

10

YEARS OF
ACHIEVEMENT



annual report 2004



Large **Industry Energy Network**





Large **Industry Energy Network**
Annual Report 2004

Member Listing

Abbott Ireland, Cavan
Allergan Pharmaceuticals Ltd
Analog Devices BV
Atlas Aluminium
Aughinish Alumina
Bausch & Lomb Ireland
Baxter Healthcare S.A.
Boliden Tara Mines Ltd
Boston Scientific Ireland Ltd, Cork
Boston Scientific Ireland Ltd, Galway
Braun Oral-B Ireland Ltd
Bristol-Myers Squibb, Cruiserath
Bristol-Myers Squibb, Swords
Bulmers Ltd
Cadbury Ireland Ltd, Dublin
Cadbury Ireland Ltd, Kerry
C&C Ltd, Dublin
C&C Ltd, Cork
Carbery Milk Products Ltd
Cognis Ireland Ltd
ConocoPhillips, Whitegate Refinery
Cuisine de France
Dairygold Co-Op Society
Dawn Meats, Ballyhaunis
Diageo, St James's Gate
Dublin Airport Authority
Dundalk Brewery
Elan Pharma
Element Six
Eli Lilly S.A. - Irish Branch
Fruitfield Foods Ltd
Glanbia Ingredients, Virginia
Glanbia Meats, Roscrea
Glanbia Meats, Ruskey
Glanbia Plc, Ballyragget
Glanbia Plc, Inch
GlaxoSmithKline, Cork
GlaxoSmithKline, Dungarvan
Gypsum Industries Ltd
Hewlett-Packard (Manufacturing) Ltd

HJ Heinz
Honeywell Turbo Technologies
IBM International Holdings
Intel Ireland Ltd
Irish Shell Ltd
Janssen Pharmaceutical Ltd
Kerry Ingredients, Listowel
Klinge Pharma
Kostal Ireland GmbH
Lakeland Dairies, Bailieboro
LEO Pharma
Lisheen Mine
Masonite Ireland
Merck Sharp & Dohme (Ireland) Ltd
Micro-bio Ireland Ltd, Fermoy
NEC Semiconductors Ireland Ltd
Novartis Ringaskiddy Ltd
Pfizer Ireland Pharmaceuticals, Little Island API
Pfizer Ireland Pharmaceuticals, Loughbeg API
Pfizer Ireland Pharmaceuticals, Ringaskiddy API
Premier Periclast Ltd
Pure Fresh Dairies Ltd
Roche Ireland Ltd
Saehan Media Ireland Ltd
Schering Plough (Avondale) Co.
Schering Plough (Brinny) Co.
Smurfit Paper Mills Ltd
St. Frances Abbey Brewery
Takeda Ireland Ltd
Tayto Limited
Tech Group Europe, Dublin
Thermo King Europe
Transition Optical Ltd
Tyco Healthcare, Athlone
Tyco Healthcare, Mulhuddart
Waterford Crystal Ltd
Wellman International Ltd
Western Proteins
Wyeth Medica Ireland Ltd
Yamanouchi Ireland Co. Ltd

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Introduction from Declan Meally

The tenth anniversary of the establishment of the Large Industry Energy Network (LIEN) is a major milestone for SEI and for LIEN members. A decade after the Network's establishment, members continue to deliver on their commitment to reduce greenhouse gas emissions by significantly reducing their energy usage. The consistency with which they deliver these reductions represents a remarkable achievement for all concerned.

As we celebrate the tenth anniversary of the LIEN, we are now, more than ever, conscious of rising energy costs and the associated threat to competitiveness. With the current trend of rising energy prices set to continue, LIEN members and other businesses face considerable challenges in managing budgets and controlling costs.

Evidence of the benefit of adopting a strategic approach to energy management is demonstrated by the considerable savings made by key LIEN members outlined in this report. Building on the experiences of the past ten years, and armed with the knowledge that a structured approach to energy management is the right approach, SEI, through NSAI and with the valued input of LIEN members, has developed the new Irish energy management standard IS393. I would like to congratulate all those who were involved in this development which is referenced along with the Danish standard as the basis for a future European standard.

Following on from the development of the IS393, SEI, in association with a number of LIEN members, is now in the process of finalising a formalised structure for energy management through a voluntary agreements programme. The development of another less formal web-based structure – using the energy management action programme EMAP – is also being carried out with the co-operation of a number of LIEN members. It is envisaged that these structures will assist businesses in clearly identifying potential energy savings and allowing appropriate action.

SEI is receiving more and more requests for energy management assistance; thus it is important that the knowledge and expertise gathered through the LIEN over the past ten years are made accessible to a wider audience. There is ample evidence of a need for assistance with good energy management processes elsewhere in the industrial and commercial sector. The challenge for SEI is to meet this need by helping businesses to increase their energy savings and thus improve their competitiveness; this is the ultimate aim of all SEI Industry programmes.

SEI remains committed to adding value to business through its energy management programmes. With the support and involvement of LIEN members, we are bound to generate even more positive environmental and economic impacts in the future.

A handwritten signature in black ink, appearing to read 'Declan Meally', written in a cursive style.

Declan Meally
Head, Industry



Message from Mr Noel Dempsey, TD

The publication of the LIEN Annual Report this year is of significance on two fronts. Firstly, celebrating the sustained achievements of committed industries over a ten-year period truly reflects how effective collaboration between the state and the private sector can benefit all. Secondly, the continued imperative to manage energy wisely has never been more necessary. International energy prices are high and rising; future energy priorities and policies are now focusing on safeguarding security of supply and creating a sustainable energy future; and Kyoto ratification requires us all to take vigorous action to reduce greenhouse gases.

Much has changed in the ten years of the LIEN. In the past, industry felt that increasing its emphasis on efficiency and reducing its environmental impact was a burden to be borne. Now, industry recognises that competitive advantage can accrue from being proactive and strategic in its energy management approach.

Indeed, given the central role energy management now plays for business, the recent development of the IS 393 Energy Management Standard is to be welcomed and is timely. This provides a valuable systematic approach for those firms committed to improving cost competitiveness through increased efficiency.

Rigorous energy management is going to be even more important in the fairly immediate future. The increasing price of energy represents a threat to competitiveness – but that threat is greatly lessened for those who manage energy wisely. In this regard, the example LIEN gives to the wider industrial community is especially valuable.

The achievement of the LIEN members over the past ten years has been remarkable. The total CO₂ savings of over 580,000 tonnes is testament to the considerable investment of human and capital resources by member firms. Also of significance is the fact that, year on year, members have continued to make reductions – often during difficult trading conditions.

I remain convinced of the value of a voluntary partnership with industry and I welcome SEI's work in broadening this approach to other firms and the commercial sector. Taking the example of the LIEN and excellent case studies from the LIEN members to a new audience will undoubtedly benefit the firms, the environment and the state.

The publication of this annual report provides a valuable review of work undertaken and results achieved over a ten year period. But it also serves as a platform to launch further activity in the coming year. I commend SEI and the members of the LIEN for your collaborative approach and commitment, and I look forward to supporting your endeavours over the coming years.

A handwritten signature in black ink that reads "Noel Dempsey".

Noel Dempsey TD
Minister for Communications, Marine and Natural Resources



The Large Industry Energy Network

The Large Industry Energy Network is a voluntary networking initiative of companies who are committed to reducing their energy intensity on an individual basis, and who recognise the benefits from collaborating with like-minded organisations on innovation and best practices in energy management.

The structured approach to energy auditing and management, and an annual statement of energy accounts which is a condition of Network membership, is a valuable tool for successful energy management. The Network is an efficient mechanism for energy professionals to access and assess valuable information on new energy technologies and improved energy management practices, with a view to applying them to their own plant. Member companies have a common focus on exploring and implementing cost-effective energy-efficient practices and they recognise that the best way of learning is in shared experience of this kind.

Benefits of the LIEN are in two categories – those contributing to national energy policy objectives and those benefiting the individual enterprise. The LIEN, in common with other Sustainable Energy Ireland programmes, addresses the three principal energy policy objectives. The first of these is to ensure security of supply, which a number of LIEN members contribute to through embedded generation projects. The second is to ensure environmentally sustainable energy production and consumption, which is demonstrated through the numerous energy-management initiatives of members resulting in a progressive reduction in their energy intensity and related emissions. Thirdly, this reduction in energy intensity leads to improved competitiveness on an individual basis by reducing energy operating costs and the risk of exposure to energy price fluctuations, which in turn contributes to the competitiveness of Irish industry as a whole.

So, along with contributing to national policy objectives, members themselves derive the benefit of increased competitiveness. Additionally, the resultant emissions reduction helps members to meet legislative regulations such as IPC licensing, while preparing for future mandatory requirements. Actively seeking to minimise environmental impact is also a positive platform for public relations.

As the importance of how we use energy changes, it is essential that the way we record and report energy use develops accordingly. This year, the introduction of the EU greenhouse gas emissions-trading scheme places a greater importance on recording and monitoring energy usage and reporting accurate energy-usage figures. For this reason, all energy use recorded by LIEN members is reported as primary energy use. This means that all energy use for 2004 and all previous years is converted back to the primary energy source (e.g. coal, gas, oil, renewables) used to generate it. As such, it creates a more comprehensive picture of energy usage.



During 2004 a number of companies joined the LIEN. These companies are interested in reducing their energy dependency and see the LIEN as a good way to tackle the problem.

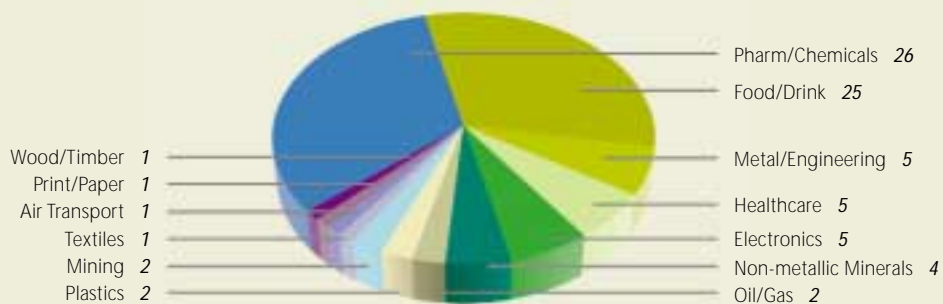
- Kerry Ingredients, Listowel
- Boston Scientific Ireland Ltd, Cork
- Tech Group Europe - Dublin

Membership losses

During 2003, three companies left the Network. Unfortunately this was due to scheduled site closures or resizing of the sites. The three companies are:

- Irish Sugar, Carlow
- Sercom Solutions, Dublin
- Wessel Energy Cables Ltd, Dublin

Industrial sectoral representation within the LIEN (2004)





Network Activities for LIEN Members

Networking and the sharing of information are regarded as some of the most important benefits of LIEN membership. During 2004, members participated in a number of SEI-organised workshops and energy-related events. These events give members an opportunity to inform themselves about the most recent innovations in energy-efficient technologies; they also give them the chance to discuss their integration into systems with other energy managers. Among the highlights were:

Energy Pricing and Trends Workshop – July '04

The LIEN Energy Pricing and Trends Workshop, which took place in Kilkenny in July, was attended by more than 40 Network members. Panellists included economists and experts from the gas and electricity sector and from the Commission for Energy Regulation. A highlight of the event was a presentation from Gareth Davis, a member of the renowned energy think-tank, Oxera.

Energy Awareness Week – September '04

As part of the programme of events organised by Sustainable Energy Ireland for National Energy Awareness Week, LIEN members were actively encouraged to run their own on-site campaigns. The response was tremendously encouraging, with many energy managers organising energetic and inventive campaign activities.

A significant number of LIEN member companies participated in Car Free Day, offering their employees incentives and prizes to leave their cars at home, and instead to walk, cycle, car pool or use public transport to get to work.

LIEN Electrical Case Studies Focus Workshop – November '04

The management team at Masonite Ireland's Carrick-on-Shannon plant hosted a workshop at which a number of LIEN members gave presentations on recently completed energy-related projects. This was followed by discussions among the workshop participants on the relative merits of the featured projects and the various problems and challenges experienced during their implementation. The day-long programme concluded with a tour of the Masonite plant.



The SEI Sustainable Energy Awards 2004 – November '04

The first annual Sustainable Energy Awards took place in Dublin in November. The awards focus on individuals and groups who demonstrate a commitment to include energy management as part of their overall management structure and provide an opportunity for organisations to gain public recognition for their achievements in reducing energy use and emissions.

The awards ceremony took place on 11th November at a gala dinner attended by major players in the industrial, commercial and public sectors.

LIEN members featured strongly at the awards and the following companies were among the winners:

Co-ordinated Energy Management Programme Category

Aughinish Alumina Ltd (AAL), Limerick, the first Irish recipient of the DS 2403 energy management standard, won the overall award in this category.

The industrial sector winner was **Cantrell & Cochrane (Ireland) Ltd**, Cork, while **Pfizer Ireland Pharmaceuticals, Loughbeg API**, Cork was presented with a certificate of excellence.

Electrical Energy Project Category

Pfizer Ireland Pharmaceuticals, Ringaskiddy API, Cork won the overall Electrical Energy Project Category award for its comprehensive metering and M&T system.

The industrial sector winner was **Masonite Ireland Ltd**, Co Leitrim, which received its award for the installation of variable speed drives.

Pfizer Ireland Pharmaceuticals, Loughbeg API, Cork was presented with a certificate of excellence.

Thermal Project Category

The industrial sector winner of the Thermal Project Category Award was **Intel Ireland**. The company received this award for the state-of-the art boiler system which it has installed at its Leixlip, Co Kildare plant.

The commercial sector award winner in this category was **Dublin Airport Authority** for the expansion of its CHP plant.

Network Activities for LIEN Members (cont.)

Energy Awareness Campaign Category

GlaxoSmithKline, Dungarvan won the Energy Awareness Campaign award category for successfully demonstrating how the raising of staff awareness of energy-related issues can deliver tangible benefits.

Energy Manager of the Year

Martin O'Connor, Pfizer Ireland Pharmaceuticals, Little Island received the title of overall Energy Manager of the Year.

Annual Report Launch – December '04

The year's activities culminated with the launch in December of the seventh Annual Report of the Large Industry Energy Network. At the launch, the first copy of the report was presented to the Minister for Communications, Marine and Natural Resources, Mr Noel Dempsey TD, by Colm O'Connor, General Manager of Smurfit Paper Mills Ltd.

The Minister welcomed new LIEN members and congratulated existing members for their willingness to share information and best practice solutions for energy efficiency improvements. A global overview of issues relating to climate change was presented by Jim Walker of the Climate Group.

LIEN Communication and Influencing Workshop – February '05

The first LIEN workshop of 2005, which took place at the Clarion Hotel, Limerick, focused on communication and influencing skills; in particular it recognized the challenges faced by energy managers when presenting project proposals to senior management. The workshop was facilitated by Adrian Munnelly of Carr Communications.

SEI Sustainable Energy Awards Launch 2005

The launch of the 2005 Sustainable Energy Awards also took place in February. At this event, many of the 2004 Award recipients took the opportunity to make presentations on their winning projects to the large number of guests in attendance.

