

CAREER CURRENTS

EXPLORING TODAY'S ENERGY CAREERS WITH THE NEED PROJECT

1. POWER GENERATION

Heat from warm surface water boils liquid ammonia, producing steam which drives turbine generators, producing electricity. Chill from cold deep water condenses ammonia back into liquid form so the cycle can be continuously repeated for production of base-load electricity.

2. REFRIGERATION AND SEAWATER DISTRICT COOLING

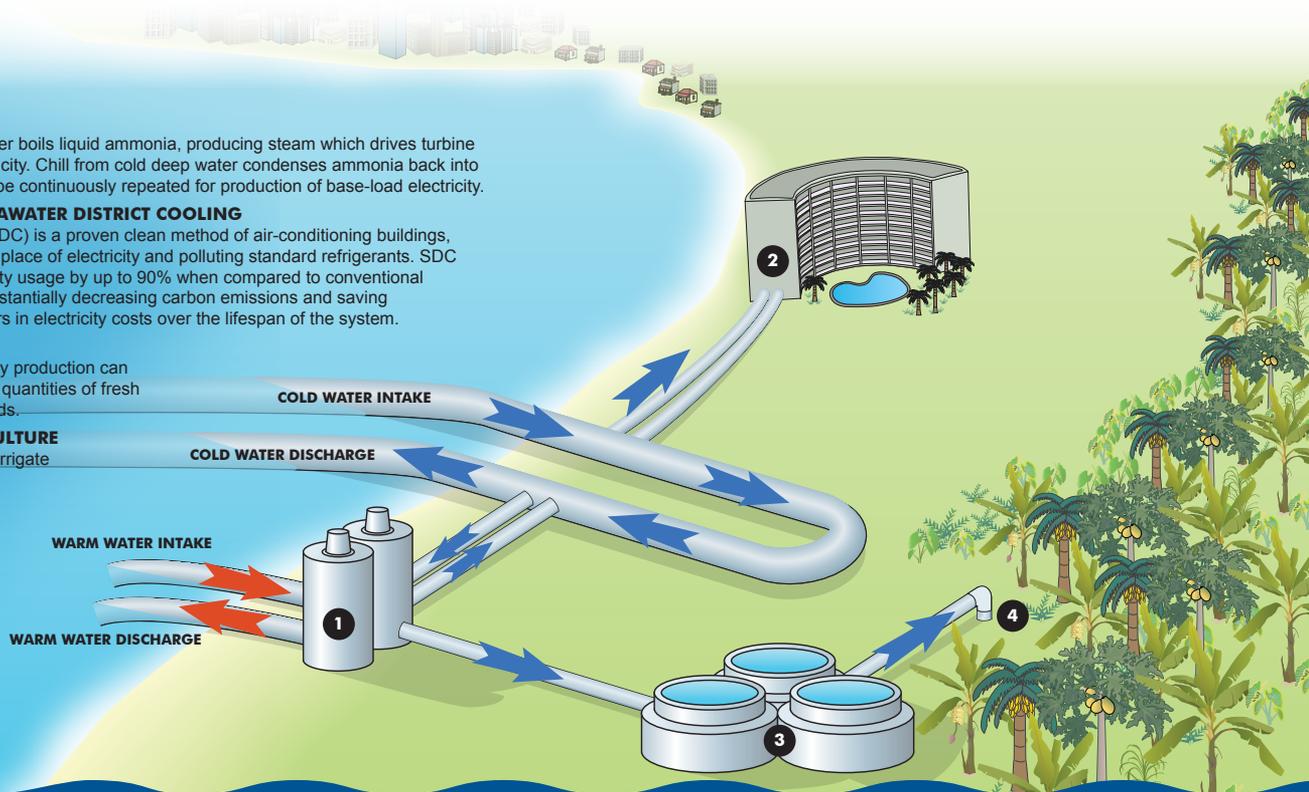
Seawater District Cooling (SDC) is a proven clean method of air-conditioning buildings, using cold deep seawater in place of electricity and polluting standard refrigerants. SDC systems can reduce electricity usage by up to 90% when compared to conventional air-conditioning, thereby substantially decreasing carbon emissions and saving hundreds of millions of dollars in electricity costs over the lifespan of the system.

3. DESALINATION

A portion of the OTEC energy production can be diverted to produce large quantities of fresh water according to local needs.

4. IRRIGATION FOR AGRICULTURE

Fresh water can be used to irrigate agriculture.



OCEAN THERMAL ENERGY

PROBLEM

How can tropical island communities get clean, reliable electrical energy?

