**Changan Ford Mazda Automobile Co., Ltd. (CFMA) and Chongqing Plant**

**长安福特马自达汽车有限公司（CFMA）重庆工厂**

# (CFMA – CQ)

# 2008 Greenhouse Gas Inventory
# 2008 年度温室气体总量

**Executive Summary:**

CFMA - CQ is proud to present its second Greenhouse Gas (GHG) emissions inventory and to be the first automobile company in China to voluntarily report its Facility GHG emissions. CFMA - CQ believes that the starting point of a corporate GHG strategy is to better understand its emissions. CFMA - CQ is aware of the importance of Climate Change and it is committed to constantly improve its environmental performance and sharing results with others.

Ford is proud to participate in different greenhouse gas management initiatives worldwide including: The Chicago Climate Exchange (CCX), The Mexican GHG Program, The Philippines Greenhouse Gas Accounting and Reporting Program (PhilGARP), The Australian National Greenhouse Emissions Reporting System, The Climate Registry (TCR), The Brazilian GHG Program, The EU Emissions Trading Scheme (EU ETS), and The Canadian GHG Challenge Registry.

The 2009 GHG inventory includes CFMA - CQ data from 2003-2008. Emissions intensity (per unit) increased by 4% since 2007 but is 31% lower than the baseline period (2005-2006). This slight year over year increase in emissions intensity is a direct consequence of a 17% decrease in 2008 production. Facility energy-efficiency actions helped ensure emissions intensity did not increase significantly despite considerably lower production. CFMA - CQ will provide annual updates as it continues to strive to maintain and exceed its environmental standards.

**摘要:**

做为中国第一家自愿公布工厂温室气体（以下简称 GHG）排放的汽车公司，长安福特马自达汽车有限公司重庆工厂（以下简称 CFMA – CQ）在此非常荣幸地公布我们第二份 GHG 排放总量报告。CFMA – CQ 认为只有从充分了解自身 GHG 排放现状出发，才能制定出企业的 GHG 战略。CFMA – CQ 已经认识到气候变化的重要性，并且承诺将持续地改进其环境方面的业绩并与其它企业分享我们的成果。

福特汽车公司非常荣幸地参与了各种世界 GHG 管理计划，包括芝加哥气候交易所（CCX）、墨西哥 GHG 计划、菲律宾 GHG 核算与报告计划（PhilGARP）、澳大利亚国内温室排放报告系统、气候登记（TCR）、巴西 GHG 计划、欧盟排放交易计划（EU ETS）以及加拿大 GHG 挑战登记。

CFMA – CQ 的 2009 年 GHG 总量包括其 2003 至 2008 年度的数据。自 2007 年起其排放强度（每单位）上升了 4%，但是对比其基准时期（2005－2006 年）则下降了 31%。该排放强度的逐年轻微递增是由于 2008 年生产下跌 17%所致。工厂的能效行动有助于确保了在这相对低产量的情况下其排放强度没有大幅上升。CFMA - CQ 将提供其年度更新资料，并继续致力于保持并超越自身的环境标准。

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## Introduction

The GHG inventory contained in this report includes data from all Changan Ford Mazda Assembly Chongqing (CFMA - CQ) entities listed below including office buildings:

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

It should be noted that vehicle fleet and other mobile sources are not included in this inventory.

Changan Ford Automobile Co., Ltd was a joint venture between Chongqing Changan Automobile Co., Ltd. and Ford Motor Company and was established in April of 2001. In March 2006, with the participation of Mazda, the company was renamed as Changan Ford Mazda Automobile Co., Ltd. (CFMA). Changan, Ford and Mazda hold 50 per cent, 35 per cent and 15 per cent of the restructured company, respectively. CFMA - CQ is located in the Northern Development Region, Chongqing, and currently has a capacity of 267,000 units per year. The plant first began production of the Ford Fiesta on January 18, 2003, 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). CFMA – CQ experienced a decreased in production towards the end of last year (2008) due to the market downturn. Production is expected to increase as the economy improves and new models are introduced at the plant.

CFMA - CQ has a sister plant in Nanjing. Chongqing Changan Automobile Co., Ltd., Ford Motor Company and Mazda Motor Company also an engine plant (CFME) in Nanjing. These facilities are not included in this report as separate inventories have been developed for them.

