

Environmental management – Measures taken in all regions 2013-2019

2013

Europe, Middle East and Africa

- In October 2013, Credit Suisse Securities (Europe) Ltd., including all its UK branches and subsidiaries, was accredited under the Carbon Trust Standard until the end of 2014. This certification is based on the management and reduction of the bank's CO₂ emissions.
- We have reduced energy consumption and CO₂ emissions in our key EMEA buildings by engaging with suppliers, changing working behavior and promoting energy efficiency. We are achieving this through the monitoring and management of system capacity, matching this to our working patterns and reducing redundant capacity in non-critical operations. In our London headquarters, the efficiency of the central fresh-air system has been optimized to current working patterns, realizing significant energy savings.

Asia Pacific

- At the CeeJay data center in Pune, India, housings were installed for the cold-air zones in the rack cooling systems, resulting in a 10% reduction in power consumption.
- In the Asia Pacific region, the cooling temperature for air-conditioning systems in premises with links to data centers was raised to 28°C or, where possible, the systems were set up in a way that ensures they remain entirely inactive until this temperature is exceeded. Power consumption in Tokyo and Sydney was reduced following the decommissioning and disposal of redundant IT equipment.
- Credit Suisse was awarded "Silver" in the Hong Kong Awards for Environmental Excellence in the Financial, Legal and Business Consulting Services category.
- We received the "Green Mark Platinum" certification from the Building and Construction Agency (BCA) of Singapore for the ONE@Changi City interior office fitout. BCA Green Mark is a green building rating system to evaluate a building for its environmental impact and performance.

Americas

- The Clifton Data Center in New York, which was completed in 2012, has a photovoltaic installation on its roof and was awarded a LEED Silver Certificate in March 2013. LEED stands for "Leadership in Energy and Environmental Design" and is a system for classifying environmentally friendly construction, among other criteria.
- Following the renovation of our branch in Chicago, we were able to reduce total energy consumption by making better use of the space in the building and installing energy-efficient infrastructure components. In addition, the cooling towers at the data centers in Princeton were replaced by more energy-efficient equipment.
- As part of the New York City Mayor's Carbon Challenge, Credit Suisse has pledged to reduce per capita greenhouse gas emissions in its New York City campus by 40% relative to 2006 levels by 2023.

Switzerland

- Improvements in operational efficiency at our Swiss data centers led to a fall in costs in 2013. At the Uetlihof data center, we reduced the amount of energy used in ventilation and convection cooling while also optimizing air dehumidification, and we installed new technology to replace the motors and frequency converters used for recooling. We also replaced the refrigeration unit at the data center in Horgen. All these measures have led to major reductions in power consumption.
- In view of Swiss energy legislation introduced in 2012, Credit Suisse defined a new Group target for energy efficiency in conjunction with EnAW, the Energy Agency for the Economy. Our aim is to improve energy efficiency by 2% per year in the period from 2013 to 2020 for our portfolio of operational premises in Switzerland. For example, we defined binding annual targets in the area of energy efficiency for our facility management partners in Switzerland.

- We carried out a pilot project in collaboration with the Minergie Construction Agency with the aim of achieving Minergie-A certification for a renovated office building. Following its renovation, the Lenzburg branch of Neue Aargauer Bank now uses very little power to heat the building using a heat pump or for air-conditioning and ventilation; it uses no fossil fuels of any kind. Since the completion of the certification process in January 2014, the building's remaining energy needs have been met by a photovoltaic installation with a total surface area of 110 square meters.
- In early 2013, Credit Suisse was awarded the "Watt d'Or" by the Swiss Federal Office of Energy in recognition of our energy efficiency achievements related to the Uetlihof extension in Zurich (largest Swiss building constructed according to Minergie-P-ECO® standard; development of innovative and highly efficient LED standard lamps).

All Regions

- In 2013, we further optimized our global IT infrastructure through increased server virtualization and switched off the equivalent of 7,553 physical servers. As a result, our virtualization rate increased from 34% in 2010 to 56% in 2013 (69% in Switzerland). This led to a reduction in energy usage of around 40 gigawatt-hours globally over a three-year period.
- Following the successful rollout of E-Maximo in around 400 operational premises across Switzerland, we continued to develop this software and implemented it worldwide in 2013. It enables us to analyze the impacts of energy-related operational enhancements and investments more precisely.

2014

Switzerland

Improvements in operational efficiency and the use of efficient information technology at our Swiss data centers led to a reduction in costs in 2014. At the Uetlihof data center in Zurich, we further reduced the amount of energy used and continued to optimize our cooling systems. We also achieved savings at our data center in Horgen. These measures contributed to a further reduction of 3% in power consumption across our Swiss premises.

Europe, Middle East and Africa

Throughout the EMEA region, we have achieved in excess of 9,500 megawatt-hours (approximately 8%) of savings in electricity consumption through energy initiatives, the continuous commissioning of existing mechanical infrastructure and the selected isolation of redundant infrastructure. This amounts to savings of CHF 1.5 million in electricity utility costs. All these achievements were driven by operational changes, without the need for any capital investment by Credit Suisse.

