Chang'an Ford Automobile Co., Ltd. (CAF)

长安福特汽车有限公司（CAF）

2015 Greenhouse Gas Inventory
2015 年度温室气体总量

Executive Summary 摘要：

Chang'an Ford Automobile Co., Ltd. (CAF) is proud to present its eighth Greenhouse Gas (GHG) emissions inventory and to be the first automobile company in Mainland China to voluntarily report its Facility GHG emissions (Note, this report includes CAF1-CQ , CAF2-CQ, CAF3-CQ, CAF4-HZ, CAFEP and CAFTP). CAF believes that the starting point of a corporate GHG strategy is to better understand its emissions. CAF is aware of the importance of Climate Change and is committed to the continuous improvement in its environmental performance and sharing the results with others.

做为中国大陆首家自愿公布工厂温室气体（以下简称 GHG）排放的汽车公司，长安福特汽车有限公司重庆工厂（以下简称 CAF）在此隆重发布第八份 GHG 排放总量报告（注：此报告包括了长安福特汽车有限公司重庆一工厂、重庆二工厂、重庆三工厂、杭州四工厂、发动机工厂和变速器工厂）。CAF 相信公司的 GHG 战略出发点是为了更好地了解自身排放情况。CAF 已经认识到气候变化的重要性，并且承诺将持续地改进自身环境业绩，同时与其它公司共享结果。

Ford is proud to participate in different greenhouse gas management initiatives worldwide including: The Mexican GHG Program, The Australian National Greenhouse Emissions Reporting System (NGERS), The Climate Registry (TCR), The Brazilian GHG Program, The EU Emissions Trading Scheme (EU ETS), and The Canadian GHG Emissions Reporting Program (GHGRP).

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、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 排放报告计划。

The 2015 GHG inventory includes CAF data from 2003-2015. CAF1-CQ total emission decreased 23.0% from 2014 to 2015 with a production decrease of 31.7%.

Total emissions for 2015 increased 9.2% from the baseline period (2005-2006), due to production increases.

2015 年 GHG 总量报告包括 CAF 2003 至 2015 年度的数据。重庆一工厂从 2014 年到 2015 年产量下降 31.7%且排放总量下降 23.0%。由于产量增加，2015 年排放总量比基准时期（2005-2006 年）增加 9.2%。

The 2015 CAF1-CQ emission intensity (per unit) increased 13.9% from 2014, and emission intensity decreased 52.7% from the baseline period (2005-2006).

2015 年重庆一工厂排放强度（每单位）比 2014 年上升了 13.9%， 且 2015 年的排放强度比基准时期（2005~2006 年）以来下降 52.7%。

CAF2-CQ total emission decreased 13.6% from 2014 to 2015 with a production decrease of 15.3%. Total emission for CAF2-CQ decreased 9.1% from the baseline period (2013). 2015 CAF2-CQ emission intensity (per unit) increased 2.8% from 2014, while the 2015 emission intensity (per unit) decreased 9.2% from the baseline period (2013).

重庆二工厂从 2014 年到 2015 年产量下降了 15.3%，排放总量相应下降了 13.6%，且比基准时期（2013 年）降低 9.1%。2015 年排放强度比 2014 年升高 2.8%，比基准时期（2013 年）降低 9.2%。

CAFEP total emission increased 49.0% from 2014 (baseline period) to 2015 with a production increase of 160.5%. 2015 CAFEP emission intensity (per unit) decreased 41.5% from 2014 (baseline period).

重庆发动机工厂 2015 年排放总量比 2014 年（即基准时期）升高 49.0%，产量比 2014 年上升了 160.5%。2015 年排放强度比 2014 年（即基准时期）降低 41.5%。

CAF will provide annual updates as it continues to strive to meet or exceed environmental standards.

CAF 将每年提供更新资料，并继续努力保持和超越自身的环境标准。

Table of Contents

List of Figures

List of Tables

目录

图表目录

表格目录

Introduction 介绍

The GHG inventory contained in this report includes data from all Chang'an Ford Automobile Co., Ltd (CAF) entities listed below including office buildings**.**

本报告里的 GHG 总量包含下列所有长安福特汽车有限公司（以下简称 CAF）的实体单位的数据，包括办公楼在内。

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

值得注意是车队和其它移动排放源未计算在内。

CAF VO plants currently have the production of Ford Classic Focus, Ford New Focus, Ford Ecosport, Ford Kuga, For New Mondeo, All New Ford Escort, Ford Edge and Ford Taurus.

长安福特整车厂现今生产福特经典福克斯，福特新福克斯，福特翼搏，福特翼虎，福特新蒙迪欧，全新福特福睿斯，福特锐界和福特金牛座。

CAF1-CQ is located in No.1 West Yuanyang Rd, Northern Development Region, Chongqing.

CAF1-CQ 位于重庆北部新区长福西路 1 号。

CAF2-CQ is located in No.666, Jinshan Avenue, Chongqing Northern Development Region. The plant first began production in February, 2012.

