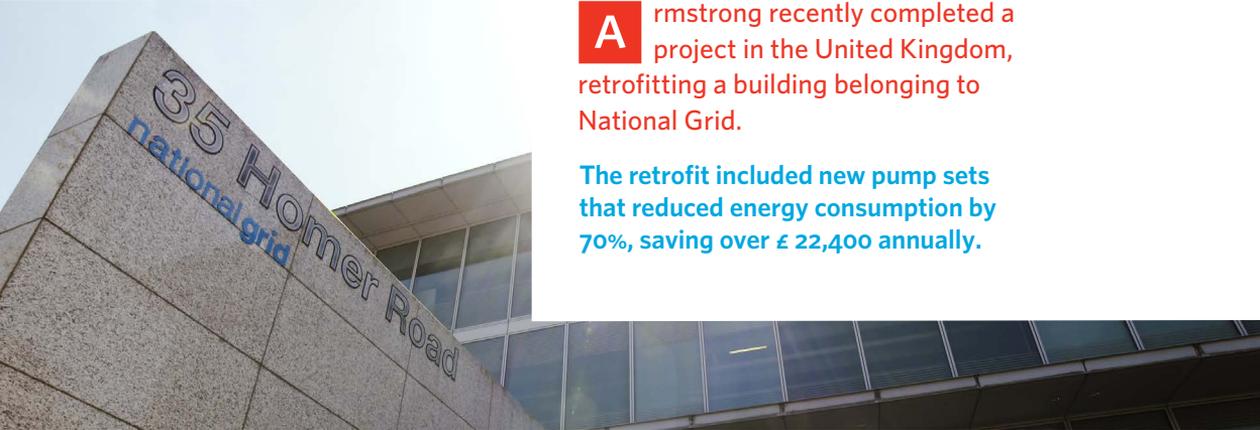


## CASE STUDY | National Grid



**A**rmstrong recently completed a project in the United Kingdom, retrofitting a building belonging to National Grid.

The retrofit included new pump sets that reduced energy consumption by 70%, saving over £ 22,400 annually.



**FACILITY TYPE**  
Commercial office



**LOCATION**  
Solihull, Birmingham



**SIZE**  
Three-storey building

### SITE CHALLENGES

- Restricted access — retrofit work had to be completed outside normal hours
- Occupant comfort requirements during the retrofit process



### ANNUAL ENERGY COST

BEFORE	AFTER
32,152 £	9,752 £
AVERAGE	AVERAGE

### ANNUAL COST SAVINGS

**22,400** £

ROI circa 3 years\*  
\* Dependent on usage which may be variable



### CO<sub>2</sub> EMISSIONS

BEFORE	AFTER
82,309 kg CO <sub>2</sub>	24,967 kg CO <sub>2</sub>
AVERAGE	AVERAGE

### ANNUAL CO<sub>2</sub> EMISSION REDUCTION

**57,342** kg CO<sub>2</sub>

TO GET YOUR ENERGY UPGRADE PROJECT STARTED, CALL:

**+1 866 238 1337**



### ANNUAL ENERGY SAVINGS

BUREAU VERITAS VERIFIED

**70%**



# KEY OUTCOMES:

- ✓ Pre-assembly of pipework and pumps reduced on-site labour
- ✓ Minimal disruption during regular business hours
- ✓ Energy savings and reduced CO<sub>2</sub> emissions
- ✓ Easy access to pump operating data showing flow, head, power usage and RPM
- ✓ Constant data-logging and performance insights

**Previously installed equipment**

- 6 sets of twin-headed pumps:
- 3 chilled water (1 primary, 2 secondary)
- 3 heating (1 primary, 2 secondary)
- 16 year-old Holden and Brooke Pumps

**Equipment included**

- 3 × 250 hp Design Envelope Twin pumps for chilled water
- 3 × 100 hp Design Envelope Twin pumps for condenser water
- Integrated Plant Controller



SOLUTION EMPLOYED

**DESIGN ENVELOPE**  
**TANGO**



Bureau Veritas S. A. is an international certification agency appointed by Armstrong to provide a technical assessment of pump performance and energy usage.

**A**rmstrong maps each individual pump's hydraulic, motor and inverter variations at the factory to achieve exceptional accuracy throughout the flow range. With this calibration, Armstrong Design Envelope pumps also serve as

flow meters, providing reliable system flow data (+/- 5%). The testing ensures optimal performance efficiency at start-up, while Armstrong's Pump Manager helps maintain and extend efficiency throughout the pump's operating life.