US Coral Reef Task Force Meeting
First Wind Presentation
August 25, 2008

firstwind

Table of Contents

Tracking The Sources of Climate Change in The US

- CO2 is the dominant anthropogenic greenhouse gas, comprising 85% of GHGs
- Fossil fuel combustion accounts for 94% of CO2 emitted in the US
- 41% of CO2 from fossil fuel combustion results from electricity generation
- Across the entire United States, 83% of CO2 generated to produce electricity comes from the combustion of coal

Source: EPA, Inventory of US Greenhouse Gas Emissions and Sinks: 1990-2006

Tracking The Sources of Climate Change in Hawaii

- Hawaii's sources of GHG emissions differ in important ways from the rest of the US
- 92% of Hawaii GHGs come from the energy sector
- 37% of the energy sector emissions come from electricity generation
- 90% of the electricity generated in Hawaii comes from fossil fuels: 77% from oil, 13% from coal

Source: State of Hawaii, Department of Business, Economic Development, and Tourism, "Hawaii's Greenhouse Gas Emissions Inventory

firstwind

Global Climate Change And The Impact In Hawaii

- Nobody can predict the future impacts of global climate change
- An EPA issued report found that potential impacts of climate change in Hawaii included:
  - Temperature changes
  - Human health impacts
  - Sea level changes
  - Water resource degradation
  - Agricultural land use
  - Forest ecosystem changes

Source: EPA, "Climate Change and Hawaii", 1998

firstwind

Table of Contents

Wind Energy Today

- Wind energy is renewable, domestically produced, and pollution-free.
- Wind energy is a robust industry, having grown at a CAGR of 29% between 2002-2007.
- Despite consuming most of the state's power, Oahu generates zero wind energy.
- State of Hawaii has excellent wind resource and now has 4 wind farms.

Sources: EIA, WWEA

firstwind

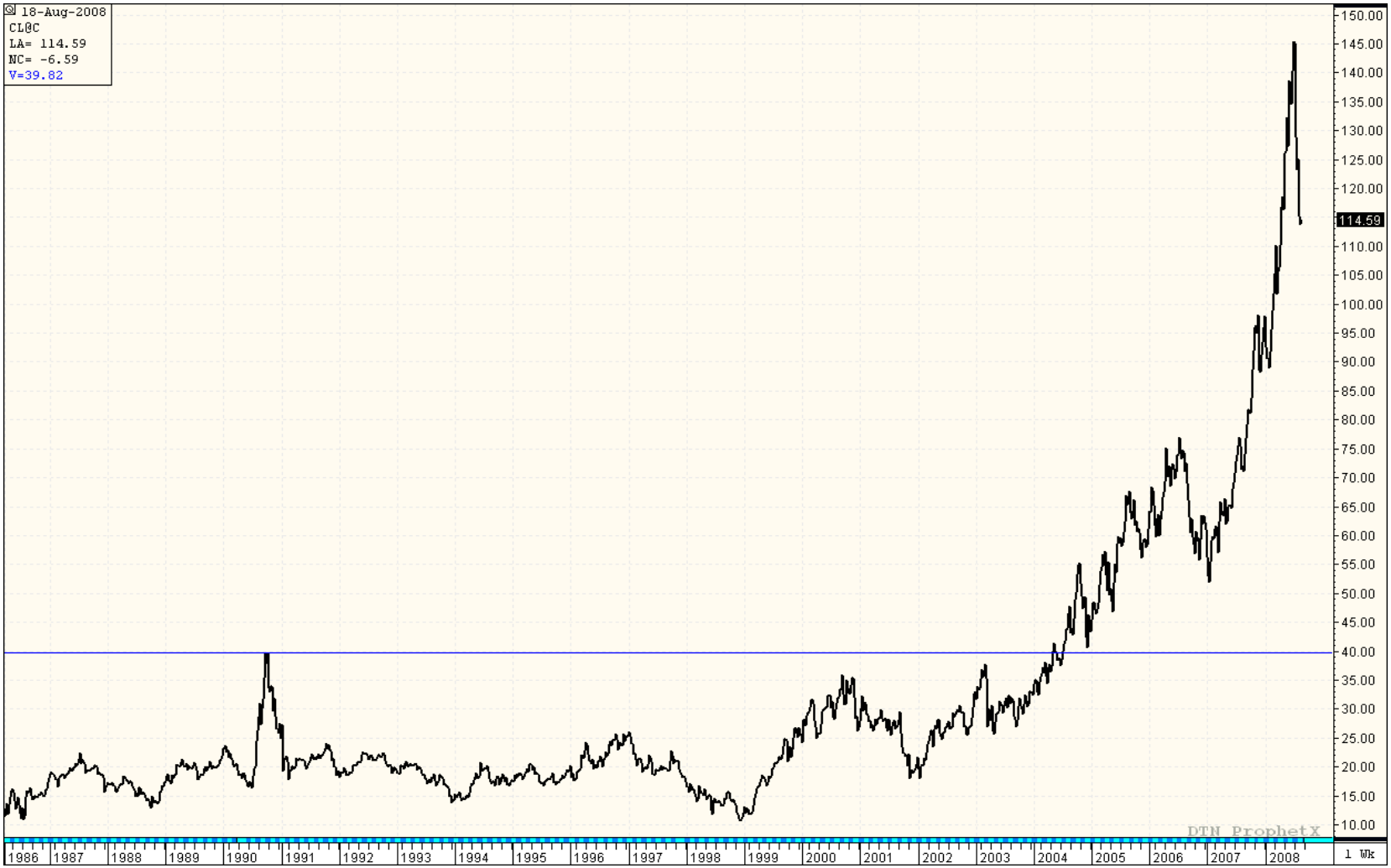
Where Wind Energy Currently Fits In Hawaii's Generation Mix

