

THE CLIMATE HAS CHANGED

BETTER BUSINESS IN INDIA

WE MEAN BUSINESS

economic opportunity through bold climate action

WITH ALMOST A FIFTH OF THE WORLD'S POPULATION WITHIN ITS BORDERS AND AN INDUSTRIAL SECTOR THAT HAS ENJOYED UNSTOPPABLE ECONOMIC EXPANSION FOR A GENERATION, INDIA IS HUNGRY FOR ENERGY. IT'S THE WORLD'S FOURTH BIGGEST ENERGY CONSUMER AND HEAVILY DEPENDENT ON FOSSIL FUEL IMPORTS. BUT INDIAN BUSINESSES ARE DISCOVERING NEW WAYS TO FUEL THEIR GROWTH.

They're taking energy efficiency measures that are not only reducing carbon emissions and energy consumption but also delivering substantial financial value. Based on data provided to CDP, Indian companies invested almost \$1 billion in over 200 energy efficiency projects during the two financial years of 2012 and 2013, and have achieved a respectable average internal rate of return (IRR) on those projects of 12.7%.

They're innovating and investing across a spectrum of energy efficiency activities, spurred by rising energy prices and a raft of government initiatives and policies.

So what are they putting their money into? The majority of investment reported went towards improving industrial and manufacturing processes, which achieves a modest average IRR of 2% but delivers the highest level of carbon emission savings – almost 1 million tonnes CO₂e annually.

Heat recovery systems, which attract another major share of investment, achieve an impressive average IRR of 30% and the second highest carbon savings of almost 0.6 million tonnes CO₂e per annum. Large slices of energy efficiency investment also went into building efficiency improvements and FPM&D (facilities project management and design), while lighting and HVAC efficiency measures represent 25% of projects implemented.

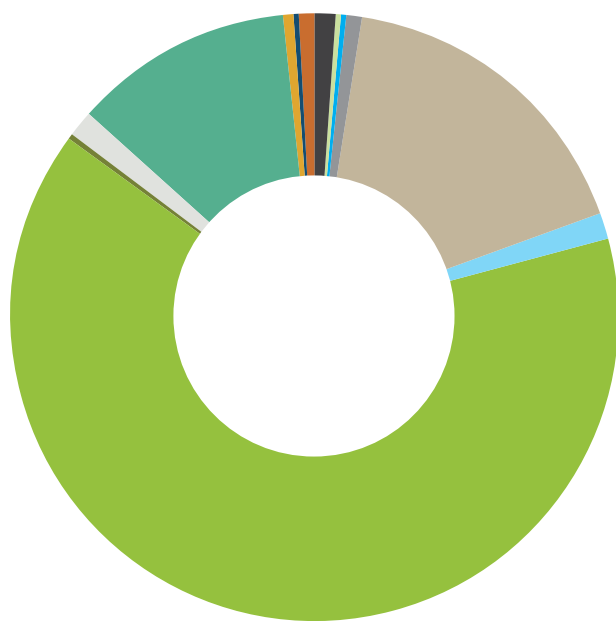


Figure 1. Investment in Energy Efficiency Between 2012-2013

- Multiple
- Steam
- Lighting
- Controls
- Waste Heat Recovery
- Building Envelope
- Process Improvement
- Process Heat
- FPM&D
- Other
- HVAC
- Compressed Air
- Server Virtualization
- EE Measures that count for less than 1%

Note: This is based on 222 projects reported to CDP by 33 Indian companies.

Energy efficiency activities are not the only emissions reduction measures that Indian companies are putting into action, but in 2014 they contributed over three-quarters of emissions saved by Indian companies reporting to CDP (based on company data from 2013).

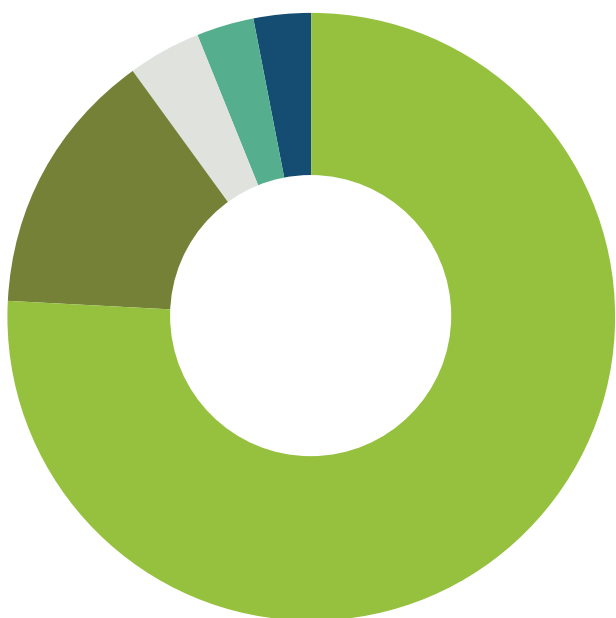


Figure 2. Emissions Reduction Activities Reported in 2014

**Total GHG Annual Emissions Saved
4.8 Million Metric Tonnes CO₂e**

- Process Energy Efficiency
- Low Carbon Installation
- Process Emissions Reductions
- Low Carbon Energy Purchase
- Other

Note: Contribution of different emission reduction activities in total emission reduction by Indian companies responding to CDP in 2014.

