

长安福特马自达汽车有限公司 中国重庆



长安福特马自达汽车有限公司温室气体清单

2007 年报告草拟稿

2008 年 4 月

CHANGAN FORD MAZDA MOTOR COMPANY – CHONGQING, CHINA



CFMA - CQ GHG Inventory

2007 Report

Issued: April 2008

报告摘要：

重庆长安福特马自达汽车有限公司（以下简称“重庆长安福特马自达”）很自豪能作为中国第一家使用标准温室气体核算和报告议定书的公司主动汇报工厂的温室气体管理情况。重庆长安福特马自达充分了解气候变化的重要影响并承诺致力于持续改进。我们希望通过汇报工厂温室气体情况以支持政府部门为之所付出的一切努力。我们认为气候变化是一个严重的环境问题，不可能不付诸任何行动而仅是等待各不确定因素的解决。

在世界范围内，福特有幸参与的温室气体管理项目包括：芝加哥气候交易计划（CCX）、墨西哥温室气体计划、菲律宾温室气体计划（PhilGARP）、澳大利亚温室气体挑战与任务、欧盟排放权交易制（EU ETS）以及加拿大温室气体挑战及登录专案。

本报告包括了重庆长安福特马自达 2003-2007 年的数据。相比其往年（2005-2006），温室气体排放强度（排放状况 - 吨 CO₂/车）降低了 34%，与 2006 年相比尤为显著，降低了 22%，这表明现场生产更加高效，生产每辆汽车时排放更少的温室气体。总体上，与往年（2005-2006）相比，重庆长安福特马自达因现场产量增加直接导致了 50% 的绝对排放量增长。不过，由于节能和改进的能量利用实施。排放量的增加远远低于产量的增加（相比平均基准，增加了 126%）。重庆长安福特马自达每年将持续更新该报告以维护并超越其环境标准。

Executive Summary:

CFMA CQ is proud to be the first automobile company in China to voluntarily report its Facility Greenhouse Gas (GHG) emissions using a standard GHG Accounting and Reporting protocol. CFMA CQ is aware of the importance of Climate Change and it is committed to constantly improve its environmental standards. By reporting our GHG emissions locally we hope to support the government's efforts to address Climate Change. We believe that climate change is a serious environmental issue and, recognize that it is not possible to wait for all the uncertainties to be resolved before acting.

Ford is proud to participate in different greenhouse gas management initiatives around the globe including: The Chicago Climate Exchange (CCX), The Mexican GHG Program, The Philippine Greenhouse Gas Accounting and Reporting Program (PhilGARP), The Australian GHG Challenge Plus Program, The EU Emissions Trading Scheme (EU ETS), and The Canadian GHG Challenge Registry.

This 2008 report includes CFMA CQ data from 2003-2007. Emissions intensity (performance emissions - tCO₂/vehicle built) decreased by 34% from its baseline years (2005-2006) and is an improvement over 2006 (22% reduction) which means the site is operating more efficiently, emitting lower emissions per vehicle produced. Overall, CFMA CQ has increased its absolute emissions by 50% from its baseline (2005-2006) as a direct consequence of the production increase at the site. However, the emission increase is considerably lower than the production increase (126% compared to the baseline average) due to the implementation of energy efficiency programs and improved capacity utilization. CFMA CQ will provide annual updates as it continues to strive to maintain and exceed its environmental standards.

目录

1. 简介 :	4
1.1 长安福特马自达在中国	5
1.2 企业气候变迁应对措施:	7
2. 方法:.....	9
3. 基年:.....	10
4. 排放数据:.....	11
4.1 直接排放:.....	12
4.2 间接排放	13
5.0 数据分析:.....	13
6. 结论:.....	15

图片

图 1: 福特福克斯.....	6
图 2: 沃尔沃 S40.....	6
图 3: 福特蒙迪欧.....	6
图 4: 马自达 3 系	7
图 5: 重庆长安福特马自达绝对排放量 (2003-2007)	14
图 6: 重庆长安福特马自达排放强度 (2003-2007)	15

Table of Contents

1. INTRODUCTION:	4
1.1 CFMA CQ IN CHINA	5
1.2 CORPORATE PRACTICES ON CLIMATE CHANGE:	7
2. METHODOLOGY:	8
3. BASE YEARS:	10
4. EMISSION DATA:	10
4.1 DIRECT EMISSIONS:	12
4.2 INDIRECT EMISSIONS	12
5. DATA ANALYSIS:	13
6. CONCLUSION:	15

List of Figures

FIGURE 1: FORD FOCUS	5
FIGURE 2: VOLVO S40	6
FIGURE 3: FORD MONDEO	6
FIGURE 4: MAZDA 3	6
FIGURE 5: CFMA CQ ABSOLUTE EMISSIONS (2003-2007)	14
FIGURE 6: CFMA CQ EMISSIONS INTENSITY (2003-2007)	14

