

INTRODUCTION.....	XXIII
BACKGROUND.....	XXIII
GOALS AND OBJECTIVES	XXV
INTENDED AUDIENCE	XXV
SCOPE OF STUDY	XXVI
METHODOLOGY.....	XXVII
ANALYST CREDENTIALS	XXVIII
RELATED BCC RESEARCH.....	XXVIII
BCC ONLINE SERVICES	XXIX
DISCLAIMER	XXIX
EXECUTIVE SUMMARY.....	XXX
<i>SUMMARY TABLE GLOBAL MARKET FOR FUEL OPTIMIZATION TECHNOLOGIES, THROUGH 2011 (\$ BILLION)</i>	XXX
<i>SUMMARY FIGURE MARKET FOR FUEL OPTIMIZATION TECHNOLOGIES BY SECTOR (\$ BILLION)</i>	XXX
<i>SUMMARY FIGURE (CONTINUED)</i>	XXXI
OVERVIEW—FUEL OPTIMIZING TECHNOLOGIES.....	1
DEFINITIONS.....	1
FUEL.....	1
FUEL OPTIMIZING TECHNOLOGIES	1
IMPORTANCE OF FUEL OPTIMIZATION	2
TRENDS IN OIL AND GAS CONSUMPTION	2
Petroleum Consumption	2
Trends in Global Crude Oil Consumption vs. Refining Capacity	2
<i>FIGURE 1 TRENDS IN CRUDE OIL CONSUMPTION VS. REFINING CAPACITY, 1970-2003 (MILLION BARRELS/DAY)</i>	3
Trends In Global Oil Consumption By Geographical Area.....	3
<i>TABLE 1 HISTORICAL PETROLEUM CONSUMPTION BY GEOGRAPHICAL AREA, THROUGH 2003 (MILLION BARRELS PER DAY)</i>	4
<i>FIGURE 2 GLOBAL PETROLEUM CONSUMPTION BY GEOGRAPHICAL AREA, 1960-2003 (MILLION BARRELS PER DAY)</i>	4
Trends In Global Oil Consumption By End- Use	5
<i>TABLE 2 WORLD OIL CONSUMPTION BY END-USER SEGMENT, THROUGH 2003 (MILLION TONS OF OIL)</i>	5

<i>FIGURE 3 MAJOR END-USER SEGMENT SHARES OF TOTAL WORLD OIL CONSUMPTION, 1973 AND 2003 (PERCENT OF TOTAL WORLD CONSUMPTION)</i>	6
Natural Gas Consumption	7
<i>FIGURE 4 TRENDS IN GLOBAL NATURAL GAS CONSUMPTION, 1970-2005 (BILLION CUBIC FEET)</i>	7
PRICE TRENDS	7
Crude Oil Prices	7
<i>TABLE 3 HISTORICAL CRUDE OIL PRICES, 1946-1952 (U.S. AVERAGE \$/BARREL)</i>	8
<i>FIGURE 5 TRENDS IN AVERAGE CRUDE OIL PRICES. 1946-2006 (\$/BARREL)</i>	9
Crude Oil Prices (Continued)	10
Natural Gas Prices	11
<i>FIGURE 6 NATURAL GAS PRICE TRENDS, 1990-2005 (\$/MCF)</i>	11
<i>FIGURE 6 (CONTINUED)</i>	12
ENERGY SECURITY ISSUES	12
ENVIRONMENTAL (EMISSIONS) ISSUES	13
OVERALL EFFICIENCY	14
FUEL OPTIMIZATION TECHNOLOGIES	15
MOTOR VEHICLES	15
Automobiles And Light Trucks.....	15
Improved Internal Combustion Engine Management Technologies	16
<i>TABLE 4 PASSENGER CAR AND LIGHT VEHICLE FUEL OPTIMIZATION TECHNOLOGIES</i>	16
Variable Displacement.....	16
Technology Description	16
Commercial Status/Prospects	17
Manufacturers	18
<i>TABLE 5 COMPANIES THAT MANUFACTURE VARIABLE DISPLACEMENT ENGINES AND CONTROL SYSTEMS</i>	18
Homogeneous Charge Compression Ignition (HCCI)	18
