

**CARBON FOOTPRINT OF ORGANIZATION: CASE STUDIES OF THE
PETROLEUM AND PETROCHEMICAL COLLEGE AND OFFICE OF THE
PRESIDENT, CHULALONGKORN UNIVERSITY**

Jukkapun Kaewprom

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Dr. Ampira Charoensaeng

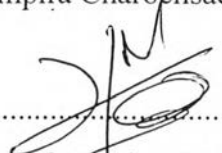
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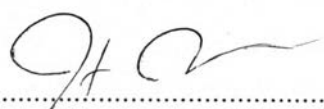

..... College Dean
(Asst. Prof. Pomthong Malakul)

Thesis Committee:


.....
(Asst. Prof. Pomthong Malakul)


.....
(Dr. Ampira Charoensaeng)


.....
(Asst. Prof. Manit Nithitanakul)


.....
(Assoc. Prof. Thumrongrut Mungcharoen)

ABSTRACT

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Keywords: Greenhouse gas/ Carbon footprint of organizations/ Carbon dioxide equivalent

Carbon footprint is the cumulative amount of direct and indirect greenhouse gases (GHG) emissions associated with products, organizations or human activities. It is expressed in equivalent mass of carbon dioxide (CO₂e). Although, there are many of commercial products evaluated for carbon footprints, very few organizations in Thailand report their carbon footprints. Thus, this work aims to assess the GHG emissions and investigate the options of the academic organization's carbon footprint using the case studies of the Petroleum and Petrochemical College (PPC) and Office of the President, Chulalongkorn University. All GHG emissions from various activities occurred in the organization will be gathered and evaluated in the units of carbon dioxide equivalent (CO₂e), based on ISO 14064, 14069 and Thailand Greenhouse Gases Organization (TGO) guidelines. The results showed that the major source of GHG emissions in carbon footprint of both departments was the use of energy (electricity), followed by mode of daily commuting of staff and students. Consequently, the electricity consumption and mode of transportation (daily commuting) were prioritized as measures to reduce carbon footprint of organizations in the University. In addition, the current energy-saving technologies and proper campaigns are an option to decrease the power consumption, including 3R strategies (reduce, reuse and recycle), and public transportation campaign. The results obtained from this work would provide guidelines for policy maker and management to support University to create a sustainable campus.

บทคัดย่อ

จักรพันธ์ แก้วพรม: การประเมินรอยเท้าคาร์บอนสำหรับองค์กร กรณีศึกษา วิทยาลัยปิโตรเลียมและปิโตรเคมี และ สำนักงานอธิการบดี, จุฬาลงกรณ์มหาวิทยาลัย (Carbon Footprint of Organization: Case Studies of the Petroleum and Petrochemical College and Office of the President, Chulalongkorn University) อ. ที่ปรึกษา: ผศ.ดร. ปมทอง มาลากุล ณ อยุธยา และ ดร. อัมพิกา เจริญแสง 145 หน้า

รอยเท้าคาร์บอน คือ ปริมาณการปลดปล่อยคาร์บอนทั้งในทางตรงและทางอ้อมซึ่งเกิดควบคู่กับผลิตภัณฑ์ องค์กร และกิจกรรมต่างๆ ในชีวิตประจำวันของมนุษย์ โดยรอยคาร์บอนจะรายงานในหน่วยของคาร์บอนไดออกไซด์เทียบเท่า (CO_2e) ในประเทศไทยนั้น ถึงแม้ว่าจะมีการรายงานผลการประเมินรอยเท้าคาร์บอนในหลายผลิตภัณฑ์ แต่ในด้านขององค์กรยังถือว่ามีน้อยมาก ดังนั้น งานวิจัยนี้จึงมุ่งศึกษาถึงการประเมินปริมาณการปลดปล่อยก๊าซเรือนกระจกและรอยเท้าคาร์บอนสำหรับหน่วยงานด้านการศึกษาโดยใช้กรณีศึกษาคือ วิทยาลัยปิโตรเลียมและปิโตรเคมี และสำนักงานอธิการบดี จุฬาลงกรณ์มหาวิทยาลัย โดยปริมาณการปลดปล่อยก๊าซเรือนกระจกทั้งหมดที่เกิดจากกิจกรรมต่างๆ ในองค์กรจะถูกเก็บรวบรวมและประเมินในหน่วยของคาร์บอนไดออกไซด์เทียบเท่า CO_2e ตามหลักของ ISO 14064 ISO 14069 และองค์การบริหารจัดการก๊าซเรือนกระจกของประเทศไทย ผลการศึกษาพบว่า การปลดปล่อยก๊าซเรือนกระจกมากที่สุดในการรอยเท้าคาร์บอนของทั้งสองหน่วยงานมาจากการใช้พลังงานในองค์กร (ไฟฟ้า) และอันดับสองคือ การเดินทางประจำวันในการมาทำงานและเรียนของพนักงานและนิสิต ด้วยเหตุนี้ จึงทำให้การใช้ไฟฟ้าในองค์กรและการใช้เชื้อเพลิงจากการเดินทางถูกพิจารณาเป็นอันดับต้นๆ ที่จะต้องได้รับการวางมาตรการลดปริมาณการปลดปล่อยก๊าซเรือนกระจกในมหาวิทยาลัย ซึ่งนอกจากจะใช้เทคโนโลยีในการลดและประหยัดการใช้พลังงานแล้ว ควรมีการรณรงค์ในด้านต่างๆ เพื่อลดการใช้พลังงาน การทำ 3R (การลด การใช้ซ้ำ และการรีไซเคิล) และการรณรงค์ให้ใช้ระบบขนส่งสาธารณะให้มากยิ่งขึ้น ผลจากการวิจัยนี้สามารถช่วยในการวางนโยบายและแนวทางการบริหารจัดการในมหาวิทยาลัยก้าวไปสู่มหาวิทยาลัยเพื่อความยั่งยืนต่อไป

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