

3rd World Congress and Expo on

GREEN ENERGY

September 28-29, 2017 Berlin, Germany

A new and novel concept of carbon recycling energy: Are second generation biofuels the most efficient form of the carbon recycling energy?

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The world energy demand should be met by energy which is cost effective, ecofriendly, biodegradable and renewable. Among the different alternative biofuels available, second generation biofuels, which are produced from non-edible oils/animal fats, has the better potential as an alternative to petroleum based transport fuel because it does not compete with food vs. fuel crisis and its feedstocks can be grown in marginal lands. The presentation will initially summarise the world energy scenario and energy scenario in Australia. Then, a recent development in wide array of different feedstocks for 2G biofuels ranging from lignocellulosic feedstocks to municipal solid waste and animal fats will be presented. Furthermore, a new and novel concept of carbon recycling energy will be proposed by decomposing renewable energy into clear energy and carbon recycling energy based on carbon emission and absorption. Biofuel, the most efficient form of the carbon recycling energy will be described in detailed. Finally, the biofuel supply chain, developed for Australia, will be presented. The study identified that the 2G biofuel is the most potential source of energy that can be sustainably developed in future. Although some research has been conducted on it, further study is needed on the process development of 2G biofuel production in commercial scale in Australia which will also be presented.

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