



Addressing Climate Change at Lenovo:

“Our Contribution to Transition to Low-Carbon Economy”



Summary

Lenovo recognizes that climate change is a serious threat that needs to be addressed. Lenovo’s acknowledgment of the need to prepare for and mitigate the effects of anthropogenic climate change is shown in our voluntary commitment to drive reductions in greenhouse gas emissions from Lenovo’s worldwide business activities, including the activities of our suppliers and customers. To ensure and support Lenovo’s efforts to accomplish this commitment we have developed Lenovo’s global Climate and Energy Policy, created and implemented a comprehensive greenhouse gas management strategy and established corporate-wide climate change objectives and targets. There are multiple technical and administrative pathways to achieve the greenhouse gas emissions reductions detailed in our objectives and targets.

Lenovo’s greenhouse gas emissions strategy uses the following energy/emissions plans hierarchy as a guideline in choosing projects to support accomplishing climate change objectives and targets:

- First, identification and implementation of energy efficiency projects;
- Next, investing in and building renewable energy sources; and
- Third, purchase of renewable energy attribute certificates and carbon offsets if actual direct energy reduction or use of renewable energy sources is not technically or financially feasible.

Lenovo believes we are helping our planet and future generations by doing our part in reduction harmful greenhouse gases and encourages everyone to do their parts as well.

Introduction

Lenovo's operations require energy for creating business value in the form of PC products (including the legendary Think and multimode YOGA brands), workstations, servers, storage, smart TVs and a family of mobile products like smartphones, tablets and apps. The energy required to create and use these products needs to be extracted from natural resources. Using the most common coal and oil based natural resources is inevitably associated with releasing greenhouse gases emissions into the atmosphere. Energy and greenhouse gas management at Lenovo is driven by acknowledgment that energy consumption represents one of the most significant environmental aspects of the development, manufacture, use and disposal of our products.

Lenovo is committed to reduce harmful greenhouse gas emissions associated with using energy in its operations and supply chain. Lenovo's early efforts in this area allowed us to meet our initial emissions reduction targets by gathering the low hanging fruit. We identified and implemented those projects that provided the greatest reduction in environmental impact with the lowest investment of time and capital. At the same time we understood that to meet our longer term goals we would have to gather from higher on the tree. With this in mind we have evaluated, and continue to evaluate and implement projects that may be more time and capital intensive but provide greater returns in terms of positive financial and environmental performance. These projects promise to provide more predictable and stable energy costs overtime, decrease our consumption of energy from non renewable energy sources and further reduce our global greenhouse gas emissions. This paper will document some of these projects and ideas about our next steps.

Addressing Climate Change at Lenovo – Plan and Approach

Lenovo's Climate Change Policy states, "Lenovo acknowledges and accepts the findings of current climate science which indicate a human contribution to climate change. Lenovo supports the consensus conclusions of the scientific community described in the Fifth Assessment Report of the Intergovernmental Panel on Climate Change" and is committed to reducing the global carbon footprint of all of its business activities. This voluntary commitment is demonstrated by developing Lenovo's corporate *Climate and Energy Policy*, implementing a long term comprehensive *greenhouse gas (GHG) management strategy*, and setting corporate-wide *climate change objectives and targets*.



1. Lenovo's *Climate Change Policy* was signed by Yuanqing Yang, Chairman and CEO, on August 6, 2010 (updated on March 31, 2016 and renamed Lenovo's *Climate and Energy Policy*) and applies to all of Lenovo's operations and activities.
2. Lenovo's *greenhouse gas management strategy* focuses on five key areas where the company can demonstrate effective influence in driving and facilitating absolute reductions in carbon emissions and a global transition to a low carbon economy. These areas include: Lenovo's internal operations, energy suppliers and their operational emissions, our supply chain, our customers, and actions of the government, NGOs and public in support of transition to a low carbon economy.
3. Company-wide *climate change objectives and targets* are established, documented, implemented and maintained to support Lenovo's Climate and Energy Policy and GHG management strategy. The product, functional and site objectives and targets are established at the corporate level. These objectives and targets are communicated to and supported by Lenovo's geographical locations and business units. The objectives and targets are established relative to each of the areas of influence as stated in Lenovo's greenhouse gas management strategy.

