At–a–glance

University researchers have found that 51% of US adults describe their feelings about Global Warming as Alarmed or Concerned. If you share those feelings, MEGSorg, Inc. could be an organization for you to work with in trying to reduce the Global Climate Disruption that is presently occurring, and that will get worse in the future. MEGSorg, Inc. was formed by citizens concerned about climate change who also:

- strongly believe that widespread energy conservation, efficiency programs, wind and solar implementations will only be able to replace about 50% (see Note 1) of the projected energy needs of 9 billion people (2050 estimated world population)

- are convinced that neither coal in any form or nuclear technology are economically or environmentally appropriate options

- are not optimistic that the existing political processes could lead to the allocation of energy research money that would support the development of MEGS in a timely manner

MEGSorg, Inc. is a tax exempt Michigan Nonprofit Corporation that exists to promote hot rock geothermal systems as the major method for future base load electric power generation in Michigan, the US and for most of the countries of the world.

The term Modular Enhanced Geothermal Systems (MEGS) is used to describe a general method that uses heat from several miles below the earth's surface at over 200 degrees F to generate electricity using mass produced turbine-generator modules at the surface.

We formed this organization with the hope that there are millions of US citizens that share our concerns, and have the same desire to do effective things about the climate crisis before it is too late. We think supporting the development of MEGS is an effective use of our time and money and hope you will join us.

For more information visit www.megsorg.org

Climate Change and Energy Production

The founders of MEGSorg, Inc. believe:

- Human activity has impacted our planet in many ways, one of which has been climate change. As the population of the earth increases to 9 billion in the next 40 years more significant climate disruptions are anticipated (severe storms, rising sea levels, droughts and flooding, all of which impact ecosystems negatively)

- One of the main contributors to this climate change is the addition of greenhouse gases to the atmosphere from the burning of fossil fuels (coal for electricity and gasoline for transportation)

- The replacement of at least 50% of the energy from current fossil fuel burning will have to come from one of these alternatives: nuclear power, coal with carbon sequestration or from hot rock geothermal power. Of these alternatives hot rock geothermal systems supplying heat to factory constructed generation modules will be the least expensive and least intrusive alternative (see Note 2)

How a MEGS Facility Would Work

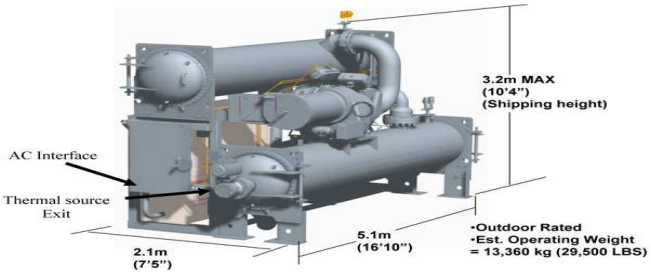
Electricity is generated in a MEGS facility in the same way as in a coal or nuclear plant with one exception, the source of the energy needed to heat the fluid that turns the turbine. Instead of a nuclear reaction or the burning of coal, the heat is brought up from miles down in the Earth by a heat transfer fluid in a closed loop system.

