

Abstract

Global warming issues has become critical topic throughout in the last decade due to the dramatically increasing of CO₂ and its equivalent caused many usually phenomenon as a S.O.S. signal from nature, it is not in the situation that “Take action, or just let it be?” but people from all around the world must be cooperate together to reduce the increasing of CO₂ and its equivalent for sustain their own life and their descendant. In almost industrial sector and large building sector they use cooling tower as a main component for refrigeration system. Even though it's had a few developments in the last decade but its components and energy used have a lot of impact on the environment due to non-environmental friendly materials and low power efficiency equipments. To achieve this, a Life Cycle Assessment (LCA) method was used to identify and quantify the Global warming impact of cooling tower. Eco-design or Design for Environment (DfE) is the systematic design method which incorporates environmental issue into the product design and development for improvement of product environmental characteristics at many stages of product life cycle. The result of cooling tower's life cycle assessment model HR-S-400RT cause 378,277.09 kg CO_{2,eq}, from the point of view of global warming the change standard motor to high efficiency motor could be reduced global warming impact 18,979.65 kg CO_{2,eq} compared to prototype. The change filler's material together with ozone use to scale prevention could be reduced global warming impact up to 9,885.61 kg CO_{2,eq} compared to prototype. And the change fan's material could be reduced up to 118,160.78 kg CO_{2,eq} compared to prototype.