INDUSTRY MARKET RESEARCH FOR BUSINESS LEADERS, STRATEGISTS, DECISION MAKERS

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Table of Contents **2**

List of Tables & Charts **3**

Study Overview **4**

Sample Text, Table & Chart **5**

Sample Profile, Table & Forecast **6**

Order Form **7**

About Freedonia, Custom Research, Related Studies, Corporate Use License **8**

Diesel Engines

US Industry Study with Forecasts to **2011 & 2016**

Study #2171 | March 2007 | $4400 | 241 pages

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Table of Contents

EXECUTIVE SUMMARY

MARKET ENVIRONMENT

General 4
Economic Environment 5
  Cyclical Trends 5
  Long-Term Trends 8
Motor Vehicle Sector Outlook 12
Industrial Sector Outlook 15
  Industrial Production Trends 16
  Capital Spending/Fixed Investment Trends 18
Cost/Pricing Dynamics 20
Regulatory Trends 22
  Environmental 23
  Energy Efficiency & Other 26
International Environment 27
  World Diesel Engine Supply/Demand .. 27
  Trends in US Foreign Trade 30

TECHNOLOGY

General 32
Basic Diesel Engine Operation 33
Emissions Control Technology 34
  Fuel System Enhancements 35
  Turbocharging & After-Treatment Device Enhancements 37
  Diesel Fuel Enhancements 40
Performance Enhancement Technology .. 41
Alternative/Competitive Technologies .. 42
  Natural Gas Engines 43
  Dual-Fuel & Hybrid Engines 44
  Turbines & Microturbines 45
  Fuel Cells 46

DIESEL ENGINE PRODUCTS & MATERIALS

General 48
Motor Vehicle Engines 52
  Demand 54
  Supply 57
Non-Motor Vehicle Engines 58
  Demand 59
  Supply 61
Aftermarket Parts 62
Diesel Engine Materials 66

DIESEL ENGINE MARKETS

General 70
Motor Vehicle Markets 73
  Heavy-Duty Trucks 75
    Industry Overview 75
    Diesel Engine & Parts Demand 78
  Medium-Duty Trucks 81
    Industry Overview 81
    Diesel Engines & Parts Demand 83
  Light-Duty Trucks 85
    Industry Overview 85
    Diesel Engines & Parts Demand 87
  Buses 90
    Industry Overview 90
    Diesel Engines & Parts Demand 91
  Other Motor Vehicle Markets 94
    Specialty Vehicles 96
    Recreational Vehicles 97
    Passenger Cars 98
    All-Terrain Vehicles 100
Non-Motor Vehicle Markets 101
  Construction Equipment 104
    Industry Overview 105
    Diesel Engines & Parts Demand 106
  Agricultural Equipment 109
    Industry Overview 109
    Diesel Engines & Parts Demand 111
  Marine Equipment 113
    Industry Overview 113
    Diesel Engines & Parts Demand 115
  Electric Power Generation 118
    Industry Overview 119
    Diesel Engines & Parts Demand 120
  Other Industrial Equipment 123
    Industry Overview 123
    Diesel Engines & Parts Demand 124
  Mining Machinery 126
    Industry Overview 127
    Diesel Engines & Parts Demand 128
  Lawn & Garden Equipment 130
    Industry Overview 130
    Diesel Engines & Parts Demand 132
  Other Non-Motor Vehicle Markets 134

INDUSTRY STRUCTURE

General 137
Industry Composition/Market Share ... 140
Research & Product Development 143
Manufacturing 145
Marketing & Distribution 146
Competitive Intensity 148
Financial Issues & Requirements 150
Mergers, Acquisitions & Industry Restructuring 151
Cooperative Agreements 154

COMPANY PROFILES

Bosch (Robert) GmbH 162
Briggs & Stratton 164
Brunswick Corporation 165
Caterpillar Incorporated 167
Cummins Incorporated 171
DaimlerChrysler AG 178
Deere & Company 182
Delphi Corporation 184
DENSO Corporation 187
DEUTZ AG 188
Doosan Infracore 190
EnPro Industries 191
Ford Motor Company 193
Fuji Heavy Industries 195
General Electric 196
General Motors 198
Honda Motor 200
Isuzu Motors 201
Kohler Company 203
Komatsu Limited 205
Kubota Corporation 207
MAN AG 208
Mitsubishi Heavy Industries 210
Navistar International 212
Nissan Diesel Motor 216
Peugeot SA 217
Siemens AG 219
Stanadyne Corporation 221
Tognum GmbH 223
Toyota Motor Corporation 225
Volkswagen AG 228
Volvo AB 230
Westerbeke Corporation 234
Yamaha Motor 235
Yanmar Company 236
Other Companies Mentioned in Study . 239