It's not just the financial returns that are increasing the uptake of energy efficiency measures. Indian businesses are integrating investment in these projects into their business procedure as a cornerstone of sustainable strategy in order to address new regulations and demonstrate leadership on climate action to their employees and customers.



“About 1% of the capital investment is dedicated for the energy efficiency projects. The central energy management team identifies the potential energy saving projects across all the plant locations in collaboration with plants energy managers. The projects are presented to the senior management for approvals and the budget for energy efficiency and emissions reduction is sanctioned based on the principle of Remove, Reduce, Reuse, Recycle and only then dispose”. - Mahindra and Mahindra

ACROSS THE BOARD, ENERGY EFFICIENCY MEASURES CUT CARBON EMISSIONS AND GENERATE GOOD FINANCIAL RETURNS. BUT THE EXACT MEASURES BEING TAKEN VARY FROM BUSINESS TO BUSINESS, DEPENDING ON THE NEEDS AND CIRCUMSTANCES. THERE ARE INSPIRING SOLUTIONS CURRENTLY BEING PIONEERED BY COMPANIES ACROSS INDIA.

TATA GLOBAL BEVERAGES' Eaglescliffe tea factory reduced energy consumption by 8% by pelletising waste and burning it for energy.

TATA CONSULTANCY SERVICES has implemented multiple energy efficiency measures across company buildings such as minimizing the use of halogen and other energy-intensive lighting and shifting to CFL/LED luminaires, as well as implementing timer/light-sensor-based corridor lights and peripheral street lights. The company has estimated savings of around 7 million tonnes CO₂e per annum.

To reduce fuel consumption and costs, **JSW** is investing \$126 million in a 'merry-go-round' rail network to help reach their goal of shipping 100% of their iron ore by rail rather than road by 2015.

INDIAN RAILWAYS, which accounts for 2.5% of the country's total electricity consumption, has set up an energy efficiency project that aims to reduce energy consumption and carbon emissions, investing US\$5.2 million in partnership with the Ministry of Railways, Government of India.

SHREE CEMENT has set up a Central Energy Cell (CEC) to oversee energy management at the company. The Cell performs regular audits and not only protects operations against local power interruptions but also ensures a higher level of energy efficiency. The company installed a cement turbo blower instead of the compressor in one of the kilns as a pilot programme, helping to reduce power costs and delivering annual savings of US\$ 0.03 million.

ACROSS SECTORS, THE COST SAVINGS FROM IMPROVED ENERGY EFFICIENCY ARE PROVING A POWERFUL MOTIVATOR FOR INNOVATION. THE IT SECTOR, FOR EXAMPLE, IS SEEING MANY INNOVATIVE CHOICES BEING MADE AROUND SERVER VIRTUALISATION. STEELMAKERS, MEANWHILE, HAVE FOCUSED ON PROCESS EFFICIENCY, UPGRADING FACILITIES TO TAKE ADVANTAGE OF WASTE HEAT ALONG WITH OTHER ENERGY REDUCTION MEASURES.

Infosys pioneered the first radiant slab building in India, reducing the energy requirement for cooling. The company has now implemented the technology in radiant panels in a new building in Bangalore. Radiant panels are the reverse of radiant heaters: they are kept 2-4° cooler than desired room temperature, by piping through cold water, and cool the room via convection. The system is more energy-efficient than traditional air-conditioning and can easily be retrofitted or designed into a building.

In 2013, **Tata Steel** invested in a waste heat recovery unit in its coke ovens. Steam from the ovens is used for process heating, saving on fuel and is expected to save 8,100 tonnes CO₂e annually. The company also invested in the replacement of a slag granulation facility in one of the blast furnaces to ensure resource conservation. This is expected to avoid 31,500 tonnes CO₂ annually through downstream energy savings in the cement making unit, where the slag can be reused.

ENERGY EFFICIENCY BEYOND BOUNDARIES

As companies in India gain understanding of the multiple opportunities that energy efficiency measures present, they are finding ways of passing these benefits on to suppliers and customers.

TATA CONSULTING SERVICES' data centre power management solutions enabled a Global top 10 bank to optimize their services, generating projected cost savings of US\$ 748 million annually, which was achieved three years after project completion.

