

**Obama Unleashes 21st Century Nuclear Arms Race**

See page 2...



# SolarTimes

Spring, 2016

A newspaper on Energy Democracy, Evolution and Transformation, brought to you by ...

McCune Solar Works & One World Co-op: "We're making a huge difference with a small footprint."

## Welcome to SolarTimes!

### McCune Expects to Double Growth in Coming Year



Chuck McCune, CEO  
McCune Solar Works

As CEO of McCune Solar Works, I'm pleased to join editor Sandy LeonVest in welcoming readers to SolarTimes.

We believe that as you come to understand the culture here at McCune and One World Co-op, you'll also come to appreciate that our business model is uniquely in keeping with these challenging environmental and economic times. Our PV Production Engineer Mark Mitchell may have best described this phenomenon when he observed recently that at McCune, we "create opportunities where none previously existed."

Those opportunities are embedded in our relationships with customers and co-op members.

And that's only one reason we expect our company and coop to double its growth in the next year as we help people begin to realize -- and take back -- their own power.

### EDITOR'S DESK

by Sandy LeonVest



On behalf of McCune Solar Works and One World Co-op, I'd like firstly to welcome our readers to SolarTimes.

As the new communications director here at McCune, I'd like also to say how pleased I am to be counted among this extraordinary collective of people, and to be introducing what we are sure will be a one-of-a-kind company newsletter/newspaper.

One of my duties as communications director is to serve as editor of SolarTimes, a role with which I am quite familiar, having founded and edited its predecessor.

SolarTimes (www.solartimes.org), from 2006 through 2013, boasted a circulation of nearly 20,000, and was the inspiration for this newsletter. As with the newsletter, it was never intended to be a mere promotional tool.

Here at McCune, our goal -- incorporated into our masthead motto above -- is to make a huge difference with a small footprint. Toward that end, our vision is uniquely different than that of a traditional industry or trade magazine.

While, of course, we believe in, and hope you will consider buying our products, SolarTimes' primary purpose has never been exclusively that of product promotion. We were then, and will continue to be, a uniquely Big Picture publication, covering everything from climate change to breakthrough battery technologies, while connecting the dots between energy (green and not-so-green), the economy, the environment and human rights.

Our focus includes what we call "Energy Democracy," a term we use to define renewable

energy (RE) owned by the producer of that energy -- whether a home rooftop system (PV array), a community-owned hybrid system or one powered by a microgrid -- and generated at or near point of use, known as Distributed Generation (DG).

The vision here at McCune -- and that of our new newsletter -- is all about transformation and creating a new energy model. So, it's a perfect fit with that of the original SolarTimes.

We'll be using the term "transformation" a lot in future editions of SolarTimes. By transformation, we mean people transforming themselves from the role of mere "consumers" into "producers" of their own essential resources -- from growing your own organic food to generating clean, renewable power.

At McCune, we understand that the 21st century will necessitate an entirely new energy and consumption conversation -- and an entirely new kind of environmentalism. We further understand that the converging environmental/resource/economic crises will mean turning away from the current cultural/economic paradigm -- essentially a "kill and consume" model.

### BOYCOTT ECOCIDE



In coming issues, we hope to share with our readers, step by step, the specifics of how such a transformation can be realized. Moreover, we'll be providing you the tools and resources to begin making that transformation a reality.

You won't find too many businesses (if any) who encourage less consumption -- especially when it comes to whatever product that business is selling. But at McCune we

understand that to consume renewable energy is not nearly as important as consuming less energy.

We welcome letters to the editor!  
Send to: solartimeseditor@gmail.com

**"At McCune,  
we create opportunity where  
none previously existed."**

— Mark Mitchell,  
McCune Solar Works  
PV Production Engineer

For instance, we understand that people of limited means often cannot afford solar PV and battery storage. At McCune, we make these systems more affordable to those who may otherwise be unable to attain energy independence, while One World Co-op offers monthly workshops in conservation, solar PV, battery technology and all things energy.

Sure, we believe in what we're selling and, like any other company, we'd like you to buy our products. But more importantly, we are long standing environmental activists, and as activists, we advocate for the elimination of ecocidal energy production.

Our primary goal, therefore, is to help customers cut their consumption. We want our community and our clients to challenge the current ecocidal energy model and to learn how to boycott ecocide. And, given the opportunity, we'll show you exactly how to participate in this endeavor. In doing so, you will not only increase your own personal economic stability, but you'll be promoting green living and global sustainability.

Toward that end, we don't want (or need) to sell you anything but essentials. We're acutely aware that, while the footprint of solar is far smaller than that of energy produced from nuclear/fossil fuels (and without the inherent calamity of ongoing environmental degradation), the manufacturing of solar PV and battery storage has its own environmental footprint.

We invite you in the coming months, to learn more about McCune Solar Works and One World Co-op, a worker-owned community coop modeled after Mondragon and Albuquerque's La Montanita Food Co-op, as you join us in our efforts to create a future sustainable world.

www.mccunesolarworks.com  
www.oneworld.coop

**We're Not Buying it!!**

**Boycott Ecocide**

Conserve 20% of All Consumption

## Obama Unleashes 21st Century Nuclear Arms Race

The following report, authored by Greg Mello, director of the nuclear watchdog organization Los Alamos Study Group, has been edited for brevity.

This is a time when official Washington and its legions of lobbyists are highly conscious of the fact that the Obama administration is nearing its end. For its part, the nuclear weapons industry is working to keep Obama's pro-nuclear-weapons legacy intact, set in place new programs and funding commitments where possible and protect those commitments already made – and, through it all, renew ideological commitments and indoctrinate fresh faces throughout the privatized nuclear enterprise and its thin governing structures.