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

介绍

本报告里的温室气体（以下简称 GHG）总量涵盖了长安福特马自达汽车有限公司重庆工厂（以下简称 CFMA - CQ ）以下单位的数据，包括办公楼宇：

- CFMA – CQ 装配厂
- CFMA – CQ 冲压厂
- CFMA – CQ 产品开发
- CFMA – CQ 行政管理部门
- CFMA – CQ 发动机厂

请注意车队和其它移动排放源未计算在内。

长安福特汽车有限公司是由重庆长安汽车股份有限公司和福特汽车公司于 2001 年 4 月成立的合资公司。2006 年 3 月，马自达汽车公司参股长安福特汽车有限公司，公司正式更名为“长安福特马自达汽车有限公司”，三方持股比例为：长安 50%，福特 35%，马自达 15%。。其重庆汽车装配厂位于重庆北部新区，目前拥有 26.7 万辆的年产能。该装配厂最先于 2003 年 1 月 18 日开始福特嘉年华车型的生产，随后是福特蒙迪欧（2004 年 5 月 20 日）、四门福特福克斯（2005 年 9 月 21 日）、马自达 3（2006 年 2 月 27 日）、沃尔沃 S40（2006 年 7 月 17 日）、五门福特福克斯（2006 年 8 月 23 日）和福特 S-MAX（2007 年 5 月 15 日）等车型的生产。由于汽车市场低迷，CFMA – CQ 在 2008 年末经历了产量下降的困境。但是，随着经济的复苏和新车型的引入，CFMA – CQ 的产量将有望提高。

CFMA – CQ 在南京有一个兄弟厂。重庆长安汽车股份有限公司、福特汽车公司和马自达汽车公司在南京也有一个发动机厂。这些工厂将单独计算其排放总量，并不被包括在本报告里。

CFMA - CQ 的一个重要计划是实施 ISO 14001 环境管理标准，该标准涵盖了工厂环境管理的各个方面，例如：大气排放、废物、水和能源。 为了维护该认证，工厂必须每年进行一次监督审核以确保工厂满足标准，同时衡量工厂的改进。这当中，CFMA – CQ 获得的一个显著的成效是对资源利用（包括：能源、固体和液体废物、溶液和水）进行细致的体系化管理。

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 and liquid waste, solvent use and water). Other environmental initiatives include: energy efficiency projects at the sites and educational programs for employees.

Chongqing Changan Automobile Co., Ltd., Ford Motor Company and Mazda Motor Company recognize the importance of the climate change issue and will continue to work on reducing the GHG emissions of our vehicles and facilities by way of introducing advanced technology vehicles and improving energy-efficiency in manufacturing operations.

**CFMA – CQ in China**

**Product:** Ford Focus, Ford Fiesta, Ford Mondeo, Ford S-MAX, Mazda3, Volvo S40

**Founded:** April, 2001

**Plant Capacity:** 267,000 units/year

**Operation:** Assembly, Stamping, Engine & Research Centre

**Employees (2008):** 5500 employees

**Site:** 460,000m2

**Floor Space:** 322,000m2

**ISO 14001Certified:** 2003

CFMA – CQ 的其它环境计划包括各场所的能效计划和员工教育计划。

重庆长安汽车股份有限公司、福特汽车公司和马自达汽车公司认识到气候变化问题的重要性，并将通过引进含有先进技术的汽车和提高生产过程中的能效来继续减少其汽车和工厂的 GHG 排放。

**CFMA – CQ 在中国**

**产品:** 福特福克斯，福特嘉年华，福特蒙迪欧，福特 S-MAX,马自达 3，沃尔沃 S40

**成立年份:** 2001 年 4 月

**产能:** 26.7 万辆每年

**工艺:** 装配、冲压、发动机和研究中心

**员工人数 (2008 年):** 5500 人

**占地面积:** 460,000 平方米

**建筑面积:** 322,000 平方米

**ISO 14001 认证年份:** 2003 年


**Figure 1: Ford Focus**

**Figure 2: Volvo S40**


**Figure 3: Ford Mondeo**


**图 1: 福特福克斯**

**图 2: 沃尔沃 S40**


**图 3: 福特蒙迪欧-致胜**


**Figure 4: Mazda 3**


**Figure 5: Ford S-MAX**

## Corporate Climate Change Initiatives:

CFMA - CQ is proud to be one of the first automobile companies 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


