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Green House Gas Emissions of Parkland College

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Green House Gas Report

Parkland College

Spring Semester 2010

As a signatory of the American College and University Presidents' Climate Commitment (ACUPCC), Parkland College has committed to measuring its green house gas (GHG) emissions and to implement sustainability in the curriculum. The short-term goal of being an ACUPCC signatory is to identify the levels of green house gases the college emits on a yearly basis and to take actions to reduce those emissions. The long-term goal is to make the college campus carbon neutral. The beginning steps to this process are to measure the carbon footprint and use it as a base line for evaluating methods of institutional expansion and energy consumption methods. With that goal in mind, a subcommittee of the Parkland Sustainable Campus Committee (SCC) began collecting data in January of 2010 to measure the carbon footprint of the college and to measure energy consumption.

The data was collected by making contact with various departments in the college. Departments involved include Physical Plant, Business Office, Institutional Accountability and Research, Business and Agri-Business, and the Print Shop. After data was collected from its respective department it was entered into the "Clean Air – Cool Planet (CACP) Campus Carbon Calculator" Version 6. The calculator uses a format developed for use in higher education. The CACP calculator is an Excel based spreadsheet that generates reports and can use extrapolation to show trends of GHG emissions, energy consumption, student and physical building growth based

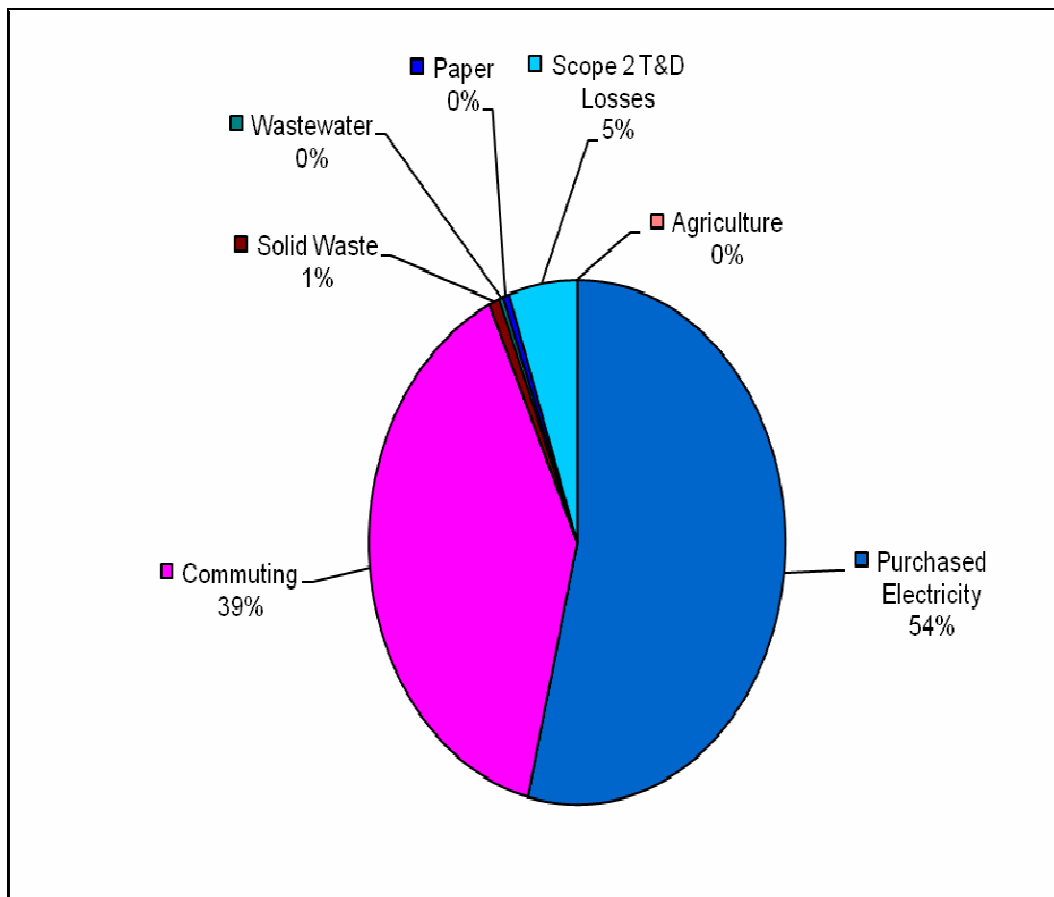
on the amount of background data entered. The basic segments of the calculator inputs are Institutional data, and emissions sources broken down by three scopes (referred to as Scope 1, 2, and 3). Institutional data refers to operating budget size, energy budget, student, faculty and staff size, and physical building size in square feet. The first scope is Scope 1. It deals directly with emissions produced by institution owned processes, such as agriculture and cogeneration for heating and onsite energy producing sources. Additionally, college vehicle fleet fuel usage and chemical use is tracked in scope one. Scope 2 considers emissions that are produced offsite, including chilled water, steam and electricity. The final set of inputs, Scope 3 references commuting information and college financed travel. It also includes paper consumption and both liquid and solid waste. Finally, there is a segment in Scope 3 that allows input of any offsets, like composting, forest preservation and purchased offsets.

