

Preface

The massive use of hydrogen as an energy vector would be the last step towards the energy decarbonisation process, solving once and for all the greenhouse gases and pollutant emissions in our industrial and civil systems.

On the other hand, technological development of the production processes, storage, distribution and use of hydrogen is still quite far from a real competitiveness compared to traditional fossil fuels. To date, in fact, there is no market for hydrogen as an energy carrier and, in the near term, hydrogen economy will hardly replace fossil fuels, even if the environmental and societal issues related to energy production are perceived as urgent and solutions are absolutely required in the next years.

Enriched methane could be an intermediate step able to introduce hydrogen in our energy systems, using the consolidated natural gas infrastructures at competitive costs and leading to a significant reduction of the pollution, immediately applicable and without high structural costs: the new blend is a necessary step towards the “dream of hydrogen”.

The scope of this book is to present the most interesting and advanced technologies of enriched methane production and use, in order to update the readers on this topic and to clarify what is already available and on what the international scientific and technological communities have still to work at. At the end, the readers should have a clear panorama of both the enriched methane potentialities and on the step forward to be taken.

The realization of the book would have been impossible without the support of Profs. Luigi Marrelli and Prof. Diego Barba, who helped us in understanding and defining the focal and critical points of enriched methane production and applications.

The book aims to inspire young engineers and scientists to face the next technological challenges balancing the environmental requirements, the technological specifics and the market needs, always considering that any good idea should then be introduced in the market respecting its rules and should interact with the environment, reducing the impacts and the resources use.

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Enriched Methane

The First Step Towards the Hydrogen Economy

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2016, VIII, 257 p., Hardcover

ISBN: 978-3-319-22191-5