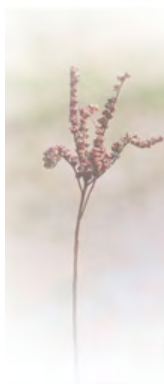




Feature 1

## A global "mother plant" designed to be people- and Earth-friendly

The much-anticipated beginning of operations at the Yorii Plant at Honda's Saitama Factory



On July 9, 2013, the Yorii Plant at Saitama Factory began operations as Honda's newest production facility in Japan, joining the five factories and seven plants that the company already operates in the country. As Honda's eighth plant dedicated to producing completed automobiles, the Yorii Plant will play a leading international role as the company's "mother plant" through the development of highly efficient production capabilities that use state-of-the-art technology.

## Realizing Honda's environmental and safety vision

Honda recognizes that addressing the three issue areas of climate change and energy, resources, and biodiversity will be critical to its ability to realize its environmental and safety vision, which is based on "the Joy and Freedom of Mobility" and "a Sustainable Society Where People Can Enjoy Life." We sort out the factors that define the impact of our corporate activities and the use of our products on the global environment in terms of these issue areas.

Throughout every stage of the product life cycle, we strive to minimize use of newly extracted fossil energy and other resources as well as all other environmental impacts, starting with greenhouse gas emissions. Going forward, we will work to eliminate all greenhouse gases that are emitted through use of Honda products in mobility and daily life.

In the production domain—one of seven domains that characterize Honda's corporate activities—we are focusing our attention on the pursuit of green factories based on the ideal of "producing the world's eco-friendliest products at the world's friendliest plant." The newly operational Yorii Plant at our Saitama Factory is poised to become a leader in that effort as it implements new advances in manufacturing.



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# Triple Zero: Toward a zero-impact society



## Our vision of zero CO<sub>2</sub> emissions, energy issues, and waste

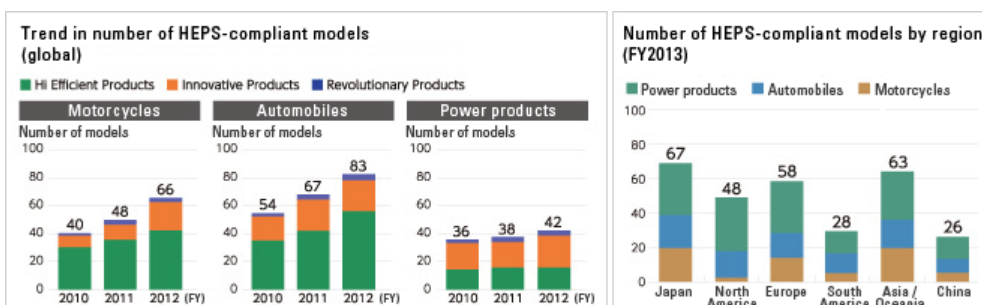
Honda recognizes climate change and energy issues, resource issues, and biodiversity as environmental issues that demand action. Triple Zero is our vision of how these problems can be addressed in the future. A Triple Zero society can be

realized by eliminating CO<sub>2</sub> emissions with in-house renewable energy to address climate change, eliminating energy risk to address energy issues, and eliminating waste through aggressive pursuit of the 3Rs to address resource issues. Honda also recognizes the theme of coexistence with local communities as typified by the conservation of biodiversity in the process by which this Triple Zero program is implemented.

We will address climate change by striving to eliminate CO<sub>2</sub> emissions across every stage from the generation of electricity to the operation of vehicles by achieving an optimal mix of in-house renewable energy technologies such as solar power and bioethanol. We will also address energy issues by striving to eliminate energy risk through the development of management technologies such as the Honda Smart Home System (HSHS), which implements home production and home consumption of energy, and through the skillful use of energy. As an example of a specific step we're taking to address resource issues, we're striving to expand the scope of our reduce-reuse-recycle program in an effort to recycle all waste products from our plants.

## HEPS, Honda's proprietary environmental performance standard

To provide products that conform to our Triple Zero policy, we categorize and certify products as described below by comparing CO<sub>2</sub> emissions throughout the life cycle with previous models to assess how much emissions have been reduced. Products categorized as Hi Efficient Products (with internal combustion engines that operate at increased levels of efficiency), Innovative Products (which incorporate innovative environmental technologies and features to accommodate energy diversification), and Revolutionary Products (which use renewable energy such as hydrogen or solar power) are certified under the Honda Environmental Performance Standard (HEPS).



