



Energy Efficiency

**A Compelling Value Proposition and
Enabling Resource For Smart Cities**

**International Energy Service Conclave
New Delhi – 6th March, 2019**

Cities Faces Unprecedented Challenges ...

Rapid Urbanization

- ~55% of the global population in cities
- Projected to rise to 68% of the global population by 2050*
- Approx. 30 people moving to Indian cities every minute**

GHG Emissions of Cities is Substantial

- Guzzle ~75% of global primary energy
- Emit 60% to 80% of the world's total greenhouse gases (GHG)

Challenges

- Urban sprawl —> **Crumbling Infrastructure**
- **Air pollution** a hot button mobilising citizens and compelling government actions
- Public services' quality degraded – Slums, Waste, Crime, Health, Energy, Transport
- Reduced business and national competitiveness due to reduced productivity

*<https://www.un.org/development/desa/publications/2018-revision-of-world-urbanization-prospects.html>

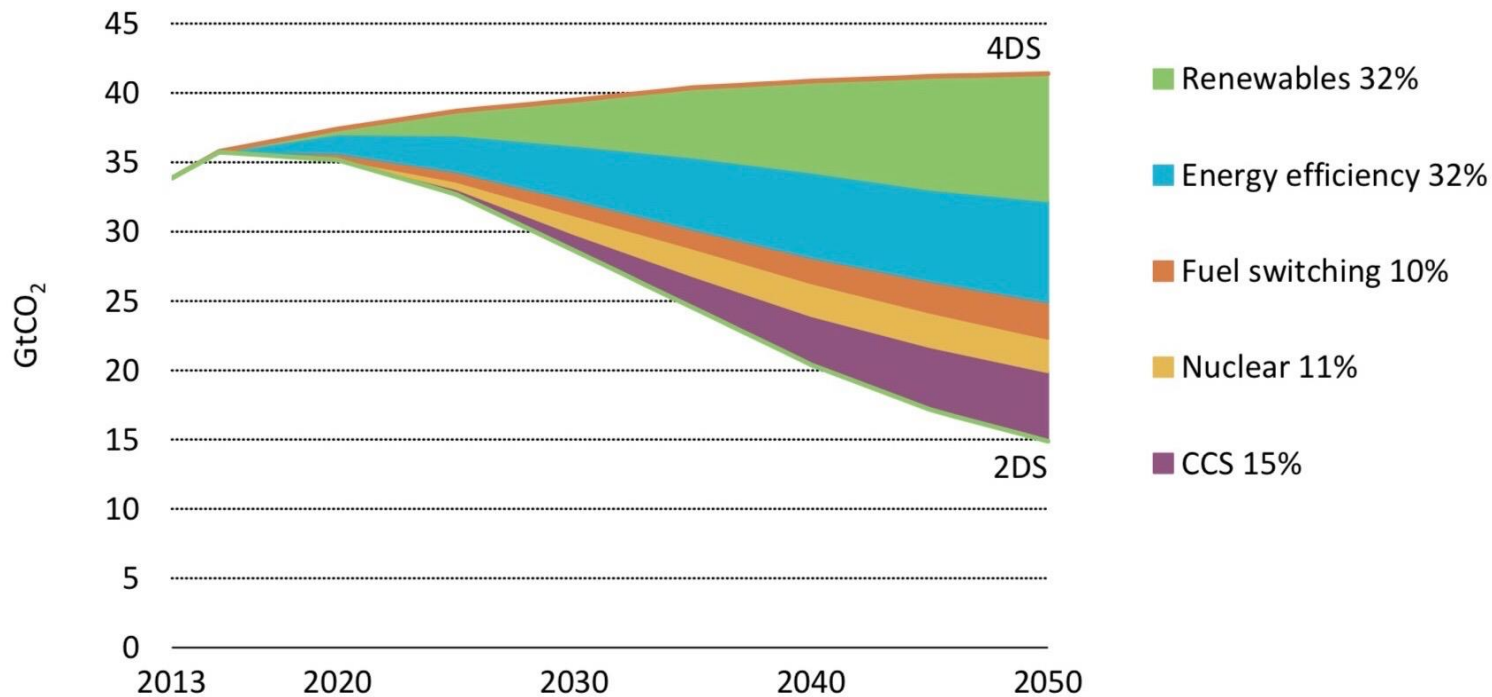
**<https://www.investindia.gov.in/team-india-blogs/india-preparing-biggest-human-migration-planet>