Americas

The newly renovated floors at Eleven Madison Avenue feature a state-of-the-art lighting system, with LED fixtures, modern control systems and daylight harvesting. This has reduced energy expenses related to lighting by approximately 7%.

Asia Pacific

As part of our Real Estate Strategy and the consolidation of space, we were able to achieve cost savings in two locations in Singapore. In our ONE@Changi City building, total savings of an estimated CHF 4 million were achieved as a result of the early surrender of three floors. Meanwhile, at our One Raffles Quay location, we have achieved savings of approximately CHF 15 million through subletting. These efforts mean that space is being put to maximum use, while optimizing the working environment and interaction space for all employees.

Global Measures

In 2014, we further optimized our global IT infrastructure through increased server virtualization and we switched off the equivalent of 4,458 physical servers. As a result, our virtualization rate increased to 60% in 2014 (71% in Switzerland). This led to a reduction of around 49 gigawatt-hours globally over a four-year period.

2015

Global

- Approximately 56.4 gigawatt-hours of energy were saved globally as a result of increasing our server virtualization rate to 61% worldwide over the past 5 years. In Switzerland, the virtualization rate reached 72% at the end of 2015.
- As part of the "Credit Suisse Cares for Climate" initiative, through which Credit Suisse is making an active and measurable contribution to climate protection, we again participated in Earth Hour in 2015. Forty-two Credit Suisse buildings globally took part in this symbolic climate campaign, during which thousands of cities, villages, and landmarks worldwide turned their lights off for an hour to make a statement on climate protection.
- Upon renewing our contract with the external certification company SGS for the 2015-2017 period, we once again passed the annual SGS audit of our ISO 14001-certified environmental management system with no Corrective Action Request (CAR). The program included audits in Switzerland, Poland and the UK.

Switzerland

- At Neue Aargauer Bank (NAB) headquarters in Aarau, we have replaced the building systems. Among other things, we connected to the heating and cooling network of local energy service provider IBAarau AG. The optimizations is expected to lead to estimated annual savings of around 745 megawatt hours (MWh) on fossil-fuel energy and the consumption of primary energy will be reduced by 691 MWh (69%) per year. This is expected to achieve a reduction in CO₂ emissions of around 196 tons (87%) per year.
- The operation of data centers not only requires energy for the IT equipment but also for the air-conditioning of the system rooms. In 2015, we optimized the cooling system in our Data Center in Horgen to save 497 MWh per year by increasing the proportion of free cooling. These savings are additional to those achieved through measures taken in 2012 and 2013, which already delivered electricity savings of 2,420 MWh per year relative to pre-2012 levels. Further savings potential to be exploited in the coming years lies in optimizing the operation of the chillers in the summer by lowering the re-cooling temperature.
- In the new 2015 electricity supply contract for the Switzerland region, we have secured 100% of our electricity from certified hydropower (HKN) as a contribution to the "Substitution" path in our four-path "Credit Suisse Cares for Climate" strategy to achieve global greenhouse gas neutrality.

Europe, Middle East and Africa

- We were able to secure attractive conditions for gas and electricity through new contracts with suppliers for our London Campus headquarters and the Slough Data Center in the UK, which have a combined space of approx. 93,000 square meters of usable space. These new three-year contracts cover the supply of around 75 million kWh of electricity and 3.7 million kWh of gas. The agreed quality requirements in the electricity contract guarantee the supply of 100% renewable energies through corresponding Renewable Energy Guarantees of Origin (REGO) certificates. This means that Europe, the Middle East and Africa is making another key contribution on the "substitution" path for implementation of Credit Suisse's climate strategy.
- Throughout the region, we have achieved in excess of 8,000 megawatt hours (approximately 7%) of savings in electricity consumptions compared to the 2014 actual consumption. This has been achieved partly due the consolidation of regional premises and building upon the energy initiatives that were introduced in 2013 and 2014. These initiatives included continuous commissioning of existing mechanical infrastructure and the selected isolation of redundant infrastructure. Our best-performing site (and one of the largest) in the region has achieved a year-on-year saving of 14%, through a combination of controls optimization, use of free cooling and reducing and/or using more efficient IT equipment within the building. This amounts to savings of CHF 1.2 million in electricity utility costs. All these achievements were driven by operational changes, without the need for any major capital investment by Credit Suisse. However some equipment, especially light fittings, was replaced with energy efficient LED modules when the existing fittings reached the end of their life cycle.
- Ten of our largest buildings across Europe, the Middle East and Africa, including sites in the UK, Poland, Russia, South Africa, Qatar, the United Arab Emirates, Saudi Arabia and Bahrain participated in WWF's annual Earth Hour 2015, where all non-essential equipment in the building is switched off for an hour to provide an example of the importance of conserving energy and resources.

- Our London office campus now sends zero waste to landfills.

