores have large backup generators and you would be able to find a place to plug in and take a treatment. What is not obvious is that most water plants as well as waste water treatment plants have very very large generators for running the very large pumps it takes to move

fresh water or sewage. Many of these are one megawatt in size. The engines are the size of a train locomotive or a small house. They have plenty of spare power to run some medical equipment. Show up and ask if you can plug in, bring your own extension cord and be happy to sit in a chair outside or in your vehicle. Emergency planning personnel for cities should consider these prime places to set up large tents or shelters for taking care of medical patients with needs such as this.

Also, just drive around, many people are running generators and we have all found that disasters bring the best out in people and not the worst. Most people will be happy to allow you to use part of their electricity for a medical purpose. When in doubt, ask. All they can do is say no and who knows. You just might make a new friend. Together we will all come through.

MISC Notes.

Driving at night during a blackout is disorienting. We are so used to seeing stores and signs and lights that we use for land marks it is easy to miss your street. It is a very different experience driving in a major city with no street or building lights. It is not like driving in the country on a dark night. Remember all intersections are 4 way stops.

I have some great ways of making cold and ice with very low power (less than 100 watts) and this can be run from many decent inverters. Most of the parts can be bought for less than \$100 brand new or easily gotten for free as scrap. I show this in detail in my book Sunshine to Dollars available at <http://www.KnowledgePublications.com>

The Most Important Thing in Any Disaster.

The most important thing for all of us to have in any disaster is faith. This can be called faith in God, faith in ones self or faith in friends and people who you will never meet.

No matter in what or in who we all must have faith.

Faith that a disaster will bring out the best in people and not the worst.

Faith that solutions will be found to the problems.

Faith that the professionals and leaders will do their job and faith that others will step forth and fill a need.

Faith that we will be able to take care of those who we love and faith that those who we love will come to help those of us who are in need.

Faith that in the darkest moments of despair a glimmer of light will be shown for those in need and that light will grow to be the illumination needed to find the way out of the darkness.

Faith is hard. Especially when buildings collapse and in the span of seconds

3000 people we called mother, father, friend, daughter, son, brother, sister, friend and stranger are taken from us.

When others are taken from us we have even greater responsibilities to the living and we still must do what we can.

I am but one person and I cannot change the world but I will do what one person can do. One person does not have to help at the levels that I personally contribute to civil defense and emergency services but one person needs to do what one person can do when that one person knows he or she has the ability to help.

It might not be during the next disaster or even the one that follows that one. Each person will know what he or she can and should do when the time is right.

Helping during a disaster is not limited to the disaster. The best thing a person can do is to help when an ounce of prevention is worth a pound of cure. The more prepared each person or family is, even if it is just a

few gallons of water in each house, is a relief of burden on the people who are coming to help. One gallon of water that you have before a crisis is one gallon that can be given to someone else during a crisis. One gallon of water is enough to keep an infant hydrated for several days. Through disease, dehydration can kill people and children in less than a day.

What makes the difference between whether many people live or die is attitude. I WILL make it, I WILL survive, I WILL help, I WILL be there. It is FAITH that is the backbone for our ATTITUDE and attitude allows us to make it when things get really tough.

Have faith in yourself, have faith in your friends and family and have faith in those who you will never know.

That which does not kill us makes us stronger.

Together, we will all survive. United we stand, divided we fall.

Five Days After the Power is On: Hey...where is all the food???

I have added this page after I originally wrote the book on August 16th, 2003.

This page is being written on August 20th, 2003. Five days AFTER all power has been restored.

Everything is NOT back to normal. What is missing? Water and food.

Going to the grocery store there are whole sections empty. Whole sections of milk are empty, for some reason all of the 2% milk is gone but the whole and skim is available. Eggs are VERY low in supply and most of the lunch and deli meats are GONE. None available.

Why? Two reasons. 1: Everyone came and bought everything they used up over the 2 days of the blackout. 2: The food warehouses had to THROW OUT many of the meats, milk and other items deemed 'perishable.' Imagine every food warehouse over all of the states affected doing this. When the meats and milk are gone from the store and there are none in the warehouse it takes a week for the trucks

to get it from the manufacturing facility and then from there to the warehouses and finally from there to your local grocery store.

Imagine a WEEK LONG blackout. The stores would be empty, the warehouse would be empty, the food manufacturing facility would NOT be operating and the trucks would not have diesel fuel to move the food. Not only do YOU NEED food for the disaster but you need enough food for AFTER the disaster. You might need 3 weeks of FOOD AND WATER under your control for a 1 week long disaster.

Unsafe WATER Means NO FOOD.

For 3 days after the disaster there was a boil alert for all of the water in the Detroit area. Restaurants could NOT serve ANY food that had to be washed. They could not bake with anything that required water in the recipe and they could not server any soda from a fountain because the soda is made from syrup, CO2 and water.

Any meat or food process-

ing facilities that used water could not process meat or make food.

It comes down to this: During and after a disaster; It is GONE and it is not coming back fast. If you don't have it before a disaster you are not going to have it during and after a disaster.

Are you going to trust those politicians you elected to feed and water your family?

Get over to **KnowledgePublications.com** and get your FREE Family Preparedness Class.

About The Author



Steven E. Harris
Photograph courtesy of May Kearny

Project Destiny

- Solar photons to electrons through hydrogen.
- 95% off the shelf.
- No photovoltaic panels, no fuel cells.
- Made with aluminum, glass, iron, steel, copper, plastic and ceramic.
- 100- year-old technology with 21st Century science, methods and manufacturing.

Steven Harris is a consultant in the energy field. He serves as Director of Operations and Technology for the American Hydrogen Association in the Midwest. After spending 10 years in the Aero-Thermal Dynamics department of the Scientific Labs of Chrysler Corporation, where he was a pioneer member of the group that developed and implemented successful Speed-to-Market development concepts, Mr. Harris left his position to do full time work on the development and implementation of hydrogen, biomass, and solar-related energy systems.

Mr. Harris is currently working with Roy McAlister and others on Project Destiny, a solar hydrogen energy system. He is authoring an upcoming book, "The Positive Promotion of Hydrogen Energy a Model for Success in an Economically Driven Market" and is the author of his latest book, "Sunshine to Dollars." Mr. Harris is the founder and CEO of **KnowledgePublications.com**. In addition to energy, Mr. Harris has a life long commitment to civil defense and the preparedness and protection of the American public. He teaches family preparedness and education regarding threats to the population and lives in Warren Michigan and is available for seminars, teaching and consulting on Family Preparedness and on the subject of Energy.

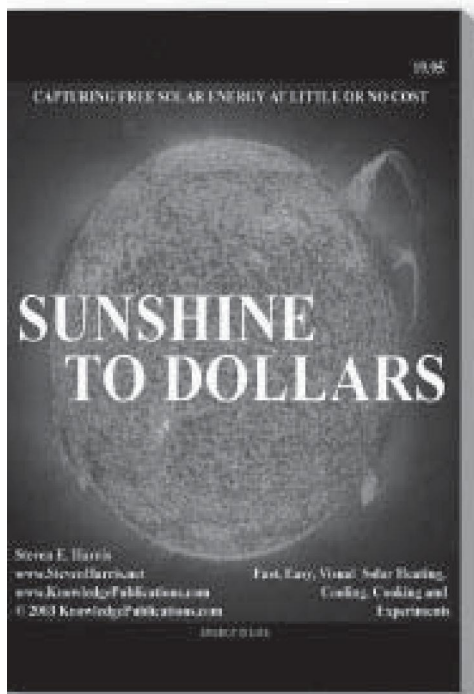
Mr. Harris's Experience, Projects and a Consulting Portfolio can be found at: <http://www.StevenHarris.Net>

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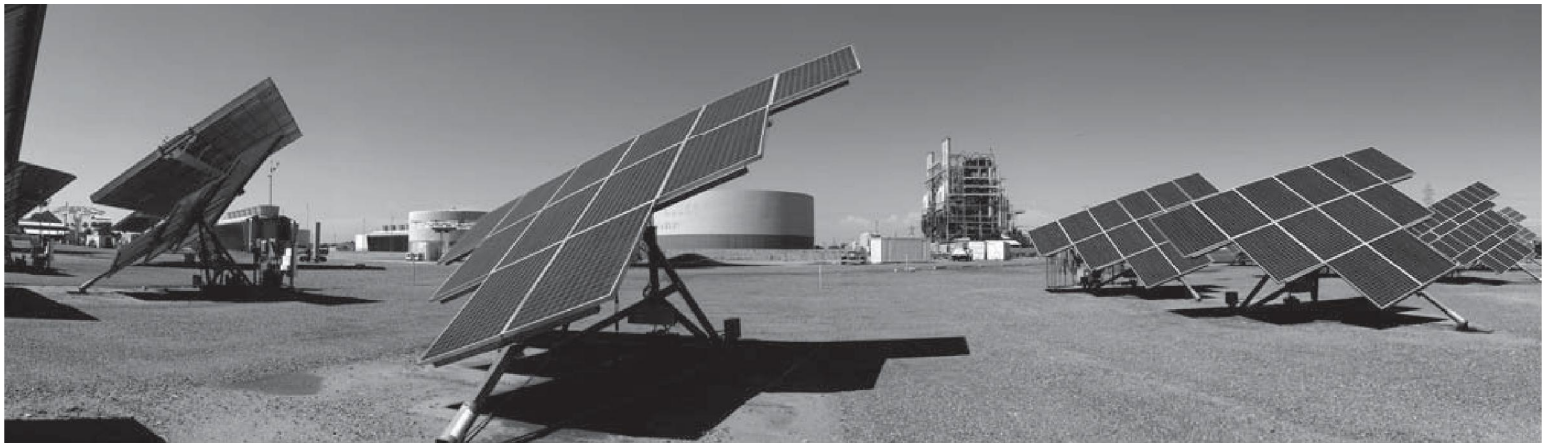
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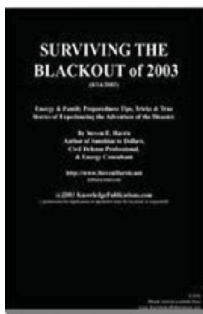


REAL SOLAR ENERGY

The book that started it all! Free solar panels, energy, heating and cooking at your house. One of the most unique books ever written on Solar Energy. This book will have you building solar heaters in one afternoon. This is the most hands-on book ever written in the field. Get it today. Also includes, at no extra charge, Surviving the Blackout of 2003.



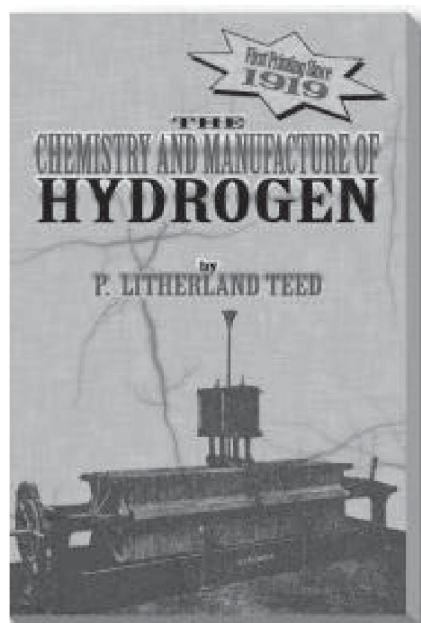
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HYDROGEN

