



# COULD BOOSTING ENERGY PRODUCTIVITY IMPROVE YOUR INVESTMENT PERFORMANCE? A GUIDE FOR INVESTORS

MAY 2016

## Acknowledgements

ClimateWorks Australia thanks those who have provided financial and in-kind support for the Energy Productivity Index for Companies project. Thanks also to our Steering Committee and those experts who have provided their time and expertise during project scoping, development and review of results.

The Energy Productivity Index for Companies project was funded by the ClimateWorks Foundation to support research, analysis and stakeholder engagement.

We are especially grateful to our project partners for their support in shaping the project as well as undertaking engagement activities through their networks.



Data used in the analysis of the Energy Productivity Index for Companies project was provided by CDP.

## A note about project scope and limitations

Analysis undertaken was limited by the availability and quality of company data. Energy data used in the analysis was primarily sourced from 2013-15 CDP responses (relating to 2012-2014 energy use data), complemented by other voluntary company reporting where required. This leads to the following potential limitations:

- > Some companies do not report on all metrics;
- > It is also likely that some reporting is incomplete;
- > Energy costs are reported as a range, which could lead to high margins of error in estimating energy costs from low energy cost ranges;
- > Variable quality of responses, both over time and between companies in the same year;
- > Emissions reduction opportunities reported by companies were classified as energy efficiency, based on descriptions and categories reported by each company - while efforts have been taken to ensure our analysis accurately covers energy efficiency opportunities, this qualitative data may have led to inaccurate classifications of energy efficiency opportunities.

Please refer to our Technical Report at [energyproductivity.net.au](http://energyproductivity.net.au) for further details on methodology.

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ClimateWorks Australia  
Level 16, 41 Exhibition Street  
Melbourne Victoria 3000  
P +61 3 9902 0741  
E [info@climateworksaustralia.org](mailto:info@climateworksaustralia.org)

This report may also be downloaded at [energyproductivity.net.au/resources](http://energyproductivity.net.au/resources)



ClimateWorks Australia led this project with the support of many partnerships, undertaking the analysis and engaging stakeholders to develop the world's first evidence-based benchmark in energy productivity for companies. For more information visit [www.climateworksaustralia.org](http://www.climateworksaustralia.org)



Recognising the key role investors can play in influencing companies' responses to climate change, ClimateWorks Foundation supported this project through funding and collaborating with organisations to assist the development and delivery of this project. For more information visit [www.climateworks.org](http://www.climateworks.org)



The California State Teachers' Retirement System is the largest educator-only pension fund in the world. Understanding the potential for energy productivity improvements to contribute to both the financial growth of investor portfolios and to greenhouse gas emissions reduction, CalSTRS participated as lead investor in the project. For more information visit [www.calstrs.com](http://www.calstrs.com)



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## A GUIDE FOR INVESTORS

MAY 2016

FINAL

### KEY FINDINGS

**This guide will encourage more investors to enter constructive conversations with companies around energy-related issues**

- > Our analysis covered 70 companies, including many well known and leading businesses, across six sectors: airlines, automobiles, chemicals, construction materials, paper and steel

**Energy productivity is a material issue for companies and investors**

- > With many industrial companies spending a huge part of their operating expenditure on energy (>15%), improving energy productivity has the potential to greatly improve a business' value as an investment
- > Significantly, improving energy productivity can effectively contribute to reducing greenhouse gas emissions and climate change risk

**The value of your investment may be unrealised or eroded if energy productivity is not optimised**

- > Over 70% of companies analysed may have significant room for improvement around energy use
- > Even in homogenous sectors, leaders are achieving energy productivity levels 2 to 5 times higher than poorer performers

**Improving energy efficiency performance can deliver significant profit increases**

- > This guide reveals a third of companies analysed could increase profits by over 5% per year if they matched the performance of leaders in their sector
- > Discounting capital costs from savings in energy costs could lead to 2-10% growth in annual profits for each year of implementation
- > Much of the energy savings achieved by leaders came through energy efficiency opportunities such as equipment upgrades, heat recovery, leak or waste reductions, and optimisation of controls

**Much improvement is needed on data availability and data quality**

- > Assessing energy productivity currently presents a challenge for investors (and an unrealised opportunity for portfolio companies) as data was uncertain in 19% of companies analysed
- > Furthermore, of 181 companies that reported in the six sectors, 73 had incomplete or insufficient data for benchmarking

# FOREWORD

## Anne Sheehan, Director, Corporate Governance, CalSTRS

Globally, investors are increasingly engaging with portfolio companies on environmental, social, and governance (ESG) issues. It is now widely appreciated that these less tangible factors - such as the way a company deals with the environment - are material issues which provide both risks and opportunities and can impact significantly on business and investment results. The way in which companies are responding to shareholder enquiries and managing ESG issues is also keenly observed by investors. According to the Sustainable Investments Institute, a record 468 environmental and social shareholder resolutions were filed with U.S. companies in 2015. This figure does not include the larger number of letters, meetings, phone calls and other contact that shareholders had with listed companies during the same year.

However, while climate change and other sustainability issues are now widely recognised under the ESG umbrella, the issue of energy remains an elusive topic for most investors.

Energy productivity performance has long been an area of interest at CalSTRS. Its fiduciary responsibility to more than 879,000 California educators and their families was the impetus to begin identifying environmentally focused investments and risk mitigation strategies intended to enhance the risk-adjusted returns of the overall CalSTRS portfolio. For this reason, CalSTRS became Lead Investor in the Energy Productivity Index for Companies project, with analysis undertaken by ClimateWorks Australia.

The Index supplements our understanding of how to best manage long-term risks in energy use.

Large institutional investors, like CalSTRS, continuously seek instruments that serve to mitigate risk. Being Lead Investor of the Energy Productivity Index illustrates CalSTRS' role as an advocate at the forefront of the next generation of investing, doing what's in the best interest of our members and our planet.

