

CLEAN-TECH INNOVATION FOR BUILDINGS

Case studies in global technology partnership

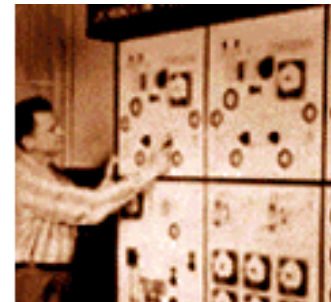


Promoting Clean-tech Innovation for Low-carbon Growth

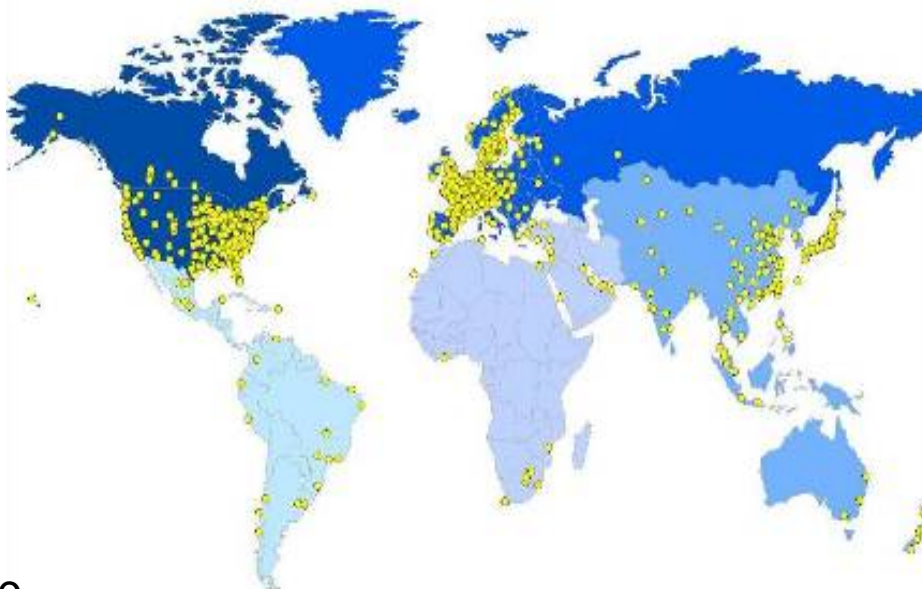
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JOHNSON CONTROLS - BUILDING EFFICIENCY BUSINESS



- Founded in 1885 by Warren Johnson, inventor of the first electric room thermostat
- Over 40,000 employees in 500+ locations in 150 countries
- Over 1.5B sq. ft. of space under direct management, with services provided to a further 20B sq. ft.
- \$7.5 billion of cost savings guaranteed and 18M metric tons of GHG emissions reduced since 2000



DRIVING TRANSFORMATION TO EFFICIENT BUILDINGS



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WORLD GREEN BUILDING COUNCIL