Technology Description	19
Commercial Prospects	20
Applications	20
Manufacturers.....	21
Integrated Starter/Alternator Systems	21
Technology Description	21
Commercial Status/Prospects	22
Manufacturers	23
<i>TABLE 6 COMPANIES MANUFACTURING OR DEVELOPING ISA TECHNOLOGY</i>	23

Variable Valve Timing And Lift.....	23
Technology Description	24
Commercial Status.....	25
Manufacturers.....	25
<i>TABLE 7 MAJOR SUPPLIERS OF VVTL APPLICATIONS.....</i>	<i>25</i>
Other Improvements In Existing Ic Engines	26
Gasoline Direct Injection	26
Technology Description	26
Commercial Status.....	27
Manufacturers.....	28
<i>TABLE 8 MAJOR GDI SYSTEM MANUFACTURERS.....</i>	<i>28</i>
Turbochargers And Superchargers.....	28
Technology Description	29
Commercial Status.....	30
Manufacturers.....	31
<i>TABLE 9 MAJOR LIGHT VEHICLE TURBOCHARGER</i>	
<i> MANUFACTURERS</i>	<i>31</i>
Brake Energy Regeneration	31
Technology Description	31
Commercial Status.....	32
Manufacturers.....	32
<i>TABLE 10 MAJOR MANUFACTURERS OF REGENERATIVE</i>	
<i> BRAKING SYSTEMS.....</i>	<i>33</i>
Improved Transmissions	33
Six- And Seven-Speed	
Conventional Automatics	33
Continuously Variable	
Transmissions.....	34
Automated Manual	
Transmissions.....	35
Manufacturers.....	36
<i>TABLE 11 COMPANIES MANUFACTURING ADVANCED</i>	
<i> TRANSMISSIONS.....</i>	<i>36</i>
New/Improved Ic Engine Types	37
Hybrid Electric/Internal Combustion	
Engines	37
Technology Description	37
<i>TABLE 12 COMMERCIALLY AVAILABLE ELECTRIC/GAS</i>	
<i> HYBRID LIGHT VEHICLES, 2006.....</i>	<i>38</i>
Improved Diesel Engines.....	39
Advanced Diesel Engines	40
<i>TABLE 13 COMPANIES DEVELOPING OR MANUFACTURING</i>	
<i> ADVANCED DIESEL TECHNOLOGIES</i>	<i>41</i>
Freight And Commercial Vehicles.....	41

Improvements In Existing Engines	41
Rotating Liner Engine	42
Technology Description	42
Commercial Status/Prospects	42
New Engine Types.....	42
Electric/Diesel Hybrids	42
Technology Description	43
Commercial Status/Prospects	43
Manufacturers.....	43
<i>TABLE 14 COMPANIES DEVELOPING ELECTRIC/DIESEL</i>	
<i>HYBRID TECHNOLOGY.....</i>	<i>44</i>
Hydraulic Hybrid Engines.....	44
Technology Description	44
Commercial Status/Prospects	44
Applications	45
Manufacturers.....	45
<i>TABLE 15 COMPANIES DEVELOPING HYBRID HYDRAULIC</i>	
<i>VEHICLES/SYSTEMS</i>	<i>45</i>
Other Improvements	46
Improved Transmissions	46
<i>TABLE 16 COMPANIES DEVELOPING OR MANUFACTURING</i>	
