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2<sup>nd</sup> ASIA-PACIFIC  
WORKSHOP ON  
VALUE  
CREATION  
2018@JAISMS & HOKU

August 22-24, 2018

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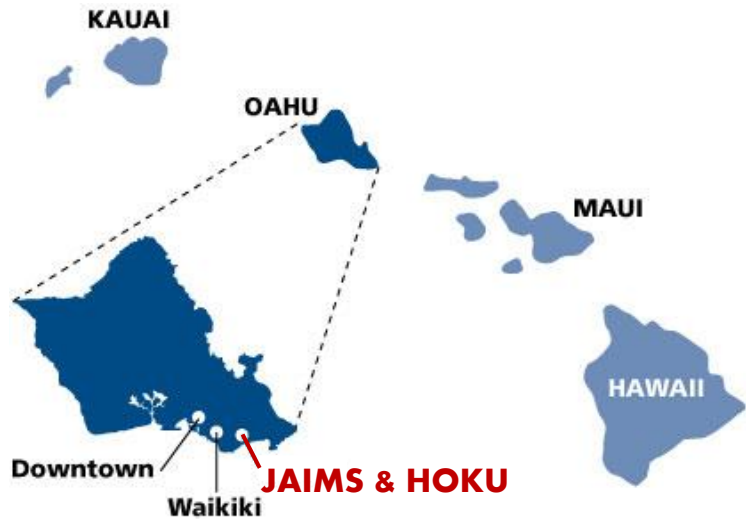
“The 2<sup>nd</sup> Asia-Pacific Workshop on Value Creation 2018 @ JAAMS & HOKU” is hosted by Japan-America Institute of Management of Science and Creative Dojo, Kobe University.

This workshop is supported by

- Multidisciplinary Integration for Resilience and Innovation, Kobe University.
  - Human Resource Development for Scientists and Engineers, Kobe University.
  - International Affairs Department, Kobe University.
  - Research Project for Construction of Next-generation Eco-production System, Organization of Advanced Science and Technology, Kobe University.
  - EARTH on EDGE (EDGE-NEXT, MEXT, Japan)
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## DIRECTION

JAIMS is located on a six-acre campus in the Honolulu suburb of Hawaii Kai, a 20-minute drive from the downtown business area and Waikiki. HOKU is located in the JAIMS building.



Japan America Institute of Management Science (JAIMS)  
 Honolulu Office of Kobe University (HOKU)  
 6660 Hawaii Kai Drive, Honolulu, Hawaii 96825



## OVERVIEW

Innovation is creating new *value* — not new products. Value creation is a fundamental point in building new businesses and solving social problems. One of the world's biggest issues is affordable and clean energy. Energy demand is projected to almost double in the Asia and Pacific regions by 2030. There is an urgent need for innovative ways to generate power in socially, economically, and environmentally sustainable ways. Therefore, it is necessary to challenge interdisciplinary research and develop ecosystems for creating a new value for sustainable energy. Every country is facing challenges in solving the energy problem. Taiwan will shut down all of its nuclear power plants by 2025, replacing them with renewable energy or other alternatives. Meanwhile, Japan currently has many research projects underway on renewable energy. Even the state of Hawaii has an agenda to achieve 100% of their energy through renewable sources by 2045. This workshop will provide opportunities to learn about technologies and action plans on renewable energy and explore how we are promoting innovation to solve the world's energy problem. Specialists from academia, civil societies, governments, and industries will analyze the energy problem from different viewpoints and develop an innovative solution for a successful sustainable energy ecosystem.

## OBJECTIVES

The 2<sup>nd</sup> Asia-Pacific Workshop on Value Creation will do the following.

- Promote an exchange of opinions about the challenges of clean energy.
- Seek and create an innovative solution for a successful sustainable energy ecosystem.
- Enhance interdisciplinary research for harnessing renewable energy.

# JAIMS

JAIMS is a non-profit educational institution founded by Fujitsu in 1972 that provides graduate level education. The purpose of JAIMS is to foster mutual understanding between Japan and the U.S., and cultivate human resources in the Asia-Pacific region.

Over the past 40 years since its establishment, JAIMS had more than 23,000 graduates from 55 different countries and received the Foreign Minister's Commendation in Japan in 2006. It is highly regarded for its efforts to promote international exchange.