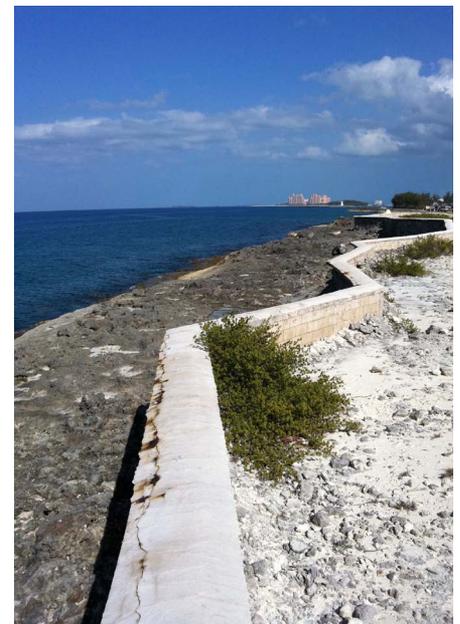
SOLUTION

Use the temperature differential within the ocean to produce electrical power.

One of the major challenges today is providing energy to geographically isolated areas that is affordable and reliable. Island communities such as Hawaii often import oil to generate electricity. Because the price of oil is so volatile, the cost of electricity also fluctuates. By harnessing the energy found within the ocean, electricity can be generated that is significantly less expensive.

Ocean Thermal Energy Conversion (OTEC) works in a manner very similarly to geothermal energy. The warm water near the surface of the ocean is used to provide thermal energy in a heat exchanger, and the cold water in the deep portions of the ocean is used to cool the exchanger fluid back down. The fluid used in this application is usually a liquid with a relatively low boiling point, like ammonia.

See **OCEAN THERMAL ENERGY**, page 3



Ocean Thermal Energy Corporation plans to build an OTEC pumping station on Long Cay in the Bahamas.

SPONSOR SPOTLIGHT

OCEAN THERMAL ENERGY CORPORATION

Ocean Thermal Energy Corporation (OTE) is a company now commercializing Ocean Thermal Energy Conversion (OTEC). OTEC is a proven technology that produces clean baseload (24/7) electricity using the temperature differential between warm surface water and cold deep water in the world's tropical oceans. OTEC's energy pricing is now competitive in many markets across the globe. Customers are currently considering OTEC because it provides a fixed electricity price, thereby freeing these tropical nations of the volatility of imported oil pricings, upon which they are now totally dependent for energy. Ancillary products of OTEC include potable water, sustainable fish-farming and agriculture. OTEC is therefore truly a global game-changer for tremendous positive social, environmental and economic progress. OTE now has numerous world-wide customers eager for OTEC's fixed priced clean electricity and ancillary products. For further information, please see www.otecorporation.com.



OCEAN THERMAL ENERGY CORPORATION

PURE. CLEAN. POWER.

NEED BOARD OF DIRECTORS

Officers

Diane Lear

National Hydropower
Association
Chairman

Wendy Wiedenbeck

Encana
Vice Chairman

Randall Luthi

National Ocean Industries
Association
Treasurer

Kristy Monk

American Electric Power
Secretary

Members

Constance Beatty

Kennedy Middle Grade
School, Kankakee, IL
*NEED Teacher Advisory
Board Representative*

Guy Caruso

U.S. Energy Information
Administration (ret)
Center for Strategic and
International Studies

Kristi DesJarlais

Phillips66

Margaret Downey

Barnstable County/
Cape Light Compact

Linda Lung

National Renewable
Energy Laboratory

Kate Marks

National Association of
State Energy Officials

Michael Perna

ConEdison Solutions

Barry Russell

Independent Petroleum
Association of America

Honorary Members

Paula Barnett

BP

Philip Cochrane

BP

Leslie Eden

PennWell

Tom Fry

National Ocean Industries
Association (ret)

Kevin Galligan

Cape Light Compact

Paul Loeffelman

American Electric Power

Maurice Royster

Equitable Resources

Linda Silinsky

Schlumberger Oilfield
Services (ret)

Bob Stewart

National Ocean Industries
Association (ret)

Henry Sullivan

American Electric
Power (ret)

John Weiner

U.S. Energy Information
Administration (ret)