CAF2-CQ 位于重庆北部新区金山大道 666 号，距 CAF1-CQ 不足 10km。该厂于 2012 年 2 月正式投产第一辆车。

CAF3-CQ is located in No.888, Jinshan Avenue, Chongqing Northern Development Region. The plant first began production in November, 2014.

重庆三工厂位于重庆北部新区金山大道 888 号，距一工厂不足 10km。该厂于 2014 年 11 月正式投产第一辆车。

CAF4-HZ is located in No.135, Changfuhang Road, Qianjin Industrial Zone, Dajiangdong District, Hangzhou. The plant first began production in March, 2015.

杭州四工厂位于杭州市大江东区前进工业园区长福杭路 135 号。该厂于 2015 年 3 月正式投产第一辆车。

CAFEP is located in No 1, North Lihuan Road, Northern New District, Chongqing. The plant first began production of the Ford Engine in July, 2013.

长安福特汽车有限公司动力系统分公司发动机工厂（以下简称发动机工厂）位于重庆北部新区礼环北路 1 号。该厂于 2013 年 7 月正式投产第一台发动机。

CAFTP is located in No 1, North Lihuan Road, Northern New District, Chongqing. The plant first began production of the Ford Transmission in June, 2014.

长安福特汽车有限公司动力系统分公司变速器工厂（以下简称变速器工厂）位于重庆北部新区礼环北路 1 号。该厂于 2014 年 6 月正式投产第一台变速器。

One of the most important initiatives undertaken by CAF 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 CAF'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.

CAF 采取的最重要举措之一是执行了 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，包括大气排放、废物、水和能源。 为了保持认证，工厂必须每年进行一次监督审核以确保工厂达标，同时衡量工厂所取得的进步。这当中，CAF 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、溶剂和水）进行细致的体系化管理。CAF 的其它环境计划包括各场所的能效计划和员工教育计划。

Chang'an Ford Automobile Co., Ltd., recognized the importance of the climate change issue and will continue to work on reducing the GHG emissions of our vehicles and facilities by introducing advanced technology vehicles and improving energy efficiency in manufacturing operations.

长安福特汽车有限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。

CAF1-CQ – 长安福特重庆一工厂

Founded: April, 2001
Operation: TCF, Paint Shop, Stamping Shop, Body Shop, Engine Plant, Test Line, Technical Development Center
Employees: 7800 employees (2015)
Site: 460,000m2
Floor Space: 322,000m2
ISO 14001 Certified: 2013

成立年份: 2001 年 4 月
工艺: 总装车间、涂装车间、冲压车间、焊接车间、发动机车间、检测中心、技术开发中心
员工人数: 7800 人 （2015）
占地面积: 46 万平方米
建筑面积: 32.2 万平方米
ISO 14001 认证年份: 2013 年

CAF2-CQ – 长安福特重庆二工厂

Founded: February, 2012
Operation: TCF, Paint Shop, Stamping Shop, Body Shop, CAL Line, Sales Department
Employees: 4500 employees (2015)
Site: 700,000m2
Floor Space: 235,000m2
ISO 14001 Certified: 2013

成立年份: 2012 年 2 月
工艺: 总装车间、涂装车间、冲压车间、焊接车间、CAL 线、销售公司
员工人数: 4500 人 （2015）
占地面积: 70 万平方米
建筑面积: 23.5 万平方米
ISO 14001 认证年份: 2013 年

CAF3-CQ – 长安福特重庆三工厂

Founded: November, 2014
Operation: TCF, Paint Shop, Stamping Shop, BIW
Employees: 3500 employees (2015)
Site: 1,025,522m2
Floor Space: 222,252.22m2
ISO 14001 Certified: Certification audit planed in 2016

成立年份: 2014 年
工艺: 总装车间、涂装车间、冲压车间、焊接车间
员工人数: 3500（2015）
占地面积: 102 万平方米
建筑面积: 22.2 万平方米
ISO 14001 认证年份: 计划于 2016 年进行首次认证审核

CAF4-HZ – 长安福特杭州四工厂

Founded: 2015
Operation: Stamping Shop, BIW, Paint Shop, TCF, RDC
Employees: 4000 (2015)
Site: 1,400,000m2
Floor Space: 700,000m2
ISO 14001 Certified: Certification audit planed in 2017

成立年份: 2015 年
工艺: 冲压车间、焊装车间、涂装车间、总装车间、RDC 库房
员工人数: 4000 （2015）
占地面积: 140 万平方米
建筑面积: 70 万平方米
ISO 14001 认证年份: 计划于 2017 年进行首次认证审核

CAFEP –长安福特汽车有限公司动力系统分公司发动机工厂

Founded: 2013
Operation: Cylinder block machining, crank shaft machining, cylinder head
Employees: 1400 employees (2015)
Site: 401000m2
Floor Space: 165000m2
ISO 14001Certified: 2015

成立年份: 2013 年
工艺: 缸体机械加工、曲轴机加工、缸盖机加工、发动机装配线发动机测试、发动机装运
员工人数: 1400（2015）
占地面积: 40.1 万平方米
建筑面积: 16.5 万平方米
ISO 14001 认证年份: 2015