The Index has greatly improved CalSTRS understanding of key energy-related issues in its portfolio and how improving energy productivity can be an important business strategy. Using the Index, CalSTRS has been able to initiate engagements with US-based companies, in the pursuit of ways to improve their energy productivity performance. The next step in this process has been to develop this 'how to' guide, explaining how investors can apply the Index to their own company assessments and engagements.

It is our hope that this guide and the underlying analysis will empower more investors to enter constructive conversations with companies around energy-related issues, with the ultimate goal of improving disclosure and management practices around companies' energy productivity and energy efficiency performance.



The largest educator-only pension fund in the world, and the second largest pension fund in the U.S., managing a portfolio worth \$178.7 billion as of February 2016



# ABOUT THIS GUIDE

## A tool to encourage investors and companies to engage around energy-related issues.

Energy productivity and efficiency have traditionally been low visibility issues for investors, marked by a lack of established methodologies to measure, report on and monetise the benefits of improvement. This guide for investors seeks to address that challenge, applying the world's first evidence-based standard in energy productivity to help investors better understand how improvements in energy management practices can be fundamental to the economic resilience of a company.

The guide is to be used alongside a dedicated website at [energyproductivity.net.au](http://energyproductivity.net.au) where investors will find detailed energy productivity findings by industrial sector and by company.

The guide analyses the energy productivity of 70 global listed industrial companies across six key industrial sectors - airlines, automobiles, chemicals, construction materials, paper and steel, primarily drawing on CDP (formerly known as the Carbon Disclosure Project) reporting data. The analysis focuses on energy used in a company's operations, i.e. Scope 1 and 2 emissions. It does not include considerations for Scope 3 emissions, including energy use of a product during its operational life, or energy use relating to outsourced logistics and distribution.

Results identify companies already taking a leadership stance in maximising their energy productivity potential. They also identify companies that rate lower than their peers on one or more energy performance metric.

It is important to note that, where a rating seems unfavourable, this may be due to a number of

factors such as incomplete reporting of activities undertaken internally, changes in the scope of operations or unfavorable economic context. In such situations, investors can initially use this index to ask those companies about specific causes. Where improvement is possible, the investor can then constructively engage with board and management around energy productivity impacts on company value, investor risks, public reporting of energy related data and the benefits of improvement.

The guide may also be a useful self-assessment tool for industrial companies asking "How does my business' energy productivity rate currently?" "Where are the gaps and opportunities?" and "How much could we save by investing in energy efficiency upgrades?"

The key here is opportunity: With energy costs representing a significant burden on industrial companies, the potential value of improvements in energy productivity offer parallel benefits to the financial value and energy security of such assets. For investors, this information could be invaluable.

### Investors can use this guide to

- > Decide whether energy productivity is a material issue for a portfolio company
- > Prioritise and shortlist sectors or companies for engagement on energy issues
- > Access supporting information (including industry examples) for engagement or discussions with companies
- > Support improved financial returns for portfolio companies through pursuing opportunities for their energy productivity improvement

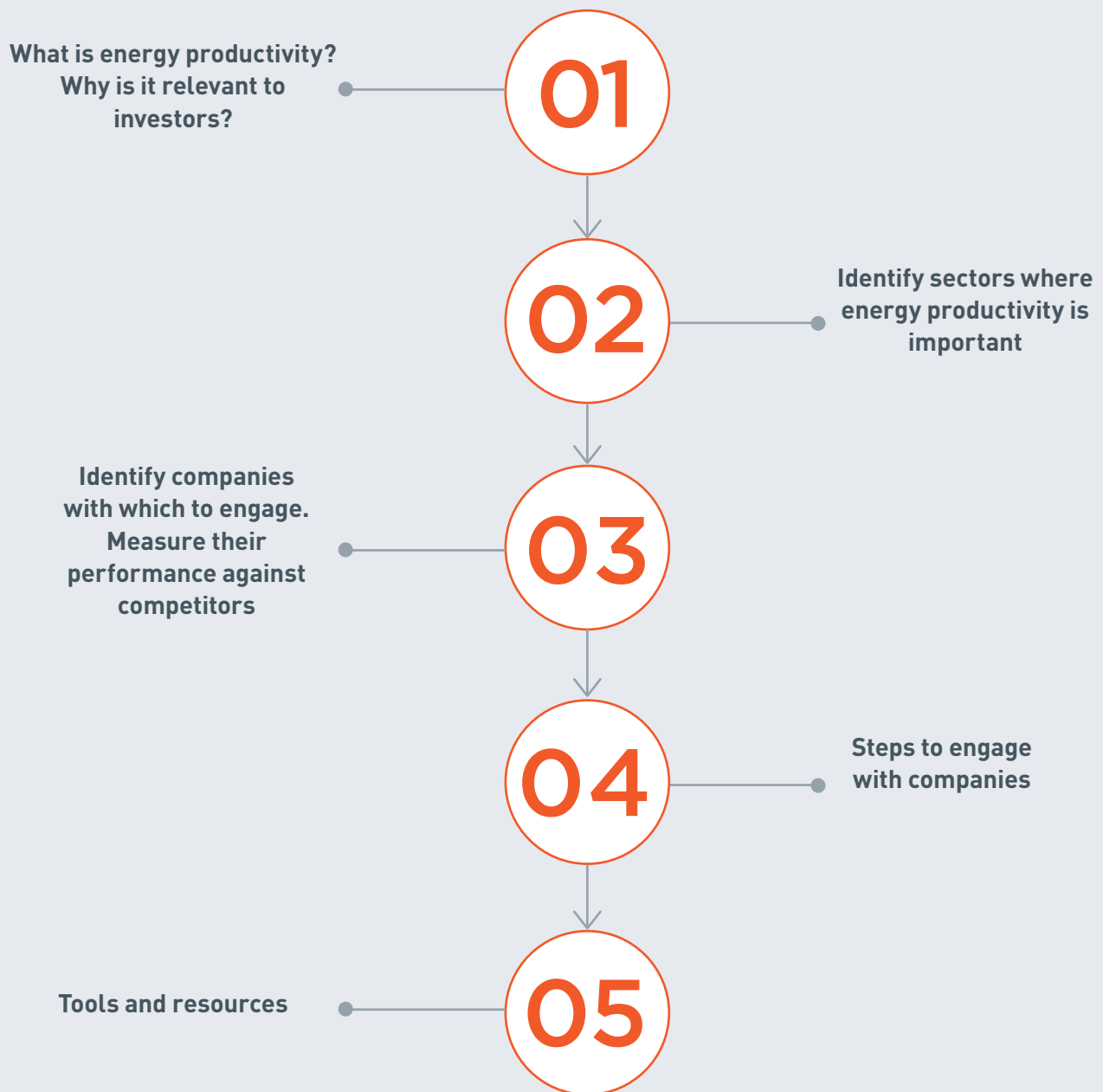
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**"THE ENERGY PRODUCTIVITY INDEX DEVELOPED BY CLIMATEWORKS HAS GIVEN US EXCELLENT FOUNDATIONS FOR ENGAGING WITH COMPANIES AROUND GREATER ENERGY PRODUCTIVITY POTENTIAL. TO DATE WE HAVE WRITTEN SEVEN LETTERS AND ARE IN DISCUSSION WITH RESPONDENTS."**  
**BRIAN RICE, PORTFOLIO MANAGER, CORPORATE GOVERNANCE, CALSTRS**