LIEN Biomass for Industry Workshop – April '05

At the Biomass for Industry Workshop held at the SEI Renewable Energy Information Office in Bandon, Co Cork, LIEN members attended presentations from experts about biomass technology, the economic factors affecting its development and the practicalities of using it in an industrial setting. Particular emphasis was placed on the potential savings that participants in the EU Emissions Trading Scheme could make if they were to utilise biomass technology on their sites. The event concluded with a visit to Graingers Sawmill, which uses a 1.8MWe Biomass CHP to generate on-site electricity and heat requirements.

LIEN Monitoring and Targeting for Industry Workshop – May '05

The LIEN Monitoring and Targeting for Industry Workshop, which was hosted by Intel Ireland at its Leixlip, Co Kildare plant, focused on the benefits of Monitoring and Targeting (M&T) systems. Included in the programme were presentations by M&T experts who provided an overview of the technology and also outlined the practicalities of using it in industrial environments. The event concluded with a site tour.

Awards received by LIEN members during 2004

Many LIEN members received awards during the year. They included:

Bausch & Lomb Ireland	ROSPA Gold Safety Award IEI continuous professional development for engineers accreditation FÁS Excellence through People award
Bulmers Ltd	Recycling Initiative – Business Section, South Tipperary County Council Finalist in the Repak Best Practice Award 2004
C&C (Ireland) Limited, Cork	Repak Best Practice Award 2004
C&C (Ireland) Limited, Dublin	Repak Best Practice Award 2004 MEETA maintenance award
Cadbury Ireland Ltd, Kerry	ISO 14001 certification
Intel Ireland Ltd	ACCA Ireland Environmental Reporting Award Citation for community environmental programmes from the Chambers of Commerce of Ireland
Janssen Pharmaceutical Ltd	MEETA maintenance award
Klinge Pharma	Managing for Sustainability IBEC Environmental Award
Masonite Ireland	FÁS Excellence through People award National Irish Safety Organisation (NISO) Safety Award for best North West Company
Merck Sharp & Dohme (Ireland) Ltd	Environmental excellence award at the IBEC Environmental Awards NISO Gold Award
Thermo King Europe	Environmental excellence award at the IBEC Environmental Awards ACCA Annual Environmental Reporting Award
Pure Fresh Dairies	Award for outstanding achievement in quality management from the Excellence Ireland Quality Association
Transitions Optical Ltd	Transitions Global ISO 14001 certification
Tyco Healthcare, Mulhuddart	NISO Best Medium-Sized Company award
Wyeth Medica Ireland Ltd	European Energy Team of the Year Award from Wyeth's US-based parent company

Development of the Network

In 1993, funding was made available under the EU SAVE Programme for innovative group projects which had the potential to improve energy efficiency and reduce the environmental impact of energy use.

Through SEI, ten companies agreed to form a network of 'high achievers' who would publicly commit to:

- carrying out regular energy audits
- implementing energy-savings targets and action plans
- preparing annual energy statements
- sharing information and mutual support
- joining a membership group and utilising opportunities for availing of the support mechanisms offered

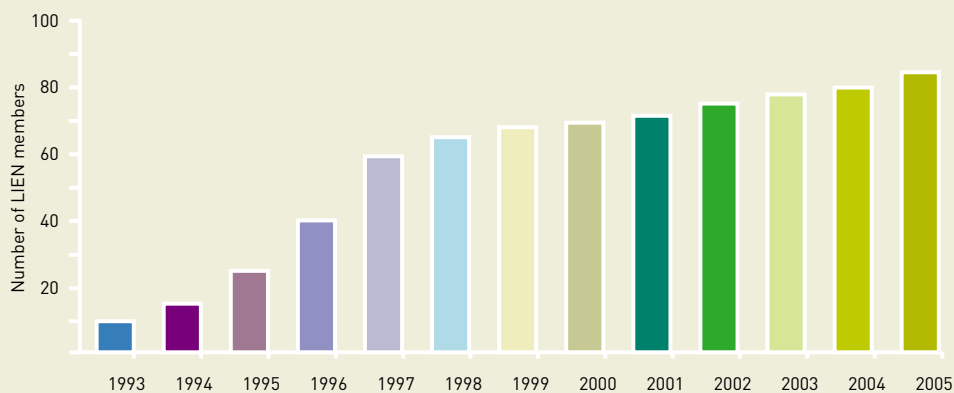
These ten companies formed the original 'Annual Self-Audit and Statement of Energy Accounts Scheme' pilot project, which received initial SAVE funding:

Aer Rianta, Dublin	Irish Shell Ltd
Avonmore Waterford Group, Ballyragget	NEC Semiconductors Ltd
Baxter Healthcare (SA)	Pfizer Pharmaceuticals
Dairygold Co-op Society	Premier Periclase
Irish Glass Bottle	Waterford Foods

The network, which has expanded enormously since 1993, has been very successful in the fulfillment of its original commitments – despite significant challenges imposed by changing market demands and a host of other energy-related issues.

In 2002, in a move aimed at emphasising the importance of networking, the scheme was rebranded the Large Industry Energy Network (LIEN). The opportunities that the LIEN provides for energy managers to meet with like-minded professionals and to share knowledge and experiences has been one of its most important successes.

Development of the Network



This year we invited the original network members to describe briefly how LIEN membership has benefited them. We also invited them to highlight some of the energy-related issues that are currently causing them concern.

Baxter Healthcare S.A.

Patrick Gallagher, General Manager, Baxter Healthcare S.A., Castlebar, Co Mayo

'Our production processes are extremely energy intensive. Each day we manufacture more than 700,000 litres of water for injection purposes; in addition all product must be tested before we can begin the packaging process. As a result, our energy operating spend totals several million euro annually.

'Not surprisingly, given the scale of our expenditure, we continuously focus on energy-related process improvements. For example, we now use approximately 50% less energy per unit of production output than we did in 1990, despite having moved from mainly manual to highly automated processes.

'We devised and implemented an active energy efficiency strategy in 1990, so, when the LIEN was established, it provided us with an ideal and timely information forum, bringing together groups of technical professionals and other manufacturing companies to share ideas and experiences.

'Right now, the two energy-related issues that cause us most concern are the fact that the deregulation of the electricity market has not delivered cost competitiveness, and the fact that West of Ireland-based industries like ours do not have access to natural gas.

'Sustainable development is an integral part of Baxter's overall corporate vision. We continuously strive to conserve resources, and we aim to either minimise or eliminate adverse environmental impacts or risks that may be associated with our products, services and operations. Our adherence to this corporate vision is an important consideration in all energy policy decisions taken by the team on the Castlebar site.'



'Sustainable development is an integral part of Baxter's overall corporate vision'

Dairygold Co-op Society

Jerry Henchy, Chief Executive, Dairygold Co-op Society

'We run a 2% operating profit business; therefore energy usage is mission critical. We were, I believe, the first food company in Ireland to install a CHP plant, and we now have a total of three natural gas-powered plants both here and on our other Dairygold sites. These plants, coupled with our consistent focus on reclaiming energy whenever and wherever possible, have been crucial in helping us to achieve our business targets.

'The LIEN offers worldwide best knowledge capability. At least equally beneficial is the willingness of companies – even those who are fierce competitors in the marketplace – to share experience and knowledge. While we're maxed out in terms of what we can do with our energy infrastructure, we're still learning how to improve the running of our CHP plants; that's part of what we take from the LIEN.

'One of the reasons why I'm optimistic about industry acting responsibly in the future – making energy efficiency improvements that will result in environmental improvements – is that it will be financially beneficial to do so, especially as energy prices become more and more expensive. Money is a great mover!

'One of Dairygold's major concerns is why the Emissions Trading NAP policy does not allow us to transfer emission permits from a site that's closing down to a site that's being expanded. Not allowing this will prevent some site consolidation occurring and will in turn prevent us from spending capital on even more modern energy-efficient equipment.'



'The LIEN offers worldwide best knowledge capability'

Dublin Airport Authority

Bob Hilliard, Director of Dublin Airport

The airport has experienced phenomenal growth in recent years. Since the mid 1990s, passenger numbers have been increasing at a rate of about one million each year, with a throughput of some 17.1 million passengers recorded in 2004.

'We have done a lot to develop our energy infrastructure. For example, our CHP plant has the capacity to provide about two thirds of our electricity needs; we have a large stand-by diesel generator for back-up supplies in critical buildings and services, and we have a number of different routes for both electricity and gas supplies because we don't want a single point of failure in the network.

'The cost of energy is probably our single biggest concern at the moment. In particular, the fluctuating price of gas gives us huge problems when we tender for gas supply.

'Energy-conservation initiatives currently in place include the maximisation of our CHP operation; this is subject to the price of gas obviously. We have a Building Management System; we are participating in the Winter Peak Demand Reduction Scheme and we are expanding our M&T system.

'Through our membership of the LIEN, we are encouraged to attend seminars and workshops, to acquire new knowledge and explore issues in more detail. It enables us to network with other companies and find out how they are managing energy usage. It helps us to benchmark our activities and establish best practice. The regular exchange of information and experience also helps us to reach decisions and solve problems. We are looking forward to more of that in the future, in particular to the sharing of knowledge and experience in relation to the Emissions Trading Scheme.'



'The cost of energy is probably our single biggest concern at the moment'

NEC Semiconductors Ireland Ltd

Kenji Yamashiro, Managing Director, NEC Semiconductors Ireland Ltd

'In terms of energy procurement, the most important issues for us are cost, reliability and continuous supply. The latter is absolutely crucial – if electricity supply were to be interrupted, it would affect product quality.

'We don't have a CHP plant, because that would not be an economic proposition at this point. We don't use gas as a fuel, and we use very little oil. Our electricity consumption, on the other hand, is extremely high – about 13 gigawatts annually. Not surprisingly therefore, we are extremely concerned about costs. Despite deregulation, electricity prices have risen substantially; they are a great deal higher than comparative costs in our sister factories in the Far East – where the real competition for this business is coming from. As a company we are also concerned about capacity – there's a perceived risk that electricity demand could exceed marketplace capacity to supply.

'Membership of the LIEN has delivered many advantages. Seminars, information sharing and site visits enable us to assess the best technologies available at any given time. As a direct result of membership, we have introduced a wide range of energy-reduction technologies.

'We plan to introduce a number of new products and we're in the process of replacing our production lines with more energy-efficient ones – in fact over 60% already fall into that category. The installation of more energy-efficient production equipment is an evolving process. It is also probably the best single thing we can do to optimise on-site energy consumption.'



'As a direct result of membership, we have introduced a wide range of energy-reduction technologies'

Pfizer Ireland Pharmaceuticals, Ringaskiddy

Paul Duffy, Site Leader, Pfizer Ireland Pharmaceuticals Ringaskiddy API

'Energy conservation is accorded a high priority across the Pfizer organisation globally. Here, on the Ringaskiddy site, escalating energy costs have served to further reinforce the need to control usage, while our winning of the Electrical Energy Project at the 2004 Sustainable Energy Awards greatly increased employees' awareness of energy conservation issues.

'In 2004, we carried out an energy audit, which identified a number of potential opportunities for making inroads in our baseline energy consumption – particularly during periods of low on-site activity. In order to maximise these opportunities, it will be necessary to make a number of changes in our day-to-day operations. It will also be necessary to refocus our efforts on making even greater reductions in on-site energy usage.

'Also during 2004 we invested in an energy information system and we developed a site-specific communications system, which we hope will help to encourage full participation in our energy conservation efforts.

'Globally, this company has a strong commitment to the Kyoto Protocol and the climate change agenda. In particular, we have identified the reduction of Pfizer's environmental footprint as a strategic priority. In that context, we joined the US EPA Climate Leaders Program in 2002 and set a goal of reducing CO₂ emissions by 35% per million dollar sales by 2007. All manufacturing sites worldwide, including Ireland, must contribute to the achievement of this goal; this requires a programme of continuous investment in best-practice technologies and, in particular, in utility projects.'



'Globally, this company has a strong commitment to the Kyoto Protocol and the climate change agenda'

Premier Periclase Ltd

Leo Grogan, Managing Director, Premier Periclase

'Energy plays a very important role on our site here in Drogheda, not least because it accounts for more than 40% of total costs per unit of production output.

'Among the issues that continue to cause us particular concern are our vulnerability to fuel price volatility and the high price of energy overall – factors which we try to mitigate by switching one third of our total fuel consumption from natural gas to lower-cost fuels such as HFO and Petcoke. We are also very concerned about the impact of the EU Emissions Trading Scheme on our business.

'Other initiatives which we are planning to implement, in order to deal with these concerns, include increasing the amount of fuel switching (substituting higher-cost fuels for lower-cost fuels); implementing a continuous programme of methods aimed at enhancing process control; focusing more closely on the maintenance of seals.

'The Kyoto Protocol and the climate change agenda have affected our business operation in a number of ways. For example, by 2003 we had already achieved a reduction of 19% in CO₂ emissions from fuel per ton of production output, as well as a 31.8% reduction in terms of total process and fuel CO₂ mass emissions. Despite these successes, we are continuously striving to achieve efficiency improvements, in addition to trying to identify new technologies which would reduce our vulnerability to fuel price volatility and high fuel prices.'



'We are continuously striving to achieve efficiency improvements'

Reporting of Results

One of the principal requirements of LIEN membership is annual reporting of members energy usage along with details outlining their activities to reduce energy consumption and related emissions. This data is used to calculate the Energy Performance Index (EPI), which is an indication of the energy intensity of the site during the year, and allows target EPIs to be set for the coming year. The results published in this report are based on these inputs from the members and provide a summary of their plans for the future.

