1. Record Nr. UNINA9910807057803321 Autore Newton Roger G Titolo The science of energy [[electronic resource] /] / Roger G. Newton Pubbl/distr/stampa Singapore; ; Hackensack, NJ, : World Scientific, c2012 **ISBN** 1-283-59376-9 9786613906212 981-4401-20-X Descrizione fisica 1 online resource (111 p.) Disciplina 333.794 Soggetti Renewable energy sources Energy consumption - Environmental aspects Lingua di pubblicazione Inglese **Formato** Materiale a stampa Livello bibliografico Monografia Note generali Description based upon print version of record. Nota di bibliografia Includes bibliographical references and index. Nota di contenuto Contents; Introduction; Acknowledgements; 1. Work from Heat and The Basic Laws: Energy in Classical Mechanics: Heat and the Conservation Law; The Second Law of Thermodynamics; Einstein's E=mc2; Notes; 2. Electrical and Chemical Energy; Electrical Energy; Chemical Energy: Notes; 3. Nuclear Energy; Radioactivity; Nuclear Fission; Nuclear Fusion; What Makes the Sun Shine; Energy in the stars; Notes; 4. Energy in Quantum Mechanics; Discrete Energy Levels; Quantum Jumps and Spectra: Notes: 5. Storing and Transporting Energy: Long-term Energy Storage; Short-term Energy Storage; Flywheels Pumped StorageBatteries; Liquid Hydrogen; Fuel Cells; Energy Transport: Notes: 6. Energy in the Universe: Notes: Epilogue: Appendix: Research on Energy; Battery Technology; Other Energy Projects; Illustration Credits; References and Further Reading; Index Sommario/riassunto This book aims to describe the scientific concepts of energy. Accessible to readers with no scientific education beyond high-school chemistry, it starts with the basic notion of energy and the fundamental laws that govern it, such as conservation, and explains the various forms of energy, such as electrical, chemical, and nuclear. It then proceeds to

describe ways in which energy is stored for very long times in the various fossil fuels (petroleum, gas, coal) as well as for short times (flywheels, pumped storage, batteries, fuel cells, liquid hydrogen). The