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List of Tables/Charts

EXECUTIVE SUMMARY

1 Summary Table 3

MARKET ENVIRONMENT

1 Macroeconomic Indicators 8
2 Diesel Engine Market, 1996-2006 11
Cht Diesel Engine Market Volatility, 1996-2006 12
3 Motor Vehicle Indicators 15
4 Manufacturers' Shipments by Industry 18
5 Private Fixed Investment by Type 20
Cht Diesel Engine Product Pricing Trends 22
6 World Diesel Engine Product Market 30
7 US Diesel Engine Product Foreign Trade 31

TECHNOLOGY

1 Selected Alternative Energy Sources Demand 43

DIESEL ENGINE PRODUCTS & MATERIALS

1 Diesel Engine Product Supply & Demand 51
Cht Diesel Engine Product Demand by Type, 2006 52
2 Motor Vehicle Diesel Engine Supply & Demand 54
3 Non-Motor Vehicle Diesel Engine Supply & Demand 59
4 Diesel Engine Aftermarket Parts Supply & Demand 66
5 Diesel Engine Materials Consumption 69

DIESEL ENGINE MARKETS

1 Diesel Engine Product Demand by Major Application & Type 72
Cht Diesel Engine Product Demand by Major Application, 2006 72
2 Motor Vehicle Diesel Engine Product Demand 74
Cht Motor Vehicle Diesel Engine Product Demand by Application, 2006 75
3 Heavy-Duty Truck Supply & Demand 78
4 Heavy-Duty Truck Diesel Engine Product Demand 80
5 Medium-Duty Truck Supply & Demand 82
6 Medium-Duty Truck Diesel Engine Product Demand 84
7 Light-Duty Truck Supply & Demand 87
8 Light-Duty Truck Diesel Engine Product Demand 89
9 Bus Supply & Demand 91
10 Bus Diesel Engine Product Demand 94
11 Other Motor Vehicle Diesel Engine Product Demand 96
12 Non-Motor Vehicle Diesel Engine Product Demand 103
Cht Non-Motor Vehicle Diesel Engine Product Demand by Application, 2006 104
13 Construction Expenditures ... 106
14 Construction Equipment Diesel Engine Product Demand 109
15 Agricultural Sector Indicators 111
16 Agricultural Equipment Diesel Engine Product Demand 113
17 Marine Equipment Shipments 115
18 Marine Equipment Diesel Engine Product Demand 118
19 Electricity Generation 120
20 Electric Power Generation DieselEngine Product Demand 122
21 Selected Industrial Equipment Shipments 124
22 Other Industrial Equipment Diesel Engine Product Demand 126
23 Mining Industry Indicators .. 128
24 Mining Machinery Diesel Engine Product Demand 130
25 Gas-Powered Lawn & Garden Equipment Shipments 132
26 Lawn & Garden Equipment Diesel Engine Product Demand 134
27 Other Non-Motor Vehicle Diesel Engine Product Demand 136