Richard Zuercher

Dominion, *Immediate
Past Chairman*

NEED NATIONAL STAFF

Mary Spruill

Executive Director

Amy Constant

Program Associate

Tyler Cvitkovic

Newsletter Contributor

Cindy Foster

NEED Distribution Center

Melanie Harper

Program Associate

Emily Hawbaker

Curriculum Director

Johnna Hetrick

Creative Director

Vernon Kimball

Program Associate

Rebecca Lamb

Program Director

Barbara Lazar

Newsletter Contributor

Tim Meko

Visual Communications
Advisor

Kim Moats Barnes

Program Associate

Wendi Moss

Program Coordinator

Annie Rasor

Curriculum Associate

Karen Reagor

Regional Director, Southeast

Todd Rogers

Regional Director, Northeast

Barry Scott

State Program Director

Pam Seader

Program Coordinator

Aneta Shuttlesworth

Accounting Manager

Bonny Spruill

NEED Distribution Center

Caryn Turrel

Program Associate

Cindy Welchko

Curriculum Associate

David Keene

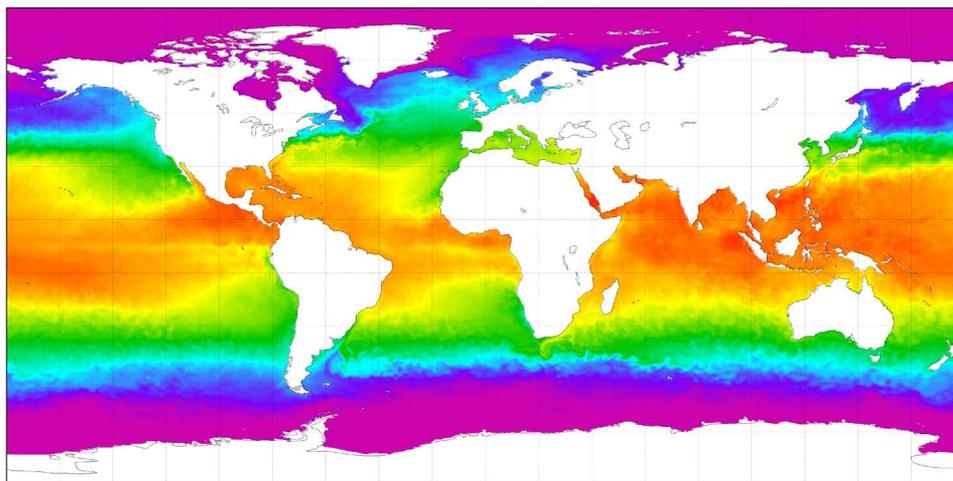
General Counsel

OCEAN THERMAL ENERGY, continued from page 1

As warm surface water is pulled from the ocean, it is used to boil liquid ammonia. The vaporized ammonia is used to drive a turbine generator, as is the case in any steam-driven power plant. The sea water pumped from greater depths is usually around 42°F and is used to cool the ammonia and condense it back to liquid form. The ammonia is cycled through the system again and again, and is used to generate base-load electrical power.

Clean drinking water is also a frequent concern in developing countries. Ocean thermal energy plants are uniquely situated to be able to generate power and use some of that power to run a desalination process, producing water useful for drinking and irrigation. The installation of an ocean thermal plant can meet two needs at the same time. The cold water pulled from the ocean can be used to cool buildings efficiently and effectively.

Ocean Thermal Energy Conversion is most suitable for use in tropical island settings. Corporations, government agencies, and the U.S. military are all involved in developing and building OTEC plants in Hawaii, Guam, and



Islands surrounded by warm waters near the equator and throughout warm ocean currents are candidates for ocean thermal energy. The warm surface waters can be used to produce electricity and the cool deep waters can be used for refrigeration and cooling.

Puerto Rico and at tropical military bases world-wide. Corporations are also working with other Caribbean countries to develop this clean renewable resource. Whereas electricity generated by burning petroleum in today's market costs about 30 cents per kilowatt-hour, OTEC electricity rates are closer to 20 cents per kilowatt-hour. Taking advantage of the energy in the ocean can lead to greater stability in electrical power generation costs and reduce the need to import petroleum.

People with an interest in math and science, as well as finance, business, and research and development, can pursue careers in ocean thermal energy. In this issue of *Career Currents*, we examine the OTEC industry and describe just a few of the many careers that can be pursued in this new, rapidly-developing field.



Warm surface waters can have temperatures in the mid-80s (°F), which is around 30°C. That is warm enough to boil ammonia and make electricity.

THE NEED PROJECT



**National Energy
Education Development**

P.O. Box 10101, Manassas, VA 20108

Phone: 800-875-5029

Fax: 800-847-1820

info@NEED.org

www.NEED.org

The NEED Project is a 501(c)(3) nonprofit education association providing professional development, innovative materials correlated to the National Science Education Content Standards, ongoing support, and recognition to educators nationwide.

Career Currents provides educators and students with resources to introduce energy careers. Each issue focuses on a different sector of the energy industry. No single issue is meant to be all-inclusive to either the sector profiled or all careers in energy.

Copyright 2012: National Energy Education Development Project. All rights reserved.

Educators may reproduce articles for classroom use.

MEANWHILE IN THE OCEAN...

NOIA AND NEED

NEED partners with the National Ocean Industries Association to help students and teachers learn more about the energy resources found in the world's oceans. Each year, NOIA and its members host the NOIA Offshore Energy Workshop. This month, that workshop takes place in Scottsdale, Arizona (a whole state away from the ocean) but the 50 educators participating will hear about subsea technologies, deepwater drilling, the future of the Gulf of Mexico in providing



oil and gas resources to the United States, and technologies needed for harnessing wave and wind resources off our nation's coasts. NEED is grateful to NOIA for our 20+ years of partnership.