Los Alamos Study Group (LASG) and others are pulling in the opposite direction.

The central ring in this circus is the annual budget process. In early February, the Administration submitted its penultimate nuclear weapons budget to

measures, but New START set no limits on reserve arsenals, non-strategic warheads, and bomber-carried cruise missiles and bombs.

New START limits enter into force February 5, 2018, just three years before the treaty expires (unless the parties agree to extend it to 2026). Meanwhile Russia has threatened to withdraw from New START if the US enters Phase III deployment of its Aegis ballistic missile defense system in Europe, currently planned for 2018.

The political bargain for ratification of New START by the US Senate kick-started, and is the principal political basis for, the vast modernization effort now underway. New START has not constrained – in fact it has unleashed – today's nuclear arms race. The New START process greatly muted criticism of modernization in and around

# NUCLEAR POWER

## FEMA's Stunning Admission: "We are not ready for the Big One."

Back in 2004, a top FEMA official, asking to remain anonymous, told SolarTimes' Contributing Editor Chuck McCune: "The Big One is coming and we're not ready." When McCune asked the official what he meant by "the big one," the official replied, "the New Madrid fault"

In October, 2009 a study commissioned by the Department of Homeland Security (DHS)/Federal Emergency Management Agency (FEMA) on the possible impact of a major New Madrid Fault Earthquake was released. ([http://www.cusec.org/documents/scenarios/2009\\_Scenario\\_MAE\\_Center\\_Vol\\_I.pdf](http://www.cusec.org/documents/scenarios/2009_Scenario_MAE_Center_Vol_I.pdf)).

The New Madrid Fault is located beneath the Mississippi River Valley in the Midwest United States. It is part of the North American tectonic plate and the major fault among four, located in this region. It is yet to be confirmed if these faults intersect or are unique to each other.

A synopsis of DHS/FEMA's report follows, some of which is paraphrased for reader convenience:

**"Four FEMA Regions (Regions IV, V, VI and VII) were involved in the New Madrid Seismic Zone (NMSZ) scenario workshops. The four FEMA Regions include Illinois, Indiana, Kentucky, Tennessee, Alabama, Mississippi, Arkansas and Missouri."**

The report indicates that Tennessee, Arkansas, and Missouri would be most severely impacted by an earthquake in the region. Illinois and Kentucky would also be impacted, though not as severely as the previous three states.

Nearly 715,000 buildings would be damaged in the eight-state study region, requiring some 42,000 search and rescue personnel working in 1,500 teams.

Damage to critical infrastructure (essential facilities, transportation and utility lifelines) would be substantial in the 140 counties near the rupture zone, including 3,500 damaged bridges and nearly 425,000 breaks and leaks to both local and interstate pipelines.

Approximately 2.6 million households would be without power and some 86,000 injuries and fatalities would result from damage to infrastructure, with nearly 130 hospitals damaged -- most located in the impacted counties near the rupture zone. Extensive damage and substantial travel delays in Memphis, Tennessee, and St. Louis, Missouri, thus hampering search and rescue as well as evacuation, with roughly 15 major bridges rendered unusable.

Three days after the earthquake, 7.2 million people are still displaced and 2 million seek temporary shelter.

In light of DHS/FEMA's stunning observations, SolarTimes posits the following questions:

- Why is the study limited to a 7.7 quake when historically an 8.0 is inevitable? Does DHS/FEMA believe that multiple nuclear power plant meltdowns would likely occur? Does DHS/FEMA believe the public doesn't need to know this?

- Why are nuclear plants only mentioned 3 times throughout the entire study -- with NO analysis of nuclear impact, evacuation, injuries, deaths, contamination etc?

- What would happen if even 3 or 4 out of perhaps 23 nuclear plants were to sustain significant damage in even a 7.7 quake? And how would authorities compensate for the loss of off-site power required to avoid calamity?

- Is it assumed that if there were over 700k structural failures in addition to the impassable roads and bridges, there would be no damage to any of the plants, or that critical off-site backup power would be possible within the 6-8 hours required even if there were no damage at all?

- What, if any, are the evacuation plans -- routes, shelter zones, food and water distribution, etc?

DHS/FEMA's projections could occur today or in 100 years. Either way, nuclear power is too great a risk.

Congress, for fiscal year (FY) 2017. Meanwhile and in parallel, the Administration is developing the FY18 budget. It will be one of the final ways for this President to put a stamp on his nuclear weapons policy legacy.

Over two terms, Obama has retired fewer warheads than any other post-Cold War president, in both absolute and relative terms, and he has launched a comprehensive effort to modernize everything in sight – everything nuclear-weapons related, that is. Warheads, factories, and delivery systems, with no significant weapon retirements going forward, are to be operated, maintained and upgraded in capability at a total cost of at least \$1 trillion over 30 years, a figure I now believe significantly understates both DoD and DOE costs even in the most optimistic case.

These current and planned investments, along with other developments, are stimulating a new nuclear arms race with Russia and China. They are also visibly undercutting US nonproliferation goals, as could be seen for example at the 2015 Review Conference of the Nuclear Nonproliferation Treaty (NPT).

As a result of these aggressive plans, which are being mismanaged by government (Congress and the Executive) as well as by the National Nuclear Security Administration's (NNSA) greedy contractors, inflation-corrected warhead spending has risen higher under Obama than under any prior president. It is planned to rise further each year, all the way through 2040.

New Start, supposedly a signature Obama achievement, provides limits to US and Russian deployed strategic nuclear weapons as well as some mutual transparency

the Democratic Party. As one prominent arms control leader said to us regarding the proposed new pit factory in Los Alamos: "It's part of the deal we made." In our view, New START was a mistake, not an accomplishment.

