

Energy Independence

John Mankins

Overview

- 15 participants
- Seven presentations
- Six projects/actions
- Three Recommendations

Presentations

- Andrea Gill — State of Hawai'i Government
 - Hawai'i perspective and state energy initiatives
 - Goal of 70% “clean energy” by 2030
 - Intermittent energy is problem for grid stability
- Luis Vega — University of Hawai'i Hawai'i Natural Energy Institute
 - Ocean Thermal Energy Conversion (OTEC)
 - Past, present and future
 - Proposal for 5 MW demonstration project

Presentations (2)

- Hiroshi Shimoji — Okinawa Prefecture Government
 - Smart grid project in Okinawa
 - Integrating wind and photovoltaic into fossil baseload
- Yoshiyuki Fujino — NICT
 - Random rectenna design to reduce directional harmonic rebroadcast
 - Thermal shock effects on ETS-VIII reflector antenna

Presentations (3)

- Shigeru Aoki — Shimizu
 - Shimizu dream project “Luna Ring”
 - Equatorial photovoltaic belt circling the Moon
 - Microwave and Laser power beaming to Earth
- John Mankins — Managed Energy Technologies
 - Comparison of historic and modern satellite designs
 - Technology improvements
 - Sandwich concept
 - Power beaming experiment in Hawai’i

Potential Projects

- Mark Henley — Boeing
 - Solar Concentrator to melt basalt for energy storage
 - Test at PISCES facilities
 - Laser power transmission for lunar exploration
 - Cooperative experiment with Japanese requires Technical Assistance Agreement
- Stephen Day — International Ventures Associates
 - Catalyst for OTEC demonstration
 - JUSTSAP session
 - UH students

Potential Projects (2)

- John Mankins — Managed Energy Technologies
 - Island-to-island wireless power transmission experiment
 - Student projects
 - Sustainable energy design contest
 - “Solar Decathlon” contest for Hawai’i/Okinawa
- Frank Little — Texas A&M University
 - Collaboration in Japanese led space-to-earth microwave wireless power transmission experiment
 - NASA supported student design team
 - ITAR/TAA

Potential Projects (3)

- Jim Grady — GEI NASA
 - Tethered air ship wind turbine
 - Fly at about 600 m in air
 - NASA Space Act Agreement

Recommendations

- Microwave wireless power transmission demonstration
 - Kobe University - Texas A&M University
 - John Mankins, Nobu Kaya, Frank Little
 - Funding at low level
- Solar concentrator for thermal energy storage demonstration
 - PISCES, students, industry Shimizu(?)
 - Mark Henley
 - Funding from NASA, DoE

Recommendations (2)

- Ocean Thermal Energy Conversion (OTEC) demonstration
 - U of H, NELHA, Woods Hole, Hawai'i Government, Okinawa Government
 - Student involvement
 - JUSTSAP session next year
 - John Mankins, Judson Hewitt, Stephen Day