<i>FUEL-EFFICIENT HEAVY-DUTY TRANSMISSIONS.....</i>	<i>46</i>
Hydraulic Launch Assist	46
Technology Description	47
Commercial Status/Prospects	47
Manufacturers.....	47
<i>TABLE 17 COMPANIES DEVELOPING HYBRID LAUNCH</i>	
<i>ASSIST SYSTEMS.....</i>	<i>48</i>
OTHER TRANSPORTATION MODES	48
Railroads.....	48
Improved Locomotive Engine Management	
Technologies	48
Idle Reduction.....	48
Technology Description	48
Commercial Status/Prospects	49
Manufacturers.....	49
<i>TABLE 18 COMPANIES SELLING DIESEL ENGINE IDLE</i>	
<i>REDUCTION TECHNOLOGY.....</i>	<i>49</i>
Improved “Consist” Management	50
Technology Description	50
Commercial Status/Prospects	50
New Locomotive Engine Types	50
Advanced Diesel Locomotives	51
Technology Description	51

	Commercial Status/Prospects	51
	Applications	52
	Manufacturers	52
<i>TABLE 19 MAJOR MANUFACTURERS OF ADVANCED DIESEL</i>		
<i>LOCOMOTIVES</i>		<i>52</i>
	Hybrids	52
	Technology Description	52
	Commercial Status/Prospects	53
	Applications	53
	Manufacturers	53
<i>TABLE 20 COMPANIES THAT MANUFACTURE OR ARE</i>		
<i>DEVELOPING HYBRID LOCOMOTIVES</i>		<i>54</i>
	Aircraft	54
	New Engine Types	54
	Propfan	54
	Technology Description	54
	Commercial Status/Prospects	55
	Manufacturers	55
<i>TABLE 21 COMPANIES THAT MANUFACTURE OR ARE</i>		
<i>DEVELOPING PROPFAN ENGINES</i>		<i>55</i>
	Diesel	56
	Technology Description	56
	Commercial Status/Prospects	56
	Manufacturers	56
<i>TABLE 22 COMPANIES THAT MANUFACTURE OR ARE</i>		
<i>DEVELOPING DIESEL AIRCRAFT ENGINES</i>		<i>57</i>
	Marine Transport	57
	Improved Engine Types	57
	Small Marine Engines	57
	Technology Description	57
	Commercial Status/Prospects	58
	Applications	58
	Manufacturers	58
<i>TABLE 23 SMALL MARINE ENGINE MANUFACTURERS</i>		<i>59</i>
	New Engine Technologies	59
	Hybrid Marine Propulsion Systems	59
COMMERCIAL/INDUSTRIAL/UTILITY SECTOR		59
FURNACES AND BOILERS		60
	Technology Description	60
	Energy-Efficient Burners	60
	Pressure Controllers	60
	Turbulators	61
	Boiler Heat Recovery Systems	61
	Flue Gas Heat Recovery Systems	61

Blowdown Heat Recovery Systems.....	62
Sensors And Controls	62
Improved Sensors	62
Improved Controls.....	62
Applications	63
Commercial Status/Manufacturers	63
<i>TABLE 24 MANUFACTURERS OF FURNACE AND BOILER</i>	
<i>FUEL OPTIMIZATION DEVICES AND EQUIPMENT.....</i>	<i>63</i>
<i>TABLE 24 (CONTINUED).....</i>	<i>64</i>
RESIDENTIAL SECTOR.....	64
HEATING.....	64
Technology Description.....	65
