

## Reduce HVAC Carbon Footprint

### About Swire Properties Limited

Headquartered in Hong Kong, Swire Properties is a leading developer, owner and operator of mixed-use, principally commercial, properties in Hong Kong and the Chinese mainland, with a presence in Miami, U.S.A. We also have established offices in Singapore, Indonesia and Vietnam. In 2020 total gross floor area attributable to the group was 27.3 million square feet including retail, offices, hotels, restaurants, and mixed used properties.

Creative Transformation captures what we do and how we do it. It underlines the creative mindset, original thinking and long-term approach that enables our employees to reach beyond the conventional and seek new perspectives. We strive to unlock the potential of places by creating vibrant destinations and stimulating further growth to produce sustainable value for our shareholders, our business partners and the people with whom we work.

Our commitment to SD once again received global recognition in 2020. Swire Properties was ranked highly in several major SD-related benchmarks and indices. For the fourth year in a row, Swire Properties was the only constituent company from Hong Kong to be listed in the Dow Jones Sustainability World Index (DJSI World), and was among the top % in the global real estate industry. Swire Properties has again taken a leading position in the Global Real Estate Sustainability Benchmark (“GRESB”), being designated Global Sector Leader and Global Development Sector Leader for Mixed Use developments; and earning first place globally in the Resilience Module. In Hong Kong, Swire Properties topped the Hang Seng Corporate Sustainability Index for the third consecutive year, achieving the highest possible rating of “AAA” and outperforming more than 530 companies.

For more details on SPL: <https://www.swireproperties.com/en/sustainable-development.aspx>

### ***Problem Statement***

To reduce the operational carbon footprint associated with HVAC systems in existing commercial buildings within land-constrained sub-tropical urban environment.

### ***Aims***

Swire Pacific Sustainable Development (SD) Fund Challenge Process, invites innovators to submit a new solution to be trialled with the intention of implementing and scaling to other sites with similar problems.

- The solution may be of the following categories, but are not limited to the below:
  - Optimization of occupant thermal comfort (e.g. 3D thermal management, passive infrared sensing, thermal imaging sensor driven energy optimization)
  - High energy density low-carbon sources of electricity (e.g. vertical/horizontal wind generation, high efficiency solar, concentrated solar, fuel cell, bio-fuel generator)
  - Integrated renewable energy and HVAC systems (e.g. solar thermal chillers)

- Passive materials to regulate indoor temperature (e.g. coatings, envelop solutions, phase change materials)
- SPL is not currently interested in software-based HVAC system optimization solutions as a solution provider has recently been integrated which covers predictive analytics, command and control, and grid services.
- Solutions should be easily retrofittable, with significant electricity consumption reduction capability focusing on HVAC to help SPL reduce the overall carbon footprint.
- The trial will likely be conducted in one or more buildings in a Swire Properties' portfolio in Hong Kong or Chinese mainland.

### ***Problem Background***

Air conditioning is responsible for roughly 75% of electricity consumption within the building portfolio when both air and water needs are considered. Much of this portfolio is in high-density city environments. Reduction of the carbon associated with this energy by lowering the intensity of the source or improving system efficiency is critical to helping SPL achieve its sustainability targets.

SPL has committed to a Science Based Target aligned with The Paris Agreement with the target to reduce scope 1 and 2 carbon emissions by 35% per square metre by 2025 and 52% per square meter by 2030 as compared to a 2018 baseline year. In December 2020, Swire Properties signed on to the Business Ambition for 1.5°C campaign, the first real estate company in Hong Kong and the Chinese mainland to pledge support to the campaign. We look for innovative & high-impact solutions that can support us to raise our existing SBTs to align with the 1.5°C scenario / latest climate science. SPL has executed many energy saving measures including building energy management systems, chiller replacement and optimization, EC plug fan replacement of AHUs, variable speed control installation, retro-commissioning, lighting upgrades, and digitization of energy management.