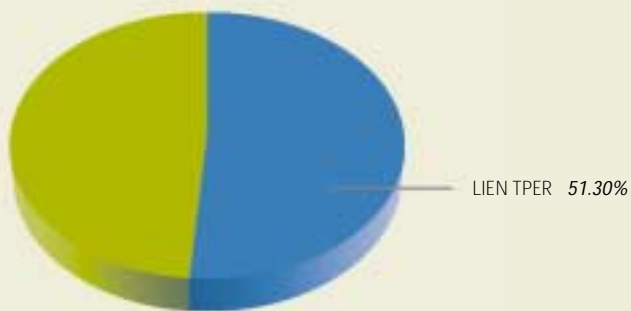
The following table lists the performance of the LIEN for 2004

LIEN Total Primary Energy Requirement 2004 (GWh)	16,018.14
Energy avoided due to energy efficient measures during 2004 (GWh)	483.82
Percentage energy avoided	3.02%
National Total Primary Energy Requirement (TPER) 2004 (GWh)	172,170
LIEN as a percentage of national TPER 2004	9.30%
LIEN as a percentage of industrial TPER 2004	50.16%
Total LIEN CO ₂ emissions 2004 (Tonnes)	3,820,505
CO ₂ avoided due to energy efficient measures 2004 (Tonnes)	133,589
Percentage CO ₂ emissions avoided	3.50%
Aggregate EPI for LIEN in 2003	86.48
Aggregate EPI for LIEN in 2004	84.96
Improvement in EPI (2003-2004)	1.52

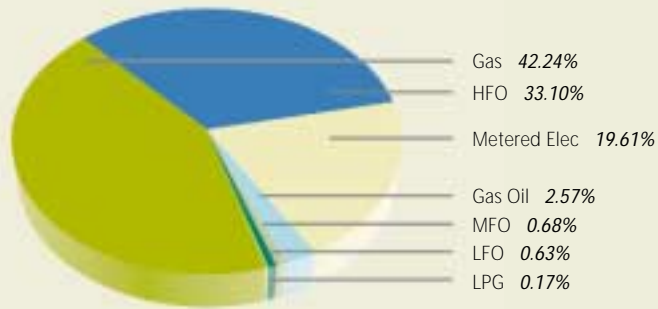
LIEN as a percentage of national TPER 2004



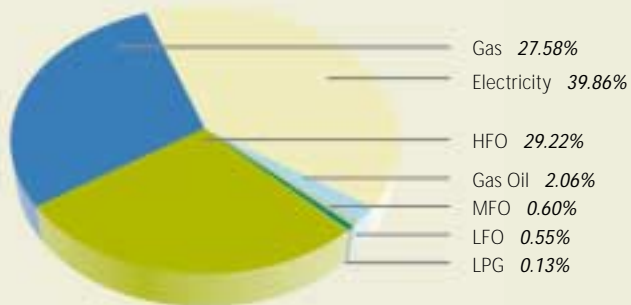
LIEN as a percentage of industrial TPER 2004



Breakdown of fuel consumption for LIEN in 2004



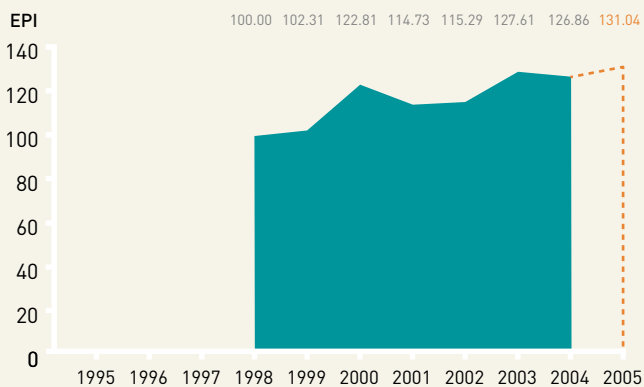
Breakdown of CO₂ emissions by fuel for LIEN members



Members Graphs and Statements

This section outlines the performance of the member companies over the past 10 years of the scheme, along with a target for 2005. It is interesting to see that although many companies have had periodic dis-improvements in EPI due to site expansions and product changes, the overall trend of the group has been consistently improving.

■ RESULTS - - - 2005 TARGET



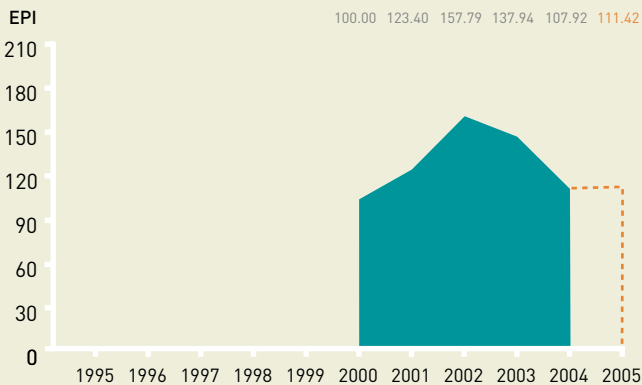
Allergan Pharmaceuticals Ltd

Factors influencing 2004 results

- Commissioning of new production facility delayed until Q4 2004
- Increased monitoring and control of energy usage
- A 10% increase in production volumes

Future plans

- Energy usage set to increase by 4% in 2005
- Due to restructuring of manufacturing operations, changes in our product mix and validation of new production facility, we anticipate a deterioration in our EPI for 2005.



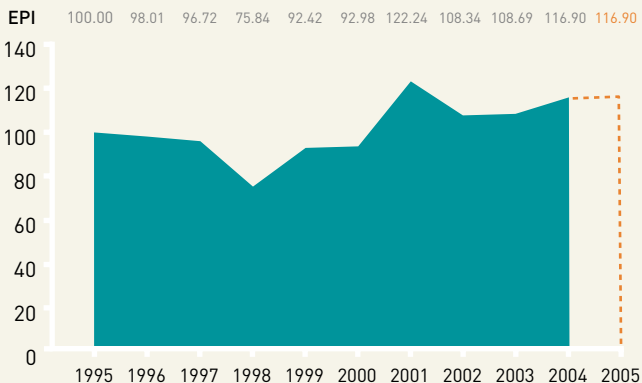
Analog Devices BV

Factors influencing 2004 results

- Restructuring of on-site manufacturing operations
- Increased production output
- A decrease of almost 8% and 10% respectively in the consumption of natural gas and electricity

Future plans

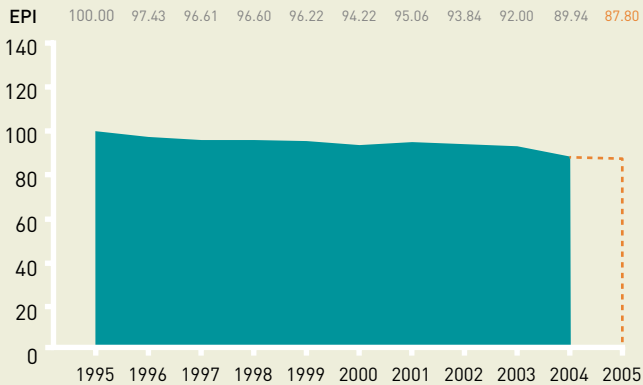
- Expanded wafer fab clean room due to be commissioned in 2005. However, this expansion will have no impact on production output until 2006.



Atlas Aluminium

Factors influencing 2004 results were not reported.

RESULTS 2005 TARGET



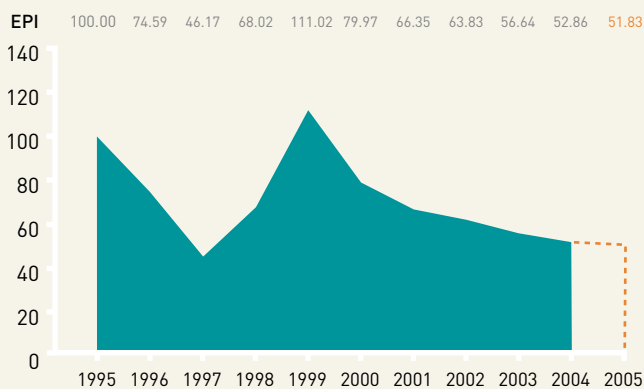
Aughinish Alumina

Factors influencing 2004 results

- Introduction of more energy-efficient "sweetening" process
- Mechanical and chemical cleaning of digestion area has removed restrictions which had caused increased energy usage

Future plans

- Major expansion project aimed at further consolidating continuous "sweetening" process will increase production by 15% in an energy-efficient manner.
- New CHP plant will provide about 65% of all on-site process steam requirements and will improve our overall energy efficiency, while significantly reducing CO₂ emissions. Approximately 108 MW of the electricity generated will be exported to the national grid.



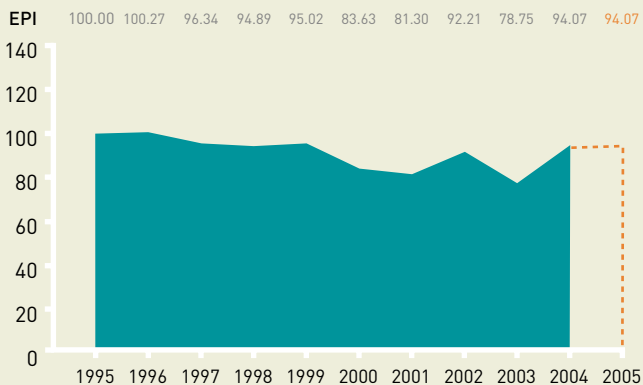
Bausch & Lomb Ireland

Factors influencing 2004 results

- Chilled water header and system improvements contributed to better package chiller running efficiencies during the last six months of 2004.
- The installation of VSDs on six air handling units resulted in reducing process air change requirements by 25%.

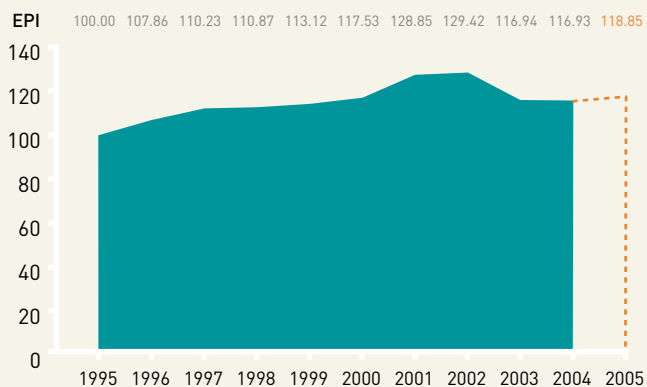
Future plans

- Installation of energy monitoring software package
- Steam trap replacement programme
- Installation of VSDs on process vacuum systems
- Product mixes set to change



Baxter Healthcare S.A.

Factors influencing 2004 results were not reported.



Boliden Tara Mines Ltd

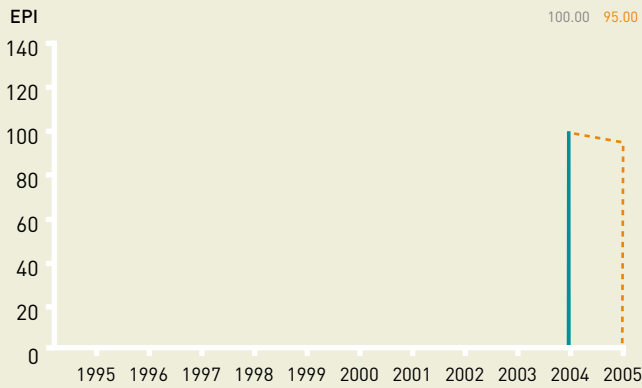
Factors influencing 2004 results

- Success of Monitoring and Targeting system on energy and compressed air usage
- High-efficiency electric motors and distribution transformers installed as standard
- Implementation of a number of staff-awareness/behavioural-change initiatives

Future plans

- Further development work due to be carried out on the new Nevinstown orebody
- South Western Extension (SWEX) project to go into production

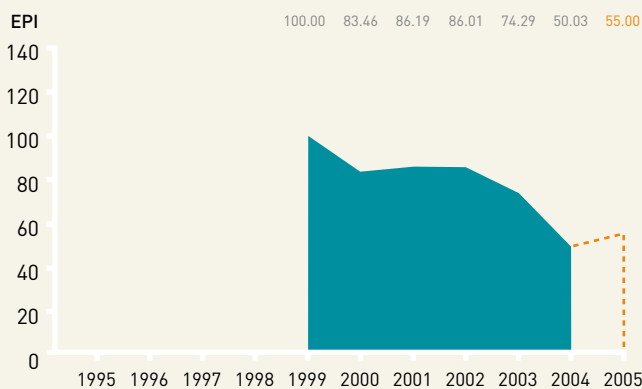
RESULTS 2005 TARGET



Boston Scientific Ireland Ltd, Cork

Future plans

- Workshop for senior management team, aimed at benchmarking company's energy performance
- Re-examination of existing energy-awareness initiatives, aimed at further reducing energy consumption
- Energy-reduction measures to include widening the band of humidity-control set points for clean room conditions while maintaining the requisite environmental conditions; raising set points on chilled water; decreasing number of air changes in controlled environments during non-production activity periods.



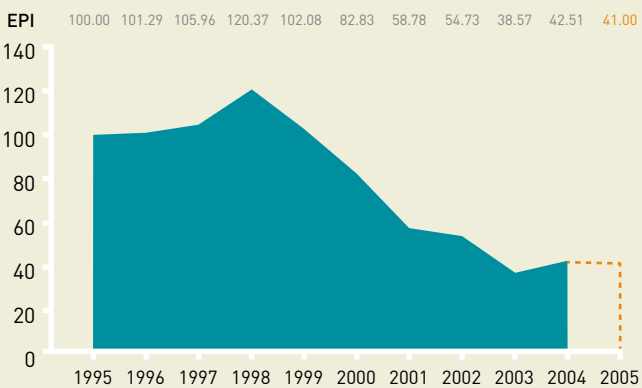
Boston Scientific Ireland Ltd, Galway

Factors influencing 2004 results

- Lean programmes implemented continuously through the year
- Maximum use of all controlled areas following the move to 24/7 production
- Energy-saving projects e.g. installed cold spray humidification system; upgraded chillers; expanded energy monitoring system; improved environmental control; employee training; improved equipment shut-down timing schedules

Future plans

- Energy demand set to rise due to increased activity in both R&D and Product Development areas. New product and process being developed; this will increase energy usage.
- Continuously review new energy initiatives in addition to reviewing large equipment items such as chillers, compressors and motors



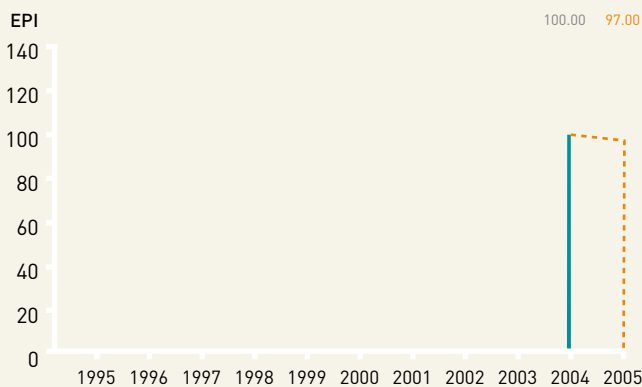
Braun Oral-B Ireland Ltd

Factors influencing 2004 results

- While production output decreased, overall energy requirements did not decrease at the same rate.

Future plans

- Improvement in our EPI anticipated as a result of increased production output following the introduction of two new products mid 2005.
- Installation of new compressor and control software should lead to overall efficiency improvements.

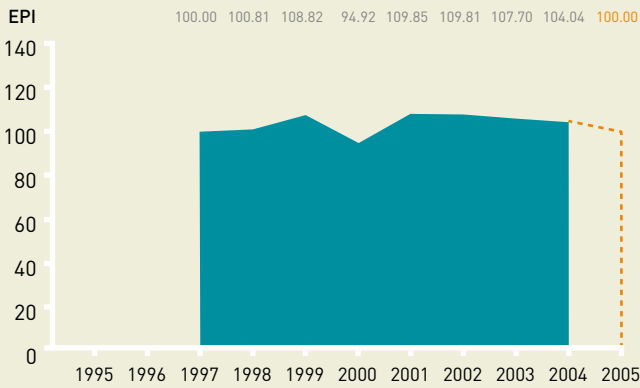


Bristol-Myers Squibb, Cruiserath

Future plans

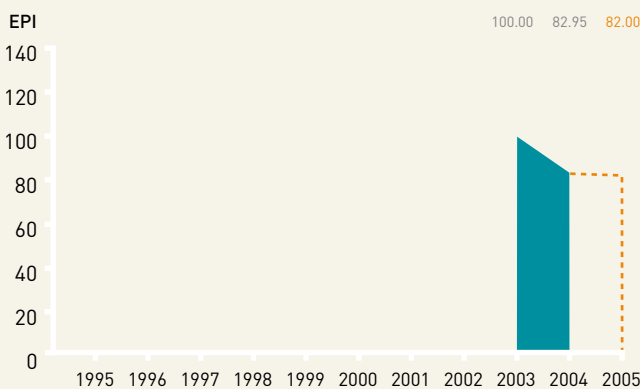
- Plant-wide audit, aimed at identifying areas where potential energy reductions might be made
- New pressure swing absorption (PSA) system will eliminate the need to buy in liquid nitrogen, but will also increase on-site electricity requirements.
- Usage of both electricity and steam will rise when new solvent recovery plant becomes operational.

