Table of Contents

I. List of Figures 11
II. List of Tables 14
III. Glossary 16
IV. Global Ethanol & Biodiesel Outlook Primary Contributors 20
V. Executive Summary 24
VI. North America 33
A. Regional Summary 33
B. Canada 35
1. Public Policy Environment 36
a) Historical 36
b) Current 37
c) Future 39
2. Fiscal Policies to Support the Production & Use of Biofuels 39
a) Tax Incentives 40
b) Tariff Information 42
c) Other Policies 42
3. Market Assessment 43
a) Current Market Situation 43
b) Primary Feedstocks and Production Technology 44
c) Supply and Demand Outlook 2008, 2010 and 2015 45
C. United States 46
1. Public Policy Environment 47
a) Historical 47
b) Current 48
c) Future 52
2. Fiscal Policies to Support the Production & Use of Biofuels 52
a) Tax Incentives 53
b) Tariff Information 55
c) Other Policies 56
3. Market Assessment 57
a) Current Market Situation 58
b) Primary Feedstocks and Production Technology 59
c) Supply and Demand Outlook 2008, 2010 and 2015 62
D. California 65
1. Public Policy Environment 65
a) Historical 65
b) Current 65
c) Future 68
2. Fiscal Policies to Support the Production & Use of Biofuels 68
a) Tax Incentives 68
b) Tariff Information 68
c) Other Policies 68
3. Market Assessment 69
a) Current Market Situation 69
b) Primary Feedstocks and Production Technology 70
c) Supply and Demand Outlook 2008, 2010 and 2015 70
VII. EU-27 74
A. Regional Summary 74
B. EU 75
1. Public Policy Environment 75
a) Historical 76
b) Current 77
c) Future 79

© 2008, Global Biofuels Center. All right reserved. This material may not be published, broadcast, or distributed in whole or part without express written permission of the Global Biofuels Center.

2. Fiscal Policies to Support the Production and Use of Biofuels ... 79
a) Tax Incentives ... 79
3. Market Assessment ... 80
a) Current Market Situation ... 80
Ethanol ... 81
Biodiesel ... 81
b) Primary Feedstocks and Production Technology ... 81
Ethanol ... 81
Biodiesel ... 81
c) Supply and Demand Outlook 2008, 2010 and 2015 ... 82
Ethanol ... 82
Biodiesel ... 83
C. Czech Republic ... 84
1. Public Policy Environment ... 84
a) Historical ... 84
Ethanol ... 85
Biodiesel ... 85
b) Current ... 85
c) Future ... 86
2. Fiscal Policies to Support the Production and Use of Biofuels ... 86
a) Tax Incentives ... 86
Ethanol ... 87
Biodiesel ... 87
b) Tariff Information ... 87
c) Other Policies ... 87
3. Market Assessment ... 88
a) Current Market Situation ... 88
b) Current and Future Production Capacity ... 88
Ethanol ... 88
Biodiesel ... 89
c) Primary Feedstock and Production Technology ... 89
Ethanol ... 89
Biodiesel ... 90
d) Supply and Demand Outlook 2008, 2010 and 2015 ... 90
Ethanol ... 90
Biodiesel ... 91
D. Finland ... 92
1. Public Policy Environment ... 92
a) Historical ... 93
b) Current ... 93
c) Future ... 93
2. Fiscal Policies to Support the Production and Use of Biofuels ... 93
a) Tax Incentives ... 93
b) Tariff Information ... 93
c) Other Policies ... 93
3. Market Assessment ... 93
a) Current Market Situation ... 93
Ethanol ... 94
Biodiesel ... 94
b) Primary Feedstocks and Production Technology ... 94
c) Supply and Demand Outlook 2008, 2010 and 2015 ... 94
Ethanol ... 94
Biodiesel ... 95
E. France ... 96
1. Public Policy Environment ... 96
a) Historical ... 97
b) Current ... 97

© 2008, Global Biofuels Center. All right reserved. This material may not be published, broadcast, or distributed in whole or part without express written permission of the Global Biofuels Center.