Americas

- In September 2013, Credit Suisse signed a new 20-year lease to remain at Eleven Madison Avenue (EMA) in New York, and we are now in the midst of a multi-year, full-scale renovation of our offices. This work has been designated as "Project Liberty". The design and installation of the new floors incorporates energy-efficient concepts on the following building systems:
 - Air Distribution – use of a variable air distribution in the open area offices. This system is more efficient than the existing system because it eliminates many small fan motors that were located around the floor, but still provides the same level of cooling.
 - LED Lighting – use of LED lighting along with a design that provides the optimum light levels with the smallest number of fixtures. This is expected to reduce the operating cost per square foot from the previous lighting system.
 - Integrated Lighting Controls – a centralized lighting control system has been installed to gather energy use, control lighting levels and view occupancy. The system incorporates a network of motion sensors to utilize lights only in occupied areas. It can also sense daylight levels at the perimeter offices and reduce the amount of electrical light being provided during daytime hours.

APAC

- In January 2016, the Singapore Regional Data Center consolidation plan was published. Work toward this densification initiative has commenced, which is ultimately expected to make available an additional 24 racks and 159 kW power maximizing capacity of our 1MW facility, ultimately removing the need for data center expansion in the near- to mid-term.
- A number of initiatives were undertaken in the APAC region resulting in the optimization of our Data Center portfolio. In Pune (India), a 110 kW Data Center was eliminated and in Singapore, the floor space occupied by the Main Distribution Frame (MDF) in One Raffles Link was reduced to a third.
- In Singapore, our Changi City project received a Gold Green Mark Award from the Building Authority of Singapore (BCA), confirming its success in reaching substantial energy savings.

2016

Global

- IT server virtualization across all regions has resulted in a net increase in virtual server estate of 3 percentage points through 2016, up from 64% in December 2015 to a total of 67% in December 2016; in Switzerland, virtualization reached 72%. This has led to around 1.1 gigawatt-hours power consumption reduction across the Enterprise Data Centers for 2016. This achievement of decreased power utilization is further enhanced by the fact that the overall server estate grew by 4,040 servers in 2016, with the virtual server estate increasing by 4,119 servers and the physical server estate decreasing by 79 servers. If all 41,569 virtual servers were deployed as physical servers, there would have been an approximately 10,000-kW increase in power consumption. Juxtaposed against this number, Credit Suisse has been able to thus avoid an increase in electrical power consumption of around 87 GWh in 2016.
- Power save mode is being enabled every weekend on 1,400 physical servers in APAC resulting in annual savings of 159 megawatt-hours. Following the successful APAC pilot project, this initiative is expected to be replicated in other locations.
- Credit Suisse conducted a total of 16 energy audits in accordance with article 8 of the EU Energy Efficiency Directive across offices in Italy, Luxembourg, Poland, Spain and the UK. These audits covered a total of around 140,000 square meters of office and data center space and have identified numerous opportunities for further energy savings in our building portfolio. In addition to this, Credit Suisse has maintained Carbon Trust Energy Accreditation for the period 2016-2018, demonstrating an ongoing commitment to carbon management in the UK portfolio of buildings, which covers all operations and sites in the country.

Australia

- The Production Data Center in Sydney was successfully migrated to a colocation facility. The Data Center was downsized both in terms of physical rack space (174 to 40 racks) as well as in terms of designed power capacity (203 to 80 kilowatt), with the ability to scale up or scale down the capacity as and when required. This increased the utilization from just below 40% to 76%.

India

- The EON premises in Pune, India achieved LEED Platinum certification for commercial interiors in November 2016. The site, which is 35,400 square meters in size, was awarded 85 points, with 80 being the minimum for LEED Platinum certification.

Singapore

- The Changi Business Park (CBC) site, with a site area of 21,690 square meters, was awarded the Green Mark Platinum certification by the Singapore Building Authority in July 2016 for an additional 4,986 square meters that were certified. Assessment criteria included energy and water efficiency and green features and innovation.
- An extensive ongoing program is being conducted to investigate various aspects of waste management at each of the Singapore premises, with a view to achieving improved and uniform recycling practices and procedures. Objectives and outcomes to date include the improvement of the recyclable waste storage process in the Changi Business Park (CBC), which is implemented in conjunction with the landlord, as well as the improvement of the visual cues for recyclable waste containers. Collectively, the Singapore sites occupy around 64,861 square meters of space.
- 160 kilowatt of power capacity were eliminated in the Regional Data Center. This ensured that 16% of the previously unusable Data Center capacity can now be re-used for future installations, thereby extending the life of the facility as well as its efficiency, with the potential to now use the Data Center to the full design capacity.

