

## SUPPLEMENTARY MATERIAL

# Multi-Objective Sustainability Optimization of Biomass Residues to Ethanol via Gasification and Syngas Fermentation: Trade-Offs between Profitability, Energy Efficiency and Carbon Emissions

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**Table S1. Elemental analysis (% dry basis) and moisture (%) of sugarcane bagasse and wood residues**

	<b>Moisture</b>	<b>C</b>	<b>H</b>	<b>O</b>	<b>N</b>	<b>Cl</b>	<b>S</b>	<b>ash</b>
Bagasse <sup>a</sup>	50	46.96	5.72	44.05	0.28	0.03	0.05	2.94
Wood <sup>b</sup>	11.6	48.55	5.72	45.22	0.26	0.21	0.04	3.52

<sup>a</sup> Bagasse composition is the same as considered in de Medeiros et al. (2017)

<sup>b</sup> Wood residues from eucalyptus are considered the same as in Capaz et al. (2020)



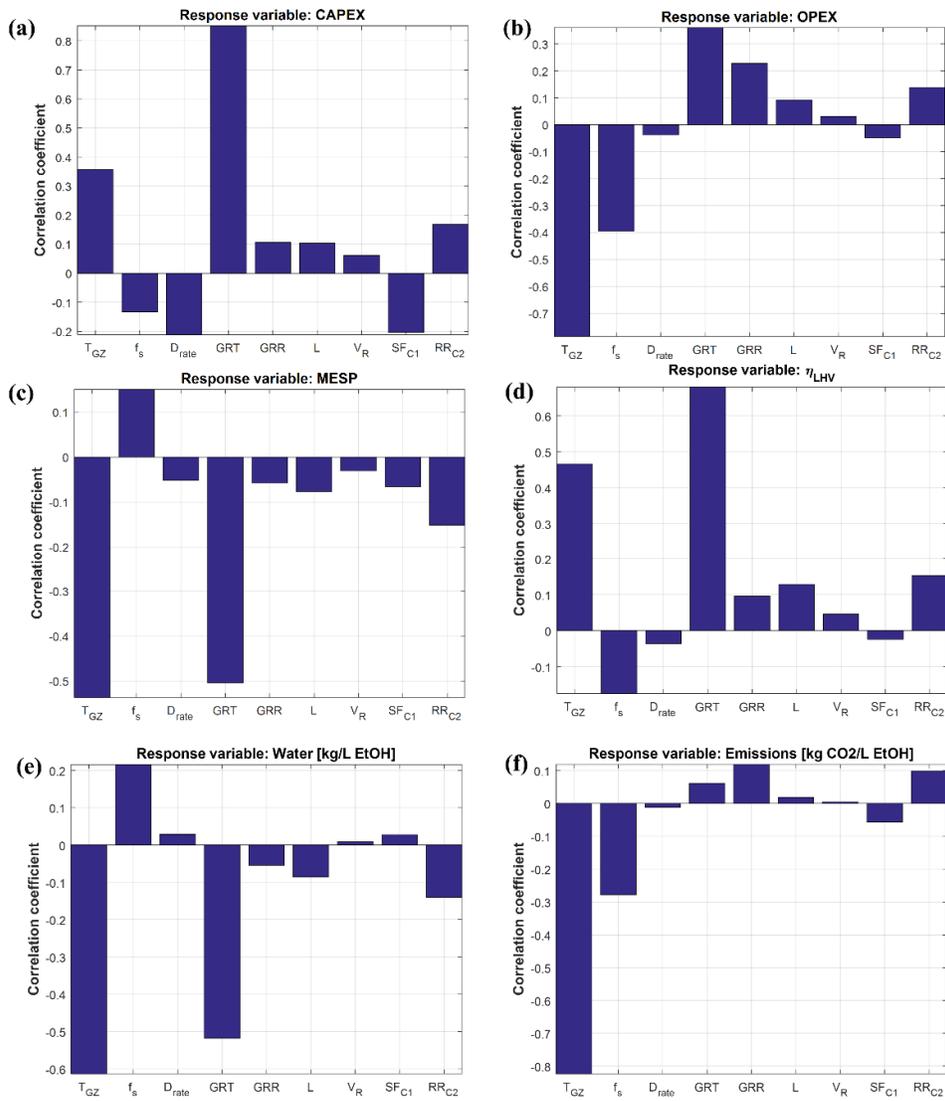


Figure S2. Correlation coefficients between decision variables and responses: wood residues.