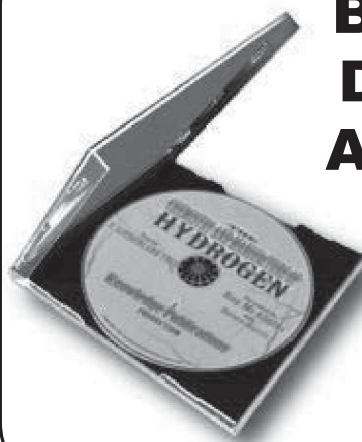
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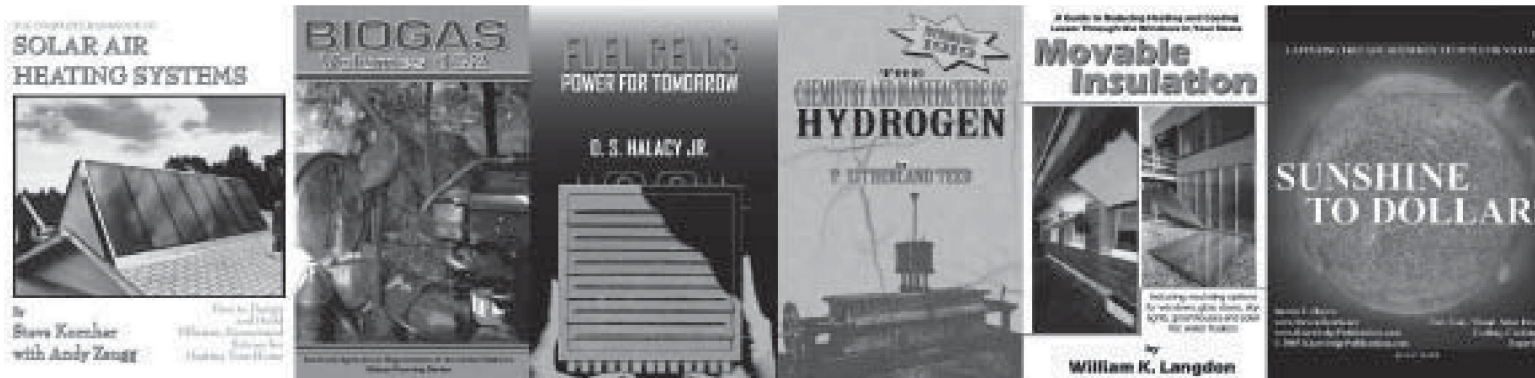
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Hydrogen Technology for Energy





Fuel Cells for Public Utility and Industrial Power
Hydrogen Generator Gas for Vehicles and Engines: Volume 5
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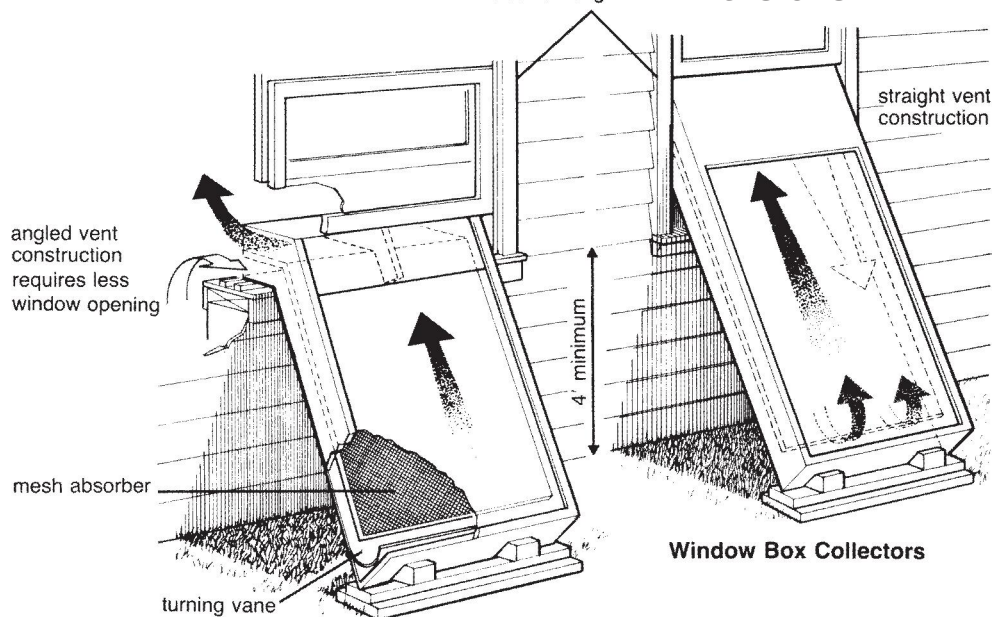
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Steve Kornher
with **Andy Zaugg**

How to Design
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Efficient, Economical
Systems for
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Incredibly detailed information on how to make any type of solar air heater. It covers all of the rules of thumb, the materials, where to get them and much more. Whether you're a homeowner or a contractor, this book has everything that you need to know about the construction and operation of all types of solar air heaters for space and domestic water heating. If you're looking for one book that will get you into "hot air," this is

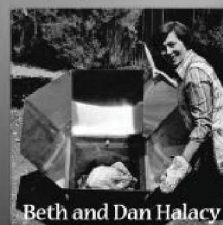
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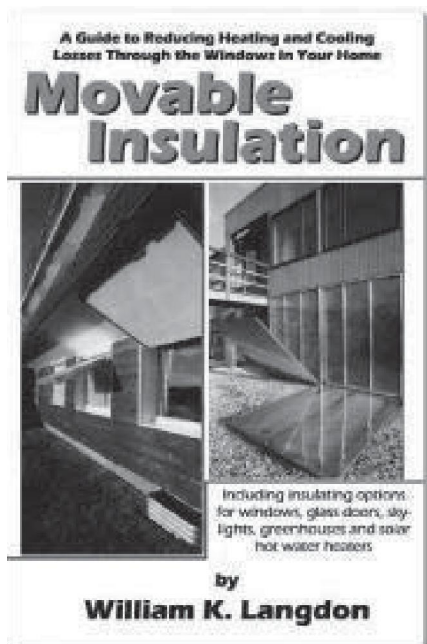
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**The
Solar
Cookery
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Everything Under the Sun



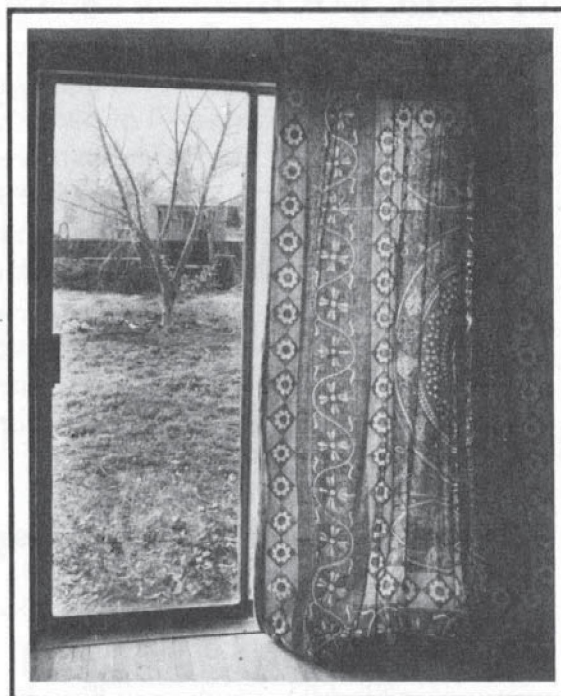
Beth and Dan Halacy

**INSTRUCTIONS
FOR BUILDING
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AND
RECIPES FOR
COOKING IN
THEM!**



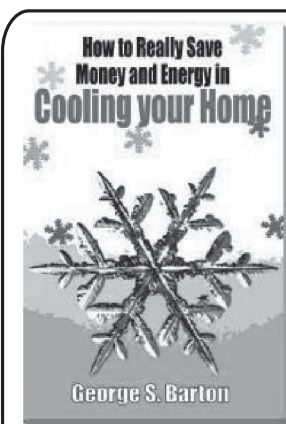
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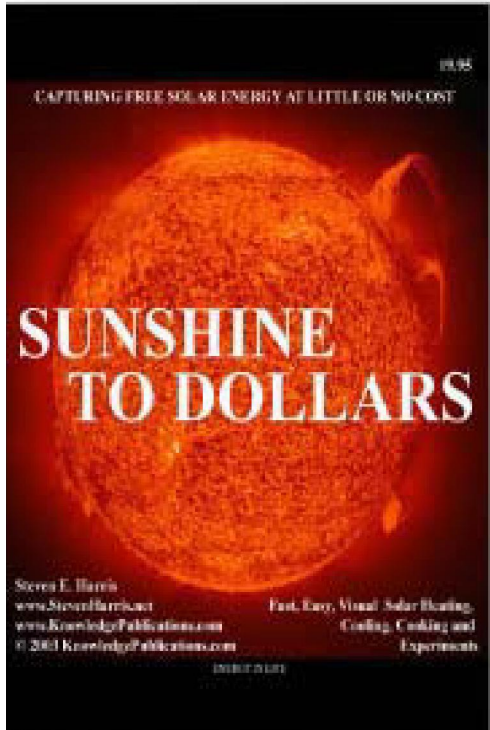
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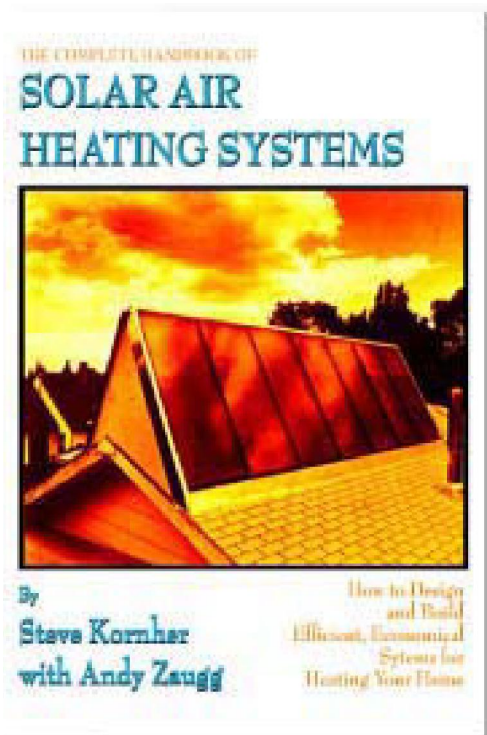
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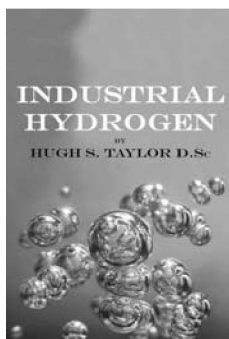
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Knowledge Publications has been in business since January 3rd 2002. We are fast becoming the biggest, the best and the only place to get everything you want to know about energy in one location. These books are published, advertised and sold by energy experts. Roy McAlister has been doing hydrogen vehicles for over 40 years. Steve Harris was a development engineer for Chrysler doing vehicle development, concept and prototype vehicles for over 10 years. We select the books, we review them and bring the relevant ones for all of your energy needs. Your satisfaction is guaranteed on our products.

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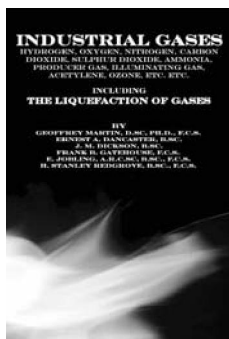
The history of the production of hydrogen starts at the very beginning of chemistry. Indeed the foundation of modern chemistry, Sulfuric Acid (H_2SO_4) was dependent on hydrogen being sourced to it from the reaction with water. The number and methods and uses of hydrogen would fill an encyclopedia and 98% of it would not be of any use to those of you who are seeking the UNDERSTANDING and the KNOWLEDGE required for the PRODUCTION of hydrogen. This book covers the production of Hydrogen on an INDUSTRIAL SCALE, which means LARGE. The great, great majority of the methods in this book can be made and used on a daily basis on a BENCH SCALE—that means 3 feet instead of 300 feet in size. We are not republishing and distributing this book for the heck of it. This book, as well as all of the other new books we are producing under license, was CAREFULLY selected by Steven Harris and Roy McAlister. The methods in this book cover 85% of the modern methods of hydrogen production. It even includes the production of H_2 from bacteria, in such large amounts that it makes the blue-green algae hype look like the junk it is. This book is a treasure. Keep in mind, it's not the only gold you need to have in your treasure chest, but it is a great piece. This book is written in SIMPLE English. The chemistry and math are NOT complex.

Hydrogen Manufacture by Electrolysis, Thermal Decomposition and Unusual Techniques \$34.95

This book deals with sources and processes for the production of hydrogen. Hydrogen is often produced from natural gas and by petroleum refining, however, it is extremely important to understand and develop other means for obtaining this essential energy carrier. Hydrogen, like electricity, is not a naturally occurring energy form, but must be manufactured from basic energy resources. Again like electricity, any basic energy resource could be used to produce hydrogen. Hydrogen Manufacture by Electrolysis, Thermal Decomposition and Unusual Techniques presents a survey of existing and future technologies for hydrogen production with an eye to their usefulness for a "hydrogen economy." Published technological studies were the basis for this review. The available material has been organized, abstracted and excerpted so as to provide YOU with a comprehensive overview of investigations and analysis of different hydrogen production practices that have been accomplished.

