

7 AFFORDABLE AND CLEAN ENERGY

MMSU's Commitment

Ensure access to affordable, reliable, sustainable and modern energy for all and achieve the goal of energy self-sufficiency



Exploring Renewable Energy Sources for a Greener Future

MMSU's Nipahol is promoted by a renewable energy expert for its commercial utilization in the country. The E-15 is a fuel blend of 15% ethanol and 85% gasoline—believing it will lower costs while maintaining fuel efficiency. Ethanol enhances the combustion of gasoline, making E15 a promising option with an octane rating of 88, compared to E10's 87. The production cost of Nipahol is estimated at Php 35.00 per liter, making it cheaper than conventional ethanol. Importantly, the 5% water content in hydrous ethanol is manageable due to the warm climate in the Philippines, which prevents phase separation in fuel blends. With the country's extensive nipa forests, which cover about 38,000 hectares, local production could potentially meet the current ethanol import demand. The push for E15 aligns with the Biofuels Act of 2006, aiming to develop homegrown biofuels for cost-effective energy solutions. The Ethanol Producers Association of the Philippines supports increasing the ethanol blend in gasoline, which could lead to lower pump prices and substantial savings for consumers. Estimates suggest transitioning to E15 or E20 could save the country between Php 11.8 billion and Php 23.6 billion annually, while also promoting local ethanol production and supporting coastal communities reliant on nipa palm cultivation.

Additionally, MMSU fosters partnerships for the promotion of renewable energy particularly partnering with the Department of Energy and the Affiliated Renewable Energy Center. An annual meeting is held to share the best practices and accomplishments and learn from each other to advance renewable energy initiatives.

Key Activities and Accomplishments

- **NEP-IAC holds nuclear energy symposium in MMSU.** The Nuclear Energy Program Inter-Agency Committee (NEP-IAC), chaired by the Department of Energy (DOE), held a symposium on September 27 at Mariano Marcos State University, themed "Steering the Academe towards Careers in the Nuclear Industry". The symposium aimed to stir interest among faculty and students on nuclear engineering, motivate them to pursue related studies, and provide an update regarding recent initiatives, developments, and benefits of nuclear energy. Additionally, the said symposium focused on crafting a Human Resources Development Plan to ensure a pool of highly-skilled professionals for the safe, efficient, and reliable operation of nuclear power plants in the country.
- **Nanoparticle Solar Cell Demonstration at MMSU.** Regius Energy Corporation, a global multi-energy company based in the United Kingdom, introduced nanoparticle thin film solar cells to Mariano Marcos State University in a seminar held on June 7 at the Center for Flexible Learning. Prof. Albert Chan Tu, the company's Chief Executive Officer, led the discussion on the advantages of manufacturing these solar cells, which utilize quantum dot technology. This cutting-edge renewable resource offers transformative potential for energy production, emphasizing its advanced efficiency and sustainability as a key innovation in the renewable energy sector.
- **Industry Partnership.** The Advanced Energy and Green Building Technologies team of Mariano Marcos State University visited Ashikaga University (AU) in Japan on December 4-8 to learn about their renewable energy and green building technologies. Supported by the CHED-funded project, "Development of Degree Programs in Advanced Energy and Green Building Technologies in support of RA 11393," the group gained new understanding of green energy. They scouted energy resources, tested advanced laboratories, and reviewed green energy research at AU. Following their visit to Ashikaga, the team proceeded to Tokyo University to discuss potential partnerships and collaborations with experts in green building.
- **Capacity Building.** MMSU and the Department of Energy train LGU executives on renewable energy governance. The training project under the Development of Renewable Energy Applications Mainstreaming and Market Sustainability Project of MMSU and DOE aims to enhance the competence of LGU executives in implementing renewable energy initiatives in their respective communities. This project is funded by the Global Environment Facility and United Nations Development Programme.