DISCUSSION-OPINION-EDITORIAL

Jayanta Bhattacharya
Hony. Chief Editor

Why mining engineering education should create a place for its students in the schemes of renewable energy generation

Slowly, but steadily, the participation of renewable energy (RE) in the overall economy is growing. Though not without challenges, renewable energy is getting the backing of the governments for different reasons, only one of them being clean energy. Today, wind, solar, biodiesel, geothermal energy, hydropower, and hydrogen and fuel cell energy are considered renewable energy sources.

So, why and what mining engineering education should cater to. Obviously, the growth of renewable energy industry will reduce the scopes of employment of mineral, oil and gas engineers; their jobs will be compensated by the engineers in the renewable energy industry. New education can prepare the engineers to enter into the field.

What are the resource sides of RE? As a starting thought, the resources are wind, solar radiation and sea waves. In the wind based systems direction and flow of winds at different times of the day and night, at the extreme events are the resources and their supply-side variabilities. Similarly for solar energy solar radiation and intensity throughout the day, cloudy day events and seasonal changes is the resource. Agricultural sources of ethanol are considered resources for biodiesel. These resource aspects of RE should be part of the curricula of mining, geology, and oil and gas curriculum.

Renewable energy and storage technologies typically have high and diverse metal requirements. All of them cannot be discussed here. However, a diagrammatic representation of the metal requirements for solar and wind installations is given. Aspects of such resources and their processing can be subjects for the mining engineers.
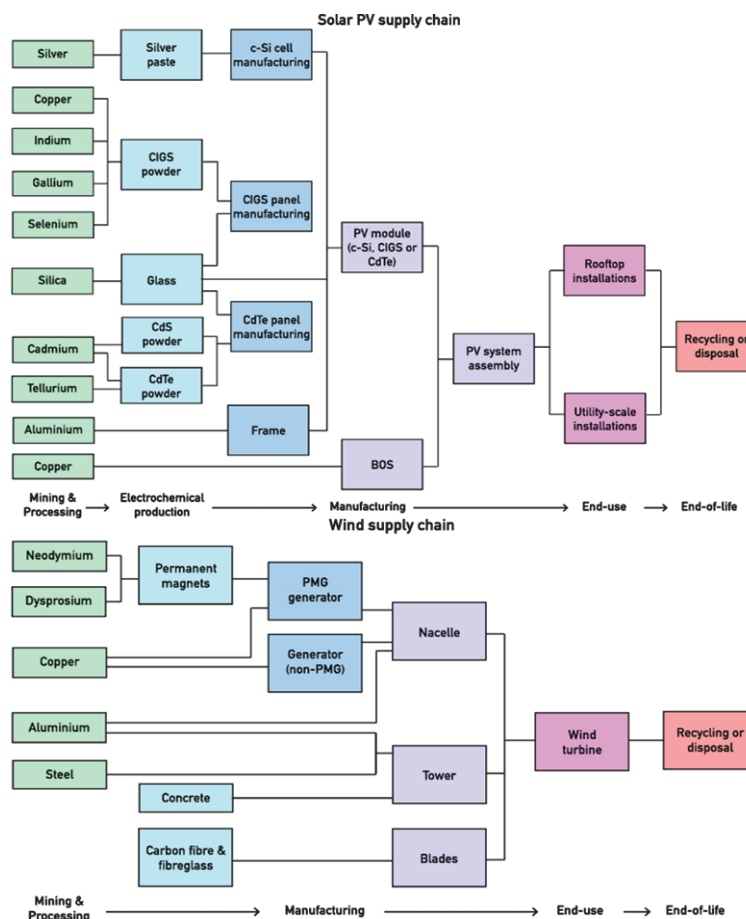
Reference: Damien Giurco. et al (2019), Requirements for Minerals and Metals for 100% Renewable Scenarios, Springer. (https://link.springer.com/chapter/10.1007/978-3-030-05843-2_11)