

**Case Studies**  
Cleaner Production (CP) and Energy Efficiency (EE) Toolkit  
Summary Table of Internet Sources

Name and Internet Link	Content and Scope	Industry Sectors Covered (# of case studies)	Technologies Covered	Country or Region	Target Group	Year Developed	Developer	Format	Comments
<p>The Carbon Trust (formerly Action Energy) <a href="http://www.thecarbontrust.co.uk/energy">www.thecarbontrust.co.uk/energy</a></p> <p>(click on Publications in the left-hand menu, then on a category search such as Industry or Technology)</p>	<p>Case studies: very thorough on technical, implementation process, and other issues. Other resources: technology fact sheets, benchmarking, best practice guides, future practice profiles and reports, new practice profiles and reports, posters and stickers, videos and software, general info leaflets and reports, etc.</p>	<p>Ceramics (7), cement (4), chemical (11), pulp/ paper (10+), iron/ steel (20+), and other non-Geriap sectors.</p>	<p>Most EE technologies are covered and accessible via the site's search engine. Publications are also grouped in technology folders: comp air, CHP, cooling, distillation, drying, evaporation, glazing, heating, lighting, maintenance, motors &amp; drives, ovens/ kilns/ furnaces, process control, refrigeration, ventilation, etc.</p>	<p>United Kingdom</p>	<p>Industrial engineers and managers</p>	<p>1980s to present</p>	<p>Govt of UK</p>	<p>.pdf docs</p>	<p>Very relevant to GERIAP, with great variety and depth of materials in addition to case studies and BP guides. The technology and industry sector folders provide a large list of publications including many that are outside the selected category. So the site requires a lot of sifting through to find what you want. But there is a much greater variety of material than most other sites provide. To access publications, users must register and obtain a userID, but there is no charge for registration.</p>
<p>CADDET <a href="http://www.caddet.org">www.caddet.org</a></p> <p>(click on Technologies in the left-hand menu, then select a technology, and when directed to the search engine, specify further such as by industry)</p>	<p>Case studies: thorough and detailed, and searchable by industry, technology, country etc. Other resources: technical brochures, technology guides, detailed project reports, quarterly newsletter which itself has detailed case studies, and other information sources are available, sourced from CADDET and other organizations.</p>	<p>Cement (3), ceramics (10), chemicals (50+), iron/ steel (70+), pulp/ paper (30+), and other non-GERIAP industries</p>	<p>Most EE technology areas are covered, grouped into the following categories: CHP, electrical, energy distribution, energy mgt, engines and transmission, heat recovery, high temp technologies, industrial technologies, lighting</p>	<p>Global, though focusing on CADDET partner countries (OECD)</p>	<p>All EE stakeholders</p>	<p>1980s to present</p>	<p>IEA (International Energy Agency, OECD)</p>	<p>.pdf docs and some by mail order</p>	<p>This large number of case studies in GERIAP industries make this a valuable site, but its other technology-oriented resources are also valuable. Due to the sheer size of its database, it is not quite as easy to use as some other sites, but is worth the time spent in working through it.</p>
<p>Canada Office of Energy Efficiency <a href="http://www.oeenrncan.gc.ca">www.oeenrncan.gc.ca</a></p> <p>(under For Business Use, click on Industrial; click on Planning Energy Efficiency Projects; click on Access Publications about Buildings and Industry)</p>	<p>Case studies: mostly brief summaries. Other resources: benchmarking reports, best practice guides, newsletters, and technology-specific tools.</p>	<p>Cement and lime, chemical and fertilizer, pulp/ paper, steel and foundry, and others</p>	<p>Technologies are covered within the industry sectors. Cross-cutting products are offered for motors, transformers, lighting, and HVAC.</p>	<p>Canada</p>	<p>Industry professionals</p>	<p>1980s to present</p>	<p>Natural Resources Min of Canada</p>	<p>.pdf and .html docs</p>	<p>Most GERIAP industries are covered extensively. However, EE technology resources and case studies focus on the needs of Canadian industries. Users may need to consider how climate, raw material inputs, and processes may differ from those in GERIAP countries.</p>