RESULTS 2005 TARGET



Bristol-Myers Squibb, Swords

Factors influencing 2004 results were not reported.



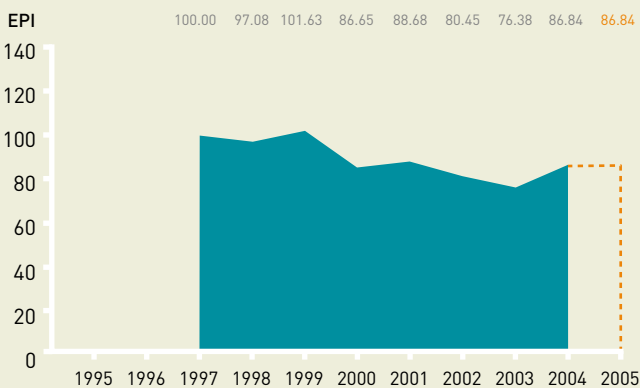
Bulmers Ltd

Factors influencing 2004 results

- Increases in production output, energy usage per unit output and effluent treatment costs
- Installation of automatic switching on site lighting; shutdown of air compressors at weekends; reduction in number of weekend hours for operating chillers

Future plans

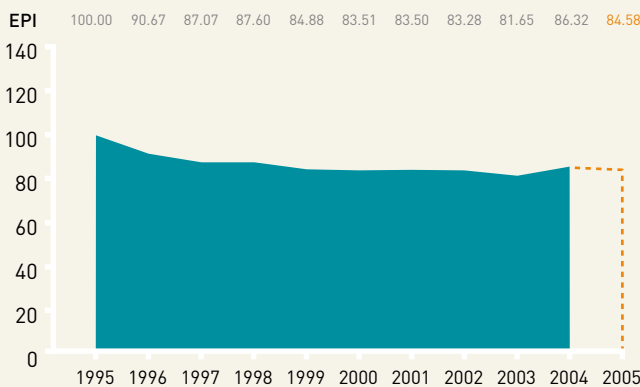
- Energy usage per unit output set to increase as a result of processing changes
- New equipment to be installed
- Production output set to increase



Cadbury Ireland Ltd, Dublin

Future plans

- The anticipated rise in production output in 2005, created as a result of increased demand for our product, means that our base load will be higher: this will impact positively on our overall energy performance for the year.



Cadbury Ireland Ltd, Kerry

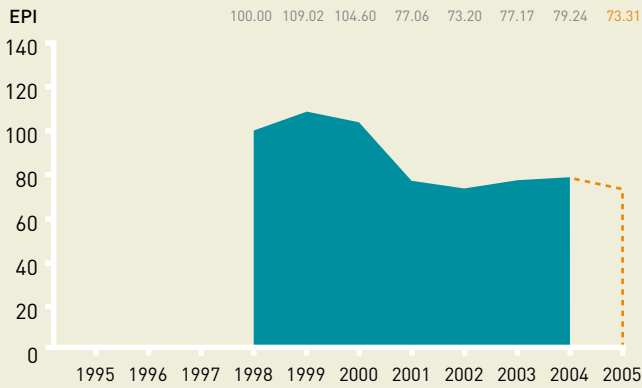
Factors influencing 2004 results

- Energy consumption increased due to work being carried out on the boiler hotwell. As a result, it was not possible to operate the condensate recovery system efficiently.
- Production output decreased.

Future plans

- Focus on compressed air losses and condensate recovery, combined with better controls on boiler feed water
- Production output set to increase

■ RESULTS --- 2005 TARGET



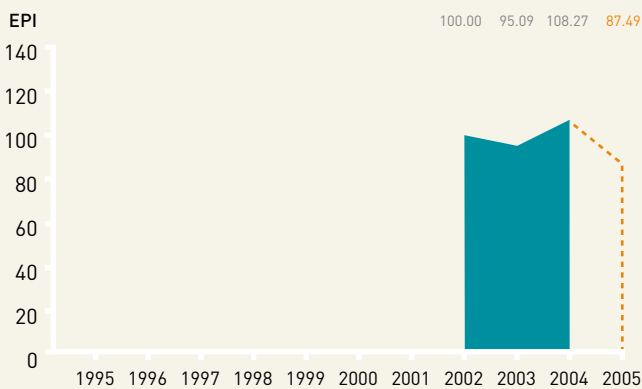
C&C Ireland Ltd, Cork

Factors influencing 2004 results

- Higher electricity usage on bottle-packaging machine due to changes in packaging type and reduced packaging volume
- Delayed implementation of two major energy-saving projects – installation of air recovery system in the moulding plant; upgrade of the refrigeration plant
- Lower production volumes

Future plans

- New PLC-controlled refrigeration plant to be commissioned May 2005
- Reduced load on main gas boiler due to installation of stand-alone CO₂ heating system



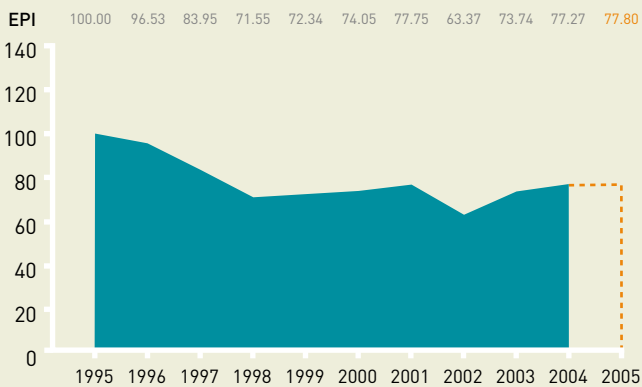
C&C Ireland Ltd, Dublin

Factors influencing 2004 results

- Gains made as a result of recent energy-saving projects offset by poor plant performance – mainly due to changes in packaging production process.

Future plans

- Installation of new equipment on our two highest production output lines should create increased energy efficiencies.
- Gas heating requirements may be reduced following installation of automatic doors on warehouse loading bays.
- Centralised real-time control of loads to deliver start-up and shut-down operational efficiencies.



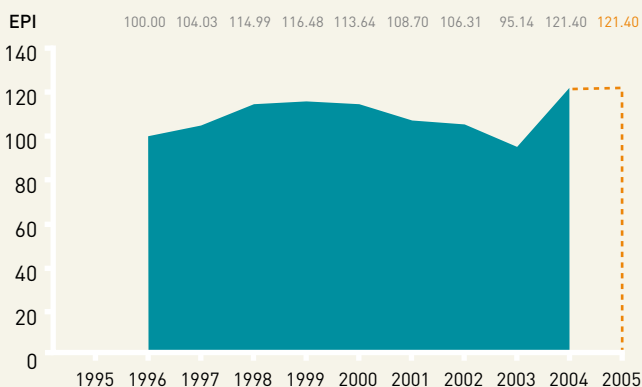
Carbery Milk Products Ltd

Factors influencing 2004 results

- Steam savings from two heat-conservation projects
- Electrical savings due to installation of VSDs

Future plans

- Implementation of two additional steam-saving projects
- Electrical savings from jet aeration on foot of replacement of mechanical rotors on CHP

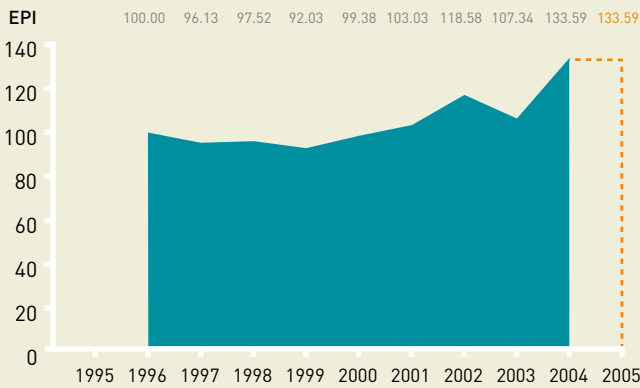


Cognis Ireland Ltd

Factors influencing 2004 results

- Underperformance/problems with CHP

■ RESULTS --- 2005 TARGET



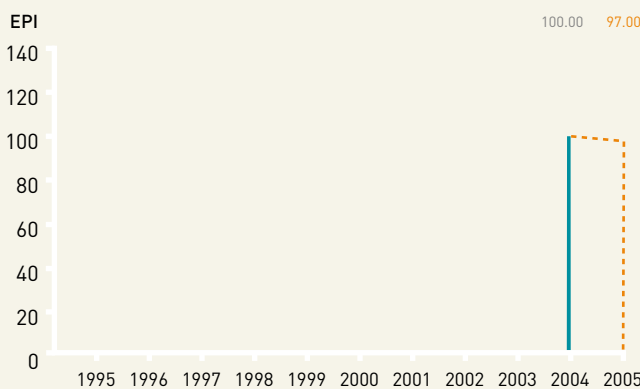
ConocoPhillips, Whitegate Refinery

Factors influencing 2004 results

- Replacement of furnace burners with high-efficiency models
- Retraining of furnace operators

Future plans

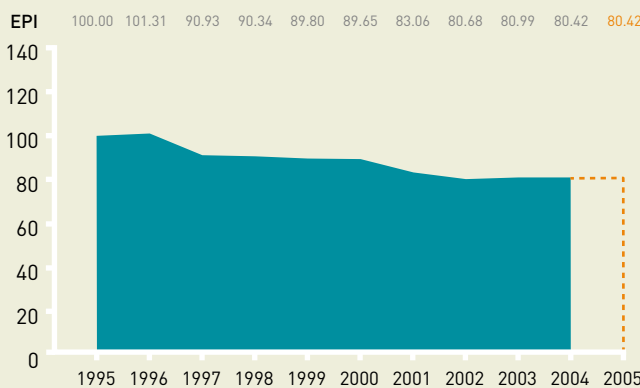
- We aim to reduce fuel usage by 10% during 2005/2006 through a programme of capital investment coupled with operator education/training.
- New demineralised water plant will act to reduce boiler blowdowns from 20% to 5%.



Cuisine de France

Future plans

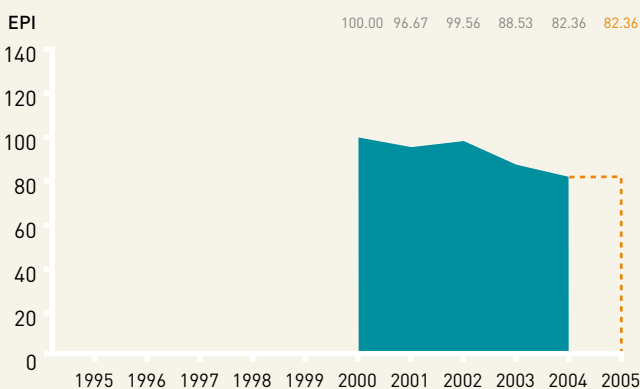
- Introduction of an Energy Management System
- Establishment of a dedicated energy management team
- Execution of site-wide campaign to promote greater awareness of the need for energy conservation among our employees



Dairygold Co-op Society

Factors influencing 2004 results

- Continued utilisation of data capturing via our energy monitoring system to predict optimal load control from historical data which had been correlated from the previous year
- Optimisation of production time in order to allow high-usage energy equipment gain best outputs in set production uptimes
- Energy awareness and energy usage programmes are driving best practice cultures in all areas of the business
- Ongoing maintenance programmes to reduce and replace high-energy usage motors and refrigeration systems



Dawn Meats, Ballyhaunis

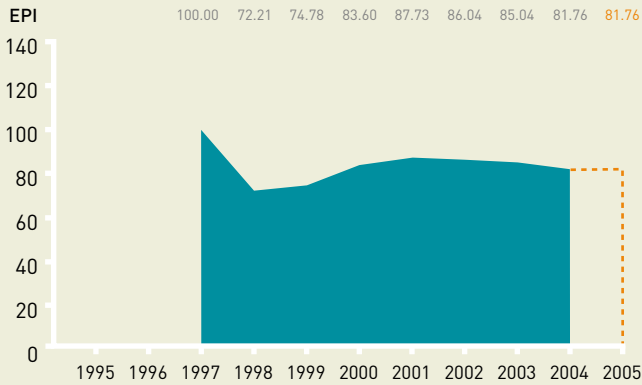
Factors influencing 2004 results

- Reduction in the number of plant operating hours and lower on-site energy consumption
- An increase in volume throughput

Future plans

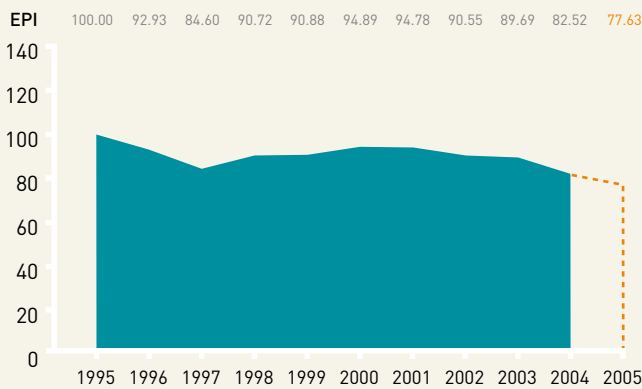
- We will continue striving to achieve further efficiencies in our production methods.

■ RESULTS --- 2005 TARGET



Diageo, St James's Gate

Factors influencing 2004 results were not reported.