Q&A

NEED GETS TO KNOW INDUSTRY PROFESSIONALS

JAMES D. GREENBERG

Non-Executive Director/Chief Strategy and Marketing Officer at OTEC



TELL US A LITTLE ABOUT YOUR JOB AND WHAT YOU DO.

I work closely with the other Board Directors and Officers, especially the Executive Chairman, to ensure that critical corporate strategies are effectively communicated, implemented and integrated throughout all aspects of the organization, with particular emphasis on successful marketing.

HOW DID YOU DECIDE TO GO TO WORK IN THIS FIELD? WHAT "PIQUED" YOUR INTEREST IN ENERGY AND SPECIFICALLY IN OCEAN POWER AND POTABLE WATER GENERATION?

I originally came to work with Ocean Thermal Energy Corporation (OTE) after my partners and I founded a venture fund dedicated solely to sustainable humanitarian investments. Ocean Thermal Energy Conversion (OTEC), which produces clean base-load (24/7) renewable energy and fresh drinking water was a perfect match for our venture fund. Since that time, we have been actively involved in OTE, commercializing OTEC around the world.

WHAT IS A TYPICAL DAY AT WORK LIKE FOR YOU?

Constant communications via meetings, phone calls and emails with customers, press, staff, and investors.

HOW HAS YOUR FIELD CHANGED IN THE LAST 5-10 YEARS?

In the last 10 years, OTEC has become highly competitive commercially due to rising oil prices and technological advancements in deep water piping. As a result, my company can now provide clean renewable energy and potable water in many countries around the world at a lesser price than their current fossil fuel based energy.

COULD YOU DO YOUR JOB ANYWHERE IN THE COUNTRY? ANYWHERE IN THE WORLD?

Yes, for a large part of my job. With email and phone, 70% of my work could be done from any location. However, I do travel extensively world-wide, with such destinations being limited to countries favorable to OTEC or related to OTE's business.

WHAT IS THE MOST REWARDING PART OF YOUR JOB?

Knowing that our work will make an enormous difference in social and environmental conditions around the world by

bringing clean energy, potable water, and sustainable fish farming to many needy regions across the globe. OTEC is truly a global game-changer and we are all proud and privileged to be involved.

WHAT IS THE HARDEST PART OF YOUR JOB?

Keeping up with the world-wide demand for OTEC, which is ever-increasing.

WHAT TRAINING AND/OR EDUCATION DID YOU NEED TO BEGIN YOUR JOB?

I received an undergraduate degree in Liberal Arts and a law degree before working for 25+ years as a civil trial attorney. This education and experience has been instrumental in developing my communication and strategic management skills.

ANY TYPE OF PROFESSIONAL DEVELOPMENT OR LICENSE YOU NEED TO RENEW ANNUALLY?

No.

WHAT TECHNOLOGY HAVE YOU USED THAT HAS HELPED YOU THE MOST IN YOUR WORK?

Computer skills.

WHAT CHALLENGES DO YOU FACE IN THE INDUSTRY? WHAT CHALLENGES FACE THE INDUSTRY?

Educating the general public to the fact that OTEC is a proven technology that is now ripe for immediate commercialization.

WHAT ARE SOME BENEFITS TO WORKING IN THIS INDUSTRY?

Getting to travel around the world and meet a variety of interesting people.

WHAT EXTRAORDINARY OPPORTUNITIES HAVE YOU HAD IN YOUR CAREER?

Being part of a dynamic team of people who care very deeply about their work and the ways it can benefit the world.



IMAGE COURTESY MAKAI

WHAT ADVICE WOULD YOU GIVE TO A YOUNG PERSON WHO IS INTERESTED IN WORKING IN THE OCEAN POWER GENERATION SECTOR?

This is a rapidly growing field, which will create a tremendous number of jobs. Every person has his or her own unique talents and skills. Identify where your particular talents are and what work you enjoy...and then pursue a career where those two intersect.

ANY OTHER ADVICE TO SHARE ABOUT A CAREER IN OCEAN ENERGY OR ABOUT THE CHALLENGES AND OPPORTUNITIES FOR THE INDUSTRY IN GENERAL?

As Michelangelo said at age 88, "I am still learning." Approach life and work with this attitude and you won't be afraid to make mistakes, which are just learning vehicles. I've often learned much more from my mistakes than my successes.



IMAGE COURTESY MAKAI

Above: Workers prepare an automated underwater vehicle for a dive.

Left: A 55" pipe carries cold water from the depths of the ocean to a seawater cooling station in Hawaii.