- To restore high quality of life to the residents by improving public services leading to better infrastructure supporting energy, transport, and cleaner air and economic competitiveness of cities for the businesses
- Leverages intelligent technologies (data, analytics, IoE, etc) relying on robust and advanced hardware to enable state of the art infrastructure leading to better governance

Energy Efficiency

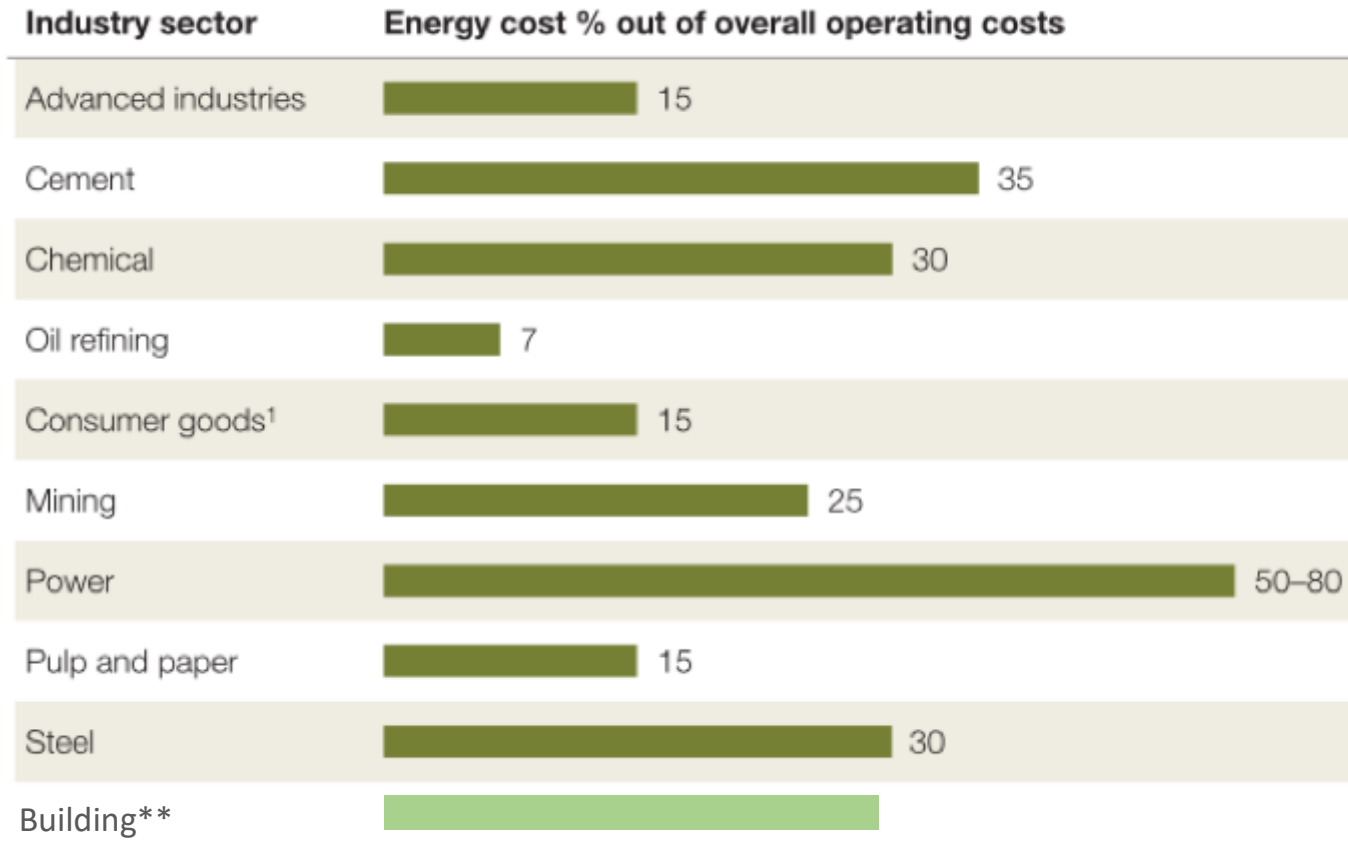
Potential To Reduce ~1/3rd of GHG Target