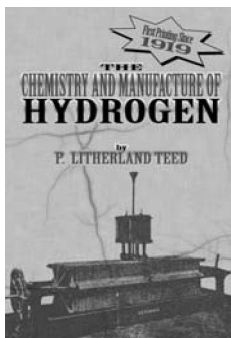


Industrial Gases \$19.95



This book contains abundant information about the mass manufacture of Hydrogen Energy related gases, including explicit details about the chemistry and methods on the manufacture of all of the gases important for the hydrogen revolution. Industrial Gases covers Hydrogen, Oxygen, Nitrogen, Carbon Dioxide, Sulfur Dioxide, Ammonia, Producer Gas, Illuminating Gas, Acetylene, Ozone etc... Hydrogen—you know this one. Oxygen is a byproduct of H_2 manufacture in some cases. Nitrogen is used with H_2 to make Ammonia. Carbon Dioxide is reduced to Carbon Monoxide and combined with water to make Hydrogen. Sulfur Dioxide is used to make sulfuric acid which is a hydrogen carrier (and ten thousand other things), Ammonia is a hydrogen carrier (and a thousand other things), and Producer Gas and Illuminating Gas are excellent carriers of hydrogen and are easy to make. Acetylene is a huge part of our hydrogen future and Ozone is a powerful oxidizer that can be used in other chemistry to make more H_2 . These gases are CRUCIAL elements to a Hydrogen Future.

The Chemistry and Manufacture of Hydrogen \$19.95



Once again Knowledge Publications has reached into the past to bring to you one of the best books ever written on Hydrogen. This is the first printing of THE CHEMISTRY AND MANUFACTURE OF HYDROGEN since 1919! It begins with chapter one dedicated to the uses, discovery and occurrences in nature of hydrogen while the second chapter focuses on the chemical properties of hydrogen. The final three chapters give in depth explanations of every way to manufacture of hydrogen via chemical methods, chemico-physical methods and physical methods. This book will definitively prove to you that some of the best hydrogen experts ever were contemporaries of your grandfathers and great grandfathers. Luckily though, thanks to the reprinting of books like this, their knowledge and expertise are not lost to us. With the republication of books like THE CHEMISTRY AND MANUFACTURE OF HYDROGEN we are realizing the most fundamental purpose for producing written records: the preservation and rediscovery of knowledge.

The Chemistry and Manufacture of Hydrogen DVD \$19.95



The DVD explains the text of the book in much greater detail, not just the simple chemistry but what can be DONE with the chemistry regarding hydrogen production for car fuel and home fuel and running it in engines and fuel cells. Roy and Steve go into lots of details. Almost 4 Hours of Great Video.. Roy McAlister and Steven Harris go over the book almost page by page, covering all of the details that MATTER TO YOU! What Roy and Steve cover in the video, if in written form, would be a book many times the size of this great book by P. Litherland Teed. Remember, Teed wrote this book for making HUGE amounts of hydrogen to fill balloons, blimps and zeppelins, that's MILLIONS of cubic feet of Hydrogen, not piddle little amounts. Of note of interest, we are working with Don L Piccard, the father of modern hot air ballooning, founder of the Balloon Federation of America and one of the FEW FAA Gas Balloon Instructors in the United States is updating the book for modern ballooning. Knowledge Publications is also sponsoring the hydrogen being used in a balloon taking 100lbs of cargo to over 100,000 feet.



Hydrogen Technology for Energy \$99.95

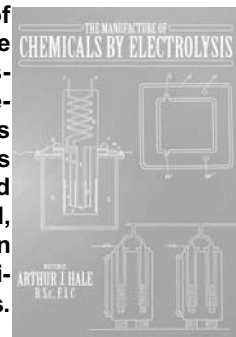


HYDROGEN TECHNOLOGY FOR ENERGY is primarily concerned with the technical aspects of storage and trans-mission systems for a proposed "hydrogen economy." Therefore, the various methods of producing hydrogen are not described in depth because they are im-portant to the hydrogen economy only insofar as the hydrogen must be produced in large quantities at reasonable cost. The first chapter describes the hydrogen economy and suggests how it can be integrated into the energy system of the United States. The next three chapters are concerned with the technology of handling the various forms of hydrogen—gaseous, liquid and solid (in the form of metal hydrides). The final chapters describe some of the work which has been done or is under-way in utilizing hydrogen as a fuel or energy storage system and delve into the safety, legal, political, socioeconomic and environmental impli-cations of a hydro-gen economy.

The Manufacture of Chemicals by Electrolysis \$12.95



Originally published in the same year as our recent popular release, The Chemistry and Manufacture of Hydrogen, Knowledge Publications now brings to you Arthur J. Hale's excellent work, The Manufacture of Chemicals by Electrolysis. With this all encompassing electro-chemistry book Hale hoped that industrial chemists would realize the importance of electrolysis in relation to the manufacture of organic materials. Hale's book begins with a great chapter on electrolytic hydrogen and oxygen. The book contains chapters on electrolytic processes such as preparation of pigments and insoluble substances as well as reduction of organic compounds. The Manufacture of Chemicals by Electrolysis also provides a detailed chapter on production of per-salts and hydrogen peroxide and another chapter which covers nitric acid, hydroxylamine, hydrosulfites and fluorine. Finally, this wonderful book includes an entire chapter on electro-osmotic and electro-colloidal processes before concluding with a chapter which reports on oxidation and substitution of organic compounds.



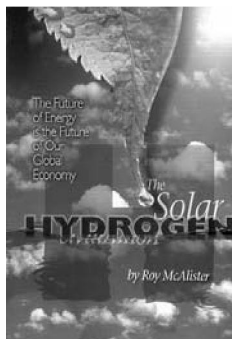


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A Great Book by a Great Man. A Hydrogen World Expert and Pioneer. Roy will be known in the history of energy more prominently than Edison, Westinghouse, Tesla, Rockefeller, Carnegie and the rest combined. Roy is an expert in Inorganic, Organic, Electro, Thermal and Bio Chemistry, Newtonian and Quantum Physics, Mechanical Engineering, Civil Engineering, Material Science and Advanced Composites. He is an expert who writes, not a writer who thinks he's an expert. When you see the word CARBON, in any form, CO₂, CO etc.. I do not want you to think pollution or environment, I want you to think MONEY. Anytime you can keep your carbon, you make money. If you could trap the CO₂ from your tailpipe or your furnace, you can SELL IT. There is a world market for CO₂, CO and C and this is nothing compared to what it WILL BE in the future. Every pound of CO₂, CO or C you trap you can sell. Remember in the 1970's plastics were the future. Today, we can say CARBON is the future. REALLY understanding the diagram to the left, and putting yourself on one of the arrows with the Carbon word on it, can make you a very wealthy person. To REALLY understand this, you will have to get the book.

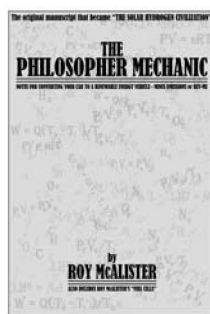
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Finally RELEASED. This is the 4 Hour DVD with Roy McAlister and Steve Harris. They go through all of the INTERESTING parts of the book that really needed a whole chapter for themselves. Do you know what methane hydrates are? Where they are? How are these a VERY BIG part of our energy future even in a Solar Hydrogen Economy. Ever see a 90% efficient engine? Its in the book and Steve and Roy go over it in EXPLICIT DETAIL in the DVD. Yes.. no BS on this. Its a combination of an IC engine and fuel cells, and its over 90% efficient and it can be done with existing technology today...so if you are in one of those companies that does that stuff...you better think about getting the Book and DVD.



The Philosopher Mechanic \$29.95



Finally !!! The YELLOW BOOK and the BLUE BOOK from the Hydrogen Fuel Cell ElectroChemistry DVD. Our very 1st DVD. Finally we have Roy McAlister's ORIGINAL MANUSCRIPT on doing ENGINE CONVERSION and this is what became Roys Book Solar Hydrogen Civilization ! The other part of it is going to be Roys NEW book, Renewable Energy Engines - Due out soon as well. This is the manuscript that started it all. It also has the class room fuel cell addendum with it as well.

Hydrogen Generator, Fuel Cells DVD \$9.95



The perfect compliment to Roy McAlister's Philosopher Mechanic!!

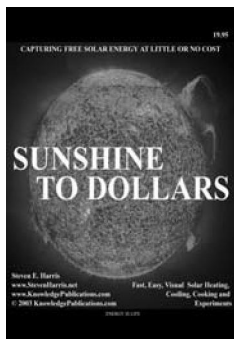
Our OLDEST and first DVD. The one that started it all. Its NOT the prettiest DVD, the new stuff is MUCH better in editing and format but this DVD lets you set in on a Hydrogen, Fuel Cell and ElectroChemistry Class given by Roy McAlister. Kind of like a fly on the wall, don't expect something ready for the discovery channel, but it has 7 hours of GREAT scientific learning and discussion in it.



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  Engineering/Industrial
  Kids/Family
  Advanced Math
  College Level

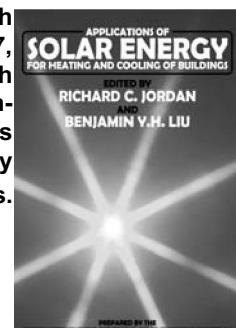
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FREE Solar Panels, Energy, Heating and Cooking at your house. Sunshine to Dollars is one of the most unique books ever written on Solar Energy. The book not only shows how to make hot air, hot water, solar concentration to 3000 degrees Fahrenheit, water pasteurization and much more, but the author shows where to get the glass for FREE, and even where to get PV panels for free. This book will have you building solar heaters in one afternoon. This is the most "hands on" enabling book ever written in the field. Get it today. As of 11/2006 the book as been updated, edited and is now professionally perfect bound. It also includes, at no extra charge, Surviving the Blackout of 2003.

Applications of Solar Energy \$24.99

The American Society of Heating, Refrigerating and Air-Conditioning Engineers has sponsored research in the field of solar energy since 1949. In recognition of the growing importance of solar energy, in 1967, ASHRAE, published a volume entitled Low Temperature Engineering Application of Solar Energy, which included chapters by many of the solar pioneers who had developed and maintained the thread of continuing technical contributions upon which the vastly expanded current technical effort is based. This revised volume, entitled Applications of Solar Energy for Heating and Cooling of Buildings is greatly expanded. It includes most of the same authors but contains far more important contributions.



Solar Air Heating Systems \$29.95

THE COMPLETE HANDBOOK OF
SOLAR AIR
HEATING SYSTEMS



By
Steve Kornhar
with Andy Zaugg

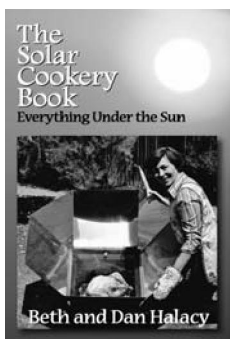
How to Design
and Build
Efficient, Economical
Systems for
Heating Your Home

The Complete Handbook of Solar Air Heating Systems is incredibly detailed on HOW TO MAKE ANY solar air heater. Complete is the only way to describe this book. It covers all of the rules of thumb, the materials, where to get them and much, much more.

Whether you're a homeowner or a contractor, this book has everything that you need to know about the construction and operation of all types of solar air heaters for space and domestic water heating. With their proven reliability and economy for both retrofit and new construction applications, solar air heaters have become one of the most popular home heating alternatives.

With over 125 detailed illustrations and 50 photographs contained within 350 massive pages, The Complete Handbook of Solar Air Heating Systems can lead YOU through a variety of solar projects. If you're looking for one book that will get you into "hot air," THIS IS THE ONE!

