Executive Summary

By
U.S. Hydrothermal Executive Team

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Vision

To be the preeminent global developer of sustainable technologies

Mission

To develop our worldwide market to its fullest potential in an honest, transparent, and socially responsible manner, to respect the environment, and to benefit our community, our employees, and our investors
Executive Summary

Overview

U.S. Hydrothermal is a Development Company dedicated to developing and delivering turnkey solutions that unlock the extraordinary energy resources flowing from the hydrothermal vents found throughout the world’s oceans and seas.

Hydrothermal vents are extremely hot, high density water geysers created when seawater at the bottom of the ocean is forced through cracks on the sea floor by the extremely high hydrostatic pressures. When this seawater contacts the earth’s molten magma, mini-volcanos (more commonly referred to as hydrothermal vents) are created. Organizations such as Woods Hole Oceanographic Institute (WHOI or more commonly referred to as Woods Hole), National Oceanic and Atmospheric Administration (NOAA), and several others have found and documented many “vent fields” around the world. These hydrothermal vents have been documented with output temperatures up to 400 degrees Celsius (750 degrees Fahrenheit).

The foundation of our business model is to develop and deploy facilities that will capture this extremely hot, chemical/mineral rich fluid to create base load electric power, extract the chemical and mineral content via a mining operation, and process potable water from the low energy steam available post electrical generation.

Headquartered in Scottsdale, AZ, the company is led by Edward Crosby, a serial entrepreneur and business leader; and Southern California inventor Bruce C. Marshall. The company has patented the first practical system for commercially capturing hydrothermal energy and raw materials from the ocean floor, the Marshall Hydrothermal Recovery System (MHRS). This patent has been granted in the United States, Japan, Russia, and Egypt. MHRS is patent pending within Mexico, India, and the 37 countries of the European Union.

The financial model outlined later in this document has two major components. The first outlines the financial model for U.S. Hydrothermal and how we will generate
revenue and profits from being the Developer of Choice for Marshall Global Technologies. Marshall Global will be the entity that licenses projects throughout the global market. The five year horizon we have used for demonstration purposes makes a conservative assumption that U.S. Hydrothermal will have fourteen (14) projects underway at the end of five years. We feel this is conservative because even in these early stages we have received numerous inquiries from private and public sector entities from around the world.

The second component demonstrates the financial potential from owning and developing a single project operating company (OPCO). It is anticipated that each new MHRS facility developed will be legally created as a single, unique business entity in which U.S. Hydrothermal will share ownership. It is conceivable that multiple facilities may be owned by a holding/parent company, however all MHRS production licenses will be issued at the OPCO level.

OPCOs are primarily floating electrical energy production facilities. The financial results contained herein represent the revenue and profit potential based upon electricity production as the sole source of income. However, as mentioned, the patented MHRS Solution provides each OPCO with two additional revenue sources; mining & mineral extraction and potable water production. Subsequent revenue models for these additional revenue streams will be developed and integrated into the U.S. Hydrothermal business model as appropriate to support specific opportunities.

**Global Market**

“Taking all new developments and policies into account, the world is still failing to put the global energy system onto a more sustainable path. The New Policies Scenario shows that several fundamental trends persist: energy demand and CO₂ emissions rise even higher; energy market dynamics are increasingly determined by energy economies; fossil fuels remain the dominant energy sources; and providing universal energy to the world’s poor continues to be an elusive goal”. 4

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4 Image: Global Mean Temperature & Fossil Fuel Use
This current state of affairs is something we intend to change. Our premise is that we can bring the technology and the know-how together along with our patented process to create a company that will help to slow the effects of global warming, provide energy in a sustainable manner with extremely low environmental impact and do so while creating employment opportunities and significant returns to investors and stakeholders. Through development, consulting, and project management activities, the company will drive the implementation of projects throughout the world utilizing the MHRS Solution. These benefits are all achievable by utilizing existing technology and experience gained from the offshore oil and gas industry, and utilizing equipment that is currently manufactured and used for heat transfer, steam generation and deep-sea cable and pipe deployment. Each facility being developed will exist in its own unique operating environment. As such, U.S. Hydrothermal will perform the role of specific engineering and design for each facility in order to develop complete and proper systems integration and operation.

