

NCKU's Commitment to Carbon Neutrality

The National Cheng Kung University (NCKU) acknowledges combating Climate Change has become a collective responsibility for everyone and will promote the importance of combating Climate Change and achieving carbon neutrality through education and multiple channels. It provides state-of-the-art knowledge at an academic level and plays an important role in contributing and enhancing knowledge about Climate Change on local, national, and international levels.

NCKU has committed to the following: 1. By 2024: Reduce greenhouse gas (GHG) emissions to year 2010 levels. 2. By 2029: Reduce emissions to year 2000 levels. 3. By 2041: Achieve carbon neutrality with the interim goal of reducing NCKU's carbon footprint by half by 2031, NCKU's centennial.

NCKU has adopted policies to aggressively reduce greenhouse gases generated as a result of its activities. The NCKU Sustainable Practices Policy reflects and supports Taiwan environmental policy and law with regard to carbon reduction. NCKU has also committed to the ultimate goal of carbon neutrality, a commitment the University formally embraced along with colleges and universities worldwide, when it makes the United Nations SDGs its focus in all its research, teaching, and community outreach and adhere to the THE Impact Ranking criteria.

Climate neutrality means that NCKU will have zero net impact on the earth's climate. This is achieved by minimizing GHG emissions as much as possible and procuring carbon attributes as necessary to mitigate the remaining emissions.

The Climate Solutions Committee was appointed to advise the President of NCKU on large-scale, systemwide strategies needed to fulfill these commitments. The committee was tasked with exploring planning and decision tools, financial and business models, emerging technologies, and large-scale renewable energy projects that have the potential to move the University's carbon reduction commitments from concept to implementation.

NCKU's Climate Goals

The Climate Solutions Committee has focused on the ultimate goal of climate neutrality in developing our recommendations. The rationale for this focus is threefold: It can and must be done. First and foremost is the conviction that climate neutrality can and must be achieved, although the technologies required to do so on the scale required are yet to be fully developed. Achieving the 2031 goal will facilitate climate neutrality soon thereafter.

Second, to achieve the 2031 goal, NCKU needs to develop a climate neutral energy supply on a massive scale.

Third, we recognize the serious reputational consequences of not achieving the goals set forth in NCKU's climate commitments, including the ultimate goal of climate and carbon neutrality.

Emission Sources

Emissions are categorized as Scope 1 (direct), Scope 2 (indirect), or Scope 3 (other) based on their source. Each source carries with it specific issues and opportunities. Scope 1 emissions are direct GHG emissions from sources controlled by campuses, primarily from combustion of natural gas in co-generation plants. NCKU does not have its own energy infrastructure but will be investing millions of dollars in a new energy infrastructure to generate renewable energy. Its operation will be essential to the University for the foreseeable future, and it is, in fact, a key to one of the recommended climate strategies.

Amongst the menu of possible technologies for generating renewable energy, solar, wind, and possibly co-generation (combined heat and power) plants are the most practical. Co-generation plants are considered “green” because of the efficiency with which they convert natural gas into electricity and heat and are also carbon-efficient, emitting few units of CO₂ per unit of energy produced. Yet they still will account for a certain percent of NCKU’s fixed carbon footprint because they burn natural gas, unless biomethane can substitute for natural gas.

Scope 2 emissions are indirect GHG emissions generated during production of electricity and steam that NCKU purchases. They account for a massive percent of NCKU’s emissions. Unless they are renewable, NCKU’s Scope 2 emission will be substantial. Taiwan’s government mandate requires utilities to provide 20% of their energy from renewable sources by 2025, which hopefully will reduce NCKU’s Scope 2 emissions. The extent to which Taiwan’s energy grid becomes renewable will determine NCKU’s Scope 2 emissions level.

Scope 3 emissions are other indirect emissions from sources not controlled by the University, primarily commuting and air travel emissions. The University’s Scope 3 emissions constitute a certain percent of the remaining carbon footprint and will also need to be negated to meet NCKU’s commitment to climate neutrality. Encouraging faculty and staff to reduce business travel and students to use bicycles and public transportation will reduce Scope 3 emissions.

Adaptation

Taiwan is located in a monsoon climate zone and stands in the path of typhoons, floods, and landslides. As the pattern of rainfall has become extreme, disasters have become more frequent and more damaging. Adaptation has become an important issue.

Cross-disciplinary experts at NCKU incorporate SDG13 into their curricula and lead research intending to mitigate the impact of Climate Change. NCKU also collaborate with domestic and foreign industries, government agencies, and research institutes. NCKU and its partners connect with the government and the public through developing smart disaster prevention technology, holding academic seminars, handling local government and community education and training, and issuing research publications.

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