

Pacific Peer Partnership Meeting

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A Sustainable Energy Future

Presented by

Anders Rydaker

Chief Operating Officer

Honolulu Seawater Air Conditioning, LLC



Imagine Our Future...



Photo courtesy: Myke Salonga

...less dependent on oil.



Setting a New Standard.

- Now is the time to take advantage of the renewable resource that surrounds our islands...

...Seawater.



Setting a New Standard.

- Over $\frac{3}{4}$ of the world is covered by water...

...Let's put all that water to good use.





Did You Know?

- The average temperature of the ocean is about 39°F.



The Alternative That Goes Above and Beyond.



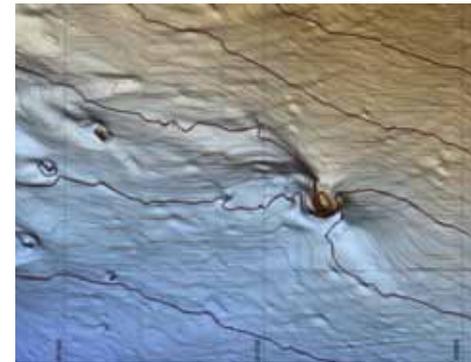
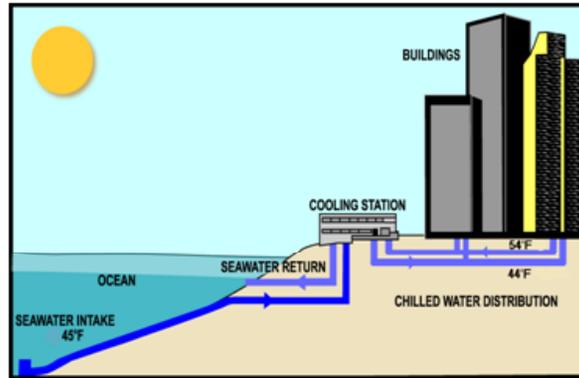
- Seawater Air Conditioning is the **solution and cooling alternative** to imported fossil fuels.

What is Seawater Air Conditioning?

- SWAC is an environmentally optimized cooling solution.
- It uses the local, 100% renewable and natural, energy resource – seawater – to cool buildings through an underground piping system.