Lenovo originally committed to absolute reductions in our operational carbon emissions of 20% by FY¹ 2020/2021, relative to FY 2009/2010. This goal was designed to be accomplished through stepwise reductions over a 10 year period (10% by FY 2010/11, 13 % by FY 2012/13, 16% by FY 2015/16 and 20% by FY 2020/21). In the middle of our emission reduction journey, we reevaluated our progress towards the milestones of 10% and 13% (accomplished) and 16% and 20% (on track to accomplish). Based on these accomplishments and the current state of scientific recommendations for mitigation targets, in May 2014 Lenovo's Executive Committee and Board of Directors recommended an increased overall reduction target for Scope 1 and 2 GHG emissions from 20% to 40%. As of April 1, 2015, Lenovo adopted this second generation goal of a 40% reduction by FY 2020/2021, relative to FY 2009/2010. This second generation target for GHG emission reductions aligns with our customers' and investors' expectations and follows the latest scientific findings of climate science.

In May 2015, Lenovo's Executive Committee and Board of Directors further responded to the challenges presented by climate change and established a renewable energy goal of achieving 30MW of Lenovo owned or leased renewable generation capacity globally by FY 2020/21. This 30 MW target was established as an official target beginning in FY 2016/17.

¹ FY = fiscal year from April 1 to March 31.

Addressing Climate Change at Lenovo – Policy Implementation and Strategy Execution

Lenovo is taking action in response to climate change by implementing energy efficiency projects for reducing the amount of energy used, developing and implementing renewable energy projects to facilitate our transition from carbon based fuels to cleaner energy, and purchasing renewable energy attribute certificates and carbon offsets for carbon balancing a portion of Lenovo’s energy usage sources where actual direct energy reductions or transition to renewable energy sources are not technically and economically feasible.



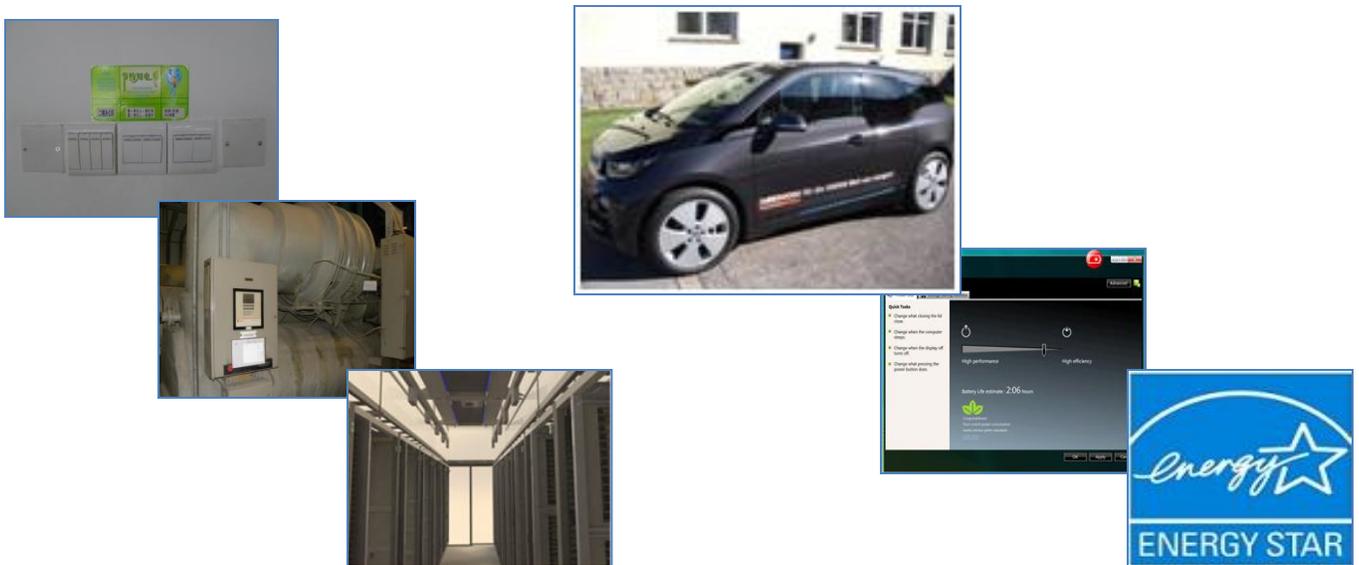
1. Energy Efficiency

Lenovo continues to work internally to improve the energy efficiency of our operations and products.

Since establishing climate change objectives and targets, Lenovo has implemented over 130 operational energy efficiency projects worldwide. During FY 2015/16 alone, Lenovo implemented over 30 new energy efficiency projects that will contribute approximately \$740,000 in savings and reduce energy consumption by 4,600 MWh annually (over 1% of Lenovo’s total energy consumption).

