



# Energy Efficiency for Businesses

How to increase energy efficiency across companies to reduce costs, save energy, and build resilience.

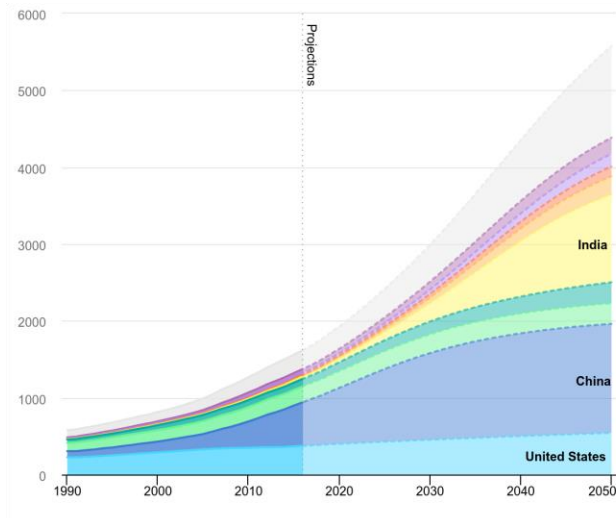


# The urgency: Energy demand is skyrocketing, threatening grid reliability for companies and their customers.

- Electricity consumption from data centers, AI, and cryptocurrency sectors is set to double by 2026.
- Energy use of air conditioners and cooling is set to more than triple by 2050 – consuming as much electricity as all of China and India today.

- **The current energy system is highly inefficient** – with almost two-thirds of all energy (worth \$4.6 trillion) wasted every year.
- **Progress on energy efficiency is slowing** – The global rate of progress in energy intensity fell by 50% from 2022 to 2024.

Global air conditioner stock, 1990–2050



IEA, Global air conditioner stock, 1990-2050, IEA, Paris <https://www.iea.org/data-and-statistics/charts/global-air-conditioner-stock-1990-2050>, Licence: CC BY 4.0

## Energy efficiency is the solution.

We have a bold opportunity to reverse this trend and reduce energy use while expanding the global economy.



# Energy efficiency is the low hanging fruit of the energy transition.

Solutions to reduce costs are available today: reduce load, add efficient equipment.

## Benefits of Energy Efficiency

- **Lower operating costs** creates competitive advantage, enabling companies to keep prices low.
- Reducing load while meeting increasing demand **boosts power reliability and relieves stress on utilities.**
- **Reduce climate resilience risks**
- **Improve air quality, worker and community health**, reducing the 11 million premature deaths per year due to air pollution.
- Doubling energy efficiency can generate **40% of emission reductions** required by the Paris Agreement.
- Boost profitability, unlock new markets and future-proof your business.



# Buildings & Appliances

## Sector key takeaways

### Reduce load

- Behavioral changes such as adjusting temperature, turning off unused equipment, and monitoring energy consumption can reduce building energy intensity by 15%

### Efficient equipment

- Upgrading HVAC, electrifying heat, and retrofitting lighting, walls and windows can reduce intensity 22%
- Replacing old appliances and equipment with efficient models would save \$1.5 Trillion globally
- Excess heat is 2,860 TWh/y in the EU, much of this excess heat could be captured and reused

### The opportunity

- Businesses can reduce energy by 31% without reducing output, saving \$2 trillion a year by applying available technologies and measures
- Green buildings increase lease-up rates by up to 20%, decrease vacancy rates by 4%
- Adoption of up-to-date building codes ensures the energy efficiency of new and renovated buildings- the 2021 International Energy Conservation Code leads to efficiency gains of 9.4% over the 2018 edition



# Industry

## Sector key takeaways

### Reduce load

- A basic energy audit can identify efficiency measures that can lead to energy savings of 5%-10%
- By combining AI with a digital BMS, HVAC energy costs can be reduced up to 25%

### Efficient equipment

- High-efficiency motors and related interventions can save 20% - 30% of energy used to drive powertrains
- Adding variable speed drives on motors in the EU industrial sector alone can lead to more than €10 billion in savings in electricity costs

### The opportunity

- Excess heat is the world's largest untapped energy source Capturing it means more value for what you are already paying for
- One factory was able to reduce energy consumption by 30% by simply shutting off machines during off-production hours
- Retrofits can cut energy use by 30%-60% and efficient new builds can save 40%-90%



# Transport

## Sector key takeaways

### Reduce load

- Switching from fossil fuels to electric transport decreases overall primary energy demand and reduces reliance on volatile fuel sources
- Electric vehicles can provide flexible energy sources that grids can leverage, increasing grid reliability and decreasing energy costs

### Efficient equipment

- Between 2010 and 2021, the energy intensity of passenger transport improved at an annual rate of 1.6%, but freight transport only improved 0.4%