Number of HEPS-compliant models by region in FY2013

# Reducing environmental impact in all seven business domains

Early on, we began working to reduce the environmental impact of our corporate activities based on our desire to lower not only CO<sub>2</sub> emissions from product use, but also environmental impacts across entire product life cycle. We divide those corporate activities into seven domains: Product Development, Purchasing, Production, Transportation, Sales and Service, Product Recycling (3Rs), and Administration. We believe that the effort to estimate environmental impact factors in each domain and to lower them in conjunction with the environmental impacts associated with use of our products is a key part of realizing Honda's Environmental and Safety Vision, the successful implementation of which will help us gain recognition as a company society wants to exist.

## **Disclosing Scope 3 greenhouse gas emissions in the value chain**

Honda has calculated greenhouse gas emissions from the procurement of raw materials to the production and the sales, and from customer use of Honda products, all the way to the end-of-life treatment of sold products in conformity with the Greenhouse Gas Protocol, a series of guidelines outlining how to calculate greenhouse gas emissions that is widely used worldwide. Our attempt marks the first time for an automaker to actively disclose all greenhouse gas emissions in the 15 categories of Scope 3 as defined by the Protocol. This initiative led to Honda's being recognized as an outstanding disclosure company at the CDP 2012 Japan Conference, which was organized by the Carbon Disclosure Project (CDP), a not-for-profit organization. According to the CDP 2012 survey results, Honda's score makes it No. 3 among automakers worldwide, No. 1 among Japanese automakers, and No. 2 among all Japanese companies. Moreover, for the second consecutive year, Honda was also listed as one of only 51 companies in the CDP's "Carbon Disclosure Leadership Index" (CDLI), which features companies that have demonstrated leadership in carbon disclosure. In this way, Honda's carbon performance and disclosure practices have earned outside recognition.

\*GHG Protocol: A calculation standard developed by the World Business Council for Sustainable Development (WBCSD) and the World Resources Institute (WRI). The Protocol augments traditional Scope 1 (direct emissions from operations that are owned or controlled by the reporting company) and Scope 2 (indirect emissions from the generation of purchased or acquired electricity, steam, heating, or cooling consumed by the reporting company) with Scope 3 (covering emissions from sources other than corporate activities, for example raw material extraction, procurement, and transport as well as product use and disposal).



## Our flagship plant, featuring advanced production and environmental technologies

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### A “mother plant” capable of **high-efficiency production**

The Yorii Plant, which was designed to produce compact automobiles, began operations on July 9, 2013. By embracing the challenge of pursuing manufacturing in an environmentally friendly way, for example with high-efficiency production lines, the facility, which will serve as the “mother plant” for the new Fit series, which will be manufactured worldwide, will play the role of deploying those technologies at the other

plants in Honda’s six world regions as the leader in advanced production technology. The start of operations at the Yorii Plant brings to three the number of facilities operating at the Saitama Factory, which is also home to the Ogawa Plant, which produces engines, and the Sayama Plant, which performs multi-model, mixed production. The Ogawa Plant has begun supplying engines to the Yorii Plant, which is a particularly important part of Honda’s drive to establish a high-efficiency production system.



**Ko Katayama**

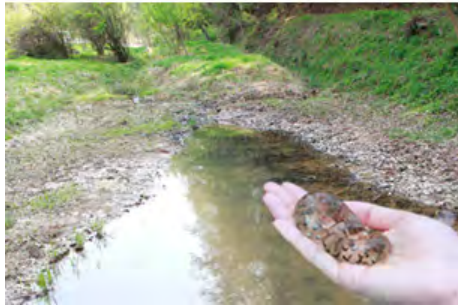
Executive in Charge of Production Strategy  
for Automobile Operations

Head of Supply Chain Management  
Supervisory Unit in Automobile Production  
for Automobile Operations



The building's megasolar power generation facility (top)

Eggs of *Hynobius tokyoensis*, a species of salamander that lives in a biotope on the plant's premises (bottom)



## At the forefront of environmentally friendly manufacturing

At the Yorii Plant, we're pursuing the kind of environmental initiatives that are only possible when starting up a new facility from scratch. As a result, we were able to achieve a life cycle recycling rate of greater than 98% for the building. We've also been able to lower CO<sub>2</sub> emissions dramatically compared to previous facilities through careful management of solar power and air-conditioning systems, waste heat use, and other aspects of operations.