Q&A

NEED GETS TO KNOW INDUSTRY PROFESSIONALS

STEPHEN K. ONEY, PHD

Founder/Director/Chief Science Officer (CSO) - Ocean Thermal Energy Corporation

President & CSO – OTEC Innovation Group



TELL US A LITTLE ABOUT YOUR JOB AND WHAT YOU DO.

I am an original founder, Director and Chief Science Officer (CSO) for the company. I am responsible for all of the technical aspects of the company and for determining the best technical approach and technical viability of a project while helping establish and select project priority criteria. I often interact early in a project with the client technical team along with our company's financial and sales teams to establish our credibility and outline the project scope and potential and explain the technical approach anticipated to meet the client's desired outcome.

HOW DID YOU DECIDE TO GO TO WORK IN THIS FIELD?

My college graduate work and degrees were specific to this technology and I was fortunate enough to be exposed to the potential and future opportunity for OTEC globally at a very young age. My research and education provided by the University of Hawaii (which was the global focal point of research on this technology during my graduate work) gave me unique insight into the potential of this industry to make a global impact on future sustainable energy generation.

WHAT PIQUED YOUR INTEREST IN ENERGY AND SPECIFICALLY IN OCEAN THERMAL POWER GENERATION?

My undergraduate degree was in Chemical Engineering and my early job offers came from the paper and oil industries (two of the most polluting industries around). I have always been in love with the ocean and during my senior year in undergraduate school, I researched some prominent ocean engineering departments and found out about the ongoing OTEC research at the University of Hawaii. I applied and received research assistantships from the Ocean Engineering Department to pursue my education while researching OTEC and completed a MS and PhD in the field.

WHAT IS A TYPICAL DAY AT WORK LIKE FOR YOU?

There is a very broad range of activities and no day is the same. My typical day consists of answering many questions on various projects under development. I answer directly to the CEO and help support the financial and sales teams in identifying current and future potential projects, evaluate opportunities

and inquiries currently under consideration and work with the technically oriented investors/investor due diligence teams to ensure the correct and consistent message of the company. Additionally, I travel often to meet with clients/client nation leaders in support of the sales efforts being performed by the CEO and financial teams as needed. I am also constantly looking for new locations for project development, new technologies for application in our systems and developing new approaches (intellectual property/patents) which improves our existing system efficiency and performance.

HOW HAS YOUR FIELD CHANGED IN THE LAST 5-10 YEARS?

The biggest change in our field is the development of oil exploration in deeper and deeper water as well as the rapid rise in oil prices. As oil prices rise, capital intensive renewable energy technologies like OTEC become much more attractive to the global markets. Additionally, oil exploration into 2,000+ meter depths has created new technologies for accessing deep ocean water which can be directly applied to OTEC systems. This has greatly improved the reception of such deep water energy technologies as we can now leverage oil industry technology which is commercially demonstrated and in use (i.e., deep water pipelines and deep water platforms).

COULD YOU DO YOUR JOB ANYWHERE IN THE COUNTRY? ANYWHERE IN THE WORLD?

With the advancements in communication networks, and video conferencing, you could do the job from just about anywhere in the world. Up until recently, we had our technical office in Honolulu, HI while our corporate headquarters was in Lancaster, PA with other offices in Manassas, VA. Our most active projects were located in the Caribbean. Although we could essentially perform the job requirements anywhere, it is always better for collaborative efforts and creativity to work in close proximity to the team and minimize travel requirements which create fatigue. The technology is ideally suited to the tropical regions of the world, so it is best if your offices are located with easier access to the markets. However, much of the engineering and report writing could effectively be performed elsewhere if necessary or desired.

WHAT IS THE MOST REWARDING PART OF YOUR JOB?

Being able to provide sustainable resource and infrastructure solutions to tropical island communities and community leaders. Many of these communities are very poor and are paying the highest energy and water prices on the planet. Our technology provides a means of fixing those prices and making them more affordable to the average citizen, which is very rewarding.

WHAT IS THE HARDEST PART OF YOUR JOB?

The hardest part of the job is not always having the opportunity to provide these benefits to communities desperate for energy and water solutions. Since our technology requires specific physical and geological characteristics (i.e., close access to deep water), it is not suitable for all countries/communities that desire or need it. It is difficult to have to inform potential clients/interested parties that their location/country is not suitable for OTEC.

WHAT TRAINING AND/OR EDUCATION DID YOU NEED TO BEGIN YOUR JOB?

I needed to have a thorough understanding of many engineering disciplines, a background in the ocean's physical and chemical make-up, an engineering understanding of the forces created and experienced in the ocean environment as well as a fundamental understanding of markets and market forces which dictate energy pricing and project costs. To obtain this background required a significant amount of engineering education (BS, MS and PhD).

ANY TYPE OF PROFESSIONAL DEVELOPMENT OR LICENSE YOU NEED TO RENEW ANNUALLY?