Ethanol ... 97
Biodiesel ... 97
c) Future ... 97
2. Fiscal Policies to Support the Production and Use of Biofuels ... 98
a) Tax Incentives ... 98
Ethanol ... 98
Biodiesel ... 99
Ethanol ... 101
Biodiesel ... 101
b) Tariff Information ... 101
c) Other Policies ... 102
3. Market Assessment ... 102
a) Current Market Situation ... 102
Ethanol ... 103
Biodiesel ... 103
b) Primary Feedstocks and Production Technology ... 103
Ethanol ... 103
Biodiesel ... 103
c) Supply and Demand Outlook 2008, 2010 and 2015 ... 103
Ethanol ... 103
Biodiesel ... 104
F. Germany ... 105
1. Public Policy Environment ... 105
a) Historical ... 106
b) Current ... 106
c) Future ... 107
2. Fiscal Policies to Support the Production and Use of Biofuels ... 108
a) Tax Incentives ... 108
Ethanol ... 108
Biodiesel ... 108
b) Tariff Information ... 109
c) Other Policies ... 109
3. Market Assessment ... 109
a) Current Market Situation ... 109
Ethanol ... 109
Biodiesel ... 110
Ethanol ... 111
Biodiesel ... 111
b) Primary Feedstocks and Production Technology ... 111
Ethanol ... 111
Biodiesel ... 112
c) Supply and Demand Outlook 2008, 2010 and 2015 ... 112
Ethanol ... 112
Biodiesel ... 113
G. Hungary ... 114
1. Public Policy Environment ... 114
a) Historical ... 114
b) Current ... 115
c) Future ... 115
2. Fiscal Policies to Support the Production and Use of Biofuels ... 115
a) Tax Incentives ... 115
b) Tariff Information ... 115
c) Other Policies ... 115
3. Market Assessment ... 115
a) Current Market Situation ... 115
Ethanol ... 116
Biodiesel ... 116

© 2008, Global Biofuels Center. All right reserved. This material may not be published, broadcast, or distributed in whole or part without express written permission of the Global Biofuels Center.

b) Primary Feedstocks and Production Technology 116
Ethanol 116
Biodiesel 116
c) Supply and Demand Outlook 2008, 2010 and 2015 116
Ethanol 116
Biodiesel 117
H. The Netherlands 118
1. Public Policy Environment 118
a) Historical 118
b) Current 119
c) Future 119
2. Fiscal Policies to Support the Production and Use of Biofuels 120
a) Tax Incentives 120
b) Tariff Information 120
c) Other Policies 120
3. Market Assessment 120
a) Current Market Situation 120
Ethanol 120
Biodiesel 121
b) Primary Feedstocks and Production Technology 121
c) Supply and Demand Outlook 2008, 2010 and 2015 121
Ethanol 121
Biodiesel 122
I. Poland 123
1. Public Policy Environment 123
a) Historical 123
b) Current 124
c) Future 124
2. Fiscal Policies to Support the Production and Use of Biofuels 125
a) Tax Incentives 125
b) Tariff Information 126
c) Other Policies 126
3. Market Assessment 126
a) Current Market Situation 126
Ethanol 126
Biodiesel 127
b) Primary Feedstocks and Production Technology 127
Ethanol 127
Biodiesel 127
c) Supply and Demand Outlook 2008, 2010 and 2015 127
Ethanol 127
Biodiesel 128
J. Spain 129
1. Public Policy Environment 129
a) Historical 130
b) Current 130
c) Future 130
2. Fiscal Policies to Support the Production and Use of Biofuels 131
a) Tax Incentives 131
b) Tariff Information 131
c) Other Policies 131
3. Market Assessment 131
a) Current Market Situation 131
Ethanol 132
Biodiesel 132
b) Primary Feedstocks and Production Technology 132
c) Supply and Demand Outlook 2008, 2010 and 2015 132

© 2008, Global Biofuels Center. All right reserved. This material may not be published, broadcast, or distributed in whole or part without express written permission of the Global Biofuels Center.

Ethanol ... 132
Biodiesel ... 133
K. Sweden ... 134
1. Public Policy Environment ... 134
a) Historical ... 135
b) Current ... 135
c) Future ... 135
2. Fiscal Policies to Support the Production and Use of biofuels ... 136
a) Tax Incentives ... 136
b) Tariff Information ... 136
c) Other Policies ... 136
3. Market Assessment ... 136
a) Current Market Situation ... 136
Ethanol ... 136
Biodiesel ... 138
b) Primary Feedstocks and Production Technology ... 138
Ethanol ... 138
Biodiesel ... 138
c) Supply and Demand Outlook 2008, 2010 and 2015 ... 139
Ethanol ... 139
Biodiesel ... 139
L. U.K. ... 140
1. Public Policy Environment ... 140
a) Historical ... 141
b) Current ... 141
c) Future ... 142
2. Fiscal Policies to Support the Production and Use of Biofuels ... 142
a) Tax Incentives ... 142
b) Tariff Information ... 143
c) Other Policies ... 143
3. Market Assessment ... 143
a) Current Market Situation ... 143
Ethanol ... 143
Biodiesel ... 144
b) Primary Feedstocks and Production Technology ... 144
Ethanol ... 144
Biodiesel ... 144
c) Supply and Demand Outlook 2008, 2010 and 2015 ... 144
Ethanol ... 144
Biodiesel ... 145
VIII. Commonwealth of Independent States ... 147
A. Regional Summary ... 147
B. Russia ... 152
1. Public Policy Environment ... 152
a) Historical ... 152
b) Current ... 153
c) Future ... 153
2. Fiscal Policies to Support the Production and Use of Biofuels ... 153
a) Tax Incentives ... 153
b) Tariff Information ... 153
c) Other Policies ... 154
3. Market Assessment ... 154
a) Current Market Situation ... 154
Ethanol ... 154
Biodiesel ... 156
b) Primary Feedstock and Production Technology ... 157
c) Supply and Demand Outlook 2008, 2010 and 2015 ... 157

© 2008, Global Biofuels Center. All right reserved. This material may not be published, broadcast, or distributed in whole or part without express written permission of the Global Biofuels Center.

