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BUSINESS AS USUAL FOR THE BIOMASS ENERGY SECTOR? STATE OF THE ART AND FUTURE AVENUES

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Abstract – Many companies are increasingly confronting the challenge of changing their business models as they face a future in which energy solutions are needed that are environmentally, socially, and economically sustainable. Too often, the development process is sequential and stepwise rather than parallel, especially as far as dealing with technological, sustainability, and economic issues. This paper identifies trends as well as challenges and complications in the use of biomass from a business model perspective and address future avenues. We conduct a systematic literature review to identify state of art in the field of business model development in the biomass energy sector. We use several databases to identify international, peer-reviewed research articles published between 2002 and 2022. Our review presents data from more than 200 articles including author affiliation by country, article publication date, article title, journal of publication, journal impact factor, country of empirical data, unit of analysis, research methodology, and research area addressed. The research areas identified include: (i) biomass as an energy source with multiple applications from small-scale household use to large-scale industry use, (ii) biomass as a renewable resource developed based on industrial and political initiatives, (iii) the feasibility of conventional bioenergy, (iv) the industrial ecosystem, stakeholders, and the business environment in the biomass industry, and (v) biomass as a potential energy source that can mitigate the harmful effects of climate change. Although much of this research on the use of biomass takes a technological, logistical, or incentives perspective, our literature review reveals that an increasing body of research takes a business model perspective. This is a promising development, since the future use and growth of biomass as a sustainable resource depends on the successful development of biomass business models that are sustainable in every aspect – social, environmental, and financial. Conclusions drawn from the literature review indicate that the business model researched has mainly focused on three of the building blocks: value proposition, value creation and delivery, and value capture. The building block, value intention, merits more extensive study. This is especially relevant when developing sustainable business models that can meet many of the societal/environmental challenges as defined by the United Nations in its Agenda for Sustainable Development.

Keywords – Biomass; business model; literature review; value building block