There are no disarmament negotiations underway and none are planned. US relations with Russia are poorer than at any time since the 1980s. This is the intentional result of seeking to impose a variety of costs on Russia, which the administration has chosen to view as an adversary which must be defeated. US-Russian relations have been especially damaged by the eastward movement of

NATO membership and deployments, the US-supported coup in Ukraine and its various sequellae, and the US-supported war against the Syrian government, all of which are far from resolved. Relations with China have deteriorated as well.

This Administration's foreign policy, as LASG has frequently noted, is largely captive to neoconservatives whose goal remains maintaining US global domination. The Democratic Party and arms control organizations here and abroad, and their funders, passively or actively accept this ideological framework, even though it ends further prospects for arms control and disarmament. The leaders of these organizations have failed and are still failing in their duty of critique, and have thereby failed this administration and Congress.

The Obama administration has largely been content to 'kick the can down the road' on any number of nuclear weapons issues. Beneath the surface, however, controversies, contradictions, and difficulties are building.

<http://lasg.org/ActionAlerts/2016/Bulletin217.html>

# McCune SolarWorks & One World Co-op: Products and Services



## LiFePO4: Everything You Need in a Battery

### Lithium Iron Phosphate (LiFePO4) v Lead Acid Batteries

A comparison/reality check ...

1) The LiFePO4 battery is one-third the weight of the Lead Acid battery of similar capacity, and about one quarter of the volume.

2) The LiFePO4 battery can be charged and discharged 2000 to 7000 times at 100% DOD (depth of discharge) and still retain as much as 80% of its original capacity. The Lead Acid battery retains only about 60% of its original capacity after as few as 500 cycles.

3) The LiFePO4 battery is completely sealed and gives off no gasses during charge or discharge. Most Lead Acid batteries give off flammable hydrogen and acidic steam under most conditions, requiring careful ventilation.

4) LiFePO4 batteries require no maintenance. Lead Acid batteries require regular checks of the density of the electrolytes and additions of fluids.

5) The voltage of a LiFePO4 cell is 3.5 volts, while a Lead Acid cell is 2.0 volts.

6) The available discharge rate in amperes for a LiFePO4 battery is twice that of a Lead Acid battery.

7) LiFePO4 batteries work very well at -20 degrees C., and can discharge at 90% of rating even at -40 degrees C. Lead Acid batteries, however, can only discharge less than 60% at 0 degrees C.

8) The shelf life of a LiFePO4 battery is much longer than a Lead Acid battery. Typically a LiFePO4 battery will lose less than 1% of its charge per month, while a Lead Acid battery will typically lose 15-20% of its charge per month.

9) LiFePO4 batteries have no memory, and can therefore be recharged at any point in the discharge cycle. Not true for Lead Acid batteries.

10) LiFePO4 batteries contain no toxic or hazardous materials, and none are used in its manufacture. Not true for Li Ion, Nickel Cadmium or Lead Acid batteries, which contain cobalt, mercury, lead and cadmium, plus corrosive acids.

11) While LiFePO4 batteries are more expensive than Lead Acid batteries, fully considering the above advantages makes LiFePO4 batteries less expensive for stationary storage of electrical power.



## We Ship Anywhere!

Order the LiFePO4 today, via phone or email:

Phone: 505 242-2384 or call our toll-free line: 866 622-8630

or email: [mccune@mccuneworks.com](mailto:mccune@mccuneworks.com)

## Put the Squeeze on Bad Energy

At McCune Solar Works and One World Co-op, we aggregate high quality materials/methods and our own proprietary technology into long lasting, safe and affordable product solutions to energy production and green living.



### One World Co-op Store:

A member buying club with available emergency/mitigation products, green living products and a wish list for accumulating group purchasing on specific product requests.

(More information at [www.oneworld.coop](http://www.oneworld.coop))

### Products include

- Parallel/Off-grid, Stand-alone PV Production System
- LiFePO4 Battery System
- Step by step Do-It-Yourself (DIY) instructions, or use one of our recommended certified installers

### Services include

#### Conservation:

With conservation a solar PV and battery storage system can be acquired for well under \$20k. We help you achieve a consumption level that will make your energy production system affordable.

#### Budgeting Assistance:

- Lay away Plan
- Financing options
- Incremental buying of Energy System components

#### Planning Assistance

- Plan your time of day consumption
- Plan location of energy production and configuration
- Plan to be without grid power
- Plan for energy sovereignty, in your home and community
- Interactive energy calculator

#### Local Activism

- We give you the tools to set an example with your own conservation practices;
- We'll help you interact with your local government official and regulators;
- We supply free document templates for local micro-grid creation and state filing;
- By joining One World Coop, you'll be promoting the concept of local cooperatives;
- We encourage you to support your local farmers, grocers, solar companies, book sellers, and any locally owned businesses and non-profits;
- We'll help you learn about microgrids and community-owned energy production;
- Members of One World Co-op participate in funding and income from all community power cooperatives planned by One World Co-op
  - One World Co-op will help any community or neighborhood to form their own Power Cooperative.

