

Mr. Al Harjati

APHSS Fellow

University of Hawaii, East-West Center

Mentor Mr. Ted Peck

Administrator, Strategic Industries Division

Dept. of Business, Economic Development & Tourism

## **Energy Security and Resiliency in Hawaii**

The topic of the presentation was on Energy Security & Resiliency: Perspectives on Energy Assurance, Resiliency Planning, and Inter-Organizational Coordination. The presenters include William Bryan (Deputy Assistant Secretary for Infrastructure Security & Energy Restoration, US Department of Energy), Edward Teixeira (Vice Director, Hawaii State Civil Defense), Harold Koguera (Vice President of Energy Delivery, Hawaiian Electric Company), and Robin Rorick (Director of Maritime & Security Issues, American Petroleum Institute). The talks had certainly correlated with the topic of energy security and resiliency. Every one of the panelists showed the importance, from their industry and their work focus, of energy security, protection, and resiliency for the state of Hawaii and the Asia Pacific region. The panelists addressed that energy is critical for the region and it has become a security business since the survivability of the region relies heavily on the energy sector. The panelists also discussed the network of partnerships, of private and public institutions, that is currently in place in order to provide a state-wide energy security and protection. The energy infrastructure interdependencies were discussed from the point of view of government and industry's approaches and best practices were shared. In concluding the paper, In addition to the security and protection components of the energy sector, I will conclude by assessing the opportunities that the energy sector, from planning strategies to technological innovations aspects, can bring to the state of Hawaii and the region.

The discussion on energy as a security business by Mr. Bryan covers the key differences between Protection and Security. Protection of energy sector requires a tighter focus whilst the security component requires a broader area of coverage. The security aspect of energy sector is every

stakeholder's responsibility and it needs to be that way to include the systemic approach for its security purpose. However, protection is more of each process owner's responsibility. For instance, the protection of assets is the asset owner's responsibility and not the responsibility of the bigger systems. There are three core components in the energy security framework; Reliability, Survivability, and Resiliency. Reliability aspect of the framework describes the need for pro-active, adaptive, and continuous improvements approach to understand the value chain of the process. This can be described as equivalent to creating preventative steps against possible catastrophic events. The goal is to model a network of value chain that would optimize the resiliency of the entire sector of energy infrastructure as a whole. This proactive - Reliability - step requires a constant monitoring and cooperation from all stakeholders. Info sharing would be of most crucial in this step as each stakeholder must be transparent in communicating their critical information and their challenges. The information would become the key components for the systems analysis prior to modeling the entire network chain.

The survivability component in the framework explains how the energy dependencies network would react to certain catastrophic events, natural or human-made. Transforming the model results from the reliability stage, one would be more prepared when an event happens. The partnerships between the stakeholders in the network will be important for the survivability upon the occurrence of a certain catastrophic event. Meanwhile, the resiliency framework supports responses to a post event. The transitional period from the event occurrence to the post event requires rapid reconstruction, quick response, and coordinated recovery for the energy infrastructure. If the core infrastructure fails, the system at this point will need to resort to the alternative energy infrastructure to contain the energy needs and to not allow for other aspects in the region to suffer. The Incident Command Team and the military resources, Army National Guard, Air National Guard, State Civil Defense, have sustained partnerships to provide a state-wide security and to continuously strengthen the network of resources. In addition, partnerships and agreements with private institutions such as contractors, vendors, and consultants have also made it possible to expand the security boundary.

One topic that I am very interested in is our dependency on foreign oil and fossil fuel energy sources. I believe that our economic system is highly dependent on fossil fuel, in a way we are highly dependent on regions that are currently in conflict with our nation. The dependency of foreign fossil fuel

sources will create a barrier of vulnerability in our nation's security. This economic dependency on oil can also become a severe threat since the dependency affects every level of societal decision making process. If the system breaks and it requires our nation to innovate very quickly in alternative sources of energy, it will critically impact our nation's political stability, thus affecting the entire system. The broken system could potentially create instability in the country and expose our nation's vulnerability.

For instance, Hawaiian Electric Company runs approximately 95% of the energy need for the state of Hawaii, of fossil fuel sources. This reflects a tremendous dependency on oil, from foreign or domestic production sources. With the critical political climate, the dependency on oil can become a disadvantage. In addition to the potential security risks, by relying heavily on one source of energy, the state may limit the growth opportunities for the region. The Hawaiian Islands have many potential sources of energy such as waves, geo-thermal, wind, and solar. These should provide a significant advantage that many states or countries do not have, but yet the state is still highly dependent on fossil fuel.

The Hawaii Clean Energy Act that focuses on the use of clean energy by 2030 will help to catapult the network of partnerships between private and public institutions in creating a much more sustainable environment. This will provide triple bottom line benefits to the state if implemented efficiently and effectively. From the social benefits, the need for clean technologies will attract various businesses that would have less incentive to be in the state such as alternative energy companies, hi-tech utility infrastructure firms, or energy consulting services. This will help to create more jobs in the state. The need for more labors in the field of alternative energy will drive the educational systems to introduce the sustainable mindset thinking from a very grassroots level. University systems will be driven to introduce different curriculums, in various schools such as engineering, business, and science, to students who will now have the knowledge and desire to build a sustainable community. Development of sustainable thinking through education will provide short term and long term benefits since it will transform generations of consumers that would affect the energy consumption. The cleaner energy sources will also provide balance to the eco-system and to limit our contribution to the greenhouse emissions.

Economically, this initiative creates a diverse network of industries to reach one goal of cleaner community that is less dependent on foreign fossil fuel source. By creating great incentives to companies

to operate in the state, it will drive economic growth and diversify the revenue flows for the state. This will lessen the vulnerability of the state to major economic downturn that could potentially be caused by fluctuation of oil price or other fuel related commodities. Environmentally, the balance eco-system will also promote healthy living and improve the attractiveness of the state. It is a systemic effect that the Act will bring to the state. I am hopeful that it will ultimately help to provide a sustainable environment as well as security in the State and the nation.