List of Tables

TABLE 1: EMISSION FACTORS	9
TABLE 2: DIRECT EMISSIONS	10
TABLE 3: INDIRECT EMISSIONS	10
TABLE 4: ENERGY CONSUMPTION	12
TABLE 5: CFMA CQ EMISSIONS FROM 2003-2007	12
TABLE 6: INDIRECT CFMA CQ EMISSIONS FROM 2003-2007	13
TABLE 7: CFMA CQ PRODUCTION DATA (2003-2007)	13

1. 简介：

长安福特马自达汽车有限公司在重庆的组成包括：

- CFMA - 重庆装配车间
- CFMA - 重庆冲压车间
- CFMA - 重庆产品发展
- CFMA - 重庆行政机构
- CFMA - 重庆发动机车间

这份温室气体清单包括上述所有机构的数据。车队和其他移动源并未列入本清单中，而办公楼被列入了本清单中。

重庆长安福特马自达是福特汽车公司、马自达汽车公司和长安汽车集团于 2001 年 4 月成立的合资公司。汽车装配工厂位于重庆北部新区，目前产能为 250,000 辆/年。2004 年 1 月 18 日，首款产品福特嘉年华下线，随后是福特蒙迪欧（2004 年 3 月 20 日），福特福克斯三厢（2005 年 9 月 21 日），马自达 3 系（2006 年 2 月 27 日），沃尔沃 S40（2006 年 7 月 17 日），福特福克斯两厢（2006 年 8 月 23 日），以及福特 S-MAX（2007 年 3 月 15 日）。随着沃尔沃产品的引入和福特福克斯的增产，目前产量已达到 250,000 辆/年，计划在 2008 年年底达到 290,000 辆。

重庆长安福特马自达在江苏省南京市有一个同类总车厂以及一个发动机厂（CFME）。这些厂未被列入本报告中，但可能会被列入今后的温室气体清单中。

1. Introduction:

Changan Ford Mazda Site at Chongqing includes the following entities:

- CFMA – CQ Assembly Plant
- CFMA – CQ Stamping Plant
- CFMA – CQ Product Development
- CFMA - CQ Administration Facilities
- CFMA – CQ Engine Plant

The GHG inventory contained in this report includes data from all CFMA CQ entities listed above. It should be noted that vehicle fleet and other mobile sources are not included in this inventory. However, office buildings are included in the inventory.

Changan Ford Mazda Assembly Chongqing (CFMA - CQ) is a joint venture between Ford Motor Company, Mazda Motor Corporation, and Changan Motors and was established in April of 2001. The car Assembly Plant is located in the Northern Development Region, Chongqing, and currently has a capacity of 250,000 units per year. The plant first began production of the Ford Fiesta on January 18 of 2004, followed by Ford Mondeo (Mar. 20, 2004); 4-door Ford Focus (Sep. 21, 2005); Mazda3 (Feb. 27, 2006); Volvo S40 (July 17, 2006); 5-door Ford Focus (Aug. 23, 2006); and Ford S-MAX (Mar. 15, 2007). The introduction of Volvo products and increased Ford Focus manufacture has now brought production volumes up to 250,000 units per year with plans to increase further to 290,000 by the end of 2008.

Changan Ford Mazda Chongqing has a sister plant in Nanjing, Jiangsu and also an engine plant (CFME) in Nanjing. These facilities are not included in this report but may be included in future GHG inventories.

One of the most important initiatives undertaken by CFMA CQ is the implementation of the ISO 14001 environmental management standard, where all aspects of the facility are included: air emissions, waste, water, and energy. In order to remain certified, a facility must undergo a surveillance audit each year that ensures adherence to guidelines, and measures the plant's progress. A highlight of CFMA - CQ's performance is the use of detailed management systems for all resource use (energy, solid & liquid waste, solvent use and water). Other environmental initiatives include: energy efficiency projects at the sites and educational programs for employees. Ford Motor Company and Changan Ford Mazda recognize the

重庆长安福特马自达率先执行了 ISO14001 环境管理标准，包括工厂内所有环境问题：气体排放，废弃物，水和能源。为了确保认证的有效性，工厂必须接受每年的监督审核以确保符合其指导方针并持续改进。重庆长安福特马自达的环境表现的一个显著特点是对其所有资源的使用执行了详细的管理系统，包括能源、固体和液体废弃物，溶剂的使用和水等。此外，重庆长安福特马自达还率先执行了现场能效计划和员工培训计划。福特汽车公司和长安福特马自达意识到气候变化问题的重要性，并将通过引入高科技汽车和增加制造能效等方式以降低温室气体的排放。

1.1 长安福特马自达在中国

产品：福特福克斯，福特嘉年华，福特蒙迪欧，马自达 3 系，沃尔沃 S40，沃尔沃 S80

成立时间：2001 年 4 月

产能：250,000 辆/年

运营机构：装配，冲压，发动机和研发

员工人数(2008)：5500 人

现场面积：460,000m²

占地面积：322,000m²

获得 ISO 14001 认证时间：2003 年

importance of the climate change issue and will continue to work on reducing the greenhouse gas emissions of its vehicles and facilities by way of introducing advanced technology vehicles and improving energy-efficiency of manufacturing operations.