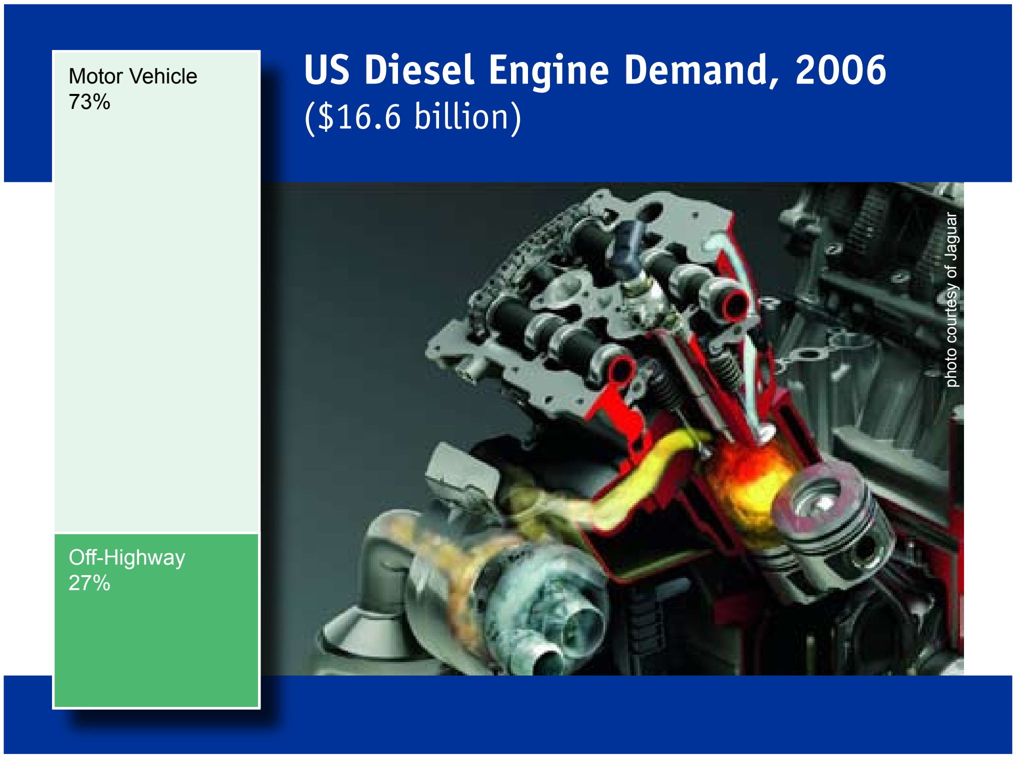
INDUSTRY STRUCTURE

1 Revenue Data: Selected Diesel Engine Product Companies, 2006 138
Cht US Diesel Engine Product Market Share by Company, 2006 142
2 Research & Development Spending Patterns: Selected Diesel Engine Product Companies, 2004-2006 145
Cht Forces at Work in the US Diesel Engine Market 150
3 Selected Acquisitions & Divestitures 153
4 Selected Cooperative Agreements 156

The best opportunities for diesel engines in the US will be found in the light-duty truck segment, which will expand at a robust 9.6 percent annual rate, reaching $2 billion in 2011.

US demand to grow 3.8% annually through 2011

US demand for diesel engines and related aftermarket parts is forecast to increase 3.8 percent annually through 2011 to $20 billion, a sign of the industry's continued strength since it is coming off of a high 2006 sales level. In 2006, diesel engine demand was artificially stimulated by a boost in the key heavy-duty truck market as fleets sought to buy ahead of 2007 emissions regulation changes. These changes will add both significant cost and uncertainty, since first-year engines using new technologies may not be as robust in terms of reliability and durability.



US Diesel Engine Demand, 2006
($16.6 billion)

Light-duty trucks to drive motor vehicle market

The motor vehicle market accounts for more than 70 percent of diesel engine demand. Heavy-duty trucks comprise the largest segment in this market, but the best opportunities will be found in the light-duty truck segment. Demand for diesel engines and parts in light-duty trucks will expand at a robust 9.6 percent annual rate, reaching $2 billion in 2011. Although a much smaller market, passenger cars will also fare very well.

Diesel engine-powered light vehicles currently account for less than three percent of new car sales in the US, so there is opportunity for a significant increase in penetration rates. By comparison, about half of the passenger cars sold in Western Europe are powered by diesel engines. Greater interest by the consuming public in improved fuel economy will foster gains. Modern diesel engines also offer significantly improved performance and noise, vibration and harshness characteristics than did engines formerly used in the US market, which should boost consumer interest. Additionally, technological innovations, many of which will be prompted by federally mandated emissions control regulations, will spur demand for new, cleaner-burning diesel engines and components at both the original equipment manufacturing and aftermarket levels. These benefits will be tempered somewhat by the higher price tag for diesel engine powerplants and a smaller diesel fueling infrastructure -- only about 40 percent of US service stations carry diesel fuel.