Exhaust Gas Condensation.....	65
Combustion Air.....	65
Variable Speed Blowers.....	65
Commercial Status And Manufacturers	66
<i>TABLE 25 MANUFACTURERS OF FUEL-EFFICIENT</i>	
<i>DOMESTIC FURNACES.....</i>	<i>66</i>
PATENT ANALYSIS.....	67
ENERGY OPTIMIZATION PATENTS/PATENT	
APPLICATIONS BY SECTOR	67
<i>FIGURE 7 U.S. PATENTS ISSUED THROUGH JUNE 2006 AND</i>	
<i>PATENT APPLICATIONS RELATING TO ENERGY</i>	
<i>OPTIMIZATION BY USER SECTOR (PERCENT OF ALL</i>	
<i>PATENTS).....</i>	<i>67</i>
<i>FIGURE 7 (CONTINUED).....</i>	<i>68</i>
MAJOR IP PORTFOLIOS.....	68
<i>TABLE 26 LARGEST HOLDERS OF U.S. FUEL OPTIMIZATION</i>	
<i>PATENTS AND PATENT APPLICATIONS.....</i>	<i>68</i>
PUBLIC POLICY DIMENSIONS OF FUEL OPTIMIZATION	
TECHNOLOGIES	69
UNITED STATES.....	69
ENERGY POLICY AND CONSERVATION ACT OF 1975.....	69
NATIONAL ENERGY ACT OF 1978.....	70
ENERGY POLICY ACT OF 2005.....	70
STATE AND LOCAL LEGISLATION	71
EUROPEAN UNION.....	71
FUEL TAXES.....	71
JAPAN.....	72
FUEL ECONOMY STANDARDS	72
FUEL TAXES.....	72
OTHER COUNTRIES	73
CHINA.....	73

INDIA	73
GLOBAL MARKETS FOR FUEL OPTIMIZATION TECHNOLOGIES, 2005-2011	74
SUMMARY	74
OVERALL MARKET SIZE AND GROWTH TRENDS	74
<i>TABLE 27 GLOBAL MARKET FORECAST FOR FUEL OPTIMIZATION TECHNOLOGIES, THROUGH 2011 (\$ BILLION)</i>	74
<i>FIGURE 8 GLOBAL MARKET FORECAST FOR FUEL OPTIMIZATION TECHNOLOGIES, 2005-2011 (\$ BILLION)</i>	74
MARKET BY TYPE OF END-USER	75
<i>FIGURE 9 GLOBAL MARKET SHARES FOR FUEL OPTIMIZATION BY USER SEGMENT, 2005 AND 2011 (PERCENT OF TOTAL CONSUMPTION)</i>	75
<i>TABLE 28 GLOBAL MARKET FORECAST FOR FUEL OPTIMIZATION TECHNOLOGIES BY END-USER SEGMENT, THROUGH 2011 (\$ BILLION)</i>	76
CAPTIVE PRODUCTION VS. OUTSIDE PROCUREMENT	76
<i>TABLE 29 GLOBAL MARKET FORECAST FOR FUEL OPTIMIZATION TECHNOLOGIES MET BY CAPTIVE VS. INDEPENDENT SUPPLIERS, THROUGH 2011 (\$ BILLION)</i>	76
<i>FIGURE 10 CAPTIVE VS. INDEPENDENT VENDOR SHARE OF GLOBAL FUEL OPTIMIZATION TECHNOLOGIES MARKET, 2005 AND 2011 (PERCENT OF TOTAL MARKET)</i>	77
DETAILED MARKET ESTIMATES AND PROJECTIONS.....	77
PASSENGER CARS AND OTHER LIGHT VEHICLES.....	77
Summary	77
<i>FIGURE 11 MAJOR FUEL OPTIMIZATION TECHNOLOGY SHARES OF LIGHT VEHICLE MARKET, 2005 AND 2011 (PERCENT OF TOTAL GLOBAL SALES)</i>	78
<i>FIGURE 12 CAPTIVE VS. INDEPENDENT VENDORS SHARE OF LIGHT VEHICLE FUEL OPTIMIZATION TECHNOLOGIES, 2005 AND 2011 (PERCENT OF TOTAL MARKET)</i>	79
Target Markets.....	79