Ethanol ... 158
Biodiesel ... 159
C. Ukraine ... 160
1. Public Policy Environment ... 160
a) Historical ... 160
b) Current ... 161
c) Future ... 162
2. Fiscal Policies to Support the Production and Use of Biofuels ... 162
a) Tax Incentives ... 162
b) Tariff Information ... 163
c) Other Policies ... 163
3. Market Assessment ... 163
a) Current Market Situation ... 164
Ethanol ... 164
Biodiesel ... 165
b) Primary Feedstock and Production Technology ... 167
c) Supply and Demand Outlook 2008, 2010 and 2015 ... 168
Ethanol ... 168
Biodiesel ... 169
IX. Latin America ... 171
A. Regional Summary ... 171
B. Argentina ... 182
1. Public Policy Environment ... 182
a) Historical ... 182
b) Current ... 182
c) Future ... 183
2. Fiscal Policies to Support the Production & Use of Biofuels ... 183
a) Tax Incentives ... 183
b) Tariff Information ... 184
c) Other Policies ... 186
3. Market Assessment ... 186
a) Current Market Situation ... 186
b) Primary Feedstocks and Production Technology ... 187
c) Supply and Demand Outlook 2008, 2010 and 2015 ... 187
C. Brazil ... 189
1. Public Policy Environment ... 189
a) Historical ... 190
Ethanol ... 190
Biodiesel ... 190
b) Current ... 191
c) Future ... 192
2. Fiscal Policies to Support the Production & Use of Biofuels ... 192
a) Tax Incentives ... 192
Ethanol ... 192
Biodiesel ... 193
b) Tariff Information ... 193
Ethanol ... 193
Biodiesel ... 194
c) Other Policies ... 194
Ethanol ... 194
Biodiesel ... 195
3. Market Assessment ... 196
a) Current Market Situation ... 196
b) Primary Feedstocks and Production Technology ... 199
Ethanol ... 199
Biodiesel ... 201
c) Supply and Demand Outlook 2008, 2010 and 2015 ... 202

© 2008, Global Biofuels Center. All right reserved. This material may not be published, broadcast, or distributed in whole or part without express written permission of the Global Biofuels Center.

Ethanol ... 202
Biodiesel ... 204
D. Colombia ... 206
1. Public Policy Environment ... 206
a) Historical ... 206
b) Current ... 206
c) Future ... 207
2. Fiscal Policies to Support the Production & Use of Biofuels ... 207
a) Tax Incentives ... 207
b) Tariff Information ... 207
c) Other Policies ... 207
3. Market Assessment ... 208
a) Current Market Situation ... 208
b) Primary Feedstocks and Production Technology ... 208
c) Supply and Demand Outlook 2008, 2010 and 2015 ... 210
E. Costa Rica ... 213
1. Public Policy Environment ... 213
a) Historical ... 213
b) Current ... 214
c) Future ... 214
2. Fiscal Policies to Support the Production & Use of Biofuels ... 214
3. Market Assessment ... 214
a) Current Market Situation ... 214
b) Primary Feedstocks and Production Technology ... 215
c) Supply and Demand Outlook 2008, 2010 and 2015 ... 215
F. Jamaica ... 217
1. Public Policy Environment ... 217
a) Historical ... 217
b) Current ... 217
c) Future ... 218
2. Fiscal Policies to Support the Production & Use of Biofuels ... 218
a) Tax Incentives ... 218
b) Tariff Information ... 218
c) Other Policies ... 218
3. Market Assessment ... 218
a) Current Market Situation ... 218
b) Primary Feedstocks and Production Technology ... 219
c) Supply and Demand Outlook 2008, 2010 and 2015 ... 219
G. Mexico ... 221
1. Public Policy Environment ... 221
a) Historical ... 221
b) Current ... 221
c) Future ... 222
2. Fiscal Policies to Support the Production & Use of Biofuels ... 222
a) Tax Incentives ... 222
b) Tariff Information ... 222
3. Market Assessment ... 223
a) Current Market Situation ... 223
b) Primary Feedstocks and Production Technology ... 224
c) Supply and Demand Outlook 2008, 2010 and 2015 ... 224
H. Venezuela ... 226
1. Public Policy Environment ... 226
a) Historical ... 226
b) Current ... 227
c) Future ... 227
2. Fiscal Policies to Support the Production & Use of Biofuels ... 227
a) Tax Incentives ... 227

