Contents

Sp	ecial To	pic 1 Energy Situation and Measurement Vehicle Energy Consumption	t of O2
	1.1	The World's Development Strategies for Ve	hicle
	1.1.1	China's Energy Situation and Vehicle Energy Stra	ategy 02
	1.1.2	Energy Situation and Vehicle Energy Develope Strategies of the EU, the U.S., and Japan	ment 06
	1.2	Measuring Vehicle Energy Consumption in C	hina
			10
	1.2.1	Measurement Model of Total Vehicle Energy Consum	ption
		Add Perfection as to professional fields	10
	1.2.2	Vehicle in Operation Structure	13
	1.2.3	Annual Driving Distances of Vehicles	13
	1.2.4	Average Fuel Consumption by Vehicle Types	15
	1.2.5	Vehicle Survival Rate Analysis	16
	1.2.6	2018 Vehicle Energy Measurement Analysis	17
Sp	ecial To	pic 2 Overall Development of Energy-sa and New Energy Vehicle Industry	ving 19
	2.1	Overall Development of the Energy-sa	ving
		Vehicle Industry	20

	2.1.	2 Status Quo of Development of Energy-saving V	20 ehicles
		in China	23
	2.2	Overall Development of the New Energy V Industry	ehicle
	2.2.1	L Policy Environment	32
	2.2.2		34
	2.2.3	Supporting Environment for New Energy V Infrastructure	ehicle 37
Ш	Fue	el Consumption	
Spe	ecial T	Opic 3 Average Fuel Consumption and C Development Trend of Passenger	Credit Cars 42
	3.1	The Industry-wide Average Fuel Consum	
	3.1.1	The Development Trend of the Industry-wide Ave Fuel Consumption	43 erage 43
	3.1.2	Analysis of Industry-wide Compliance Pressu 2020	ire in
	3.2	Fuel Consumption of Different Models	45
	3.2.1	Fuel Consumption Variation by Vehicle Types	45
	3.2.2	Fuel Consumption Variation of Different Origins	47
	3.3	CAFC and Compliance Performance of Enterpr	rises 49
	3.3.1	Analysis on the Number and Production (Include	
		Import Volume) of Qualified Enterprises	49
	3.3.2	Analysis of Enterprises with Excellent Complia	ince
		Performance	49

	3.3.3	Analysis on Compliance Performance of To Producers/Importers by Production/Import Vo	
1			
	3.4	The Impact of New Energy Passenger Ca the Accounting of Average Fuel Consum	
	3.4.1	Industry-wide Average Fuel Consumption Before After the Inclusion of New Energy Passenge into Accounting	
	3.4.2	CAFC of Typical Enterprises Before and After Inclusion of New Energy Passenger Cars Calculation	
	3.5	Development of CAFC Credits and New E	nergy 60
	3.5.1	CAFC Credits	60
	3.5.2	New Energy Vehicle Credits of Enterprises	62
Spe	ecial To	pic 4 Fuel Consumption of Commercial Ve	hicles
	4.1	Classification of Commercial Vehicles	67
	4.2	Fuel Consumption of Light Commercial Vel	nicles 68
	4.2.1	Fuel Consumption of Different Vehicle Types	68
	4.2.2	Comparison Between Fuel Consumption and Value	Limit 73
	4.3	Fuel Consumption of Heavy Commercial Vel	nicles 76
	4.3.1	Fuel Consumption of Different Vehicle Types	76
	4.3.2	Comparison Between Fuel Consumption and Limit	Value 81

Product Development Trend Development Trend of Related Properties Special Topic 5 of Passenger Cars on Energy Conservation 88 88 5.1 **Curb Weight** 94 5.2 **Footprint Area** 97 5.3 **Driving Type** 102 Average Displacement 5.4 108 5.5 Average Power 113 Average Torque 5.6 119 Power/Curb Weight 5.7 123 Power/Displacement 5.8 Variation Trend of New Energy Vehicle Special Topic 6 129 **Products Properties** Variation Trend of New Energy Vehicle Products 6.1 129 **Properties** 129 6.1.1 E-range 133 6.1.2 **Battery Capacity** 134 E-range/Battery Capacity 6.1.3 135 Power Consumption (100 km/ton) 6.1.4 Variation Trend of Development Characteristics 6.2 of New Energy Commercial Vehicles 136