The Solar Cookery Book \$12.95

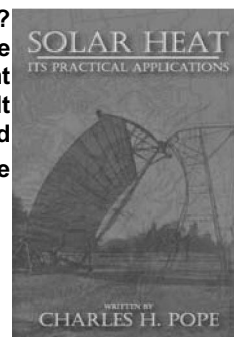


Solar Cookery is entirely about solar cooking, and describes in detail how you can make your own solar oven and reflector hot plate, and how to cook with them. This book will appeal to many kinds of people. It is for people who are interested in conservation and a wise use of our resources, plus a desire to protect the environment. It is for students who are searching for a new project for a science fair. It is also a basic information resource for students who want to learn more about the simple principles that make it possible to put the sun to work in so many useful ways. It is for campers who want a way to cook safely in wooded areas without the need for a fire, or the nuisance of waiting for a fire to get going. No smoke; no ashes. Just clean, hot heat! It is a new horizon for backyard barbecue fans and cookout specialists. It is for health advocates who are seeking ways to put their ideals to practical use. The higher nutritional value of solar-cooked food will be a delight. Perhaps most of all, it is for those who appreciate the fun and excitement of a new way of preparing food.

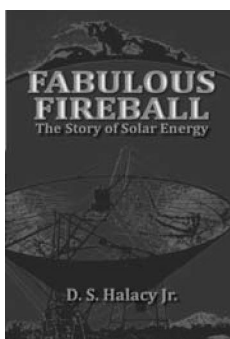
Solar Heat-Its Practical Applications \$12.99



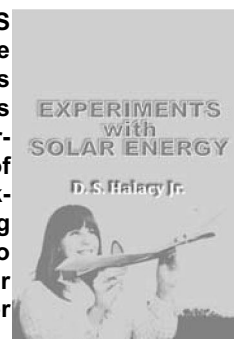
1903??
So you think solar energy is a NEW thing??? LONG LONG time ago... in a place far far away there were people who were actually educated and did not have a TV to watch, so they learned things and taught themselves. This book was written in 1903 and is the EARLIEST Solar Book we have found to date. It shows the Sun Press in Paris (france!) running on a steam driven press being powered by concentrated sunlight and more. Due to the educational value of this book, it will be at a significant discounted price



Fabulous Fireball and Experiments with Solar Energy \$19.95



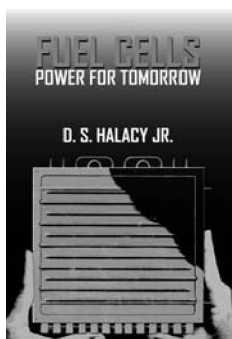
Knowledge Publications has combined Dan Halacy's fantastic books: FABULOUS FIREBALL and EXPERIMENTS WITH SOLAR ENERGY in order to provide you with one great solar energy book! It's no secret that the sun provides the energy that keeps us alive. Solar energy keeps us warm, grows our food and literally fuels all of the systems that make our lives possible; without the sun we simply could not be. Beyond the energy that is essential for these basic purposes, though, there is a massive amount of additional solar energy available to be harnessed. These books provide a great background on the scientific aspects of solar energy and invite you to have fun putting solar energy to work for you. They tell the story of solar energy, explain why it is so fascinating and challenging and will tell you how to build solar powered ovens, water heaters and furnaces. With this book you can even build solar batteries that will power a radio or a model airplane that flies on sunshine!



FUEL CELLS

 Garage/Home
  Engineering/Industrial
  Kids/Family
  Advanced Math
  College Level

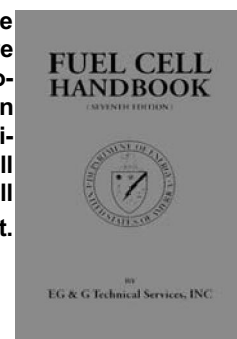
Fuel Cells: Power for Tomorrow \$19.95   



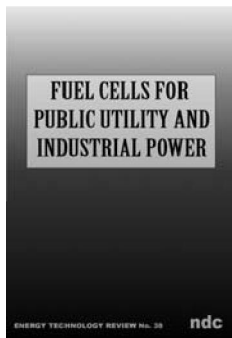
Dan Halacy is one of the great men of solar energy that were true heroes to young scientists and engineers in the solar energy era from the 1950s to the 1970s. Dan was a prolific writer and visionary. With a gifted insight into man and technology, he knew long ago where were heading. His book on fuel cells written in 1966 truly outclasses and undoubtedly outshines the palaver-filled trash that stands as the fuel cell books of today. With photos, drawings, illustrations and descriptions, Dan's book provides the in-depth details of the history, theory, operation and future of fuel cells. This book is written in simple language for all; NO PHD needed. You CAN make a Fuel Cell BIOBATTERY from reading this book or make electricity from things as simple as water, sugar and yeast. This is one of the few books in existence that explicitly gives you step-by-step instructions for making a fuel cell. You will be able to make a METHANOL FUEL CELL with this book. You do NOT need expensive and sensitive proton exchange membranes to make this fuel cell. You do not need hydrogen or oxygen; it runs on methanol and air!

Fuel Cell Handbook \$19.99   

This Handbook provides a foundation in fuel cells for persons wanting a better understanding of the technology, its benefits and the systems issues that influence its application. Trends in technology are discussed, including next-generation concepts that promise ultra-high efficiency and low cost, while providing exceptionally clean power plant systems. Polymer electrolyte, alkaline, phosphoric acid, molten carbonate and solid oxide fuel cell technology descriptions have been updated from the previous edition. Manufacturers are focusing on reducing fuel cell life cycle costs. In this edition, over 5,000 fuel cell patent abstracts and their claims have been included. In addition, the handbook features a new fuel cell power conditioning section and overviews on the hydrogen industry and rare earth minerals market.



Fuel Cells for Public Utility and Industrial Power \$99.95 



FUEL CELLS FOR PUBLIC UTILITY AND INDUSTRIAL POWER contains a massive amount of practical, down-to-earth technical information re-lating to fuel cells for power plants. Fuel cell based power plants offer one of the most interesting possibilities for fu-ture power generation. The fuel cell is potentially more efficient than conven-tional plants and since the fuel reacts electrochemically rather than by combustion, there are far less air, thermal, and noise pollution issues. This book will inform you of the many advantages of Fuel Cells like the fact that they can be air-cooled and need not be adjacent to a body of water. It also points out important considerations for Fuel Cell public utility, such as the concept of mod-ularity and efficiency considerations. With eight distinct sections ranging from "TYPES OF FUEL CELLS—THEIR OPERATION AND USE" and "ASSESSMENT OF FUELS FOR POWER GENERATION BY ELECTRIC UTILITY FUEL CELLS" to "FUEL CELLS FOR PUBLIC UTILITY APPLICATIONS—GENERAL" and "FUEL CELL POWER PLANT EVALUATION," this book makes the advantages of small-scale fuel cell power units for smaller municipalities, large office complexes and shopping centers obvious.

HEATING/COOLING

Movable Insulation \$24.95

A Guide to Reducing Heating and Cooling Losses Through the Windows in Your Home **Movable Insulation**



Including insulating options for windows, glass doors, skylights, greenhouses and solar hot water heaters

by

William K. Langdon

This is entirely devoted to insulating shades, shutters, panels and curtains. It is the most comprehensive and useful book on the subject of movable insulation that you will ever find, period. The book is pure genius; it details simple methods to STOP the HEAT LOSS from your house, including effective ways to use movable insulation systems to increase your home's energy efficiency in both winter and summer, information and directions for owner-made systems, recommendations for where to get the best ready-to-but and custom-made units and instructions for determining the payback time and fuel savings that you can realize with movable insulation on your house.

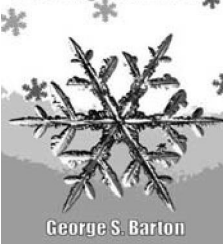
How to Save Energy and Cut Costs in Existing Commercial and Industrial Buildings \$99.99

This book was written specifically for building managers and corporations. At 725 pages, this book covers a wide range of energy conservation opportunities, such as relamping changes that increase lighting efficiency without modifications to luminaries or ballasts, heat reclamation via Thermal Wheels, Run-Around-Coil Systems and Air-To-Air Heat Exchangers, cooling and ventilation through Economizer Cycle Cooling, Enthalpy Cycle Cooling, Latent Evaporative Cooling and Desiccant Dehumidification, and HVAC Systems like the Dual Duct High Velocity System. This book explains in detail every single possible method of saving money in the heating, cooling, refrigeration and ventilation of BIG office buildings or factories. Many of the practical solutions offered by this fantastic Energy Conservation Manual can be implemented RIGHT AWAY for immediate energy and financial savings.



How to Really Save Money and Energy in Cooling your Home \$17.95

How to Really Save Money and Energy in Cooling your Home

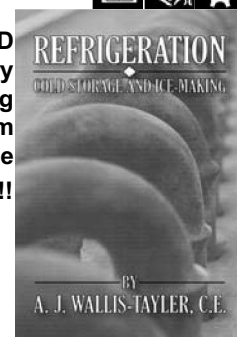


George S. Barton

This book covers EVERYTHING you have NOT HEARD of for cooling your house. The illustrations simply and easily convey to you HOW your house gets hot and HOW to keep it from getting hot. The best way to keep a house cool is to keep it from getting HOT! You will slap your forehead in amazement at how easy and simple it is to keep your house cool via proper ventilation and other methods. THIS *IS* the stuff that builders and contractors DO NOT DO. Don't think that because you have a "Ridge Vent," that's as good as it gets. This book will save you MONEY on your AC BILL faster and quicker than anything else you have seen. If you are one of those \$250+ a month Summer AC bill people, GET THIS BOOK.

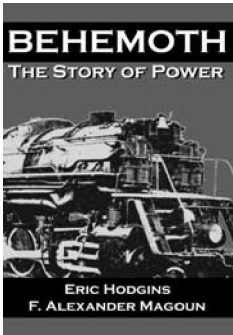
Refrigeration-Cold Storage and Ice Making \$27.95

ITS SUMMER TIME...want to be cool ?? This classic text has about EVERY single way of making COLD in the old days. Compression cycle, evaporation cycle, vacuum of water, coolants and YES.. very detailed on Ammonia Absorption cooling. It even has details on COMPRESSED AIR COOLING (making cold from compressed air, which was the FIRST A/C made). Also contains details on making ice from water and sulfuric acid (no the acid does not touch the water) The book is THICK and its detailed. The book is over 600+ Pages !!!



MECHANICAL ENERGY

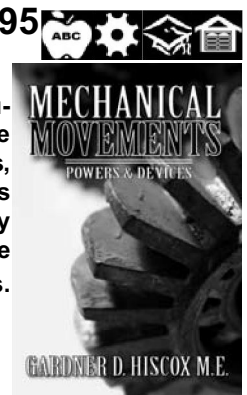
Behemoth-The Story of Power \$14.95



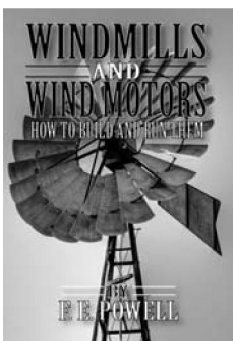
This book is CRITICAL to the success of your energy business. Behemoth: The Story of Power is from the time of Hero. This book is THE book on the history of energy and power. It includes who did it and why; what problems they faced and how they were solved. The business model of James Watt in this book is better than the business model of most modern fuel cell companies. This is a story of the evolution and growth of energy that hardly anyone really understands. Every alternative energy project, EVERY ONE of them has FAILED; died in flames, because those doing it did NOT understand the true evolution of energy which is so finely illustrated in this book. If you want to be in the energy field, you'd better know Hero, Papin, Newcomen, Savory, Watt, Otto and Diesel.

Mechanical Movements Powers and Devices \$19.95

Mechanical Movements is a great work of reference for inventors and experimenters, mechanical students, artisans and any workingman with an inquiring mind and the ambition of an engineer. For anyone with a real interest in mechanical thought and work, this book will fully explain mechanical movements, devices used in constructive and operative machinery and the Mechanical Arts. Mechanical Movements will be your valued mechanical dictionary, commencing with a rudimentary description of the early known mechanical powers and detailing the various motions, appliances and inventions used in the mechanical arts through to present times.