Switzerland

- In the framework of the energy efficiency program, we have continued to optimize energy consumption at premises used for operational purposes in Switzerland. In 2016, thanks to 86 different measures across our building systems (heating, ventilation and air-conditioning), lighting and the building envelope, we have achieved a recurring increase in annual energy efficiency of 5 GWh (weighted). Overall, the measures implemented equate to a reduction in CO₂ emissions of around 490 metric tonnes a year.
- The Credit Suisse branch in Solothurn was upgraded to the very latest technology in 2015/16. As part of this process, the existing building systems plant and equipment was updated. The building is now powered entirely by renewable energy. Heating is provided by the local district heating network, and the cold needed for air-conditioning the building comes from ground water. These measures have dramatically reduced the carbon footprint of the premises. Through more efficient building systems, around 24 MWh (10%) of energy is being saved annually. Connecting up to the district heating network is cutting CO₂ emissions by 40 tons (62%) per annum.
- In 2015/16, the building envelope of the Credit Suisse branch in St. Gallen was refurbished. In the course of the refurbishment, the insulation of the façade and the old windows were replaced. These two measures have cut the amount of heating needed at the premises by 309 MWh of fossil fuel and reduced the carbon footprint by 104 tons a year.
- Faucet aerators have been installed on sink taps in the Credit Suisse Tower in Zurich. The water flow is approximately halved without any discomfort to the client while washing hands. The decreased volume of hot water needed leads to water conservation and energy savings. The installation of all sink taps in the building is expected to enable a water reduction of about 1,650 cubic meters and 35,000 kWh per year.

United Kingdom

- Credit Suisse UK received a certificate from the Carbon Trust, which provides independent certification to organizations with regard to their impact on the environment and their greenhouse gas emissions, in the United Kingdom. Certification requires good carbon management, including the accurate measurement of and a reduction in a company's carbon footprint. Credit Suisse UK was certified for a 12.1% absolute reduction of our Carbon footprint based on a two-year compliance period.
- The refurbishment of our main office site in London has commenced. The project (named "Project Endeavour") will introduce a number of energy saving features such as efficient heating/cooling, LED lighting and ventilation and has achieved a BREEAM rating of "excellent". Other features include intelligent motor controls for elevators and water-saving WC fixtures. Enhanced energy metering and building controls will also be introduced to enable closer control of the internal environment and better tracking of energy use around the building. This project builds upon a number of environmental initiatives already implemented at the approximately 93,000-square-meter site, which houses 6,000 staff, which has already reduced its consumption by over 10% in three years, a reduction in excess of 12,000 MWh.

United States

- Natural gas fuel cells producing a nominal 750 kilowatts (kW) of electricity have been installed at the Princeton Data Center. Leveraging the lower energy cost of natural gas, compared to equivalent units of electrical energy from the public utility service provider, the fuel cell electrical production helps offset the cost of electricity purchase while producing cleaner electricity than is locally available from the electricity grid. The fuel cell system is a long-lived machine with 20-year operating expectation. It is arranged to support an additional 750 kW of capacity expansion to be installed alongside the operating system without interruption.
- Credit Suisse's long-standing partnership with Con Edison (a New York City utility company) and the New York State Energy Research & Development Authority (NYSERDA) continues with the application of energy efficiency and electrical demand reduction initiatives implemented as part of Project Liberty and Engineering Operations optimization. Through Project Liberty's extensive renovation program, measures were taken to reduce energy consumption and electrical demand via:
 - high-efficiency lighting design;
 - occupancy sensor lighting control;
 - variable frequency drive (speed control) of air-handling units;
 - high-efficiency technology cooling systems;
 - high-efficiency network switches; and
 - virtual desktop infrastructure.

The above measures have cumulatively earned USD 800,000 of incentives from NYSERDA and Con Edison as the efforts of Credit Suisse contribute to the reduction of the electrical grid demand and of electrical consumption.

2017

Global

- During 2017, Credit Suisse's international building portfolio consisted of 780,000 m² of green certified office space, encompassing 56 separate buildings across 17 countries. In line with our understanding of our responsibility towards the environment, we are committed to sustainable operational premises and to encouraging environmental stewardship in all markets within which we operate.

Hong Kong

- In an effort to reduce electrical losses, we introduced a number of initiatives at our data center in Hong Kong. We reduced the number of uninterruptible power supply (UPS) modules supporting the IT load. By reducing the number of UPS modules we have saved approximately 89,000 kWh of electrical energy per year.

India

- At one of our premises in Pune, India, we have been able to reduce the run hours of the general office lighting and adjusted it to match the need of the number of people working at the office location. Through this measure, we reduced the electrical energy usage per square feet by 11 percent.

Poland

- Credit Suisse's offices in Poland have replaced all disposable dishes, cups and cutlery with reusable alternatives in a bid to reduce office waste. The change was implemented over a single weekend by a group of internal volunteers. The initiative has eliminated the waste that previously arose from 4,300 employees' daily use of disposable tableware across 3 buildings, leading to a substantial reduction in the use of natural resources.