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# USING THIS GUIDE

## Quick reference to guide content



# 01 WHAT IS ENERGY PRODUCTIVITY?

**Energy productivity is most simply described as the amount of economic output per unit of energy input.**

At a company level, energy productivity can be measured by revenue per gigajoule of final energy used across a company's operations. Of course, revenue is affected by a whole suite of factors, not all of which are within a company's control. Energy use, however, is a cost which companies can control and reduce through greater energy efficiency. Improving energy productivity is simply about getting more value out of the energy a company uses.

For this report, the definition of energy productivity has been broadened to include Resilience to energy costs, Energy productivity outcome, and Energy efficiency performance. Our analysis shows that combined these metrics combined provide a better indication of company's overall energy performance and potential for improvement than revenue per gigajoule of final energy used alone.

There are many ways industrial companies can improve their energy productivity:

- > Energy efficiency: Adopting more efficient technologies and processes and system-wide optimisation of energy use.
- > Electrification: Shifting to electricity for certain activities, such as electric vehicles, and conveyor belts rather than trucks on mining sites.
- > Structural change: Shifting operations towards less energy intensive activities or outsourcing some processes, for example to larger scale operators, which can achieve greater efficiency.
- > Energy conversion and distribution: Switching to more efficient forms of energy generation, for example by switching from grid-supplied fossil fuel-based electricity to distributed renewable electricity.

## WHY IS IT RELEVANT TO INVESTORS?

**For over 70% of companies assessed, analysis indicated significant opportunity to improve energy productivity and compelling evidence of the benefits of doing so.**

The Energy Productivity Index for Companies project revealed wide disparities in energy productivity across all sectors of industrial companies analysed. For example, it showed that leaders in each sector can produce the same output as their competitors with 2 to 5 times less energy input. The Index also showed that only 12 of the 70 companies assessed could demonstrate over 1% energy cost reduction each year through efficiencies, despite clear evidence that matching best practice is equivalent to

more than 5% annual increase in profits for a third of the companies analysed.

**As a component of production, energy is a material cost for companies.**

Energy is one of the costs that can be actively managed and companies are jumping on the bandwagon. Of the companies analysed for this report, 40% spent over 15% of their operating expenditure on energy.

Of all sectors analysed, airline companies reported the largest monetary savings through energy efficiency. United Continental reported annual savings of US \$343 million in 2014, through fuel management initiatives such as installing winglets, improved flight planning, fleet replacement, engine washing and aircraft software updates.

# WHY IS IT RELEVANT TO INVESTORS?

## ... continued

### Improving energy productivity can effectively contribute to reducing climate change risk.

Many investors are now recognising the long-term investment risks associated with greenhouse gas emissions, climate change and carbon regulation. Steep reductions in carbon emissions will be required to keep global average temperature rise below 2 degrees Celcius - a benchmark widely regarded as necessary if we are to avert catastrophic impacts of climate change. Approximately 40% of the emissions reductions required by 2050 to limit global temperature increase to less than 2 degrees Celsius potentially come from energy efficiency\*. Engaging with portfolio companies to improve their energy productivity is a measurable and profitable way to reduce emissions and climate risks. Energy efficiency opportunities implemented by companies we analysed resulted in an average 9 MtCO<sub>2</sub>e emissions reduction over the years 2012 to 2014.

Index results showed automobile companies achieving the highest emissions reductions through energy efficiency opportunities implemented in manufacturing facilities, with Renault and Fiat achieving 8.4% and 6.3% per annum emissions reductions respectively.

### There is significant potential for financial benefit.

By reducing energy costs and growing efficiencies in line with their best performing peers, on average, lower performing industrial companies stand to gain between 2.2% and 13.8% in growth in annual profits from each year of implementation, as the graph to the right indicates. These savings would be cumulative over time, so that after 5 years of implementation, they add up to between 11% and 69% growth in profits.