Creative Dojo is a community of members who share a common love of learning something new and creating wonderful things to change the world better. The Dojo is a knowledge fusion hub for solving difficult ill-defined problems. There are many problems that are not answered in only one optimum solution in the world. We believe that by sharing ideas, methods and stories with the members, we are all better equipped to lead creative innovation for ourselves, our colleagues and the future.

## SCHEDULE

## DAY\_0 (August 22)

12:30 - 14:00 Participants' Meeting @ The Kahala Hotel & Resort

## DAY\_1 (August 23)

8:30 - 9:00 Coffee Chat

9:00 - 9:20 Opening Address (Prof. Hiroki Tsuruta, Kobe Univ.)

9:20 - 9:30 Welcome Remarks (Prof. Constancio Paranal III, JAISMS)

9:30 - 9:55 Keynote  
(Mr. Scott Glenn, The State of Hawaii, Office of the Governor)

10:00 - 11:15 Forum: Designing a Sustainable Society

11:30 - 12:30 Lunch

12:30 - 13:15 Research Insights

13:30 - 14:45 Lecture (Prof. Chiaki Ogino, Kobe Univ.)

15:00 - 16:50 Workshop: Exploring New Ideas for Sustainability  
(Prof. Keiko Gion, Kobe Univ.)

16:50 - 17:30 Reflection (Prof. Constancio Paranal III, JAISMS)

## DAY\_2 (August 24)

8:30 - 9:00 Coffee Chat

9:00 - 12:00 Site Visit

12:00 - 13:00 Lunch

13:00 - 16:00 Workshop: Solutioning  
(Prof. Shuwei Huang, National Taiwan Univ.)

16:00 - 17:00 Reflection (Prof. Constancio Paranal III, JAISMS)

17:00 - 18:30 Aloha Reception



## Opening Address



Hiroki Tsuruta is a graduate of Kobe University where he earned his M.A. and Ph.D. He has been a structural biologist and also a coordinator for academic-industrial collaborations. He is also a director of Center for Applied Structural Science and project leader of Structure-based Drug Discovery project.

## Welcome Remarks



Constancio Paranal III is a graduate of the University of Southern California where he received his Doctorate in Education Management and Leadership and a Master in Business Administration. He also received a Master in Finance from Harvard University. He is a Faculty of Marketing at the Shidler College of Business where he specializes in Digital Marketing and Entrepreneurship. He is also pursuing Asia Pacific and International Law at the William S. Richardson School of Law. He is interested in the fields of Neuroscience, Education Psychology, and Knowledge Management.

## Keynote Speaker



Scott Glenn is the director of the Office of Environmental Quality Control for the State of Hawai'i. He advises the Governor on environmental quality. The Director is tasked with public education and outreach, conducting research, submitting and providing testimony on legislative initiatives, recommending programs, and providing advice and assistance regarding Hawai'i's environmental review process. The Director sits as an ex officio voting member on The Environmental Council, The Advisory Committee on Plants and Animals, and The Emergency Response Commission. Prior to coming to the Office of Environmental Quality Control, Scott worked as an environmental planner in the private sector. He received his Master's Degree in Urban and Regional Planning from the University of Hawai'i in 2009. Scott specializes in asset management, environmental planning and compliance, environmental review, and climate change adaptation planning.



## Sustainability Green Forum



Asia Pacific Value Creation Workshop  
Sustainability Forum:

# Designing a Sustainable Society

August 23, 2018 / 10:00 am - 11:15 am

Japan-America Institute of Management Science

6660 Hawaii Kai Drive, Honolulu, HI 96825

### DISCUSSION TOPICS

- The cost and benefit of making Hawaii sustainable
- What are the government plans on clean energy
- What private companies are doing to improve our life etc...



### INVITED PANELISTS

- **Makena Coffman:** Director, UH Manoa Sustainability Council
- **Gregory Wong:** Director of Customer Service, Honolulu Seawater Air Conditioning
- **Joshua Stanbro:** Chief Resilient Officer & Executive Director, City and County of Honolulu Office of Climate Change, Sustainability, and Resiliency
- **Dr. Lauren Cheatham:** Assistant Professor, Shidler College of Business

FREE REGISTRATION IS NOW OPEN

**REGISTER NOW!**

To Inquire or RSVP, please contact Ms. Masako Negele via email: [mnegele@jaims.org](mailto:mnegele@jaims.org) or call (808) 395-2314

*Registration does not include lunch. Only light snacks and refreshments will be provided.*



### UH Manoa Sustainability Council

The Manoa Sustainability Council, formerly known as the Manoa Sustainability Corps, is an organization composed of students, faculty, and staff concerned with sustainability issues that is charged with providing advice and council to the Chancellor regarding sustainability issues on the University of Hawaii Manoa Campus.

