

A Feasibility Study of Ammonia Production based Power to Gas Process

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In this study, power to gas process using ammonia production has been evaluated with economic analysis. Water electrolysis using surplus electricity is selected making a hydrogen for ammonia synthesis. Nitrogen in air is separated by cryogenic distillation. Then fixed-bed reactor is used for ammonia synthesis. The whole process is simulated by ASPEN plus and some reactors is simulated by Aspen Custom Modeler(ACM). In a model, fluctuation of surplus electricity is considered and cost of electricity is neglected. Finally the cost of ammonia product is calculated with by-products.