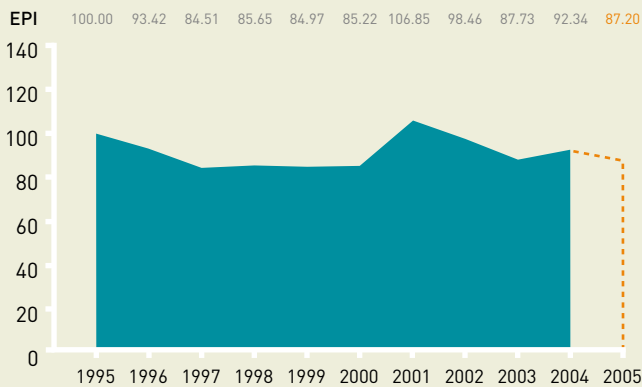
Dublin Airport Authority

Factors influencing 2004 results

- Increased gas oil consumption due to our participation in the winter peak demand incentive scheme
- Slightly higher air-conditioning load due to underperformance of absorption chiller
- A higher than forecast increase in passenger numbers

Future plans

- Further increases in passenger numbers expected in 2005



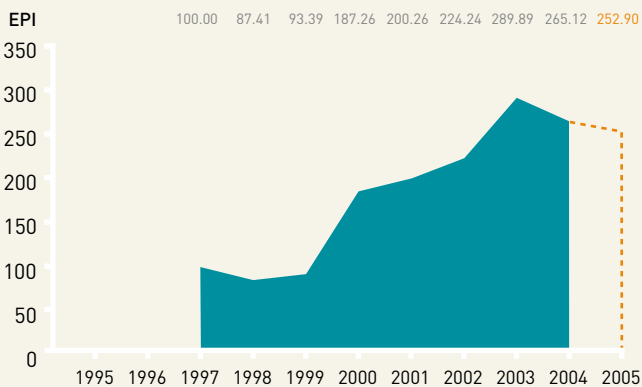
Dundalk Brewery

Factors influencing 2004 results

- Production output significantly lower than anticipated
- Higher energy consumption as a result of manufacturing trials on new products

Future plans

- Implementation of continuous improvements process supported by M&T programme in utilities area
- Continuous improvement system to be adopted by all site staff, in order to allow opportunities and mechanisms for savings to be captured
- Distribution system losses to be reduced through proactive leak management



Elan Pharma

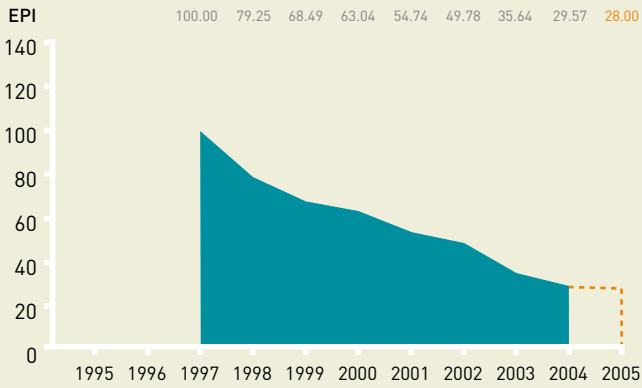
Factors influencing 2004 results

- Usage of both gas oil and electricity decreased by 10% on foot of the implementation of staff-led energy-conservation initiatives including turning down heaters and switching off production equipment/office equipment when not in use.
- Production output did not reach anticipated levels.

Future plans

- Operation of new production building to begin
- Move to natural gas under consideration
- Production volumes expected to increase

■ RESULTS - - - 2005 TARGET



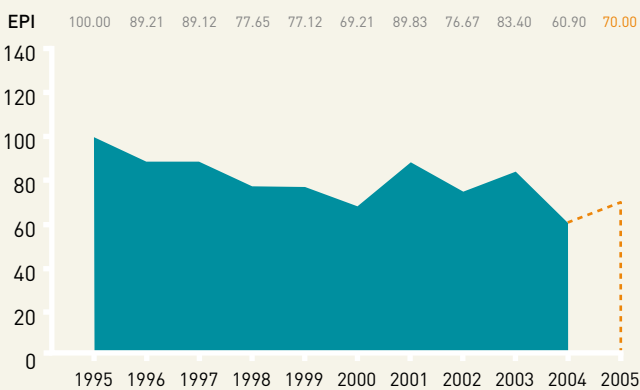
Element Six

Factors influencing 2004 results

- Machine area operating at almost optimum capacity due to integration of short-interval control process methods in the PCP Plant
- Reduction in compressed air usage

Future plans

- Improvements in site maintenance and utility plant control should reduce demand for steam and light fuel oil.
- Implementation of short-interval control methods in the IDD Plant will improve our production output/energy consumption ratio.



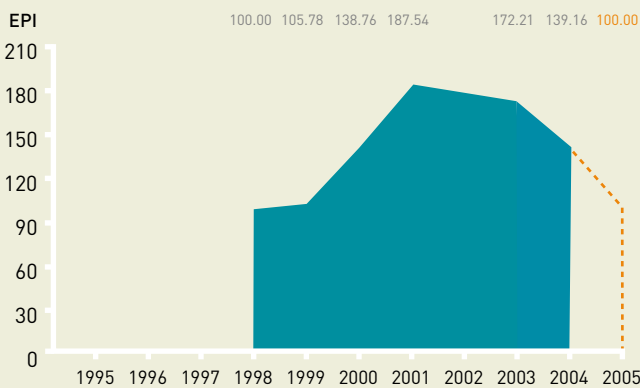
Eli Lilly S.A. - Irish Branch

Factors influencing 2004 results

- Lower steam usage due to the phasing in of newer, less energy-intensive production processes
- The mild winter weather conditions were also a factor.
- Cessation in the manufacture of an energy-intensive product

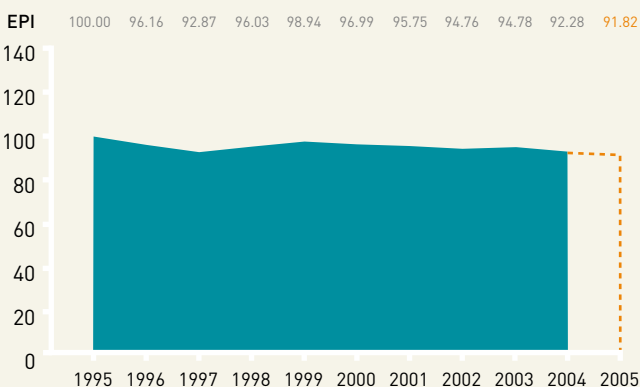
Future plans

- Energy consumption will rise during 2005, when utilities and HVAC in the newly commissioned production facility become operational.



Fruitfield Foods Ltd

Factors influencing 2004 results were not reported.



Glanbia Ingredients, Virginia

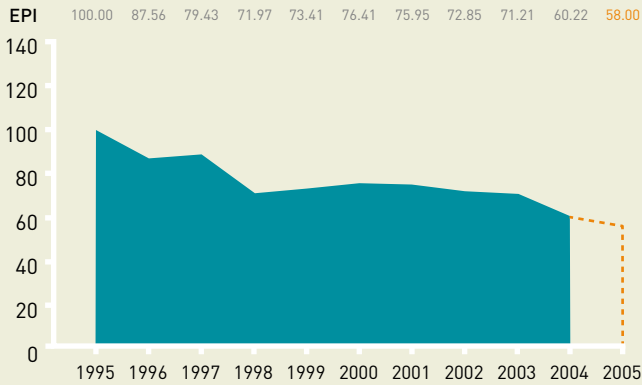
Factors influencing 2004 results

- Consumption of electricity and gas fell by 1.91% and 2% respectively.
- Production levels were higher than in previous years; energy utilisation improved as a result.

Future plans

- The planned CHP plant will deliver additional benefits in terms of energy cost per unit of production output. It will also make more efficient use of on-site gas resources.

■ RESULTS --- 2005 TARGET



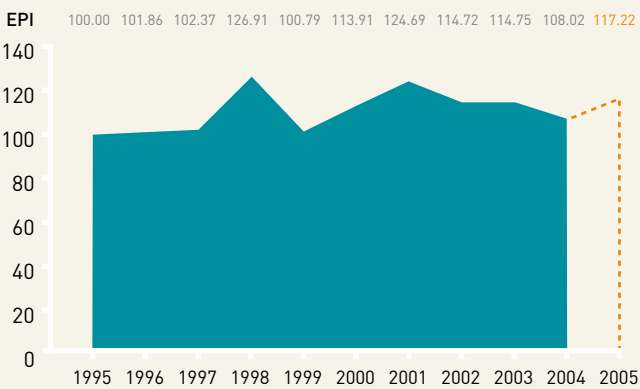
Glanbia Meats, Roscrea

Factors influencing 2004 results

- On-going programme of energy-saving improvements to plant machinery and equipment
- An increase in production throughput

Future plans

- Consumption of both oil and electricity set to fall due to the implementation of hot gas recovery projects in two areas of the plant – refrigeration condensers and the Singer Stack



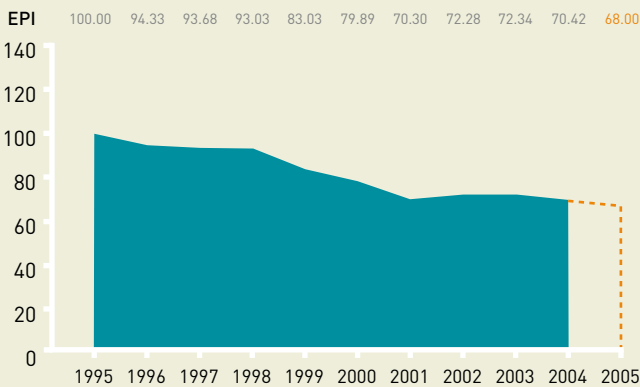
Glanbia Meats, Ruskey

Factors influencing 2004 results

- Regular meetings with staff to review energy usage
- Process controls installed in effluent treatment tank to ensure that reduced throughput is reflected in its energy usage

Future plans

- Heat recovery unit to be installed in refrigeration area
- Variable speed drives to be installed on aeration mixers



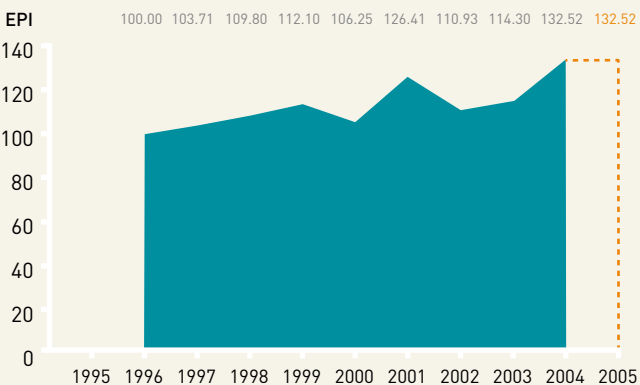
Glanbia Plc, Ballyragget

Factors influencing 2004 results

- Significant work carried out on the insulation of steam/hot water pipes
- Boiler performance disimproved slightly – more back-up boilers placed on standby
- Production output increased, thereby creating greater economies of scale.

Future plans

- Refrigeration plant to be decommissioned, following conversion of cold store to dry goods store
- Heat recovery projects to be implemented
- Production output set to increase significantly in 2005



Glanbia Plc, Inch

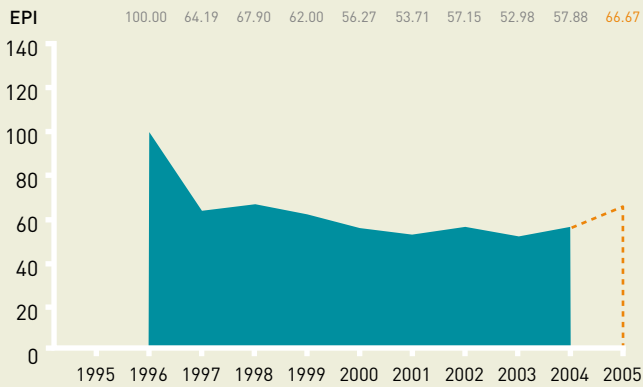
Factors influencing 2004 results

- Manufacturing output decreased in Q2 and Q3 2004 on foot of consolidation of production scheduling.

Future plans

- During Q1 and Q2 2005, energy consumption is expected to remain at Q2/Q3 2004 levels.
- Planned projects, aimed at both sequencing and streamlining energy demand, will lead to a reduction in energy consumption in Q3 and Q4 2005.

■ RESULTS --- 2005 TARGET



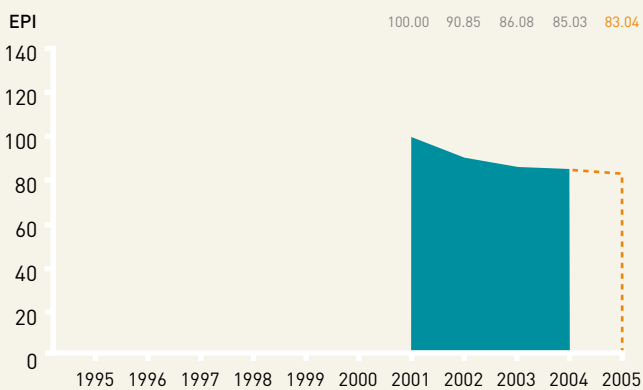
GlaxoSmithKline, Cork

Factors influencing 2004 results

- As anticipated, production output decreased, and this caused our EPI to disimprove by five points. (Only 20-25% of on-site energy consumption is directly related to production output.) We reduced energy consumption by 4.32% compared to 2003, exceeding our original prediction of 2.85%.
- Compressed air/steam systems' audit carried out and identified leaks repaired
- The installation of an economiser and new more efficient steam traps

Future plans

- Production output set to decrease further in 2005
- Installation of new M&T system in Q3/Q4, 2005



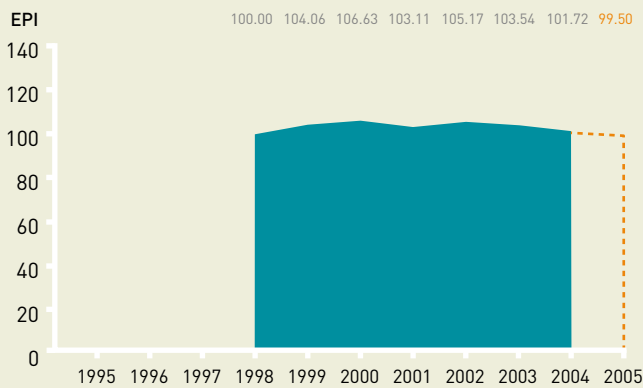
GlaxoSmithKline, Dungarvan

Factors influencing 2004 results

- Timely completion of manufacturing-capacity projects
- Lean Sigma (operational excellence) system used in manufacturing processes
- Optimal energy utilisation a priority in both day-to-day management of the plant and design of new projects

Future plans

- Continuous investment in energy-saving initiatives, aimed at further improving our EPI
- Energy consumption set to rise in 2005 due to increased production output



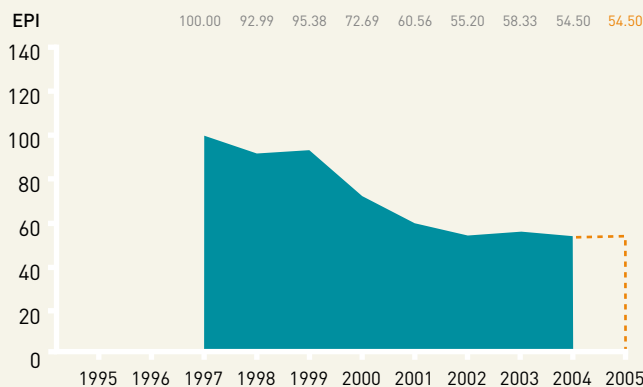
Gypsum Industries Ltd

Factors influencing 2004 results

- Operational adjustments made to kettle burners used for 'boiling' gypsum rock ensured delivery of optimum fuel consumption ratio
- Aggregate expansion rationalised as a result of replacing oil burners with high-efficiency gas burners

Future plans

- The commissioning of a new dryer
- The commissioning of a new kettle



Hewlett Packard (Manufacturing) Ltd

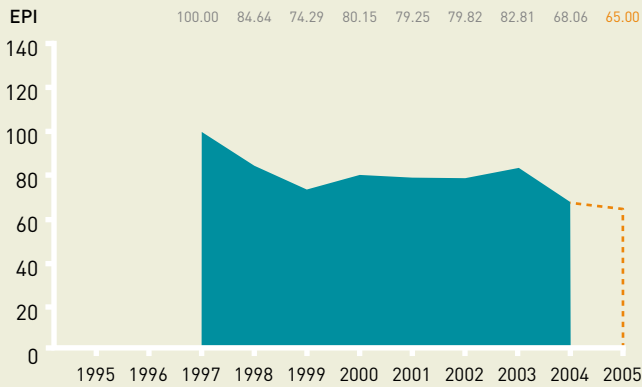
Factors influencing 2004 results

- Higher than forecast volumes of production output achieved

Future plans

- Site profile set to change from an exclusively manufacturing-focused activity to one with greater emphasis on R&D activity. As a result, production output could decrease by 10-15% during 2005.