**图 4: 马自达 3**

**图 5: 福特 S-MAX**

<u>集团气候变化管理计划:</u>

CFMA – CQ 是中国第一批自愿公布其 GHG 排放的汽车公司之一，为此 我们感到非常骄傲。我们相信气候变化是一个严重的环境问题，并认为我们不能等待所有的科学不确定性明朗以后再来行动。福特汽车公司正积极地参与全世界各种

programs around the world gaining considerable experience in GHG reporting. Some of the initiatives are listed below:

**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 a 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.

**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

GHG 计划并获得了一定的 GHG 报告的经验。以下是我们参与过的部分 GHG 管理计划：

**芝加哥气候交易所 (CCX):**

芝加哥气候交易所(CCX) 是北美地区的 GHG 减排与交易系统。CCX 是由会员设计和治理，自愿形成的一套交易体系。这些成员自愿地通过法律约定的承诺在 2010 年前，基于 2000 年的基准值消减 GHG 排放量 6%。福特汽车公司是第一家，也是唯一一家参与这个计划的汽车制造公司。

**墨西哥 GHG 试验计划:**

墨西哥 GHG 试验计划是由 La Secretaria de Medio Ambiente y Recursos Naturales (SEMARNAT)、世界资源研究所(WRI) 和世界可持续发展工商理事会(WBCSD) 发起的为期两年的合作计划。作为一个自愿性计划，墨西哥 GHG 试验计划的成立旨在协助墨西哥企业计算其 GHG 排放量。福特汽车公司是唯一一家参与该计划的第一阶段的汽车制造企业，并承诺每年报告其排放量。

**欧盟排放权交易方案(EU ETS):**

福特汽车公司参与的 EU ETS 于 2005 年 1 月正式启动，是欧洲减少二氧化碳和其它 GHG 排放的方针的其中一个。该方案的第二阶段于 2008 年到 2012 年实施，这一时期也是《京都议定书》首次正式实施的时间。随后会有又一个的五年方案。

**加拿大 GHG 挑战与登记:**

从 1999 年起，福特汽车公司自愿向加拿大 GHG 挑战与登记（VCR）报告其年度 GHG 排放量。时至今日，福特汽车公司已经在 VCR 的报告系统里取得最高级别的成绩，包括

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.

**The Climate Registry (TCR)**

The Climate Registry in North America provides accurate and transparent measurement of GHG emissions and ensures consistency of measurement metrics across industry sectors and borders. The Climate Registry accounting infrastructure supports both voluntary and regulatory programs. Ford is a founding member and the first automaker to participate in the program.

**Brazilian GHG Reporting Program**

The Brazil Greenhouse Gas program is a partnership of Brazil's Ministry of Environment, the Brazilian Business Council for Sustainable Development, the Fundação Getúlio Vargas, the World Business Council on Sustainable Development, and the World Resources Institute (WRI). Ford of Brazil is proud to be the first automobile company in Brazil to voluntarily report its Facility Greenhouse Gas (GHG) emissions.

## 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.

两次获得汽车制造行业领导力奖，此外还获得 1999 年度银牌报告者称号以及 2000-2003 年度、2005 年度和 2006 年度金牌报告者称号。

**菲律宾 GHG 计划：**

菲律宾 GHG 计算与报告计划(PhilGARP) 由马尼拉天文台的 Klima 气候变化中心、菲律宾环境商务部、环境与自然资源部、能源部、WBCSD 和 WRI 于 2006 年 11 月联合发起。

**气候变化注册组织 (TCR)**

北美的气候变化注册组织(TCR)提供精准和透明的 GHG 排放测量方法，并保证各行业和地区使用一致的度量法。气候变化注册组织的下属统计机构即支持自愿的，也支持法定的管理计划。福特汽车公司是气候变化注册组织的创始成员，也是第一家加入该组织的汽车制造商。

**巴西 GHG 报告计划**

巴西 GHG 计划由巴西环境部、巴西可持续发展商业理事会、the Fundação Getúlio Vargas、WBCSD 和 WRI 共同发起。巴西的福特汽车公司是巴西国内第一家自愿报告其 GHG 排放量的汽车制造商。

**方法**

用来计算基准值和报告年的数据是直接来自公用事业机构所出具的电费和天然气费发票。

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 GHG calculation tools developed by the World Resources Institute (WRI).