CAFTP –长安福特汽车有限公司动力系统分公司变速器工厂

Founded: June, 2014

Operation: transmission body, torque converter shell, valve body machining, gear

Employees: 1600 employees (2015)

Site: 247000.6m2

Floor Space: 867329.2m2

ISO 14001Certified: Certification audit planed in 2016

成立年份: 2014 年 6 月

工艺: 箱体、阀体、壳体机加工；齿轮机加工及热处理；装配、测试；

员工人数: 1600（2015）

占地面积: 24.7 万平方米

建筑面积: 86.7 万平方米

ISO 14001 认证年份: 计划于 2016 年进行首次认证审核

Figure 1: Ford Classic Focus
图 1：福特经典福克斯

Figure 2: Ford New Focus
图 2：福特新福克斯

Figure 3: Ford Ecosport
图 3：福特翼搏

Figure 4: Ford Kuga
图 4：福特翼虎

Figure 5: Ford New Mondeo
图 5：福特新蒙迪欧

Figure 6: All New Ford Escort
图 6：全新福特福睿斯

Figure 7: Ford Edge
图 7：福特锐界

Figure 8: Ford Taurus
图 8：福特金牛座

Corporate Climate Change Initiatives 集团气候变化管理计划

CAF is proud to be one of the first automobile companies to voluntarily report its GHG emissions in Mainland 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 and gaining considerable experience in GHG reporting. Some of the initiatives are listed below:

CAF 是中国大陆首批自愿公布其 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 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：

Chicago Climate Exchange (CCX)

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

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。这个交易所已于 2010 年 11 月关闭。

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.

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。

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.

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。

Canadian Voluntary Challenge and Registry

Ford voluntarily reported GHG emissions to the Canadian Voluntary Challenge and Registry (VCR).from 1999 to 2006. Over the years, it 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. The Challenge Registry ceased taking submissions effective, January 1, 2012. Ford now participates in the Canadian Greenhouse Gas Reporting Program.

加拿大 GHG 挑战与登记

从 1999 年起到 2006 年，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，包括获得汽车行业两次领导力奖，1999 年获得报告银奖以及在 2000~2003 年，2005~2006 年报告金奖。 加拿大挑战与登记已经于 2012 年 1 月 1 日停止。 福特汽车公司现正参加加拿大温室气体报告计划。

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. Ford ceased operations in the Philippines in 2012 and therefore will no longer participate in the program.

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。福特在 2012 年关闭了菲律宾工厂，因此也不再参与该计划。

The Climate Registry (TCR)

The Climate Registry is a nonprofit organization that establishes consistent, transparent standards throughout North America for businesses and governments to calculate, verify and publicly report their carbon footprints in a single, unified registry**.** Ford became a founding member in 2008 and was the first auto manufacturing

participant in the program. In 2011, Ford became a Climate Registered member of TCR with the independent third party verification of all of Ford's North American GHG emissions.

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。福特在 2011 年由独立第三方验证了所有福特北美温室气体排放量之后，成为气候变化组织的注册成员。

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.

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。

Methodology 方法

CAF uses a best in class energy monitoring system and an industry-leading Global Emissions Manager (GEM) database to ensure environmental metrics such as CO_2 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). Please note that the 2006 WRI electricity emission factor was used for 2004~2006 CO2 emission calculations. The 2007 WRI factor was used for 2007 data. In addition, the most up to date 2008 WRI electricity emission factors were used for the 2008~2015 CO2 emission calculations.

CAF 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。请注意 2004 年至 2006 年的排放计算是基于 2006 年的 WRI 电排放系数， 2007 年的计算是基于 2007 年的电排放系数，另，2008 年至 2015 年二氧化碳排放的计算是基于最新的 2008 年电排放系数。

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 CO_2 emissions are included and reported in units of metric tons of carbon dioxide (CO_2). Other GHG applicable to combustion processes, CH_4 and N_2O, 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 CO_2 emissions.

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。

Table 1: Emission Factors

表 1：排放指标

Fuel **燃料**	**Factor** **排放指标**
Natural Gas 天然气	***0.001885tCO2/m3*** ***0.001885吨CO2/立方米***
Gasoline/Petroleum 汽油/石油	***0.002272tCO2/l*** ***0.002272吨CO2/升***
Electricity (2006) 电 (2006)	***0.0007846tCO2/KWh*** ***0.0007846吨CO2/千瓦时***
Electricity (2007) 电 (2007)	***0.0007744tCO2/KWh*** ***0.0007744吨CO2/千瓦时***
Electricity (2008) 电 (2008)	***0.0006892tCO2/KWh*** ***0.0006892吨CO2/千瓦时***
Note: From WRI/WBCSD 来源： WRI和WBCSD	

Base Year 基准年

CAF1-CQ began operations in 2003 and has since increased production. 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 and petroleum fuel use). Indirect emissions are those generated off site but attributable to car manufacturing (i.e. electricity used on site).