RESULTS 2005 TARGET



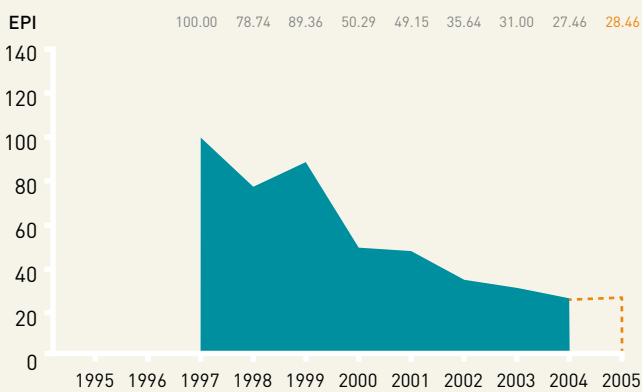
HJ Heinz

Factors influencing 2004 results

- Significant improvement in on-site gas conversion efficiency due to a change in product manufacturing activity
- Greater economies of scale achieved as a result of increased production output

Future plans

- Improved operating efficiencies anticipated on certain food production lines
- Installation of an improved energy monitoring system, planned for 2005, should enhance quality of targeting information



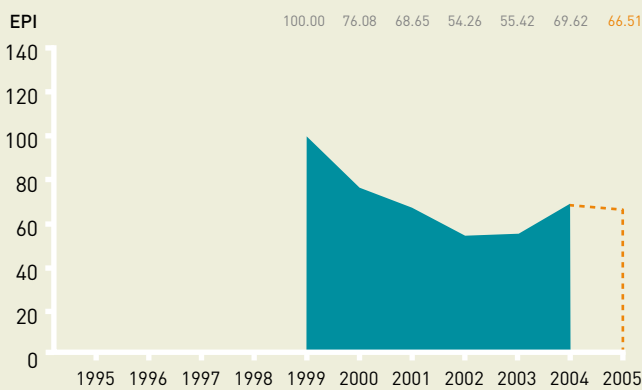
Honeywell Turbo Technologies

Factors influencing 2004 results

- Ovens product cycle was reduced.
- New moulding machine, together with new machine cell, improved efficiency.
- An old pre-heat oven was decommissioned.

Future plans

- Implementation of a range of business unit adjustments including the installation of some new machinery and the replacement of parts on others – all aimed at reducing overall energy consumption
- Replacement of chiller condensing coils should reduce the respective electricity consumption by 37.5%
- Air leak/thermographic and energy surveys to be carried out on an ongoing basis



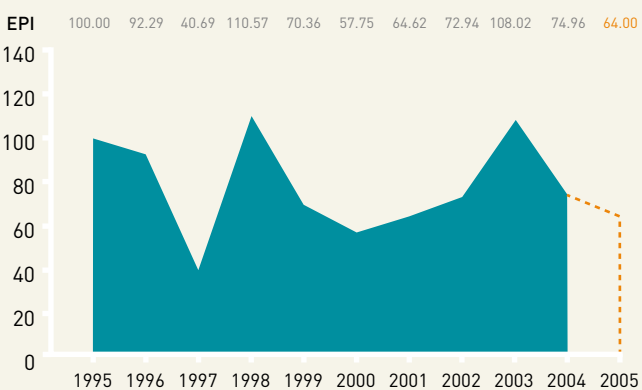
IBM International Holdings

Factors influencing 2004 results

- Construction of one building; retrofitting of another
- Increased energy-intensive product-testing activity
- On-site energy consumption reduced by 8% as a result of various initiatives including implementation of an 'on demand' model.

Future plans

- A new IBM division will move to the site, thereby increasing on-site energy demand.
- Continuing energy awareness campaigns
- Further expansion of 'on demand' energy model
- Investigation of energy-efficient plant systems for both heating and cooling



Intel Ireland Ltd

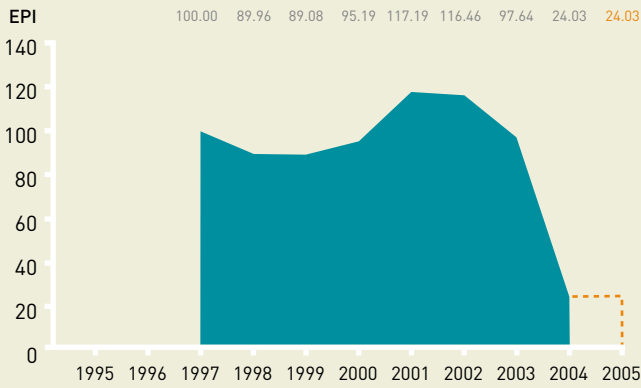
Factors influencing 2004 results

- Production output increased following FAB 24 ramp up.
- Implementation of a number of heat-load reduction projects led to a decrease in natural gas consumption.
- Change in the scheduled factory ramp up plan resulted in lower than expected energy demand.

Future plans

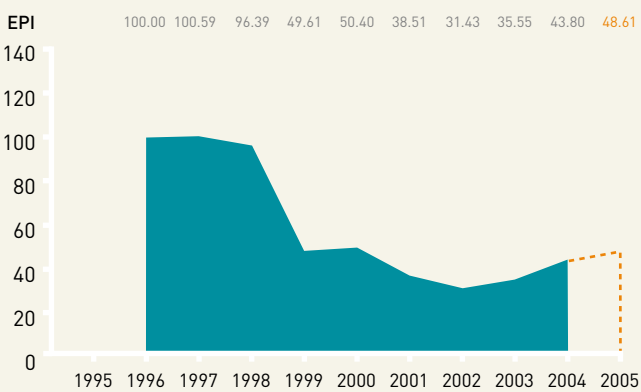
- Construction work on FAB 24-2
- Our overall production output / energy consumption ratio will improve as output from FAB 24 rises.
- A number of energy-reduction projects

RESULTS 2005 TARGET



Irish Shell Ltd

Factors influencing 2004 results were not reported.



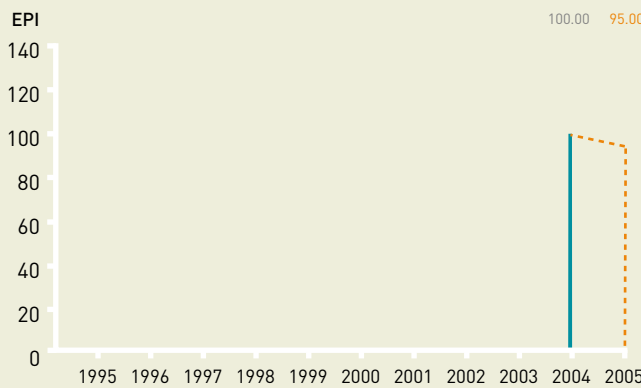
Janssen Pharmaceutical Ltd

Factors influencing 2004 results

- Production output decreased.

Future plans

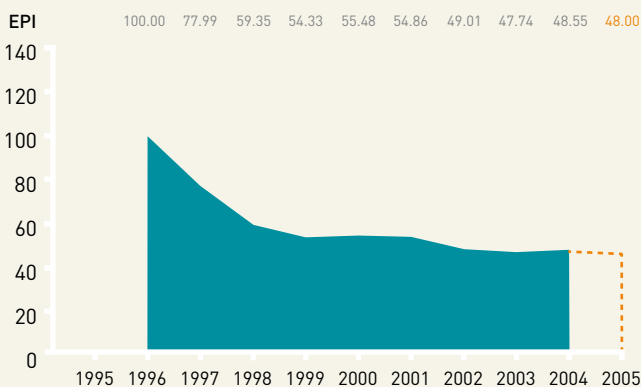
- The start up and commissioning of our new production facility, Plant 3, will have a significant impact on our 2005 energy consumption figures.
- Production output looks set to remain static for 2005.



Kerry Ingredients, Listowel

Future plans

- Implementation of energy recovery project – plans to reuse waste heat



Klinge Pharma

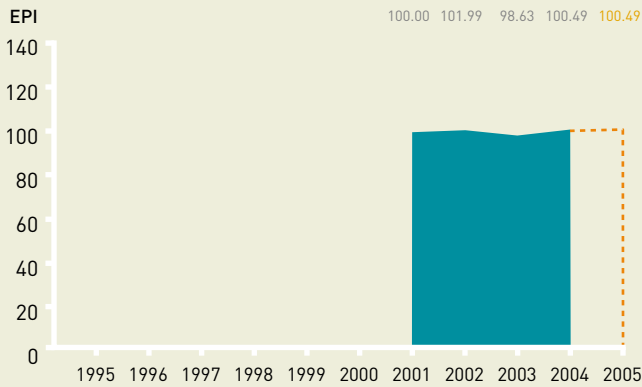
Factors influencing 2004 results

- While production output decreased, we did not record a corresponding decrease in on-site energy usage.

Future plans

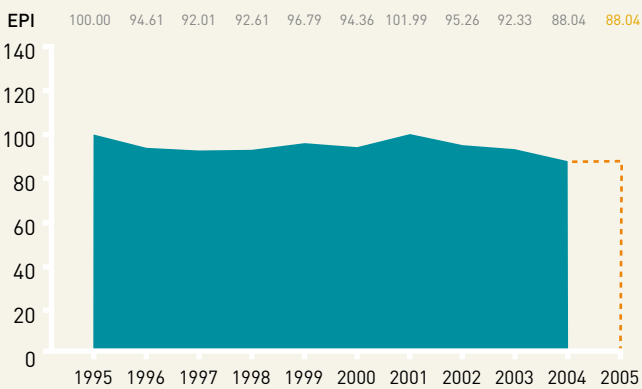
- Increased focus to be placed on our Energy Management System
- Major drive to reduce energy usage on foot of anticipated 17% rise in on-site energy costs
- At best, our production output for 2005 will remain static.

■ RESULTS --- 2005 TARGET



Kostal Ireland GmbH

Factors influencing 2004 results were not reported.



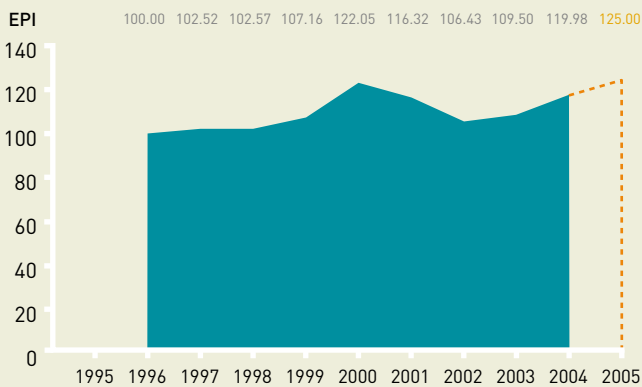
Lakeland Dairies, Bailieboro

Factors influencing 2004 results

- Upgrading of evaporator and product feed to the dryer led to better drying efficiencies.
- Improved energy efficiency throughout the process
- Increased on-site cold storage and compressed air for new packers created a negative impact.

Future plans

- Upgrading of butter-making system with automation and VSDs
- The addition of an automated butter ingredients preparation system that requires more product cooling
- Further upgrading of dryer air-handling systems
- Planning permission to be sought for the installation of a CHP gas turbine.



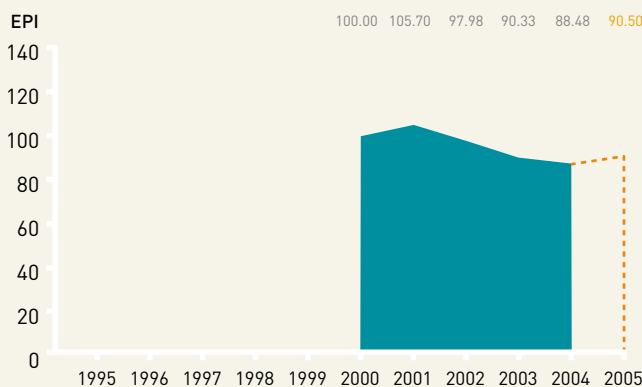
LEO Pharma

Factors influencing 2004 results

- In order to maintain GMP clean room standards, baseline energy consumption had to be maintained in manufacturing areas associated with products which are being phased out.
- Steam trap and leak survey carried out

Future plans

- Energy consumption will increase due to plant extension construction work.
- Novel energy-saving projects (focused on waste heat recovery) to be carried out
- We also hope to implement the Danish Energy Standard DS.INF 136E.



Lisheen Mine

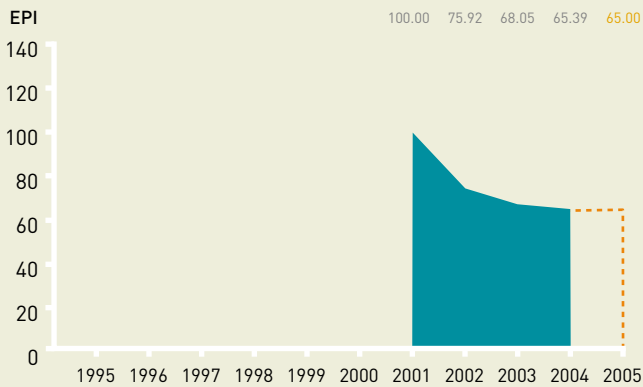
Factors influencing 2004 results

- Maintained impetus generated by energy-saving initiatives already in place
- Implemented energy audit recommendations
- A decrease in production output was outweighed by a decrease in energy usage.

Future plans

- Production output set to rise in 2005
- Energy consumption will increase as a result of development work on new ore body.
- Activity generated by new backfill plant will add about 700 KVA to our existing baseload.

■ RESULTS --- 2005 TARGET



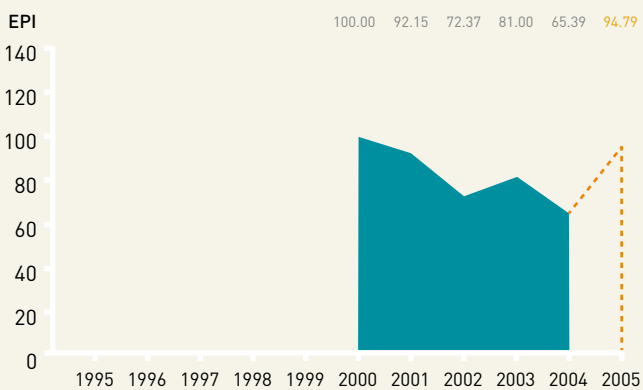
Masonite Ireland

Factors influencing 2004 results

- It was not possible to implement all the energy-saving projects originally planned. Others were not implemented until end 2004; therefore benefits will not accrue until 2005.