### Honolulu Seawater Air Conditioning, LLC

Honolulu Seawater Air Conditioning, LLC was founded by Ever-Green Energy, LLC of Saint Paul, Minnesota, to develop seawater air conditioning projects in Hawaii. As a wholly owned subsidiary of Ever-Green Energy, LLC, Renewable Energy Innovations (REI), was established for the purposes of developing, operating, and managing district cooling systems. With more than 30 years of experience of operating and managing district energy systems, REI and its personnel has unique expertise in deep-water air conditioning.

### City and County of Honolulu, Office of Climate Change, Sustainability, and Resiliency

The City and County of Honolulu Office of Climate Change, Sustainability and Resiliency was established by City Charter in 2016 with overwhelming approval by Oahu voters. As mandated by Charter, the Office is tasked with tracking climate change science and potential impacts on City facilities, coordinating actions and policies of departments within the City to increase community preparedness, developing resilient infrastructure in response to the effects from climate change, and integrating sustainable and environmental values into City plans, programs, and policies. As a member of the Rockefeller Foundation's 100 Resilient Cities network, the Office is also responsible for developing Oahu's Resilience Strategy, which will include the City's first-ever climate action and adaptation plan.

## Research Insights

### **Improvement of Catalytic Processes for Efficient Hydrogenation Production from Hydrocarbons**

Recently, small-sized and distributed fuel cell systems like ENE-FARM for practical home use are spread becoming prevalent. Fuel cell provides electrical power using hydrogen and ambient oxygen. Renewable hydrogen which is given from renewable sources such as solar is expected to use for this system. However, hydrogen is currently produced from hydrocarbons like natural gases, which consists of multistep processes. Catalytic processes like reforming reaction and water-gas shift reaction are included in the hydrogen production process. These catalytic reactions have some problems. In this study, our approaches to improve the catalytic processes for hydrogen production are introduced.



Keita Taniya belongs to Organization of Advanced and Integrated Research and Catalysis and Catalytic Reaction Engineering laboratory at Graduate School of Engineering, Kobe University, Japan. He received MSc and PhD from Kobe University in 2006 and 2012, respectively. He had worked at Koei Chemical Co., Ltd from 2006 to 2009. Before he became an Assistant Professor at Graduate School of Engineering, Kobe University, he had worked as a lecturer at Kobe City College of Technology. His research interests are heterogeneous catalysts for selective hydrogenation, selective oxidation and hydrogen production. He is also interested in nanostructured materials like nanoparticles and reaction process.

*E-mail: Taniya@platinum.kobe-u.ac.jp*

### **Environmental Policy and Technological Development of Renewable Energy**

The growth and geographical expansion of renewable energy capacity were driven by the continued decline in the cost of renewable energy generation. Technological developments in the renewable energy sector continue to offer the potential for additional cost reductions. Further technological development is a key driver for the promotion of renewable energy by serving as a means to ensure a dramatic decrease in the marginal cost of power generation, to overcome intermittency, and to stabilize the electricity supply. The talk will explain environmental policy regarding with renewable energy including the feed-in-tariff and the Kyoto Protocol and their effects on technological development of renewable energy. I also indicate some of the empirical evidence on environmental policy's impacts across the innovation process for renewable energy technologies.



Mai Miyamoto is a research fellow at Graduate School of Economics, Kobe University, Japan. She received M.A. in economics from Kobe University in 2014 and Ph.D. in economics from Kobe University in 2018, respectively. She is interested in the fields of environmental economics, particularly the effect of environmental policies on technological development of renewable energy.