Switzerland

- In view of Swiss energy legislation introduced in 2012, Credit Suisse defined a new Group target for energy efficiency in conjunction with EnAW, the Energy Agency for the Economy. Our aim is to improve energy efficiency by 2 percent per year in the period from 2013 to 2020 for our portfolio of operational premises in Switzerland. For example, we defined binding annual targets in the area of energy efficiency for our facility management partners in Switzerland.
- In the framework of the energy efficiency program, we have continued to optimize energy consumption at premises used for operational purposes in Switzerland. In 2017, thanks to 46 different measures across our building systems (heating, ventilation and air-conditioning), lighting and the building envelope, we have achieved a recurring increase in annual energy efficiency of 2.3 GWh. Overall, the measures implemented equate to a reduction in CO₂ emissions of around 1,026 metric tons a year.
- We have replaced the paper waste disposal system (PWDS) that was in use for over 20 years at our Print Center in Zurich. The new PWDS features intelligent electrical steering units and consumes approximately 60 percent less electricity than the old system. This results in yearly saving of around 58,000 kWh.
- The use of cleaning products can have a negative environmental impact. In a test run at one of our office buildings in Zurich, we therefore replaced traditional cleaning products with fully biodegradable detergents. Due to the successful trial period, we are planning to also use these ecofriendly products made out of renewable raw materials for typical maintenance cleaning activities at a number of other Credit Suisse facilities in 2018.
- In 2016 and 2017, Credit Suisse refurbished parts of its branch in Chur. As part of the project, we replaced the overaged central natural gas heating system with a new environmentally sustainable heating system thanks to which we can reduce CO₂ emissions by approximately 60 percent and 37 tons per year. The new system is being fed with waste heat from the city's waste incineration plant.

- The physical money box called "Digipigi" is the first physical digitalized product Credit Suisse has developed and produced in its history of over 160 years. In order to develop and supply this product with its more than 80 different component parts, we have been working with our partner Zühlke Engineering AG and ensured the fulfilment of all the requirements set out by our reputational and Third Party Risk Management processes, and to uphold our commitment to high environmental and social standards while handling a volume of several thousand orders subsequent to the launch of the product. Several audits took place based on BSCI Standards (labor standards by the International Labour Organization – ILO) with the main vendors. In addition it has been made sure that only conflict free minerals are used and also that standards such as the Code of Conduct of Credit Suisse are met and ISO certifications like 14001 considered. In addition to continuing to support local production facilities in Switzerland, and contributing to the reduction of the ecological footprint, we also strive to keep the main production, assembly and development of the product local.

United Kingdom

- Credit Suisse UK received a certificate from the Carbon Trust, which provides independent certification to organizations with regard to their impact on the environment and their greenhouse gas emissions, in the United Kingdom. Certification requires good carbon management, including the accurate measurement of and a reduction in a company's carbon footprint. Credit Suisse UK was certified for a 12.1 percent absolute reduction of our Carbon footprint based on a two-year compliance period. This certification is valid from 1 October 2016 until 30 September 2018.
- The major refurbishment of Credit Suisse's main London campus is in its the final phase of delivery. The project (named "Project Endeavour") is introducing a number of energy saving features. The construction phase implements a number of initiatives in order to support BREEAM (Building Research Establishment Environmental Assessment Method) accreditation. This includes, for example, targeting zero construction waste to landfill. Building upon the various sustainable design features, the construction phase is implementing a number of initiatives to support BREEAM accreditation, ensuring all timber is derived from Forest Stewardship Council (FSC) accredited sources, maximizing re-use of existing materials, and ensuring that internal partitions, finishes and furniture are sourced from manufacturers with strong responsible sourcing credentials in place. This project builds upon a number of environmental initiatives already implemented at the approximately 93,000-square-meter site, which houses 6,000 staff, which has already reduced its consumption by over 10 percent in three years, a reduction in excess of 12,000 MWh
- In an effort to minimize vehicle movements, our site logistics management at Credit Suisse's London building includes an online delivery booking system to reduce the impact of road traffic and vehicle idling. It also aims at optimizing vehicle loads in order to minimize deliveries. Upon project completion, a Post Occupancy Evaluation will be conducted to verify that the we will conduct an evaluation in order to guarantee that the site logistics management's design intent matches the actual building performance.

United States

- Credit Suisse accepted the NYC Carbon Challenge, an initiative by the Mayor of New York City, for commercial offices in 2013. We have committed to reduce the emissions intensity of our New York City campus located in the Flatiron District of Manhattan by 40 percent from 2006 levels by 2023. In 2016, Credit Suisse met the Challenge's goal early thanks to its continuous reduction of carbon intensity throughout the previous ten years. We achieved such a result by maintaining a consistent downward trend in greenhouse gas emissions through continued operational diligence and innovation. We have implemented a comprehensive program of renovation focused on delivering architectural and engineering innovations such as a complete conversion to LED lighting with integrated day light controls. Other measures include:
 - increased the productivity of real estate floor area through implementation of activity based working,
 - implemented automated vacancy switching controls to decrease the electrical consumption of plug loads,
 - decreased the electrical consumption of information technology equipment through desktop and network upgrades,
 - upgraded air conditioning and ventilation equipment through efficiency upgrades and simpler configurations,
 - optimized control sequences of mechanical and electrical systems to increase system efficiency, and
 - lowered the peak electrical demand through the automated control of electrical motor operation.
- At our premise in Princeton, our engineering team was able to shut down one of the uninterruptible power supply systems (UPS) by utilizing spare capacity on another UPS system in the building. This measure is expected to save around 1,300,000 kWh of electricity per year. We also replaced older light bulbs and fluorescent tubes in storage

areas and hallways with high-efficiency LED lights. As these lights are switched on 24/7, we managed to cut energy consumption annually by 77,000 kWh.