重庆一工厂于 2003 年投产并逐年提高产量。我们选择 2005 和 2006 年的平均值作为我们的基准年。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（如燃烧天然气以及石油类燃料）。间接排放来自于厂外，但是归于汽车制造过程（如厂内用电）。

CAF2-CQ began operations in Feb, 2012 and has since increased production. We have selected 2013 year as our representative baseline because CAF2-CQ started full year production in 2013. Table 2 shows the direct and indirect emissions used to obtain the baseline.

重庆二工厂于 2012 年 2 月开始投产并提高产量。我们选择 2013 年为我们的基准年因为 2013 年开始全年投产。表 2 显示了用作计算基准值的直接和间接排放。

CAF3-CQ began operations in Nov, 2014 and has since increased production. We have selected 2015 year as our representative baseline because CAF3-CQ started full year production in 2015. Table 2 shows the direct and indirect emissions used to obtain the baseline.

重庆三工厂于 2014 年 11 月开始投产并提高产量。我们选择 2015 年为我们的基准年因为 2015 年开始全年投产。表 2 显示了用作计算基准值的直接和间接排放。

CAFEP began operations in July, 2013 and has since increased production. We have selected 2014 year as our representative baseline because CAFEP started full year production in 2014. Table 2 shows the direct and indirect emissions used to obtain the baseline.

重庆发动机工厂于 2013 年 7 月开始投产并提高产量。我们选择 2014 年为我们的基准年因为 2014 年开始全年投产。表 2 显示了用作计算基准值的直接和间接排放。

CAFTP began operations in June, 2014 and has since increased production. We have selected 2015 year as our representative baseline because CAFTP started full year production in 2015. Table 2 shows the direct and indirect emissions used to obtain the baseline.

重庆变速器厂于 2014 年 6 月开始投产并提高产量。我们选择 2015 年为我们的基准年因为 2015 年开始全年投产。表 2 显示了用作计算基准值的直接和间接排放。

Table 2: Direct and Indirect Emissions Baseline for CAF plants
表 2：直接和间接排放基准值

Plant 工厂	Baseline Year 基准年份	Direct Emissions (metric t CO2) 直接排放（吨 CO2)	Indirect Emissions (metric t CO2) 间接排放（吨 CO2)	Production 产量
CAF1-CQ	2005	16,485	40,114	59,827
	2006	22,246	59,288	137,782
	Average 平均数	**19,366**	**49,701**	**98,805**
CAF2-CQ	2013	18,960	66,977	344,748
CAF3-CQ	2015	16,571	56,881	214,434
CAFEP	2014	1,465	16,833	178,921
CAFTP	2015	1,665	42,830	500,671

GHG Emissions Data GHG 排放数据

CAF was constructed with state of the art technology that allows the plants to operate in an energy efficient manner. CAF's internal energy management and control process allows the plants to monitor energy usage throughout the facilities and identify areas that can be improved.

CAF 运用最先进的技术建造工厂使其运作可以达到高效节能。CAF 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。

CAF4-HZ started operation in March, 2015 and have since increased production. This report will also report out 2015 CAF4-HZ emission but 2015 will not be considered as its baseline year.

长安福特杭州四工厂由 2015 年 3 月投产并提高产量。本报告也会报告 2015 年四工厂的年度排放数据，但 2015 年并不会作为四工厂的基准年来比较。

Table 3 and Table 4 below summarizes CAF energy consumption from 2003-2015.

表 3 和表 4 汇总了 CAF 2003－2015 年度的能耗。

Table 3: CAF VO Energy Consumption From 2003-2015

表 3：CAF 整车厂 2003-2015 年能耗

Period 年份	Natural Gas (m^3) 天然气 （立方米）	Gasoline (l) 汽油 （升）	Electricity (KWH) 电 （千瓦时）
CAF1-CQ			
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	387,420	75,564,337
2007	13,137,293	735,932	97,571,938
2008	10,978,815	856,282	84,109,652
2009	13,493,805	852,151	99,236,420
2010	13,853,452	1,061,503	101,110,828
2011	14,360,198	1,323,350	102,280,493
2012	12,490,855	472,532	93,386,704
2013	13,838,404	701,411	101,960,264
2014	14,217,166	100,010	102,966,742
2015	10,701,107	69,631	79,928,700
CAF2-CQ			
2012	5,804,200	64,208	57,304,500
2013	10,004,413	44,645	97,181,010
2014	10,864,051	0	101,563,100
2015	8,971,293	0	88,840,316
CAF3-CQ			
2014	1,798,850	0	16,048,195
2015	8,791,223	0	82,531,270
CAF4-HZ			
2015	6,660,210	1,266,784	91,802,480

Table 4: CAF PTO Energy Consumption From 2013-2015

表 4：CAF 动力总成 2013-2015 年能耗

Period 年份	Natural Gas (m^3) 天然气 （立方米）	Gasoline (l) 汽油 （升）	Electricity (KWH) 电 （千瓦时）
CAFEP			
2013	619,875	0	11,143,599
2014	777,607	0	24,424,518
2015	344,658	0	38,628,204
CAFTP			
2014	562,627	0	25,608,007
2015	883,392	0	62,144,645

Direct Emissions:

Direct Emissions result from combusting fuels at the CAF site including natural gas and gasoline.

