

## ENDORSEMENT OF SUSTAINABLE DEVELOPMENT GOALS (SDGs) IN ENERGY-RESEARCH SECTOR

Mohd Fadhil Md Din<sup>a\*</sup>, Santhana Krishnan<sup>a</sup>, Din, Yu-You Li<sup>b</sup>, Yu Qin<sup>b</sup>

<sup>a</sup>Centre for Environmental Sustainability and Water Security (IPASA), Research Institute of Sustainable Environment (RISE), School of Civil Engineering, Faculty of Engineering, Universiti Teknologi Malaysia, 81310 UTM Skudai, Malaysia.

<sup>b</sup>Department of Civil and Environmental Engineering, Graduate School of Engineering, Tohoku University, Aoba-ku, Sendai, 980-8579 Japan.

### Article history

Received

12 November 2019

Received in revised form

01 January 2020

Accepted

02 January 2020

Published online

31 March 2020

\*Corresponding author  
mfadhil@utm.my

The renewable energy industry is instrumental to the achievement of all of the Sustainable Development Goals (SDGs). Given the urgency and scale at which renewables must be deployed to meet the world's sustainable development and climate goals, it is critical that the industry understand its potential impact on all of the SDGs [McCollum et al., 2019]. This mini revision of energy and its relationship with Sustainable Development Goals (SDGs) is mainly towards the agenda of Decarbonize by Mid-Century, Roadmap to 2050, as the aspiration of the "The World in 2050" (TWI 2050), which transformational of six exemplary to achieve SDGs in long-term period [Stanford et al., 2017]. The Roadmap 2050 dreams for six pillars, which are (1) Zero-Carbon electricity, (2) Electrification of end users, (3) Green Synthetic Fuels, (4) Smart Power Grids, (5) Material Efficiency, and (6) Sustainable Land-use. This pillar is only emphasizing the most intensified sectors that could threaten future society, which are Power, Industry, Transportation and Buildings [Khanna et al., 2019]. However, this update only describes the most related topic on Energy (or Power) as the subject matter. Currently, the recent attention of the common energy sector is to promote the Energy Efficiency Index (EEI), minimizing the coal-fuel or fossil-fuel burning system in energy and transportation sectors, and implementing the Renewable Energy initiatives [Anderson et al., 2018]. SDGs and all impose materials (indicator, measurement, impact and outcome) is not only strategize to make further improvement in life and planet, but beyond the prosperity of humanity in the future with the emphasize of "No One Left Behind". Energy-research based is the contemporary engagement with Higher Education Institutions (HEIs), industry-driven, community translational project and government policy. The aims of this interesting topic are concurrent with the ASEAN Renewable and Energy Roadmap under the Science, Technology and Innovation (STI) for the agenda 2030. Therefore, the initiative by "The Hitachi Global Foundation" is recruiting more youth program in the assessment of "promoting of academic

research, science and technology" since 2015 for the purpose of pioneering research in society [Hitachi report, 2019]. One of the important enabling sustainability activities is "Energy, Environment" as the contribution to the international community and provide solution to the various issues and challenges. Any research related to the energy will bring back the concepts of SDGs, which combining the 5Ps (Prosperity, People, Partnership, Peace and Planet). Numbers of researchers participating the utmost inspiring "research and empowerment of society" program is being selected based on scientific knowledge, creativity and contribution to the publics. One of the global outcomes is a similar targeted by "Roadmap to 2050", with the clause supporting the R&D activities that should aims for continuous process of decarbonisation society and lock-in the solution in long run. Thus, as one of the influential contributions in the roadmap and TWI 2050, The Global Hitachi Foundation is a one step ahead to engage more researchers in the SDGs implementation.

**Keywords:** Roadmap to 2050, TWI 2050, SDGs, Decarbonisation, Energy, Environment

### AUTHOR'S CONTRIBUTION

Mohd Fadhil Md Din conceptualised the central research idea and wrote the article. Santhana Krishnan, carried out the critical research value. Yu-You Li, and Yu Qin anchored the review and revisions for the technical perspective.

## CONFLICT OF INTEREST STATEMENT

The authors agree that this research was conducted in the absence of any self-benefits, commercial or financial conflicts and declare absence of conflicting interests with the funders.

## Acknowledgements

This research is financially supported by PDRU Grant- Vot No. Q.J130000.21A2.04E53, The Hitachi Global Foundation 2019, and MRUN R.J130000.7805.4L886, which are gratefully acknowledged.

## References

- [1] McCollum, D. L., Zhou, W., Bertram, C., De Boer, H. S., Bosetti, V., Busch, S., and Fricko, O. 2018. Energy investment needs for fulfilling the Paris Agreement and achieving the Sustainable Development Goals. *Nature Energy*. 3(7): 589.
- [2] Stafford-Smith, M., Griggs, D., Gaffney, O., Ullah, F., Meyers, B., Kanie, N., and O'Connell, D. 2017. Integration: the key to implementing the Sustainable Development Goals. *Sustainability Science*. 12(6): 911-919.
- [3] Khanna, N., Fridley, D., Zhou, N., Karali, N., Zhang, J., and Feng, W. 2019. Energy and CO2 implications of decarbonization strategies for China beyond efficiency: Modeling 2050 maximum renewable resources and accelerated electrification impacts. *Applied energy*. 242: 12-26.
- [4] Andersson, E., Arfwidsson, O., and Thollander, P. 2018. Benchmarking energy performance of industrial small and medium-sized enterprises using an energy efficiency index: Results based on an energy audit policy program. *Journal of cleaner production*. 182: 883-895.
- [5] Hitachi report, 2019. <http://www.hitachi-zaidan.net/global/activities/kurata.html>.