## One World Co-op Member Services:



- Workshops (Sliding Scale)
- FREE subscription to SolarTimes newspaper
  - Tips on mitigation and sustainability
    - Library of survival resources
    - DIY recipes and project plans
    - Green Building guidance
  - Green living resources and information
    - Consumption analysis
    - Conservation tips
  - Free interactive energy calculator
  - Articles from guest activists/experts
- Volume purchasing of green living and green energy products
  - Ongoing efforts in ecocide aversion
    - Organic living resources
  - Community building programs
    - Yearly Dividends

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# ONE WORLD CO-OP

Spring, 2016



# SolarTimes

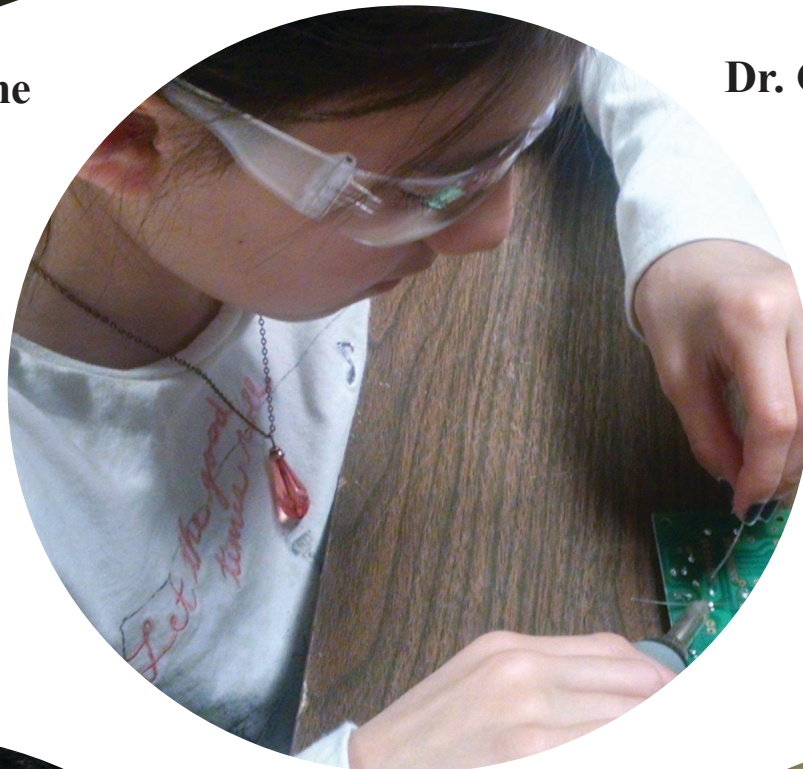
## Meet the Family



**Chuck McCune**  
CEO



**Dr. Chuthamard McCune**  
President



**Elle McCune**  
Boss of Bosses



**Kanokon Tungdeetesud**  
CFO



**Maxim Rice**  
Electrical Engineering

# ONE WORLD CO-OP

# SolarTimes



## Meet the Family



**Keenan McCune**  
Web Design, Marketing



**Mark Mitchell**  
PV Production Engineer



**George Schardon**  
Robotics Engineer/Production



**Testing batteries in the factory**



**Sandy LeonVest**  
Communications and Marketing Director



# ONE WORLD CO-OP

# Fossil Follies: Editor's Pick: Natural Gas: A Bridge to Disaster

## SoCal Methane Leak One of Many

**Just as the Gulf Coast disaster energized opposition to offshore oil drilling, the methane leak at Porter Ranch could spell big trouble for natural gas by exposing the Big Lie about its reputation as clean, safe and climate-friendly ...**

Against the backdrop of NASA's most recent climate report confirming February, 2016 to be the hottest February in climate history (by a long shot), the massive methane leak at a SoCal Gas facility near Porter Ranch, California, which began in October of 2016 and was not contained until March, 2016, is a wakeup call of the deadliest kind for anyone concerned about a "clean energy future" -- or, for that matter, any future at all.

A wakeup call, not just because of one highly publicized methane leak which sent residents of a wealthy community in Southern California fleeing for their lives, but because what happened there is happening now -- at gas facilities all over the country.

Methane is a greenhouse gas 25 times more potent than CO<sub>2</sub>. In the case of the Porter Ranch leak, which originated at SoCal Gas's Aliso Canyon natural gas facility, the methane that spewed went uncontained for months.

But at least it made headlines.

What isn't making headlines -- or even news in many cases -- is that there are similar leaks occurring throughout the nation's oil and gas supply chain.

A series of studies beginning in 2012, and lead by the Environmental Defense Fund (EDF), found problems across the country at every point of the natural gas supply chain -- from thousands of wellheads to miles of utility lines underneath city streets.

Yet, the natural gas industry continues to insist that its product is a more environmentally friendly alternative to fossil fuels.

The toxic leak from the Aliso Canyon facility created more climate emissions than 500,000 cars driving for one year,

as it spewed out carcinogens, respiratory irritants and other toxins, forcing thousands of Porter Ranch residents to converge on local emergency rooms, and some of them to relocate.

While Aliso Canyon is an extreme example, there are now thousands of methane leaks across the US coming to light, a situation which not only compounds the nation's greenhouse gas inventory, but poses a severe public health risk.

"Events of this size are rare, but major leakage across the oil and gas supply chain is not," Director of Environmental Defense Fund's California Oil & Gas Program Tim O'Connor told reporters earlier this year.

"There are plenty of mini-Aliso Canyons that add up to a big climate problem -- not just in California, but across the country."

Methane seepage can occur at all stages of oil and gas production -- from leaks along the more than one million miles of domestic pipeline to intentional "burn-offs" at the hundreds of thousands of production sites that dot the American landscape.

Hydraulic fracturing or fracking during the extraction process also leaks methane, and that practice is occurring at hundreds of sites throughout the US.

