Jirabodin Chairit 2015: Carbon Footprint for Organization of Electricity Generation from Alternative Energies Compared with Fossil Fuel. Master of Engineering (Environmental Engineering), Major Field: Environmental Engineering, Department of Environmental Engineering. Thesis Advisor: Assistant Professor Cheema Soralump, Ph.D. 112 pages.

This research was focused on the carbon footprint assessment of electrical generation from four alternative energy; hydroelectric generator, wind turbine power system, biomass fuel(EFB) and Solar cell system. Then the results were compared with carbon footprint from the generation that use fossil fuel (natural gas). The study adopted the assessment of carbon footprint for organization, published by Thailand Greenhouse Gas Management Organization and the results were presented in the unit of carbondioxide (CO_2e) per kilowatt-hour.

It is found that, during the 2012 base year, the result shows that by generating electricity from hydro power, Solar cell system ,wind power and biomass fuel had a Carbon Footprint of 0.00015, 0.0056, 0.1163 and 0.1603 kg CO_2e /kWh, respectively or can be reduced up GHGs emission by 99.96%, 98.55%, 69.91% and 58.52% ,respecitively when compared with using natural gas as fuel. Thus, the outsourcing of the electricity is resulted in the highest releasing amount of the greenhouse gas among all of the alternative resources.

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