Projected Demand Growth

The U.S. Energy Information Administration has stated that the global demand for electricity generation is projected to grow at an annual rate of 2.2%, increasing from 20,200 TWh beginning in 2010.\(^5\)

Consistent with this prediction is the World Energy Outlook of 2012 where global energy production was stated to be approximately 19,000 TWh (19 million megawatts-hours). Additionally by 2050, electrical energy demand is expected to exceed 50,000 TWH (50 million megawatt-hours).\(^6\)

Other industry organizations have even larger expectations. The International Atomic Energy Agency (IAEA) projects that 73,000 TWh will be required by 2050.\(^7\)

The driving force behind this additional consumption will be the increase in human population. The Earth’s population is expected to expand from its current level of seven billion people to eight billion by 2027 and over nine billion by 2050.\(^8\)\(^9\) These population trends will create a significant demand for goods and services, which in turn will put enormous pressure on current global infrastructures to meet the demand for new and alternative energy sources.

U.S. Hydrothermal Positioning

U.S. Hydrothermal in the perfect position to capitalize on this opportunity. The forecasted increase in demand for energy is extremely high. However, existing generation sources are facing public, environmental, and governmental limitations and constraints regarding current and future fossil fuels and nuclear production facilities. Therefore, as demand increases, the conventional electricity generation capacity is decreasing. Solar, wind, and tidal electricity generation is not in a position to pick up the resulting deficit. The Marshall Hydrothermal Recovery System is.
The global interest in the Marshall Hydrothermal Recover System appears to be extremely strong. We continue to receive a steady influx of inquiries from potential stakeholders in numerous countries and territories around the world.

The cost to generate electricity varies significantly across the globe and our approach to the market will be based on a number of factors. The first and foremost will be to identify those locations where it is most economical to utilize the naturally occurring resources. Therefore, locations such as the Pacific Northwest, Hawaii, Guam, Mexico, Chile, Japan, Saudi Arabia, and Egypt become our prime candidates to leverage the known and available resources.

In addition to meeting increased energy generation demands, potable water production, and mining activities, other alternative technologies and approaches offer the potential to include the production of items such as bio-fuels, hydrogen (fuel cells), and aquatic farming operations within the portfolio.

**Perspective on the Global Market Size**

U.S. Hydrothermal will not be competing for market share where the market is growing modestly. Instead, we will be competing in markets that will more than double in size in the next forty years. There is opportunity for both existing providers and for new and evolving technologies to coexist and prosper in this exponential market growth. In our evaluation of the future market requirements, around 3900 new and incremental generating facilities, with a minimum faceplate capacity of 1 GW each, will be required to meet the future electrical demand.

Our calculations are consistent with IEA’s World Energy Outlook from 2012. “A total of 5,890 GW of capacity additions – more than the total installed capacity of the whole world in 2011 – is required over the Outlook period. One-third of this is to replace retiring plants; the rest is to meet growing electricity demand.”

Looking forward, the market is expected to remain very open to new approaches due to exponentially growing global demand. The patent protected Marshall Hydrothermal Recovery System provides a solution to open up the first completely new and previously untouched source of electrical power generation since the dawn of the nuclear age.

**Financials & Risk discussion**

Based upon conservative growth projections, over the next five years U.S. Hydrothermal plans to have 14 projects either producing electricity or under development for various local, state, regional, or federal governments around the world. Our involvement in these projects will vary, but in most cases we will maintain a financial interest as the developer in each project as well as through ongoing consulting and advisory activities, licensing agreements and potential royalty payments predicated on the volume of power generated, water created, and tons of ore produced.
To facilitate the early stage development of this company we are seeking to raise **US$33,000,000.00 for a 20% ownership position** in U.S. Hydrothermal. This investment will be used to create the necessary business infrastructure needed to develop the projected revenue streams, support our operational model, identify venture candidates and subsequent permitting, and initiate work on the first full production OPCO.