### The opportunity

- Efficiency and lightweighting steps could cut energy consumption per mile in half over the next 30 years, saving more than \$200 billion annually, and reducing investment in the grid and charger buildout needed to support electric mobility
- A combination of energy efficiency measures and low-carbon approaches can reduce transport consumption by about 27 EJ by 2050 – equivalent to one third of the US total energy demand



# Electricity & Data Centers

## Sector key takeaways

### Reduce load

- 200 GW of load flexibility potential will exist in the U.S. by 2030, worth more than \$15 billion annually in avoided system costs

### Efficient equipment

- Server utilization is often only 5%–15%, and even in idle states consume 30%–40% of their maximum power, leading to significant energy waste

### The opportunity

- Using AI to dynamically adjust cooling in response to real-time weather conditions achieved a 9% increase in energy efficiency
- Energy-saving retrofits for existing data centers can save 25% for small to medium-sized data centers, 13% for large data centers, and 7% for extra-large data centers



# Call to Action

1. Join a Mission Efficiency taskforce and elevate energy efficiency
2. Develop tangible energy efficiency improvement goals for your company
3. Call on other businesses governments to make energy efficiency a priority at COP30

## Learn More: Global Energy Efficiency Initiatives

- [Mission Efficiency](#)
- [Energy Efficiency Movement](#)
- [IEA Energy Efficiency Hub](#)
- [Nairobi Business Leaders Action Plan](#)



# Energy Efficiency Resources



## Buildings

- [Business Case for Energy Efficiency in Buildings, IMT](#)  
Overview of the financial arithmetic of energy savings, avoided operating costs, net income, value, and a summary of case study data on real projects and companies.
- [Transforming Energy Demand Selected interventions for Buildings, WEF](#)  
Analysis of interventions and potential benefits of commercial building retrofits.
- [Net Zero Appliance NDC Toolkit, CLASP](#)  
Learn how (and why) to maximize the potential of appliance efficiency in NDCs.
- [The world's largest untapped energy source: Excess Heat, Danfoss](#)  
How to leverage heat recovery technologies that already exist in buildings.
- [Best Practices for Achieving Zero Over Time for Building Portfolios, RMI](#)  
How to apply a zero-over-time (ZOT) approach for commercial building portfolios.
- [How Economics Can Help Corporate Capital Budgeting: The Case of Sustainable Energy Upgrades, UC Berkeley](#)  
Solve the shortcomings of capital budgeting for energy efficiency projects – including how to properly value upgrades, energy savings, and the cost of inaction.

## Industry

- [The case for Industrial Energy Efficiency, Energy Efficiency Movement](#)  
Three measures (connecting assets, adding heat pumps, and smarter buildings) could deliver around 70% of energy efficiency benefits available to industry.
- [Competitive decarbonization, Danfoss](#)  
Manufacturing can double the value added from each unit of energy via cost-efficient energy efficiency measures and technologies – and electrify 78% of energy use.
- [Profitably Decarbonizing Heavy Transport and Industrial Heat, RMI](#)  
Decarbonizing heavy transport and industrial heat can be profitable, creating new opportunities and business models.

# Energy Efficiency Resources



## Transport

- [Valuing Improvements in Electric Vehicle Efficiency, NRDC and EPRI](#)  
How future vehicle improvements – additional and complimentary to electrification – can double US vehicle efficiency if implemented by automakers.
- [Charging the EV Transition – 2024 EV100 Annual Report, The Climate Group](#)  
A snapshot of progress from EV100's 128 corporate members (and counting) – including their 231,000 new EVs and 5,000 new charging units in 2023 alone.
- [How Fleets and Utilities Can Work Together to Unlock Electrified Transportation, RMI](#)  
How business fleets and electric utilities can efficiently plan for electric vehicles and their charging needs, including with RMI's GridUp tool in the US.
- [Research and tools on freight efficiency for business fleets, NACFE](#)  
Analysis of 86 technologies and practices for freight efficiency, how specific businesses are using them, and how more can get involved.

# Energy Efficiency Resources



## Electricity & Data Centers

- [Powering the Data-Center Boom with Low-Carbon Solutions, RMI](#)  
A global, system-wide perspective on efficiency solutions for data centers, which could save businesses up to 70 percent of their associated energy use.
- [Electricity Load Growth Does Not Have to Undermine Climate Goals, RMI](#)  
How utilities and decision-makers can meet 78 percent of this decade's US electricity load growth with efficient solutions — including virtual power plants, grid-enhancing technologies, and more.
- [Digital twins for digital infrastructure: the key to optimizing data center operations, Koomey and Freund](#)  
A digital solution to a digital problem, with three business case studies that have paid for themselves in less than a year.
- [The National Potential for Load Flexibility, VALUE AND MARKET POTENTIAL THROUGH 2030, Battle Group](#)  
Examines how "Load flexibility" will address new challenges of an evolving power system
- [How Data Centers Can Set the Stage for Larger Loads to Come, RMI](#)  
How data centers can set a precedent for how to handle load growth in a way that supports the grid and ensures reliable, resilient, carbon-free electricity.