



# "Greening the Blue" Initiative in the VIC



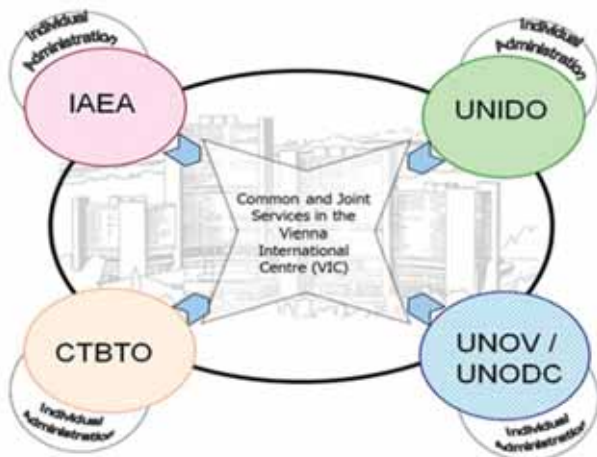
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Buildings Management Services

## WHO WE ARE

The Buildings Management Services Division (BMS) is responsible for the safe and reliable operation, maintenance, modification, improvement, repairs and replacements at the Vienna International Centre (VIC).



Under the terms of Memorandum of Understanding on Common Services, on behalf of and financed by the VIC-based International Organizations, comprising IAEA, UNOV, UNIDO and CTBTO, the BMS responsibility includes 380,000 m<sup>2</sup> of gross area, 180,000 m<sup>2</sup> of grounds, several office and conference buildings as well as their associated technical facilities, machinery, equipment and other furnishings, accommodating a daily average of 7,500 occupants including staff members, conference participants, visitors and others.

# Environmental Measures



## Climate Neutrality

After becoming the first climate neutral UN Headquarters in 2015, the VIC received the award of UNFCCC certification of climate neutrality also for the year of 2016.

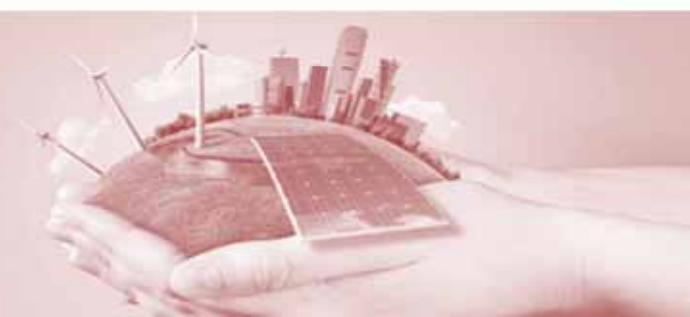
Furthermore, the greenhouse gas emissions in 2016 were slightly reduced compared to the year of 2015 as a result of the installation of energy-efficient machinery, reduced use of fuel and refrigerants and reduced mobile combustion (combustion of fuels in different types of mobile equipment).



## Green Electricity

The Greenhouse Gas emissions have been reduced significantly since 2015 by switching to electricity generated from renewable resources.

The VIC currently purchases electricity from 100% renewable resources resulting in zero Greenhouse Gas emissions.



## New Bicycle Racks

In order to promote sustainable transportation in the VIC, new bicycle racks have been designed and manufactured by BMS and placed in various locations. This is to facilitate and encourage the usage of bicycles by staff at large. The new design is easy to use, reduces damage to the bicycle's wheels and accommodates more bicycles than the previous design.

The new racks have been installed on Park Deck P1 at level -1, thus increasing the total number of bicycle racks to approximately 500.



## EXCHANGE ALL PAPER TOWEL DISPENSERS

In order to reduce the use of paper, in the entire sanitary areas of the VIC, all the paper towel dispensers have been replaced with washable cloth towel roll dispensers.

## PROMOTING THE USE OF ENVIRONMENTALLY FRIENDLY PRODUCTS

Arrangements have been made to use exclusively environment-friendly cleaning products and detergents. To that extent, instructions have been given to the cleaning company as well as to all of the contractors in the VIC.

## EXCHANGE OF TOILET PAPER ROLLS

In order to improve environmental sustainability, the new toilet paper complies with FSC and/or PEFC certification.



# ELECTRIC VEHICLES CHARGING STATIONS

As part of the greening the blue initiative at the VIC, and in order to promote sustainable mobility, electric vehicle charging stations powered by 100% renewable energy, were installed in December 2017 on the premises of the VIC. This project was initiated by BMS and implemented in close cooperation with "Wien Energie".



## RECYCLING OF WASTE

Arrangements have been made to separate and sort out the waste and garbage materials for increased recycling. To that end, special waste bins and/or containers have been installed on the premises of VIC. Furthermore, the entire wastepaper is collected separately and dispatched for 100% recycling.

Waste in the VIC is sorted according to the following major categories and disposed through the licensed local waste disposal companies:

- Non-hazardous waste is collected from offices and put into the waste shafts to be pressed and compacted.
- Biodegradable waste (e.g. food and kitchen waste, green waste)
- Recyclable material (e.g. paper, glass, bottles, cans, metals, plastics)
- Inert waste (e.g. construction and demolition waste, dirt)
- Domestic hazardous waste and toxic waste (e.g. medication, e-waste, paints, chemicals, light bulbs, fluorescent tubes, spray cans, batteries, fertilizer, pesticide)

Further, a "Take Back" requirement has been imposed on BMS contractors to take responsibility for their waste and packing materials.