With significant early interest from governments and companies, we believe our deal volume will grow revenue to US$150M per year within five years and achieve profitability by the end of the second year from project development activities. Table I summarizes the key metrics.

**Table I - U.S. Hydrothermal LLC – Project Development Company**

<table>
<thead>
<tr>
<th>Profit and Loss:</th>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
<th>Year 4</th>
<th>Year 5</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>($ millions)</td>
<td>Revenue</td>
<td>Expense</td>
<td>Profit/(Loss)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>$13</td>
<td>$19</td>
<td>$(6)</td>
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<tr>
<td></td>
<td>$58</td>
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<td>$150</td>
<td>$124</td>
<td>$26</td>
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<td>$447</td>
<td>$394</td>
<td>$53</td>
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</table>

**Table II – 10 Year Projection – OPCO Financials**

<table>
<thead>
<tr>
<th>U.S. Hydrothermal – First OPCO</th>
<th>Development and Build Out</th>
<th>Energy Production Phase</th>
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</thead>
<tbody>
<tr>
<td>($ millions)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Years</td>
<td>Years 1</td>
<td>Years 2</td>
</tr>
<tr>
<td>Revenue</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Cash Balance</td>
<td>$4</td>
<td>$47</td>
</tr>
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</table>

The current financial estimates for the first OPCO Project indicate a very favorable return to investors and stakeholders. The project will breakeven in year eight; the third year after production starts up, but will be profitable in the first year of production. In addition, a 1 GW facility producing only electrical power will generate over $260 million in positive cash flow in the first year. If conditions are right and it is economical to
capture potable water and/or the chemicals and minerals as additional revenue streams, the resulting profits and cash flows will be even more positive.

Consistent with other electric generating plant development, the first OPCO Project has a substantial time horizon. To provide a perspective on the planning horizon, Table III summarizes the financial forecast for a period of thirty years. As already discussed, the first five years represent the engineering, permitting and construction phase followed by twenty-five years of production. A 1 GW facility will produce revenues of $30 billion with an estimated net income of nearly $12 billion.

**Table III – 30 Year Projections for an OPCO**

<table>
<thead>
<tr>
<th></th>
<th>First Decade</th>
<th>Second Decade</th>
<th>Third Decade</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Revenue</strong></td>
<td>$4,872</td>
<td>$11,316</td>
<td>$13,795</td>
<td>$29,983</td>
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<tr>
<td><strong>Operating Income</strong></td>
<td>$955</td>
<td>$5,412</td>
<td>$11,131</td>
<td>$17,498</td>
</tr>
<tr>
<td><strong>Net Income</strong></td>
<td>$743</td>
<td>$3,630</td>
<td>$7,425</td>
<td>$11,798</td>
</tr>
<tr>
<td><strong>Cash on Hand</strong></td>
<td>$1,115</td>
<td>$3,880</td>
<td>$8,801</td>
<td></td>
</tr>
</tbody>
</table>

We recognize our request for funding is substantial. However, we are addressing and proposing a solution that utilizes known technologies that will result in solutions of significant consequence relative to electricity production, clean water, mining, possible food production, alternative fuel sources for automobiles and trucks, greenhouse gas reduction all within a long term and sustainable business model. We have outlined our vision along with numerous benefits and arguments that support our conclusions.

The U.S. Hydrothermal Executive Team wishes to express a sincere thank you for your interest and effort expended in reviewing this document. If you believe, as we do, that the business case presented is compelling and is an opportunity you have serious investment interest in, then we look forward to our next discussions.

Investor Inquiries should be referred back to the party that provided you with this document or via email to: info@ushydrothermal.com.
End Notes

1 Woods Hole Oceanographic Institute; http://www.whoi.edu/
2 National Oceanic and Atmospheric Administration; http://www.noaa.gov/