1.1 CFMA CQ in China

Product: Ford Focus, Ford Fiesta, Ford Mondeo, Mazda3, Mazda 7, Volvo S40, Volvo S80

Founded: April, 2001

Plant Capacity: 250,000 units/year

Operation: Assembly, Stamping, Engine & Research Centre

Employees (2008): 5500 employees

Site: 460,000m²

Floor Space: 322,000m²

ISO 14001 Certified: 2003



Figure 1: Ford Focus



图 1: 福特福克斯



图 2: 沃尔沃 S40



图 3: 福特蒙迪欧



Figure 2: Volvo S40



Figure 3: Ford Mondeo



Figure 4: Mazda 3



图 4: 马自达 3 系

1.2 企业气候变化应对措施:

作为中国第一家主动申报其工厂温室气体的汽车公司，重庆长安福特马自达对此深感自豪。我们认为气候变化是一个严重的环境问题，不可能在采取行动之前等待解决所有不确定因素。福特汽车积极参与全球范围内各种温室气体项目并获取了温室气体报告的丰富经验。部分活动列举如下：

长安福特马自达汽车有限公司 – 中国:

重庆长安福特马自达对其成为中国第一家报告其温室气体的汽车公司深感欣慰。我们希望与世界上其他公司和机构分享我们的经验。

芝加哥气候交易计划(CCX):

芝加哥气候交易是一个针对北美地区温室气体排放源和工程的温室气体减排和交易的项目。该项目的自我调节规则根据交易来设定，由 CCX 成员管理。CCX 成员制订了

1.2 Corporate Practices on Climate Change:

Changan Ford Mazda Motor Company is proud to be the first automobile company to voluntarily report its GHG emissions in China. We believe that climate change is a serious environmental issue and recognize that it is not possible to wait for all the scientific uncertainties to be resolved. Ford Motor Company is actively participating in various programs around the world gaining considerable experience in GHG reporting. Some of the initiatives are listed below:

CFMA Chongqing – China:

CFMA CQ is pleased to be the first automotive company in China to report its GHG emissions. We wish to share our GHG experiences with other companies and sectors around the world.

Chicago Climate Exchange (CCX):

The Chicago Climate Exchange (CCX) is a greenhouse gas (GHG) emission reduction and trading program for emission sources and projects in North America. It is a self-regulated, rules based exchange designed and governed by CCX members. These members have made a voluntary, legally binding commitment to reduce their emissions of greenhouse gases by six percent below 2000 baseline year by 2010. Ford is the first and only auto manufacturing participant in this program.

Mexico GHG Pilot Program:

The Mexico GHG Program started as two year partnership between La Secretaria de Medio Ambiente y Recursos Naturales (SEMARNAT), World Resources Institute (WRI) and World Business Council for Sustainable Development (WBCSD). It is a voluntary program established to help Mexican companies to quantify greenhouse gas emissions. Ford Motor Company was proud to be the only auto manufacturer to participate in the first phase of the program where we are committed to reporting emissions annually.

一份清单，在法律上承诺到 2010 年将其温室气体的排放降低 2000 年基础上的 6%。福特是第一家也是唯一一家参与该项目的汽车制造公司。

墨西哥温室气体试行项目：

墨西哥环境与自然资源部门，世界资源研究院 (WRI) 和世界可持续发展工商理事会 (WBCSD) 签订两年合作伙伴关系，发展了该项目。该项目旨在帮助墨西哥公司量化其温室气体的排放。作为唯一一家参与该项目第一阶段并承诺每年申报温室气体排放的汽车制造公司，福特汽车公司深感自豪。

欧盟排放权交易制 (EU ETS):

欧盟排放权交易制始于 2005 年 1 月，是欧洲减少二氧化碳和其他温室气体排放的政策之一。福特参与了该体系。该项目的第二阶段为 2008 年 - 2012 年，与京都议定书第一阶段的时间一致。后续的 5 年计划将被期待。

加拿大温室气体报告与分析义务计划

自 1999 年起，福特每年都主动向加拿大温室气体报告与分析义务计划申报其温室气体的排放。这些年来，福特在该申报体系中成绩显著，包括两项汽车制造类领先奖，并获 1999 年度银会员奖和 2000 至 2003，2005 和 2006 年度金会员奖。

菲律宾温室气体计划

菲律宾温室气体核算和申报计划 (PhilGARP) 由能源部、环境与自然资源部，菲律宾环境商务，马尼拉天文台 Klima 气候变迁中心，世界可持续发展工商理事会和世界

EU Emissions Trading Scheme (EU ETS):

Ford participates in the EU ETS which commenced in January 2005 and is one of the policies being introduced across Europe to reduce emissions of carbon dioxide and other greenhouse gases. The second phase of this program runs from 2008-2012 and coincides with the first Kyoto Commitment Period. Further 5-year periods are expected subsequently.