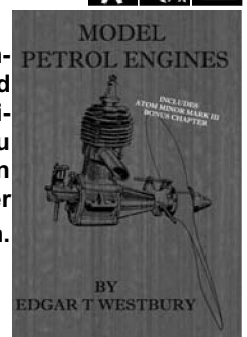
Windmills and Wind Motors \$14.95



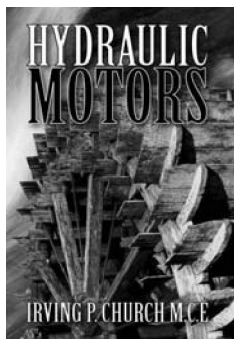
It is more than a little strange that amateur engineers often neglect the windmill. Wind-power is free, and while it is admittedly erratic it must surely appeal to the mechanical mind as a labor saver and valuable renewable energy resource. Windmills and Wind Motors presents a series of practical, original designs that can be used for model-making, experimentation, or even for the more practical purpose of power production. The book is a must have for wind-energy enthusiasts of all ages and knowledge levels. If you want to guide your child to an A+ in this year's science fair, get this book! If you believe in the potential of wind power and want to experiment with it in your own back yard, get this book! Finally, and perhaps most importantly, if you want to build your own power producing wind-energy-plant in order to curtail those skyrocketing energy costs, get this book! This excellent little book provides you with all the information you need to complete exciting and educational home-wind-energy projects!

Model Petrol Engines \$19.95

THE object of this book is simply to assist readers to produce model petrol engines. Whether one wishes to start from first principles, and design the engines throughout, or to construct engines to well-tryed designs which have been proved successful (and suitable for production with the average model engineer's equipment and facilities), this book will prove helpful. Oh what a treasure of a little book.. so you think fuel cells are great little power machines?? well.. these little internal combustion engines that can fit in the palm of your hand CAN run off hydrogen and other flammable gases and produce all the power you want, and you can actually make them yourself and fix them.. etc... This is a how to book. hands on.



Hydraulic Motors \$19.95



This book is about every method of turning water into rotary horsepower. This book is not about the hydraulic power like what makes garbage trucks and construction equipment function. Hydraulic in this sense is **WATER**. This book is **ALL ABOUT WATER POWER**. It is incredible in its depth on water turbines and the whole variety of wheels that are in this field. It covers **ALL** of the paddle wheels, overshot, undershot, small, large, optimized and simple ones, from highly balanced water turbines to the most efficient pelton wheels. This book covers the math, the science and the engineering needed to design and make any of the above. If you want to design and make a new water turbine and sell it, this **IS** the book. If you want to make a **SIMPLE** turbine to capture water power for home, this is the book. If you want to make an old fashioned water wheel for yourself, a demonstration, a museum or to just rebuild one then this is the book. Also covered are hydraulic **PISTON** motors. At 270+ pages with **BEAUTIFULLY** illustrated images and drawings, this book is highly visually-oriented. This book and Hydraulic Engineering complement each other perfectly.

Hydraulic Engineering \$19.95

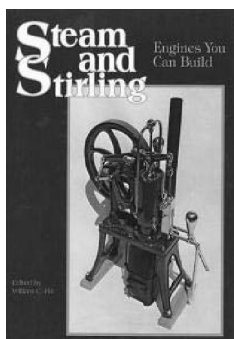


Hydraulic Engineering has **EVERYTHING** to do with water throughout the hydrosphere of the planet. This book is all about water flowing, tides, sea power, rivers, canals, pipes, ditches and fluid dynamics. If you have a river or a stream or a lake or live near the ocean and you want to try to capture water power from it, then this book tells you how to measure, direct, funnel and flow your water. It covers the mathematics in detail and it backs up the math with illustrations. You don't just get the formula to find out the pressure and the flow of a jet of water with 20 feet of head pressure above it; Hydraulic Engineering actually illustrates the differences between pressure and flow for you. With 315 pages, this book is beautifully illustrated and incredibly well-written just like Hydraulic Motors. Hydraulic Engineering also covers irrigation and the watering of crops in explicit detail, as well as water use in gold mining. It is a joy to read and a book that makes your imagination run. If you like water power, get both of these books. Hydraulic Motors covers water flowing on the earth, rivers, dams and more, but not anywhere close to the **EXPLICIT** detail of this book. This book **DOES** cover **SOME** of the wheels, motors and turbines of Hydraulic



Motors, but in nowhere near the detail. These books complement each other beautifully yet each stands alone as a phenomenal source of water power information, which is why you can buy them separately or together in a Combo bargain pack..

Steam and Stirling Engines You Can Build: Vol 1 \$41.95

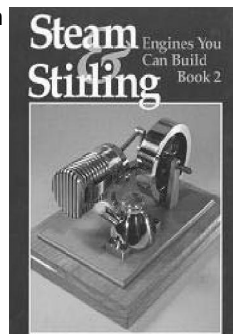


Steam and Stirling—Engines You Can Build, provides the specific “how-to” details that amateur machinists and tinkers need to complete great live steam power projects. With hundreds of sketches and photos, blow-by-blow instructions and explicit design information you will be able to easily build and use, completely functional Half-Horse Marine Engines, Steam Turbines, Opposed Piston Steam Engines, V-4 Oscillating Cylinder Engines, and many more fascinating contraptions. This book opens up to the thrill of building something that actually works, it's yours by just following the directions! If you are a complete novice in this field, pick one of the simpler projects for your first attempt and gradually work your way through the others as your skill, abilities and confidence increase. One thing is absolutely certain, you are sure to find countless pleasurable hours in your workshop with the projects in this book.

Steam and Stirling Engines You Can Build: Vol 2 \$41.95

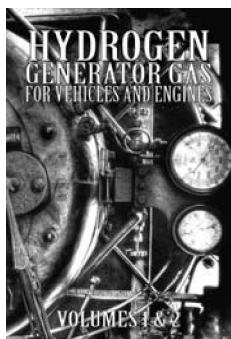


Steam and Stirling Engines You Can Build, Book 2, is much bigger than its predecessor. It is packed with far more projects, designs and techniques, yet it offers that same superior level of description providing hundreds more photos and sketches along with the extremely detailed instructions and guidance that the first book is famous for. The projects are written by 22 different authors with some designs based on prototypes while others are originals. The level of difficulty ranges from the very simple projects like the Simple Steam Engine and the Stirling Hot Air Engine can be completed with little more than a drill press and hand tools, to very sophisticated designs like the Duplex Pump. Also included in this sequel are some interesting articles on heating like Andy Sprague's exact instructions, with photos and a sketch that will show you how to easily build a Simple Alcohol Burner and another excellent article which discusses how to use propane gas to fire your engine including updates from author Chris Leggo, based upon new findings. This book truly spares no detail you'll even find a wide range of fine techniques for everything from creating more satisfactory lubrication to making a wood flywheel and roll forming copper boiler heads.



AUTOMOTIVE

Hydrogen Generator Gas Volumes 1&2 \$19.95



Producer gas is generated from solid fuels such as wood, charcoal, coal, peat and agricultural residues. Although it has been used to power internal combustion engines since their invention, it has been largely overlooked for the past 50 years. However, during the early 1940s, when petroleum supplies for civilian use ran out in Europe, Asia and Australia, producer gas was responsible for putting trucks, buses, taxis, tractors and other vehicles back on the roads, and boats back on the rivers. In 1938, Europe operated about 9,000 gas producer buses and trucks, and there were almost none on any other continent. By 1941, though, about 450,000 vehicles were in operation in all parts of the world, and by 1942, the number had grown to approximately 920,000. Gas producers were then in use not only in land vehicles, but also in boats, barges and stationary engines. By 1946, more than a million motorized devices around the world operated on producer gas. Although the use of producer gas in the 1940s contributed to saving millions of people from starvation in Europe and Asia alone, the world has largely forgotten all about this excellent source of energy.

HYDROGEN GENERATOR GAS FOR VEHICLES AND ENGINES: Volumes 1 and 2 contains two great, complimentary works on the subject of Producer Gas. Each volume covers significant subject areas relevant to Producer Gas. The first volume in this book is entitled "PRODUCER GAS: ANOTHER FUEL FOR MOTOR TRANSPORT." As the title indicates, this volume will guide you through everything you need to know about Producer Gas from its history to its economics. The second volume, "PRODUCER GAS VEHICLES" is obviously of equal importance for anyone who wishes to have a complete understanding of the true potential of Producer Gas.

Hydrogen Generator Gas Volumes 3&4 \$29.95

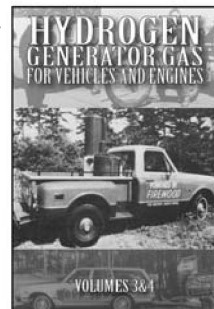


A GASIFIER converts solid fuel to gaseous fuel. A Gasifier System includes the gasification reactor itself, along with the auxiliary equipment necessary to handle the solids, gases, and effluents going into or coming from the Gasifier. **HYDROGEN GENERATOR GAS FOR VEHICLES AND ENGINES Volume 3,**

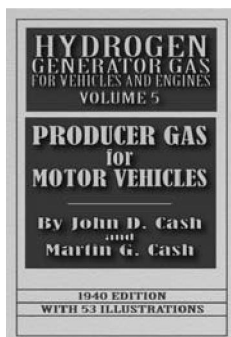
Construction of a Simplified Wood Gas Generator for Fueling Internal Combustion Engines in a Petroleum Emergency, is an emergency technology assessment sponsored by the Federal Emergency Management Agency (FEMA) to develop detailed, illustrated instructions for the fabrication, installation, and operation of a Biomass Gasifier which is capable of providing emergency fuel for vehicles such as tractors and trucks in the event that normal petroleum sources were severely disrupted for an extended period of time. Volume 4, **The Handbook of Biomass Gasifier Engine Systems,** was initially prepared by

the Solar Energy Research Institute (SERI) under the U.S. Department of Energy Solar Technical Information Program. While it was originally intended as a guide for the design, testing, operation and manufacture of small-scale (less than 200 kW) gasifiers, a great deal of the information will be extremely useful to YOU for all levels of biomass gasification. Recently, there has been expanding interest in small scale gasification around the world. We have combined these works and republished them as **HYDROGEN GENERATOR GAS FOR VEHICLES**

AND ENGINES: Volumes 3 & 4 to help fill the continuing needs and desires for information in this fascinating field.

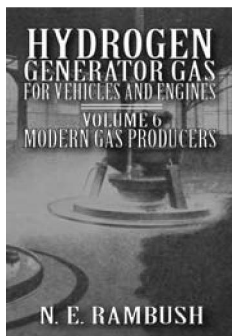


HGG Vol 5: Producer Gas for Motor Vehicles \$19.95



Motor fuel is viewed by most people today as an absolute modern necessity. Without it, transport seems paralyzed, and without transport, industry cannot function. Certainly, under present conditions, cities cannot be fed and rural industries cannot be maintained without the use of motor vehicles and one does not need to be an alarmist in order to visualize a variety of circumstances which could drastically constrict the supply of oil from overseas. However, we do have a natural substitute for our imported motor fuel—at least one (probably more). The purpose of Volume 5 of the **HYDROGEN GENERATOR GAS FOR VEHICLES AND ENGINES** series is to set forth the possibilities of an often underestimated fossil fuel substitute: Producer Gas. This Volume, entitled, **Producer Gas for Motor Vehicles**, not only details Producer Gas possibilities, but also clearly explains the methods by which Producer Gas can be brought into use in a national emergency.

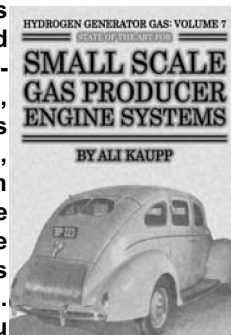
HGG Vol 6: Modern Gas Producers \$27.95



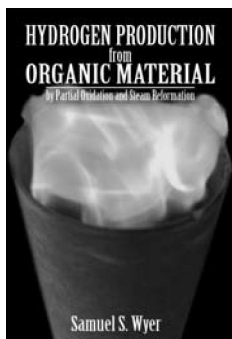
When N. E. Rambush wrote Modern Gas Producers he set out to describe the specific features of each design which had been built and worked for producer gas production. Accordingly, in many cases this book explains certain special designs, in as much detail as it describes those designs which are far more commonly employed in practice. Hydrogen Generator Gas for Vehicles and Engines Volume 6 begins with general remarks while the main body of the text is divided into four parts. Part one, entitled Theory, is dedicated to the principles underlying the formation of producer gas and important factors in gas production. Part two concentrates on the plant providing in depth detail on a wide range of gas producer types. Parts three and four address working producer gas plants, and outline producer gas utilization respectively. This great addition to the Hydrogen Generator Gas series contains over 80 valuable tables and over 350 images of useful drawings diagrams, etc...