New regulations to support off-highway market

Off-highway diesel engines will experience slowing but still robust demand through 2011, as new Tier-4 off-highway diesel emissions regulations phase in between 2008 and 2015. These reductions, with particulate and oxides of nitrogen emissions mandated to be further reduced by about 90 percent, will likely be achieved through the use of control technologies such as advanced exhaust gas after-treatment. These technologies will be similar to those required by the heavy-truck standards, and thus should not create the same levels of uncertainty, since the technologies will be proven at that point.

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Sample Text, Table & Chart

TABLE V-6

MEDIUM-DUTY TRUCK DIESEL ENGINE PRODUCT DEMAND (million dollars)

Item	1996	2001	2006	2011	2016
Medium-Duty Truck Production (000)	1[illegible]				[illegible]1
Medium-Duty Trucks in Use (million)					[illegible]6
000$ engine/unit produced	[illegible]				[illegible]1
$ parts/unit in use					[illegible]3
M-D Truck Diesel Engine Demand	10[illegible]				[illegible]5
Engines	10[illegible]				[illegible]5
Parts					[illegible]0
% medium-duty trucks	1[illegible]				[illegible]9
MV Diesel Engine Product Demand	635[illegible]	[illegible]	[illegible]	[illegible]	[illegible]40

SAMPLE TABLE

DIESEL ENGINE MARKETS

Diesel Engines & Parts Demand -- Demand [...] and related aftermarket parts in the medium-duty truck [...] expected to rise [...]h 2011 to [...] largely as a resu[...] the need fo[...] control equipm[...] in part by [...] duty truck prod[...]ger useful [...] eration medium[...] reduce th[...] engines as ofte[...], in 1990, [...] 6 and 7 could pr[...]fe of about [...] before requiring a rebuilding; this service life increase[...] miles by the middle of the first decade of the new mill[...]

SAMPLE TEXT

On the other hand, in spite of -- and in part because of -- relatively flat medium-duty truck production through 2011, overall diesel engine product demand will be helped by healthy gains in the parts aftermarket, as fleet and single-truck operators opt to repair, remanufacture or rebuild truck engines rather than purchase expensive new units. The absolute necessity of maintaining an operating truck fleet for the survival of most delivery-oriented businesses will ensure a healthy demand for diesel engine parts and components, even if declines are experienced in the OEM side of the market.

Although diesel engines power the majority of medium-duty trucks, gasoline engines are also used to a considerable extent. Compressed natural gas (CNG) engines are also employed, although not nearly at the levels of diesel or gasoline engines. Developmental technologies such as electric, hybrid and fuel cells are also being examined as possible alternatives to more conventional internal combustion engines in the medium-duty truck market. However, diesel engines tend to be the most practical option for larger medium-duty trucks due to the engines' reliability and fuel economy. It is not surprising, then, that diesel-powered trucks in Classes 6 and 7 -- representing gross vehicle weights between

83

CHART VI-1

DIESEL ENGINE PRODUCT MARKET SHARE BY COMPANY, 2006 ($16.6 billion)

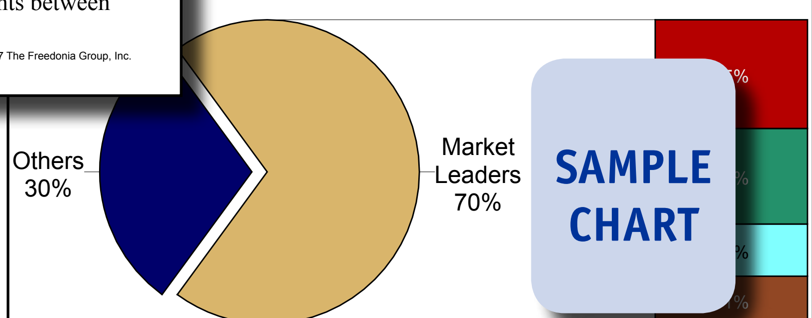

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TABLE IV-4

DIESEL ENGINE AFTERMARKET PARTS SUPPLY & DEMAND (million dollars)

Item	1996	2001	2006	2011	2016
Diesel Engine Product Demand	9250	10900	16600	20000	25900
% parts	18.8	19.3	16.3	17.8	17.6
Aftermarket Parts Demand					
+ net exports					
Aftermarket Parts Shipments					
Injection Systems					
Turbochargers & Related					
Heads & Liners					
Bearings & Camshafts					
Engine Blocks					
Crankshafts					
Other Products					