Canadian Voluntary Challenge and Registry:

Ford voluntarily reports GHG emissions to the Canadian Voluntary Challenge and Registry (VCR). It has been reporting annual emissions since 1999. Over the years, it has received the highest level of achievement in the reporting system, which includes two Leadership Awards in the Automotive Manufacturing Sector category as well as qualifying as a Silver Champion level Reporter in 1999 and Gold Champion Level Reporter from 2000 to 2003, 2005 & 2006.

Philippines GHG Program

The Philippine Greenhouse Gas Accounting and Reporting Program (PhilGARP) - partnership between Klima Climate Change Center of the Manila Observatory, Philippine Business for the Environment, the Department of the Environment and Natural Resources, Department of Energy, WBCSD, and WRI – was launched in November 2006. To date, 15 companies are completing GHG inventories. Ford was the first and only automobile company to submit a report to the program.

2. Methodology:

The data used to calculate the baseline and reporting year is based on actual electricity and natural gas invoices obtained directly from the utilities and gasoline invoices from the supplier. CFMA CQ uses a best in class energy monitoring system and an industry-leading Global Emissions Manager (GEM) database to ensure environmental metrics such as CO₂ emissions are tracked consistently. All energy data contained in this report is available within GEM and it is tracked and revised by the facility.

The emissions data reported was generated following the greenhouse gas calculation tools

资源研究院于 2006 年 11 月启动。到目前为止，15 家公司完成了温室气体清单。福特是第一家也是唯一一家进行申报的汽车公司。

2. 方法:

根据公用事业机构提供的用电和天然气使用的发票，及供应商提供的汽油发票，可得到用于计算基线和申报年份的数据。重庆长安福特马自达使用最高级的能源监测系统和工业领域领先的全球排放管理数据库以确保环境衡量标准，如对二氧化碳排放量持续跟踪。这个报告中的所有能源数据在全球排放管理数据库中都可找到，并使用设备进行跟踪和校正。

世界资源研究院以及世界可持续发展工商理事会制定了企业温室气体核算和报告规程。采用企业温室气体核算和报告规程中的温室气体计算工具，可得出申报的排放量数据。引用的计算工具包括电、热和/或蒸汽的消耗中产生的二氧化碳间接排放量，以及固定燃烧源直接排放量的修订工具。这些工具均可以从网站 www.ghgprotocol.org 中获得。报告包括 WRI/WBCSD 协议中归为范围 1 的“直接”排放和归为范围 2 的“间接”排放。所有的二氧化碳排放量以二氧化碳公吨单位计量。燃烧过程中的其他温室气体，如甲烷和一氧化二氮，其排放量估计低于排放总量的 1%，因此可忽略不计。其他排放源如空调制冷剂填充过程泄漏的氢氟烃，也可认为低于总排放量的 1.5%。公司的生产设备中不含全氟烃和六氟化硫。

对于排放量的计算，参照 WRI/WBCSD 计算工具，根据中国最新的耗电排放量因子，可使用 0.000849 吨 CO₂/KWh 作为因子将电流使用转换为间接的二氧化碳排放量。

Development (WBCSD). Specifically, the calculation tools referenced include Indirect CO₂ emissions from the consumption of purchased electricity, heat, and/or steam and revised tool for direct emissions from stationary combustion, obtained from the website www.ghgprotocol.org. The report includes "direct" emissions characterized as scope 1 in the WRI/WBCSD protocol and "indirect" or scope 2 emissions from the same protocol. All CO₂ emissions are included and reported in units of metric tons of carbon dioxide (CO₂). Other Greenhouse gases applicable to combustion processes, CH₄ and N₂O, are estimated to be less than 1% of the total emissions and hence considered negligible. Other emission sources such as HFCs from refrigerant leakages during the initial vehicle fill process for the air conditioning units are also considered minimal at less than 1.5 % of total emissions. PFCs and SF₆ do not apply to the company's manufacturing facilities.

For emissions calculations, the factor of 0.000849 tCO₂/KWh was used to convert electricity usage to indirect CO₂ emissions based on the latest available emission factor for the consumption of electricity in China as referenced in the WRI/WBCSD calculation tools. Emission factor of 0.00186732tCO₂/m³ and 0.0023403tCO₂/l were utilized to convert natural gas usage and gasoline usage to CO₂ emissions. Refer to Table 1 for further details.

Table 1: Emission Factors

Type of Emissions	Factor
Natural Gas	0.00186732 tCO ₂ /m ³
Gasoline/Petroleum	0.0023403 tCO ₂ /l
Electricity (WRI/WBCSD)	0.000849 tCO ₂ /KWh

*From WRI/WBCSD

用 0.00186732 吨 CO₂/m³ 和 0.0023403 t CO₂/l 作为排放因子将天然气和汽油的使用转化为二氧化碳排放量。详情见表 1：

表 1：排放因子

排放类型	因子
天然气	0.00186732 tCO ₂ /m ³
汽油/石油	0.0023403 tCO ₂ /l
电力 (WRI/WBCSD)	0.000849 tCO ₂ /KWh

引用自 WRI/WBCSD

3. 基年:

重庆长安福特马自达自 2003 年投产，产量逐年递增。为了更好地描述温室气体排放量，根据 2005-2006 运营中的平均量来计算基准。表 2 和表 3 是可用于计算基准的直接和间接排放量。

注：直接排放量是指现场产生的温室气体排放（如汽油或者石油燃料的使用中产生的）。间接排放量是指非现场产生但是可归为汽车制造中产生的排放量（如用电）。

表 2：直接排放量

长安福特马自达汽车有限公司		
直接排放量(公吨 CO ₂)		
2005	2006	基准
17,157	25,461	21,309

3. Base Years:

CFMA CQ began operations in 2003 and has increased production every year. We have selected 2005 and 2006 years as our representative baseline going forward. Tables 2 and 3 show the direct and indirect emissions used to obtain the baseline.