- 90% of the electricity generated in Hawaii comes from fossil fuels: 77% from oil, 13% from coal
- As of 12/31/2007, wind energy provided 2% of the electricity produced in Hawaii
  - Geothermal produced 2%
  - Hydro produced less than one half of one percent

Source: State of Hawaii, Department of Business, Economic Development, and Tourism, "Hawaii's Greenhouse Gas Emissions Inventory

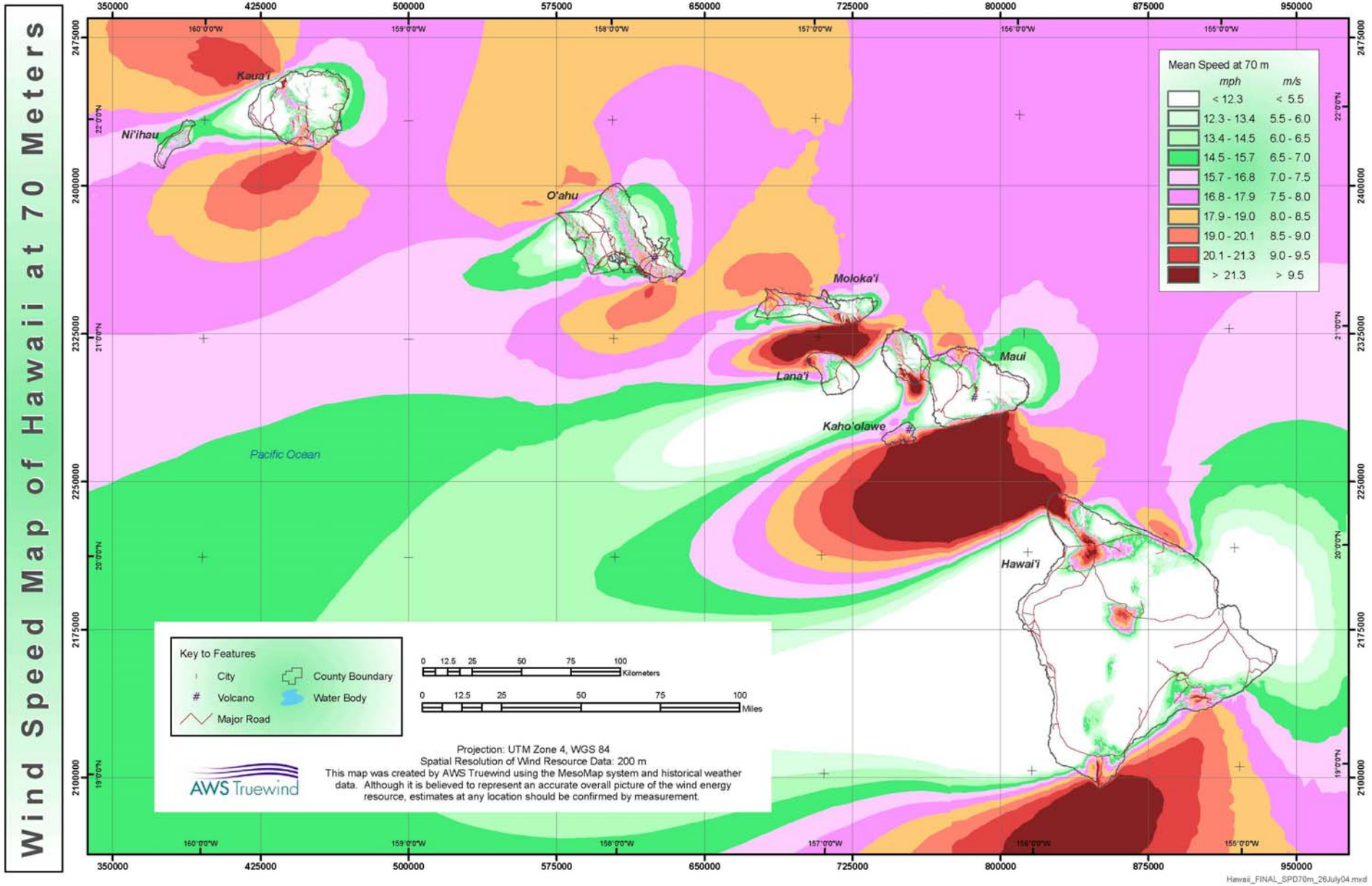
There Are Many Reasons Why Dependence On Fossil Fuels Is Not Sustainable, Price Is Just One Of Them