*E-mail: mai.miyamoto.y@gmail.com*



## Lecture

### Contribution Possibility to Sustainable Society by Bio-refinery Strategy Collaborated with Agricultural Crops

Chiaki Ogino<sup>1</sup>, Prihardi Kahar<sup>1</sup>, and Akihiko Kondo<sup>2</sup>

<sup>1</sup>Department of Chemical Science and Engineering, Graduate School of Engineering,

<sup>2</sup> Organization of Advanced Science and Technology,

Kobe University, 1-1 Rokkodaicho, Nada-ku, Kobe 657-8501, Japan

Recently, since the greenhouse gas (GHG) problem is emerged as a serious environmental problem in the world wide level, the carbon dioxide generation from fossil fuel has been assumed to be one of reasons for GHG problem. For resolving of GHG problem, the utilization of biomass instead of fossil fuels are utilized as an alternative feedstock for construction of sustainable and low-carbon society without depend on fossil fuels. Bio-refinery is defined as the co-production of bio-based products (food, feed, materials, and chemicals) and energy (fuels, power, heat) from biomass. In commonly, most of biomass is consisted from cellulose, hemicelluloses, and lignin fractions. Cellulose and hemicelluloses fraction are degraded by cellulase into glucose and xylose, respectively. In addition, these sugar moieties are up taken with microbe and, then converted various variable fuels and chemicals by engineered microbes.

In this study, we have developed the simultaneous method for screening the candidate yeasts, which capable to grow and ferment lignocellulosic lysate into ethanol and fine chemicals such as lactate. By using culture collection in National Bio-resource Collection (NBRC) Japan, and Indonesian National Culture Collection (InaCC), the screening of the yeast strain, having a potential of growing and fermentation in the medium containing fermentation inhibitors, was conducted. Regarding the possibility of bio-resources in tropical region, suck like a Hawaii, for bio-refinery, we would like to discuss also in this presentation.

*Acknowledgments: This work was supported in part by a Science and Technology Research Partnership for Sustainable Development (SATREPS) from collaborating project between JST and JICA, National biological research center (NBRC) of National institute of technology and evaluation (NITE) for providing strains, and a Special Coordination Fund for Promoting Science and Technology, Creation of Innovative Centers for Advanced Interdisciplinary Research Areas (Innovative Bioproduction Kobe) from the Ministry of Education, Culture, Sports and Technology (MEXT) Japan.*



Chiaki Ogino is a professor of a biochemical engineering laboratory at Graduate School of Engineering, Kobe University, Japan. He was awarded MSc from Kobe University and PhD from Kobe University in 1997 and 2002, respectively. Research areas are an inorganic nanoparticle application to biomedical fields, breeding of *Saccharomyces* and *Streptomyces* strains for chemicals production, and pretreatment of biomass for selective and specific separation.

*E-mail: ochiaki@port.kobe-u.ac.jp*

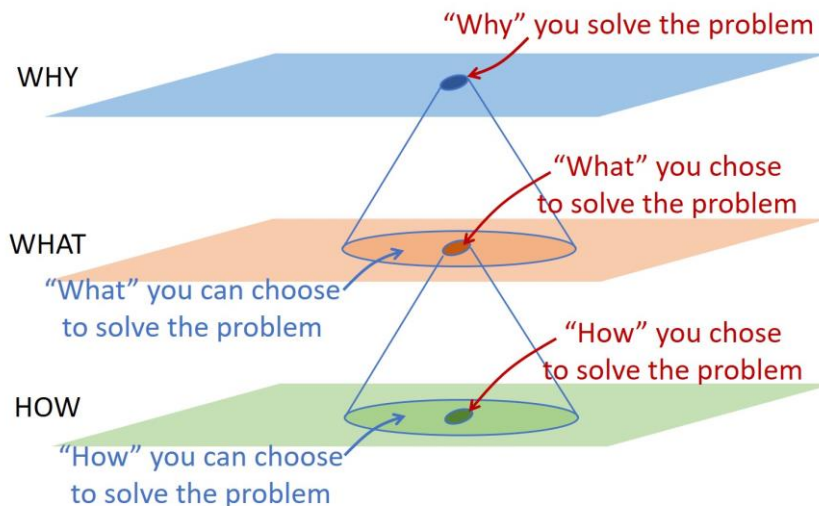
## Workshop: Exploring New Ideas for Sustainability

*Sustainability* refers to “the ability to be maintained at a certain rate or level” (Oxford Living Dictionary ). When people think about sustainability, it is often in the context of attaining energy security and solving global warming. While this conception addresses our most immediate challenges today, sustainability deserves a broader perspective. We do not believe that sustainability should only fit into the context of our energy and climate crisis. Instead, it is a philosophy that is relevant to many different areas of life and society.