<i>TABLE 30 GLOBAL MARKET FORECAST OF LIGHT VEHICLE SALES, THROUGH 2011 (MILLION VEHICLES)</i>	80
<i>FIGURE 13 TRENDS IN WORLDWIDE LIGHT VEHICLE SALES, 2005-2011 (MILLION VEHICLES)</i>	80
<i>FIGURE 14 GLOBAL MARKET SHARES OF LIGHT VEHICLES BY TYPE OF POWER TRAIN, 2005 AND 2011 (%)</i>	81
Market Penetration Of Fuel Optimization Technologies.....	82

<i>TABLE 31 PASSENGER AND LIGHT VEHICLE FUEL OPTIMIZING TECHNOLOGIES MARKET PENETRATION RATIOS, 2005-2011</i>	82
<i>TABLE 31 (CONTINUED)</i>	83
<i>FIGURE 15 PASSENGER AND LIGHT VEHICLE FUEL OPTIMIZING TECHNOLOGIES MARKET PENETRATION RATIOS, 2005–2011 (PERCENT OF RESPECTIVE TARGET MARKET)</i>	84
Variable Displacement Engines.....	84
HCCI	85
Integrated Starter-Alternators	85
Variable Valve Timing And Lift.....	85
Gasoline Direct Injection.....	86
Turbochargers And Superchargers.....	86
Regenerative Braking.....	86
6- And 7-Speed Automatic Transmissions	87
Continuously Variable Transmissions.....	87
Automated Manual Transmission	87
Advanced Diesel Engines	88
Costs.....	88
<i>TABLE 32 INCREMENTAL COST OF FUEL OPTIMIZATION TECHNOLOGIES FOR PASSENGER CARS AND OTHER LIGHT VEHICLES (\$/VEHICLE)</i>	88
<i>TABLE 32 (CONTINUED)</i>	89
Markets.....	90
Total Market	90
<i>TABLE 33 GLOBAL MARKET FORECAST FOR PASSENGER CAR AND OTHER LIGHT VEHICLE FUEL OPTIMIZATION TECHNOLOGIES</i>	90
<i>TABLE 33 (CONTINUED)</i>	91
Noncaptive Market.....	91
<i>FIGURE 16 VEHICLE MANUFACTURERS’ SOURCING OF FUEL-OPTIMIZING FROM CAPTIVE VS. INDEPENDENT SUPPLIERS (PERCENT OF TOTAL CONSUMPTION BY TYPE OF SOURCE)</i>	92
<i>TABLE 34 GLOBAL MARKET FORECAST OF FUEL OPTIMIZING TECHNOLOGIES PURCHASED FROM OUTSIDE SUPPLIERS, THROUGH 2011 (\$ MILLION)</i>	93
<i>TABLE 34 (CONTINUED)</i>	94
COMMERCIAL AND PUBLIC TRANSPORT VEHICLES	94
Summary	94
<i>FIGURE 17 MAJOR FUEL OPTIMIZATION TECHNOLOGY SHARES OF COMMERCIAL AND PUBLIC TRANSPORT</i>	

VEHICLE MARKET, 2005 AND 2011 (PERCENT OF TOTAL GLOBAL MARKET)	95
FIGURE 18 CAPTIVE VS. INDEPENDENT VENDORS SHARE OF COMMERCIAL AND PUBLIC TRANSPORT VEHICLE FUEL OPTIMIZATION TECHNOLOGIES, 2005 AND 2011 (PERCENT OF TOTAL MARKET).....	96
Target Markets.....	96
Worldwide Production of Trucks and Buses.....	96
TABLE 35 WORLDWIDE PRODUCTION OF MEDIUM/HEAVY TRUCKS AND BUSES, THROUGH 2011 (MILLION VEHICLES)	97
FIGURE 19 TRENDS IN WORLDWIDE SALES OF MEDIUM/HEAVY TRUCKS AND BUSES, 2005-2011 (MILLION VEHICLES).....	97
Market Penetration Of Fuel Optimization Technologies	98