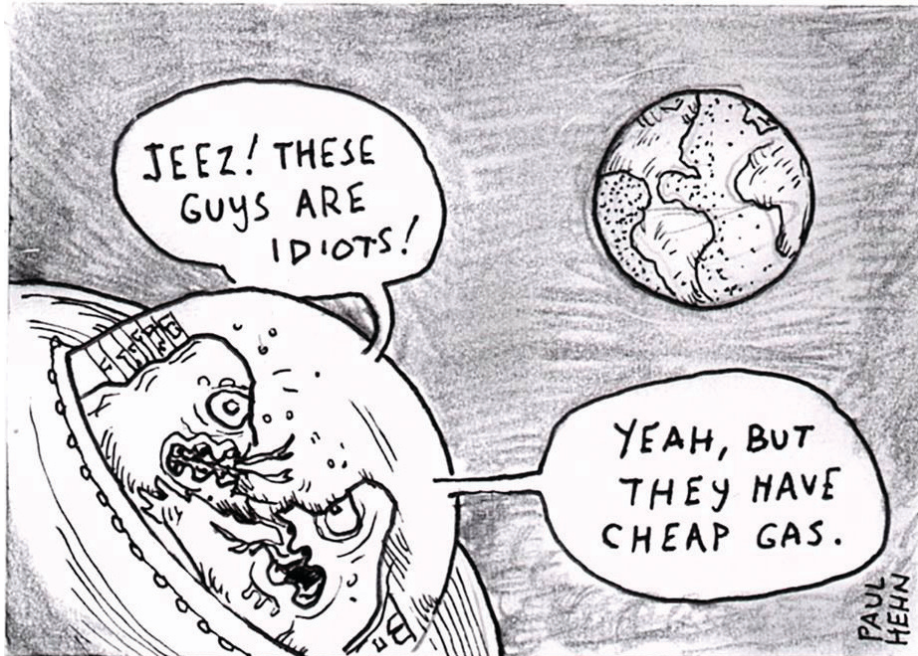
Back in 2014, a Stanford University study estimated that methane emissions at the time were likely 50 percent higher than official EPA projections, and research published last year found the technology that EPA and others use to measure emissions may itself be flawed, and the amount of methane leaking into the atmosphere is likely "systematically underestimated."

A study published in August, 2015, for example, found natural gas facilities lose about 100 billion cubic feet of natural gas each year.

That's about eight times the estimates used by EPA.

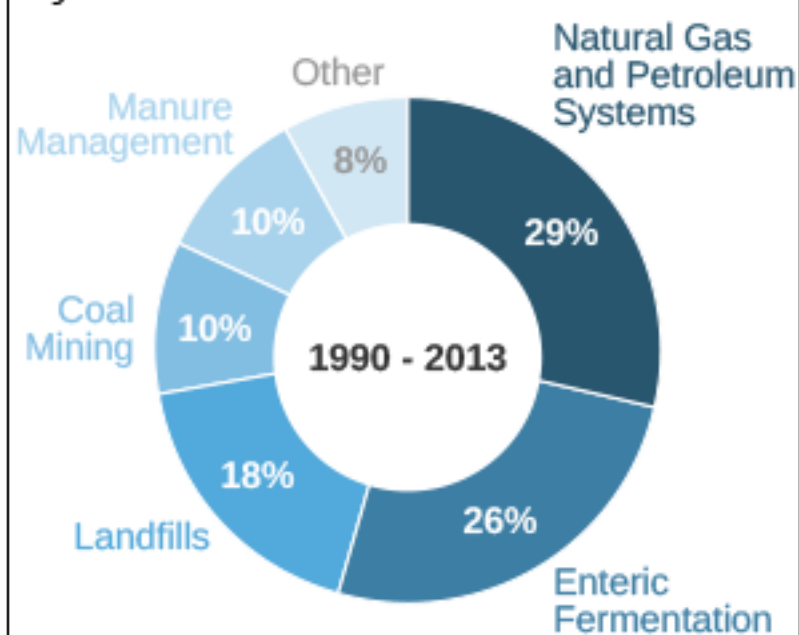
Sources for this story included, but were not limited to:

<http://www.nbclosangeles.com/news/local/California-Methane-Leak-Aliso-Canyon-Porter-Ranch-Environmentalists-Other-Leaks-365804391.html>  
<http://www.theguardian.com/vital-signs/2016/mar/02/methane-leaks-aliso-canyon-ghg-epa-edf-environment-climate-change-gas>, <http://www.pri.org/stories/2016-03-14/us-methane-emissions-are-dramatically-underestimated-new-study-shows>, <http://www.pbs.org/newshour/updates/california-natural-gas-leak-just-one-of-thousands-across-country/>



- Extracting, distributing and burning natural gas releases methane and other toxic pollutants into the atmosphere, as do leaks, spews and other accidents -- all common in the industry.
- Methane is between 86 and 105 times as powerful as CO<sub>2</sub> at disrupting the climate over a 20-year period.
  - Then there's hydraulic fracturing or hydrofracking. Hydrofracking pollutes aquifers, waterways and squanders water -- and is widely used across the US to extract natural gas.
- Thanks to record production levels, natural gas will soon become the nation's top power source, eclipsing coal.
- Supplies have grown so fast that US prices have been crashing due to oversupply.
- The industry wants to remedy this imbalance through exports
- That means producing more liquefied natural gas (LNG) -- a demonstrably dangerous and expensive venture.
- More production will trigger more pollution and potential leaks.
- Natural gas is a climate-wrecking, money-losing bridge to ecological and economic collapse.