Future plans

- Lighting-efficiency project implemented late 2004 to deliver energy savings
- Two variable speed drives to be commissioned early 2005
- Significant upgrading of the M&T system to be carried out
- Trials of third generation energy-efficient wood refiner plates planned



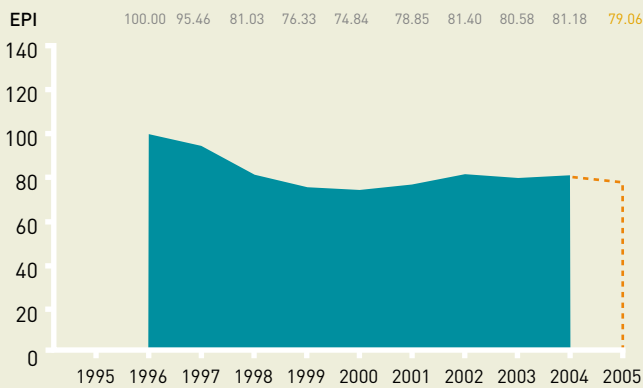
Merck Sharp & Dohme (Ireland) Ltd

Factors influencing 2004 results

- A number of successful energy-saving projects were implemented during 2004 which reduced the site' overall energy usage. These resulted in a reduction in compressed air and thermal energy savings.
- In addition, production volumes of both wet-end intermediates and finished product were higher than planned.

Future plans

- Challenges for 2005 include a reduction in overall site production volumes.
- A significant energy usage reduction target of 11% less than actual energy spend in 2004



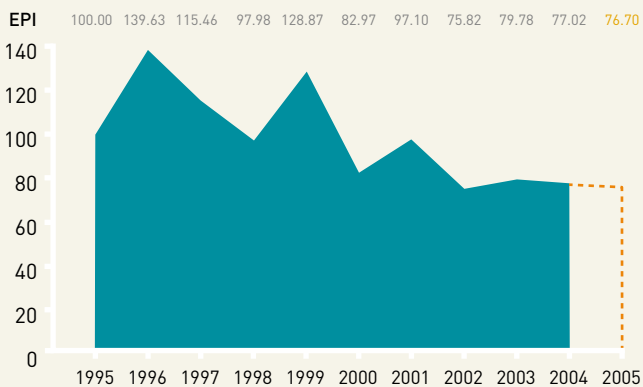
Micro-Bio Ireland Ltd, Fermoy

Factors influencing 2004 results

- Installation of chlorate decomposer resulted in the recovery of significant quantities of salt (1,934 tonnes), thus reducing effluent.
- Production output increased by 2.9%.

Future plans

- Electricity consumption will reduce by 8% as a result of total refurbishment of the cell room.
- Production capacity will increase by 5% following installation of three additional cells.
- Installation of clear roof sheeting in plant building will reduce artificial lighting/electricity requirements.



NEC Semiconductors Ireland Ltd

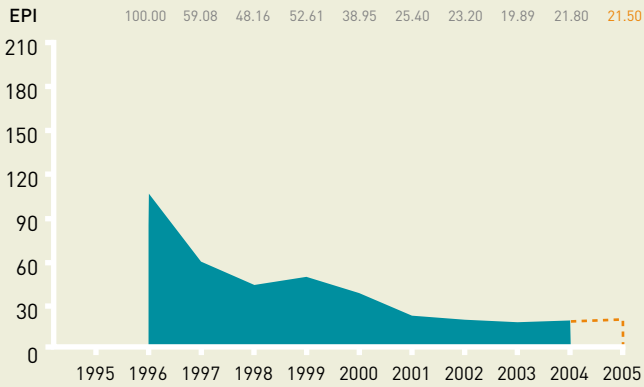
Factors influencing 2004 results

- Installation of high-energy usage equipment including second plating machine, additional BT ovens, testers and moulding press machines
- Increased production output, which resulted in increased compressed air usage

Future plans

- Production set to increase progressively throughout 2005

■ RESULTS --- 2005 TARGET



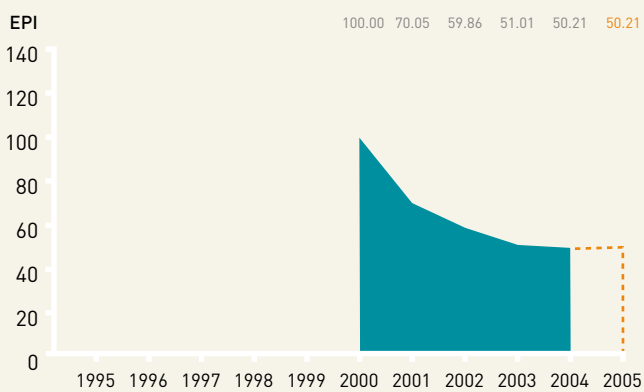
Novartis Ringaskiddy Ltd

Factors influencing 2004 results

- Production output and product mix changed in 2004. Weighed output decreased, while the introduction of launch products led to more products but less volume.
- Energy utilisation fell by 1% compared to 2003.

Future plans

- Energy initiatives planned for 2005 include
 - Boiler O₂ trim control
 - Reduction in once-through water usage
 - Replacement of cooling water pumps
- During 2005 we hope to re-visit the option of CHP for Ringaskiddy.



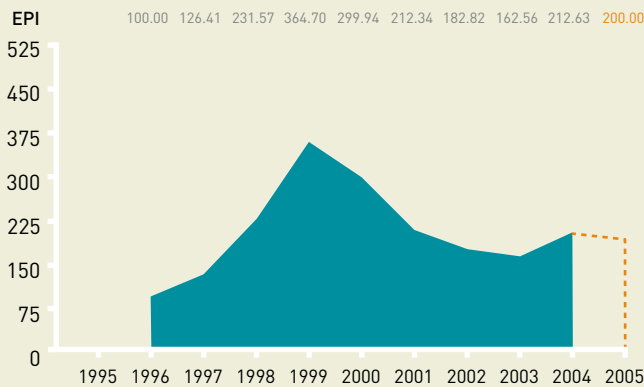
Pfizer Ireland Pharmaceuticals, Little Island API

Factors influencing 2004 results

- Implementation of energy-reduction programme, including optimisation of water chilling/cooling water/BMS systems
- Construction of new production facility
- Reduced manufacturing output due to changes in product portfolio

Future plans

- Continue implementation/assessment of various energy-optimisation initiatives in areas such as chilled water distribution, refrigeration, compressed air and heat recovery
- Electricity consumption set to rise due to replacement of vaporised liquid nitrogen system with on-site nitrogen generator
- Production output set to increase by 20%



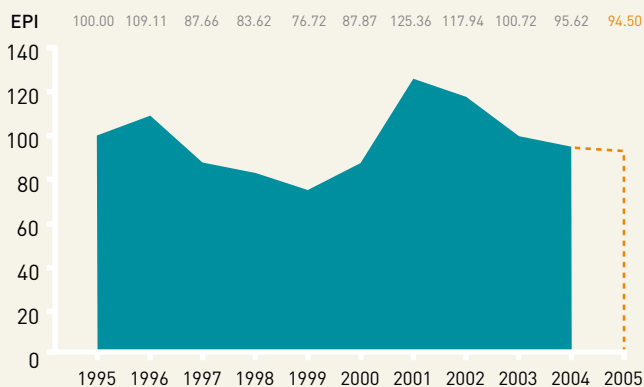
Pfizer Ireland Pharmaceuticals, Loughbeg API

Factors influencing 2004 results

- Nine energy-conservation projects implemented: these yielded significant on-site energy savings.
- Production volume output decreased by 5%.

Future plans

- Plant capacity will increase on foot of the construction of two extensions to the production building.
- The manufacture of certain new products will require a higher energy load than is required for our current product mix: this may affect our EPI negatively in the future.



Pfizer Ireland Pharmaceuticals, Ringaskiddy

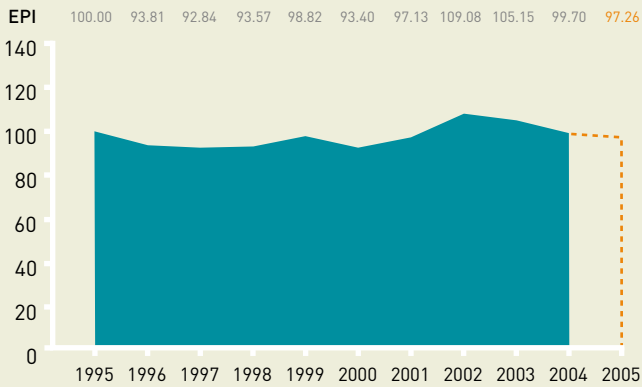
Factors influencing 2004 results

- Carried out improvements to high-energy usage utilities such as the cooling medium, compressed air and nitrogen. Improvement works also carried out on the low-temperature dowtherm system.
- Expansion of Energy Information System
- Partial completion of compressed air ring main; installation of VSD air compressor

Future plans

- Completion of boiler house upgrade
- Completion of compressed air ring main
- Review of HVAC strategy

■ RESULTS --- 2005 TARGET



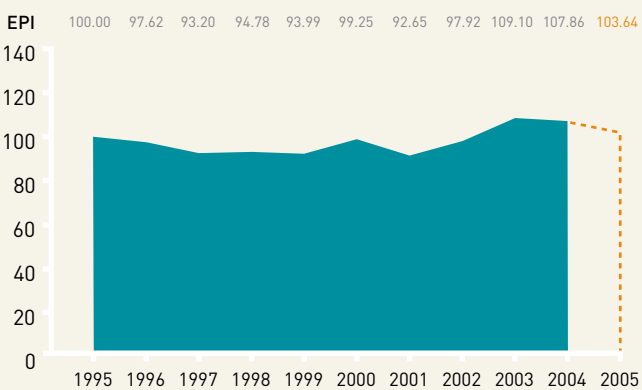
Premier Periclase Ltd

Factors influencing 2004 results

- Improved fuel and power efficiencies due to significant changes in our raw materials mix
- Implementation of changes to furnace draught control system led to reduced energy consumption.

Future plans

- Full impact of changes in our raw materials mix to be felt more fully in 2005.
- Continued emphasis on the substitution of natural gas with fuels of higher net-to-gross calorific value ratios will improve our EPI.
- Volume throughput set to decrease slightly



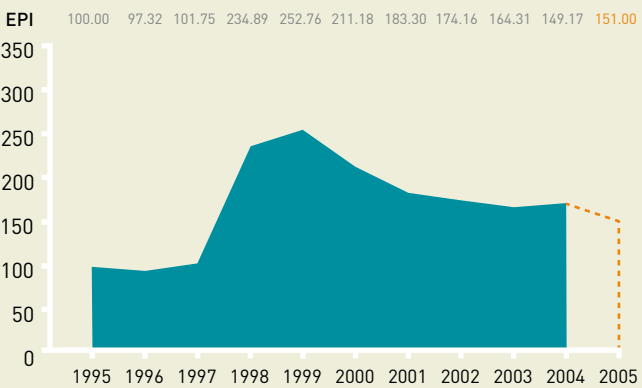
Pure Fresh Dairies Ltd

Factors influencing 2004 results

- Problems with the efficiency of the current chiller

Future plans

- New chiller to be commissioned in April 2005



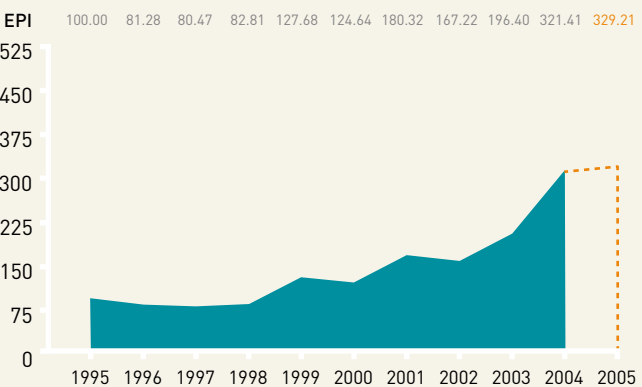
Roche Ireland Ltd

Factors influencing 2004 results

- Production output fell below 2003 levels.
- 2004 marked the first full year of using natural gas as the support fuel in the incinerator.

Future plans

- 2005 production output may fall below budgeted/forecast volumes.



Schering Plough (Avondale) Co.

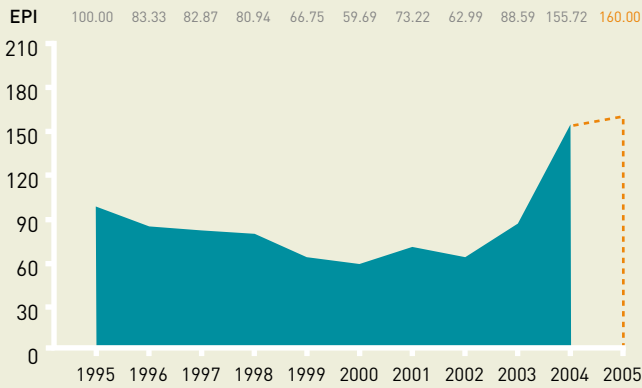
Factors influencing 2004 results

- Changes to existing product mix, coupled with the integration of new products, has caused a reduction in output which is not reflected in our energy consumption.
- New products requiring greater regularity control will increase energy consumption.

Future plans

- Construction of major extension to one of the main manufacturing buildings

RESULTS 2005 TARGET



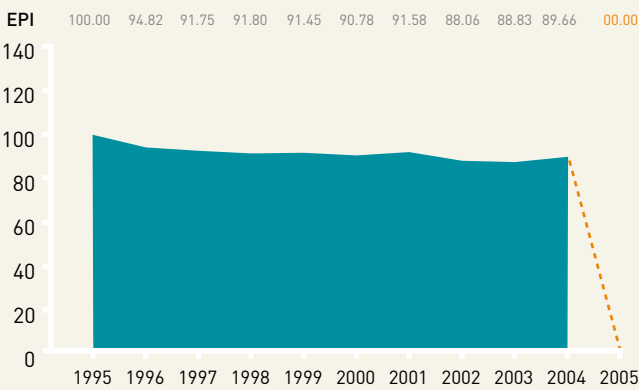
Schering Plough (Brinny) Co.

Factors influencing 2004 results

- The amount of finished product at the site was significantly reduced in 2004.

Future plans

- Due to reduced production volumes, coupled with a very high baseline energy load, we will not be in a position to improve our EPI.