136

141

6.2.1

6.2.2

Bus

Special Vehicle

pecial To	saving Technologies for Passenger C	
7.1	Turbocharging Technology	144
7.2	GDI Technology	148
7.3	Three-cylinder Turbocharged Engine	150
7.3.1	Technical Development of Three-cylinder	
	Turbocharged Engine	151
7.3.2	Overview of Enterprises and Models Utilizing	the
	Three-cylinder Turbocharged Engine Technology	153
7.4	Miller Cycle	157
7.4.1	Development of the Miller Cycle	157
7.4.2	Overview of Enterprises and Models Utilizing Mi	iller
	Cycle Technology	160
7.4.3	Introduction of Key Miller Cycle Engines	165
7.5	Advanced Transmission Technology	166
7.5.1	Development of Advanced Transmission Technologies	ogy
	4	167
7.5.2	Overview of Enterprises and Models Equipped w	vith
	10AT/9AT, CVT and DCT	170
7.6	Idling Stop-Start Technology	175
7.7	Hybrid Power	178
7.7.1	Development of Hybrid Power Technology	179
7.7.2	Overview of Enterprises and Models Using Hyb	rid

Power Technology

181

	8.1	Power Battery	185
	8.1.1	The Market of Power Battery Industry	185
	8.1.2	Status Quo of Development of Power Ba	ttery
		Technology	192
	8.1.3	Development Trend of Power Battery Industry	195
	8.2	Motor	198
	8.2.1	Situation of Motor Industry	198
	8.2.2	Status Quo of Development of Motor Technol	ogie
			20
	8.2.3	Development Trend of Motor Industry	20
	8.3	Electric Control System	20
	8.3.1	The Market of Electric Control System Industry	20
	8.3.2	Development Trend of Electric Control Industry	21
V	Hot	Topics	
Эре	ecial To	pic 9 Evaluation on Energy-saving Competitiveness of Passenger Ca	rs 21
	9.1	Purpose and Significance of Energy-sa Competitiveness Evaluation	avin 21
	9.2	Building the Evaluation System of En- saving Competitiveness of Passenger Cars	
	9.2		
	9.2		S
		saving Competitiveness of Passenger Cars	21 21

Contents

	9.3	Evaluation and Rank of Energy-saving	
		Competitiveness	219
	9.3.1	Ranking of Evaluation on Energy-saving	
		Competitiveness of Sedans	219
	9.3.2	Ranking of Evaluation of Energy-saving	
		Competitiveness of SUVs	221
	9.3.3	Ranking of Evaluation on the Energy-saving	
		Competitiveness of MPVs	223
	9.3.4	Conclusion	225
Sp	ecial Top	Development Trend of Thermal Manage and Introduction of Case Analysis	
			226
	10.1	Necessity and Functions of Thermal	
		Management System	226
	10.1.1	Necessity of Thermal Management	226
	10.1.2	Introduction of Basic Functions of Thermal	
		Management	230
	10.2	Status Quo and Trend of Thermal Manager	ment
			231
	10.2.1	Status Quo of Thermal Management	231
	10.2.2	Importance of Gradually Enhanced Thermal	
		Management	237
	10.2.3	Mainstream Models Gradually Adopt Integrated	
		Liquid Cooling System	239
	10.3	Basic Requirements	239
	10.4	Analysis on Typical Product Cases	241

	11.1	Status Quo of Automotive Fuel Cell Tech	
			246
	11.2	Status Quo of Development of Fuel Cell S	ystem
		and Part Technology	249
	11.2.1	Comparison of Key Performance Index Parame	eters of
		Foreign Fuel Cell Engines	249
	11.2.2	Comparison of Index Parameters of Key Ma	aterials
		Made at Home and Abroad	251
	11.3	Testing and Evaluation Technology of Fu	el Cell
		Vehicles and Key Components	253
	11.4	Opportunities and Challenges ami	d the
		Development of Fuel Cell Vehicles	258
VΙ		rning from Overseas Developm	ent
VΙ	of N	ew Energy Vehicles	
VI		ew Energy Vehicles	erence on and umption
VI	of N	ew Energy Vehicles Dic 12 EU's Countermeasure to the Diff Between Real Fuel Consumption	erence on and umption 262
VI Spec	of N	ew Energy Vehicles Dic 12 EU's Countermeasure to the Diff Between Real Fuel Consumption Working-condition-based Fuel Consumption	erence on and umption 262
VI Spec	of N	EU's Countermeasure to the Diff Between Real Fuel Consumption Working-condition-based Fuel Consumption Reasons for Differences	erence
/	12.1 12.2 12.2.1	EU's Countermeasure to the Diff Between Real Fuel Consumption Working-condition-based Fuel Consumption Reasons for Differences Resolution Introduction of a New Test Cycle	erence on and umption 262 262
/I	12.1 12.2 12.2.1 12.2.2	ew Energy Vehicles Dic 12 EU's Countermeasure to the Diff Between Real Fuel Consumption Working-condition-based Fuel Consumption Reasons for Differences Resolution	erence on and umption 262 262 263 263