U.S. Methane Emissions, By Source



Source: Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2013.  
Credit: NBC

# TAKE BACK THE POWER!

## TRANSFORMATION BEGINS HERE:



### 2013 Average Monthly Bill- Residential

(Data from forms EIA-861- schedules 4A-D, EIA-861S and EIA-861U)

| State                        | Number of Customers | Average Monthly Consumption (kW <sup>hr</sup> ) | Average Price (cents/kWh) | Average Monthly Bill (Dollar and cents) |
|------------------------------|---------------------|---|---------------------------|---|
| <b>New England</b>           | <b>6,221,890</b>    | <b>648</b>                                      | <b>16.22</b>              | <b>105.09</b>                           |
| Connecticut                  | 1,454,963           | 752   | 17.55                     | 132.07                                  |
| Maine                        | 704,775             | 551   | 14.35                     | 79.13                                   |
| Massachusetts                | 2,708,759           | 638   | 15.83                     | 100.97                                  |
| New Hampshire                | 603,628             | 629   | 16.33                     | 102.66                                  |
| Rhode Island                 | 438,198             | 602   | 15.20                     | 91.48                                   |
| Vermont                      | 311,567             | 569   | 17.14                     | 97.45                                   |
| <b>Middle Atlantic</b>       | <b>15,761,832</b>   | <b>706</b>                                      | <b>15.70</b>              | <b>110.88</b>                           |
| New Jersey                   | 3,461,109           | 687   | 15.73                     | 108.10                                  |
| New York                     | 7,027,866           | 602   | 18.79                     | 113.16                                  |
| Pennsylvania                 | 5,272,857           | 857   | 12.79                     | 109.66                                  |
| <b>East North Central</b>    | <b>19,652,153</b>   | <b>797</b>                                      | <b>12.14</b>              | <b>96.77</b>                            |
| Illinois                     | 5,120,607           | 755   | 10.63                     | 80.19                                   |
| Indiana                      | 2,771,260           | 1,005   | 10.99                     | 110.44                                  |
| Michigan                     | 4,265,264           | 665   | 14.59                     | 96.95                                   |
| Ohio                         | 4,875,346           | 892   | 12.01                     | 107.07                                  |
| Wisconsin                    | 2,619,676           | 703   | 13.55                     | 95.21                                   |
| <b>West North Central</b>    | <b>9,145,587</b>    | <b>969</b>                                      | <b>10.94</b>              | <b>106.03</b>                           |
| Iowa                         | 1,343,500           | 909   | 11.05                     | 100.41                                  |
| Kansas                       | 1,222,985           | 926   | 11.64                     | 107.85                                  |
| Minnesota                    | 2,329,734           | 817   | 11.81                     | 96.51                                   |
| Missouri                     | 2,708,934           | 1,086   | 10.60                     | 115.21                                  |
| Nebraska                     | 810,867             | 1,034   | 10.31                     | 106.65                                  |
| North Dakota                 | 348,486             | 1,205   | 9.12                      | 109.85                                  |
| South Dakota                 | 381,081             | 1,055   | 10.26                     | 108.21                                  |
| <b>South Atlantic</b>        | <b>26,256,056</b>   | <b>1,088</b>                                    | <b>11.39</b>              | <b>123.93</b>                           |
| Delaware                     | 403,519             | 944   | 12.95                     | 122.25                                  |
| District of Columbia         | 235,322             | 720   | 12.57                     | 90.51                                   |
| Florida                      | 8,756,322           | 1,078   | 11.27                     | 121.53                                  |
| Georgia                      | 4,101,351           | 1,088   | 11.46                     | 124.67                                  |
| Maryland                     | 2,218,948           | 1,031   | 13.25                     | 136.63                                  |
| North Carolina               | 4,268,019           | 1,098   | 10.97                     | 120.52                                  |
| South Carolina               | 2,135,432           | 1,124   | 11.99                     | 134.86                                  |
| Virginia                     | 3,273,502           | 1,156   | 10.84                     | 125.36                                  |
| West Virginia                | 863,641             | 1,118   | 9.52                      | 106.44                                  |
| <b>East South Central</b>    | <b>8,093,582</b>    | <b>1,210</b>                                    | <b>10.40</b>              | <b>125.91</b>                           |
| Alabama                      | 2,158,898           | 1,211   | 11.26                     | 136.36                                  |
| Kentucky                     | 1,935,245           | 1,154   | 9.79                      | 112.95                                  |
| Mississippi                  | 1,260,892           | 1,220   | 10.78                     | 131.49                                  |
| Tennessee                    | 2,738,547           | 1,245   | 9.98                      | 124.25                                  |
| <b>West South Central</b>    | <b>14,998,178</b>   | <b>1,180</b>                                    | <b>10.74</b>              | <b>126.75</b>                           |
| Arkansas                     | 1,339,680           | 1,133   | 9.59                      | 108.64                                  |
| Louisiana                    | 2,011,044           | 1,273   | 9.43                      | 119.98                                  |
| Oklahoma                     | 1,693,151           | 1,142   | 9.67                      | 110.47                                  |
| Texas                        | 9,954,303           | 1,174   | 11.35                     | 133.33                                  |
| <b>Mountain</b>              | <b>9,162,929</b>    | <b>876</b>                                      | <b>11.31</b>              | <b>99.15</b>                            |
| Arizona                      | 2,630,595           | 1,049   | 11.71                     | 122.85                                  |
| Colorado                     | 2,169,365           | 712   | 11.93                     | 84.91                                   |
| Idaho                        | 680,930             | 1,055   | 9.32                      | 98.35                                   |
| Montana                      | 477,266             | 860   | 10.33                     | 88.85                                   |
| Nevada                       | 1,094,770           | 924   | 11.89                     | 109.94                                  |
| New Mexico                   | 865,195             | 655   | 11.68                     | 76.56                                   |
| Utah                         | 981,194             | 798   | 10.37                     | 82.79                                   |
| Wyoming                      | 263,614             | 894   | 10.16                     | 90.85                                   |
| <b>Pacific Contiguous</b>    | <b>17,890,314</b>   | <b>674</b>                                      | <b>13.48</b>              | <b>90.84</b>                            |
| California                   | 13,359,503          | 557   | 16.19                     | 90.19                                   |
| Oregon                       | 1,650,803           | 976   | 9.90                      | 96.58                                   |
| Washington                   | 2,880,008           | 1,041   | 8.70                      | 90.55                                   |
| <b>Pacific Noncontiguous</b> | <b>699,661</b>      | <b>561</b>                                      | <b>28.56</b>              | <b>160.32</b>                           |
| Alaska                       | 277,275             | 632   | 18.12                     | 114.56                                  |
| Hawaii                       | 422,386             | 515   | 36.98                     | 190.36                                  |
| <b>U.S. Total</b>            | <b>127,882,182</b>  | <b>909</b>                                      | <b>12.12</b>              | <b>110.20</b>                           |

