

# Wojciech Budzianowski Consulting Services

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## Editorial

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The Journal of Renewable Energy Sources - Technology, Business and Policy has been created to promote and disseminate knowledge on the various topics related to renewable energy systems. The journal is a platform integrating three essential elements required to efficiently harvest and use renewable energy sources: (1) research, (2) business and (3) policy.

The characteristic feature of renewable energy sources (RESs) which contrasts with fossil fuels is that RESs are renewably available in nature for free. In addition, RESs cannot be easily economically controlled, because they are highly distributed. Besides, RESs require capital intensive dedicated technologies. These facts immensely affect the technology and socio-economics of RESs being different compared to those of conventional energies. Renewable energy (RE) research, business and policy are therefore very specific and this new journal aims at presenting them from different angles.

Renewable energy science and technology undergoes rapid development globally. Novel materials, processes, systems, etc. are proposed and need to be highlighted by journals.

Renewable energy economics is thought to be more inclusive, compared to fossil fuel economics. Given that RESs are evenly distributed across developed and developing regions, they are essential for

achieving sustainable and peaceful economic development in the world. In addition, renewables can mitigate atmospheric greenhouse effect and global warming and be a catalyst for economic growth, thereby achieving integrated energy, economic and environmental sustainability.

Since RESs are evenly distributed and accessible in large areas they strongly interact with societies. Therefore, not only technology is essential for the harvesting and using renewable energies, but also social aspects are extremely relevant. Consequently, interdisciplinary character of this journal will help to highlight how to optimally use solar, wind, biomass and hydro energies within technical and equally important social contexts.

Although RESs are available for free from nature, the required harvesting technologies are usually relatively expensive. The number of Joules that can be harvested from one unit of land per one unit of time is usually very small for most RESs. Besides, the harvesting process requires expensive infrastructures which are capital intensive. This capital intensity of renewable energy harvesting is also exceptional and different compared to that characterising conventional energy economics.

Consequently, business development in the area of RESs requires new knowledge and modern approaches. Moreover, to

accelerate the process of harvesting and using RESs it is essential to create and implement suitable policies. Hence, there is a lot of new work which have to be carried out at the intersection of fundamental and applied research, business and policy. This all justifies the need for creating this new interdisciplinary journal addressing all these topics.

Overall, the efficient harvesting and using of RESs primarily requires (1) effective technology, (2) adapted society, (3) friendly business environment and (4) enabling policy. Technologies need to be capable of achieving significant net energy input, considering the entire life cycle, since some technically underperforming RE systems may have a tendency to be life cycle energy sinks. Society must be adapted to support harvesting and highly effective use of RESs. Since RESs have naturally fluctuating character and storage systems significantly add to the overall costs, well-prepared people may harvest and use RE more efficiently and obtain more benefits at a smaller incurred cost. Business environment must be friendly meaning for example more opportunities to profit from RESs by companies, considering its fundamental characteristics such as distributed nature, low energy density, no possibility to economically control the source, high CAPEX, etc. Development of policy frameworks enabling harvesting and using RESs within the triangle technology/society/business might be challenging, but is critical to maximise the associated benefit/cost ratio.

Research in academia and in companies can play an important role in order to develop innovative technological solutions, that deepen the reduction of RE costs observed in recent years. Business development using innovative business model directed at capturing the value of freely available RESs may trigger economic development in many countries rich in RESs. Policies coordinating the efficient and sustainable use of human, environmental and financial resources and fitting the contexts of developed, developing and underdeveloped countries need to be proposed and analysed. This interdisciplinary journal is therefore needed to highlight the most important recent achievements in

harvesting and using renewable energy sources.