Contribution of technology area to global cumulative CO₂ reductions*



*IEA ETP 2016 study

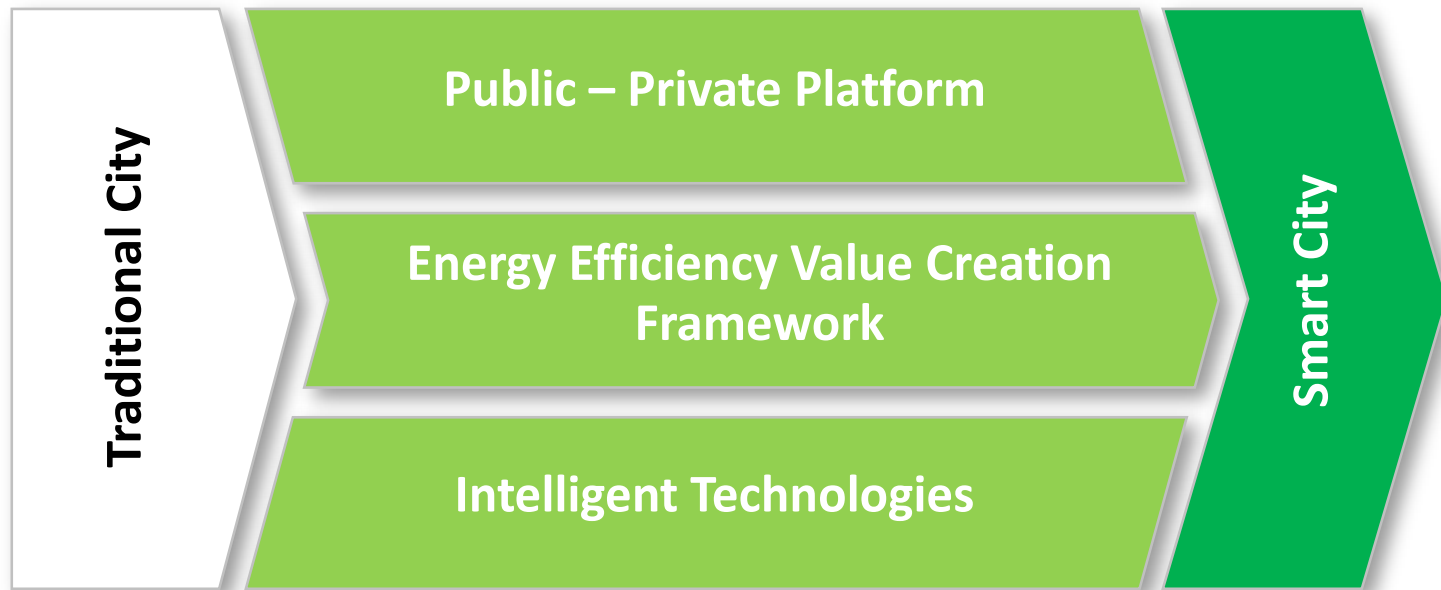
Energy: Significant Share of Operating Costs