Many of our engineers require a Professional Engineers License which needs to be renewed annually so they can be the engineer of record for final design and construction diagrams. This is typically handled by our Engineering, Procurement and Construction (EPC) contractor for the project.

WHAT TECHNOLOGY HAVE YOU USED THAT HAS HELPED YOU THE MOST IN YOUR WORK?

AutoCAD design software and systems are integral to engineering design work we typically perform. Many other software packages such as MS Office, MS Project, QuickBooks, etc. all have been integral to the development and continued success of the company. Additionally, for our projects, we require detailed mapping of the offshore pipeline routes, understanding of the current and wave structures around our building sites, etc. Each of these requirements has specific, very intricate technologies which have been developed which provide the necessary support data required to properly perform the system design and construction plans.

WHAT CHALLENGES DOES THE INDUSTRY FACE?

Our challenges are to stay ahead of the competition in technology and advancements. Since we work with such small system efficiencies and temperature differentials, even small savings in system pressures, temperature approaches, etc. can have enormous impacts on system outputs and pricing. The industry is not yet commercially demonstrated. Being the first to market with OTEC is a challenging but entirely achievable task, as you have to convince financial institutions, insurance companies, clients, local utilities, etc. that you can deliver the promised resources for long-term contracts. Ocean Thermal Energy Corporation has already enjoyed a great measure of success in each of these areas as we move toward building the world's first commercial OTEC Plant. Until there is successful commercial

demonstration, the industry will face many challenges from within as well as from more commercially accepted and mainstream conventional thermal and other renewable energy sources. First of a kind technologies also face much higher costs than the mature industry will enjoy. However, with current high oil prices and prospects of further increases, Ocean Thermal Energy Corporation now has customers from around the world seeking the immediate construction of OTEC Facilities.

WHAT ARE SOME BENEFITS TO WORKING IN THIS INDUSTRY?

The personal satisfaction of knowing that your technology is likely going to positively change the lives of many citizens in the communities you are developing these projects for by providing affordable, sustainable power, water and food sources with minimal environmental impact. Additionally, our industry is very small currently as it is new to the commercial world so we have the benefit of being "pioneers" in the commercial application of this technology, which comes with its benefits, and its challenges.

WHAT EXTRAORDINARY OPPORTUNITIES HAVE YOU HAD IN YOUR CAREER?

I have been able to travel much of the tropical world and meet with many governmental and industry leaders in these countries. Since our technology is geared for the tropical regions of the planet – mostly tropical islands – I have had the distinct pleasure of seeing many of the most beautiful locations/vacation destinations on the planet. Additionally, as a potential supplier of hydrogen on a global scale, we have had the opportunity to meet with several major auto manufacturers and share their vision of a hydrogen fuel economy before it became public. Although it has not come to commercial fruition as of yet, the concepts shared with us and the plans for the future are very encouraging.

WHAT ADVICE WOULD YOU GIVE TO A YOUNG PERSON WHO IS INTERESTED IN WORKING IN THE OCEAN THERMAL POWER GENERATION SECTOR?

Pay attention in your science and math classes. If you are interested in tackling many of the world's infrastructures (energy) and resource (water) issues, the ocean and OTEC are ideal places to focus your energy and talents. Foster and nurture your interests in math and science and pursue engineering degrees (nearly all are necessary for OTEC operations) and learn as much as you can about the ocean and its characteristics.

ANY OTHER ADVICE TO SHARE ABOUT A CAREER IN ENERGY OR ABOUT THE CHALLENGES AND OPPORTUNITIES FOR THE INDUSTRY IN GENERAL?

During your lifetime, energy and water are going to be the largest industries – and largest concerns – for the planet moving forward. As under-developed nations slowly (or rapidly) industrialize and move towards a consumption focused economy like the US and Europe, the world's limited natural resources will need to be protected and sustainable methods of creating power and water will become even more urgent. The ocean holds the key to life on the planet, and also holds the key to sustainable energy and water. It will take some time to make the transition from our current primary energy source of finite fossil fuels to a more sustainable energy infrastructure hopefully anchored by OTEC and hydrogen. There will be an enormous market place for engineers, scientists, financial experts, etc. who know and understand the potential that OTEC holds for a healthy planet and global communities.

Q&A

NEED GETS TO KNOW INDUSTRY PROFESSIONALS

EDWARD M. BAER

Edward Baer is the Chief Financial Officer for the Ocean Thermal Energy Corporation.



TELL US A LITTLE ABOUT YOUR JOB AND WHAT YOU DO.

I serve as Chief Financial Officer of the Company and its subsidiaries, reporting directly to the Company's Chief Executive Officer and Board of Directors. In this capacity, I am responsible for the daily operation and management of all of the Company's financial affairs and personnel.