## Boycott Dirty Energy

Guide to reducing power consumption:

Look at the chart, look at your electric bill, and get busy cutting your consumption

- Use LED Bulbs
- Shut down A/C whenever possible and/or limit to smaller part of home
- Don't use dishwasher
- Limit clothes dryer usage
- Avoid purchasing products with excessive packaging
- Combine errands when driving
- Keep backup disaster food to eliminate running to store



- Grow an organic garden if possible -- and compost
- When baking cook more than one thing while oven is on
- Unplug phone chargers and other phantom loads when not in use
- Use power strips to disconnect multiple phantom loads
- Use vacuum carafe for coffee and shut off coffee maker after brewing
- Shut down computer when not in use
- Install solar - even if only small charger panels for phones, computers etc., use solar garden lights - bring in at night
- Don't buy plastic bags for food storage
- Buy in bulk when possible
- Don't eat meat, especially factory farm meat, (huge green house gas/water problem)
- Don't buy anything you don't need!!

# ONE WORLD CO-OP

Spring, 2016



## Transformation, Evolution and Energy Democracy

### McCune Solar Works Energy Calculator

User Input Fields are this Color

This is a tool to calculate one's power consumption, OR, to analyze a number of what-if conservation scenarios. Check the nameplate ratings of your actual equipment for adjustments. Only the No., Hrs, and Watts for Other equipment accept input from the user. Use whole numbers or decimals rather than fractions i.e. 15 minutes = .25 hrs. Graphs will generate as user input is calculated.

**Energy Calculator by Equipment and Time of Usage Kwh**

| Household Utility     | No. | Watts | Hrs | Day Time      | Hrs | Night Time    |
|-----------------------|-----|-------|-----|---------------|-----|---------------|
| Central A/C           | 1   | 4,000 | 4   | 18,000        | 5   | 22,500        |
| Well Pump             |     | 1000  |     | 0             |     | 0             |
| Boiler/Furnace        |     | 700   |     | 0             |     | 0             |
| Split System          |     | 4500  |     | 0             |     | 0             |
| Electric Water Heater | 1   | 1500  | 1   | 1,500         | 1   | 1,500         |
| Other                 |     | 1500  | 1   | 0             |     | 0             |
| <b>Total</b>          |     |       |     | <b>19,500</b> |     | <b>24,000</b> |

**Actual Usage Breakdown**

| Kitchen Laundry Bath      | No. | Watts | Hrs | Day Time     | Hrs | Night Time   |
|---------------------------|-----|-------|-----|--------------|-----|--------------|
| Electric Clothes Dryer NA | 1   | 4,000 | 0.2 | 800          | 0.2 | 800          |
| Clothes Dryer Gas         |     | 350   |     | 0            |     | 0            |
| Oven                      |     | 3,000 |     | 0            |     | 0            |
| Hair Dryer                | 1   | 1,538 | 0   | 0.1          |     | 154          |
| Dishwasher                |     | 1400  |     | 0            |     | 0            |
| Coffee Machine            | 1   | 1,500 | 2   | 3,000        |     | 0            |
| Microwave                 |     | 1,500 |     | 0            |     | 0            |
| Popcorn Popper            |     | 1,400 |     | 0            |     | 0            |
| Toaster oven              | 1   | 1,200 | 0.2 | 240          | 0.2 | 240          |
| Hot Plate                 |     | 1200  |     | 0            |     | 0            |
| Iron                      |     | 1,100 |     | 0            |     | 0            |
| Toaster                   | 1   | 1,100 | 0.1 | 110          |     | 0            |
| Microwave                 | 1   | 1,000 | 0.1 | 100          | 0.1 | 100          |
| Room Air Conditioner NA   |     | 1,100 |     | 0            |     | 0            |
| Vacuum Cleaner            |     | 500   |     | 0            |     | 0            |
| Water heater              |     | 475   |     | 0            |     | 0            |
| Sink Waste Disposal       | 1   | 450   | 0.1 | 45           |     | 0            |
| Espresso Machine          |     | 300   |     | 0            |     | 0            |
| Dehumidifier              |     | 350   |     | 0            |     | 0            |
| Blender                   |     | 300   |     | 0            |     | 0            |
| Humidifier                |     | 700   |     | 0            |     | 0            |
| Other                     |     |       |     | 0            |     | 0            |
| <b>Total</b>              |     |       |     | <b>4,295</b> |     | <b>1,294</b> |

| LifeStyle                 | No. | Watts | Hrs | Day Time     | Hrs | Night Time   |
|---------------------------|-----|-------|-----|--------------|-----|--------------|
| Exercise Equipment 1/2 HP | 1   | 374   | 1   | 374          |     | 0            |
| TV                        | 3   | 200   | 1   | 600          | 5   | 3,000        |
| Cable Box                 | 1   | 20    | 12  | 240          | 12  | 240          |
| Satellite Dish            |     | 30    |     | 0            |     | 0            |
| Stereo                    |     | 60    |     | 0            |     | 0            |
| Laptop(s)                 | 3   | 200   | 2   | 1,200        | 5   | 3,000        |
| Computer(s)               | 1   | 270   |     | 0            | 3   | 810          |
| Other                     |     |       |     | 0            |     | 0            |
| <b>Total</b>              |     |       |     | <b>2,414</b> |     | <b>7,050</b> |