<p>Energy Efficiency gateway of US DOE Energy Efficiency and Renewable Energy Portal <a href="http://www.eere.energy.gov/EE/industry">www.eere.energy.gov/EE/industry</a></p> <p>for case studies: <a href="http://www.oit.doe.gov/bestpractices/case_studies.shtml">www.oit.doe.gov/bestpractices/case_studies.shtml</a></p>	<p>Case studies: comprehensive in content detail. The site includes project reports under several headings--case studies, showcase demonstrations, and project fact sheets. Other resources: decision software and other software tools for several EE technologies, evaluation guides, industry sector overviews, technology assessments, benchmark data, EE tips, R&amp;D projects, future technology trend assessments, best practice guides, newsletters, etc.</p>	<p>Steel (100+), chemical (100+), pulp/paper (100+), cement (3+), ceramics (1+) Other non-GERIAP industries</p>	<p>Industry-specific tech by sector Cross-cutting tech areas: - motors - CHP - comp. air - process heat - sensors &amp; controls - continuous fiber ceramic composites</p>	<p>USA</p>	<p>Industry and others</p>	<p>Ongoing</p>	<p>US Dept of Energy</p>	<p>.PDF pubs</p>	<p>Very comprehensive source in multiple formats and types of tools. The strongest GERIAP industry sector areas are iron/steel and chemicals. Paper is found under the heading of forest products; ceramics and cement are found under the mining heading. Cross-cutting technology materials in energy systems (motor drives, compressed air, steam systems, process heat) are highly relevant and particularly rich in content and user-responsiveness. USDOE offers further resources for some of these technologies on separate program websites via links.</p>

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Energy Manager Training www.energymanagertraining.com  (for case studies: www.energymanagertraining.com/new_best_practices_main.php or click on Learning from top left menu; then Case Studies/Best Practices)	Case studies: extensive, applying to all GERIAP industries and relevant technologies, though not uniform in content detail. The site also provides incentives for users to submit their case study materials, and so much material is very current. Other resources: technical papers, equipment and process descriptions, definition of technical terms, newsletter, event and training calendar, etc., organized by industry or technology.	Cement (9), chemical (15), pulp/ paper (3), iron/steel (6), and many other non-GERIAP sectors	Process technologies as well as motor systems (fan, pump, comp), compressed air, steam, boilers & furnaces, controls, refrigeration, etc.	India. Some case studies from US and other countries	Energy managers	2004 and ongoing	GTZ	.pdf docs for download and .html docs for viewing on site	This site is dynamic and, via its wealth of case study and technical materials centered on experience in India, is particularly useful for practitioners in Asia. The case studies are mostly well-prepared and thorough regarding technical content. Most GERIAP industries are covered as well as cross-cutting technologies, and there is much other useful information. Visitors to the website must obtain a userID and log in each time they visit the site, but there is no charge for registration and the process is both easy and quick.
Environmental Information Centre www.cleantechindia.com	Case studies: variable level of content, but numerous in many GERIAP industries. Other resources: equipment and EE opportunity checklists, guides, manuals, best practice reports, technology overviews, etc.	Cement (10+), ceramics (1), chemicals (25+), iron/steel (10+), pulp/ paper (10+)	All EE and many pollution prevention or CP technologies. Case studies not organized by technology	India and international (including many from GERIAP countries)	All EE and environmental stakeholders	2003 to present	Govt of India, CII, USAID	mostly .html docs embedded in the website	This site encompasses green business, clean production, environmental management and related subjects in addition to energy efficiency. It is very informative, populated with many case studies from within the GERIAP region.
Envirowise Programme www.envirowise.gov.uk	Case studies: thorough content addressing both technical and implementation process details. Other resources: benchmarking studies, best practice guides, FAQ, newsletter articles, and reference notes relevant to the industry (legislation, industry trends, legal issues, etc.)	Ceramics (6), chemical (13), iron foundries (15), paper (6) and other non-GERIAP sectors	Wide variety of technology and approaches with broad scope (not specifically oriented to EE technologies)	United Kingdom	Industrial engineers and managers	na	Govt of UK	.pdf docs	Well-organized, user-friendly site that is very relevant for CP purposes, though generally does not address EE. The scope and quality of publications is excellent, hence providing a wide variety of materials. To access publications, users must register and obtain a userID, but there is no charge for registration.
International Cleaner Production Information Clearinghouse www.emcentre.com/unepweb/tec_case/	Case studies: CP and environmental case studies submitted by various programs and reviewed technically by UNEP. Descriptions are very brief, summarizing the company, application technology, and benefits in about 1 page. Focus on emission rather than energy impacts.	Cement (5), chemical (50+), pulp/ paper (70), iron/steel (6) and other non-GERIAP sectors.	Wide variety of technology and approaches; not oriented to EE technologies	Global	Industrial engineers and managers	1980s to early '90s	UNEP	.html docs	This site focuses on CP and environmental management, and few of the case studies are for EE technology applications. Many of the case studies are from developing countries.
