

About the book

Energy is an important topic for Shell Global Solutions as the organisation is a major provider of services to the oil and gas industry. This book describes the role that energy has played in the evolution of nature and culture on our planet. It provides a compact history of energy over the last four billion years, with the aim of creating a sound basis for understanding the possible futures of the energy industry.

Frank Niele describes with great insight the results of years of detailed study and discussions with his colleagues in our exploratory research laboratories and in the academic world.

Last year I was pleased to introduce the book *Insight in Innovation* written by Jan Verloop and it is very gratifying that Shell Global Solutions is again in a position to sponsor an important book written by one of its employees. These two books could well become the start of a limited series of 'thought-leadership' books on issues that are relevant for the industry we service. With innovation and energy as the first two topics, we are off to a promising start.

Greg Lewin

President Shell Global Solutions

Foreword

The number of books written about energy, and the impact that energy has on all aspects of our lives, must be in the thousands. But this compelling book tells a unique and different story. It is a story that starts four billion years ago with the origin of life on earth, and that ends a hundred years into the future where a picture unfolds of a new energy world.

Frank Niele's book describes the relationship between life and energy through time, and outlines how the major revolutions in the evolution of life on earth were driven by developments at the energy frontiers. Humankind started his special relationship with energy 500,000 years ago when he first learned how to control fire. Over time, people have created increasingly bigger and more complex energy systems to support their way of life. But this progress has been accompanied by a growing concern about the impact of the 'human footprint on our planet' and the way we use our natural resources. The message in this book is that we are on the verge of the next energy revolution, where we will learn how to master new energy forms in a new way.

The book also brings a fresh element into the discussion of sustainable development. Energy is one of the essential components in sustainable development, as without an ample supply of clean and affordable energy, the world cannot successfully address the important equity and ecology issues that it faces. An outlook on a sustainable energy future that has a sound scientific basis and learns from the lessons of five earlier energy revolutions is a timely and valuable contribution to the sustainable development debate. Frank's book provides a positive perspective on what is in many ways an uncertain energy future.

This book should appeal to a readership that is much wider than just the energy industry. Anyone interested in a 'sustainable future of system Earth' should find the ideas and insights in this book stimulating. But I have to give a minor word of warning. The issues that the world faces in the area of clean and reliable supply of energy are not simple and this book does not give its answers away without some effort from the reader – an effort that will be well rewarded though as the story unfolds.

Rob Routs
Executive Director Downstream Shell International