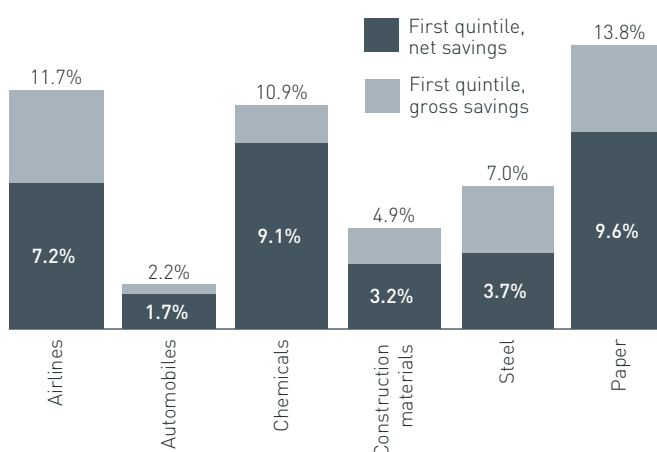
A lot of this potential requires little to no capital investment, largely thanks to recent improvements in technology which have made significant operational improvements possible. Overall, only 28% of the activities implemented by companies required capital investment greater than three years worth of energy cost savings. If capital costs were to be discounted from the savings in energy costs, the potential growth in net annual profits would still range between 1.7% and 9.6% for each year of implementation, or 10% to 50% over 5 years.

Globally, greater energy efficiency could produce a net cost saving of US \$1.2-1.6 trillion and annual savings of approximately 0.2% of 2030 global GDP#.

For the automobiles sector, the analysis suggests that a 1.7% net savings improvement is equal to about US\$100 million. Achieving an equivalent increase in profits from revenue growth would require additional sales worth approximately US \$2,161 million in that sector, or 90,000 more cars sold each year.

### Potential financial uplift from energy efficiency

Average across 50% of companies with the highest potential gains.



A third of companies analysed could increase profits by over 5% per year by matching their sector's leading performers. Moreover, half of these companies could increase profits by over 10% per year.

\* IEA, Energy Efficiency Market Report 2015 [p. 3]

# When compared to the BAU scenario for the same period, (Fraunhofer ISI and the ClimateWorks Foundation, [www.climateworks.org/report/how-energy-efficiency-cuts-costs-for-a-2c-future/](http://www.climateworks.org/report/how-energy-efficiency-cuts-costs-for-a-2c-future/))





## 02 IDENTIFY SECTORS WHERE ENERGY PRODUCTIVITY IS IMPORTANT

**From an initial list of 47 industrial sub-sectors, analysts identified 17 where company energy productivity was most material.**

In order to provide investors with useful analysis of key industrial sectors and key companies within those sectors, analysts first identified sectors where energy productivity was likely to have significant impact. This assessment was based on three key energy measures for companies within a sector:

- > **Sensitivity to energy costs:** How significant are energy costs compared to profit margins?
- > **Magnitude of energy efficiency opportunity:** How large are these companies' energy bills and how much could they save by improving energy productivity in line with best performing peers?
- > **Strategic importance to investors:** How large is the sector, and how prominent are carbon management issues?

The table at right presents results of this assessment, shown as overall sector scores. The higher the score, the greater the materiality of energy productivity risks and opportunities for that sector. Further detail available through the Technical Report at [energyproductivity.net.au](http://energyproductivity.net.au).

### Shortlisted industrial sectors

Sectors	Score
Steel	3.55
Marine	3.33
Airlines	3.28
Integrated Oil & Gas	3.22
Oil & Gas Refining & Marketing	2.99
Construction Materials	2.96
Gas Utilities	2.92
Multi-Utilities	2.69
Diversified Metals & Mining	2.59
Diversified Chemicals	2.54
Paper & Forest Products	2.45
Building Products	2.45
Commodity Chemicals	2.43
Aluminum	2.42
Automobiles	2.21
Air Freight & Logistics	2.08
Electronic Equipment	2.06

### Six sectors analysed in detail

This project analysed companies within six of the 17 sectors initially prioritised (based on data availability). Methodology developed for this representative sample could be extended to other sectors.



STEEL



AIRLINES



CONSTRUCTION  
MATERIALS



PAPER



CHEMICALS



AUTOMOBILES

## 03 IDENTIFY COMPANIES WITH WHICH TO ENGAGE

Reviewing the six sector indices below, identify portfolio companies and consider recommended actions for each.

The indices below summarise recommendations to investors regarding each company analysed across the six sectors. Companies are categorised into one of four colours, based on publicly available information provided to CDP.

### Airlines

Company	Rating
United Continental Holdings	83%
Finnair	74%
Southwest Airlines Co.	70%
Air New Zealand	59%
Air France - KLM	41%
Korean Air	39%
Air Canada	37%
British Airways	35%
Delta Air Lines	34%
Qantas Airways Ltd	31%
Cathay Pacific Airways Limited	14%
American Airlines Group Inc	13%
7 companies with incomplete/insufficient data provided to CDP to conduct analysis (Aer Lingus Group PLC, Asiana Airlines, easyJet, Gol Linhas Aereas Inteligentes S.A., TAM S.A., Virgin Australia Holdings, WestJet Airlines Ltd.).	
All other companies did not respond to CDP	
5 companies reviewed but excluded from analysis (Air Partner Plc, Hong Kong Aircraft Engineering, IBERIA, International Consolidated Airlines Group, S.A., SAS).	

#### Satisfactory data

- Positive results, could discuss potential to optimise: Indicates company showed strong performance on most metrics considered and material effort in energy productivity and efficiency. Indicates relatively low risks related to energy costs.
- Request clarification of results and discuss potential to improve: Company shows medium to low performance on several metrics. Increased effort to improve energy productivity and efficiency could potentially deliver material financial benefit - alternatively, external factors/incomplete reporting may explain observed results. Recommend further inquiry to clarify and assess potential financial gain.

#### Insufficient data

- Results provisional due to data uncertainty, request additional data to confirm rating: One or more metric with low quality or incomplete data reported; request for better data is recommended before validating results.
- Data provided is insufficient to conduct analysis, require more information: Company provided insufficient information to assess energy productivity and efficiency performance. Given the materiality of potential risks and opportunities, a request for more information is recommended.