直接排放：

CAF 的直接排放来自燃烧天然气以及汽油的排放。

Indirect Emissions:

CAF Indirect Emissions include all emissions generated outside the site's perimeter such as emissions from burning fossil fuel to generate electricity. CAF 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 and Table 6 show the total direct and indirect emissions for CAF VO and PTO plant from 2003-2015 by year.

间接排放：

CAF 的间接排放包括厂外产生的全部排放，例如用来发电的化石燃料。CAF 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 和表 6 显示了长安福特整车厂和动力总成工厂 2003－2015 年的直接，间接排放量以及排放强度。

Table 5: CAF VO Total Emission and Emission Intensity

表 5：CAF 整车厂 排放总量及排放强度

Year 年份	Total Emission (tCO2) 排放总量 （吨 CO2）		Emission Intensity (tCO2/unit) 排放强度 （吨 CO2/车）
	Direct Emissions (tCO2) 直接排放（吨 CO2）	Indirect Emissions (tCO2) 间接排放（吨 CO2）	
CAF1-CQ			
2003	4,398	14,572	1.24
2004	9,544	21,118	0.61
2005	16,485	40,114	0.95
2006	22,246	59,288	0.59
2007	26,473	75,560	0.46
2008	22,688	57,952	0.42
2009	27,417	68,374	0.38
2010	28,525	69,665	0.37
2011	30,076	70,471	0.37
2012	24,619	64,362	0.39
2013	27,679	70,271	0.33
2014	27,027	70,965	0.29
2015	20,330	55,087	0.33
CAF2-CQ			
2012	11,087	39,494	0.35
2013	18,960	66,977	0.25
2014	20,479	69,997	0.22
2015	16,911	61,229	0.23
CAF3-CQ			
2014	3,391	11,060	2.52
2015	16,571	56,881	0.34
CAF4-HZ			
2015	15,433	63,270	1.02

Disclaimer: The calculation is based on electricity emission factors provided by WRI every year. Please note that the 2006 WRI electricity emission factor was used for 2003~2006 CO2 emission calculations. The 2007 WRI factor was used for 2007 data. In addition, the most up to date 2008 WRI electricity emission factors were used for the 2008~2015 CO2 emission calculations.

注：所有排放总量的计算都是基于 WRI 每年更新的系数。2003 年至 2006 年的排放计算是基于 2006 年的 WRI 电排放系数， 2007 年的计算是基于 2007 年的电排放系数，另，2008 年至 2015 年二氧化碳排放的计算是基于最新的 2008 年电排放系数。

Table 6: CAF PTO Total Emission and Emission Intensity

表 6：CAF 动力总成 排放总量及排放强度

Year 年份	Total Emission (tCO2) 排放总量 （吨 CO2）		Emission Intensity (tCO2/unit) 排放强度 （吨 CO2/车）
	Direct Emissions (tCO2) 直接排放（吨 CO2）	Indirect Emissions (tCO2) 间接排放（吨 CO2）	
CAFEP			
2013	1,168	7,680	0.22
2014	1,466	16,833	0.10
2015	650	26,623	0.06
CAFTP			
2014	1,061	17,649	0.16
2015	1,665	42,830	0.09

Disclaimer: The calculation is based on electricity emission factors provided by WRI every year. Please note that the 2006 WRI electricity emission factor was used for 2003~2006 CO2 emission calculations. The 2007 WRI factor was used for 2007 data. In addition, the most up to date 2008 WRI electricity emission factors were used for the 2008~2015 CO2 emission calculations.

注：所有排放总量的计算都是基于 WRI 每年更新的系数。2003 年至 2006 年的排放计算是基于 2006 年的 WRI 电排放系数， 2007 年的计算是基于 2007 年的电排放系数，另，2008 年至 2015 年二氧化碳排放的计算是基于最新的 2008 年电排放系数。

Data Analysis 数据分析

Figure 9 below shows CAF1-CQ total emissions trends from 2008 to 2015 because the emission began to be stable since 2008.

As shown in Figure 9, CAF1-CQ total emission was 75,417 t. CAF1-CQ site experienced a decrease of 31.7% in production from 2014-2015, resulting in an emission decrease of 23.0%. The total emission in 2015 increased 9.2% from the baseline period (2005-2006) due to the significant production increases.

图 9 显示了 CAF1-CQ 从 2008 年至 2015 年排放总量的趋势，因为排放量自 2008 年起趋于稳定。

如图 9 所示，重庆一工厂 2015 年的排放总量为 75,417 吨。由于重庆一工厂 2015 年的产量比 2014 年下降 31.7%， 2015 年排放总量相应比 2014 年下降 23.0%。由于产量大幅增加，2015 年排放总量比基准时期（2005-2006 年）上升 9.2%。

Emission intensity is calculated by dividing total emissions by the number of production units (vehicles built). Figure 10 below shows CAF1-CQ emissions intensity (per unit) trends from 2008 to 2015 because the emission intensity began to be stable since 2008.