TCS' smart logistics offering allowed a global manufacturer to implement a marine long-term supply chain network, including forecasting, fleet right-sizing and hub designs, leading to a 30% cost reduction in per ton per mile, 23% better fleet utilization and 10% reduction in carbon emissions.

MPHASIS has designed a new ATM solution that is more secure for customers and is also more energy efficient.

THE ENERGY GAP

India's relentless economic boom, which continued unabated while the rest of the world struggled through a global recession, has come at a cost. It is estimated that India's primary energy use doubled between 1990 and 2012¹ and this unflagging demand, combined with expensive fuel imports, have led to Indian energy prices being among the highest in the world.²

This energy gap is widening. But the action being taken by Indian companies on energy efficiency, supported by a range of government policies and initiatives, is helping to bridge the rift. The high price of energy is starting to dampen demand and is now a key force driving efficiency improvements. Together, efficiency and demand management are essential for avoiding blackouts and reducing the strain on the already overburdened energy infrastructure.

REGULATION IS MAKING A MAJOR DIFFERENCE TO CLIMATE CHANGE ACTION IN INDIA.

The need to support improved efficiency hasn't been ignored by the Indian government. It has introduced a range of regulations including the 'Perform, Achieve and Trade scheme' (PAT), focused on improving efficiency at key industrial sites, and 'Market Transformation for Energy Efficiency' (MTEE), which promotes energy efficiency standards and labeling.³

Regulation is making a major difference to climate change action in India. Half (50%) of the companies surveyed by CDP state that compliance with regulatory requirements and standards are a key factor in driving climate change investments. Over 90% of responding companies state that climate change opportunities are driven by changes in regulation.⁴

Strong investment and engagement demonstrate that India businesses know the value of energy efficiency. Increasing energy prices and a government determined to show climate leadership and action point to an energy efficiency trend that will keep growing. Better business in India now has momentum.

"We realize that GHG performance has a direct correlation with energy consumption. An improvement in GHG performance will come through a corresponding improvement in energy efficiency. Improving our energy performance will lead to reduced input costs and increased operational efficiency. At the same time it will also help us enhance our brand equity and thereby gain trust with our customers". - Indian Hotels

TRANSFORMING ENERGY IN INDIA

Adoption of a range of low-carbon technologies could help India turn around its increasing energy and emissions profile and reduce a projected 7.8 GtCO₂ in 2050 to just 2.4 GtCO₂. This change would not come for free, of course: it requires investment of between \$200 billion and \$400 billion a year until 2050, which is equal to an estimated 1.2% and 2.4% projected 2050 GDP, depending on technology restrictions and gas import policy. Energy efficiency savings could make a major contribution; WWF and TERI estimate efficiency improvements on the demand and supply sides could help deliver energy savings of 59% by 2051.⁵

5 The Energy Report – India 100% Renewable Energy 2050, 2013, WWF and Teri http://d2ouvy59p0dg6k.cloudfront.net/downloads/energy_report_061213_1_.pdf www.metoffice.gov.uk/media/pdf/b/f/AVOID_WS2_D1_41.pdf

PERFORM, ACHIEVE AND TRADE SCHEME (PAT)

The PAT scheme came into force in India in 2012 aiming to reduce energy consumption (excluding renewable energy) in key industries including aluminum, cement, steel, thermal power and textiles. Almost 500 plants were initially audited and the least efficient were set the toughest improvement targets. Excess energy savings earn Energy Savings Certificates which can be traded and used for compliance by other units; non-compliance carries a financial penalty.

India's Bureau of Energy Efficiency (BEE) will reassess these targets at the end of the first compliance period in 2015, when it's hoped that savings will amount to 26 million tonnes of carbon dioxide equivalent (CO₂e), contributing to national energy efficiency and emissions intensity targets.⁶

Half of the businesses responding to CDP's climate change questionnaire report that the PAT scheme is an important driver of their strategic direction.⁷ The scheme's success at improving energy efficiency will only become evident after the auditing occurs in the next year.

6 www.nytimes.com/2014/11/27/business/energy-environment/india-factories-save-on-energy-with-market-style-system.html?_r=0 http://r4d.dfid.gov.uk/PDF/Outputs/CDKN/India-PAT_InsideStory.pdf

7 www.cdp.net/CDPResults/CDP-india-climate-change-report-2014.pdf

1 www.eia.gov/countries/cab.cfm?fips=in

2 www.unfccc.int/files/bodies/awg/application/pdf/2_india_revised.pdf

3 www.beeindia.in/NMEEE/NMEEE2.ppt

4 www.cdp.net/CDPResults/CDP-india-climate-change-report-2014.pdf