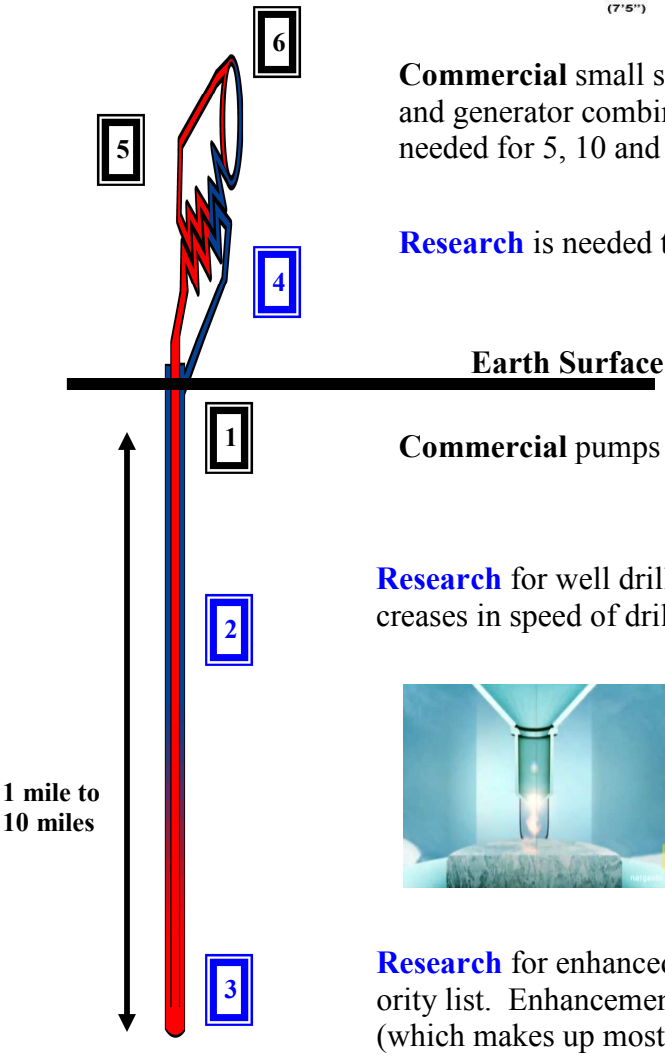
The figure on the next page shows the various parts of a MEGS generation facility: A heat transfer fluid (1) is pumped down a well (2) where the heat from hot rocks (3) is captured and returned to the surface. A heat exchanger (4) heats the turbine fluid (5) that is expanded to drive the turbine and generator (6). The figure also identifies major areas of research that are needed to make the components that make up MEGS facilities robust and efficient.

Depending on the depth of the well, the construction costs would be similar to those of a coal plant (and much less than a nuclear plant) or much less if heat above 200 degrees F is within 2 miles of the surface. Once operating there is no cost for fuel, much different than a coal plant. In contrast to a nuclear plant there is no need for creating fuel or the large expenses for the security and final storage of long lived radioactive wastes.

Components and Needed Research

UTC PureCycle 280 is an example of a module that produces electricity with no greenhouse gases emitted.





Commercial small scale modules of heat exchanger, turbine and generator combinations are available. **Research** is needed for 5, 10 and 20 MW systems.

Research is needed to make more efficient heat exchangers.

Commercial pumps and heat transfer fluids are readily available.

Research for well drilling technology is on the verge of significant increases in speed of drilling and reduction of cost.

Hydro thermal drilling from Potter Drilling uses superheated water to drill without mechanical drill bits.

Research for enhanced geothermal is low on the Federal governments priority list. Enhancement is needed because the heat transfer rate of granite (which makes up most of the hot rocks at depth) is low.

MEGS should not be confused with “heat pumps”. Heat pumps are used to heat and cool buildings using pipes ten to 100 feet below the Earth’s surface. MEGS draws heat from 1 to 10 miles below to supply base load electric power.

The Politics of Energy Research

Federal energy research money is unlikely to be allocated to hot rock geothermal research because there is no lobby to demand it. The existing major energy production industries have huge resources at their command to make sure they maintain their market share and their share of the research dollars. Part of the Obama Administration's efforts to get a climate bill passed has been to include large sums for carbon sequestration and nuclear development. You have seen how the current energy debate has been conducted. The funds for geothermal are very small versus the money for coal and nuclear energy. And almost none of the geothermal money is for hot rock geothermal.

We will see billions of Federal Tax dollars wasted on additional coal and nuclear programs that can not deliver clean energy soon enough or cheap enough to facilitate the end of the burning of fossil fuels.

Research Needed

MIT reported in a 2006 study that about a billion dollars would need to be spent over 15 years to make the commercialization of geothermal resources viable by 2050. It was a timid request. The realistic figure is one billion starting now with 40% spent over the next five years.

Conclusion and Your Next Step

50% or more of the projected future US fossil fuel burning can be eliminated by the development of MEGS, but this important source of energy will not be developed without a widespread grassroots organization to press for, and provide, the research funds needed for its development. For more information (and a Membership Form) visit us at www.megsorg.org. Join us in enabling the creation of a clean, abundant and reliable energy source – MEGS.

Note 1. Discussions about future energy production require projections. Projections made by MEGSorg, Inc. will be updated as more accurate data becomes available.

Note 2. Parsimony is the scientific principle that simpler is better. Contrast what it takes to get energy from sequestered coal or nuclear plants with MEGS. The possibility of base load electricity for 50% less than the cost of coal or nuclear demands that we seriously explore MEGS.