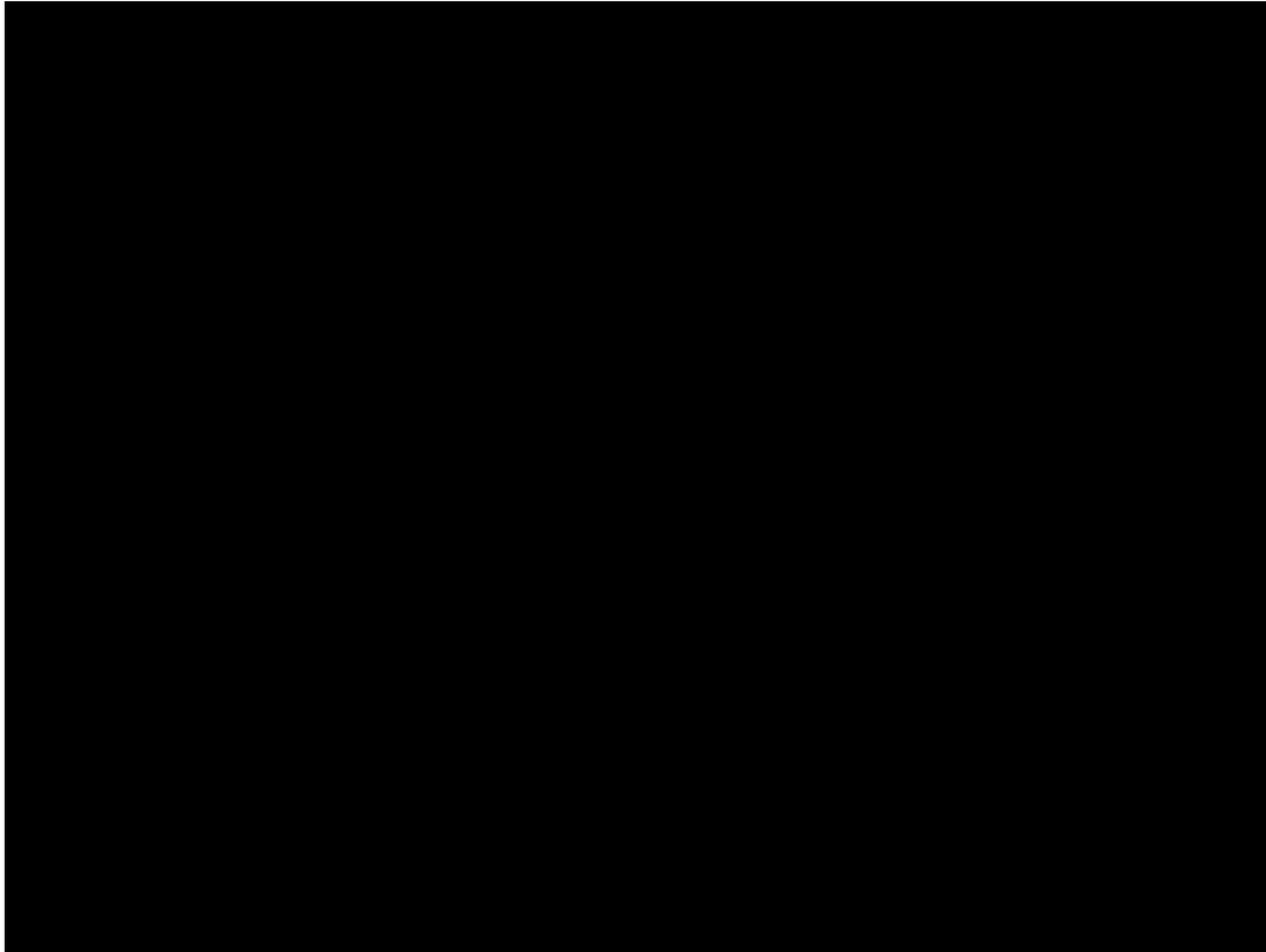


Seawater Pipeline.





Seawater Air Conditioning



Seawater Air Conditioning.



- ...is **environmentally friendly**, and ideal, for dense urban areas located close to the deep, cold ocean.





Basic Concept.

- SWAC takes advantage of deep, cold seawater to cool the chilled water in one centralized building as opposed to using more energy intensive refrigeration systems.
- Due to its large scale energy efficiency, it requires significantly less electricity.
- Reduces electricity consumption by up to 90%.



Sustainable Solution.

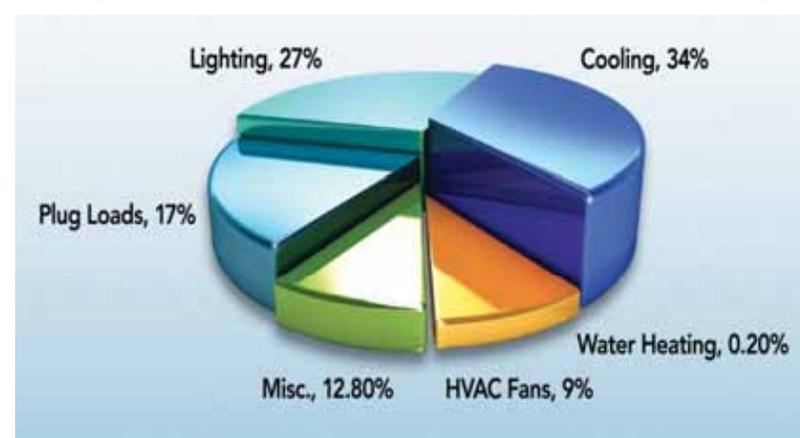


- While reducing each building's need for maintenance and operation, HSWAC's system also significantly reduces each building's carbon footprint while promoting a local, 100% renewable and 'green' energy solution.

Traditional Cooling Comes With a Price.

- Air conditioning can account for up to 40 percent or more of a big building's electric bill.

Energy End Use for Typical Hawaii Office Buildings





Benefits For Customers.

- Provides reliable 24/7 convenience and comfort.
- Reduces and stabilizes cooling costs.
- Eases operation and maintenance.
- Enhances corporate reputation.
- Increases energy efficiency.
- Improves LEED and Energy Star ratings.
- Offers environmental peace of mind.





Benefits

For Customers - cont.

- Stable and competitive rates.
- No need to finance or maintain chillers or cooling towers.
- No noise or vibrations from cooling towers.
- Makes space available for non-cooling purposes.
- Major step towards clean and renewable energy targets.





Honolulu.

- The downtown Honolulu seawater air conditioning (SWAC) system is designed to provide up to 25,000 tons of air conditioning, equaling 12.5 million square feet of air conditioned area.





SWAC Worldwide.

- SWAC has been implemented in:
 - Sweden (Stockholm and dozen of other cities)
 - Netherlands (Amsterdam)
 - Canada (Halifax and Toronto)
 - Finland (Helsinki and Hamina)
 - USA (Cornell University)



