1. Record Nr. UNINA9911002545603321 Waste Flows Generated by the Energy Transition: Regulatory **Titolo** Framework, Recovery Technologies and Plant Infrastructures / / edited by Mario Grosso, Lucia Rigamonti Cham:,: Springer Nature Switzerland:,: Imprint: Springer,, 2025 Pubbl/distr/stampa 3-031-88951-7 **ISBN** Edizione [1st ed. 2025.] Descrizione fisica 1 online resource (XI, 134 p. 35 illus., 28 illus. in color.) PoliMI SpringerBriefs, , 2282-2585 Collana Disciplina 621.042 Soggetti Renewable energy sources Refuse and refuse disposal Energy policy Renewable Energy Waste Management/Waste Technology Energy Policy, Economics and Management Lingua di pubblicazione Inglese **Formato** Materiale a stampa Livello bibliografico Monografia Nota di contenuto Chapter 1. Introduction: Recycling to Support the Energy Transition --Chapter 2. Lithium-ion Batteries -- Chapter 3. Electric Motors --Chapter 4. Wind Turbine Blades -- Chapter 5. Photovoltaic Panels. This book provides a comprehensive analysis of four waste streams Sommario/riassunto expected to become relevant: Li-ion batteries for electric vehicles and energy storage systems, motors for electric vehicles, photovoltaic panels, and composite materials from wind turbines. The text examines the state-of-art of recovery technologies to extract valuable resources, addressing the increasing demand for critical and strategic raw materials. It provides an in-depth review of available recycling technologies, from mechanical methods, to hydrometallurgical and pyrometallurgical processes and chemical recovery. Each technology is discussed with its respective key features, strengths, and drawbacks, also from the environmental standpoint. A thorough evaluation of European regulatory frameworks for relevant end of life management is presented. The book also surveys the existing plant infrastructure in Europe, highlighting where treatment and recycling infrastructures are

more developed and where instead there is the need to further expand the treatment capacity. The book offers a resource for policymakers, industry stakeholders, and researchers committed to developing a sustainable waste management for the energy transition.