HGG Vol 7: Small Scale Gas Producer Engine Systems \$29.95

Besides gasoline and diesel oil, generator gas has been used to drive internal combustion engines almost since their invention. The generation of generator gas from wood and coal has been reliable and inexpensive compared to the use of gasoline and diesel oil for a long time but was generally only accepted during emergencies and war times. Although more than one reason accounts for this phenomenon, one of the most significant factors has been the required skill necessary to operate a generator gas engine system. With chapters on the history generator gas engines, the chemistry of gasification, fuel, internal combustion engines and much more Small Scale Gas Producer Engine Systems, the seventh volume in the Hydrogen Generator Gas series, will help you to overcome that factor through knowledge and learning. The construction of a small gasifier including the purification system does not require sophisticated equipment or highly skilled mechanics, and although a generator gas engine system is built as a unit and fine tuned for successful operation, it is not necessary to develop special engines. Existing internal combustion engines can be used with few modifications. This great book will guide you to an in depth understanding of the gasification of coal and biomass, a valuable technology that is more than a century old, and will allow you to become thoroughly knowledgeable about the utilization of hydrogen generator gas in engine systems.



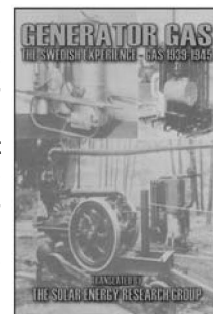
*Hgg Vol 8: Hydrogen Production from Organic Material \$24.95



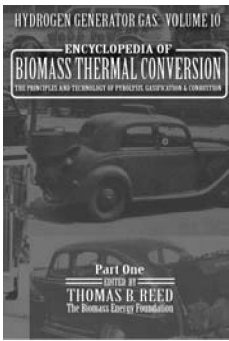
With the first four chapters written specifically for the benefit of readers who may not be familiar with the fundamental laws and definitions of physics and applied chemistry which make up the foundation of HYDROGEN-BASED ENERGY PRODUCTION, this book begins by providing YOU with the fundamental knowledge upon which any rational discussion about Hydrogen Science must be based. The first chapter acts as an excellent introduction to physical laws and definitions, covering important points such as the distinction between a vapor and a gas, Joule's law of gases and the flow of gases. Chapter Two includes explanations of chemical laws and definitions, such as the Law of Multiple Proportion, temperature of combustion and destructive distillation. Chapter Three discusses thermal and physical calculations, including carbon-ratios and composition of gases by weight and heat carried away by products of combustion. The fourth chapter covers commercial gases, with definitions of several gases such as olefiant gas, hydrocarbons and coke-oven gas, with a comparison of commercial gases, including tabulated data. Following the four chapters of basics, Chapters 5-29 contain in-depth information about the classification manufacture utilization and efficiency of specific combustible gases as well as extensive explanations of a wide variety of "Gas-Producers." References are cited in the text by means of their bibliographical serial numbers, and these are given in Chapter 30. This book was written by a great man named Samuel S. Wyer. We have republished his work, "A Treatise on Producer-Gas and Gas-Producers" as, "Hydrogen Production from Organic Material by Partial Oxidation and Steam Reformation." We know you will enjoy it.

HGG Vol 9: Generator Gas-The Sweedish Experience \$34.95

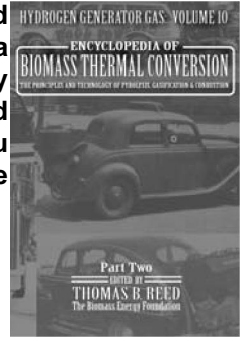
Generator Gas The Swedish Experience 1939-1945 summarizes the scientific, technical and commercial information developed during World War II. While the world's fossil liquid fuel supplies were being used to make war around the globe Sweden, cut off from fossil fuels, converted 40% of its entire motor vehicle fleet to burning wood. The gas generator for motor vehicles was developed at an astonishing speed during the war years. Once again we face a period when fossil liquid fuels are increasingly expensive. Because of economic and national security reasons many nations may well decide that they simply must find substitutes for fossil liquid fuels. Knowledge Publications has republished this book because the information that it contains can potentially save the enormous cost of rediscovering the data and experience gained by Sweden from 1939-1945. This work, which was translated by the Solar Energy Research Group, will enable anyone that is engaged in gasifier projects to build upon knowledge which the Swedes procured long ago.



HGG Vol 10: The Encyclopedia of Biomass Thermal Conversion \$34.95



The latest volume of the bestselling Hydrogen Generator Gas for Vehicles and Engines series is so big we had to relase it in TWO PARTS! The Encyclopedia of Biomass Thermal Conversion contains the principles and technology behind Pyrolysis, Gasification and Combustion. Edited by Thomas B. Reed fromt eh Biomass Energy Foundation this volume contains everythgin you need to know to run your automobile on wood gas. If you own the rest of the HGG series this book is a must have for your collection.



Hydrogen Car and Multi-Fuel DVD \$24.95

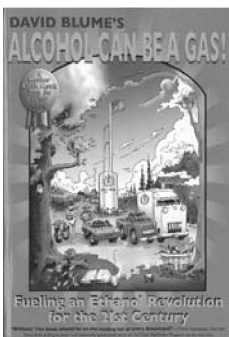


Run an engine on hydrogen, natural gas, gas, diesel, propane, alcohol, etc. Drive on 75 cents per gallon natural gas. Drive on hydrogen, or hydrogen mixed with other fuels such as alcohol, natural gas, propane, diesel (yes, diesel and H2 in a "gasoline" engine), or turpines. Run on hydrogen and veggie oil, or used French fry oil AND hydrogen in a "gasoline" engine. This DVD title tells it all! It is not just a DVD on engines and hydrogen; it's a DVD on hydrogen and other fuels in a regular engine. Click on DETAILED INFO for great details and free audio. DVD is 3.5 hours long.



Alcohol Can Be a Gas!

BOOK \$46.95 DVD \$24.95 GET BOTH FOR \$66.90



Hey... do your remember that famous guy back in the 1970's, 80's that did all of that GREAT stuff for Mother Earth News on ALCOHOL FUEL ? That's David Blume! ..and THIS IS HIS NEW BOOK.

It not only covers making alcohol from corn, but from other crops, from cellulous by acid hydrolysis, from cellulous by enzymes and more. It covers the production of Methane from the digestion of waste, so this book is more than just alcohol.

YES... and there is a DVD with the book. See David Blume give a riveting 2 Hour 40

Minute presentation about alcohol fuel in 2004 in Marin County California. The

nation's first driver owned coop was organized as a result! This professionally filmed talk starts with the amazing history of alcohol as the first auto fuel, and covers a wide range of topics exploding the myths told about alcohol, a primer on how to produce it, car conversion methods, tax credits available, and far far more. The DVD is indexed so you find what you are looking for easily. Also included is a 6 minute

segment showing all the steps in making fuel. This DVD is all you have to hand to that naysaying know it all at your next party to blow their mind.



FUEL MAKING

 Garage/Home
  Engineering/Industrial
  Kids/Family
  Advanced Math
  College Level

Alcohol Can Be a Gas!

BOOK \$46.95 DVD \$24.95 GET BOTH FOR \$66.90



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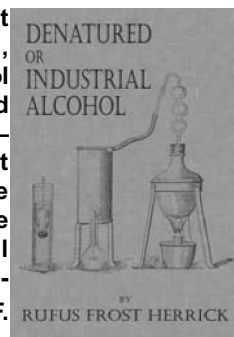
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Denatured (and) Industrial Alcohol \$24.95



Every Single Way of Making Alcohol on an Industrial Scale—or small scale. 516 Pages of knowledge that covers fermentation, the organisms, source material, mashers, crops to use, yield, formulas, distillation, byproducts, heat measurement, usage in engines and much more. The book covers the usage of alcohol for cooking, heating and illumination, just to name a few. It even has details on converting sawdust and other organic material to a form that can be digested by alcohol yeasts to make ETHYL Alcohol. Yes!—Ethanol from sawdust, dead trees, newspaper, cellulose etc... Making alcohol will be an important part of a hydrogen generation system that Roy McAlister and I will be detailing in a future DVD. You will be able to make H2 from alcohol that is made to hydrogen boost turbines or methane. With this book, we made alcohol, distilled it and burned it in 7 days! NO, it is not illegal. It is illegal in most places to distill alcohol for human consumption. You do NOT drink DE-natured alcohol. If you are going to seriously distill alcohol, it is easy to get a still permit from the ATF.



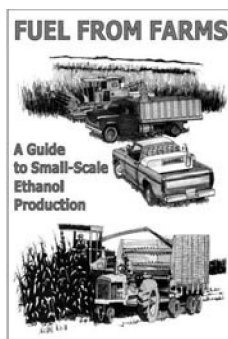
Handbook of Homemade Power \$17.95



The Famous Mother Earth News Book from the 70's.

This book is HANDS ON. USE IT NOW. 374 jam-packed pages of do-it-at-home energy knowledge. This book is actually MUCH BIGGER and easier to read than the original paperback copy of the book. It covers wood heat and wood power, water/hydroelectric home power and RAM-pumps. The handbook also has chapters on wind power, solar energy and an extensive chapter on making and using methane. The methane chapter covers the anaerobic digestion of animal waste. We're talking digestion and methane made in pails, drums and even a propane tank. Put animal waste and water in a propane tank, keep it warm and let it digest. In a few days you can pipe the pressurized methane directly to a Colman lantern type of lamp, a stove or as a pressure feed to a compressor for a car.

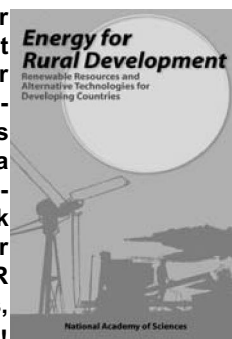
Fuel from Farms \$19.95



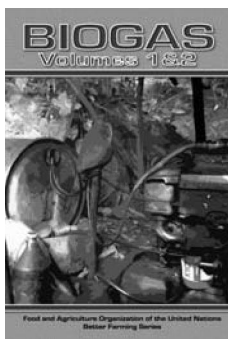
An expansion in the use of Gasahol in this country over the coming years could directly reduce U.S. reliance on oil imports in the future. We have republished this outstanding book to help fill the information void that exists with regards to fermentation ethanol. Fuel from Farms tackles the subject of fermentation ethanol in a balanced and reasoned way, with an emphasis on small scale production using farm crops as the source of raw materials. It is an essential book not only for those of you in the farming community who may be considering incorporating the production of ethanol into your normal agricultural operations, but also for owners of small businesses, investors, experimenters, and entrepreneurs. Fuel from Farms is not just about on-farm fermentation ethanol production. It also provides an overview of some of the technical and economic factors. In addition, it includes tools such as decision and planning worksheets and a sample business plan for use in exploring whether or not ethanol production is right for you. However, the book contains plenty of important specifics about production, including information on the raw materials, system components, and operational requirements. This book will provide you with an array of facts so that you can make INFORMED judgments.

Energy for Rural Development \$19.95

ENERGY FOR RURAL DEVELOPMENT: Renewable Resources and Alternative Technologies for Developing Countries focuses on small-scale energy technologies, not based on conventional fuels that are candidates for rural and village use in developing countries. It also examines the ways in which their candidacy may be affected by technological and economic constraints, present and future. The technologies that this book presents are capable of improving the quality of rural and village life in situations where conventional fuels and power systems have not yet penetrated or are too expensive to become a significant factor in the foreseeable future. This book will provide you with a summary of the state-of-the-art technologies frequently suggested as solutions to rural or individual family energy needs. This book is great for evaluating the potential of each energy source in each candidate situation. PLUS – in order to get you even more information, in this book, we have included the supplement to **ENERGY FOR RURAL DEVELOPMENT: Renewable Resources and Alternative Technologies for Developing Countries**, which covers small, low-cost, locally-operated energy systems!