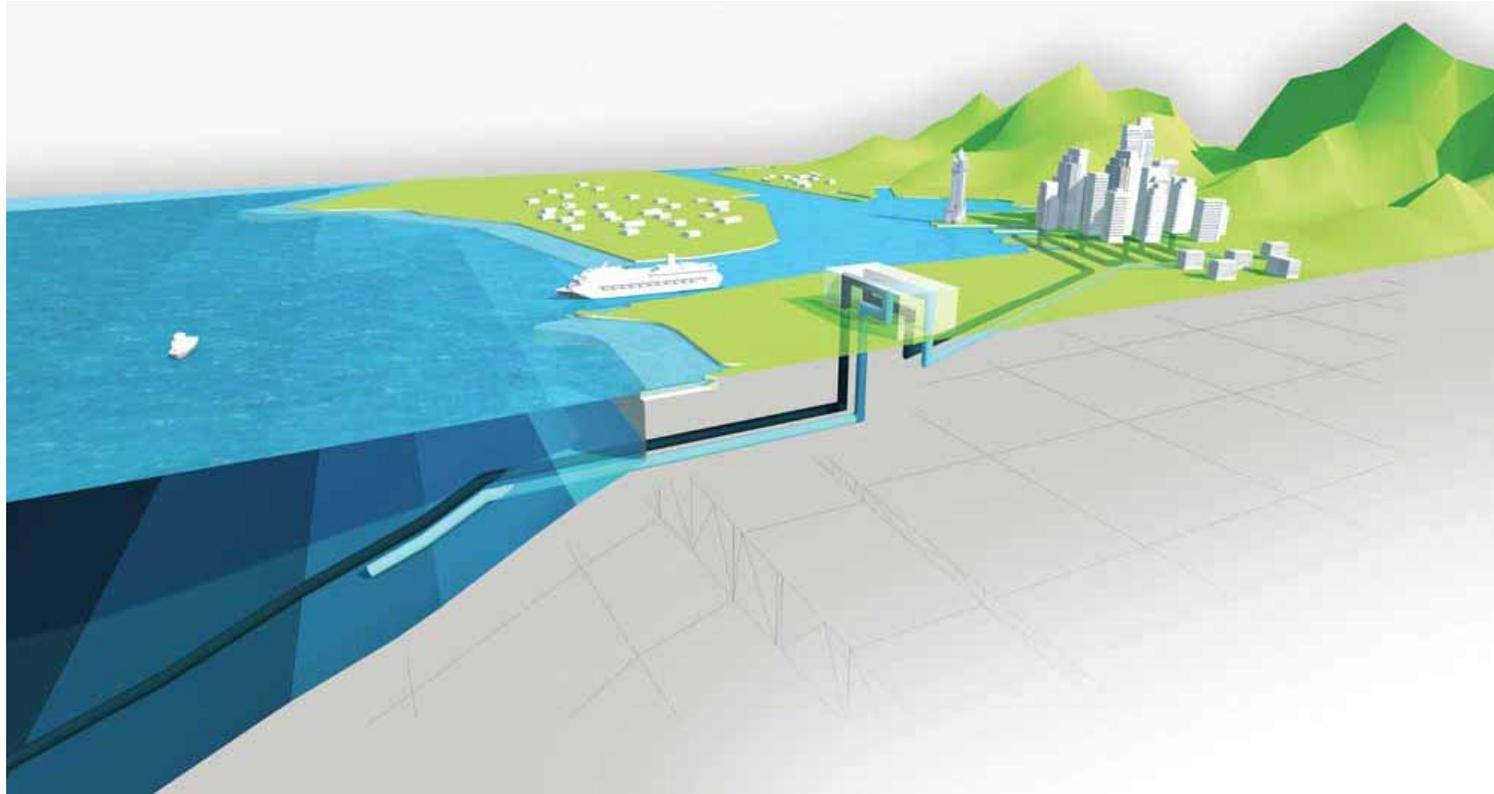
■ Reliable, Stable & Affordable.



- Honolulu Sewater Air Conditioning provides **reliable** (24 hours a day, seven days a week, 365 days per year), **stable**, and **affordable** chilled water services to commercial and residential buildings in downtown Honolulu.



■ The Honolulu SWAC System.





Benefits For Our Community.

- Generates over \$200 million in construction project spending.
- Creates more than 900 new construction jobs.
- Promotes a sustainable future using clean, local, and long-term renewable energy resources.
- Promotes a higher quality of life due to efficient and effective use of local resources.
- Places Hawaii on the world map as a leader in renewable energy solutions.





Benefits For Our Environment.

- ❑ Reduces Hawaii's dependency on oil and conserves up to 178,000 barrels of oil/year (this equals a 30 feet high wall of oil barrels from Aloha Tower to Diamond Head).
- ❑ Saves more than 77 million kWh/year.
- ❑ Reduces greenhouse gas emissions by approximately 84,000 tons of carbon dioxide/year (this equals emissions from 15,000 cars).
- ❑ Decrease potable water usage by more than 260 million gallons/year.
- ❑ Cuts down sewage discharge by up to 84 million gallons/year.





Cooling Station.





Distribution Area.



Development of SWAC System in a City Environment.

- Key to success:
 - Public / Private partnership.
 - Educate and involve all stake holders early in the process.

- Stakeholders:
 - State
 - County
 - City
 - Environmental community
 - Business community
 - Community groups
 - Building owners & tenants
 - Other utilities (electric, water, sewage, telephone, etc.)
 - Local architect & engineering companies



Our Future.

Together, let us work for a sustainable energy future

Cool. Green. Clean.™



For generations to come.

www.honoluluswac.com