Some examples of implemented energy savings activities are the installation of low energy lighting and related electrical equipment, energy efficiency improvements to HVAC systems, eliminating or improving the usage of transformers and air compressors, manufacturing area optimization (integrating assembly lines, reducing PC on-line testing time, etc.), building management adjustments that turn lights/HVAC on later in morning and off earlier in the afternoon, improving data centers energy efficiency, consolidation of operations, signs/training for turning lights and laptops off, reduction in the number of company operated vehicles, participation in Earth Hour, moving to more environmentally friendly locations, achieving LEED and Energy Star certification for several buildings and purchasing energy efficient vehicles. Additionally, Lenovo has implemented an ISO 50001-based energy management system in all our European locations.

Lenovo’s product development process targets energy efficiency as a key attribute. As a result of this focus, many Lenovo PCs come with built-in energy tools and eco-friendly features such as power management, active thermal management, dynamic brightness control, hybrid graphics, active directory and LANDesk, Lenovo EasyResume, intelligent cooling and the Cisco Energy Wise software application. In the server area many Lenovo servers come with energy features such as power management, ASHRAE management, Rack Planner, Smart Grid, diagnostics, liquid cooling solution and Lenovo efficiency mode. Lenovo offers a full complement of ENERGY STAR® qualified notebooks, desktops, workstations, monitors, and servers.



From left to right: (1) Chengdu lighting project, (2) Shanghai AC project, (3) Morrisville conductive cooling system, (4) Essen, Germany electric car, (5-6) Product features: power manager and ENERGY STAR®.

2. Renewable Energy

Lenovo has committed to install local renewable energy generation sources where technically and economically feasible.

Passive hot water solar systems were implemented on some buildings in Beijing and Huiyang facilities and solar lamps were installed for parking lot lights in Beijing. To date, we also have an active solar panel array project at the manufacturing site in Shanghai and are working on solar electric projects for the Lenovo Compal Future Center in Hefei, China, and the Development Drive R&D center in Morrisville, USA. A similar project is planned at Lenovo's site in Xiamen, China. All of the above mentioned solar installations represent over 10 MW of solar electric generation capacity which provides GHG emissions reductions over 9,000 MT CO₂e annually.

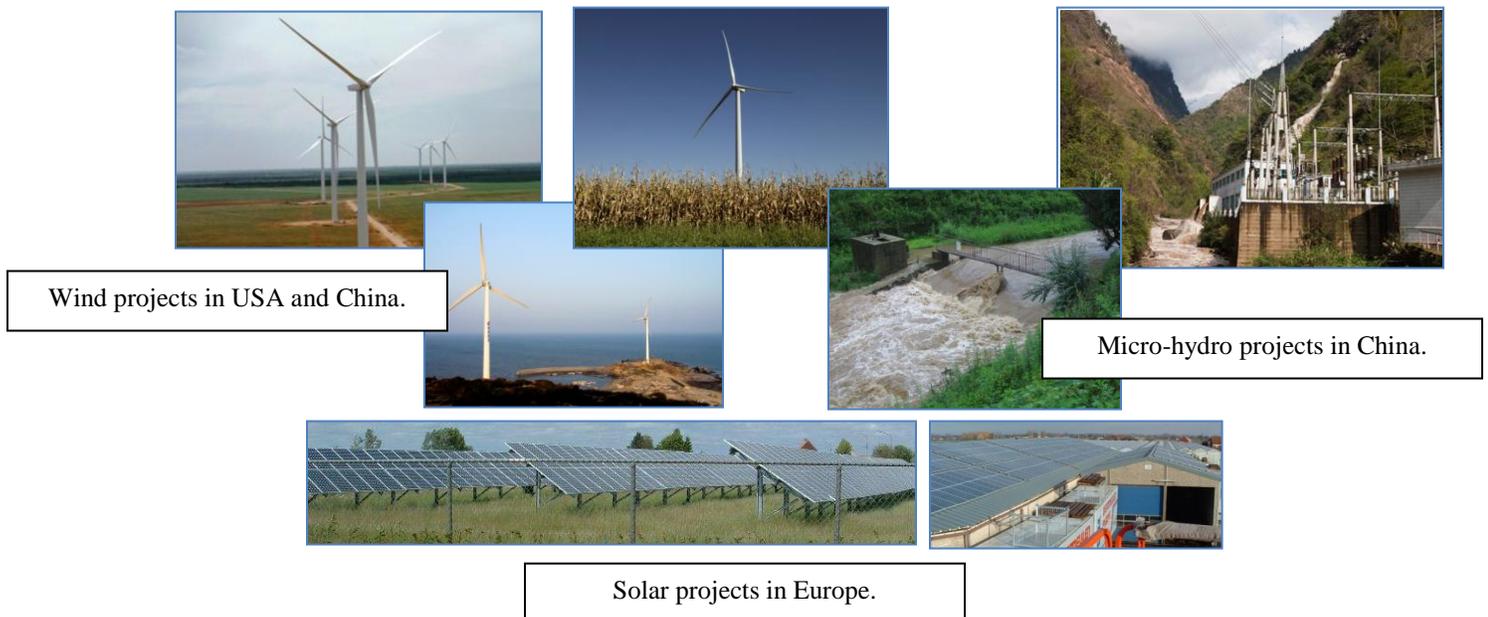
Lenovo will continue exploring the availability and feasibility of installing solar photovoltaic and solar hot water renewable energy sources at other sites worldwide.