# Measures to Reduce Energy Consumption



## NEW ESCALATORS IN THE VIC

As part of BMS' work in updating the infrastructure of the VIC, new escalators have been installed in the stairways from Park Deck 1 (Level -1) to the Ground Floors of Buildings A, B, C and D.

After almost 40 years of service, the old escalators were replaced by new and more energy efficient ones.



## REPLACEMENT OF FAÇADE WINDOW GLASSES

- 30,000 m<sup>2</sup> of façade glazing
- State-of-the-art thermal insulating double-pane glasses
- Reducing energy consumption for heating and cooling:
  - ✓ Heating energy savings over 27%
  - ✓ Cooling energy savings nearly 17%
- Enhancing safety of the occupants:
  - ✓ Inner pane: special shatter resistance glass (laminated glass)
  - ✓ Outside pane: toughened glass



## REPLACING THE LIGHTING SYSTEMS

- In the offices: 41,000 lamps
- Other areas: 15,000 lamps
- Modern / state-of-the-art lights
- Improvement of lighting quality & characteristics
- Close to natural light
- Reducing the consumption of electricity in offices
- 3-module office:
  - Before: 9 x 36W
  - After: 6 x 14W and 3 x 24W
- Equivalent to 50% reduction in electrical energy consumption

## DAY LIGHT SENSORS

- One third of office lights automatically turn off when daylight is adequate



## CHANGING SET POINT TEMPERATURES FOR CONDITIONED AIR SUPPLIED TO ROOMS

As part of the UN Secretary General's "Cool UN Campaign initiated in 2008", the set point temperatures for the conditioned air supplied to the rooms were:

- ✓ Increased by 2 °C, from 14 to 16 °C, during periods when cooling was needed.
- ✓ Decreased by -2 °C from 16 °C to 14 °C, during periods when heating was needed. Staff were notified of these changes and advised to adopt a relaxed dress code.



## IMPROVEMENT OF LIGHTING IN THE GARAGES

The ceilings of the Park Decks for 2,500 vehicles have been painted with light reflecting/enhancing paint.

BMS also replaced lamps with electronic ballasts, which resulted in reduced consumption of electricity.



## LIFTING OF THE CEILING

To create the required space for a new air-conditioning system with a rotary energy recovery heat exchanger system for the HVAC system in Building C, the roof of the technical room on C09 (ca. 360 m<sup>2</sup>) was lifted by ca. 1 meter – ca. 200 tons.

The new system enhance the energy efficiency and environmental performance of the HVAC system in Building C (i.e. 60-70% energy recovery).

THINK  
GREEN



## HIGH EFFICIENCY COLD WATER SETS - ALL YEAR ROUND (UTILITY TRANSFER STATION - COOLING CENTER)

The cooling equipment of the cooling center was upgraded by installing 3 high efficiency chillers. These chillers are equipped with magnetically mounted turbine shafts and reach a high Coefficient of Performance (COP) of up to 13. In this mode, only electricity costs for operating the chilled water circulation pumps will apply, so that a significant electrical energy saving can be achieved.

With this new system, it is now possible to supply the VIC with cold water daily from 0 to 24 hours throughout the year and especially in the colder months with "Free Cooling" and saving energy. The new system is operational year-round for the supply of the VIC with cold water, and the existing small air-cooled chillers in VIC can serve as a reserve equipment only.



## UPGRADING THE BUILDING AUTOMATION CONTROL SYSTEM

The Building Automation System was implemented in 1999 and upgraded in 2012.

The system automatically monitors and controls several facility operations, such as turning off/on lighting, heating, cooling, humidifying and ventilation systems. This results in considerable energy efficiency/ optimization in operations, optimal regulation of the HVAC system and automatic shutdowns in the evening.



## REPLACING EMERGENCY POWER GENERATORS

- Modified synchronizing systems
- Installing new energy meters in various localities
- Reduction of yearly 12 power cuts for test purposes to only one power cut per year.





# Measures to Reduce Water Consumption



## USE OF WELL WATER FOR IRRIGATION PURPOSES

The sprinkler systems of the green areas as well as manual irrigation water systems have been connected to underground well water to reduce the consumption of precious city drinking water for irrigation purposes.

## REDUCE WASTAGE OF WATER IN SANITARY AREAS

In order to reduce wastage of city water as much as possible, in several men's sanitary areas special urinals that do not require water flushing have been installed.

Furthermore, sensor water taps have been installed to replace the traditional water taps. These measures applied over the entire sanitary areas of the VIC drastically reduce the wastage of water.



## ACHIEVING EFFICIENCY IN THE USE OF PUBLIC WATER

The pipes supplying water to gray areas (e.g. 870 toilets) have been connected to underground well water. This measure has resulted in considerable reduction in the use of costly drinking water of the City of Vienna.

## MODIFICATION OF FLUSHING TANKS

All flushing tanks of the toilets were modified with two-stage flushing, resulting in considerable reduction in the use of costly drinking water of the City of Vienna.