#### Not included in analysis

- Out of scope: Different type of activity, or low energy cost making analysis too uncertain.

### Automobiles

Company	Rating
BMW AG	68%
Daimler AG	68%
Fiat	68%
Hyundai Motor	60%
Toyota Motor Corporation	57%
Renault	56%
Mahindra & Mahindra	55%
Volkswagen AG	51%
Mazda Motor Corporation	43%
Nissan Motor Co., Ltd.	37%
General Motors Company	34%
Honda Motor Company	33%
Ford Motor Company	30%
PSA Peugeot Citroen	30%
5 companies with incomplete/insufficient data provided to CDP to conduct analysis (Dr. Ing. h. c. F. Porsche AG, Fuji Heavy Industries Ltd., Jaguar Land Rover Ltd, Mitsubishi Motors Corporation, TOFAŞ TÜRK OTOMOBİL FABRİKASI A.Ş.).	
All other companies did not respond to CDP	
6 companies reviewed but excluded from analysis (Astra International, Magna International, MARTINREA INTERNATIONAL INC., Navistar International Corporation, TOYOTA CAETANO, Williams Grand Prix Engineering Limited).	

### Chemicals

Company	Rating
Solvay S.A.	95%
Sumitomo Chemical Co., Ltd.	82%
Kuraray Co., Ltd.	73%
Kemira Corporation	62%
Lotte Chemical	53%
Wacker Chemie AG	52%
Mitsubishi Chemical Holdings Corporation	50%
Linde AG	48%
Mitsui Chemicals, Inc.	44%
Teijin Ltd.	40%
Ercros	37%
Toray Industries, Inc.	32%
Hanwha Chemical	18%
22 companies with incomplete/insufficient data provided to CDP to conduct analysis (Agrium Inc., ALTANA AG, ARKEMA, Cabot Corporation, Cheil Industries, Daicel Chemical Industries, Ltd., DIC Corporation, Eastman Chemical Company, Formosa Plastics (US), Hyosung Corporation, JSR Corporation, KP Chemical Corp, Methanex Corporation, OCI Company Ltd, Orica Ltd, PPG Industries, Inc., SamsungFineChem, Toyobo Co., Ltd., Ube Industries, Ltd., Woongjin Chemical Co., Ltd., LG Chemical, PETKIM PETROKİMYA HOLDİNG A.Ş.).	
All other companies did not respond to CDP	
17 companies reviewed but excluded from analysis (E.I. du Pont de Nemours and Company, AECI Ltd Ord, Akzo Nobel, Asahi Kasei Corporation, BASF SE, Dow Chemical Company, Essentra, FujiFilm Holdings Corporation, Hanwha Corp., Hitachi Chemical Company, Ltd., Nisshinbo Holdings Inc., Nitto Denko Corporation, PTT Global Chemical, Shin-Etsu Chemical Co., Ltd., SK Chemicals, Symrise AG, Valspar Corporation).	



## STRONG ENERGY SAVINGS FOR STEEL

Despite operating in an energy intensive sector, steel company Arcelor Mittal is demonstrating that greater energy efficiency is not only possible, it delivers clear financial benefit. While there is still room for improvement, they have strengthened energy management across the business and focused in particular on identifying opportunities

to reduce energy losses through better monitoring of their energy use. As a result of those efforts and investments in R&D, they achieved close to US \$200 million in energy savings in 2014.

Reference: [corporate.arcelormittal.com/~media/Files/A/ArcelorMittal/sdr-2015/sdr-report-pdf-files/sustainability-](http://corporate.arcelormittal.com/~media/Files/A/ArcelorMittal/sdr-2015/sdr-report-pdf-files/sustainability-)

### Construction materials

Company	Rating
Imerys	76%
Pretoria Portland Cement Co Ltd	68%
ACC	62%
Marshalls	57%
Cementir Holding SpA	57%
Ultratech Cement	51%
Italcementi	51%
HeidelbergCement AG	40%
Buzzi Unicem	25%
CEMEX	21%
Lafarge	18%
Boral	8%
7 companies with incomplete/insufficient data provided to CDP to conduct analysis (Ecocem, KONYA ÇİMENTO SANAYİİ A.Ş., Taiheiyo Cement Corporation, Ambuja Cements, Holcim, AKÇANSA ÇİMENTO SANAYİ VE TİCARET A.Ş., ÇİMSA ÇİMENTO SANAYİ VE TİCARET A.Ş.).	
All other companies did not respond to CDP	
2 companies reviewed but excluded from analysis (CRH Plc, Fletcher Building).	

### Paper

Company	Rating
Svenska Cellulosa Aktiebolaget	89%
Mondi PLC	66%
Smurfit Kappa Group PLC	63%
MeadWestvaco Corp.	48%
Metsä Board	48%
International Paper Company	45%
Klabin S/A	43%
Ahlstrom Corporation	38%
Stora Enso Oyj	36%
Sappi	35%
Holmen	28%
UPM-Kymmene Corporation	17%
13 companies with incomplete/insufficient data provided to CDP to conduct analysis (FIBRIA Celulose S/A, Adveo, Arkhangelsk Pulp and Paper Mill, Catalyst Paper, Domtar Corporation, Empresas CMPC, Nippon Paper Group Inc, Nippon Paper Industries Co Ltd, Norske Skog, PaperlinX Ltd, Resolute Forest Products Inc., Shenzhen MYS Environmental Protection&Technology Company LTD, Suzano Pulp and Paper S.A.).	
All other companies did not respond to CDP	
1 company reviewed but excluded from analysis (Hansol Paper Co., Ltd.).	

