

Abstract: Renewable Energy and End-of-Life Management in Response to Climate Change

The global climate crisis and the adoption of zero-carbon policies have hastened the shift toward renewable energy and low-carbon applications. Several government policies are initiated in various areas, such as carbon neutrality, electric vehicles (EVs), and end-of-life management to extend products' lives and minimize CO₂ emissions and global warming impacts. Understanding carbon neutrality methods in different industries, not only in engineering but also management perspectives, is crucial for effective implementation plans. EVs may be considered for minimizing environmental impacts; nevertheless, it may increase electricity demand and incur long-term impacts from retired batteries. Accurate prediction of electricity, energy, and renewable energy demand assists in achieving accurate long-term plans. Effective end-of-life management of retired EV batteries is crucial to minimizing global impacts. Several methods may be implemented like remanufacturing, repurposing, and recycling. To plan for energy demand and end-of-life management, methods like life cycle assessment and system dynamics (SD) modeling may be used to examine cause-and-effect and complex relationships between key factors influencing electricity demand, long-term trend of EVs, and end-of-life battery management to achieve sustainable implementation covering economic, environment, and social perspectives.



Dr. Thanwadee Chinda is an Associate Professor at the School of Management Technology, Sirindhorn International Institute of Technology, Thammasat University, Thailand. She received her Ph.D. in Engineering Management from Griffith University, Australia. Her research areas are construction management, environmental management, and supply chain management. Her research interests are in, for example, waste management, end-of-life management, renewable energy, trend prediction, and performance evaluation utilizing several analysis techniques, such as system dynamics modeling, structural equation modeling, analytic hierarchy process, and best-worst method. Her publications have appeared, among others, in, for example, Journal of the Air and Waste Management Association, Environmental Engineering Research, Civil Engineering and Environmental

Systems, Sustainability, International Journal of Construction Management, Journal of Construction Engineering and Management, Journal of Industrial Integration and Management, and Engineering Construction and Architectural Management.