

## HDB Green Towns Programme

### HDB Green Towns Programme Focus Areas



#### Reducing Energy Consumption

##### Solar Panels

HDB is the largest driver for the installation of solar photovoltaic (PV) systems in Singapore today. Under the SolarNova programme led jointly with the Economic Development Board (EDB), HDB aggregates public sector demand for the installation of solar panels across HDB blocks and government sites. This generates clean energy and helps to reduce carbon emissions, thereby mitigating the effects of climate change.

Having surpassed our earlier solar target of 220 megawatt-peak (MWp) by 2020, HDB had in 2019 announced a new solar target of 540 MWp by 2030. The new target could potentially generate 648 GWh of clean energy annually, contributing towards the national solar targets of 1.5 gigawatt-peak (GWp) by 2025, and 2 GWp by 2030 as set out under the Singapore Green Plan. To-date, HDB has awarded tenders for a total solar capacity of about 280 MWp, covering around 5,700 HDB blocks. Through the

	<p>SolarNova programme, HDB aims to commit 70% of HDB blocks for solar panel installation by 2030.</p> <p>Under the SolarNova programme, solar energy that is harnessed is first used to power common services (e.g. lifts, lights and water pumps), with excess solar energy then channelled back to Singapore's electrical grid. On average, HDB blocks are able to achieve net-zero energy consumption for the common areas, and this can help Town Councils to moderate increases in operating and maintenance costs.</p>
<p>Smart LED Lighting</p>	<p>HDB has been exploring innovative solutions to reduce energy consumption in the common areas of HDB estates. One such solution is smart lighting, which comes equipped with smart motion sensors and analytics capabilities that can automatically adjust the luminosity of LED lights in the common areas of housing estates in response to the motion detected. The common areas include common corridors, stairwells, void decks, carparks, linkways and playgrounds.</p> <p>Smart lighting was piloted in Bukit Batok and Punggol East in 2014, and implemented in Teck Ghee in 2018 under the HDB Greenprint which brings sustainable initiatives to existing estates. It has subsequently been rolled out to all new BTO projects from May 2018. Currently, smart lighting has been installed at 47 blocks in 3 estates (Teck Ghee/Ang Mo Kio, Bukit Batok and Punggol East). Installation is ongoing at more than 300 new blocks in towns such as Punggol, Choa Chu Kang, Sembawang, Tampines, Tengah and Toa Payoh. HDB is also working with Town Councils under the Green Towns Programme to install smart lighting in common areas when their existing LED lights are due for replacement, covering about 9,000 blocks. All HDB blocks in Singapore will progressively be equipped with smart lighting.</p>

	<p>Aside from providing an anticipatory and more comfortable lighting experience for residents, the Smart Lighting System collects and analyses data on lighting performance, enabling the prediction of potential faults and proactive maintenance to be carried out. It also brings up to 60% energy reduction compared with conventional LED lighting.</p>
<p><b>Recycling Rainwater</b></p>	
<p>Urban Water Harvesting System</p>	<p>As part of its efforts to conserve water, HDB developed the Urban Water Harvesting System (UWHS) to harvest rainwater for non-potable uses like washing of common areas. HDB has started to incorporate the system in new BTO projects, and will be piloting it in some existing estates before implementation in more estates.</p> <p>The UWHS collects rainwater and stores it in an underground harvesting tank. The harvested rainwater is treated before being recycled for washing of common areas and irrigation. In this way, the use of potable water (drinking water) for washing of common areas and irrigation can be reduced by more than 50%.</p> <p>The UWHS also slows down the discharge of storm water to the drainage system, thus helping to mitigate flood risk.</p>
<p><b>Cooling HDB Towns</b></p>	
<p>Cool Coatings</p>	<p>To mitigate Urban Heat Island effects due to climate change, a key consideration in creating a more liveable and sustainable living environment is to improve thermal comfort for residents. One such solution is the application of cool coatings (i.e. cool paint containing additives that reflect the heat of the sun), which can be applied on building facades, roofs and pavements.</p>

	<p>Typically, building and pavement surfaces absorb heat during the day and emit the stored heat in the night, hence heating up the environment. Surfaces treated with cool coatings absorb less heat during the day. As a result, they emit less heat at night, leading to a cooler environment.</p> <p>A pilot of the application of cool coatings will be conducted in Tampines. In this pilot, we target to reduce ambient temperature by up to 2°C. With the learning points and data collected from the pilot, the application of cool coatings can be extended to other estates.</p>
<p>Greenery Intensification at Multi-Storey Carparks</p>	<p>Over the years, HDB has provided a myriad of green spaces in every housing development so that residents can enjoy greenery at their doorsteps.</p> <p>To further green HDB blocks, HDB will introduce greenery to the top decks of more Multi-Storey Carparks (MSCPs), by repurposing them for urban farming, skyrise greenery (i.e. using the Prefabricated Extensive Green (PEG) Roof Tray system<sup>1</sup>), or for community gardening where feasible.</p> <p>Besides offering visual and spatial relief for residents in our high-rise living environment, the greenery also helps to cool and enhance the liveability of our estates.</p>

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<sup>1</sup> The PEG roof system is a green roof solution developed by HDB. Portable and easily adopted by various building types, the PEG Roof System is a convenient and cost-effective system that suits Singapore's tropical climate and uses suitable local plants. It comprises innovative modular and lightweight green roof trays that are easily installed on site, simply by connecting one to another using locking plugs. No hacking or heavy construction works are required.