When we solve a problem, we start by thinking about the reasons we need to solve it. Then, we think about what we should or need to do in order to solve the problem. We use divergent thinking to generate as many answers to “what” and “how” as possible, and then use convergent thinking to settle on the best of those answers.

We tend to think about “how we should achieve sustainability,” not “what we need to sustainability.” Although it is very important to develop new technologies for sustainability, we should consider what makes sustainability possible. If we need “diversity” for sustainability, we should develop a technology to bring “diversity”.

This workshop is designed to redefine ways of thinking about sustainability and explore new ideas. We will think divergently and convergently, using brainstorming, affinity diagrams, and forced association methods, and then find insights about what makes sustainability possible.



**Keiko Gion** received her Ph.D. in bioengineering from Fukuyama University and her M.A. in agriculture from Kobe University. Before she joined Creative Dojo, she worked for the RIKEN Center for Developmental Biology, TLO Hyogo, and Suntory Co., Ltd. Her research focuses on processes of creating value  
*E-mail: [kgion@port.kobe-u.ac.jp](mailto:kgion@port.kobe-u.ac.jp)*

## Workshop: Solutioning

The decentralization of the centralized energy system is a long process of adjustment, and it is necessary to link different social sectors through social design. However, different social sectors have their own customary thinking logic. We need to design the boundary objects to let the actors understand each other's thought limits and think about possible actions. In these two days, we analyze the energy problem from different viewpoints and visit two sites to learn their experience on sustainable energy. This afternoon, we will organize the two-day discussion to identify the missing links in the existing ecosystem, and then design the boundary objects that engage stakeholders to work together to make a successful sustainable energy ecosystem possible.

### Prepare

- Separate people into three group with different backgrounds.

### Introduction: NTU Experience

- NTU “Boundaryless University” Project experience,
  - finding the missing link
  - improve the cooperation experience
  - design the boundary objects
  - make participation
  - transform the policy network

### Step 1: Downloading

- Use Post-it, write down 3~5 key elements (actors, objects, infra, industry) of the sustainable energy ecosystem.
- Separate them into different categories.
- What’s the relationship between these different categories?

### Step 2: Define

- What is the missing link for the emerging ecosystem?
- Why it is important?

### Step 3: Develop

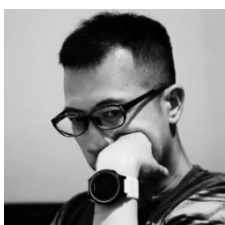
- How Might We.....link the stakeholders of the missing part?
- Give your concept a name, brief description of concept.
- Brief presentation (5mins per group), quick comment (via post-it).

### Step:4: Design

- What boundary object you choose to design/improve?
- It would looks like.....sketch it!!

### Step5: Deliver

- Brief presentation (10mins per group), quick comment (via post-it).



Shuwei Huang received his Ph.D. in sociology from Tunghai University, Taiwan. He is a project assistant professor of Graduate Institute of Building and Planning, National Taiwan University and a project manager of NTUPLUS. His research expertise is in urban sociology, urban political ecology, water politics, and social design.