排放强度的计算是基于排放总量除以生产单位的个数（即汽车）。图 10 显示了 CAF1-CQ 从 2008 年至 2015 年排放强度的趋势，因为排放强度自 2008 年起趋于稳定。

As shown in Figure 10, CAF1-CQ emission intensity (per unit) was 0.33 t/vehicle. Due to the 2015 production decrease, 2015 CAF1-CQ emission intensity (per unit) increased 13.9% from 2014. 2015 emission intensity (per unit) decreased dramatically 52.7% from the baseline period (2005-2006).

如图 10 所示，重庆一工厂 2015 年排放强度为 0.33 吨/车。由于 2015 年产量的降低，2015 年排放强度（每单位）比 2014 年上升 13.9%，2015 年的排放强度比基准时期（2005-2006 年）大幅降低 52.7%。

Figure 9 and Figure 10 below show CAF2-CQ total emissions trends and emissions intensity (per unit) from 2012 to 2015.

图 9 和图 10 分别显示了 CAF2-CQ 从 2012 年至 2015 年排放总量和排放强度的趋势。

As shown in Figure 9 and Figure 10 CAF2-CQ total emission was 78,140 t and the emission intensity (per unit) was 0.23 t/vehicle. CAF2-CQ site experienced a decrease of 15.3% in production from 2014-2015, resulting in an emission decrease of 13.6%, and the total emission in 2015 decreased 9.1% from the baseline period (2013). 2015 CAF2-CQ emission intensity (per unit) increased 2.8% from 2014, while the 2015 emission intensity (per unit) decreased 9.2% from the baseline period (2013).

如图 9 和图 10 所示，重庆二工厂 2015 年排放总量为 78,140 吨，排放强度为 0.23 吨/车。由于重庆二工厂 2015 年产量比 2014 年下降 15.3%，2015 年排放总量相应比 2014 年降低 13.6%，比基准时期（2013 年）降低 9.1%。 2015 年排放强度比 2014 年升高 2.8%，比基准时期（2013 年）降低 9.2%。

CAF3-CQ total emission in 2015 was 73,452 t and the emission intensity (per unit) was 0.34 t/vehicle. Because CAF3-CQ started full year production in 2015, year 2015 has been selected as baseline year for CAF3-CQ.

2015 年重庆三工厂排放总量为 73,452 吨，排放强度为 0.34 吨/车。由于重庆三工厂于 2015 年开始全年投入生产，所以 2015 年被设定为其基准年。

CAF4-HZ total emission in 2015 was 78,703 t, and emission intensity (per unit) was 1.02 t/vehicle. Please note that 2015 will not be considered as the baseline year for CAF4-HZ since production began in March, 2015. A baseline for CAF4-HZ will be developed when a year of full production is available.

2015 年杭州四工厂排放总量为 78,703 吨，排放强度为 1.02 吨/车。由于杭州四工厂于 2015 年 3 月开始生产，所以 2015 年将不会作为其基准年来进行比较。当四工厂某一年全面投入生产的时候，将会定为其基准年。

Figure 11 and Figure 12 below show CAFEP total emissions trends and emissions intensity (per unit) from 2013 to 2015.

图 11 和图 12 分别显示了 CAFEP 从 2013 年至 2015 年排放总量和排放强度的趋势。

As shown in Figure 11 and Figure 12, CAFEP total emission was 27,273 t and the emission intensity (per unit) was 0.06 t/vehicle. Year 2014 was the baseline year for CAFEP. CAFEP site experienced an increase of 160.5% in production from 2014-2015, resulting in an emission increase of 49.0% from 2014 (baseline period). 2015 CAFEP emission intensity (per unit) dramatically decreased by 41.5% from 2014 (baseline period) due to the significant production increase.

如图 11 和图 12 所示，重庆发动机工厂 2015 年排放总量为 27,273 吨，排放强度为 0.06 吨/车。2014 年为重庆发动机工厂的基准年。重庆发动机工厂 2015 年产量比 2014 年上升了 160.5%，2015 年排放总量相应比 2014 年（即基准时期）升高 49.0%。由于产量大幅增加， 2015 年排放强度比 2014 年（即基准时期）降低 41.5%。

CAFTP total emission in 2015 was 44,495 t and the emission intensity (per unit) was 0.09 t/vehicle. Because CAFTP started full year production in 2015, year 2015 has been selected as baseline year for CAFTP.

