

SUSTAINABILITY CHALLENGES IN RENEWABLE ENERGY: BETWEEN A ROCK AND A HARD PLACE

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Abstract

Shift to low carbon energy sources is becoming increasingly important in a carbon constrained world. Coal and fossil fuels, in spite of their natural abundance, are considered as the major source of anthropogenic carbon dioxide emissions. Therefore, it is not surprising that the attention has shifted to renewable sources of energy. However, any wholesale shift of energy consumption by humankind is a painfully slow process. It took over a century for petroleum to replace coal and electricity to replace steam as sources of energy. Yet, once the shift occurs, it is locked in for a long time since capital intensive infrastructure is created around a particular source of energy, which cannot be replaced or discarded in a short time frame. Consequently, any shift in energy infrastructure from oil and coal must be assessed carefully from the point of sustainability so that if and when an eventual shift occurs we are not caught in a state of new dilemma arising out of unintended consequences.

In this talk I will address the question whether renewable energy resources, by definition, is sustainable or not. I conclude that the answers are ambiguous, in spite of the euphoria surrounding renewable energy. Unless we carefully assess the issue of sustainability of every form of renewable energy and take future decisions based on informed evidence, a shift from fossil fuels to alternative energy sources may prove to be even more costly and painful to the future generations.