*Email: swpave@gmail.com*



## Site Visit



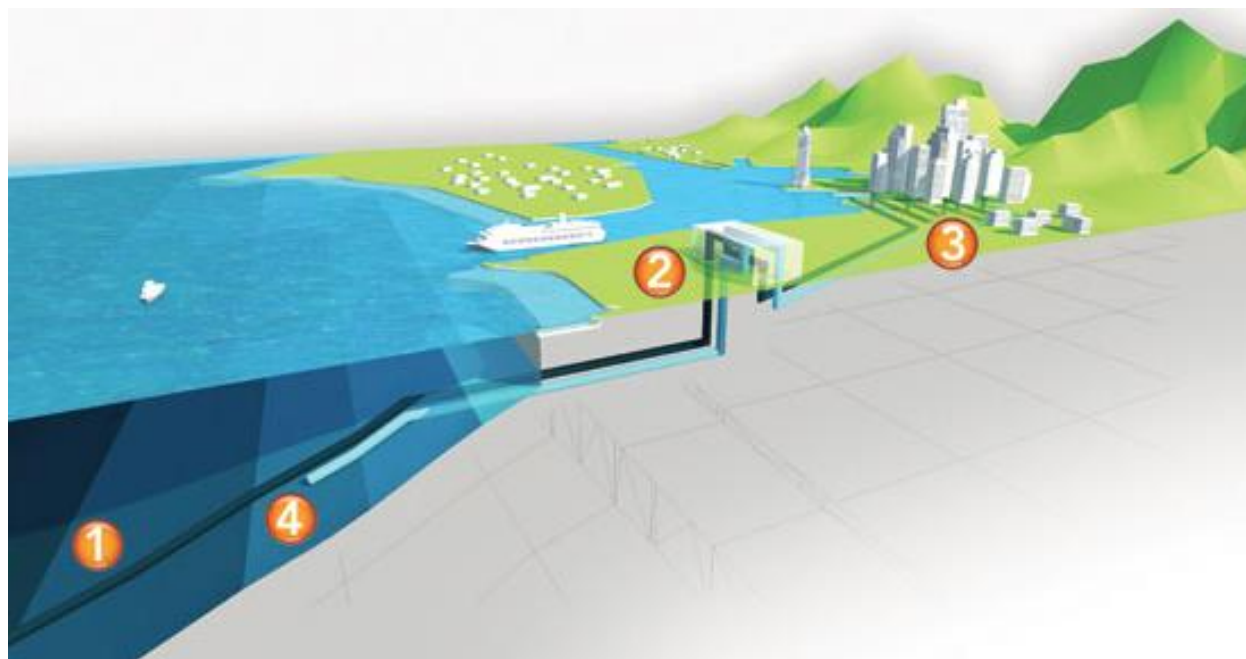
Honolulu Seawater Air Conditioning

COOL. GREEN. CLEAN.™

Honolulu Seawater Air Conditioning, LLC was founded by Ever-Green Energy, LLC of Saint Paul, Minnesota, to develop seawater air conditioning projects in Hawaii. As a wholly owned subsidiary of Ever-Green Energy, LLC, Renewable Energy Innovations (REI), was established for the purposes of developing, operating, and managing district cooling systems. With more than 30 years of experience of operating and managing district energy systems, REI and its personnel has unique expertise in deep-water air conditioning.

A TYPICAL SWAC DISTRICT COOLING SYSTEM IS QUITE SIMPLE AND CAN BE EXPLAINED IN FOUR PARTS

1. Cold (44°F-45°F), deep water from more than 1,700 feet below sea level is pumped through an intake pipeline located more than four miles off the Kakaako shoreline to a cooling station on shore.
2. The cold seawater is passed through a heat exchanger at the cooling station, which transfers the coldness to the freshwater that circulates in a closed loop pipeline system (district cooling). This chilled water (air conditioning service) is then provided to customer buildings. The heat exchangers ensure that seawater and the freshwater delivered to the buildings never mix. Chillers in the cooling stations supplements the cooling provided by the cold water to maintain a consistent 44°F for the chilled water distributed to customers' buildings.
3. The chilled freshwater is provided to customer buildings through underground pipes that are connected to each building's existing chilled water air conditioning system.
4. The seawater is returned in an environmentally safe manner back to the ocean and released through a diffuser.





## Site Visit

**TOYOTA**  
HAWAII

**SERVCO**

There are seemingly unlimited reasons to consider the new Toyota Mirai. It operates just like a regular passenger car, has a 312\* mile driving range and comes loaded with all of the latest connectivity, driving assistance, safety and security technology standard.

Mirai also offers one unique, very exceptional reason why it is a perfect fit for Hawaii – it has one of the lightest carbon footprints of any vehicle in the world today. communities every day.



As a pioneer in sustainable mobility, including the sales-leading Prius hybrid family, Toyota has been working on the development of fuel cell technology for more than 20 years. Now, the new Mirai is ready to do its part in helping meet the Hawaii Clean Energy Initiative's (HCEI) goal of achieving 70 percent clean energy by 2030.

With a target of 40 percent of that clean energy coming from locally generated renewable resources, and 30 percent from efficiency measures, the hydrogen fuel cell Mirai contributes to maintaining Hawaii's beautiful environment.

Toyota Hawaii is pleased to be doing our part to make clean energy a part of life in our local communities every day.

Toyota's Hawaii dealer and distributor Servco Pacific opens the islands' first hydrogen fueling station to begin leasing the Mirai fuel cell vehicle and help the state meet its energy independence and sustainability goals.