HOW DID YOU DECIDE TO GO TO WORK IN THIS FIELD? WHAT "PIQUED" YOUR INTEREST IN ENERGY AND SPECIFICALLY IN OCEAN THERMAL POWER GENERATION?

My partners and I formed a Socially Responsible Green Venture Fund (JPF Venture Fund 1, LP) in 2009. It is a socially responsible venture fund focused on sustainable, socially-conscious and ethical investing. Our investment strategy seeks to maximize both financial return and social good. Once established, we began looking for young, early stage companies with services and products that focus on the importance of sustainability issues. One of those companies was OCEES International, Inc., which is now Ocean Thermal Energy Corporation.

WHAT IS A TYPICAL DAY AT WORK LIKE FOR YOU?

Since we are still very small, it is necessary to be very flexible and get involved in numerous areas, which include but are not limited to:

- Establish and manage financial reporting processes which support the managerial and decision making needs of the organization, including but not limited to monthly budget reconciliation, internal financial statements analysis, managerial reports and external reporting.
- Prepare financial analysis for Senior Executives, the Board of Directors and management.
- Research and resolve accounting issues and provide technical accounting assistance as needed.
- Enhance financial and planning reporting procedures through automation and processes improvements.
- Be responsible for assessing departmental staffing needs and developing staff as required.

- Foster teamwork between corporate and divisional staff for accounting, legal, treasury and corporate tax issues.
- Perform other duties and special projects as requested by Chief Executive Officer & Board or Directors.
- Manage the Human Resource Function.

HOW HAS YOUR FIELD CHANGED IN THE LAST 5-10 YEARS?

The Accounting and Finance field has not changed much in that time frame other than the regulatory bodies have required greater accountability for most companies.

COULD YOU DO YOUR JOB ANYWHERE IN THE COUNTRY? ANYWHERE IN THE WORLD?

With today's technology (computers, internet, cell phones, video conferencing, conference calls, etc.) it has made it possible to establish an office nearly anywhere there is access to the internet here in the US or around the world. Various time zones can make communications more difficult.

WHAT IS THE MOST REWARDING PART OF YOUR JOB?

Knowing that we are providing the Management Team the reports they need to make knowledgeable decisions. Knowing that our Company is a "game changer" and will improve the lives of millions of people around the world, as well as improving the lives of our investors who took the risk with us.

WHAT IS THE HARDEST PART OF YOUR JOB?

Prioritizing the workload. As a growth company there are never sufficient resources so not everything can be completed as desired.

WHAT TRAINING AND/OR EDUCATION DID YOU NEED TO BEGIN YOUR JOB?

An undergraduate degree in Accounting and Finance is required. At least 10 years experience with a large accounting firm or multi-national company is helpful along with an accounting certification.



A diver inspects a pipeline.

ANY TYPE OF PROFESSIONAL DEVELOPMENT OR LICENSE YOU NEED TO RENEW ANNUALLY?

A Certified Public Accounting license is very helpful.

WHAT TECHNOLOGY HAVE YOU USED THAT HAS HELPED YOU THE MOST IN YOUR WORK?

The computer and internet totally streamlined the Accounting and Reporting functions. Prior to that, records were maintained using hand-posted ledgers and distribution of reports was done through the mail and/or fax.

WHAT ARE SOME BENEFITS TO WORKING IN THIS INDUSTRY?

The opportunity to talk to, to meet with and to change the lives of millions of people worldwide. There isn't anything better than to know that you are making a positive difference in the world. In addition, since we work with tropical governments and resorts, the opportunity to travel to such phenomenal locations is extremely rewarding.

WHAT EXTRAORDINARY OPPORTUNITIES HAVE YOU HAD IN YOUR CAREER?

Prior to getting involved with our venture fund, I was a co-founding partner in a small Investment Banking Firm and had the opportunity to work with a number of small technology companies and assist them grow.

WHAT ADVICE WOULD YOU GIVE TO A YOUNG PERSON WHO IS INTERESTED IN WORKING IN THE OCEAN THERMAL POWER GENERATION SECTOR?

This sector has the potential to become a multi-trillion dollar industry so companies and jobs will begin to flourish in the not-to-distant future. Begin to become familiar with the sector and determine how to best use your talents and sell yourself on how your talents can be an asset to one of the companies.

NEW AND NOTEWORTHY



HRF AND NEED – IT IS ALL ABOUT THE WATER!

The Hydro Research Foundation and the National Hydropower Association renewed their support of NEED's hydroelectricity curriculum and training workshops for teachers. These four levels of hydropower curriculum help students understand electricity generation from moving water. The units include helping students explore electricity generation from wave and tidal sources as well.

WAY TO GO KIDS!

From a very excited and talented West Virginia teacher. "THANK YOU, NEED! I just got my standardized test results for science from last year's students. My students scored 27% higher than the national average on renewable and nonrenewable resources."

