스팀전력플랜트의 입력-출력모델과 공정체인분석 기반 전과정평가 비교

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The economic input-output approach is a simple life cycle assessment tool in which the energy, water and GHG emissions are estimated in each sector according to its economic activity. On the other hand, process chai analysis performs life cycle assessment based on detailed inventories of the corresponding processes. A combined steam power plant and a heat pump is evaluated using both the assessment approaches. The producer datasets 2002 is used as the input-output model database and the economic activities are updated to 2013 using a linear Marshal and Swift equation while Ecoinvent version 2 is employed as the process chain inventory of the materials and processes. The results showed that the economic input-output approach overestimated the required energy and water by 59.72% and 32.62%, respectively. Acknowledgements: This work was supported by the National Research Foundation of Korea (NRF) grant funded by the Korea government (MSIT). (No.NRF-2017R1E1A1A03070713).