UNEP Cleaner Production www.unep.org/pc/cp	Case studies: Generally provided via links to other sites, focusing on CP case studies and organized by industry sector. Other resources: Tools, finance and accounting materials, awareness and training materials are also provided.	Chemicals, metals, pulp/ paper, and selected other non-GERIAP sectors	Not organized by technology, but by industry sector	Global	All CP stakeholders, though primarily public CP program entities	na	UNEP	.pdf, MSWord, presentation formats	This site has a CP rather than EE orientation, in contrast to other websites.
Australia EE Best Practice Program www.industry.gov.au	Case studies: describe implementation process, projects, results in detail, with photos and informative descriptions. Other resources: Sector-specific best practice reports.	Pulp/Paper (1) Other non-GERIAP industries (Aluminum, bread, beverage, dairy, hotels, supermarket)	Paper-specific Cross-industry: - Motor drives	Australia	Industry managers	2000-03	Aus Dept Industry	.PDF pubs	This site provides excellent materials and description on program process development, and provides training resources. There is one very good case study in a GERIAP industry, in pulp/paper.

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Motor Decisions Matter <a href="http://www.motorsmatter.org">www.motorsmatter.org</a>	Case studies: thorough and informative, focusing on motor drive projects and establishment of EE motor procurement programs. Other resources: software tools, newsletters, planning materials, brochures and fact sheets, process development materials all to support in-company motor efficiency programs.	Paper (2), cement (1), and other industries	All focus on motor system improvements	USA	Industrial engineers and managers	Ongoing	US Dept of Energy	.PDF pubs, MS Excel-based software tools, .html docs	Excellent site that is very oriented to industrial users. It is an outgrowth of the US DOE's EERE motor program that has been going on for more than 10 years.
Sustainable Energy Authority Victoria <a href="http://www.sea.vic.gov.au">www.sea.vic.gov.au</a>	Case studies: brief (1-pg) yet complete. Other resources: technology information sheets, and energy and greenhouse management toolkit, and materials for developing an energy management system and assessing projects.	Chemicals (3), steel (2) and other non-GERIAP industries	Wide variety of technologies. Info sheets on cogen, comp air, heat recovery, steam systems, motor systems, energy mgt, lighting, refrigeration, insulation, office equipment, AC.	Australia	Industrial EE stakeholders, managers and others	na	Govt of Victoria, Aus	.pdf docs	An excellent source of good quality, focused materials, though lacking specific depth/breadth in GERIAP industries.
California Energy Commission Efficiency Division <a href="http://www.energy.ca.gov/process">www.energy.ca.gov/process</a>	Case studies: A few very detailed case studies on technology application, cost, implementation process, and results Other resources: Brochures and fact sheets for obtaining expert assistance from EPRI (Electric Power Research Institute)	Pulp/Paper (1) Clay products (1) Other non-GERIAP (electronics, plastics, food)	Low-mass kiln Reduced wastewater discharge Motor ASD applications	USA (CA)	Industry managers and engineers	1998-04		.PDF pubs	Two thorough case studies in GERIAP industries. Other reference material from EPRI is less useful because it is brief and intended as lead-in to obtain EPRI services at cost.
Northwest Energy Efficiency Alliance Industrial Projects <a href="http://www.nwalliance.org/projects">www.nwalliance.org/projects</a>	Case studies: This unique site provides case studies and comprehensive materials on the design, implementation, and results of 9 focused EE technology- and process-oriented programs primarily for the industrial sector. Under each program, an overview and extensive documentation and materials are provided. The program approaches are generally innovative and very attuned to industrial users' needs, on the basis of a thorough feedback and evaluation process. The materials are especially rich in description of project design and implementation process, incl mid-course adjustments, independent evaluations of program performance in terms of energy impacts and process approach, project details, including extensive collaborative work with suppliers, contractors, plant engineers, and other important project participants.	Some GERIAP industry case studies are provided, but the focus of the site is on case studies of EE programs.	Most applicable for cross-cutting tech in compressed air, motors and motor drives.	USA (Pacific Northwest region)	Industry, EE program managers and other stakeholders	Ongoing, though many of the individual programs are complete	NW Energy Efficiency Alliance (NGO)	.PDF pubs	This site is a rich source in process development and program design approach rather than a source for project case studies, though excellent best practice guidelines are provided. For several programs, the program documentation provided includes excellent case studies of projects implemented at industrial sites. This website provides excellent material for focus institutions that want guidance for EE program or service development, including promotion programs, particularly in terms of developing a demand-orientation, measuring results, and adapting approaches accordingly.