SAMPLE TABLE

COMPANY PROFILES

Westerbeke Corporation
150 John Hancock Road
Myles Standish Industrial Park
Taunton,
508-823
http://w

Annual ... y, 2/07)
Employ

SAMPLE PROFILE

Key Products: marine diesel engines and diesel generators

Westerbeke designs, manufactures and markets marine engine, generator and air conditioning products. The Company, which is privately held, conducts manufacturing activities at a 110,000-square-foot plant in Taunton, Massachusetts.

The Company's diesel-related products include engines and generators. Its diesel engines are available through the WESTERBEKE, CENTURY and UNIVERSAL series. WESTERBEKE series engines are naturally aspirated, have from one to six cylinders and power ratings from 10.7 to 108 horsepower (hp). The Company's CENTURY series engines encompass four- and six-cylinder turbocharged units with power ratings of 120 or 170 hp. These engines are intended for use on larger yachts and in heavy-duty commercial applications. UNIVERSAL series engines are three- and four-cylinder naturally aspirated models ranging from 20 to 42 hp. In addition to offering Westerbeke's E-Z bleed fuel systems, these engines have fresh water cooling systems, throttle and shift control brackets and coolant recovery tanks.

Diesel generators from the Company include WESTERBEKE and CENTURY products. These generators are intended for marine

"**Diesel Engine Materials** -- The production of diesel engines and related parts requires considerable amounts of certain materials. Material costs spiked in 2006 due to the often rapid increases in commodity prices for key materials such as metals (e.g., steel, cast iron, aluminum) and plastics. Consumption of materials in the diesel industry is forecast to ..."

--Section IV, pg. 66

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Other Studies

Gears

US demand for gears will grow 3.3% annually through 2011. The best prospects will come from the aerospace industry, which will post the fastest advances. Due to the dominant size of the motor vehicle market, vehicular gear assemblies will remain the largest segment, with individual types such as helical and bevel gears leading gains. This study analyzes the $24.9 billion US gear industry, with forecasts for 2011 and 2016 by material, product and market. It also details market share and profiles major players.

#2273 .... 11/2007..................... $4400

World Fuel Cells

Global fuel cell spending (R&D, investment, sales) will grow 15% yearly through 2011. Portable electronics will be the fastest growing commercial use while electric power generation will stay the largest. Proton-exchange membrane fuel cells will remain dominant over other chemistries. This study analyzes the $5.2 billion world fuel cell industry to 2011 and 2016 by product, chemistry, application, world region and for 14 countries. It also reviews technology, evaluates market share and profiles major players.

#2194 .... 05/2007..................... $5500

Batteries

US demand for primary and secondary batteries will grow 4.3% annually through 2011. Growth will be driven by strong demand for battery-powered products and motor vehicles, and by an ongoing shift toward more expensive, better-performing batteries. Primary batteries will outpace secondary/rechargeable types, led by primary lithium batteries. This study analyzes the $12.1 billion US batteries industry to 2011 and 2016 by product and market. It also evaluates market share and profiles major producers.

#2178 .... 03/2007..................... $4500

Automotive Aftermarket in North America

The North American aftermarket for light vehicle parts will grow 3.2% annually through 2010 as more vehicles reach prime service age. Mechanical products will remain dominant while electronics will lead gains. Professional service performers will strengthen their dominance over consumer/DIY performers. This study analyzes the $50.2 billion North American automotive aftermarket parts industry to 2010 and 2015 by product, service performer and country. It also evaluates market share and profiles major firms.

#2121 .... 11/2006..................... $4400

World Hybrid-Electric Vehicles

Global demand for hybrid-electric vehicles (HEVs) will grow 20% annually through 2010. Gains for these fuel-efficient vehicles will be driven by erratic fuel prices, increased emissions regulations and lowering HEV cost disparities. The US, Western Europe and Japan will remain the top markets, with China catching up fast. This study analyzes the $2.8 billion world HEV industry to 2010, 2015 and 2020 by type, segment, world region and for 12 countries. It also evaluates market share and profiles major players.

#2108 .... 10/2006..................... $5500

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