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This chart shows different life cycle phases of three combined renewable-based power cycles. Case I is combined geothermal-wind, Case II is combined solar-geothermal cycle and Case III is combined solar-wind power plant. This chart displays different assessed phases of these integrated plants which includes raw material extraction, manufacturing of component, installation and assembly of equipment and operation and maintenance (O& M) over plants lifespan to generate low-carbon electricity.

These pie plots display the percentage of CC influence of studied based scenarios for all three combined power systems, (a) the CC portion for B1, (b) the CC portion for B2, and (c) the CC portion for B3. G stands for geothermal, W stands for wind and S stands for solar systems. Also, WD refers to well drilling, Cons refers to construction, Manu refers to manufacturing, O& M refers to operations and maintenance, M& I refers to manufacturing and installation.

Subplot (2b) illustrates the CC-related contributors for the CSG plant. The three main causes of greenhouse gas emissions are O& M (36%), well drilling in the geothermal cycle (28%), and Manufacturing and Installation (M& I) of the PSC unit (22%). Materials used in the M& I stage, such as aluminium and steel, contribute significantly to the impact category of CC. The construction of the geothermal plant has a negligible impact compared to other phases.

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