This 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 GHG 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 1.7 % of total emissions. PFCs and SF6 do not apply to the company's manufacturing facilities. Emission factors in Table 1 were used to calculate CO2 emissions. Please note that we have revised the emission factor for natural gas to the most updated factor available.

**Table 1: Emission Factors**

| Fuel | Factor |
|---|---|
| Natural Gas | ***0.001884tCO2/m3*** |
| Gasoline/Petroleum | ***0.0023403tCO2/l*** |
| Electricity | ***0.000849tCO2/KWh*** |

Note: From WRI/WCSB

## 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. Table 2 shows 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.

CFMA – CQ 运用最高等级的能源监控系统和行业领先的全球排放管理（GEM）数据库，以确保环境因素例如二氧化碳排放量得到持续一致的跟踪。本报告的所有能源数据均包含在 GEM 里，并通过工厂进行跟踪和修正。本报告的排放数据是通过世界能源研究院（WRI）建立的 GHG 计算工具计算得出。

本报告包括由 WRI 和 WBCSD 协议里定义为范围一的直接排放源和范围二的间接排放源。报告里所有的二氧化碳排放量单位均为公制吨二氧化碳当量。其它 GHG，例如甲烷和一氧化二氮的排放估量在总排放量的 1%以下，因此忽略不计。其它排放源，如在汽车空调初填充制冷剂时渗漏的含氟烃类，其排放量可视为总排放量 1.7％以下。本公司的制造工厂没有使用到全氟烃类和六氟化硫。表 1 里的排放指标是用作二氧化碳排放量的计算。值得注意的是，天然气的排放指标已被修订为最新指标。

**表1: 排放指标**

| 燃料 | 指标 |
|---|---|
| 天然气 | ***0.001884吨二氧化碳/米$^3$*** |
| 汽油/石油 | ***0.0023403吨二氧化碳/升*** |
| 电 | ***0.000849吨二氧化碳/千瓦时*** |

来源： WRI和WCSB

## 基准年

CFMA - CQ 于 2003 年投产并逐年增加其生产量。我们选择 2005 和 2006 年分别作为我们的基准年。表 2 显示了用作计算基准值的直接和间接排放。注：直接排放来自厂内（如燃烧天然气或者石油类燃料）。间接排放来自于厂外，但是归于汽车制造过程（如厂内用电）。

**Table 2: Direct and Indirect Emissions Baseline**

| CFMA - CQ | | |
|---|---|---|
| **Direct Emissions (metric tCO2)** | | |
| **2005** | **2006** | **Baseline** |
| 16,485 | 24,510 | 20,497 |

| CFMA - CQ | | |
|---|---|---|
| **Indirect Emissions (metric tCO2)** | | |
| **2005** | **2006** | **Baseline** |
| 43,407 | 64,154 | 53,780 |

## GHG Emissions Data

CFMA - CQ was 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.

CFMA - CQ is committed to improving energy efficiency and reducing its GHG emissions. The plants have implemented several projects in recent years 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 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

**表 2: 直接和间接排放基准值**

| CFMA - CQ | | |
|---|---|---|
| 直接排放 (吨 CO2) | | |
| **2005 年** | **2006 年** | **基准值** |
| 16,485 | 24,510 | 20,497 |

| CFMA - CQ | | |
|---|---|---|
| 间接排放 (吨 CO2) | | |
| **2005 年** | **2006 年** | **基准值** |
| 43,407 | 64,154 | 53,780 |

## GHG 排放数据

CFMA - CQ 运用最先进的技术建造工厂使其运作可以达到高效节能。CFMA – CQ 的内部能源管理和控制流程可以监控工厂内各部门的能源使用并识别出可以改进的地方。

CFMA – CQ 致力于提高能效和减少其 GHG 排放。工厂在近年实施了几个减低能耗（电和天然气）的措施，包括：

- 安装新电源调节设备（主动动力学谐波 - Accusine -300A 和 PQF – 225A）。这些设备可以改善数字编码和解码，并在焊接和上色工艺中减少失真和提高象素。新变压站运用高反射速率以减少谐波（系统的自然共振或振动频率），在焊接工艺和上色工艺上每年各节省了 0.8%（28.8 万千瓦时和 34.5 万千瓦时）的耗电。
- 在上色车间里安装湿度控制器。湿度控制器可以长期保持车间内的湿度（影响上色质量的一个重要因素），并随气温改变（冬天降低湿度，

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.