TABLE 36 COMMERCIAL AND PUBLIC TRANSPORT VEHICLE FUEL OPTIMIZING TECHNOLOGIES MARKET PENETRATION RATIOS, 2005-2011	98
FIGURE 20 COMMERCIAL AND PUBLIC TRANSPORT VEHICLE FUEL OPTIMIZING TECHNOLOGIES MARKET PENETRATION RATIOS, 2005-2011 (PERCENT OF RESPECTIVE TARGET MARKET).....	99
Rotating Liner Engines	100
Hydraulic/Diesel Hybrids.....	100
Electric/Diesel Hybrids.....	100
TABLE 37 PROJECTED HYBRID BUS SALES, 2011 (UNITS).....	100
Continuously Variable Transmissions.....	101
Automated Manual Transmissions.....	101
Hybrid Launch Assist.....	102
Costs.....	102
TABLE 38 INCREMENTAL COST OF FUEL OPTIMIZATION TECHNOLOGIES FOR COMMERCIAL AND PUBLIC TRANSPORT VEHICLES (\$/VEHICLE).....	102
Markets.....	103
Total Market	103
TABLE 39 GLOBAL MARKET FORECAST FOR COMMERCIAL AND PUBLIC TRANSPORT VEHICLE FUEL OPTIMIZATION TECHNOLOGIES, THROUGH 2011 (UNITS/\$)	104
Noncaptive Market.....	104
FIGURE 21 FREIGHT AND COMMERCIAL VEHICLE MANUFACTURERS' SOURCING OF FUEL-OPTIMIZING FROM CAPTIVE VS. INDEPENDENT SUPPLIERS (PERCENT OF TOTAL CONSUMPTION BY TYPE OF SOURCE)	105

<i>TABLE 40 GLOBAL MARKET FORECAST FOR FUEL OPTIMIZING TECHNOLOGIES PURCHASED FROM OUTSIDE SUPPLIERS, THROUGH 2011 (\$ MILLION)</i>	106
OTHER TRANSPORT MODES	106
Summary	106
<i>TABLE 41 GLOBAL MARKET FORECAST FOR FUEL OPTIMIZATION TECHNOLOGIES USED IN OTHER TRANSPORT MODES,</i>	107
<i>FIGURE 22 TRENDS IN GLOBAL MARKET FOR FUEL OPTIMIZATION TECHNOLOGIES USED IN OTHER TRANSPORT MODELS, 2005–2011 (\$ BILLION)</i>	107
<i>FIGURE 23 CAPTIVE VS. INDEPENDENT VENDORS SHARE OF OTHER TRANSPORT MODE FUEL OPTIMIZATION TECHNOLOGIES, 2005 AND 2011 (PERCENT OF TOTAL MARKET)</i>	108
Railroads.....	108
Summary.....	108
<i>FIGURE 24 RAILWAY FUEL OPTIMIZATION TECHNOLOGIES MARKET SHARES, 2005 VS. 2011 (PERCENT OF TOTAL MARKET)</i>	109
Target Markets	109
Existing Diesel Locomotives.....	110
Worldwide Shipments Of Diesel Locomotives	110
<i>TABLE 42 GLOBAL DIESEL LOCOMOTIVE SALES, THROUGH 2011 (NUMBER OF LOCOMOTIVES)</i>	110
<i>FIGURE 25 TRENDS IN GLOBAL SALES OF DIESEL LOCOMOTIVES, 2005–2011 (UNITS)</i>	110
Market Penetration Of Fuel Optimization Technologies	111
<i>TABLE 43 RAILWAY FUEL OPTIMIZING TECHNOLOGIES MARKET PENETRATION RATIOS, THROUGH 2011</i>	111
<i>FIGURE 26 RAILWAY FUEL OPTIMIZING TECHNOLOGIES MARKET PENETRATION RATIOS, 2005–2011 (PERCENT OF RESPECTIVE TARGET MARKET)</i>	112
Idle Reduction.....	112
Consist Manager.....	113
Advanced Diesel Locomotives	113