Note: Direct emissions are those generated on site (i.e. from gas or petroleum fuel use).

Indirect emissions are those generated off site but attributable to car manufacturing (i.e. electricity used on site).

Table 2: Direct Emissions

CFMA		
Direct Emissions (metric tCO ₂)		
2005	2006	Baseline
17,157	25,461	21,309

Table 3: Indirect Emissions

CFMA		
Indirect Emissions (metric tCO ₂)		
2005	2006	Baseline
43,407	64,154	53,780

4. Emission Data:

Changan Ford Mazda Chongqing plants were constructed with state of the art technology that allows the plants to operate in an energy efficient manner. CFMA CQ's internal energy management and control process allows the plants to monitor energy usage throughout the facilities and identify areas that can be improved. Ford Motor Company has also implemented a global environmental database, Global Emissions Manager (GEM), which serves as a repository for all energy data and ensures reporting consistency at all facilities around the globe.

CFMA CQ is committed to improving energy efficiency and reducing its GHG emissions. The plants have implemented several projects to reduce energy consumption (electricity and natural gas) including:

- Installation of new power conditioning equipment (Active Dynamic Overtone - Accusine -300A and PQF – 225A) which improves digital encoding and decoding

表 3：间接排放量

长安福特马自达汽车有限公司		
间接排放量(公吨 CO2)		
2005	2006	基准
43,407	64,154	53,780

4. 排放数据:

重庆长安福特马自达以精湛技术在重庆修建的制造、发动机和冲压车间，可以使各车间在高能效的状态下进行生产。重庆长安福特马自达内部能源管理和控制过程可确保各车间对所有设备进行能耗监测，并鉴别有待改进的区域。此外福特汽车公司推行了名为全球排放管理 (GEM) 的全球环境数据库，作为所有能源数据的储库，以确保全球所有工厂在进行申报时的一致性。

重庆长安福特马自达致力于提高能效，削减其温室气体排放量。工厂实施了多个项目来削减其能耗（电和天然气），包括：

- 安装新的电力调节设备（有源电力滤波器 300A 和 PQF – 225A），可以改善数字编码和解码，减少焊接和喷漆过程中的失真，并增加解晰度。新的变电站使用更高的反射速度以减少泛音（系统的自然回声或振动频率），焊接过程中每年削减 0.8% 的电量 (288,000KWh)，喷漆过程中每年削减 0.8% 的电量 (345,000KWh)。

allowing lower distortion and higher resolution in our welding and painting process. The new transformer stations use higher reflection speed reducing overtone (natural resonance or vibration frequency of a system) translating to a 0.8% electricity reduction per year (288,000KWh) in our welding process and 0.8% reduction per year (345,000KWh) in our painting process.

- Installation of a humidification control at the paint shop. This technology allows the humidity (an important factor for paint quality) to remain constant throughout the year while varying the temperature (lower during winter time and higher during summer time). This reduces the amount energy required for heating during the winter time and air conditioning during the summer.
- Installation of heating and air conditioning controls that allow constant temperatures throughout the facility.
- Installation of automatic roll-up doors at each production station to reduce the amount of heat/air conditioning losses to the outside.
- Automated lighting control throughout the facility (street lighting, parking lots, workshops, etc.) helps ensure lights are off when unnecessary.

- 在喷漆车间安装一个湿度控制器。这项技术可使得温度变化时（冬天温度较低，夏天温度较高），湿度（影响喷漆质量的一个重要因素）常年保持稳定。这样可以降低冬天供暖和夏天制冷所需的能源总量。
- 安装冷暖控制装置以确保整个工厂的温度恒定。
- 在每个生产单元安装自动卷帘门，以减少热量或冷气的流失。
- 在工厂内（路、停车场、车间等）安装自动照明控制系统以确保在不需要时停止照明。

以下是重庆长安福特马自达 2003-2008 年的能耗总结：

表 4：能耗

重庆长安福特马自达 – 能源消耗			
时期	天然气(m3)	汽油 (l)	电力(KWH)
2003	2,143,408	153,624	17,164,020
2004	4,353,949	573,033	26,915,840
2005	8,000,597	603,244	51,126,800
2006	11,326,710	1,354,553	75,564,337
2007	13,137,293	1,805,376	97,571,938

4.1 直接排放:

直接排放来源于重庆长安福特马自达现场燃料的燃烧，包括天然气和石油。表 5 是重庆长安福特马自达 2003-2007 年的直接排放量。

Below is a summary of CFMA – CGQ's energy consumption from 2003-2008.

