CONTENTS

INTRODUCTION: WHAT IS ZERO-CARBON INDUSTRY? 1

I. THE LARGEST GREENHOUSE GAS-EMITTING INDUSTRIES

- 1 IRON AND STEEL 11
 - 2 CHEMICALS 37
- 3 CEMENT AND CONCRETE 62

II. TECHNOLOGIES

- 4 ENERGY EFFICIENCY 85
- 5 MATERIAL EFFICIENCY, MATERIAL SUBSTITUTION, AND CIRCULAR ECONOMY 104
 - 6 ELECTRIFICATION 131
- 7 HYDROGEN AND OTHER RENEWABLE FUELS 160
 - 8 CARBON CAPTURE AND USE OR STORAGE 188

VIII CONTENTS

III. POLICIES

9 CARBON PRICING AND OTHER FINANCIAL POLICIES 213

10 STANDARDS AND GREEN PUBLIC PROCUREMENT 243

11 R&D, DISCLOSURE, LABELING, AND CIRCULAR ECONOMY POLICIES 263

12 EQUITY AND HUMAN DEVELOPMENT 290

CONCLUSION: A ROADMAP TO CLEAN INDUSTRY 309

List of Abbreviations 317
Acknowledgments 323
Notes 325
Index 377

ZERO-CARBON INDUSTRY