NYMEX Crude Oil Continuation Chart



firstwind

Hawaii's Wind Resource



Source: AWS Truewind

Table of Contents

- Climate Change Context
- Wind Energy's Role
- ***First Wind In Hawaii***


Kaheawa Wind Power, LLC

First Wind and Makani Nui

- Partnership between First Wind (Newton, MA) and Makani Nui Associates (Pukalani, HI)
- Together, we developed, constructed, financed, and now own and operate Hawaii's largest wind farm, Kaheawa Wind Power, located on Maui
  - Habitat Conservation Plan
  - Built entirely on State Conservation Land

Project Description

- The "Kaheawa Pastures" project is a commercial scale renewable energy project. It includes the design, engineering, construction and operations of a 30 MW renewable wind energy generation facility.
- The project consists of 20 wind turbines arranged in a single row, an operations & maintenance building, communications system, substation, and an interconnection to MECO's transmission lines.
- The project includes the construction of a 5 mile access road over difficult terrain. Average slope of access road and project site is 15%.
- The turbines are located at the 1900 – 3000 foot level, well away from the central population areas.
- The project has an EIS and a Habitat Conservation Plan designed to provide a "net benefit" to the endangered species that may be impacted by the project.

Kaheawa Wind Power History

- The project was first proposed in 1996.
- An Environmental Impact Statement was completed and approved in 1999.
- A Conservation District Use Application was approved by the Board of Land and Natural Resources in January 2003.
- Kaheawa Wind Power, LLC began development in July of 2004. Began construction in September of 2005, and began generation of electricity in June of 2006.
- In 2007 Kaheawa generated approximately 125,000 MWh of electricity which was about 9% of Maui's consumption.

Hawaii's Energy Future – Present state

Catalysts for change/opportunity are present

- Broad awareness and momentum are with us now
- Energy (generation and transportation) prices are a strong motivator. Community support for Renewable Energy is strong
- Supply and demand issues are being openly discussed
- International implications of our dependence on foreign oil is taking hold, Hawaii is vulnerable
- Strong recognition of the problem and leadership from state government and other public policy makers and business leaders.
- There is a general understanding within our communities that change is needed, its going to happen, so how do we manage it?
- The State of Hawaii has excellent dynamics for small to mid-sized commercial wind farms, as well as other types of renewable energy

Hawaii's Renewable Energy Future – Policies

- RPS mandates 20% renewable generation by 2020
- HCEI goal is 70% renewable generation by 2030
- HCEI goal is feasible:
  - Hawaii has robust renewable resources that can be harnessed – interconnection of island grids make sense
  - Businesses partnering with each other and policymakers to make HCEI a reality
  - Modification of regulatory framework will assist HEI in making necessary paradigm shift to incorporate the amount of renewable energy to reach 70% goal
  - Win-Win for all

Contact Information

www.kaheawa.com

www.firstwind.com

www.kahukuwind.com

First Wind
33 Lono Avenue, Ste. 389
Kahului, HI 96732
808-873-0111

- Mike Gresham
  Vice-President, First Wind
  mgresham@hawaii.rr.com
  808-298-1055
- Mike Goodwin
  Project Manager, First Wind
  mgoodwin@hawaii.rr.com
  808-280-6700
- Noe Kalipi
  Director, Government & Community Relations
  First Wind
  nkalipi@firstwind.com
  808-344-0211
- Wren Wescoatt
  Development Specialist, First Wind
  wren.wescoatt@gmail.com
  808-780-1000


Makani Nui Associates, LLC
Mahalo