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Sommario/riassunto	<p>The broad field of hydrogen and power-to-gas promises us renewable energy storage and use in molecular forms-either gaseous or liquid-to decarbonise all energy sectors that currently depend on fossil fuels. We have recently witnessed a number of technical developments, trends and advancements that have enabled us to stand where we stand today. We find ourselves at a crossroads between theoretical groundwork and the actual, large-scale technical implementation of the energy transition. This reprint brings together current research findings from highly diverse disciplines, all of which can make a valuable contribution to the success of the energy transition. The research results yield insights into possible partial solutions that can be implemented in national, regional or even local energy systems at different implementation levels and detail, depending on boundary conditions and specific demands. The first contribution in this reprint is an editorial summarising the ten following research articles. It contains a table of the articles including research fields, titles, and methods. The reader can use it as a quick overview before turning to the detailed articles. The overarching themes covered here are: combustion research, electro catalysis, energy economy, energy storage, mobility, energy system analyses and finally, energy law and regulation. Enjoy reading "Progress in Power-to-Gas Energy Systems" to receive your personal update on this exciting research field.</p>