- In 2017, we shortened the running time of the heat, ventilation and air condition system in Credit Suisse's office building in Raleigh by one hour per day. This resulted in a reduction in electricity of 71,000 kWh per year.

2018

Data storage

- The data storage platforms at Credit Suisse are undergoing a multi-year transformation during which we are increasing our adoption of solid state storage technology. This should enable us to substantially lower power consumption and reduce the amount of space required without decreasing storage capacity. At Credit Suisse, we apply a specialized recycling and re-usage process for computer servers that are no longer in use. In 2018, we recycled around 3,600 servers, reused up to 470 servers and sold 170 servers.

Renewable energy sources

- As part of the new 2018 electricity contracts for the Swiss region and all our UK locations, we once again purchased 100% of our electricity from renewable resources. Globally, 79% of electricity consumed were generated using renewable resources.

Asia Pacific (APAC)

- During 2018, we streamlined several printing processes throughout our operations in the APAC region, which allowed us to optimize our resource efficiency. Through the automation of the printing system we were able to reduce the amount of printing errors and the paper usage. As part of the Go Green initiative that we implemented in Australia and the roll-out of which we are planning for Singapore, Japan and Hong Kong, we switched from paper statements to e-statements, additionally reducing paper usage.
- In Hong Kong, we are currently relocating our primary data center to a facility that is right-sized to the footprint of our IT system. It will allow us to adjust the power capacity as required. The relocation will enable us to increase the efficiency of the data center and reduce power capacity by around 72% and floor space by 42%.

Switzerland, various locations

- In view of Swiss energy legislation introduced in 2012, Credit Suisse defined a new Group target for energy efficiency in conjunction with EnAW, the Energy Agency for the Economy. Our aim is to improve energy efficiency by 2 percent per year in the period from 2013 to 2020 for our portfolio of operational premises in Switzerland. For example, we defined binding annual targets in the area of energy efficiency for our facility management partners in Switzerland.
- At the location Uetlihof in Zurich, we have continued to invest in control systems and measurements, in order to increase the efficiency of the production facilities as well as reduce CO₂ emissions sustainably. Due to different optimizations measures, we were able to reduce the CO₂ emissions of around 500 metric tons in 2018. We also conducted an efficiency analysis of the free cooling system in the energy center. Through the implementation of new measures such as the optimization of control parameters and the switch-off function, we expect to reduce costs and save approximately 1.2 metric tons of CO₂ per year.
- At the same premise, we also conducted an efficiency analysis of the management program of chillers used for heat recovery operations. We are currently evaluating various optimization measures that could lead to savings of over 6 million kWh of natural gas, 5,000 m³ of water and a reduction in CO₂ of 1,600 metric tons per year. Additionally, we continued investing in control systems and measures in order to increase the efficiency of our production facilities as well as to reduce CO₂ emissions sustainably.
- The Familienheim-Genossenschaft Zürich (FGZ) is constructing an anergy network to provide the basis for a sustainable energy supply in the Friesenberg area of Zürich. The anergy network receives existing waste heat in the area and makes it available to consumers. This allows a considerable reduction in the final energy demand and in greenhouse gas emissions. In 2018, Credit Suisse's Uetlihof location has been added to the network as a heat supplier which was considered an important step in ensuring that the extended anergie network has access to sufficient heat.
- As part of our energy efficiency program in Switzerland, we have continued to optimize energy consumption at our operational premises in Switzerland. In 2018, we have increased our energy efficiency by saving 1.7 GWh in relation to total energy consumption and reducing the CO₂ emissions by around 358 metric tons per year thanks to the implementation of 60 different measures across our building systems (heating, ventilation and air-conditioning) and the building envelope.
- Credit Suisse has reduced the consumption of drinking water in its Swiss locations with the installation of faucet aerators on sink taps in 2018. Faucet aerators reduce the water flow on the tap by around 30 to 60% while allowing for washing hands without any discomfort. The measure helped to reduce our consumption of drinking water by around 9,000m³ over the whole Swiss premises portfolio.

- At our office in Locarno, we replaced the existing oil heating system with a reversible air-to-water heat pump. The new pump is used for both heating and cooling of the building. Through the more efficient use of energy, we achieved an annual energy saving of around 200,000 kWh. In addition to reducing energy consumption, the replacement of fossil fuels with green electricity also substantially reduced the building's CO₂ emissions.