Hybrid Locomotives.....	113
Costs.....	114
<i>TABLE 44 AVERAGE COST OF RAILWAY FUEL OPTIMIZATION TECHNOLOGIES (\$/UNIT)</i>	114
Markets.....	115
Total Market	115

<i>TABLE 45 GLOBAL MARKET FOR RAILWAY FUEL OPTIMIZATION TECHNOLOGIES</i>	115
Noncaptive Market.....	115
<i>FIGURE 27 CAPTIVE VS. INDEPENDENT SUPPLIERS' SHARES OF RAILWAY FUEL OPTIMIZING TECHNOLOGY MARKET SEGMENTS, 2005 (PERCENT OF TOTAL CONSUMPTION BY TYPE OF SOURCE)</i>	116
<i>TABLE 46 RAILWAY FUEL OPTIMIZING TECHNOLOGIES PURCHASED FROM OUTSIDE SUPPLIERS, THROUGH 2011 (\$ MILLION)</i>	117
Aircraft.....	117
Summary.....	117
<i>FIGURE 28 AIRCRAFT FUEL OPTIMIZATION TECHNOLOGIES MARKET SHARES, 2005 AND 2011 (PERCENT OF TOTAL MARKET)</i>	118
Target Markets.....	118
Commercial Aviation Engines.....	118
<i>TABLE 47 GLOBAL MARKET FORECAST FOR COMMERCIAL AIRCRAFT ENGINE SALES, THROUGH 2011 (NUMBER OF ENGINES)</i>	119
<i>FIGURE 29 GLOBAL TRENDS IN COMMERCIAL AIRCRAFT ENGINE SALES, 2005–2011 (NUMBER OF ENGINES)</i>	119
General Aviation Engines.....	120
<i>TABLE 48 GLOBAL MARKET FORECAST FOR GENERAL AVIATION ENGINE SALES, THROUGH 2011 (NUMBER OF ENGINES)</i>	120
<i>FIGURE 30 GLOBAL MARKET TRENDS IN GENERAL AVIATION ENGINE SALES, 2005–2011 (NUMBER OF ENGINES)</i>	120
Market Penetration Of Fuel Optimization Technologies	121
<i>TABLE 49 AVIATION ENGINE FUEL OPTIMIZING TECHNOLOGIES MARKET PENETRATION RATIOS, THROUGH 2011</i>	121
<i>FIGURE 31 AVIATION ENGINE FUEL OPTIMIZING TECHNOLOGIES MARKET PENETRATION RATIOS, 2005–2011 (PERCENT OF RESPECTIVE TARGET MARKET)</i>	122
Propfans	122
Diesels	122
Costs.....	123
<i>TABLE 50 INCREMENTAL COST OF AIRCRAFT ENGINE FUEL OPTIMIZATION TECHNOLOGIES (\$/UNIT)</i>	123
Markets.....	124
Total Market.....	124

<i>TABLE 51 GLOBAL MARKET FOR AIRCRAFT ENGINE FUEL OPTIMIZATION TECHNOLOGIES, THROUGH 2011.....</i>	<i>124</i>
Noncaptive Market.....	124
Marine Transportation	124
Summary.....	125
<i>FIGURE 32 MARINE FUEL OPTIMIZATION TECHNOLOGIES MARKET SHARES, 2005 AND 2011 (PERCENT OF TOTAL MARKET).....</i>	<i>125</i>
Target Markets	125
<i>FIGURE 33 GLOBAL SALES OF POWERED BOATS AND VESSELS, 2005 (PERCENT OF TOTAL UNIT SALES).....</i>	<i>126</i>
Market Penetration Of Fuel Optimization Technologies	126
<i>TABLE 52 MARINE OPTIMIZING TECHNOLOGIES MARKET PENETRATION RATIOS, 2005-2011</i>	<i>127</i>
<i>FIGURE 34 MARINE FUEL OPTIMIZING TECHNOLOGIES MARKET PENETRATION RATIOS, 2005-2011 (PERCENT OF RESPECTIVE TARGET MARKET).....</i>	<i>127</i>