© 2008, Global Biofuels Center. All right reserved. This material may not be published, broadcast, or distributed in whole or part without express written permission of the Global Biofuels Center.

b) Tariff Information ... 227
c) Other Policies ... 227
3. Market Assessment ... 228
a) Current Market Situation ... 228
b) Primary Feedstocks and Production Technology ... 228
c) Supply and Demand Outlook 2008, 2010 and 2015 ... 229
X. Asia-Pacific ... 231
A. Regional Summary ... 231
B. Australia ... 236
1. Public Policy Environment ... 236
a) Historical ... 236
b) Current ... 237
c) Future ... 237
2. Fiscal Policies to Support the Production and Use of Biofuels ... 238
a) Tax Incentives ... 238
b) Tariff Information ... 238
c) Other Policies ... 238
3. Market Assessment ... 240
a) Current Market Situation ... 240
b) Primary Feedstocks and Production Technology ... 241
c) Supply and Demand Outlook 2008, 2010 and 2015 ... 241
C. China ... 243
1. Public Policy Environment ... 243
a) Historical ... 243
b) Current ... 244
c) Future ... 245
2. Fiscal Policies to Support the Production and Use of Biofuels ... 245
a) Tax Incentives ... 245
b) Tariff Information ... 245
c) Other Policies ... 245
3. Market Assessment ... 246
a) Current Market Situation ... 246
b) Primary Feedstocks and Production Technology ... 246
Ethanol ... 246
Biodiesel ... 247
c) Supply and Demand Outlook 2008, 2010 and 2015 ... 247
D. India ... 249
1. Public Policy Environment ... 249
a) Historical ... 250
Ethanol ... 250
Biodiesel ... 251
b) Current ... 251
Ethanol ... 252
Biodiesel ... 252
c) Future ... 253
2. Fiscal Policies to Support the Production and Use of Biofuels ... 253
a) Tax Incentives ... 253
b) Tariff Information ... 253
c) Other Policies ... 254
Ethanol ... 254
Biodiesel ... 254
3. Market Assessment ... 254
a) Current Market Situation ... 254
b) Primary Feedstocks and Production Technology ... 255
c) Supply and Demand Outlook 2008, 2010 and 2015 ... 255

© 2008, Global Biofuels Center. All right reserved. This material may not be published, broadcast, or distributed in whole or part without express written permission of the Global Biofuels Center.

E. Indonesia 257
1. Public Policy Environment 257
a) Historical 257
b) Current 258
c) Future 258
2. Fiscal Policies to Support the Production & Use of Biofuels 258
a) Tax Incentives 258
b) Tariff Information 259
c) Other Policies 259
3. Market Assessment 259
a) Current Market Situation 259
b) Primary Feedstock and Production Technology 260
c) Supply and Demand Outlook 2008, 2010 and 2015 261
F. Japan 262
1. Public Policy Environment 262
a) Historical 263
b) Current 263
Ethanol 264
c) Future 264
2. Fiscal Policies to Support the Production and Use of Biofuels 264
a) Tax Incentives 264
b) Tariff Information 265
c) Other Policies 265
3. Market Assessment 265
a) Current Market Situation 265
b) Primary Feedstocks and Production Technology 266
c) Supply and Demand Outlook 2008, 2010 and 2015 266
G. Malaysia 268
1. Public Policy Environment 268
a) Historical 268
b) Current 269
c) Future 269
2. Fiscal Policies to Support the Production and Use of Biofuels 269
a) Tax Incentives 269
b) Tariff Information 270
c) Other Policies 270
3. Market Assessment 270
a) Current Market Situation 270
b) Primary Feedstocks and Production Technology 270
c) Supply and Demand Outlook 2008, 2010 and 2015 271
H. New Zealand 272
1. Public Policy Environment 272
a) Historical 273
b) Current 273
c) Future 274
2. Fiscal Policies to Support the Production & Use of Biofuels 274
a) Tax Incentives 274
b) Tariff Information 274
c) Other Policies 274
3. Market Assessment 274
a) Current Market Situation 274
b) Primary Feedstock and Production Technology 274
c) Supply and Demand Outlook 2008, 2010 and 2015 275
I. Philippines 277
1. Public Policy Environment 277
a) Historical 278
Ethanol 278

© 2008, Global Biofuels Center. All right reserved. This material may not be published, broadcast, or distributed in whole or part without express written permission of the Global Biofuels Center.