The resulting data from the CACP calculator is broken down by both scope and category. The resulting output from each section is broken down by the type of GHG emitted. The gases emitted are Carbon dioxide (CO₂), Methane (CH₄), and Nitrous Oxide (N₂O). The three gases are given by the weight of their production in kilograms (kg). CO₂ is further tallied into metric tonne equivalents (MT eCO₂) for each scope. It is important to also note that energy production is further broken down into Million British Thermal Units (MMBTU). This breakdown is important in reviewing environmental control efficiency for building spaces. The CACP calculator can also show amounts of energy consumed and GHG emitted by various factors including student count, per dollar of operating cost, and various other options to give the user various empirical information of how all factors in the calculator relate to each other.

For the scope of this audit the boundaries of the college refer to the main campus on Bradley Ave., and the CEA building on Mattis Ave. both

located in Champaign. It is important to note that data availability has limited this iteration from being as complete as it could be. Also, limited time, and therefore limited response for a transportation survey has limited the statistical significance of the commuter transportation data. The delineation of emissions in Metric tonnes by scope is; Scope 1 at 2.6 MT eCO₂, Scope 2 with 12,769.3 MT eCO₂ and Scope 3 with 10,961.4 MT eCO₂.

The following chart represents the CO₂ breakdown by percentage. Some sections are listed as 0% because they do not create CO₂, or have been left in place to show lack of data available. These three amounts combine for a net amount of 23,733.3 Metric tons produced.



In our current data model, purchased electricity makes up the whole of Scope 2 for Parkland College, and it is the largest segment of GHG emissions. It is obvious here that finding ways for the college to save on electricity consumption is of great importance. Implementation of various Energy Reduction Measures (ERM's) could be employed to save on energy and reduce the carbon footprint. In terms of actual energy consumption numbers, Scope 1 output was zero, Scope 2 was 138,896.5 MMBTU. Scope 3 was calculated to 129,519.2 MMBTU, with a net total of 282,152.7 MMBTU.

Proper planning is imperative in this area because Parkland is only going to grow in size, considering the lack of adequate space currently available per student. Renovations to the main campus and new construction would benefit greatly from high efficiency building practices and researching viable alternative electrical generation methods.

At an institution such as Parkland College, commuting invariably makes up the majority of the emissions. The transportation survey is still underway as of the writing of this narrative, but the CACP calculations will be submitted in current form to meet the deadline. There is a disparity in the current model's commuting percentage of emissions. That being said, the vast majority of respondents to the transportation survey drive to campus alone. There are viable alternatives available to the public, although some infrastructure work (bike lanes, etc.) and other programs (carpool service) need to be employed for single passenger dependence to drop.

As stated previously, this is the first iteration of a continuing program that will improve upon itself. The CACP calculator is capable of analysis of project costing and carbon footprint assessment for proposed programs that can help Parkland College not only save money and reduce its GHG emissions, but become more sustainable.