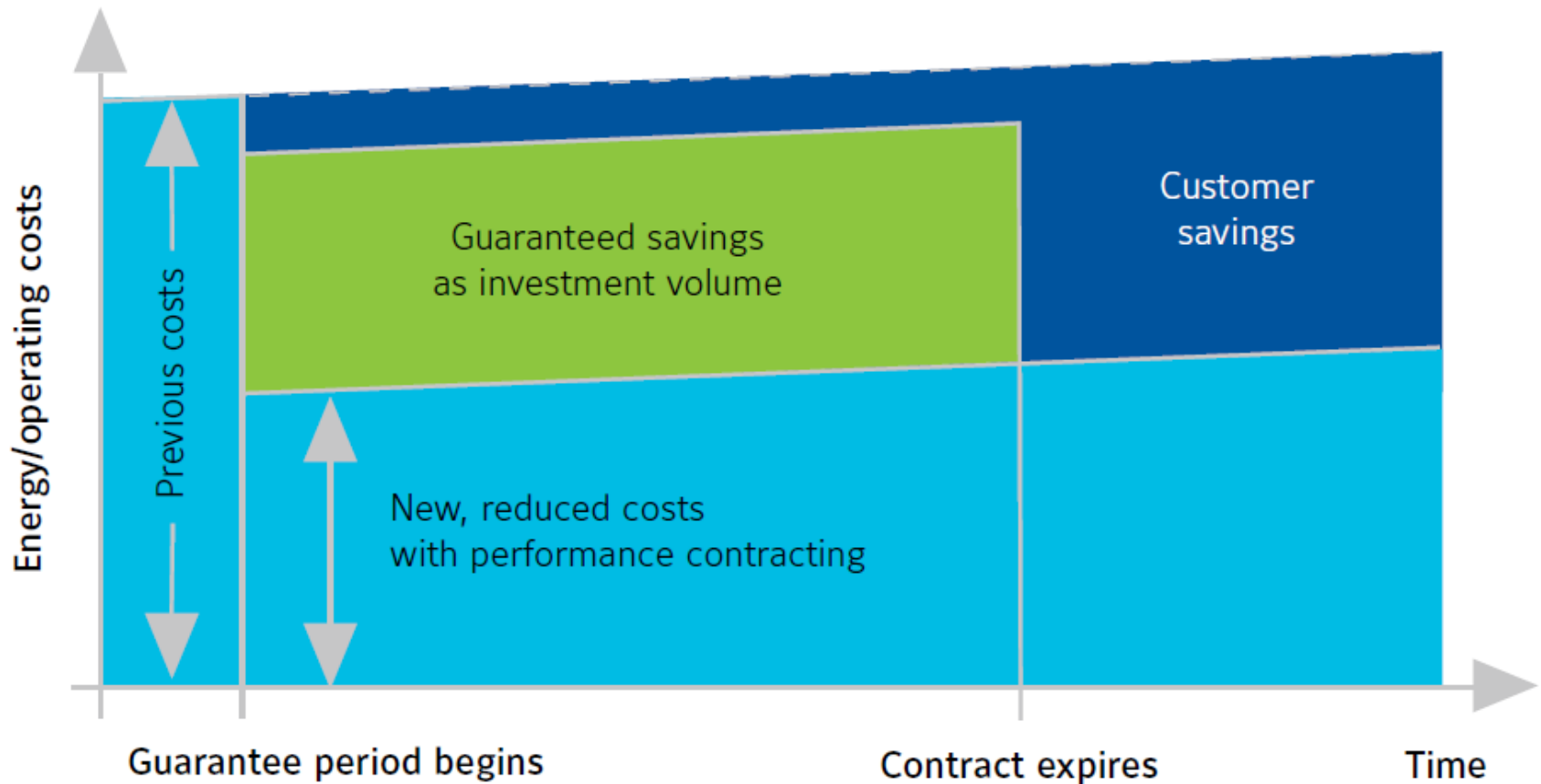
PRIVATE SECTOR PERSPECTIVE

- Factors that influence investment in emerging economies
 - Size of the market
 - Market enabling regulatory regime
 - Stable investment framework
 - Integrity of the business community
 - Small /mid-sized companies available and willing to enter into partnerships
 - Public funding and incentives
 - Availability of a skilled workforce
 - Government willingness to support public-private partnerships for training and capacity building
 - Adequate intellectual property protection and enforcement policies
-

POLICIES HELP BRIDGE THE EFFICIENCY GAP



ENERGY PERFORMANCE CONTRACTING



CASE STUDY - ENERGY PERFORMANCE CONTRACTING

- Inorbit Mall - Largest mall in Mumbai (50,000 m²)
- First EPC project completed in Asia as part of the Clinton Climate Initiative's energy efficiency building retrofit program (EEBRP)
- Comprehensive improvement measures
 - Replace chilled water and condenser pumps
 - Installed variable speed drives in air handlers
 - Enhanced building automation including peak demand limiting and night time set backs
 - Lighting retrofit including LED fixtures in car park
 - Submetering and monitoring system
 - Solar powered educational LCD kiosk showing real time performance and benefits of the project
- 2.8 years simple payback on investment



CASE STUDY – TECHNOLOGY PARTNERSHIP

- The Shaw Method of Air conditioning (SMAC) incorporates TwinCoil™ technology and unique control algorithms that enable the decoupled control of space temperature and humidity – generating significant energy savings and improvements in space conditions.
- University of Queensland – Duhig Library
 - Improved space conditions
 - Ameliorated environment for mould growth
 - Guaranteed space humidity of < 55%RH
 - Eliminated requirement for space reheat
 - Eliminated simultaneous heating and cooling
 - Reduced energy consumption by 88%
- Payback 2 years



***More research, analysis and information
about energy efficient buildings and smart
energy systems is available at:***

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