2015 年重庆变速器工厂排放总量为 44,495 吨，排放强度为 0.09 吨/车。由于重庆变速器工厂于 2015 年开始全年投入生产，所以 2015 年被设定为其基准年。

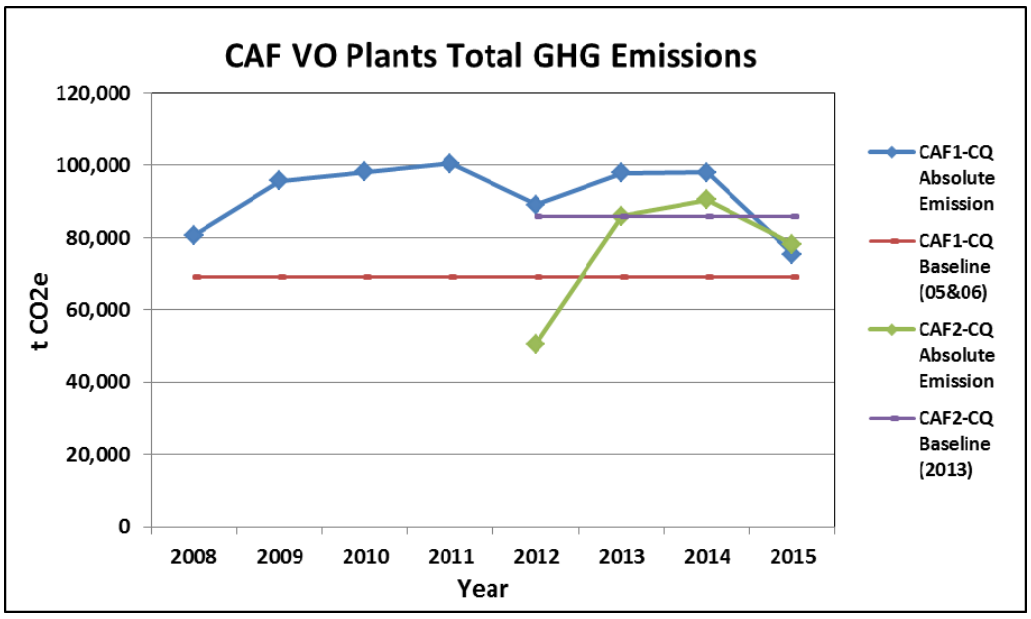

Figure 9: CAF VO Plants Total GHG Emissions

图 9：CAF 整车厂 GHG 排放总量

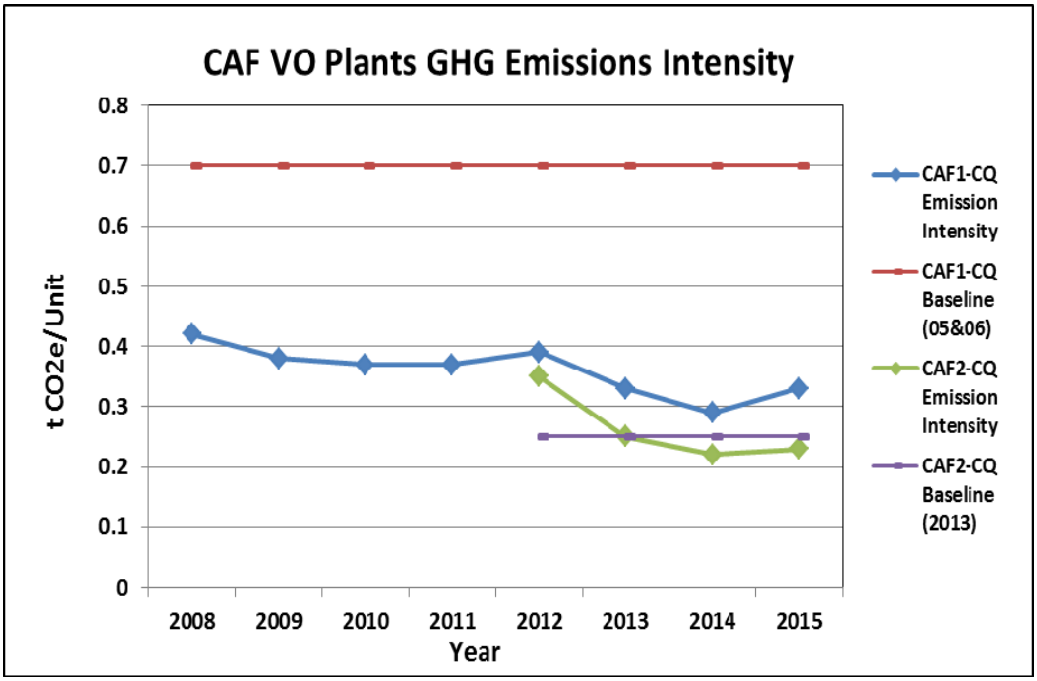

Figure 10: CAF VO Plants GHG Emissions Intensity

图 10：CAF 整车厂 GHG 排放强度

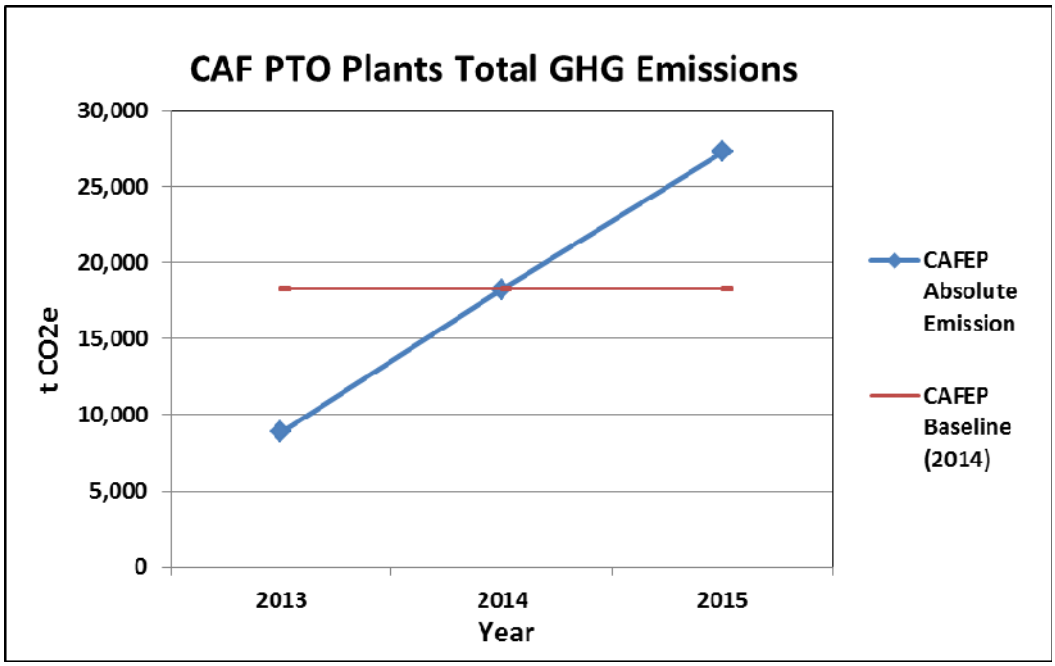

Figure 11: CAF PTO Plants Total GHG Emissions

图 11：CAF 动力总成 GHG 排放总量

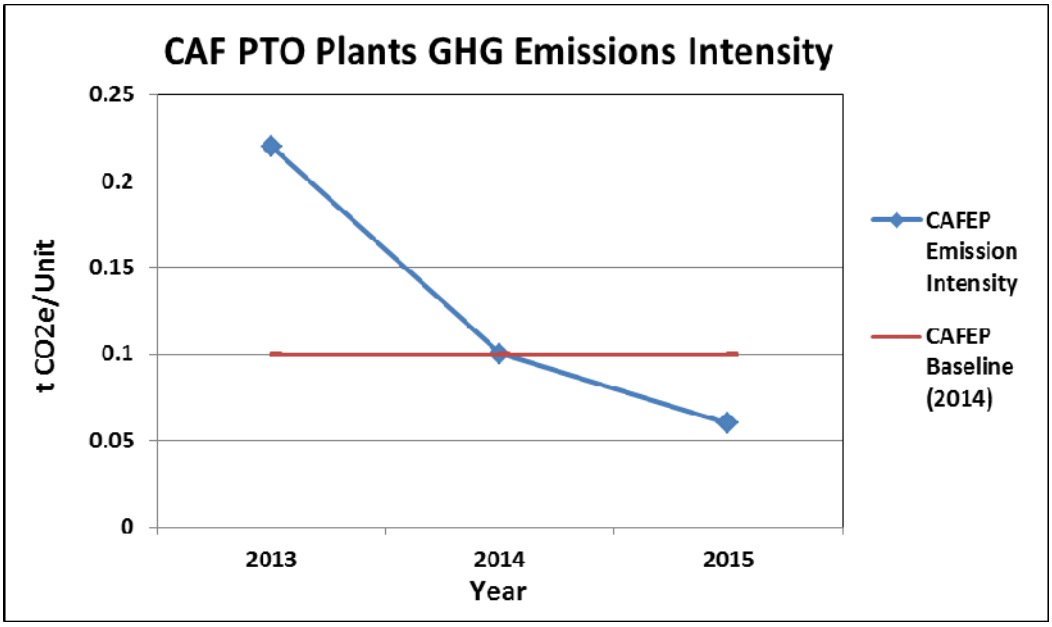

Figure 12: CAF PTO Plants GHG Emissions Intensity

图 12：CAF 动力总成 GHG 排放强度

Conclusions 结论

CAF is proud to present its eighth GHG emissions inventory building upon the prior achievement of becoming the first automobile company in Mainland China to voluntarily report its facility GHG emissions. CAF recognizes the importance of the climate change issue and supports emissions reporting at a national level. CAF is committed to improving energy efficiency, reducing GHG emissions, and meeting or exceeding environmental standards.

CAF 作为中国大陆首家自愿公布其工厂 GHG 排放的汽车公司，现隆重发布第八份 GHG 排放总量报告。CAF 认识到气候变化问题的重要性，并在国家层面上支持 GHG 排放的公布。CAF 致力于提高能效，减少温室气体排放，同时保持并超越自身的环境标准。