Table 4: Energy Consumption

CFMA CQ - Energy Consumption			
Period	Natural Gas (m3)	Gasoline (l)	Electricity (KWH)
2003	2,143,408	153,624	17,164,020
2004	4,353,949	573,033	26,915,840
2005	8,000,597	603,244	51,126,800
2006	11,326,710	1,354,553	75,564,337
2007	13,137,293	1,805,376	97,571,938

4.1 Direct Emissions:

Direct Emissions result from combusting fuels at the CFMA site including natural gas and gasoline. Table 5 shows direct emissions from 2003-2007.

Table 5: CFMA CQ Emissions from 2003-2007

CFMA - CQ	
Direct Emissions/Year (tCO2)	
2003	4,578
2004	9,910
2005	17,157
2006	25,461
2007	30,079

4.2 Indirect Emissions

CFMA CQ's Indirect Emissions include all emissions generated outside the site's perimeter such as emissions from burning fossil fuel to generate electricity. CFMA CQ continuously monitors its electricity consumption. However the rate of energy consumption depends heavily on production, and if production increases, so will energy consumption. Table 6 shows indirect emissions per year from 2003-2007.

表 5：重庆长安福特马自达 2003-2007 年的排放量

CFMA – CQ	
直接排放量/年 (tCO ₂)	
2003	4,578
2004	9,910
2005	17,157
2006	25,461
2007	30,079

4.2 间接排放

重庆长安福特马自达的间接排放包括所有现场之外的排放，如燃烧矿物燃料发电时排放的温室气体。重庆长安福特马自达对其耗电量进行持续监测，但是耗电比率很大程度上取决于产量，如果产量增加，能源消耗也将增加。表 6 是从 2003-2007 年每年的间接排放量：

表 6：重庆长安福特马自达 2003 - 2007 年的间接排放量

重庆长安福特马自达	
间接排放量/年	
2003	14,572
2004	22,852
2005	43,407
2006	64,154
2007	82,839

5.0 数据分析:

在过去的 5 年的运营中，重庆长安福特马自达的产量显著增长。沃尔沃 S40 的引入和福克斯的增产使产量增加到 250,000 辆/年，计划到 2008 年末产量增加更多。表 7 是长安福特马自达汽车有限公司 2003-2007 年的生产数据：

Table 6: Indirect CFMA CQ Emissions from 2003-2007

CFMA CQ	
Indirect Emissions/Year	
2003	14,572
2004	22,852
2005	43,407
2006	64,154
2007	82,839

5. Data Analysis:

CFMA CQ's production has increased significantly over its five years of operation. The introduction of Volvo S40 and increased Focus manufacture has increased production to 250,000 units/year with plans to increase even more by the end of 2008. Table 7 shows CFMA CQ production data from 2003-2007.

Table 7: CFMA CQ Production Data (2003-2007)

CFMA CQ	
Production Units	
2003	14,465
2004	50,020
2005	59,827
2006	137,782
2007	223,602

In 2007, CFMA CQ in China increased its production 126% compared with the baseline years (2005-2006) and 62% compared to 2006. Absolute emissions are directly proportional to production, if production increases so does absolute emissions. CFMA CQ implemented many projects and activities to reduce energy consumption and becoming more efficient, as a result CFMA CQ's GHG emissions increase is considerably lower than the production (increase of 50% compared to the baseline years (2005-2006) and 26% compared to 2006) (Figure 7).

表 7：重庆长安福特马自达生产数据 (2003-2007)

重庆长安福特马自达	
产量	
2003	14,465
2004	50,020
2005	59,827
2006	137,782
2007	223,602

与基年 (2003 - 2005) 相比，2007 年重庆长安福特马自达的产量增加了 126%，与 2006 年相比增加了 62%。绝对排放量与产量呈正比，如果产量增加，绝对排放量也增加。重庆长安福特马自达实施了多个项目和行动以削减能耗，提高能效，因此，重庆长安福特马自达的温室气体排放量低于产量的增加。(与基年 (2005-2006) 相比，增加了 50%，与 2006 年比，增加 26%)。(图 7)

图 5：重庆长安福特马自达绝对排放量 (2003-2007)