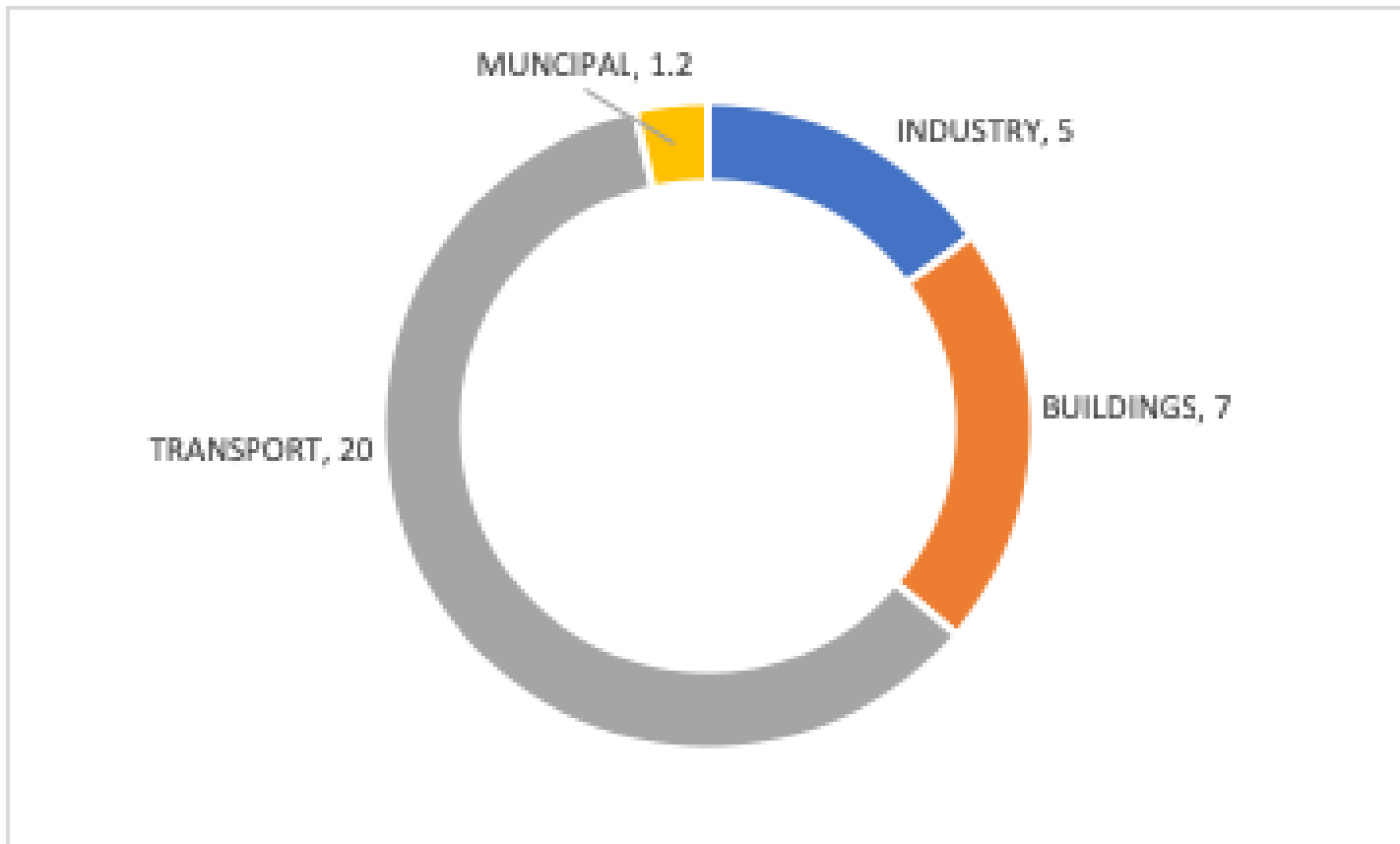
*<https://www.mckinsey.com/business-functions/operations/our-insights/technologies-that-could-transform-how-industries-use-energy>

** <https://www.mge.com/images/PDF/Brochures/business/ManagingEnergyCostsInOfficeBuildings.pdf>

Smart Cities Transition Framework



India Smart Cities: Total Energy Efficiency Market



Smart City EE Investment Potential in billion dollars

Energy Efficiency Value Creation Framework



CIVIL SOCIETY

- Data transparency to compel stakeholder's actions
- Evidence based policy advocacy
- Advocate capturing of externalities in performance metrics
- Sustainable transportation, buildings etc.
- Enabler for stakeholder alignment/engagement
- Green tech. adoption advocacy