In addition to aggressively streamlining production and practicing environmentally friendly manufacturing at the plant, we plan to engage in a variety of community service activities in keeping with our local focus. We've installed biotopes of about total 16,000 square meters in forestland that stretches across some 280,000 square meters, or approximately 30% of the plant's premises. The area is designed to help protect rare species such as the salamander *Hynobius tokyoensis* and the fish *Lefua echigonia*. The biotopes not only will be used for normal plant tours, but also will be open for use by the community as a place where local residents and children can learn about the environment and experience nature.

## Overcoming numerous changes

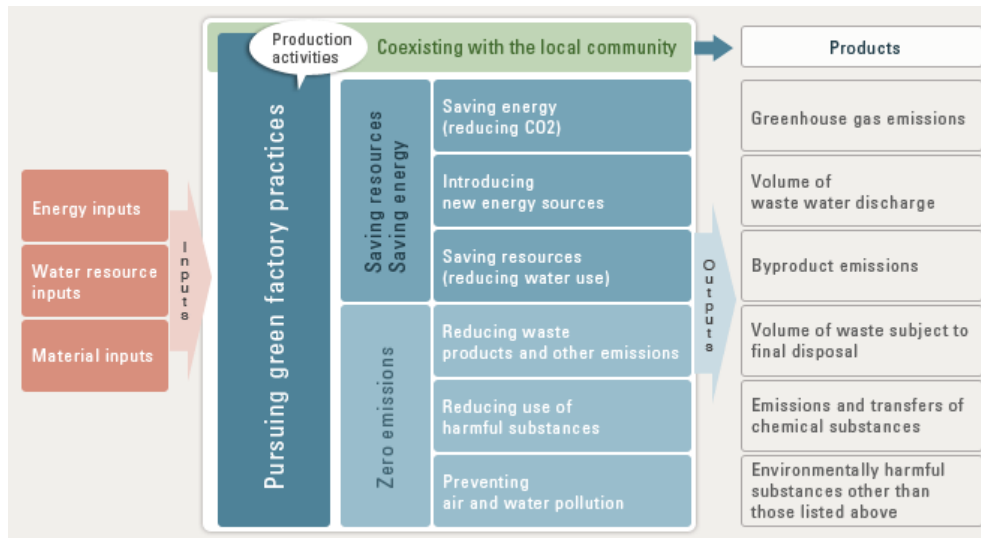
Planning the Yorii Plant was by no means a smooth process. Until the Lehman Shock of 2008, we planned to manufacture mid-size and larger automobiles with next-generation environmental technologies in a manner that would fulfill the expectations of Saitama Prefecture, the town of Yorii, and local residents. However, subsequent major changes in the business environment forced the plan to be delayed twice, once in December 2008 and then again in March 2009. Then the much-awaited restart of construction was announced in September 2010, but we changed directions based on social changes, specifically a downsizing trend accompanied by growth in demand for compact vehicles in emerging markets.

World affairs and the business environment will keep changing, but we look forward to continuing to advance a diverse range of technologies as we strive to inspire high expectations on the part of customers worldwide while aggressively managing manufacturing and upstream processes.

# Producing the world's eco-friendliest products at the world's friendliest plant

## Production domain initiatives based on a green factory plan

To develop a people- and Earth-friendly plant of which the local community can be proud, we're pursuing green factories in our production domain as a way to work toward saving energy and resources and achieving zero emissions. Going forward, we will continue to strive to produce the world's eco-friendliest products at the world's friendliest plant—a plant of which the local community can be proud.



Pursuing green factory practices by working to save energy and resources and achieve zero emissions

## The Yorii Plant's vision of what it means to be a leading environmentally friendly plant

The Yorii Plant, which began operations in July 2013, is a leading environmentally friendly plant based on Honda's Triple Zero philosophy. It is a recycling-oriented facility with an extremely small environmental footprint, and it strives to achieve a high level of resource and environmental efficiency as part of a larger effort to operate quietly and with a high level of transparency so as to inspire pride on the part of the local community.

