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Topten International Group
Zurich, Switzerland

Investing in Energy Efficiency and our Future

Topten Global Annual Report 2013

Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra

WWF

ADEME
Agence de l'Environnement et de la Maîtrise de l'Energie

European Climate Foundation

Table of Contents

List of Abbreviations

ADEME	French Environment and Energy Management Agency
BAT	Best Available Technology
BEEC	Beijing Energy Saving and Environment Protection Center
CEI	China National Electric Apparatus Research Institute
CHEARI	China Household Electric Appliance Research Institute
CLASP	Collaborative Labeling & Appliance Standards Program
CL&P	Connecticut Light & Power
CNG	Connecticut Natural Gas
CNIS	China National Institute of Standardization
CSC	China Standard Certification Center
CVC	Certification and testing base of CEI
EACI	European Commission Executive Agency for Competitiveness and Innovation
EEB	European Environment Bureau
EC	European Commission
ECEEE	European Council for an Energy Efficient Economy
ECF	European Climate Foundation
ECOS	European Environmental Citizens Organization for Standardization
EEDAL	Conference on Energy Efficiency in Domestic Appliances and Lighting
EFI	Energy Federation Incorporated
ERI	Energy Research Institute
EU	European Union
FVSA	Fundacion Vida Silvestre Argentina
GfK	Gesellschaft für Konsumforschung (German market research institute)
GWh	Giga watt hours
ICLEI	Local Governments for Sustainability
IEA	International Energy Agency
IIEC	International Institute for Energy Conservation
IISD	International Institute for Sustainable Development
IT	Information Technology
LED	Light emitting diode
MACEEP	Market Analysis of China Energy Efficient Products
MEPS	Minimum Energy Performance Standards
MIIT	Ministry of Industry and Information Technology
MOF	Ministry of Finance
NDRC	National Development and Reform Commission
NECC	China National Energy Conservation Center
NIM	China National Institute of Metrology
PG&E	Pacific Gas & Electric Company
SCE	Southern California Edison
SDC	Swiss Development Cooperation
SEAD	Super Efficient Equipment and Appliance Deployment program
SECO	Swiss State Secretariat for Economic Affairs
SEDI	Super Efficient Dryer Initiative
SMUD	Sacramento Municipal Utility District
TIG	Topten International Group
TWh	Terra watt hours
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
VDE	Association for Electrical, Electronic & Information Technologies
VECC	Vehicle Emission Control Center of the Chinese Ministry of Environmental Protection
WWF	Worldwide Fund for Nature

Executive Summary

Topten is an international, independent, not-for-profit network promoting energy efficiency. Its mission is to mitigate climate change through market transformation. WWF, together with Topten, works to promote low carbon technologies as a way to mitigate climate change. Topten is a consumer friendly tool to communicate energy efficiency targeting policy-makers, consumers, and companies.

Topten operates in 21 countries to provide on-line information of the best available technologies, with key country-specific product information. Additional countries are planning to join the Topten network as soon as possible. These include Chile, Argentina, Mexico, and India.

In addition to providing and updating web-based product lists, Topten also works closely with governments and the private sector to push energy efficiency forward in the market. This includes cooperation with policy-makers to set regarding minimum energy performance standards (MEPS) and energy labels. Topten does this through continuous market research, norms tracking, customer information and voluntary agreements with industry and retailers.

Top10 China

The groundbreaking Market Analysis of Chinese Energy Efficient Products (MACEEP) was launched on September 9, 2013 by Top10 China and the Collaborative Labeling & Appliance Standards Program (CLASP). This 200 page research report revealed how China can save 1,000 terawatt hours by 2030. This is equal to 400 mid-size coal-fired power plants. Based on the report and to an ongoing dialogue with policy makers, new Minimum Energy Performance Standards (MEPS) and energy efficiency classifications for washing machines, panel TVs, and variable speed air conditioners were released on October 1, 2013.

- More than 6,000 products were screened and 90 policy recommendations made. Last September, WWF co-launched the Topten report "How China Can Save 1,000 Terawatt Hours" http://www.top10.cn/news/131/36/How-China-can-save-1-000-terawatt-hours-of-electricity-by-2030.html

The MACEEP report quickly generated several policy impacts in China, including:

- The National Development and Reform Commission (NDRC) concluded to revise the current subsidy program of €3.2 billion, and decided upon a timeline for this.
- The China National Institute of Standardization (CNIS) introduced new Minimum Energy Performance Standards (MEPS) and energy efficiency classifications.
- The Standardization Administration of China (SAC) announced a set of new energy efficiency standards for several products including five appliances.
- UNDP China, the Swiss Embassy in Beijing, and Top10 China co-hosted a forum on China Low Carbon City Solutions in Moonlake, Inner Mongolia on 14-15 September. More than 40 high level and influential individuals from Chinese ministries, municipal governments, international organizations, NGOs, enterprises etc. participated.
- A mid-term evaluation of Top10 China was commissioned in July by the funder SECO, the Swiss government agency. Conclusions were positive and the Topten China program was well received. Based on this evaluation, Top10 China has started moving into new areas including lowering trade barriers, green procurement (in collaboration with WWF), low carbon city (in collaboration with WWF and UNDP), and industrial motors. A Motor Summit is planned in Beijing for June 2014.