GOVERNMENT

- Center, state and city alignment
- Skill development
- Policy framing and funding/implementation
- Awards and innovation/R&D
- Green Tech. FDI
- Infra procurement with green specs



Energy Efficiency Value Creation Framework



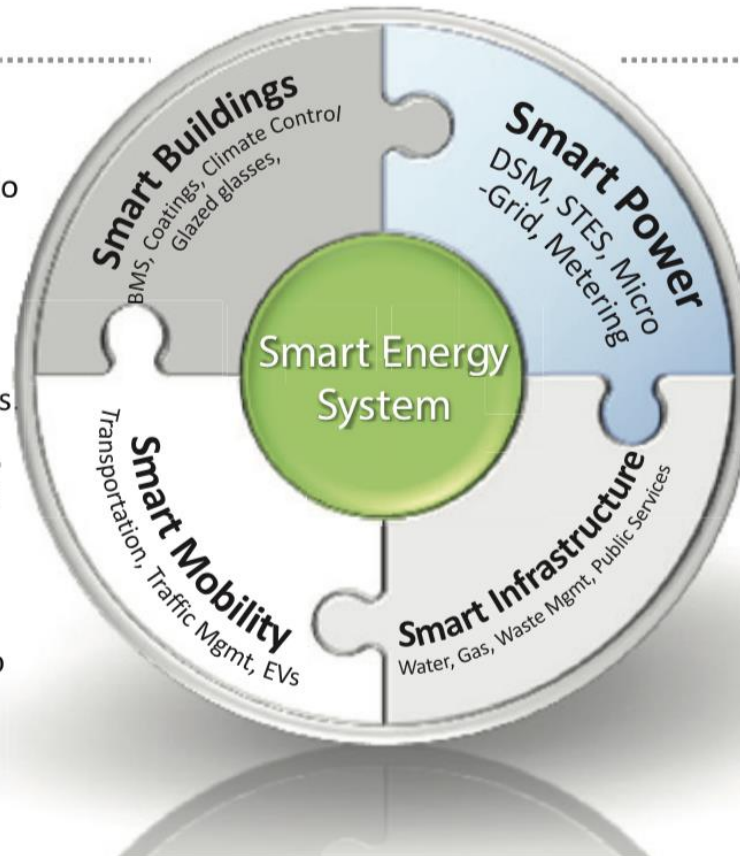
BUSINESS

- Green Business Models - Internal + External
- Innovative products with green specs
- Customer-centric Energy Services framework
- Disruptors to advance EE
- Innovative financing framework for low carbon economy

Smart Cities: Key Pillars

People spend over 80% of their lives inside a building¹². For businesses, its costs are second to salaries. Comfort and security is key to feeling of well being and productivity. Smart Buildings leverage energy efficient solutions to address these factors

Driving or commuting consumes ~4% of our lives. Between 17 years and ~79 years of age, one will spend more than 37,000 hours and could possibly drive to the moon and back — three times!¹³ Smart Mobility makes travel less stressful and productive



Power is and will remain essential necessity of individuals and businesses. Power constitute 10% to 40% of businesses. Smart Power solutions decouples economic growth and fossil fuel based energy with energy efficient solutions

City infrastructure determine how productively exchange of goods and services take place among individuals and businesses. Smart Infrastructure combines needs of competitive supply chain and the sustainability

¹⁴ <https://www.gemalto.com/m2m/markets/smart-buildings>

¹⁵ <https://offthethrottle.com/blog/2018/04/09/much-time-spend-cars/>

Lessons learned from stakeholder consultation

- Each brownfield or greenfield city is distinct
 - The solution architecture has to be customised and its unique value proposition defined.
- Recognize and address the complexity
 - Solution selling process involve cross-sectoral and tech collaboration, long sales cycle, relationship management with multiple stakeholders, innovative business model
- Government being a major buyer of capital equipment and services
 - Value selling could be a challenge.
- Solution selling team capability base to cover diverse domains
 - Design thinking, urban planning & policy, legal, financing tools, urban layout, intelligent technologies, electro-mechanical hardware, etc.)

Thank You