The Yorii Plant is based on the concept of communicating the ideas of new value, creativity, and evolution to the world. By adopting a flexible approach to the market environment and supplying affordable products with world-class quality in a timely manner, the plant will implement high-efficiency, low-cost operations with a small footprint. It will also disseminate leading environmental technologies to the world by maximizing resource

and energy efficiency and establishing low-carbon production technologies designed to halve CO<sub>2</sub> emissions. Finally, the plant will seek to effect innovation in manufacturing by empowering individual employees to play leading roles based on the keyword "3S+C," obtained by adding the "C" of communication to the three Ss of simplicity, shuchu (concentration), and speed.

**Major environmental initiatives of the Yorii Plant at the Saitama Factory (construction-related)**

<b>Zero CO<sub>2</sub> emissions using original renewable energy</b>	<ul style="list-style-type: none"> <li>• 2.5 MW megasolar power generation installation on the assembly and inspection building</li> <li>• Environmentally friendly LNG-based cogeneration</li> </ul>
<b>Zero energy risk</b>	<ul style="list-style-type: none"> <li>• Energy Center that implements a high-efficiency energy supply system and heat utilization through visualization and a waste-heat cascade</li> </ul>
<b>Zero waste</b>	<ul style="list-style-type: none"> <li>• Reduction of environmental impacts with airtight, super-insulated energy-saving buildings and displacement air-conditioning</li> <li>• Welcome Center built using materials produced in Saitama Prefecture</li> <li>• Plant built using recyclable construction materials</li> <li>• Processing of cafeteria waste oil for use as biofuel</li> </ul>
<b>Coexisting with the local community</b>	<ul style="list-style-type: none"> <li>• Afforestation of the plant's outer periphery, site, and wall surfaces in a way that does not interfere with movements of wildlife</li> <li>• Installation of biotopes of a total of about 16,000 m<sup>2</sup> in area on the east and west sides of the site</li> </ul>

## Honda low-carbon production technology introduced in Yorii

The Yorii Plant, which uses production lines characterized by the coexistence of work robots with human workers, has introduced a variety of innovative technologies in the pursuit of automation and efficient manufacturing. One such technology, Honda Smart Ecological Paint (Honda S.E. Paint), a short-process, advanced paint, has dramatically improved painting efficiency.



Testing of Honda S.E. Paint

Honda S.E. Paint eliminates a middle coating process from a commonly used 4-coat/3-bake auto body painting process to realize a 3-coat/2-bake water-based painting process. Conventionally, eliminating the middle coating process would have restricted the paint colors that can be used; however, Honda overcame this challenge by developing a highly-functional material for the color base coat used in the final coating process. This material used for the color base coat makes it possible to use any exterior paint color, which is an automobile industry first for a 3-coat/2-bake process\*.

Moreover, in addition to the Honda S.E. Paint, Honda also will introduce a wall-mounted paint robot system with a built-in quick load / quick wash paint tank. This will lead to a significant improvement in painting efficiency, reduction of the amount of paint materials and a 40% reduction in the number of processes compared to a conventional painting process. As a result, the amount of CO<sub>2</sub> emitted during the painting process will be reduced by 40%.

\* Honda's internal research



## Coexisting with **nearby communities** and the natural environment

### Honda Biodiversity Guidelines

#### Basic Statement

We recognize, under the Honda Environment Statement, that biodiversity conservation initiatives are an essential part of our commitment to the preservation of the global environment. We will continue to work toward harmony between this commitment and our activities.

#### Priority Activities

##### 1 Development of Environmental Technology

We will contribute to the conservation of biodiversity by developing and disseminating technologies for fuel-efficient vehicles, next-generation cars, and energy-production and other technologies for the reduction of environmental impacts.

##### 2 Initiatives Based on Corporate Activities

We will work to reduce environmental impacts and ensure the effective use of resources through efficiency improvements.

##### 3 Cooperation with Communities

We will implement community-based activities in cooperation with stakeholders, using expertise accumulated by Honda through its initiatives to protect ecosystems, such as the Community Forests and Hello Woods initiatives.