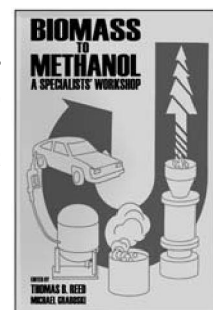
Biogas: Volumes 1 and 2 \$14.95



Biogas: Volumes 1 & 2 combines two works that truly belong together. This book will enable you to genuinely understand how to really utilize Biogas in agricultural development at the farm and family level. Volume 1: Biogas, what it is; how it is made; how to use it begins with a thorough introduction to Biogas. This volume includes the information that you need to build a small Biogas unit including what materials you will need, where to put it and how to test for leaks. It goes on to describe which waste materials you should use and how to use them. It also explains how to protect your Biogas unit from weather extremes, maintenance needs of biogas units and much more. Volume 2: building a better Biogas unit follows after Volume 1 perfectly with great insights for those who have been through the first volume and have already built, tested and used a biogas unit or two. This volume is for those who have advanced their understanding of Biogas through valuable hands experience and are ready for the next level. Even if you have built several Biogas units, Volume 2 will give you essential tips that will definitely help you to build a better unit!

Biomass to Methanol: A Specialists Workshop \$39.95

This book... *IS* for the back yard guy or the new chemistry student or for someone who really wants to understand how methanol is made and where it comes from and how it was done in the past and how its done today. This is not a 'how to' book but it IS a very detailed book. It is one of the EXCELLENT books done by the former Solar Energy Research Institute and AGAIN its our WONDERFUL FRIEND Thomas Reed who co-authored, edited and updated the book. Thomas Reed is also the man behind the Volume 4 of the Hydrogen Gas Generator Book for Vehicles and Engines Vol 3/4 that is one of our best selling books. If you love energy, you'll want EVERY book that Thomas Reed has worked on !.



How to get the hydrogen you need in a tank to either boost the vehicle or to run it on pure hydrogen

by Steven Harris

1. Before you begin, remember, Roy has been doing this for over forty years and Steve has been doing this for twenty-five years. None of the under-the-hood electrolyzers out there work. Its water, not fuel. No pulse width, high voltage, low voltage, cold electricity, pointing north gadget will change the fact that the laws of physics and thermodynamics will not let it work. Period. Without exception. So avoid the scams. It will not increase your fuel economy, won't give you more power, won't do a thing, but frustrate you and waste your time and money.

2. It is possible to run an electrolyzer to make hydrogen and oxygen (separated) and then compress the hydrogen with a compressor. Even a 125psi shop air compressor and air tank will store a small amount of hydrogen. For details on making a real science-based electrolyzer, see *The Manufacture of Hydrogen by Electrolysis, Thermal Decomposition and other Unusual Methods*. It is the best book on the market. It has the science, chemistry and methods, although it is not a step-by-step how-to book. Again, this uses power from the grid or some other source to make a large amount of hydrogen, and then it's compressed and stored. It is not the same as using vehicle electrical power, made from gasoline, to run an under-the-hood electrolyzer.

3. The easiest way to get hydrogen is to go to a welding supply company and buy a cylinder of hydrogen. They will not fill up your cylinder or dive tank, and they won't sell to you unless you seem responsible and knowledgeable. You will have to rent the cylinder from them, and it will be delivered with the hydrogen in it. Or, you will have to have a truck to carry it home yourself. They will not let you take it in your car. Then, go on to Ebay and buy a Double Stage Hydrogen Regulator. Harris makes a nice one, so does Victor and a few other of the gas companies. This is for going from the 2,000-3,000psi in the bottle, down to the 1, 2, 5, 50, or 100 psi that you will want to use. You will not be able to drive your car on this cylinder. A typical cylinder is about the equivalent of half to three-quarters of a gallon of gasoline in BTU energy, and you are going to pay \$20 to \$40 per Gallon of Gas Equivalent (GGE). So you might be spending \$20 on hydrogen that has the same energy as one half-gallon of gas. It's not cheap, but it's in a cylinder, pressurized and ready for you to use. Also, if you use the hydrogen in combination with something else, such as gas, diesel, cooking oil, motor oil, etc, and you use one tenth hydrogen by BTU content, then your 1/2 GGE of hydrogen will combine with about five gallons of your other fuel, which you could hopefully get for free. So, you could get five gallons for about \$20 in cost, which is cheaper, but

still in the experimenting and learning phase.

4. The cheapest and easiest way of making hydrogen is to make it from biomass, including wood, brush, grass, and manure. We suggest starting with wood. The Hydrogen Gas Generator Series we sell are the best books available on this. In this case, Volume 3 & 4 (one book) and Volume 6 are best suited for this project. These books are about what used to be called "producer gas," the partial oxidation of organic material. To make producer gas, you use heat and air to split apart the organic molecule into carbon monoxide, hydrogen, methanes and other similar molecules, which is great because they all burn. Since you are using atmospheric air, there will be a nitrogen component, which will lower the fuel value of your gas, but that's not too important since this fuel is virtually free. This is a good place to start. The input of your compressor will replace the "car engine" that is in the diagrams in these books. It will suck the gas air through the reformer where it will partially oxidize the wood, and then it will go through the clean up process, which is detailed in the book. Then the Nitrogen (N), Hydrogen (H₂), Carbon Monoxide (CO) and the other gases will be compressed. You can start by doing this with a standard 125psi shop compressor.

5. After you have done this with air and wood, then you can move on to two areas that will give you hydrogen and carbon monoxide, without the nitrogen component. There are two ways of doing this, and both are detailed in the books, *The Chemistry and Manufacture of Hydrogen Book*, *DVD and Chemical Educator and Industrial Hydrogen*. More of the chemistry and energy balance is detailed in *The Manufacture of Hydrogen by Electrolysis, Thermal Decomposition and Other Unusual Methods*. If you can only afford one of these books, then just get *The Chemistry and Manufacture of Hydrogen*, and get the DVD if you can. The two ways of getting the better gas are the following: get a column of charcoal, carbon, coke, or coal in an insulated tube and ignite it. Blow air up into it to get it really hot, at least 2,000 degrees Fahrenheit, and then shoot steam up into it until the temperature falls to about 1,600 degrees. The gas that is coming out of the tube while the temperature falls from 2,000 degrees to 1,600 degrees will be mostly hydrogen with some carbon monoxide and a little carbon dioxide. Then stop the compressor and you start to blow the air again and get it heated up to about 2,000 degrees again, and shoot steam into it again, and then compress the gas coming out. You cycle this over and over until you are out of fuel (charcoal, carbon, etc.). The second way of doing this is

similar, but very different chemistry. You fill the tube full of iron. This can be turnings from a lathe or screws, nuts, etc. It can be anything with a high surface area to volume ratio. The iron is in a tube, just like the carbon was in the previous example. Now, you make another tube and this is filled up with junk carbon and biomass. Light the biomass, and pass air through it till it's nice and hot. Once this is hot, it will be producing mostly carbon monoxide and nitrogen from the air. Then, pass this gas into the tube full of iron and you get it hot, 2,000 degrees or more if you can. Once the iron is hot, you then pass in pure steam. This does an oxidation of the iron with the water, and the result is very pure hydrogen. You do this until the temperature falls into the 1,600 degree to 1,800 degree range, when you then pass the hot carbon monoxide and nitrogen through it again. The carbon monoxide will reduce the iron oxide that was formed from turning hydrogen back into iron. This is how steel is made. So to summarize, you get iron hot, pass steam over it, and make rust and hydrogen. The rust stays behind, while the hydrogen is compressed, and then you pass hot carbon monoxide over the rust to turn it back into iron. Then you repeat the cycle over and over. The iron will not go away, because you are only oxidizing and reducing the surface. You will need to add more junk biomass to the carbon monoxide generator as you go along.

6. People ask me over and over how to compress hydrogen to 3,000psi or more. The answer is easy. You get a compressor! The compressor is a SCUBA/Dive compressor used for compressing air into scuba tanks. In fact, you can use SCUBA tanks for storing hydrogen, aluminum or steel, both work fine. The only problem is that a small compressor costs around \$3,000. That's for a small one, not a big one, which is why we suggest you start small, with small amounts of gas and a standard shop-type air compressor. You can also fill up several air tanks with gas and then use a 3,000psi compressor to move it into a high-pressure tank, because the gas producer might make a lot more gas than the small SCUBA compressor can handle at once, since small SCUBA compressors are about 3.5 cubic feet a minute (CFM).

So, you think this is too hard? Tough. You are in the Model T era of hydrogen right now. You have to make your tools, that make your tools, that allow you to do your experiments. What I just outlined are the easiest ways to start to make hydrogen. There is nothing to say that a person of talent and ambition cannot start to make a world of hydrogen from free biomass. Every bit of hydrogen you make can be sold or used in some form. If you have energy for sale and it's cheaper than what is on the market now, there will be interested customers.

If you want cheaper fuel for your car right now, you only have two "easy" answers. One is to use natural gas in the vehicle, and the other is to make your own alcohol. There are more details on alcohol elsewhere in this article, and in our catalog.

STOP MAKING IT HARDER THAN IT IS

People are constantly trying to make it harder than it is to run a car on hydrogen or another alternative fuel. Its not hard, but there are quite a few details involved. Lets look at it from a different point of view. Do you know what the first internal combustion engine was? It was the cannon, except it only ran for a half cycle, because it threw it's piston away with every shot. All you have to do to run an engine is to put in a flammable mixture of fuel and air, and ignite it. You have to time your injection of fuel, and then ignite it at a specific point. The mixture will explode, and make work against the piston and push it down and make force against the crank shaft, which then moves the vehicle through the drive train. Then the exhaust gases are pushed out, and more air and fuel are sucked in. The air and fuel are then compressed and ignited, and this repeats itself over and over. This is what a 4 cycle engine does. It is also called the "Otto Cycle." The fuel can be gasoline, alcohol, hydrogen, methane, propane, butane, carbon oxide-if it burns with air, you can put it into the engine. However, it has to be done with the correct air-to-fuel ratio, and it's combustion characteristics determine if it works and how well it works. Horse manure and air burn well, but far too slowly to inject horse manure and air into an engine cylinder, and to compress and ignite it. The same is true of diesel fuel or oil and air sprayed into a 'gasoline' engine cylinder. It just does not have the "volatility" of the lighter vapor pressure fuels mentioned above.

The best fuel-to-air ratio and the amount of energy in the fuel is what determines how much power your engine will have. The more fuel and air you can fit into the cylinder the more powerful it will be, and thus the further your "cannon ball" will be thrown. In a normal engine, you can fit more fuel into a cylinder with liquid gasoline than you can with gaseous natural gas. A gas takes up more room than a liquid does, which is why some people say a "normal" natural gas or propane engine is "under powered" compared to a gasoline engine. Now, there are exceptions to this. Engines with much higher compression ratios can be used, as well as what is termed "direct fuel injection into the cylinder," but these are not items that are on the market and easily available. If you are a mechanic, you can change the compression ratio of your engine, which is an excellent application for alcohol fuels. Direct cylinder fuel injectors are not really available now, but do not stop doing what you can do today, because you are focused on what you want tomorrow.

This is one trick you have never seen in the media or on TV before. I am going to tell you how to improve your fuel economy in your car right now. This will give you 5 to 15 more Miles Per Gallon (MPG), depending on your vehicle and how you are driving. If you like this, send it to your friends. Post it on your blog. Tell others.

WHO IS TELLING YOU THIS AND WHY DOES IT WORK?

Steven Harris was a development engineer at Chrysler Corporation for 10 years, working on research and development from pre-theme approval to production. Mr. Harris is also the founder of KnowledgePublications.com, the largest alternative and renewable energy-only publishing company in the United States, and it's growing. Its safe to say that Mr Harris lives, eats, and breathes energy and transportation. What I am about to tell you is something we did on every test to either reduce or increase the work of the engine, depending on the test. When we worked with the vehicles we had special gages, display boxes and computers that told us every single thing the vehicle was doing, over 250 different number-vehicle speed, engine speed, engine load, air temp, air pressure, mass flow rate of the air, exhaust gas temps, spark timing, fuel injector timing and length, fuel rail pressure, exhaust gas oxygen, etc. During my ten years there, I spent most of that time in and with the vehicles in testing. Many years staring at these numbers, parameters, and calibrations.

WHAT YOU HAVE NEVER HEARD BEFORE

Idle in Neutral. Yes, it is that easy to save a bunch of fuel. When you are driving down the road, and you see a stop light ahead, the first thing you do is start to coast to the light. As you start coasting, shift the vehicle from drive to neutral, and use the brake to slow down as you approach the stop light or stop sign. While you are sitting at the light, leave the vehicle in neutral. When the light changes, shift to drive and accelerate. When coating down hill, shift to neutral. When waiting for a train, shift to neutral. When in line at the drive through, shift into neutral. Every chance you can, shift into neutral and let your momentum or gravity carry the vehicle forward.