In 2008, CFMA - CQ completed a cooling water pumping system rebuild project. This project allowed the plant to change from fixed pressure and flow, commonly used on these systems, to a process that allows plant staff to adjust the pressure and flow depending on the plant floor requirements saving 30% of the energy utilized in previous years.

Table 3 below summarizes CFMA - CQ energy consumption from 2003-2008

**Table 3: Energy Consumption From 2003-2008**

| 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 |
| 2008 | 11,038,304 | 1,749,224 | 84,448,820 |
| Total | 50,000,261 | 6,239,054 | 352,791,755 |

夏天提高湿度）。这个措施可以在冬天加热的时候减少需要的能源，并在夏天降低温度。

- 在工厂内安装暖气和空调以保持厂内的温度。
- 在每个生产间安装自动卷闸以减少热/冷空气流失。
- 在工厂内（街灯、停车场灯、车间等）安装电灯自动控制系统，在不需要的时候自动关灯。

CFMA - CQ 在 2008 年完成了一项冷却水泵系统重建工程。这项工程将工厂内以往固定压力和流量的冷却水泵系统改为可以由工人根据需要调节不同压力和流量的冷却水泵系统，比起往年节省 30％的能耗。

表 3 总结了 CFMA – CQ 2003－2008 的能耗：

**表 3: 2003-2008 能耗**

| CFMA - CQ 能耗 | | | |
|---|---|---|---|
| 时期 | 天然气（立方米） | 汽油（公升） | 电（千瓦时） |
| 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 |
| 2008 | 11,038,304 | 1,749,224 | 84,448,820 |
| Total | 50,000,261 | 6,239,054 | 352,791,755 |

**Direct Emissions:**

Direct Emissions result from combusting fuels at the CFMA - CQ site including natural gas and gasoline. Most gasoline purchased is used to fill new vehicle fuel tanks leaving the site instead of for on-site combustion. Table 4 shows direct emissions from 2003-2008

**Table 4: CFMA – CQ Direct Emissions**

| CFMA - CQ | |
|---|---|
| Direct Emissions/Year (tCO2) | |
| 2003 | 4,398 |
| 2004 | 9,544 |
| 2005 | 16,485 |
| 2006 | 24,510 |
| 2007 | 28,976 |
| 2008 | 24,890 |

**Indirect Emissions:**

CFMA - CQ 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 5 shows indirect emissions per year from 2003-2008.

**Table 5: CFMA – CQ Direct Emissions**

| CFMA - CQ | |
|---|---|
| **Indirect Emissions/Year** | |
| 2003 | 14,572 |
| 2004 | 22,852 |
| 2005 | 43,407 |
| 2006 | 64,154 |
| 2007 | 82,839 |
| 2008 | 71,697 |

**直接排放:**

CFMA - CQ 的直接排放来自燃烧天然气或者其它石油类燃料的排放。大部分购买的汽油用于填充新车的油箱内并将新车运出厂外而不是在厂内燃烧。表 4 显示了工厂 2003－2008 年的直接排放。

**表 4: CFMA – CQ 直接排放**

| CFMA - CQ | |
|---|---|
| 直接排放/年份 (tCO2) | |
| 2003 | 4,398 |
| 2004 | 9,544 |
| 2005 | 16,485 |
| 2006 | 24,510 |
| 2007 | 28,976 |
| 2008 | 24,890 |

**间接排放:**

CFMA – CQ 的间接排放来自于厂外，例如用来发电的化石燃料。CFMA - CQ 长期监控其用电量。但是用电量受生产影响较大，生产量加大，用电量也随之增大。表 5 展示了工厂 2003－2008 年的间接排放。