##### 4 Disclosure and Sharing of Information

We will share information with society by disclosing the outcomes of our activities.

Established in May 2011

## From Community Forests to the Hello Woods program

Honda has a tradition of paying attention to the issue of biodiversity, which may be affected by its corporate activities. We began efforts to protect the environment and coexist with local communities from an early stage in our history, including starting to plant trees at plants and recycle and reuse industrial water in the 1960s and launching the Community Forests program in 1976. Hello Woods, which opened at Twin Ring Motegi in 2000, implements a natural environment with an appropriate level of human care and maintenance based on the theme of recreating a traditional Japanese satoyama, or village forest. We also formulated the Honda Biodiversity Guidelines in 2011 based on our past approach to the conservation of biodiversity and associated activities, and we have begun biodiversity conservation initiatives at five worksites in Japan.

# The Yorii Plant biotopes

## as village forests

Biotopes of a total of about 16,000 square meters have been installed on the east and west sides of the Yorii Plant. These biotopes are the product of planning that took into account the need to avoid dividing valuable wetlands at the nearby Ogawa Plant and interrupting the lives of its wildlife. By conserving the valuable ecosystems that existed in the planned site for the Yorii Plant so that the natural environment that characterized the area in the past could be passed down intact to the next generation, the plant is striving to become a facility in which the local community can take pride.

The biotopes drew on Honda's Hello Woods initiative. In an effort to ensure that the company can coexist with people, nature, and local residents, and to avoid too much human interference in the biotopes, only the minimum necessary amount of management was practiced during its first three years so as to allow nature to take its course. More active management began after that initial period.

Furthermore, the plant is working to conserve a more diverse natural environment by restoring rundown satoyama village forests through active management. Illustrating the transition from the Community Forests effort undertaken in the past at worksites in Japan to a more evolved biotope program, the environmental initiatives at the Yorii Plant are a first step to realizing Honda's goal of Triple Zero and coexistence with local communities.



The biotope on the east side of the Yorii Plant

### Rare plant and animal species living at the Yorii Plant

Harvest mouse, forest green tree frog, giant purple butterfly, *Luciola cruciata*, *Hynobius tokyoensis*, *Lefua echigonia*, Chinese ground orchid, *Lycoris sanguinea*, *Scirpus fuirenooides* Maxim, *Cephalanthera longibracteata*, calanthe, bur reed, *Monotropa uniflora*, *Penthorum chinense*

## As a partner in environmental assessment

Coexistence with the environment is considered to be an important aspect of corporate activities in the 21st century, and companies are under pressure to practice environmental management from the standpoint of CSR. For companies, the environmental assessment approach has become increasingly important. Environmental assessment is significant as a way to check environmental protection, exchange information with local communities, engage in planning that takes into account environmental concerns, and communicate information about an organization's stance on the environment to outside stakeholders.

Efforts to address environmental concerns along these lines were made in the environmental assessment carried out at Honda's Yorii Plant.

Part of the process of checking environmental protection involves making an evaluation from the environmental standpoints of lifestyle and nature. Various aspects of the process pose compliance challenges due to the ambiguity of the evaluation criteria for the natural environment, the difficulty of making quantitative projections and evaluations, and the irreversibility of certain impacts. The Yorii Plant worked to accommodate the views of the governor of Saitama Prefecture in conducting its environmental assessment.



**Osamu Kajitani**  
Senior Executive Director  
Polytech ADD, Inc.

Following its submission of a study plan in 2006, the plant has sought the views of local residents and the prefecture's governor at every stage in its effort to exchange information with the local community. The plant again sought input with the start of construction in 2007 and the submission of a post-study in 2010, and it plans to do so again following the planned submission of another post-study in 2015.

In its effort to conduct planning that takes into account environmental concerns, the plant has considered impacts on animal and plant life and local ecosystems in keeping with the views of the governor of Saitama Prefecture. Based on a wide-area ecological network, officials worked during the planning phase to avoid cutting in half nearby forestland and ultimately ended up deciding to conserve and create biotopes on the east and west sides of the plant's site. In this way, it became possible to conserve plant and animal species.

The plant has also worked to communicate information about its stance on the environment to outside stakeholders by publishing study plans, preparatory documents, and post-study documents and by utilizing state-of-the-art technologies in partnership with experts.