

ENERGY PRODUCTIVITY INDEX FOR COMPANIES

May 2016
Final

CHEMICAL SECTOR SUMMARY



ABOUT THIS SUMMARY

This sector summary is one of a series of six sector fact sheets to be used in conjunction with the guide for investors titled, *Could boosting energy productivity improve your investment performance?* These companion pieces are the result of analysis under

the *Energy Productivity Index for Companies* project, designed to help investors identify key sectors and portfolio companies within those sectors, where improving energy productivity can deliver significant benefits to companies and their value as investments.

RESULTS SNAPSHOT

- > Energy costs and profit margins varied in this sector, so exposure to energy-related risks varies across companies
- > Solvay S.A. demonstrated the best overall energy performance by delivering the highest weighted average score across all measures
- > Owing to the diverse product mix between companies, there is a wide range of energy productivity (when measured as revenue per gigajoule of final energy used - as per table on page 3), so this metric has not been taken into account in calculating each company's general rating
- > Changes in energy productivity of companies in recent years varied, showing improvements of up to 20% or deteriorations of up to -25% per annum
- > Solvay and Ercros achieved the highest energy savings in the sector, equivalent to 1.4% and 0.7% of their annual energy costs per year, respectively
- > Achieving energy savings equivalent to the average of those two companies (top 20%) could deliver up to 18% boost to lower performing chemical companies' annual profits
- > US \$366 million annual savings were achieved across the sector through energy efficiency improvements
- > Sector improvements required an estimated US \$389 million in capital investment. When annualised, this is approximately equivalent to 17% of annual cost savings
- > Improvements implemented by reporting companies also achieved significant emissions reductions. For each 1% reduction in energy costs achieved, emissions were reduced by 2.1%.

Summaries available for six sectors



AIRLINES



AUTOMOBILES



CHEMICALS



CONSTRUCTION
MATERIALS



PAPER



STEEL

COMPARING COMPANIES IN THE CHEMICALS SECTOR

The Energy Productivity Index compares companies in each sector based on three measures – **Resilience to energy cost**, **Energy productivity outcome**, and **Energy efficiency performance**.

Chemical company scores against key measures

Company	General Rating	Energy cost resilience	Energy productivity outcome	Energy efficiency performance
Solvay S.A.	95%	74%	100%	100%
Sumitomo Chemical Co., Ltd.	82%	50%	100%	83%
Kuraray Co., Ltd.	73%	88%	48%	87%
Kemira Corporation	62%	43%	41%	86%
Lotte Chemical	53%	25%	8%	100%
Wacker Chemie AG	52%	64%	47%	50%
Mitsubishi Chemical Holdings Corporation	50%	53%	47%	50%
Linde AG	48%	54%	1%	81%
Mitsui Chemicals, Inc.	44%	32%	100%	5%
Teijin Ltd.	40%	26%	100%	0%
Ercros	37%	13%	14%	67%
Toray Industries, Inc.	32%	66%	0%	41%
Hanwha Chemical	18%	34%	15%	14%
22 companies	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 PETROKIMYA HOLDING A.Ş.).			
Non reporters	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).			

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; different type of activity, or low energy cost making analysis too uncertain

For further details on identifying companies to engage with and how to measure a company's performance against its competitors, refer to section 03 of the [Guide for Investors](#).

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 CDP, complemented with other voluntary company reporting where required. This leads to potential limitations as outlined on page 2 of the Guide for Investors.



Guide for Investors and Technical Report available at energyproductivity.net.au



Using data from CDP, companies were scored and ranked based on their performance against seven metrics (presented in the table below) which underpin the measures shown on the previous graph.



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	10%	10%	0%	35%	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
Solvay S.A.	95%	10-15%	9.1%	0.12	12.7%	1.39%	0.0%	0.0%	2.1%
Sumitomo Chemical Co., Ltd.	82%	5-10%	2.5%	1.27	19.7%	0.41%	1.8%	0.1%	1.2%
Kuraray Co., Ltd.	73%	5-10%	12.4%	0.27	-0.2%	0.41%	0.3%	0.0%	0.9%
Kemira Corporation	62%	10-15%	2.7%	0.24	-0.9%	0.47%	2.6%	0.0%	0.7%
\$ Lotte Chemical	53%	20-25%	2.6%	0.16	-4.2%	5.58%	0.0%	0.0%	1.6%
Wacker Chemie AG	52%	5-10%	5.3%	0.19	-0.3%	0.02%	2.0%	0.8%	3.8%
Mitsubishi Chemical Holdings Corporation	50%	5-10%	3.2%	0.26	-0.3%	0.06%	2.2%	0.9%	0.1%
Linde AG	48%	25-30%	11.9%	0.09	-4.9%	0.38%	1.3%	0.1%	0.6%
Mitsui Chemicals, Inc.	44%	10-15%	0.6%	0.24	5.1%	0.18%	15.6%	4.9%	0.9%
Teijin Ltd.	40%	15-20%	0.9%	0.35	10.3%	0.04%	14.3%	5.8%	0.2%
*** Ercros	37%	20-25%	0.1%	0.10	-3.6%	0.68%	18.0%	0.0%	0.5%
Toray Industries, Inc.	32%	5-10%	5.6%	0.24	-25.5%	0.23%	5.3%	1.4%	0.5%
Hanwha Chemical	18%	10-15%	1.0%	0.44	-3.5%	0.21%	9.7%	2.8%	0.4%

Performance legend

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

	High > 75%	> 50%	> 25%	Low < 25%
Energy cost resilience	Dark Blue	Medium Blue	Light Blue	Very Light Blue
Energy productivity outcome	Dark Blue	Medium Blue	Light Blue	Very Light Blue
Energy efficiency performance	Dark Blue	Medium Blue	Light Blue	Very Light Blue

Low quality/uncertain data

Uncertain data

0.47%

** OPEX not available, estimate based on industry average OPEX/Revenue ratio

\$ Excluded from quintile analysis (outlier)

EBIT averaged over latest 4 years

* Detailed translation of metrics into scores is presented in the Technical Report (energyproductivity.net.au/resources)

ENGAGING WITH COMPANIES

1. Seek clarification on a company's performance

Start with metrics that are incomplete or appear to indicate lower performance. As an indication of a company's current efforts, energy efficiency activities that have been implemented by others in this sector are presented below to help identify whether a company is considering all areas worth investigating.

2. What to ask of companies where low performance is identified

Once a company's performance has been confirmed (or re-assessed after additional information), investors can suggest a range of internal energy management practices which could improve that company's performance.

3. Ways to engage with underperforming companies

Where further engagement with companies is required, refer to section 04 of the **Guide for Investors** which suggests questions that companies could be asked and internal energy management practices they might consider.

Nearly 75% of the energy efficiency opportunities implemented by companies in the chemicals sector have a less than 3 year payback, or an equivalent of about 50% internal rate of return.

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

Energy efficiency improvements detailed in callout boxes

