川崎機械工業㈱　環境への取り組み 2014

Kawasaki Machine Industry Co.,LTD.　Environmental initiatives

We will introduce our environmental activities from 2014 as follows:

Status of Certification Acquisition

Certification body　: Japan Defense Procurement Structure Improvement Foundation (BSK)
Certification no.　: BSKE0043
Applicable Standard: JISQ14001:2004 (ISO14001:2004)
Date of registration: April 14, 2005　Certification transferred date ： July 16, 2010
Expiration date of registration: April 13, 2017　Certified place: Head office and Kisshoin Factory

Environmental load-reducing activity at each site　－Head office －

We introduced the electric car for the first time in Kyoto city in January of 2010.
With the 'EV 5 years's project', our company introduced the electric car to be used for sales, striving to reduce the amount of CO_2 emissions. Also, from 2012, we improved our environmental load-reducing activity by establishing rules for air conditioning temperature settings and charging procedure of battery to reduce electricity consumption. With the completion of the 'EV 5 year's project', here we will introduce the past 5 year's data of our EV running distance.

<Running distance data of every year>

	2010	2011	2012	2013	2014
Running distance (km)	5,406	5,381	8,030	5,773	6,222
Amount of charge (kWh)	1034.58	1031.8	1379.7	1052.7	1039.19
Electricity consumption (km/kWh)	5.23	5.22	5.82	5.48	5.99
Target value of electricity consumption / achievement rate	–	–	5.70 / 102.1%	5.70 / 96.2%	5.70 / 105 %

From the record of running distance, the more we drive long distance or use air conditioning, the more number of boost charge times increases, leading to the decline of battery in the future, especially in the summer and winter time, as electricity consumption tended to become worse due to the use of air conditioning. Therefore, we established procedure manuals to decide how to use the car; for instance, by setting temperature of air conditioning or charging the battery only when it becomes empty, and following these guidelines, **we achieved electric consumption of 5.99 km/kWh, which had been our best in the past. This means that we could drive about 27.8km/ℓ with the saved amount.** Although the lithium-ion battery disintegrates over time, which is considered as one of the disadvantages, we redeemed and achieved improvement in electricity consumption by trying to drive efficiently.

<Reduction effect of CO_2 emission by electric car>

The following is a comparison table of CO_2 emission produced between an electric car and the same type of gasoline car (light car) when they are driven both the same distance at the same time based on our running data. Although the electric car doesn't emit any CO_2 gas, here we convert the amount of charge (electric use) into the amount of CO_2 emission.

	2010	2011	2012	2013	2014	Sum total
Same type of car (gas consumption)	902.2	898.1	1340.3	963.5	791.6	4895.7
Electric car	455.2	454	607.1	463.2	457.2	2436.7

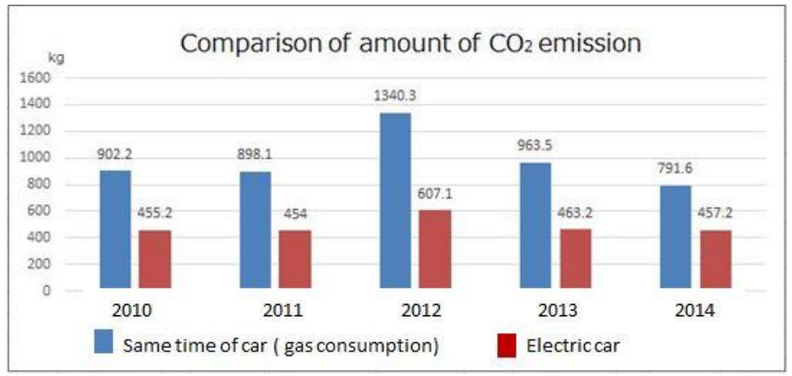
※Gasoline calculation
CO_2 emission coefficient
13.9km/ℓ

※Gas　calculated based on coefficient of CO_2 emission 2.32kg-CO_2/ℓ
Electricity　calculated based on coefficient of CO_2 emission 0.44kg-CO_2/kwh

According to the comparative table above, we reduced about 50% of CO_2 emission when we drove the same distance and this produced a dramatic result. Apart from CO_2, this electric car does not emit nitrogen oxide(NOX) or other particulate matter neither while the vehicle is moving, and is considered an environmentally friendly car. （※1）

Moreover, we found that by using the same type of gasoline, we reduced about 46% of cost, if we calculate the cost based on charged electricity expense.
(※1: website of Mitsubishi Motors Corporation)

We show reduction effect of CO2 emission by electric car as follows:



【from data】
★Reduction effect of CO_2 emission from 2010 to 2014
4,978kg-CO_2

★Reduction effect of CO_2 emission　(5 years)
Reduction of 49.7%

From 5 years of using our electric car, we cut down on driving cost and achieved effects by environmental load-reducing activities significantly, in addition to a dramatic reduction in the amount of CO_2 emission. Thus, this project was the most successful environmental load reducing approach.

Activity for environmental load-reducing　-Company wide basis－

< Reduction of used amount of electricity and paper>

Here, we will introduce our main approaches to reduce the use of paper and electricity.

Electricity	・Turning off the light during lunch time and at ・Limitation of setting temperature and hour of use for air conditioning ・Efficiency of machine operation
Paper resources	・Recommend the use of backing papers ・Use of recycling paper ・Reduce the number of printing paper by making internal database

<Promotion of Green procurement>

Our company strives to purchase environmentally-friendly products for environmental load-reducing goals. In 2014, we achieved 96.4% of green procurement toward the target rate of 90% in 2014. In 2015, we are striving to pull up the target to 95% and making an effort to improve green procurement.

<Implementation of environmental study meeting >

At our company, we hold regular environmental study meetings to enhance workers' understanding towards environmentally-friendly guidelines and environmental contribution. Also, for further improvement, each division participates in small groups for our environmental project and implements the following activities:

【Example of our activities】
・Improvement of work environment by measuring temperature and lighting intensity at factory
・Presentation of preliminary calculation for introduction of LED lighting
・Prevention of cutting scrap from scattering in turning process
・Improvement in drainage treatment for compressor drain area etc.

In 2015, we will work on the project "Changing the factory lighting to LED" as one of our activities to reduce environmental load. We will strive to reduce environmental load actively through continuous improvement of our activities in the future.

Atmosphere of environmental study tour