WORKSHOPS ON THE WAY

Don't forget to check the NEED Events Calendar at www.NEED.org to watch for workshops in your region. Did you attend a workshop last year and enjoyed it? Please share your opinions with others – we want every 2012-2013 workshop FILLED to capacity. NEED's sponsors and partners provide the resources needed to bring energy education curriculum and kits to schools across the country. We want to make sure no one ever says, "I didn't know the opportunity existed."

WELCOME OCI!

NEED is honored to welcome OCI Solar as a sponsor for new solar programming in Atlanta, Georgia. With OCI support, NEED welcomes 30 Atlanta area teachers to the Coca Cola Museum for a great day of solar energy education and networking. A fun location, fun new partners, and lots of fun new curriculum and solar kits for participating teachers.



PECO ENERGIZING EDUCATION PROGRAM APPLY TODAY!!

The PECO Energizing Education Program is heading into its 5th year for schools in the greater Philadelphia area. The program provides over \$2,000 of NEED curriculum and kits, a cash grant from PECO, training at The Franklin Institute for participating teachers, and educational energy audits with NEED's very own Todd Rogers. This program continues to show exceptional results in student and teacher knowledge gain and in the impact of the school community projects on the local community. Are you in the Philadelphia area? Apply today for the program at www.NEED.org/peco.

FPL TEACHER GRANTS!

Thanks to support from FPL, teachers in the FPL service area in Florida have the opportunity to attend energy workshops and to apply for FPL Energy Grants to expand classroom energy education activities. Apply today at www.NEED.org.



Kim Moats Barnes

CHANGES TO THE PG&E BRIGHT IDEAS GRANT PROGRAM

The PG&E Solar Schools Program and the PG&E Bright Ideas Grant Program continue this fall with teacher workshops (sign up now at www.NEED.org) and the Bright Ideas Grant Program to provide \$1,000 - \$10,000 to schools in the PG&E service area of northern and central California. Starting in November 2012, the Bright Ideas Grant Program will award grants once per year. This year's deadline is November 16, 2012, with grant checks award to schools by January 7, 2013. Have a bright idea? Need to expand energy education in your classroom? Have a great field trip idea you need to fund? Apply today at <http://pge.NEED.org/>.

WELCOME KIM MOATS BARNES

NEED is honored to have lured Kim Moats Barnes to the NEED team. Kim taught NEED in her Anchorage Public Schools classroom for many years and recently retired to join NEED's facilitator team. Kim is a great addition – bringing her snow machine and salmon fishing skills to NEED. She's also a great facilitator – making every workshop participant feel welcome. Kim grew up in Hawaii and has been instrumental in the growth of NEED's Hawaii Energy program – assisting with workshops and in getting the word out about NEED programming in Hawaii. Now splitting her year between Alaska and Texas, she's on the NEED team facilitating workshops for ConocoPhillips, Phillips 66, and the Society of Petroleum Engineers as well as many others. When you meet Kim at an upcoming NEED event, please welcome her to the family.

HAWAII ENERGY

Don't we all wish we could attend NEED workshops in paradise? Thanks to the support of Hawaii Energy, workshops for teachers continue in Hawaii and the Hawaii Energy grant program is open now! For teachers who have great ideas for expanding energy education in their classroom or local community, these grants are perfect for those extra resources you need, and those great ideas you have. Sign up now for workshops and tell your friends. Want to apply for a grant? Visit <http://hawaiienergy.NEED.org/>.



Hawaii teachers have fun at the Hawaii Energy Workshop.



THE NEED PROJECT
P.O. BOX 10101
MANASSAS, VA 20108
800-875-5029
www.NEED.org

NONPROFIT
ORGANIZATION
U.S. POSTAGE
PAID
PERMIT #201
DULLES VA

**DID YOU KNOW?
OCTOBER IS ENERGY
AWARENESS MONTH!**

Designated each year by the U.S. Department of Energy and the Federal Energy Management Program, October is about finding ways to teach and learn about energy. All about energy – where it comes from, how we use it, and how to use it more wisely. Check out the resources on NEED’s website and Facebook page for great ideas this month. Share what you plan to do to teach energy in October on our Facebook page at ‘The NEED Project.’ We want to hear about your ideas!



IN THIS ISSUE

**Careers in
the Ocean
Thermal
Energy
Industry**

One of the major challenges today is providing energy to geographically isolated areas that is affordable and reliable. Island communities such as Hawaii often import oil to generate electricity. Because the price of oil is so volatile, the cost of electricity also fluctuates. By harnessing the energy found within the ocean, electricity can be generated without releasing harmful greenhouse gases that is significantly less expensive.

This issue of *Career Currents* explores opportunities in the new and emerging field of ocean thermal energy.