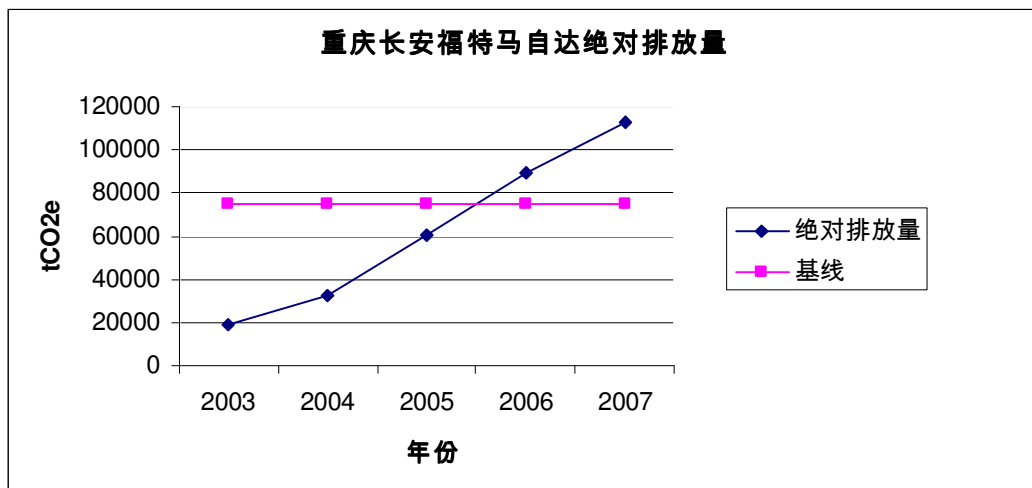


Figure 5: CFMA CQ Absolute Emissions (2003-2007)

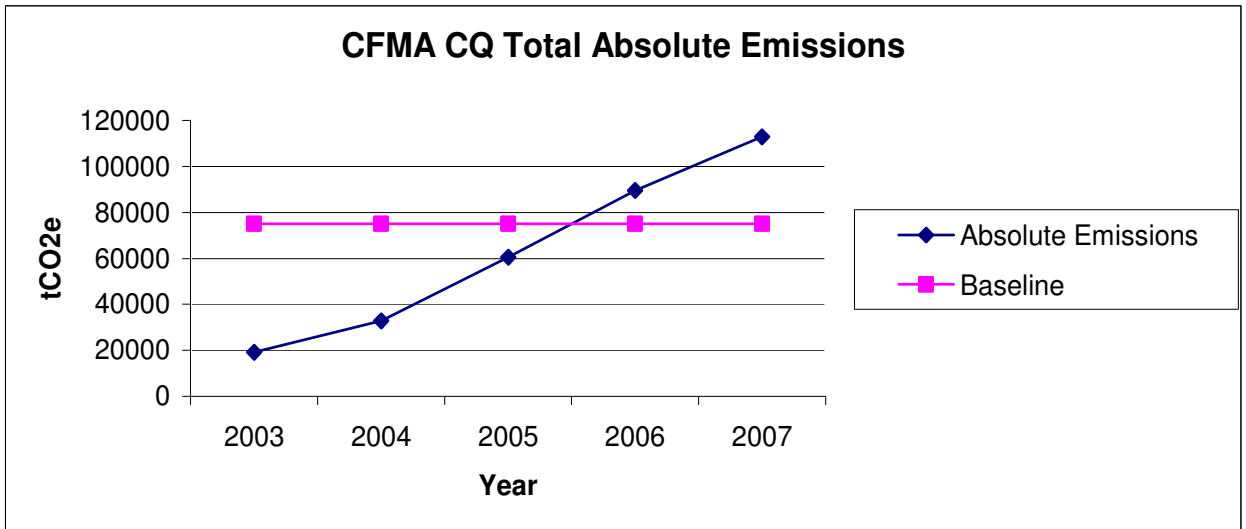


Figure 6: CFMA CQ Emissions Intensity (2003-2007)