**表 5: CFMA – CQ 间接排放**

| CFMA - CQ | |
|---|---|
| 间接排放/年份 | |
| 2003 | 14,572 |
| 2004 | 22,852 |
| 2005 | 43,407 |
| 2006 | 64,154 |
| 2007 | 82,839 |
| 2008 | 71,697 |

## Data Analysis

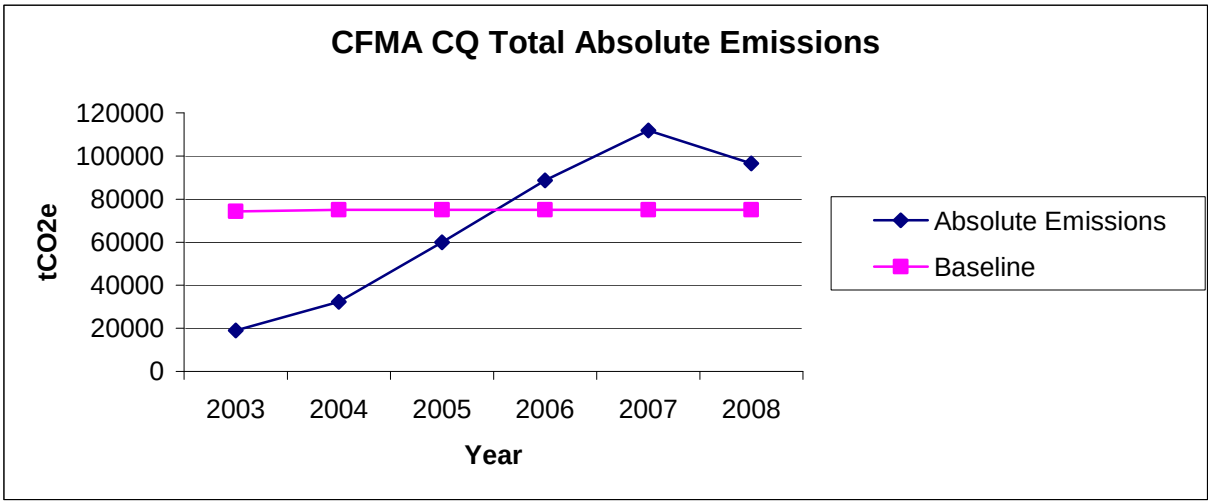
CFMA - CQ site experienced a significant decrease in production (17%) from 2007 to 2008 due to the economic downturn. Table 6 shows CFMA - CQ production data from 2003-2008.

**Table 6: CFMA – CQ Production Units (2003-2008)**

| CFMA | |
|---|---|
| Production Units | |
| 2003 | 14,465 |
| 2004 | 50,020 |
| 2005 | 59,827 |
| 2006 | 137,782 |
| 2007 | 223,602 |
| 2008 | 186,173 |

CFMA - CQ implemented many projects and activities to reduce energy consumption and improve energy efficiency. These actions combined with the production decrease experienced by the site have resulted in a 14% reduction in absolute emissions from 2007 to 2008. Absolute emissions have increased by 30% compared to the baseline (2005-2006) as a result of overall production increases. Figure 6 below shows CFMA – CQ Absolute Emissions trends from 2003 to 2008.

**Figure 6: CFMA – CQ Absolute GHG Emissions**



数据分析

CFMA – CQ 在 2007 到 2008 年由于经济低迷经历了 17%的生产量下降。表 6 显示了 CFMA - CQ 2003－2008 年的生产数据。

**表 6: CFMA – CQ 生产单位(2003-2008 年)**

| CFMA | |
|---|---|
| 生产单位 | |
| 2003 | 14,465 |
| 2004 | 50,020 |
| 2005 | 59,827 |
| 2006 | 137,782 |
| 2007 | 223,602 |
| 2008 | 186,173 |

CFMA - CQ 实施了许多项目和计划去减少能耗和提高能效。这些措施加上 CFMA - CQ 在 2007 到 2008 年的生产量下降使得其绝对排放量下降了 14%。作为总的生产量增长的结果，比起基准年（2005－2006 年）CFMA – CQ 的绝对排放上升了 30%。 图 6 显示了 CFMA – CQ 2003 －2008 年的绝对排放。.