Europe, Middle-East and Africa (EMEA)

- In 2018, we presented all London-based staff with a Credit Suisse branded "Keep Me" cup. The cups are expected to help us significantly reduce the number of paper coffee and plastic water cups that are used across the London campus each year, which stands at 1.1 million as of end-2018.
- Also in 2018, Credit Suisse UK was recertified by Carbon Trust, which provides independent certification to organizations with regard to their impact on the environment and their greenhouse gas emissions, in the United Kingdom. Certification requires good carbon management, including the accurate measurement of and a reduction in a company's carbon footprint. Credit Suisse UK was recertified for having achieved a 10.3% absolute reduction in our CO₂ footprint in the compliance period beginning of 2016 until end of 2017. In addition, we received for the first time a certification for successfully meeting the requirements of the Carbon Trust Waste Standard by having continuously reduced our absolute waste footprint by 25.7% over the past two years from Dec 2015 until Dec 2017.
- The major refurbishment of Credit Suisse's main London campus is in its the final phase of delivery. The project (named "Project Endeavour") has introduced a number of energy saving features. The construction phase implemented a number of initiatives in order to support BREEAM (Building Research Establishment Environmental Assessment Method) accreditation. As part of Project Endeavour, we were able to create energy savings through the replacement of end of life facilities infrastructure in 1 Cabot Square throughout 2018 and 2019.

Americas

- In the U.S., we have reduced the number of our enterprise data centers from four to three. The removal of one data center led to energy savings of 405kW in our data center estate in the U.S and at the same time improved the utilization of the capacity of the remaining three centers.
- Credit Suisse accepted the NYC Carbon Challenge, an initiative by the Mayor of New York City, for commercial offices in 2013. We have committed to reduce the emissions intensity of our New York City campus located in the Flatiron District of Manhattan by 40 percent from 2006 levels by 2023. In 2016, Credit Suisse met the Challenge's goal early thanks to its continuous reduction of carbon intensity throughout the previous ten years. We achieved such a result by maintaining a consistent downward trend in greenhouse gas emissions through continued operational diligence and innovation. We have implemented a comprehensive program of renovation focused on delivering architectural and engineering innovations such as a complete conversion to LED lighting with integrated day light controls. Other measures include:
 - increased the productivity of real estate floor area through implementation of activity based working,
 - implemented automated vacancy switching controls to decrease the electrical consumption of plug loads,
 - decreased the electrical consumption of information technology equipment through desktop and network upgrades,
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 - optimized control sequences of mechanical and electrical systems to increase system efficiency, and
 - lowered the peak electrical demand through the automated control of electrical motor operation.

2019

Global

- In 2019, new, state-of-the-art and more energy-efficient models replaced all office printers worldwide. At the same time, the need for specific printers was re-evaluated, and redundant devices were removed. With the new fleet of printers, Credit Suisse is expecting to reduce carbon emissions from printing by 55%, or 361 metric tons of CO₂ per year. In addition, a new "pull printing" system has been introduced, which allows the print jobs to be picked up only after authentication by the user's smartcard, making sure users do not print and fail to retrieve documents from the printer. The longer-term objective of these endeavors is to reduce print volume in our Credit Suisse offices globally by 50% by end-2024.
- Servers that are no longer in use were responsibly handled through recycling or reuse. 1,342 servers were disposed through recycling, 547 decommissioned servers were reused for new demands, and 41 servers were sold.
- Despite IT server virtualization and consolidation across all regions, strategic technology programs execution (e.g. full-flash storage adoption, virtual desktop as a service, compute farm refresh) has led to around 0.1 gigawatt-hours power consumption increase across our Enterprise Data Centers for 2019. This temporary increase is largely due to dual running as we migrate from the old platform to the new. Overall server estate grew by 12,041 servers in YTD 2019, with the virtual server estate increasing by 12,383 servers and the physical server estate reduced by 342 servers. If all 65,620 virtual servers were deployed as physical servers, there would have been an approximately 15,749-kW increase in power consumption. Juxtaposed with this number, Credit Suisse has been able to avoid an increase in electrical power consumption of around 138 GW/h in 2019.

EMEA and APAC

- Our two Iron Mountain data centers in Slough and Serangoon are now powered by 100% renewable energy sources.

Americas

- In America, we have completed the exit of One Madison Avenue which included a reduction of 180kW as the MDF on the 10th floor was successfully shutdown. This was in addition to the 405kW reduction as part of the exit of the Enterprise Data Center realized in 2018.

Asia Pacific (APAC)