3. Renewable Energy Attribute Certificates and Carbon Offsets

Lenovo is pleased to purchase renewable energy to support our emission reduction commitments where actual direct energy reductions are not technically or economically feasible.

Lenovo partnered with qualified providers over the past several years to support renewable energy projects in different geographies. All projects were 100% renewable (wind, solar, small hydro) and all were verified by internationally recognizable standards. Apart from generating renewable electricity, the projects contributed to the well-being of local communities in form of economic, social and environmental benefits. Lenovo performed due diligence to make sure all projects are credible, directly produce renewable energy and the carbon credits are appropriately retired on Lenovo's behalf.



Future Plans

Lenovo made a public greenhouse gas reduction target in 2009 which was further enhanced in 2015. Our teams are working hard to make sure we are on track to reach our target. Lenovo has identified numerous emissions-reduction projects that can save energy and reduce operating costs. Some of these projects (larger energy efficiency projects and renewable energy projects) require significant upfront capital but ensure more predictable returns and lower operating costs in the future. We will continue working internally to identify and implement actions to improve energy efficiency across our organization and increase Lenovo's use of renewable energy globally. We are also investigating ways to fund these projects to ensure the long term success of our climate change goals. We have assessed Lenovo's overall use of energy by organization and are now working with the primary energy using organizations (Real Estate and Manufacturing) to internally allocate responsibility towards meeting our renewable energy targets. Based on this allocation and the resulting organizational targets, we have started several new projects this year and are on track to be able to meet our overall renewable energy and emissions reduction goals. In addition to continuously improving our energy efficiency and investing in renewable projects, we will explore other options including emission trading systems in China and how best to use our ISO 50001 Energy Management System and potentially expand it out of EU locations.

Conclusion

Lenovo is committed to operating in a sustainable way and not compromising the quality of life of future generations. Aligning plans for reducing environmental impacts with financial practices is an everyday task that every company must accomplish. Lenovo is not an exception. However, we believe that by meeting our commitment to addressing climate change, we can not only reduce carbon emissions but also achieve cost savings for Lenovo. We demonstrated this premise through the implementation of the aforementioned energy efficiency projects. Additionally, our solar panels initiatives also demonstrated operational costs savings, emissions reduction and Lenovo's long-term focus on increasing renewable energy use as a percentage of total energy consumption at Lenovo's sites. Lenovo always searches for inspiration to implement new approaches to addressing climate challenges that help to ensure that long-term continuous improvement in Lenovo's environmental performance remains a priority. Lenovo believes that our approach will enable us to meet our greenhouse gas emission reduction targets in FY 2020/21 (40% reduction by FY 2020/21 relative to FY 2009/10) and support the renewal of our commitment with next generation reduction targets.

About Authors



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About Lenovo

Lenovo (HKSE: 992) (ADR: LNVGY) is a US\$45 billion global Fortune 500 company and a leader in providing innovative consumer, commercial, and enterprise technology. Our portfolio of high-quality, secure products and services covers PCs (including the legendary Think and multimode YOGA brands), workstations, servers, storage, smart TVs and a family of mobile products like smartphones (including Motorola), tablets and apps. Join us on LinkedIn, follow us on Facebook or Twitter (@Lenovo) or visit us at www.lenovo.com.

Resources and References

www.lenovo.com/climate

Lenovo's Climate and Energy Policy:

http://www.lenovo.com/social_responsibility/us/en/climate_policy.html

Lenovo's Climate Change Strategy and Objectives & Targets:

http://www.lenovo.com/social_responsibility/us/en/climate/plan

Lenovo's Operations (Energy Efficiency and Renewable Energy):

http://www.lenovo.com/social_responsibility/us/en/climate/operations

Lenovo's Energy Efficient Products:

http://www.lenovo.com/social_responsibility/us/en/energy.html