Biodiesel ... 278
b) Current ... 279
Ethanol ... 280
Biodiesel ... 280
c) Future ... 281
2. Fiscal Policies to Support the Production and Use of Biofuels ... 281
a) Tax Incentives ... 281
b) Tariff Information ... 281
c) Other Policies ... 281
3. Market Assessment ... 282
a) Current Market Situation ... 282
b) Primary Feedstocks and Production Technology ... 282
c) Supply and Demand Outlook 2008, 2010 and 2015 ... 283
J. South Korea ... 285
1. Public Policy Environment ... 285
a) Historical ... 285
b) Current ... 285
c) Future ... 286
2. Fiscal Policies to Support the Production and Use of Biofuels ... 286
a) Tax Incentives ... 286
b) Tariff Information ... 286
c) Other Policies ... 287
3. Market Assessment ... 287
a) Current Market Situation ... 287
b) Primary Feedstocks and Production Technology ... 287
c) Supply and Demand Outlook 2008, 2010 and 2015 ... 287
K. Thailand ... 288
1. Public Policy Environment ... 288
a) Historical ... 288
b) Current ... 290
Ethanol ... 290
Biodiesel ... 290
c) Future ... 291
2. Fiscal Policies to Support the Production and Use of Biofuels ... 291
a) Tax Incentives ... 291
Ethanol ... 291
Biodiesel ... 292
b) Tariff Information ... 293
c) Other Policies ... 293
3. Market Assessment ... 293
a) Current Market Situation ... 293
Ethanol ... 293
Biodiesel ... 294
b) Primary Feedstocks and Production Technology ... 295
c) Supply and Demand Outlook 2008, 2010 and 2015 ... 295
XI. Appendix 1: Production Capacity Summary by Region ... 298
XII. Appendix 2: Biofuel Specifications ... 306
A. Biodiesel Blend Specifications ... 306
B. Ethanol Blend Specifications ... 319
XIII. Appendix 3: Conversion Factors ... 361
XIV. Appendix 4: Biofuels Production Technologies ... 362
XV. Appendix 5: Mandatory Biofuel Programs and Effective Dates ... 373

© 2008, Global Biofuels Center. All right reserved. This material may not be published, broadcast, or distributed in whole or part without express written permission of the Global Biofuels Center.

I. List of Figures

Figure V.1: Biofuels Programs in 2010 25
Figure V.2: Biofuels Projects in Africa 32
Figure VI.1: Forecasted Gasoline and Ethanol Supply and Demand for North America 34
Figure VI.2: Forecasted Diesel and Biodiesel Supply and Demand for North America 35
Figure VI.3: Forecasted Gasoline and Ethanol Supply and Demand in Canada 45
Figure VI.4: Forecasted Diesel and Biodiesel Supply and Demand in Canada 46
Figure VI.5: Renewable Fuel Standard under EISA 49
Figure VI.6: U.S. Ethanol Imports 58
Figure VI.7: U.S. Biodiesel Production, 1999-2007 59
Figure VI.8: U.S. Corn Yield History and Trends (million bushels) 60
Figure VI.9: Forecasted Gasoline and Ethanol Supply and Demand in the U.S. 63
Figure VI.10: Forecasted Diesel and Biodiesel Supply and Demand in the U.S. 64
Figure VI.11: Forecasted Gasoline and Ethanol Supply and Demand in California 71
Figure VI.12: Ethanol Imports into California 71
Figure VI.13: Forecasted Diesel and Biodiesel Supply and Demand in California 73
Figure VII.1: EU Ethanol Supply and Demand Outlook 2008, 2010 and 2015 82
Figure VII.2: EU Biodiesel Supply and Demand Outlook 2008, 2010 and 2015 83
Figure VII.3: Czech Republic Ethanol Supply and Demand Outlook 2008, 2010 and 2015 91
Figure VII.4: Czech Republic Biodiesel Supply and Demand Outlook 2008, 2010 and 2015 92
Figure VII.5: Finland Ethanol Supply and Demand Outlook 2008, 2010 and 2015 95
Figure VII.6: Finland Biodiesel Supply and Demand Outlook 2008, 2010 and 2015 96
Figure VII.7: France Ethanol Supply and Demand Outlook, 2008, 2010 and 2015 104
Figure VII.8: France Biodiesel Supply and Demand Outlook, 2008, 2010 and 2015 105
Figure VII.9: Revenue Loss from Tax Exemption (€1,000 million) 108
Figure VII.10: Biodiesel Sales at Public Fueling Stations in Germany, 2004-2008 110
Figure VII.11: Germany Ethanol Supply and Demand Outlook 2008, 2010 and 2015 113
Figure VII.12: Germany Biodiesel Supply and Demand Outlook, 2008, 2010 and 2015 114
Figure VII.13: Hungary Ethanol Supply and Demand Outlook 2008, 2010 and 2015 117
Figure VII.14: Hungary Biodiesel Supply and Demand Outlook 2008, 2010 and 2015 118
Figure VII.15: Netherlands Ethanol Supply and Demand Outlook 2008, 2010 and 2015 122
Figure VII.16: Netherlands Biodiesel Supply and Demand Outlook 2008, 2010 and 2015 123
Figure VII.17: Poland Ethanol Supply and Demand Outlook 2008, 2010 and 2015 128
Figure VII.18: Poland Biodiesel Supply and Demand Outlook 2008, 2010 and 2015 129
Figure VII.19: Spain Ethanol Supply and Demand Outlook 2008, 2010 and 2015 133
Figure VII.20: Spain Biodiesel Supply and Demand Outlook 2008, 2010 and 2015 134
Figure VII.21: Sweden Ethanol Supply and Demand Outlook 2008, 2010 and 2015 139
Figure VII.22: Sweden Biodiesel Supply and Demand Outlook 2008, 2010 and 2015 140
Figure VII.23: U.K. Ethanol Supply and Demand Outlook 2008, 2010 and 2015 145
Figure VII.24: U.K. Biodiesel Supply and Demand Outlook 2008, 2010 and 2015 146
Figure VIII.1: Russian Federation Ethanol Supply and Demand Analysis 159
Figure VIII.2: Russian Federation Biodiesel Supply and Demand Analysis 160
Figure VIII.3: Ukraine Ethanol Supply and Demand Analysis 169
Figure VIII.4: Ukraine Biodiesel Supply and Demand Analysis 170
Figure IX.1: Largest Sugar cane-Producing Countries in Latin America (excluding Brazil) 172
Figure IX.2: Largest Soybean and Soy Oil Producers in Latin America 172
Figure IX.3: Palm Oil Production in Latin America 173
Figure IX.4: U.S. Ethanol Imports from CBI/CAFTA Nations, 2000-2007 175
Figure IX.5: Forecasted Gasoline and Ethanol Supply and Demand for Latin America 177
Figure IX.6: Forecasted Diesel and Biodiesel Supply and Demand for Latin America 178
Figure IX.7: Argentina Ethanol Supply and Demand, 2008-2015 188