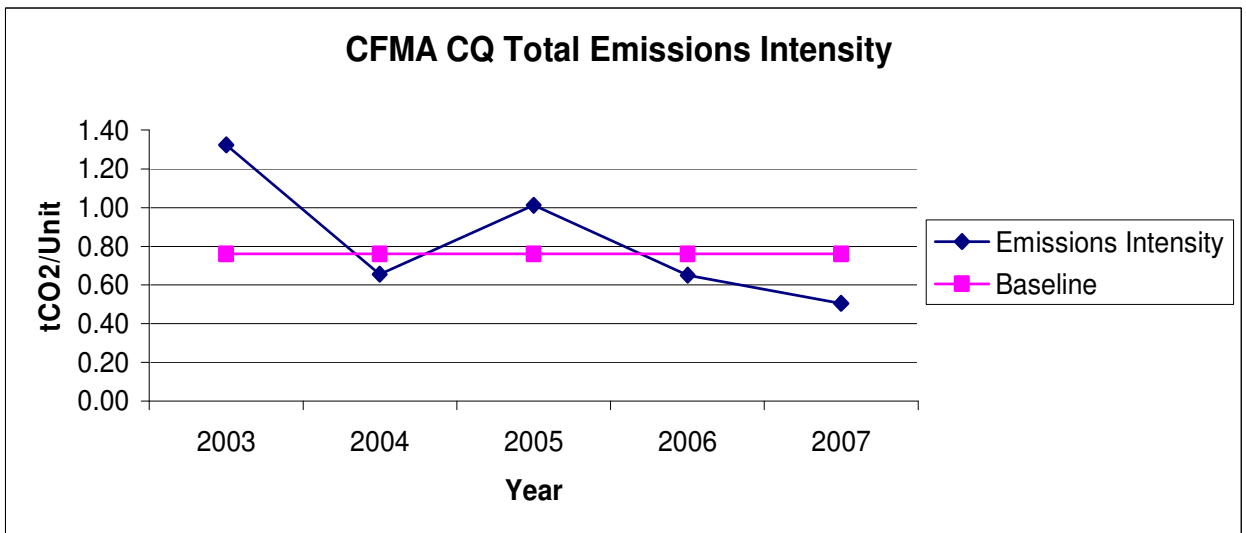
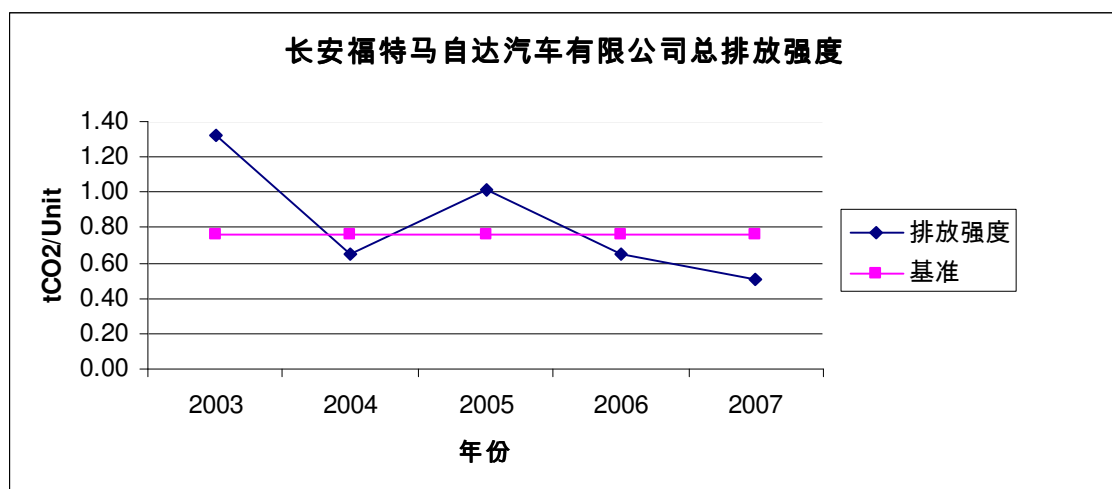


图 6：重庆长安福特马自达排放强度 (2003-2007)



排放强度可以用来衡量每辆车的能效。排放强度可用绝对排放量除以产量来计算。与基年 (2005-2006) 相比，2007 年排放强度降低了约 34%，与 2006 年相比，降低了 22% (图 8)，这意味着工厂每生产一辆汽车所产生的温室气体排放量减少。排放强度的降低是重庆长安福特马自达运作接近于设计产能的结果。上面的图表明 2005 年由于无效率而导致排放强度增加，这与当年新的喷漆车间及相关设备的投入使用有关。

6. 结论:

作为中国首个主动申报温室气体排放量的汽车公司，重庆长安福特马自达对此深感自豪。这第一份报告包括了 2003-2007 年的数据。重庆长安福特马自达认识到气候变化问题的重要性，并支持在国家层面进行排放申报。重庆长安福特马自达致力于提高效率，减少温室气体排放量，维护并超越其环境标准。

Emissions intensity can be used to measure efficiency on an energy use per car basis. Emission intensity is calculated by dividing absolute emissions by the number of production units (vehicles built). In 2007, emissions intensity decreased almost 34% in comparison to the baseline years (2005-2006) and 22% compared to 2006 (Figure 8) which means that the plants are emitting lower emissions per vehicle produced. This emissions intensity reduction is the result of running CFMA CQ operations closer to design capacity. The figure above shows an increase in 2005 intensity emissions due to inefficiencies associated with the implementation of new paintshops and associated facilities, in that year.

6. Conclusion:

CFMA CQ is proud to be the first automobile company in China to voluntarily report its GHG emissions. This first report includes data from 2003-2007. CFMA CQ recognizes the importance of the climate change issue and supports emissions reporting at a national level. CFMA CQ is committed to improving energy efficiency, reducing GHG emissions and maintaining and exceeding its environmental standards.

CFMA – CQ has experienced a significant increase in production in its first five years of operation. This has impacted both absolute and intensity emissions year over year. While absolute emissions have increased 50% compared to the baseline years (mainly as a result of the 126% production increase), emissions intensity has decreased 34% in comparison to the baseline years (2005-2006) as a result of energy efficiency programs and improved capacity utilization.

CFMA CQ will continue to provide an annual update of its GHG emissions inventory.

重庆长安福特马自达在其运营的第一个五年已实现产量的增加。这对每年的绝对排放量和排放强度都造成了影响。同时，相对于基年绝对排放量增加了 50%（主要是产量增加了 126%的缘故），排放强度相对于基年（2005-2006 年）减少了 34%，主要归因于能效计划的实施以及产能利用的提高。

重庆长安福特马自达每年将继续更新温室气体排放清单。