Template for Evidence(s)
UI GreenMetric Questionnaire

University : Kanchanaburi Rajabhat University
Country : Kanchanaburi
Web Address : https://green.kru.ac.th/ , https://www.kru.ac.th/

[2] Energy and Climate Change (EC)

[2.5] Renewable Energy Sources in Campus

<table>
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<tr><td>Example of Solar power (Building 9)</td><td>Example of Bio-mass (Course: Renewable and Alternative Energy Technology, Faculty of Industrial Technology)</td></tr>
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<tr><td>Example of Roof Solar Panels (Office of Academic Services and Graduate Studies building)</td><td>Example of Wind Power (Rooftop of the Faculty of Science and Technology)</td></tr>
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Description:
(*Please describe the renewable energy sources on your campus. The following is an example of the description. You can describe more related items if needed*.)

The evidence provided may also include maps showing the location, area size, or distribution of facilities relevant to the indicators. If you have other sources of renewable energy, you may include and explain them in the evidence.

1. A grid-connected solar photovoltaic power generation project consisting of three 20-kilowatt systems, installed on the rooftop area between Building 9 and Building 7 of Kanchanaburi Rajabhat University.
2. Teaching and learning activities have been conducted for the course Renewable and Alternative Energy Technology. The course includes the development of a smokeless furnace for producing charcoal from waste wood to be used as thermal energy fuel. The process utilizes a biomass gasifier and biomass vacuum boiler system in a closed system to prevent smoke emissions, thereby helping reduce environmental pollution. (This activity is part of the course and is currently in the data collection and experimental phase.)
3. Examples of solar energy utilization through solar rooftop systems include the Academic Services and Graduate Studies Building, the Office of Academic Resources Building, Building 1, and the Faculty of Humanities and Social Sciences Building, among others. These buildings utilize solar energy as an alternative source of renewable energy.
4. A wind turbine for electricity generation has been installed on the rooftop of the Faculty of Science and Technology building. It is currently under renovation and future development planning.

Appendix 2.5

2.5 Renewable Energy Sources: Rooftop Solar Cell Installations at Kanchanaburi Rajabhat University



Figure 1. Solar Panels on Building 9



Figure 2. Solar Power Generation System

Three grid-connected solar photovoltaic power generation systems with a capacity of 20 kilowatts each have been installed at Building 9, Building 7, and the Academic Services and Graduate Studies Building. In addition, a 10-kilowatt system has been installed at Building 1. The system data were surveyed and recorded on September 2, 2024, at 11:30 a.m., as shown in Table 1.

Table 1. Electrical Energy Data

Description	Building 1: 10 kWp system installed in October 2014	Academic Services and Graduate Studies Building: 20 kWp system installed in October 2016.	Building 7: 20 kWp system installed in October 2016.	Building 9: 20 kWp system installed in October 2016.
Power (W)	**4270**	**0**	**1359**	**4804**
Day (kWh)	**7.517**	**0**	**6.455**	**2.419**
Total (MWh)	**118.89**	**157.15**	**142.61**	**168.26**
Total (4 Set)				**586.91 (MWh)**

Based on the electrical energy data shown in the table:

1. At approximately 11:30 a.m., the electricity generated was as follows: Building 9 generated 4,804 W, Building 7 generated 1,359 W, the Academic Services and Graduate Studies Building generated 0 W, and Building 1 generated 4,270 W.

2. The electrical energy generated during the period from morning until 11:30 a.m. was as follows: Building 9 generated 2.429 kWh, Building 7 generated 6.455 kWh, the Academic Services and Graduate Studies Building generated 0 W, and Building 1 generated 7.517 kWh. The total electrical energy generated from all four projects combined was 16.391 kWh per half day. Based on the electricity rate calculation, the monetary value is 16.391 × 4.1939 = 68.74 THB per half day.

3. The electrical energy generated from the date of installation up to the present by Building 9, Building 7, the Academic Services and Graduate Studies Building, and Building 1 is shown in Table 2.

Table 2. Electrical Energy Generated from Installation to the Present

Description	Building 1: Installed in October 2014 (10 years)		Academic Services and Graduate Studies Building: Installed in October 2016 (7 years).		Building 7: Installed in October 2016 (7 years).		Building 9: Installed in October 2014 (7 years)	
	Unit (MWh)	Value (Baht)	Unit (MWh)	Value (Baht)	Unit (MWh)	Value (Baht)	Unit (MWh)	Value (Baht)
Energy Value	118.89	498,612.77	157.15	658,861.69	142.61	598,092.079	168.26	705,665.61
Average per year		49,861.27		94,123.09		85,441.72		100,809.37
Average per month		4,155.10		7,843.59		7,120.14		8,400.78
Total	Energy Value 586,910 kWh				Equivalent to monetary value of 2,461,232.14 บาท			

Electrical energy generated from the date of installation up to the present

- Building 1 generated 118.89 MWh of electrical energy, equivalent to a monetary value of THB 498,612.77. The average value is THB 49,861.27 per year and THB 4,155.10 per month.

- The Academic Services and Graduate Studies Building generated 157.15 MWh of electrical energy, equivalent to a monetary value of THB 658,861.69. The average value is THB 94,123.09 per year and THB 7,843.59 per month.
- Building 7 generated 142.61 MWh of electrical energy, equivalent to a monetary value of THB 598,092.08. The average value is THB 85,441.72 per year and THB 7,120.14 per month.
- Building 9 generated 168.26 MWh of electrical energy, equivalent to a monetary value of THB 705,665.61. The average value is THB 100,809.37 per year and THB 8,400.78 per month.
- The total electrical energy generated from all four projects combined was 586,910 kWh, equivalent to a monetary value of THB 2,461,441.84.

Sources Reference: Mr. ณัฐศักดิ์ อินทรสุวรรณ์ Electrical Engineer (Professional Level)

Additional evidence link (i.e., for videos, more images, or other files that are not included in this file):