**图 6: CFMA – CQ GHG 绝对排放**

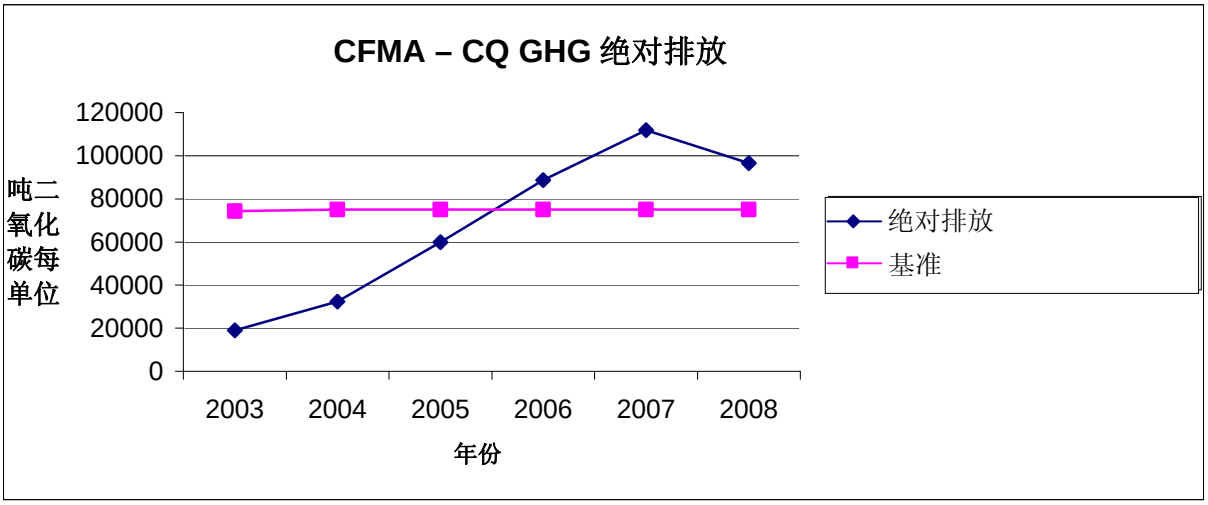
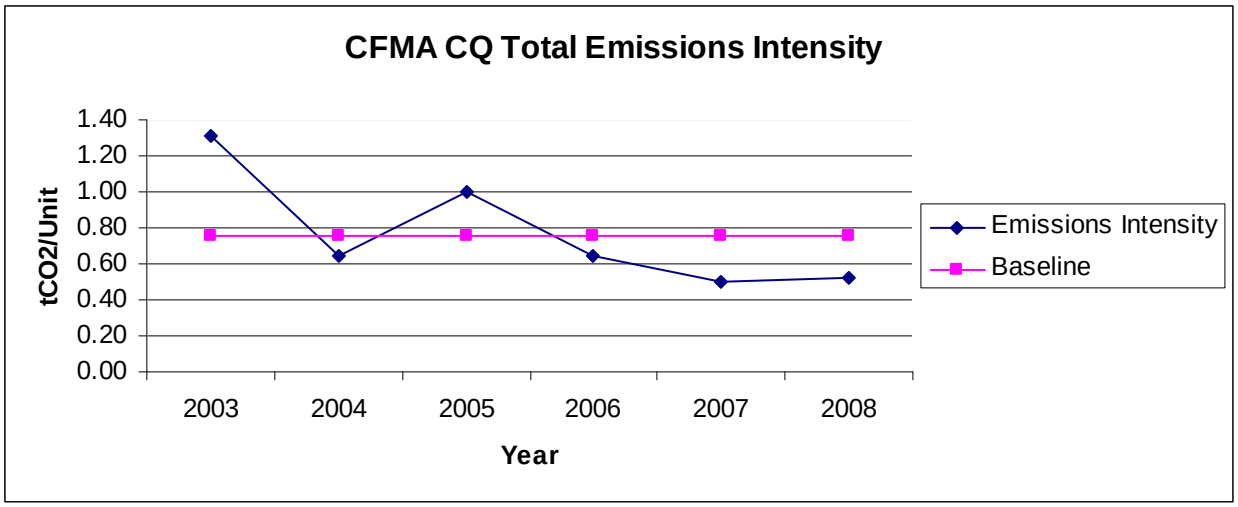