| Miscellaneous        | No. | Watts | Hrs | Day Time   | Hrs | Night Time |
|----------------------|-----|-------|-----|------------|-----|------------|
| Telephone            |     | 2     |     | 0          |     | 0          |
| Cell Phone Chgrs     | 3   | 4     | 12  | 144        | 12  | 144        |
| MP3 Player           |     | 0.4   |     | 0          |     | 0          |
| Portable/Ceiling Fan |     | 100   |     | 0          |     | 0          |
| Portable Heater      |     | 1500  |     | 0          |     | 0          |
| Clock Radio          | 1   | 7     | 12  | 84         | 12  | 84         |
| Other                |     |       |     | 0          |     | 0          |
| <b>Total</b>         |     |       |     | <b>228</b> |     | <b>228</b> |

| Refrigeration/Freezer | No. | Watts                 | Hrs | Day Time      | Hrs | Night Time    |
|-----------------------|-----|-----------------------|-----|---------------|-----|---------------|
| 20 cu. ft. (AC)       | 1   | 1411 watt-hours/day*  | 3   | 235           | 3   | 235           |
| 16 cu. ft. (AC)       |     | 1200 watt-hours /day* | 3   | 0             | 3   | 0             |
| 15 cu. ft. (Upright)  |     | 1240 watt-hours /day* | 3   | 0             | 3   | 0             |
| 15 cu. ft. (Chest)    | 1   | 1080 watt-hours /day* | 3   | 235           | 3   | 235           |
| <b>Total</b>          |     |                       |     | <b>470.33</b> |     | <b>470.33</b> |

| Lighting                  | No. | Watts | Hrs | Day Time | Hrs | Night Time   |
|---------------------------|-----|-------|-----|----------|-----|--------------|
| 100W incandescent bulb    | 6   | 100   | 0   | 0        | 3   | 1,800        |
| 25W compact floor. bulb   |     | 28    |     | 0        |     | 0            |
| 8W AC LED                 | 6   | 8     | 0   | 0        | 3   | 144          |
| 40W DC halogen            |     | 40    |     | 0        |     | 0            |
| 20W DC compact floor.     |     | 22    |     | 0        |     | 0            |
| CFL Bulb (60W equivalent) |     | 18    |     | 0        |     | 0            |
| Other                     |     |       |     | 0        |     | 0            |
| <b>Total</b>              |     |       |     | <b>0</b> |     | <b>1,944</b> |

| Tools               | No. | Watts | Hrs | Day Time   | Hrs | Night Time |
|---------------------|-----|-------|-----|------------|-----|------------|
| Hedge trimmer       |     | 450   |     | 0          |     | 0          |
| Weed eater          |     | 500   |     | 0          |     | 0          |
| 1/4" drill          |     | 250   |     | 0          |     | 0          |
| 1/2" drill          |     | 750   |     | 0          |     | 0          |
| 1" drill            |     | 1000  |     | 0          |     | 0          |
| 9" disc sander      |     | 1200  |     | 0          |     | 0          |
| 3" belt sander      |     | 1000  |     | 0          |     | 0          |
| 12" chain saw       |     | 1100  |     | 0          |     | 0          |
| 14" band saw        |     | 1100  |     | 0          |     | 0          |
| 7-1/4" circular saw | 1   | 900   | 1   | 900        |     | 0          |
| 8-1/4" circular saw |     | 1400  |     | 0          |     | 0          |
| Other               |     |       |     | 0          |     | 0          |
| <b>Total</b>        |     |       |     | <b>900</b> |     | <b>0</b>   |

| Total Usage Daily | Day Time      | Night Time    |
|-------------------|---------------|---------------|
|                   | <b>27,807</b> | <b>34,986</b> |

Note - Adjust for seasonal appliance usage for each month.  
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### Consumers Anonymous 12-Step Program:

- 1) We admitted we were addicted to convenience and shiny objects, that we were powerless over lethargy and that our lives had become unmanageable.
- 2) We recognized we had come to believe that a Wall St/Hollywood/Academician power greater than ourselves could restore us to sanity.
- 3) We made a decision to turn our will and our lives over to our sane selves, to abandon learned helplessness and embrace personal responsibility.
- 4) We made a searching and fearless moral inventory of our values.
- 5) We admitted to ourselves and to another human being the exact nature of our wrongs.
- 6) We were entirely ready to remove all these defects of character.
- 7) We made a decision to humbly work to remove our shortcomings.
- 8) We made a list of all waste, conspicuous consumption, cultures, and systems we had harmed, and became willing to correct them all.
- 9) We made direct amends to such systems wherever possible, except when to do so would injure them or others.
- 10) We continued to take personal inventory and when we were wrong promptly admitted it.
- 11) We sought through action to improve our conscious contact with our world, seeking knowledge and power to carry that out.
- 12) Having experienced an epiphany as a result of these steps, we tried to carry this message to gluttonous perpetrators of ecocide and to practice these principles in all our affairs.

### Interactive Energy Calculator

(Use for analyzing consumption and planning for conservation.)

- Enter the number of each appliance used in number column.
  - Enter number of hours each appliance used in either/both day and/or night hours column (Use decimals for usage under an hour -- i.e 15 minutes = .25).
  - Graphs and totals populate as data is entered.
  - Graphs indicate categories of usage/consumption and day/night usage -- helpful for sizing PV arrays and battery storage.

\* On-line version does not save. Members can download a working interactive model (requires spreadsheet program). Totals are in Day /Night, Daily and Monthly KWH usage.