© 2008, Global Biofuels Center. All right reserved. This material may not be published, broadcast, or distributed in whole or part without express written permission of the Global Biofuels Center.

Figure IX.8: Argentina Biodiesel Supply and Demand, 2008-2015 189
Figure IX.9: Hydrous Ethanol Sales, 2000-2007 (in thousand liters)..... 197
Figure IX.10: Gasoline C Sales, 2000-2007 (in thousand liters)..... 198
Figure IX.11: Monthly Biodiesel Production in Brazil, 2005-2008..... 199
Figure IX.12: Main Sugar cane Production Areas in Brazil..... 200
Figure IX.13: Potential Biodiesel Feedstocks 201
Figure IX.14: H-Bio Process 202
Figure IX.15: Brazil Fuel Ethanol Supply and Demand, 2008-2015 204
Figure IX.16: Brazil Biodiesel Supply and Demand, 2008-2015..... 205
Figure IX.17: Alcohol-Producing Complexes in Colombia 211
Figure IX.18: Forecasted Gasoline and Ethanol Supply and Demand in Colombia 212
Figure IX.19 Forecasted Diesel and Biodiesel Supply and Demand in Colombia 213
Figure IX.20: Forecasted Gasoline and Ethanol Supply and Demand in Costa Rica..... 216
Figure IX.21: Forecasted Diesel and Biodiesel Supply and Demand in Costa Rica..... 217
Figure IX.22: Forecasted Gasoline and Ethanol Supply and Demand in Jamaica 220
Figure IX.23 Forecasted Diesel and Biodiesel Supply and Demand in Jamaica..... 220
Figure IX.24: Forecasted Gasoline and Ethanol Supply and Demand in Mexico 225
Figure IX.25: Forecasted Diesel and Biodiesel Supply and Demand in Mexico..... 226
Figure IX.26: Ethanol Production Process..... 229
Figure IX.27: Venezuela Ethanol Supply and Demand, 2008-2015 230
Figure IX.28: Venezuela Biodiesel Supply and Demand, 2008-2015..... 230
Figure X.1: Ethanol Supply and Demand Outlook 2008, 2010 and 2015 in Asia 233
Figure X.2: Biodiesel Supply and Demand Outlook 2008, 2010 and 2015 in Asia..... 233
Figure X.3: Feedstocks Used in Existing Asian Fuel Ethanol and Biodiesel Plants by Category... 234
Figure X.4: Ethanol Supply and Demand Outlook 2008, 2010 and 2015 in Australia 242
Figure X.5: Biodiesel Supply and Demand Outlook 2008, 2010 and 2015 in Australia..... 243
Figure X.6: Ethanol Supply and Demand Outlook 2008, 2010 and 2015 in China..... 248
Figure X.7: Biodiesel Supply and Demand Outlook 2008, 2010 and 2015 in China 249
Figure X.8: Ethanol Supply and Demand Outlook 2008, 2010 and 2015 in India 256
Figure X.9: Biodiesel Supply and Demand Outlook 2008, 2010 and 2015 in India 257
Figure X.10: PERTAMINA's Biofuels Roadmap 260
Figure X.11: Ethanol Supply and Demand Outlook 2008, 2010 and 2015 in Indonesia..... 261
Figure X.12: Biodiesel Supply and Demand Outlook 2008, 2010 and 2015 in Indonesia 262
Figure X.13: Ethanol Supply and Demand Outlook 2008, 2010 and 2015 in Japan 267
Figure X.14: Biodiesel Supply and Demand Outlook 2008, 2010 and 2015 in Japan 268
Figure X.15: Palm Oil Production and Exports in Malaysia 271
Figure X.16: Biodiesel Supply and Demand Outlook 2008, 2010 and 2015 in Malaysia..... 272
Figure X.17: Ethanol Supply and Demand Outlook 2008, 2010 and 2015 in New Zealand 276
Figure X.18: Biodiesel Supply and Demand Outlook 2008, 2010 and 2015 in New Zealand..... 277
Figure X.19: Ethanol Supply and Demand Outlook 2008, 2010 and 2015 in the Philippines..... 284
Figure X.20: Biodiesel Supply and Demand Outlook 2008, 2010 and 2015 in the Philippines 285
Figure X.21: Biodiesel Supply and Demand Outlook 2008, 2010 and 2015 in South Korea..... 288
Figure X.22: Thailand Gasoline and E10 Sales, 2003-2007..... 294
Figure X.23: B5 Sales in 2006-2007 (million liters per day)..... 294
Figure X.24: Ethanol Supply and Demand Outlook 2008, 2010 and 2015 in Thailand 296
Figure X.25: Biodiesel Supply and Demand Outlook 2008, 2010 and 2015 in Thailand 297
Figure XIV.1: Dry Mill Ethanol Production Schematic..... 363
Figure XIV.2: Wet-Mill Ethanol Production Schematic..... 363
Figure XIV.3: The Biodiesel Production Process..... 364
Figure XIV.4: Geographic Introduction of Second-generation Biodiesel 365
Figure XIV.5: Progression of Biofuels Production..... 365
Figure XIV.6: Ethanol GHG Emissions Relative to Gasoline..... 366