**Figure 7: CFMA – CQ GHG Emissions Intensity**



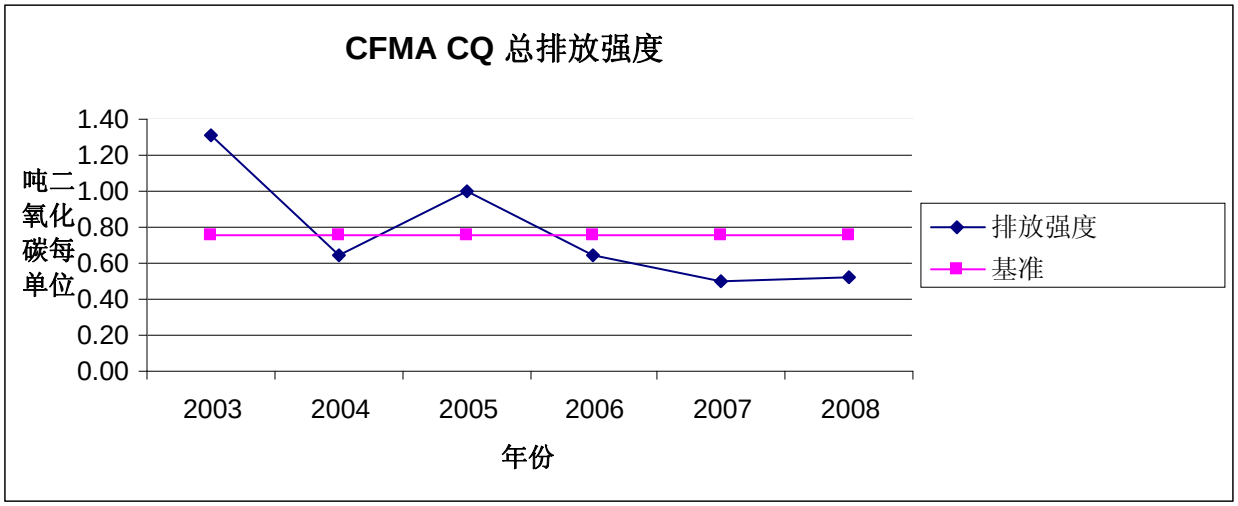

Emission intensity is calculated by dividing absolute emissions by the number of production units (vehicles built). As shown in Figure 7, emissions intensity (per unit) increased by 4% since 2007 but is 31% lower than the baseline period (2005-2006). This slight year over year increase in emissions intensity is a direct consequence of a 17% decrease in 2008 production. Facility energy-efficiency actions helped ensure emissions intensity did not increase significantly despite considerably lower production. Production is expected to increase as the economy improves and as new models are introduced at the plant.

Please note that the increase in 2005 emissions intensity is due to inefficiencies associated with the implementation of new paint shops and associated facilities in that year.

## Conclusions

CFMA - CQ is proud to present its second GHG emissions inventory building upon last year's achievement of becoming the first automobile company in China to voluntarily report its facility GHG emissions. 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.

**图 7: CFMA – CQ GHG 排放强度**




排放强度的计算是基于绝对排放除以生产单位的个数（即汽车）。图 7 显示，自 2007 年起排放强度（每单位）上升了 4%，但是对比起基准时期（2005－2006 年）下降了 31%。 这个排放强度的年轻微增加的趋势是由 2008 年生产下跌 17%所致。工厂的能效行动保证了工厂在相对低产量的情况下其排放强度没有大幅上升。工厂的产量将会随着经济的好转和新车型的投产而上升。

请注意 2005 年的排放强度增长是由于该年里新增上色车间和其附属设施的低效率。

## 结论

CFMA - CQ 作为中国第一家自愿公布其工厂的温室气体（以下简称 GHG）排放的汽车公司，非常自豪地公布我们的第二份 GHG 排放总量报告。CFMA – CQ 明白气候变化的重要性，并承诺将持续地改进此方面的环境表现并向其它团体分享成果。