### Steel

Company	Rating
Hyundai Steel	93%
United States Steel Corporation	62%
Arcelor Mittal	51%
JSW Steel	41%
China Steel	38%
Tata Steel	26%
POSCO	18%
19 companies with incomplete/insufficient data provided to CDP to conduct analysis (Alba SE, APERAM, Arrium, Bekaert NV, BlueScope Steel Ltd, Cia. Siderurgica Nacional - CSN, Essar Steel Group, Fortescue Metals Group, Gindalbie Metals, Highveld Steel And Vanadium Corporation Limited, Hill & Smith Holdings, Höganäs AB, JFE Holdings, Inc., KARDEMİR KARABÜK DEMİR ÇELİK SANAYİ VE TİCARET A.Ş., Kobe Steel, SSAB, Sumitomo Metal Industries, Ltd., Sundance Resources, Welspun-Gujarat Stahl Rohren).	
All other companies did not respond to CDP	
6 companies reviewed but excluded from analysis (ACERINOX, Arcelor Mittal South Africa Ltd, Cliffs Natural Resources Inc, Outokumpu Oyj, Sims Metal Management Limited, United Industries).	

### Satisfactory data

- Positive results, could discuss potential to optimise: Indicates company showed strong performance on most metrics considered and material effort in energy productivity and efficiency. Indicates relatively low risks related to energy costs.
- Request clarification of results and discuss potential to improve: Company shows medium to low performance on several metrics. Increased effort to improve energy productivity and efficiency could potentially deliver material financial benefit - alternatively, external factors/incomplete reporting may explain observed results. Recommend further inquiry to clarify and assess potential financial gain.

### Insufficient data

- Results provisional due to data uncertainty, request additional data to confirm rating: One or more metric with low quality or incomplete data reported; request for better data is recommended before validating results.
- Data provided is insufficient to conduct analysis, require more information: Company provided insufficient information to assess energy productivity and efficiency performance. Given the materiality of potential risks and opportunities, a request for more information is recommended.

### Not included in analysis

- Out of scope: Different type of activity, or low energy cost making analysis too uncertain.

# MEASURE COMPANY PERFORMANCE AGAINST COMPETITORS

Each sector index provides investors with a comparison of their portfolio company's performance relative to its peers.

To illustrate, comparisons within the airline sector only are shown here – comparisons across all six sectors can be found at [energyproductivity.net.au](http://energyproductivity.net.au). Comparisons for companies within each sector are presented in two separate charts. The first chart shows composite scores for each company against three key measures. These scores are scaled from 0-100%, depending on each company's energy productivity performance. A higher score reflects better performance and encompasses three underlying metrics:

**1. Resilience to energy cost** measured through how much a company spends on energy and its profitability. A company that spends less on energy and has greater profitability is more resilient to changes in its market environment, including energy prices and revenue.

**2. Energy productivity outcome** measured through a company's current ability to generate revenue or increase its production per unit of energy used, and how this has trended in recent years.

**3. Energy efficiency performance** measured because energy productivity can be influenced by many factors, some of which are beyond the direct control of a company. It includes energy savings achieved in a year and the potential for additional financial benefit, if the company matched the energy efficiency of leading performers in that sector.

Our analysis shows that combined these metrics combined provide a better indication of company's overall energy performance and potential for improvement than revenue per gigajoule of final energy used alone.

## Airline company scores against key measures

Company	General Rating	Energy cost resilience	Energy productivity outcome	Energy efficiency performance
United Continental Holdings	83%	<div><div></div></div>	25% <div><div></div></div>	94% <div><div></div></div> 100%
Finnair	74%	<div><div></div></div>	0% <div><div></div></div>	84% <div><div></div></div> 100%
Southwest Airlines Co.	70%	<div><div></div></div>	42% <div><div></div></div>	58% <div><div></div></div> 91%
Air New Zealand	59%	<div><div></div></div>	37% <div><div></div></div>	80% <div><div></div></div> 52%
Air France - KLM	41%	<div><div></div></div>	2% <div><div></div></div>	78% <div><div></div></div> 29%
Korean Air	39%	<div><div></div></div>	8% <div><div></div></div>	21% <div><div></div></div> 67%
Air Canada	37%	<div><div></div></div>	29% <div><div></div></div>	76% <div><div></div></div> 11%
British Airways	35%	<div><div></div></div>	28% <div><div></div></div>	58% <div><div></div></div> 20%
Delta Air Lines	34%	<div><div></div></div>	31% <div><div></div></div>	32% <div><div></div></div> 38%
Qantas Airways Ltd	31%	<div><div></div></div>	0% <div><div></div></div>	82% <div><div></div></div> 4%
Cathay Pacific Airways Limited	14%	<div><div></div></div>	17% <div><div></div></div>	30% <div><div></div></div> 0%
American Airlines Group Inc	13%	<div><div></div></div>	32% <div><div></div></div>	0% <div><div></div></div> 14%
7 companies	Incomplete/insufficient data provided to CDP to conduct analysis (Aer Lingus Group PLC, Asiana Airlines, easyJet, Gol Linhas Aereas Inteligentes S.A., TAM S.A., Virgin Australia Holdings, WestJet Airlines Ltd.).			
Non reporters	All other companies did not respond to CDP			
5 companies	Reviewed but excluded from analysis (Air Partner Plc, Hong Kong Aircraft Engineering, IBERIA, International Consolidated Airlines Group, S.A., SAS).			

### Satisfactory data

- Positive results, could discuss potential to optimise
- Request clarification of results and discuss potential to improve

### Insufficient data

- Results provisional due to data uncertainty, request additional data to confirm rating
- Data provided is insufficient to conduct analysis, require more information

### Not included in analysis

- Out of scope





The second chart below provides more detail, presenting the seven metrics underlying company scores.

Company performance in each metric has been colour-coded to reflect relative performance between companies. Each metric relates to one of three key measures and contributes to the score

based on the weights that have been assigned. The weighted average score determines a company's performance relative to others in the sector.

Detailed explanation of the methodology used is available at [energyproductivity.net.au](http://energyproductivity.net.au).