© 2008, Global Biofuels Center. All right reserved. This material may not be published, broadcast, or distributed in whole or part without express written permission of the Global Biofuels Center.

Figure XIV.7: Pathways to Renewable Fuels 367
Figure XIV.8: Cellulosic Ethanol Production Process 368
Figure XIV.9: Thermal Conversion Process 370
Figure XIV.10: Gevo's Production Process 371
Figure XIV.11: Biomass to Biofuels 372
Figure XIV.12: Fossil Energy Requirements of Different Fuels 372

© 2008, Global Biofuels Center. All right reserved. This material may not be published, broadcast, or distributed in whole or part without express written permission of the Global Biofuels Center.

II. List of Tables

Table V.1: Comparative Analysis of Sustainability Schemes Worldwide 27
Table VI.1: Forecasted Ethanol Supply for North America 34
Table VI.2: Forecasted Gasoline and Ethanol Demand for North America 34
Table VI.3: Forecasted Biodiesel Supply for North America 35
Table VI.4: Forecasted Diesel and Biodiesel Demand for North America 35
Table VI.5: Ethanol Expansion Program Awards for Proposed Ethanol Plants 37
Table VI.6: Ethanol and Biodiesel Incentives (CAN cents per liter) 40
Table VI.7: Current and Future Ethanol Production Capacity in Canada 45
Table VI.8: Current and Future Biodiesel Production Capacity in Canada 46
Table VI.9: State Mandates for Biofuel Blending 51
Table VI.10 Summary of Federal Tax Incentives for Biofuel Production and Use 53
Table VI.11: Feedstock Share of U.S. Existing Ethanol Production Capacity 60
Table VI.12: Feedstock Share of U.S. Biodiesel Production Capacity, 2007 61
Table VI.13: Current and Future Ethanol Production Capacity in the U.S. 62
Table VI.14: Current and Future Biodiesel Production Capacity in the U.S. 63
Table VI.15: Alternative Fuels and Vehicles, 2006 69
Table VI.16: Fueling Stations, 2007 69
Table VI.17: Current and Future Ethanol Production Capacity in California 70
Table VI.18 Current and Future Biodiesel Production Capacity in California 72
Table VI.19: Forecasted Biodiesel Production, Imports and Demand for California (million gallons)72
Table VII.1: Definition of Biofuels under the Biofuels Directive 76
Table VII.2: EU-27 Overview of Biofuels Mandatory Targets and/or Obligation 77
Table VII.3: Renewable Energy Directive and Fuel Quality Directive Timeline 79
Table VII.4: Production Units with ETBE Quota 98
Table VII.5: Production Units with Ethanol Quota 99
Table VII.6: Production Units with Biodiesel Quota 100
Table VII.7: TGAP Applicable to French Fuel Marketers 100
Table VII.8: French Biofuel Targets (in energy percent and volume percent) 102
Table VII.9: Mandatory Biofuels Targets 2007-2015 (in energy percent and volume percent) 107
Table VII.10: Biodiesel Excise Duty Levels and Timing 109
Table VII.11: Ethanol Consumption in Germany 109
Table VII.12: Biodiesel Consumption in Germany 111
Table VII.13: Biofuels Targets, 2007-2010 119
Table VII.14: Quality Requirements per “CEN Workshop Agreement CWA 15293:2005 Automotive Fuels – Ethanol 85 – Requirements and test methods” 125
Table VII.15: Levels of the Renewable Transport Fuel Obligation, 2008-2011 141
Table VII.16: Annual Supplier target under the RTFO, 2008-2011 142
Table VIII.1: Projected Ukraine Rapeseed Production, 2006-10 (thousand tons) 167