- In mid-2019, we completed the relocation of our Hong Kong Production data center. The move allows us to reduce the power capacity of the DC by 55% (down from 560kW to 250kW) while space use is reduced by 20%. Flexibility in the lease arrangement also allow CS to have temporary increase in power capacity resulting from short-term demand spikes.
- In Hong Kong, we took various measures in 2019 to reduce waste, focusing in particular on cutting back on disposable items used in food and beverage consumption. In September, we started an incentive campaign to reduce the amount of coffee purchased in paper cups and encouraged employees to bring their own cup or use bamboo cups provided to them. In just a three-month period, we thereby reduced paper cup usage by 99%, saving 46,000 paper cups from going to landfills. In December, 1,000 Credit Suisse collapsible silicone lunch boxes were offered to employees as free gifts, to provide an alternative to disposable takeaway boxes and single-use utensils. Moreover, since August, wooden (instead of single-use plastic) cutlery from sustainable sources has been available in our Hong Kong canteen.
- Credit Suisse Pune provides transfers to staff in shared cabs from their home to the office and back. Approximately 2,200 employees use this offer on a daily basis. To provide this service, an average of 350 vehicles are used daily. Until 2018, the fleet comprised vehicles operating on diesel fuel and covering approximately 11.2 million kilometers per year with total CO₂ emissions amounting to around 2,700 tons. In 2019, on the basis of successful pilot testing of electric vehicles (EV), a fleet of EV was introduced in multiple phases, with 35 vehicles early in the year gradually expanded to a total of 65. The use of EV has led to a reduction of around 150 megatons of CO₂, which is equivalent to 6% of overall fleet CO₂ emissions, or to around 22% of the emissions formerly caused by the diesel vehicles that have been replaced.
- In Pune, paper cups that had been provided at vending machines and water dispensers since 2015 were replaced with ceramic mugs and polycarbonate glasses in 2019. This is expected to eliminate the usage of approximately 3 million paper cups per year, which amounts to savings of around 12 tons of paper.

Switzerland

- Between September 2018 and September 2019, all UPS systems in our Switzerland data centers were replaced. The power capacity for our 2 data centers was right-sized by 22% (1,070 kW) to reduce number of batteries required and improve operational efficiency.
- Our Print Center in Zurich has been FSC-certified since 2019. The Forest Stewardship Council (FSC) standard was developed in order to ensure responsible forest management. It guarantees sustainable forestry, and makes sure that our forests are managed in such a way that they are preserved for future generations. The objective of FSC certification is to record and monitor the entire process of timber processing and trading between forest and end-client. On the one hand, we aim to reduce paper use by migrating more and more clients to electronic documents. On the other, FSC certification commits us to environmentally-friendly paper production and compliance with environmental requirements.
- Print Services have successfully completed the print production of 2019 year-end materials. In line with the joint effort across the bank to increase the amount of electronic document distribution, the total printed output produced by the Print Center Zurich was reduced by 12.2% in comparison to year-end 2018.
- The replacements of the uninterruptible power supplies (UPS) due to age of the Swiss enterprise data centers were successfully completed. The new UPS modules were installed and tested on six weekends in 24 hours shift work. In total the number of 300 kW UPS modules was reduced by 12. With a higher load of the individual modules, efficiency is improved as well. The batteries were downsized to a battery run time of ten minutes, a significant environmental benefit. The renewal of the UPS systems completed in 2019, together with the decreasing IT load, led to a UPS energy consumption decrease of more than 1,8 million kWh or 8% in 2018 compared to the previous year and already by further 600,000 kWh or 3% in 2019.
- The existing oil heating system in Möhlin, Switzerland, was replaced by an air-water heat pump in 2019. This means that the use of fossil fuels can now be completely dispensed with. In addition, the increase in efficiency is expected to save around 130,000 kWh of energy per year. The replacement of fossil heating systems is constantly being promoted. An alternative to the existing oil heating system is currently being sought at the Credit Suisse branch in the town of Davos. Both the connection to the local district heating network and the use of heat pumps are being evaluated and planned. This is expected to save up to another 100,000 kWh of energy. The annual savings would be equivalent to the energy use of around 65 three-person homes.
- Under the framework of our energy efficiency program, we have continued to optimize energy consumption at premises used for operational purposes in Switzerland. In 2019, thanks to 38 different measures across our building systems (heating, ventilation and air-conditioning), lighting and the building envelope, we have achieved a recurring increase in annual energy efficiency of 1.6 GWh. Overall, the measures implemented are equivalent to a reduction in CO2 emissions of around 387 metric tons a year.
- At our Uetlihof 2 site, we have migrated the Smart Working area to a central waste plan. The "centralized bin" concept has been in place at around 2,200 work stations since October 2019, and is designed to improve waste separation and minimize operating costs.
- A number of measures were implemented in 2019 with the aim of improving air quality and ensuring more energy-efficient ventilation. We reduced relative humidity at the Uetlihof 1 site from 40% to 38%, and as a result of these measures expect to save 675 m³ of reverse-osmosis-treated water every year and consequently reduce our energy consumption by 291 MWh annually. In addition, air-cooling units at the Uetlihof Data Center were replaced with energy-optimized devices that will enable further energy savings. At our site at Bederstrasse in Zurich, we replaced 18 air-cooling units with new, more energy-efficient equipment.
- At various locations in Zurich, we ramped up energy saving measures through improved, more efficient lighting. At Uetlihof 2, we replaced the lighting in the Business Garden with 91 LED floor lamps with movement and brightness sensors, thereby contributing to a reduction in mercury emissions. Intelligent LED lighting has also been installed in one of the office areas at Uetlihof. In addition, at our Sihlcity site near Uetlihof we replaced halogen halide lamps with more efficient LED lamps, giving us energy savings of approximately 67% in this part of the building.