WHY DOES THIS WORK SO WELL?

Get into your vehicle and start it. Put your foot on the brake, and shift the vehicle into drive. Most vehicles have an RPM gage on the dash, look at it. You'll see it idle between 700 and 800 RPM's. Now, shift the engine into neutral, and you'll immediately see the RPM gage drop to between 500 to 700 RPM's. It's that easy. If you had a vacuum gage, also called a Manifold Absolute Pressure (MAP) gage, you'd see that drop as well. The MAP is the "load" on the engine. Everything the engine does is determined by two parameters, the speed and the load. The speed is the RPM, and the load is the "vacuum" or the "MAP." Why is the speed and the load lower when you are in idle than when you are in drive? On an automatic vehicle, you have an automatic transmission between the engine and the axle and wheels. Between the transmission and the engine is a big donut-shaped container called a torque converter. It is full of transmission fluid, and it is the fluid coupling that connects the spinning engine to the spinning transmission. When you are in drive, at a stop

light with the brake depressed, the engine is spinning on its side of the torque converter and it is "sheering the fluid," or making the heavy fluid in the torque converter move. The fluid moves around and tries to turn the transmission side of the torque converter. Think of yourself running in place in mud up to your knees. That's what this is doing. When the vehicle is in neutral, the engine is not "sheering" or moving the fluid in the transmission, and this is a lot less load on the engine when you are sitting still. So if you do a lot of city driving or stopping, doing this will save you a lot of gas. If you are on the highway all the time, this won't save you much. Remember when you are stuck in traffic on the highway to shift into neutral.

SAVING FUEL ON THE HIGHWAY

There is one other thing about the transmission and saving fuel when driving on the highway. It's something that not many of you have heard of, but its called "torque converter lockup" or simply "lockup." Think of the torque converter as two fans in a bath of heavy oil. The engine spins one "fan" which moves the heavy fluid, which spins the other "fan" that is connected to the transmission, which spins the axle, and thus spins the wheels. Modern vehicles, when driving at a constant speed for quite a few seconds, will "lockup" the torque converter. What this does is it physically links the two fans together. It's a direct connection to each other, and not just a connection through a heavy fluid. Think of yourself running, not in mud, and your running shoes pushing directly against the pavement. Now, the second you tap the brake or you change speed the lockup is "disconnected," and you're running in the mud. So, when driving on the highway, the best thing to do is use the cruise control, because this takes your foot out of the system and you should stay in lockup mode as much as possible. If you have a very good "code" reader to read the OBD II codes via the connector under your steering wheel on 1996 and newer vehicles, you can find and read the code that indicates "lockup" in the transmission. If you are very good, you can feel it when it locks up.

WHAT YOU'VE HEARD A MILLION TIMES THAT WORKS

Air up your tires to the manufacturer's recommended pressure that is on the inside of your door, not what is on the tire. This requires a long explanation, but it has to do with vehicle handling and safety. Having your tires at their maximum pressure seriously helps your fuel economy. Tires are not round. They flatten on the bottom as they spin, because of the weight of the vehicle. This flat part that you can see on any car tire is called the "contact patch." If you put too much pressure in your tires (70, 90psi), then what you do is decrease the size of your contact patch, and thus you have less stopping ability, less turning ability, and an over stressed tire. Also, if you are filling it up way too high, then the tire is prone to blow instantly when you hit a rock, curb, or bump, and then

you could find yourself in a "severe handling situation." So, do not over-inflate your tires. Also, the easier a car "breathes" and "exhales" the more efficient the engine is, so putting a clean air filter in your vehicle will make it breathe easier and give you better fuel economy.

WHAT YOU'VE HEARD THAT DOES NOT WORK

Every single "underhood" electrolyzer, water gas or brown gas gadget, gas tank pill, tornado air spinner, or any other insert in the air intake, acetone, toluene, fuel heater, etc, will not work. Do not waste your time.

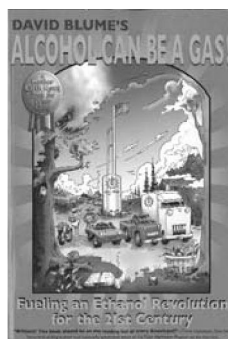
OVER UNITY STUPIDITY

Lots of people out there will tell you they can make energy out of nothing. They tell you they have a device that puts out more energy than it uses, and you can use the surplus to run your car, boat, home, business, etc. They are lying. If they had access to free energy, they would use it to make manufacture products more cheaply than anyone else, and maximize their profits. These machines are simply an impossibility due to the laws of thermodynamics. Do not waste your time or your money.

YOU CAN USE ALCOHOL IN YOUR CAR TODAY - NO MODIFICATIONS

Alcohol is easy to make, very easy. You can make it with two pails and a fish heater. Want the details for free? See the Free Section of www.KnowledgePublications.com. It is legal to make fuel alcohol. The permit from the federal government is free, the state permit is usually either free or around \$25. Almost every single car in the USA can run on an alcohol mixture right now. I've run it in a 2007 Ford Focus, a 2001 Jeep, a 1993 GM Pickup, and in our alcohol discussion group on yahoo there is a long list of vehicles that people have run using a 50/50 alcohol and gas mixture. Most of them are experimenting and using E85 and Gasoline. The gas you use at the pump right now is 10% ethanol, and what people are doing is adding some E85 to their tank to move that to 20% ethanol. Then on the next fill-up, they go to 30% E85, and then 40%, and then 50%. Each time they evaluate their car as they drive it. Does it drive fine? What is my gas mileage? Does the check engine light come on? Do I have any problems cold starting? Now, with E85 at about 80% the price of gasoline, and having about 70% as much energy, do you save money? Not really. You've moved your octane rating up to about 100 by adding the 50% E85, and some cars really respond well to that, and give you much better gas mileage. The other benefit is that the E85 did not come from the OPEC. The real benefit is that you have just proven to yourself, that you can run 50/50 gasoline and alcohol in your car. So, when you make your own alcohol, you won't be hesitant to pour it in your tank with gasoline, because you have already done it. You know that it works,

and works well.



Alcohol Can Be a Gas is one of the best books ever written on the subject of alcohol fuel. No, you do not need to make it from corn, but you can and the book shows you how to. The thing is you can make it from corn or wheat that is not animal edible. Tons of corn get spoiled every year by a variety of factors-fungus, moisture, etc. It's available for bargain prices, but only in the country or major farming areas.

City people we have many sources of free starch for making alcohol. Donuts are one of David Blume's favorite free sources of feedstock. After donuts are two days old, they cannot be sold and are thrown away. Donuts make a great source of starch to covert to sugar, and then ferment into alcohol. The same goes for bakeries that sell fresh bread. Call any bakery outlet and ask them how much they are selling farm bread for. You can also use "pastry droppings," from bread plants and other bakeries. This is dough and flour that is dropped on the floor, or from batches that went wrong. It's not baked yet, and it's a great feedstock. Even if it's baked, or burned, it will work fine as a starch feedstock. Free fuel is all around you, you just need to know where to ask and you'll get it free or cheap. You just might be solving someone's problem for them. Also, don't forget to barter. A donut shop owner might ask you why he should give you old donuts, and you could tell him you'll give him one quarter of the alcohol you make from his donuts. Show up with five gallons of free alcohol for his car, and he'll be happy. You can bet that you'll get every bit of scrap he has. People talk, and people talk in their business, and I'm sure you'll be getting other donut shop owners calling and asking, "Do you want some donuts?" Most donut stores and bakeries are still privately owned. Even for bigger places like Panera, there is always a manager in charge, and they might want to put fuel in their tank as well. Most of the time, you'll find that they will give you their old baked goods, if Second Harvest or one of the other food charities does not pick up the food. The food charities get first pick, and you will get second pick. You'd be surprised at how much food still goes to waste in the USA.

- Steven Harris 2008

WOOD GAS STOVE



Skeptical? Confused? Think its too hard? How can it work? It Does.

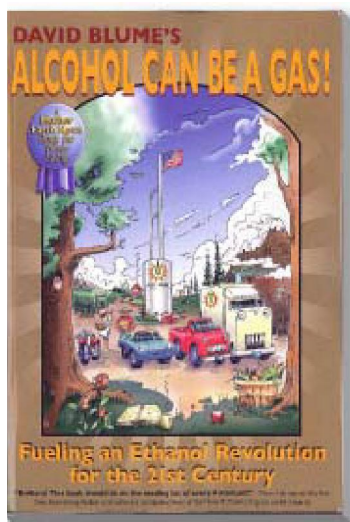
..and Here it is. As simple as it gets. This is a biomass stove. It uses the EXACT same principles in ALL these books. It gasifies through heat wood, twigs, chips etc..into a wood gas that is dominated by hydrogen, methane and other flammable gasses and then it immediately burns those gasses to make a great heat for cooking and camping. This little stove is a 10,000 BTU stove... that's not a small one.. its more heat than the burner on your kitchen stove (5,000 to 8000 BTUs). Block off the extra air holes at the top of the stove and you have a gas generator. If this powered cities and generators 100 years ago, if it can be made into a simple stove.. then I think you might be able to do it to make fuel for your home, car or generator or what ever you have in mind. For those of you who do glass work, small foundry work or ceramics, the gas produced from free stuff like wood will run your gas furnace / kiln VERY VERY well and save you a LOT of money.

Wood Gas Stove
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David Blume's

ALCOHOL CAN BE A GAS!

Hey... do you remember that famous guy back in the 1970's, 80's that did all of that GREAT stuff for Mother Earth News on ALCOHOL FUEL ?

**That's David Blume!
and THIS IS HIS NEW BOOK.**

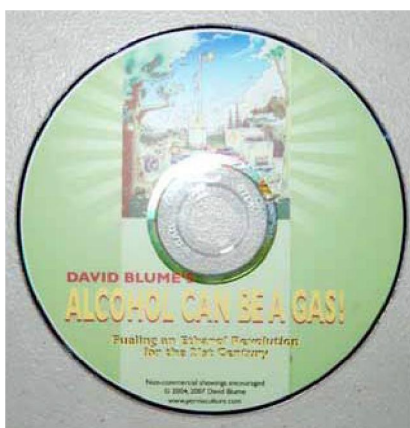
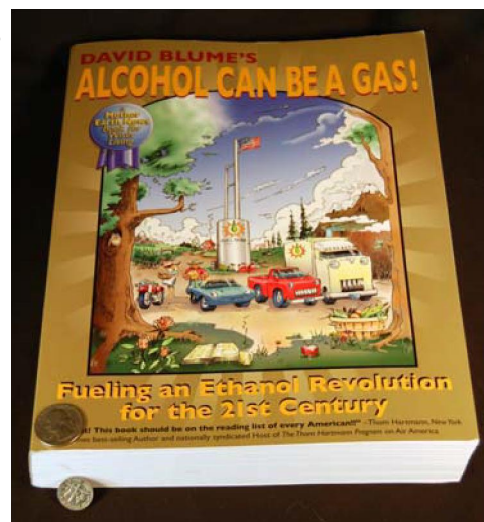
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It not only covers making alcohol from corn, but from other crops, from cellulose by acid hydrolysis, from cellulose by enzymes and more.

It covers the production of Methane from the digestion of waste, so this book is more than just alcohol.



YES... and there is a DVD with the book.

See David Blume give a riveting 2 Hour 40 Minute presentation about alcohol fuel in 2004 in Marin County California. The nation's first driver owned coop was organized as a result! This professionally filmed talk starts with the amazing history of alcohol as the first auto fuel, and covers a wide range of topics exploding the myths told about alcohol, a primer on how to produce it, car conversion methods, tax credits available, and far far more. The DVD is indexed so you find what you are looking for easily. Also included is a 6 minute segment showing all the steps in making fuel. This DVD is all you have to hand to that naysaying know it all at your next party to blow their mind.

For More Information, Pictures and Ordering please go to:
www.KnowledgePublications.com/announce/09102007.htm

NEW!

Additional article by Steven Harris

Includes information on “How to get the hydrogen you need to either boost your vehicle or run it on pure hydrogen”



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