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Malaysian Industrial Energy Efficiency Improvement Project (MIEEIP) www.ptm.org.my/mieeip	Case studies: variable in level of detail. Reports on demonstration projects will be added as the projects are completed (now being selected). Other resources: Programme information on benchmarking, ESCO support, suppliers, promotion, audits, etc. Links to events and announcements relevant to the ASEAN region	Pulp/paper (3) and 5 other non-GERIAP industry areas Demo projects (in process) will include paper, cement, steel, rubber and other industries.	Compressed air, pump systems, boiler heat recovery, combustion efficiency, mechanical vapour recompression, microwave drying.	Malaysia, USA and Italy	Industrial engineers and managers	Ongoing	PTM, UNDP	.html docs	Very good Asia regional site that is still under development. Many of the case studies are taken from other sources (i.e., US and Italian), but incorporated in the site rather than as links. This site is an excellent example of options for GERIAP's web site. Much of the material though is still under development.
Wisconsin Focus on Energy www.focusonenergy.com	Case studies: Generally thorough and detailed. Other resources: EE technology fact sheets, training programs and agenda, an extensive, customizable template package for developing an energy management program, a benchmarking program, specialized services for target industries, tool lending library, information library, links to suppliers and contractors.	Case studies include iron/steel (1) and other industries, and industry focus materials for iron/steel, pulp/paper, and other non-GERIAP industries. Other resources are also provided for pulp/paper and metal casting, and other non-GERIAP industries.	Fact sheets available for some EE technologies	USA with focus on Wisconsin state	Home and business owners, EE product/service providers	Ongoing	US State of Wisconsin	.pdf pubs	This website has a local orientation for its industry programme and resources, meaning that it responds primarily to industrial processes that are prevalent in its regional market. But it is a good reference for the scope of services available for a regionally oriented industry programme and linkages to other broader programmes. Users must register with the program to obtain access to many of the materials.
Sustainable Alternatives Network www.sustainablealternatives.net	Case studies for many industries accessed from UNEP/UNDP-supported programs, but wide variation in content and level of detail.	Cement (3), chemicals (4), paper (4), plus others and cross-cutting projects	Not organized by technology, but by industry sector	Global	Industry, institutional partners, other stakeholders	since 1980s	UNEP/GEF	.PDF and other formats	There is a case studies folder, but the individual references under the Energy Efficiency heading are generally to broad donor programmes rather than to individual industrial projects, and no EE project-level detail is provided for these cases.
New Zealand Energy Efficiency and Conservation Authority www.eeca.govt.nz	Technical guides for consumers	na	Motors Industrial lighting	New Zealand	All energy consumers	NA	Govt of New Zealand	.PDF pubs	The industrial portion of the site is not industry-specific and has less detail than some other sites.
Sustainable Energy Program www.energysmart.com.au/wes	Case studies: good content and numerous. Other resources: EE tips, tools for business owners, tutorial, downloads, and calculators for energy benefits.	About 50 case studies, but none in GERIAP industries	Cogeneration compressed air HVAC Lighting Motors	Australia	All energy consumers	Ongoing	Aus State of New South Wales	.pdf pubs	A good resource, but oriented primarily to building EE. No GERIAP industries are included among the case studies, though the studies are informative.
National Energy Efficiency Committee www.neec.gov.sg/industry	Case studies: none. Other resources: checklists for equipment operations for key air compressors, boilers, motors, air conditioning equipment and lighting. Provides info about an energy audit program.	No specific industry case studies	Compressed air boilers motors air conditioning lighting	Singapore	Industry managers and operators	Ongoing	Govt of Singapore	.html docs	Relevant as an example of activities in the GERIAP region, though the site has no case studies.
<b>Abbreviations:</b>									
ASD = Adjustable Speed Drive (like variable speed drive (VSD) or variable frequency drive (VFD))									
BP = Best Practice									
CHP = Combined Heat and Power (also called cogeneration)									

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CII = Confederation of Indian Industry									
CP = Cleaner Production									
EE = Energy Efficiency									
EPRI = Electric Power Research Institute (USA)									
GEF = Global Environment Facility (World Bank)									
GTZ = Development aid agency of Germany									
IEA = International Energy Agency									
NGO = Non-Government Organization									
PP = Pollution Prevention									
PTM = State electricity company of Malaysia									
UNDP = United Nations Development Programme									
USAID = United States Agency for International Development									
USDOE = United States Department of Energy									