Table IX.1: Forecasted Ethanol Supply for Latin America 176
Table IX.2: Forecasted Gasoline and Ethanol Demand for Latin America 176
Table IX.3: Forecasted Biodiesel Supply for Latin America 177
Table IX.4: Forecasted Diesel and Biodiesel Demand for Latin America 177
Table IX.5: N.C.M. 184
Table IX.6: Group 1 A and B 184
Table IX.7: Group 2 C and D 185
Table IX.8: Group 3 E 185
Table IX.9: Group 4 F 185
Table IX.10: Biodiesel Taxation Scheme under MP 227/04 & Decreto 5.297/04 193
Table IX.11: BNDES Financing Programs Relevant to Ethanol Production 195

© 2008, Global Biofuels Center. All right reserved. This material may not be published, broadcast, or distributed in whole or part without express written permission of the Global Biofuels Center.

Table IX.12: BNDES Financing Programs Relevant to Biodiesel Production 195
Table IX.13: Projections for the Brazilian Sugar Cane Industry 203
Table IX.14: Ethanol Feedstock Production in Colombia 209
Table IX.15: Palm Oil Supply and Demand (thousand tons) 209
Table IX.16: Future Palm Oil Production in Colombia 210
Table X.1: Summary of Ethanol Programs in Asia 231
Table X.2: Summary of Biodiesel Programs in Asia 232
Table X.3: Excise Transition Paths for Fuels Entering the Excise Net in Australia 238
Table X.4: Federal and State Grants Given to Ethanol Projects in Australia 239
Table X.5: Federal and State Grants Given to Biodiesel Projects in Australia 240
Table X.6: Availability of Biofuel Blends in Australia 241
Table X.7: Coverage of E10 Use in China 244
Table X.8: Ethanol Mandate and Biofuel Blending Roadmap in India 252
Table X.9: The Indonesian Government's Strategic Plan for Biofuel Blending, 2006-2025 258
Table X.10: Progressive Export Tax Levied on CPO, RBD Palm Oil and Biodiesel from Indonesia259
Table X.11: Import Tariff Rates for ETBE 265
Table X.12: Action Plans in the Medium and Long Term of Malaysia's National Biofuel Policy 269
Table X.13: New Zealand's Biofuels Sales Obligation 273
Table X.14: History of Biofuels Act of 2006 (Republic Act 9637) in the Philippines 279
Table X.15: Ethanol and Biodiesel Blending Timeline in the Philippines 280
Table X.16: Feedstock and Acreage Demand to Meet E5 & E10 Mandates in the Philippines 283
Table X.17: Feedstock and Acreage Demand to Meet B1 & B2 Mandates in the Philippines 283
Table X.18: Biodiesel Blending Roadmap in South Korea 286
Table X.19: Tax Components of B5 and B20 286
Table X.20: Biodiesel Demand in South Korea, 2002-2007 287
Table X.21: Past Government Biofuel Initiatives in Thailand 289
Table X.22: Biodiesel Blending Roadmap in Thailand 290
Table X.23: Area Targeted for Palm Oil Planting under the Biodiesel Action Plan 291
Table X.24: Partial Retail Price Structure Comparison of Gasoline Grades, E10 and E20 in Thailand, May 2008 292
Table X.25: Partial Retail Price Structure Comparison of HSD and B5 in Thailand, May 2008 293
Table X.26: Current Excise Tariffs for E20 Compliant Vehicles 293
Table XIV.1: Biodiesel Production Input and Output Levels 364
Table XIV.2: The Fischer-Tropsch Process 369

© 2008, Global Biofuels Center. All right reserved. This material may not be published, broadcast, or distributed in whole or part without express written permission of the Global Biofuels Center.