Weizmann Institute solar technology to convert greenhouse gas into fuel

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An Israeli-Australian venture will use solar technology developed at the Weizmann Institute of Science to reduce carbon dioxide emissions from the burning of brown coal. The venture has been recently launched in Israel by NewCO2Fuels Ltd., a subsidiary of the Australian company Greenearth Energy Ltd., which has acquired an exclusive worldwide license for the solar technology from Yeda, the Weizmann Institute's technology transfer arm.

The Weizmann technology makes use of concentrated solar energy to dissociate carbon dioxide (CO_2) to carbon monoxide (CO) and oxygen (O_2). This method, developed at the Weizmann Institute by Prof. Jacob Karni, also makes it possible to dissociate water (H_2O) to hydrogen (H_2) and oxygen (O_2) at the same time it dismantles the CO_2.

Carbon monoxide (CO), or its mixture with hydrogen called Syngas, can then be used as gaseous fuel, for example, in power plants, or converted to liquid fuel such as methanol, which can be stored, transported or used to power motor vehicles.

The method has proved successful in laboratory trials. NewCO2Fuels Ltd. is now building a solar reactor for the conversion of CO_2 on an industrial scale. Part of the development is being performed in collaboration with the Canadian Institute for the Energies and Applied Research at the Weizmann Institute of Science.

Greenearth Energy expects the new Israeli-Australian venture to help harness the vast brown coal resources in the State of Victoria in south-eastern Australia, whose use has been limited until now by the high CO_2 emission content from this type of coal. The possibility of converting CO_2 to fuel in a clean and efficient manner will turn brown coal into a source of environmentally friendly fuel.

Provided by Weizmann Institute of Science