### Performance against each metric

Data is sourced from 2013-15 CDP responses and financial reports for corresponding years unless otherwise specified

Company	General Rating	Energy cost resilience		Energy productivity outcome		Energy efficiency performance			Additional information
		Weights		20%	15%	15%	15%	15%	
		Energy cost estimate, % opex (latest)	Profitability, EBIT / Revenue	Energy productivity, \$'000 Revenue / GJ	Energy productivity, Average annual % change (earliest to latest)	Savings per year, % est. energy cost	Potential financial uplift (% EBIT) if reach top quintile	Potential financial uplift (% EBIT) if reach second quintile	Emissions reduction from energy efficiency activities, % gross scope 1 & 2 emissions
~ United Continental Holdings	83%	35-40%	5.0%	0.09	16.6%	1.42%	0.2%	0.0%	2.0%
Finnair	74%	30-35%	-0.2%	0.10	1.2%	1.49%	0.0%	0.0%	3.7%
Southwest Airlines Co.	70%	30-35%	8.4%	0.07	5.2%	0.92%	2.1%	0.2%	0.9%
^ Air New Zealand	59%	25-30%	6.6%	0.10	0.3%	0.40%	3.9%	2.1%	0.4%
Air France - KLM	41%	40-45%	0.4%	0.09	1.8%	0.88%	90.4%	13.8%	1.6%
Korean Air	39%	40-45%	1.7%	0.06	0.0%	1.01%	11.5%	0.0%	1.1%
Air Canada	37%	25-30%	4.9%	0.09	-0.5%	0.08%	7.3%	4.7%	0.3%
British Airways	35%	30-35%	5.6%	0.07	9.9%	0.20%	6.8%	4.2%	0.2%
Delta Air Lines	34%	30-35%	6.2%	0.07	-1.1%	0.39%	5.8%	3.1%	0.5%
Qantas Airways Ltd	31%	30-35%	-2.4%	0.08	4.4%	0.22%	-16.5%	-9.9%	0.3%
Cathay Pacific Airways Limited	14%	35-40%	3.4%	0.05	1.9%	0.00%	16.1%	10.6%	0.0%
American Airlines Group Inc	13%	30-35%	6.5%	0.06	-5.1%	0.04%	6.8%	4.5%	0.1%

### Performance legend

Cells were color-coded based on 0-100% scores attributed to companies for each metric\*

	High > 75%	> 50%	> 25%	Low < 25%
Energy cost resilience				
Energy productivity outcome				
Energy efficiency performance				

Low quality/uncertain data

Uncertain data 1.49%

^ Latest CDP responses forthcoming

~ High annual % change in Energy Productivity suspected. Data from annual report filings suggest 4.5% p.a.

\* Detailed translation of metrics into scores is presented in the Technical Report at [energyproductivity.net.au](http://energyproductivity.net.au)



## 04 STEPS TO ENGAGE WITH COMPANIES

**When engaging with companies, it is important to first clarify their performance, then discuss how it might be improved.**

### Seeking clarification on a company's performance

As mentioned previously, the assessment presented in the Index is based on company responses to CDP and only for the years 2013, 2014 and 2015. The first step in engaging with a company therefore, should be to clarify whether the data reported

accurately reflects all company activity or whether it is compromised (due to issues such as incomplete reporting or external factors). This allows investors to reassess company performance based on additional information provided. Where results indicate a lower performance by a company when compared to its peers, it may be particularly helpful to learn how the results were calculated.

#### QUESTIONS FOR COMPANIES

1. Are you reporting on energy-related issues comprehensively and accurately in public reports?
2. How do your current efforts to improve energy efficiency and energy productivity compare with your peers?

*If current efforts are relatively low compared to your peers:*

3. Are legitimate factors producing a lower-than-expected result?

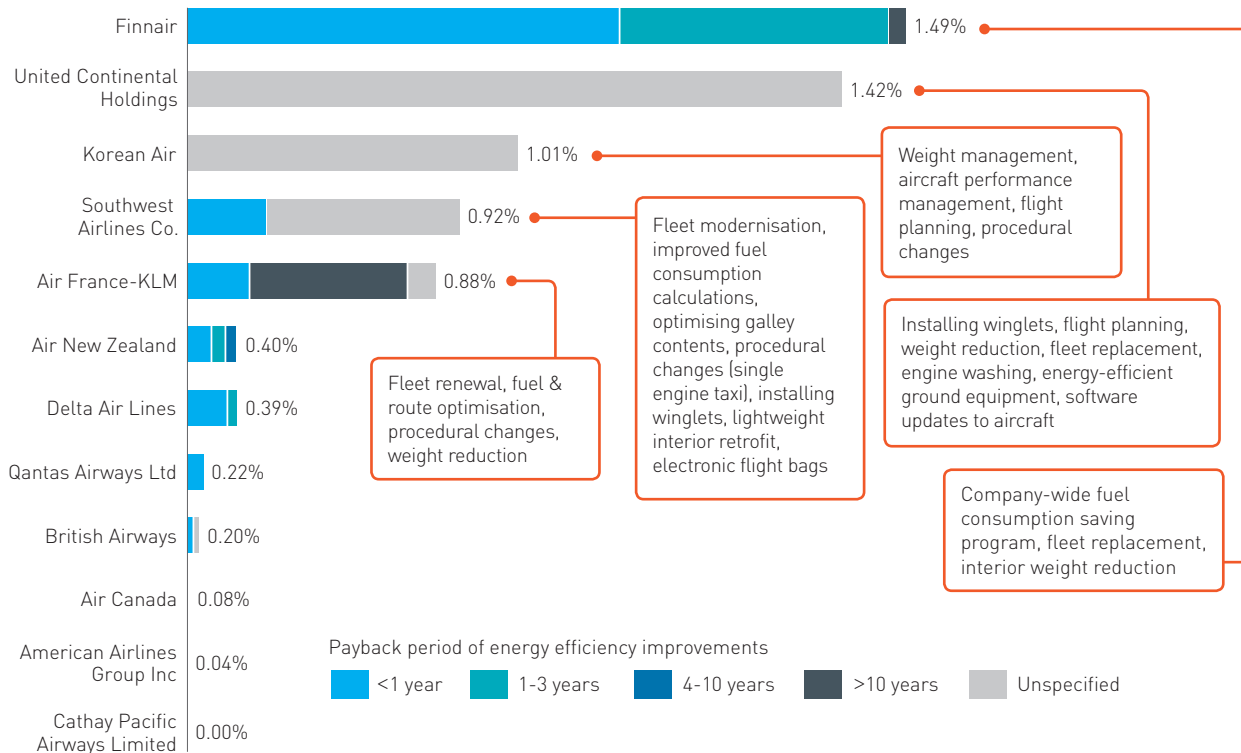
4. Have you considered every improvement opportunity? For example, the graph at right presents energy efficiency improvements that airline companies included in the analysis have implemented over the past two years.

