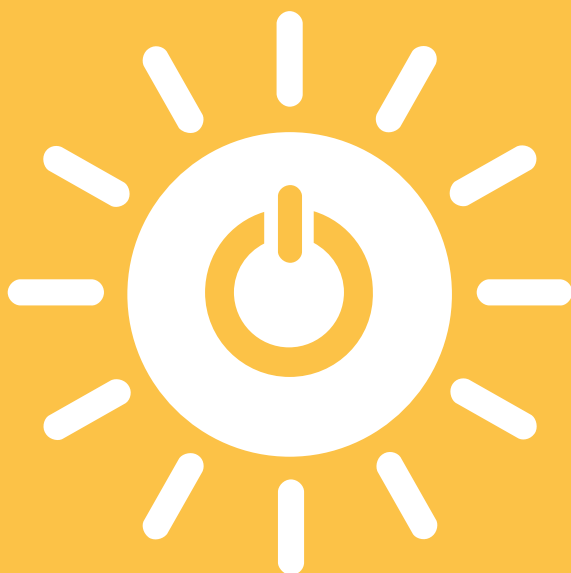


7 AFFORDABLE AND CLEAN ENERGY



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“After water and food, energy is one of the key enablers of human life. Energy is central to nearly every major challenge and opportunity the world faces today and access to energy for all is essential. But energy needs to be available and affordable to all to allow future development, and it needs to be clean in order to ensure that the development can be sustainable.”

(THE Impact Rankings)

40,863.62 GJ/
42,513.91 GJ

Total energy used

528,225 m²

University floor space



7 AFFORDABLE AND CLEAN ENERGY

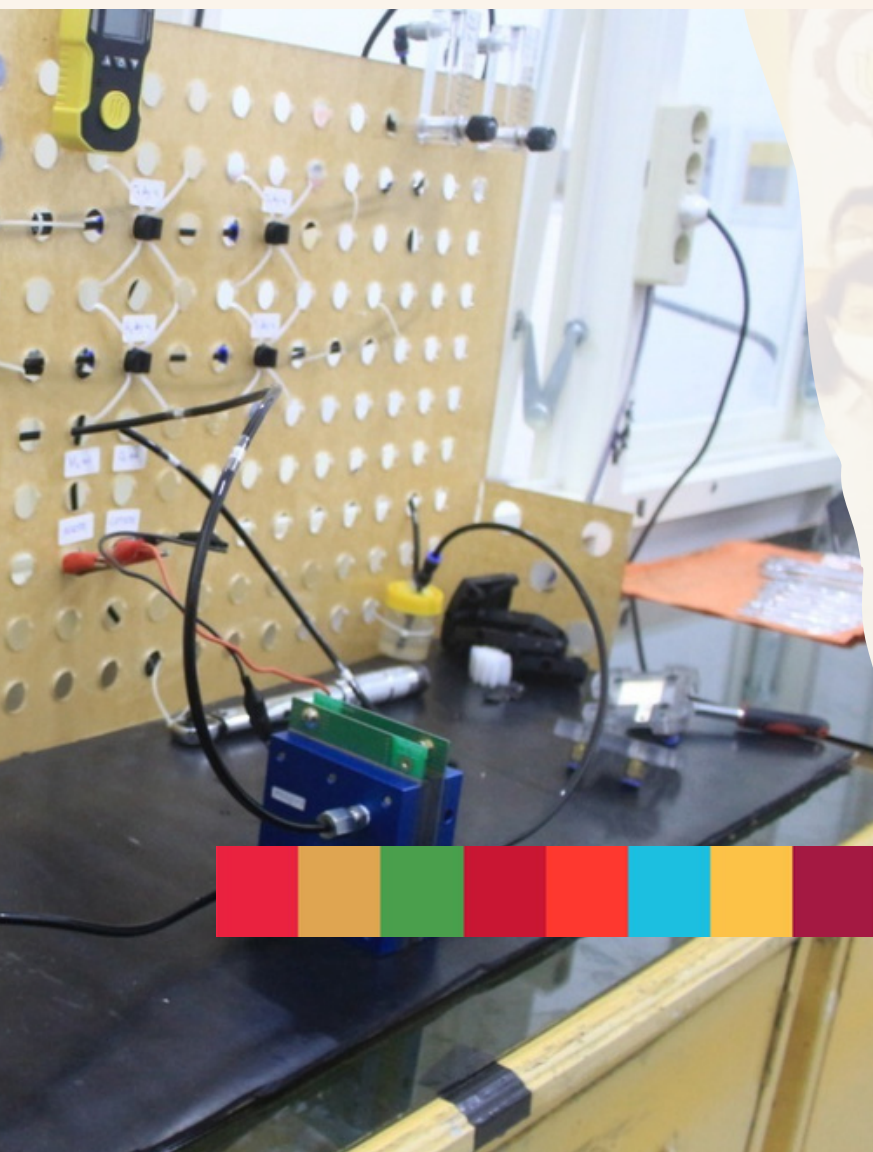


CARBON REDUCTION AND EMISSION REDUCTION PROGRESS ITS Student's Innovation for Synthetic Fuel

The use of petroleum and natural gas in the global energy mix still contributes the largest share at 54.2 percent. In order to replace these high carbon-emitting conventional fuels, three ITS students who are members of the Synchronize team have developed synthetic fuel using digital twin technology. With the help of digital twin technology, the optimal composition of the blend between conventional fuel and synthetic fuel for a particular vehicle engine can be determined. If synthetic fuel is applied to all vehicles, especially passenger vehicles, it has the potential to reduce carbon emissions by 4.6 metric tons per year.



ENERGY EFFICIENCY SERVICES FOR INDUSTRY ITS Together with BUMN to Develop Fuel Cell as Renewable Energy



The New Renewable Energy (NRE) serves as an alternative to replace the predominant use of fossil fuels in the present day. To this end, ITS is collaborating with PT INKA and PT Pertamina to develop Fuel Cell technology, which can be implemented in train cars throughout Indonesia. A Fuel Cell is an electrochemical device that generates electricity by utilizing hydrogen fuel and produces emissions in the form of water. As a result, this technology is considered to be more eco-friendly and has the potential to become a primary source of energy in the future. According to Agung, the research being conducted is expected to lead to downstream products in the future. Agung expresses the hope that ITS will continue to pursue the development of hydrogen technology, which has significant potential.