2-Stroke DFI And 4-Stroke Engines.....	128
Costs.....	128
<i>TABLE 53 INCREMENTAL COST OF MARINE FUEL OPTIMIZATION TECHNOLOGIES (\$/ENGINE)</i>	<i>128</i>
Markets.....	128
<i>TABLE 54 GLOBAL MARKET FOR MARINE ENGINE FUEL OPTIMIZATION TECHNOLOGIES, THROUGH 2011.....</i>	<i>129</i>
COMMERCIAL/INDUSTRIAL/UTILITY SECTOR.....	129
Summary	129
Furnaces And Boiler Fuel Optimization Technologies.....	129
Summary	129
Target Markets.....	130
<i>FIGURE 35 U.S. COMMERCIAL, INDUSTRIAL AND UTILITY BOILERS, 2005 (PERCENT OF TOTAL INSTALLED BASE BY SECTOR)</i>	<i>130</i>
Market Penetration.....	131
<i>TABLE 55 POTENTIAL ANNUAL ENERGY SAVINGS IN THE UNITED STATES FROM INSTALLATION OF ADVANCED BOILERS AND OTHER FURNACE AND BOILER EFFICIENCY IMPROVEMENTS</i>	<i>132</i>
Cost	132
Markets.....	132
<i>TABLE 56 GLOBAL MARKET FORECAST FOR COMMERCIAL/INDUSTRIAL/UTILITY FUEL</i>	

OPTIMIZATION TECHNOLOGIES, THROUGH 2011 (\$ MILLION)	133
RESIDENTIAL SECTOR	133
Summary	133
TABLE 57 GLOBAL MARKET FORECAST FOR RESIDENTIAL FURNACE FUEL-SAVING TECHNOLOGIES, THROUGH 2011 (\$ BILLION).....	134
Target Markets.....	134
FIGURE 36 TOTAL U.S. SHIPMENTS OF OIL AND GAS-FIRED RESIDENTIAL FURNACES, 2005 (UNITS).....	134
FIGURE 36 (CONTINUED).....	135
Market Penetration.....	135
TABLE 58 FUEL-EFFICIENT RESIDENTIAL FURNACE MARKET PENETRATION RATIOS, THROUGH 2011.....	135
Costs.....	136
Markets.....	136
TABLE 59 U.S. MARKET FORECAST FOR MARINE ENGINE FUEL OPTIMIZATION TECHNOLOGIES, THROUGH 2011	136
VENDOR PROFILES.....	137
AISIN SEIKI CO., LTD.	137
BORGWARNER INC.....	137
ROBERT BOSCH GMBH.....	137
DENSO CORP.	138
DELPHI CORP.	138
EATON CORP.	138
ECOTRANS TECHNOLOGIES	139
FIBA CANNING INC.	139
GENERAL MOTORS CORP.	139
HILITE INTERNATIONAL.....	140
HOLSET ENGINEERING CO. LTD.	140
HONDA MOTOR CO., LTD.	140
HONEYWELL INTERNATIONAL INC.....	140
ISHIKAWAJIMA-HARIMA HEAVY INDUSTRIES CO., LTD.....	141
ISUZU MOTORS LTD.....	141
MITSUBISHI HEAVY INDUSTRIES, LTD.....	141
16-5, KONAN 2-CHOME, MINATO-KU TOKYO, 108-8215, JAPAN	141
PETERBILT MOTORS CO.	142
1700 WOODBROOK ST. DENTON, TX 76207	142
PSA PEUGEOT CITROEN SA	142
RAILPOWER TECHNOLOGIES CORP.	142
RICARDO GROUP PLC	142
SHEP TECHNOLOGIES INC.	143
SIEMENS VDO AUTOMOTIVE AG	143

THIELERT AIRCRAFT ENGINES GMBH	143
TOYOTA MOTOR CORP.	144
TRW AUTOMOTIVE HOLDINGS CORP.	144
UNISIA JECS CORP.	144
VALEO	145
VISTEON CORP.	145
VOLVO ABS.....	145
ZF SACHS AG	146
ZTR CONTROL SYSTEMS.....	146