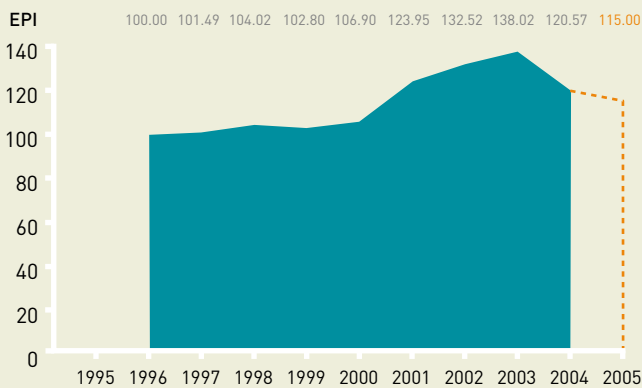
Smurfit Paper Mills Ltd

Factors influencing 2004 results

- Higher market demand for lightweight paper, the production of which is more energy intensive and less efficient in terms of electricity/heat generation
- Greater variation in quality of raw materials led to cleaning equipment being activated for longer periods than would normally be the case, thereby further increasing on-site energy consumption.

Future plans

- The mill has now ceased production.



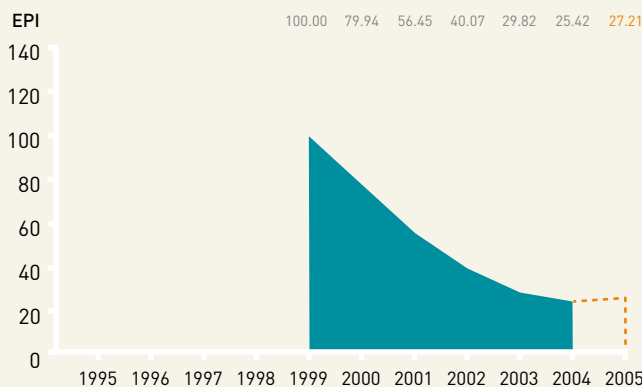
St Francis Abbey Brewery

Factors influencing 2004 results

- Refrigeration system upgrade completed: high-efficiency AC motors enabled greater compressor loadings.
- Brewhouse energy balance optimisation project completed.
- Project aimed at improving burner efficiency carried out.

Future plans

- Specialist utilities contractor to be appointed mid 2005.
- Targets for reducing energy usage will be established; programme aimed at achieving defined targets will be implemented.
- Significant reductions in electricity and natural gas consumption anticipated.



Takeda Ireland Ltd

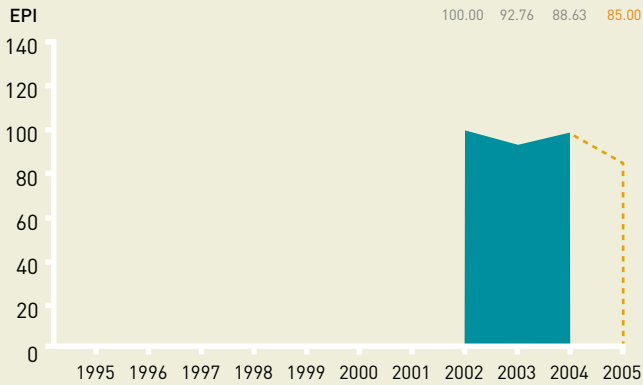
Factors influencing 2004 results

- Improved energy efficiency on site through energy projects undertaken during the year
- Increase in expected production of capsules to 115% of planned levels

Future plans

- Energy consumption is set to increase in 2005 following the introduction of additional plant items.
- Production volumes are also set to increase

■ RESULTS --- 2005 TARGET



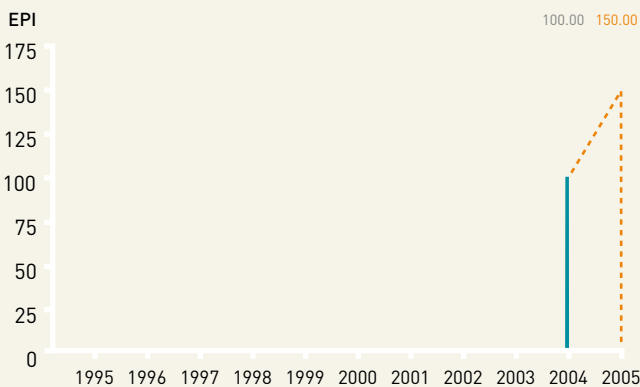
Tayto Limited

Factors influencing 2004 results

- Extensive energy awareness/energy conservation campaign carried out across the site.
- Installation of additional process controls led to a reduction in primary energy usage.

Future plans

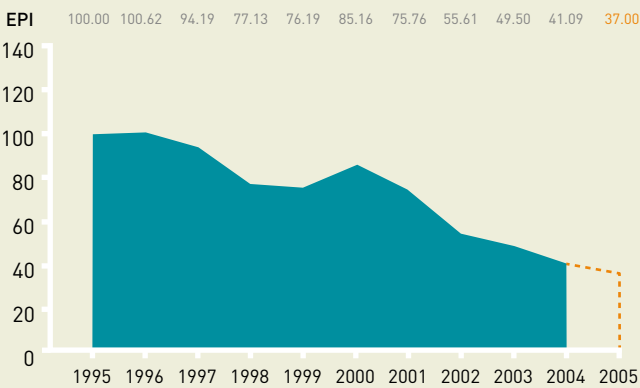
- New energy team to be put in place



Tech Group Europe, Dublin

Future plans

- Planned projects for 2005 include the installation of an additional air handling unit, additional moulding machines and an additional chiller.
- Two projects will be undergoing evaluation during 2005 – the installation of a geo-thermal heating/cooling system and the installation of a CHP plant.



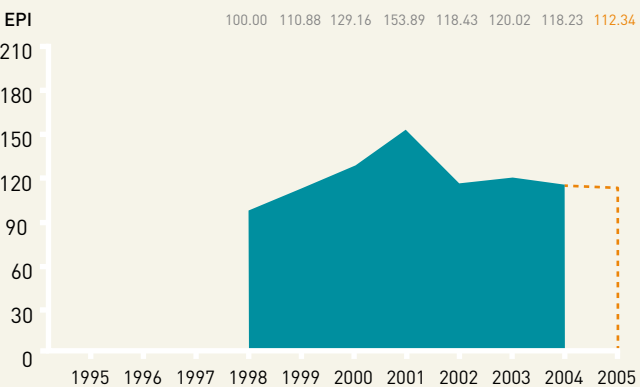
Thermo King Europe

Factors influencing 2004 results

- Lower water consumption due to increased focus on high-usage areas; installation of automated water management system
- Increased production output

Future plans

- Installation of energy management system in R&D building and cafeteria building, aimed at reducing energy usage
- Possibility of replacing diesel power with electricity for running unit tests to be investigated



Transitions Optical Ltd

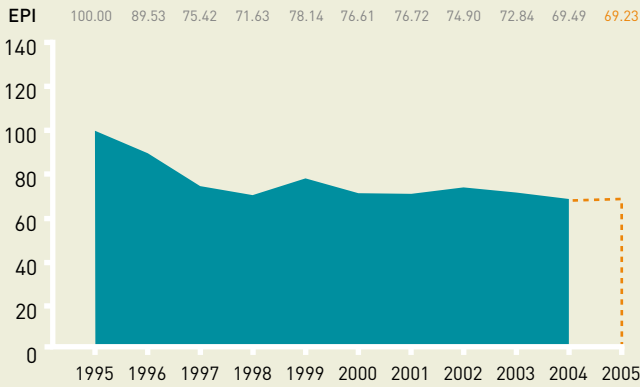
Factors influencing 2004 results

- New production line, which was installed in 2004, requires a higher energy input per lens unit processed.

Future plans

- Installation of another new production line will present a major challenge to the achievement of our 2005 energy-reduction targets. As a result, we will be implementing a number of projects aimed at achieving energy reductions.

RESULTS 2005 TARGET



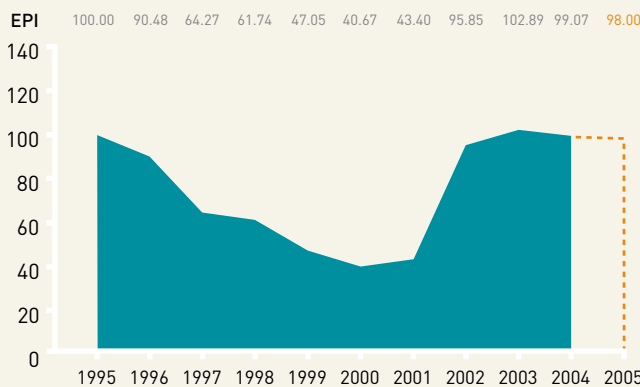
Tyco Healthcare, Mulhuddart

Factors influencing 2004 results

- Commenced steam trap replacement programme
- Increased run time on high-efficiency boiler
- Rise in electricity consumption, mainly due to increased production output
- Fall in gas consumption, mainly due to energy conservation measures implemented during 2004

Future plans

- Completion of steam trap replacement programme
- Some older light fittings to be replaced with more efficient units
- Project aimed at optimising operation of waste water treatment plant



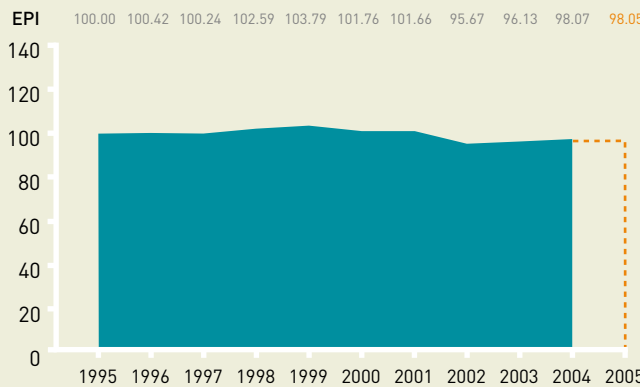
Waterford Crystal Ltd

Factors influencing 2004 results

- Reduced on-site energy demand during four-week short-time working period
- Reduced oil consumption at Dungarvan site following changeover to more efficient burners
- Shutdown of multi-pot and pot-arch furnaces at Kilbarry site

Future plans

- Implementation of recommendations from Kilbarry site's 2005 energy audit
- Integration of Dungarvan plant into Kilbarry site may lead to some net increase in energy usage.



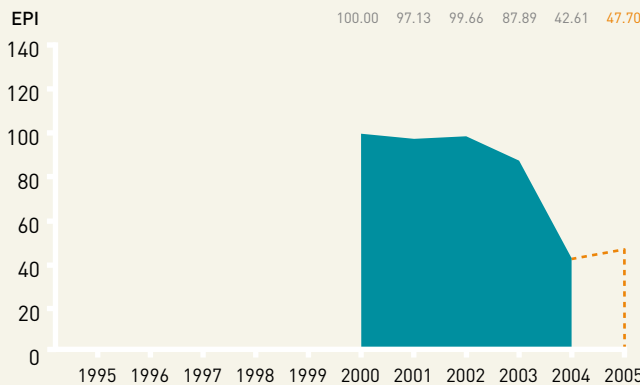
Wellman International Ltd

Factors influencing 2004 results

- Replacement of old reciprocal compressor with new screw machine
- Re-insulation of polymer dryer
- Reduction in overall production output

Future plans

- Implementation of recommendations made on foot of compressed air/steam survey to begin during 2005
- A 6% increase in energy usage anticipated, due to commissioning of additional production equipment
- Continuation of insulation replacement programme for transfer tubes on our polymer lines



Western Proteins

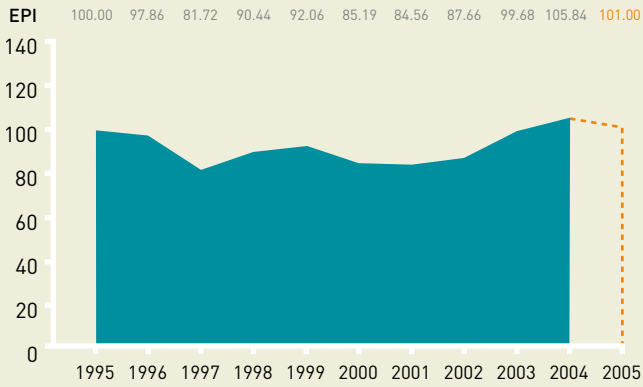
Factors influencing 2004 results

- Rise in electricity consumption due to increased processing requirements
- Reduction in energy efficiency due to a fall in throughput

Future plans

- Further fall in volume throughput anticipated; this will have a negative impact on our EPI in 2005.
- Energy usage expected to rise during 2005, due to increased processing requirements

RESULTS 2005 TARGET



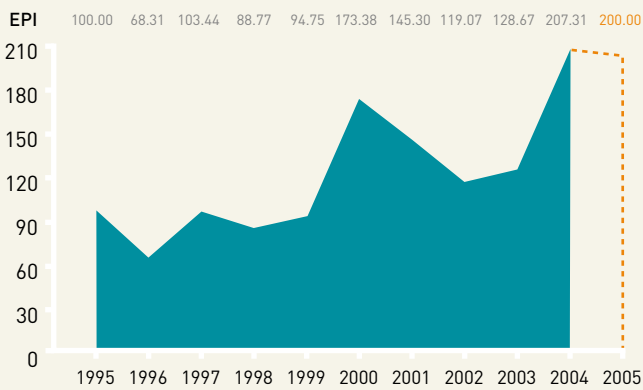
Wyeth Medica Ireland Ltd

Factors influencing 2004 results

- Poor CHP plant performance
- An increase in primary energy usage due to process changes

Future plans

- Increase in primary energy usage (due to on-going plant expansion work) coupled with delay in reaching full production capacity will have a negative impact on our EPI for 2005.
- Significant energy savings to be generated as a result of major energy awareness campaign
- Implementation of a number of energy-saving projects



Yamanouchi Ireland Co Ltd

Factors influencing 2004 results

- Reduction in manufacturing output from Plant No 1
- Plant No 2 closed for modification

Future plans

- Low production output expected from Plant No 2
- Oxygen trim system to be fitted to main boilers
- Increased chiller set points

The following sites were unable to report this year; however they do intend reporting for 2005:

- Abbott Ireland, Cavan
- Saehan Media Ireland Ltd
- Tyco Healthcare, Athlone

About Sustainable Energy Ireland

Sustainable Energy Ireland (SEI) is Ireland's national energy agency. Established on May 1st 2002 under the Sustainable Energy Act 2002, SEI has a mission to promote and assist the development of sustainable energy.

This encompasses environmentally and economically sustainable production, supply and use of energy, in support of Government policy, across all sectors of the economy.

Its remit relates mainly to improving energy efficiency, advancing the development and competitive deployment of renewable sources of energy and combined heat and power, and reducing the environmental impact of energy production and use, particularly in respect of greenhouse gas emissions.

SEI is charged with implementing significant aspects of the Green Paper on Sustainable Energy and the National Climate Change Strategy as provided for in the National Development Plan.

SEI manages programmes aimed at:

- assisting deployment of superior energy technologies in each sector as required;
- raising awareness and providing information, advice and publicity on best practice;
- stimulating research, development and demonstration;
- stimulating preparation of necessary standards and codes;
- publishing statistics and projections on sustainable energy and achievement of targets.

SEI is responsible for advising Government on policies and measures on sustainable energy; implementing programmes agreed by Government and stimulating sustainable energy policies and actions by public bodies, the business sector, local communities and individual consumers.

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