

Geosciences Can Play Key Roles to Realize Carbon Neutral

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The carbon neutral has become trending topic worldwide, since human has perceived the unbearable climate change in recent years. Since 1850 when NOAA started recording earth's land and ocean surface temperature, last year 2023 is hottest year. Global warming keeps growing as scientists have already warned about. According to IPCC special report “Global Warming of 1.5°C”, if man-made emission of Green House Gas (GHG) can be significantly lowered to be the amount equal to the removal by 2050, the Earth environment may suffer less damage in all fronts. This means the net input of GHG into atmosphere would become zero, which is widely known as Net-Zero or Carbon Neutral. Before we find method to solve the problem, we better first look into why global warming begins. After abundant researches and debates in the past two to three decades, it has been well accepted the fact that human economic development is the key reason. It is because driving the economic growth the energy using, in particular the fossil fuel, is the predominant emission source of GHG. Therefore, to find new energy source with no more GHG emission becomes the first priority job that we need to urgently implement if the global net zero would be realized by 2050.

Besides the fossil fuel, our mother Earth actually possesses many other energy sources. How to efficiently convert those into the suitable energy form to support our industries and common life is surely the work that geoscientists can play a major role. For example, the well-developed green energies, solar and wind, need better weather prediction to efficiently harvest and appropriately manage in the grid. The geothermal is hidden underground. However, geological knowledge can effectively help to identify the thermal source in depth. Moreover, other kinetic energies incorporated with water masses are also of essential to be utilized. Hydrological knowledge can be the base to achieve the hydropower. Marine physics can be counted to identify the intensity of marine currents and tidal currents. Beyond the physics of the energy sources, fundamental geology is always necessary if we would like to firmly build any construction for energy equipment. We believe the carbon neutral is transdisciplinary work, in which geoscientists ought to participate and contribute for this global mission.

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