Further details on reporting and energy efficiency improvements are accessible at [energyproductivity.net.au](http://energyproductivity.net.au).



## Energy savings shown as percentage of energy cost, coloured by payback period

Energy efficiency improvements detailed in callout boxes



## What to ask of companies where low performance is identified

In the event that a company is confirmed to be underperforming against its peers, investors can make several suggestions to drive improvements.

### QUESTIONS FOR COMPANIES

1. Are your future plans to improve energy efficiency and energy productivity ambitious enough?

*For example, best in class companies in our analysis have achieved annual improvements >1% of energy bills*

2. What processes do you have in place to ensure your plans are implemented effectively?

Previous research by ClimateWorks Australia and other existing literature has shown that internal energy management practices can drive effective identification and implementation of energy efficiency opportunities. Examples of these are provided below.

### Collecting and managing energy data

This involves regular, systematic collection and analysis of energy data to improve the company's understanding of their energy productivity in the first instance and provide greater transparency and better reporting to shareholders.

### Driving greater energy productivity from the top

Strong, visible senior leadership with active oversight, support and accountability for energy management to send positive signals to shareholders and prioritise future business decisions.

### **Establishing a supportive culture**

Provide a positive perception of energy efficiency that is well-aligned across the organisation and included in the core business strategy, corporate policies or operational guides, as an effective mechanism for driving greater energy productivity.

#### **A CULTURE OF COLLABORATION DRIVING ENERGY PRODUCTIVITY**

Across the BMW Group, environmental improvements that prove effective at one location are implemented at other locations where possible. This is supported by a multidisciplinary energy competence centre, bringing together technical experts from different plants and specialists from Corporate Environmental Protection. This centre informs future planning and process improvements.

This has led to a 36% reduction in energy consumption from vehicle production (per vehicle average) since 2006, now down to 2.19 MWh per vehicle. In the face of rising energy prices in the short term, this reduction in energy costs contributes significantly to the BMW Group becoming more profitable and competitive.

Reference: [www.bmwgroup.com/content/dam/bmw-group-websites/bmwgroup\\_com/responsibility/downloads/en/2015/BMW\\_SVR\\_2015\\_RZ\\_EN.pdf](http://www.bmwgroup.com/content/dam/bmw-group-websites/bmwgroup_com/responsibility/downloads/en/2015/BMW_SVR_2015_RZ_EN.pdf)

### **Valuing energy efficiency projects**

This could include comprehensive and appropriate financial evaluation of energy efficiency projects to allow them to compete fairly with other investment opportunities. This involves recognising the wider benefits of these projects such as reduced energy and climate risks, as well as improvements in productivity or working environments.

### **Setting ambitious goals and targets**

Implementing public 'specific, measurable, assignable, realistic and time related' (SMART) energy efficiency goals or targets across the organisation's business units.

Implementing these practices can help ensure companies take advantage of all profitable opportunities available to them and see continuous improvement of their energy performance.

### **Ways to engage with underperforming companies**

After using the Index to identify companies with whom to engage and gather company-specific information, investors can use these findings to develop letters or pursue other forms of engagement. In the U.S., the process typically starts with letters to companies. This can be followed by more formal processes, should companies not respond.

The infographic on the following page offers a general guide for investors seeking to engage with companies. Specific engagement mechanisms may vary between geographic regions.





## Engagement process

### 1. Identify companies for engagement



### 2. Make initial contact with companies

(Letter, phone call, in-person meeting)



### 3. Company response



If company is unresponsive or responds negatively, consider escalating actions. Examples include:

- > Further direct communication or meetings: board director, or the CEO
- > Collaborative engagement: participate in large shareholder coalitions to elevate an issue
- > Proxy voting
- > Filing shareholder resolution

## 05 TOOLS AND RESOURCES

### Sector summary results



AIRLINES



AUTOMOBILES



CHEMICALS



CONSTRUCTION  
MATERIALS



PAPER



STEEL

### Technical report



### Do-it-yourself benchmarking guide



[energyproductivity.net.au](http://energyproductivity.net.au)



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## FOR FURTHER INFORMATION ABOUT THIS PROJECT CONTACT CLIMATEWORKS AUSTRALIA

**Wei Sue**

**Senior Analyst**

Email: [wei.sue@climateworksaustralia.org](mailto:wei.sue@climateworksaustralia.org)

**Amandine Denis**

**Head of Research**

Email: [amandine.denis@climateworksaustralia.org](mailto:amandine.denis@climateworksaustralia.org)

**Anna Skarbek**

**CEO**

Email: [anna.skarbek@climateworksaustralia.org](mailto:anna.skarbek@climateworksaustralia.org)

**This report was authored by:**

Amandine Denis

Wei Sue

Tom Yankos

Nicky Robinson

For more information about the CDP dataset which was used for this analysis, please contact the CDP team on [respond@cdp.net](mailto:respond@cdp.net)