Topten Europe

In Europe, Topten initiated a project to promote best available technology of commercial cold appliances and vending machines. Global actors, including Unilever and Nestlé, are being approached to encourage them to switch to more efficient coolers, freezers, and service cabinets.

- Lastly, the WWF Switzerland consumer app, including Topten information, was awarded silver in the best of Swiss apps in a 2013 competition.

Message from the President

For Topten, 2013 was a year filled with many challenges, successes, lessons learned and great plans for the future in energy efficiency throughout the world. These big strides would not have happened without the cooperation and support of our partners: WWF, European Commission, Swiss Government, the European Climate Foundation, and the test institute Association for Electrical, Electronic & Information Technologies (VDE).

This year we had many successes. To highlight one very important accomplishment was the release of the MACEEP report in China. The MACEEP report was a significant milestone for Top10 China. Top10 China built a competence center for energy efficiency, where our research is recognized by both Chinese policy makers and the international research community.

When Topten was first launched in 2000 in Switzerland, the goal was to create a central website that promoted only the most energy efficient products and get that website into the hands of consumers, businesses, and policy makers. In the 13 years since we began this journey, we now have 21 countries that have joined the Topten team and have websites in 15 double check number different languages! And the work continues to get other countries on board such as India, Mexico, and Brazil.

Energy efficiency is the "world's first fuel", a cost effective strategy when addressing the rising energy prices, infrastructure reliability issues, and protecting the environment. The Topten national programs are crucial for the betterment of the environment and for the mitigation of climate change.

Eric Bush
President
Topten International Group

Combating climate change by catalyzing market transformation

After several years of work of over 800 scientists around the world, the 5th assessment report (AR5) from the Intergovernmental Panel on Climate Change (IPCC) was published in 2013. **Now, in light of the IPCC results, it is considered even more certain that human influence has been the dominant cause of the observed warming since the mid-20th century.** This time, the IPCC also studied different climate mitigation scenarios. The "blue RCP2.6" is a scenario with strong emissions reduction, with this scenario global warming can be stopped below 2°C. The best-estimate warming potential by 2100 is still 4 °C (see Figure 1).[1]

The effects of global warming due to the increase of temperature are catastrophic environmental events, such as sea-level rise, land- and sea-ice losing mass, dry areas to become drier, moist areas even wetter and oceans acidification.[2]

As the source of two-thirds of global greenhouse-gas emissions, the energy sector will be pivotal in determining whether or not climate change goals are achieved. According to the IEA, the energy-related carbon-dioxide emissions could rise by 20% from 2011 to 2035, leaving the world on track for a long-term average temperature increase of 3.6°C.[3]

Specifically, the power (electricity) sector represents over half of the increase in global energy use.[4]

Global energy demand and emissions will continue growing but strong polices and a market transformation with strong focus on energy efficiency can influence the pace.[5]

1 Climate Change 2013: The Physical Science Basis – Fifth Assessment Report (AR5) www.ipcc.ch/report/ar5/wg1/

2 Climate Change 2013: The Physical Science Basis – Fifth Assessment Report (AR5) www.ipcc.ch/report/ar5/wg1/

3 World Energy Outlook 2013. Factsheet. International Energy Agency. www.iea.org/media/files/WEO2013_factsheets.pdf

4 World Energy Outlook 2013. Executive Summary. International Energy Agency. www.iea.org/media/executivesummaries/WEO_2013_ES_English_WEB.pdf

5 World Energy Outlook 2013. Factsheet. International Energy Agency.

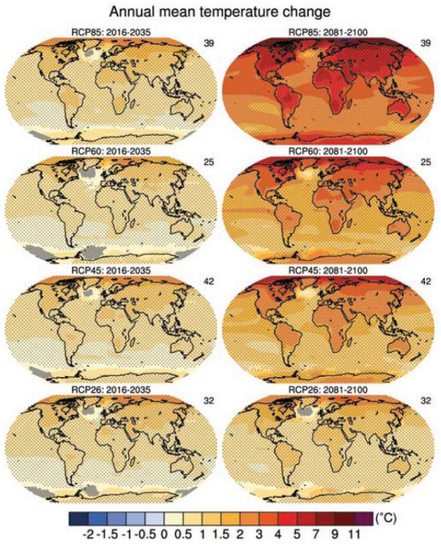


Figure 1. Global Warming

Maps: Multi-model ensemble average of annual mean surface air temperature change

Source: Climate Change 2013: The Physical Science Basis – **Technical Summary**, IPCC www.climatechange2013.org/images/uploads/WGIAR5_WGI-12Doc2b_FinalDraft_TechnicalSummary.pdf

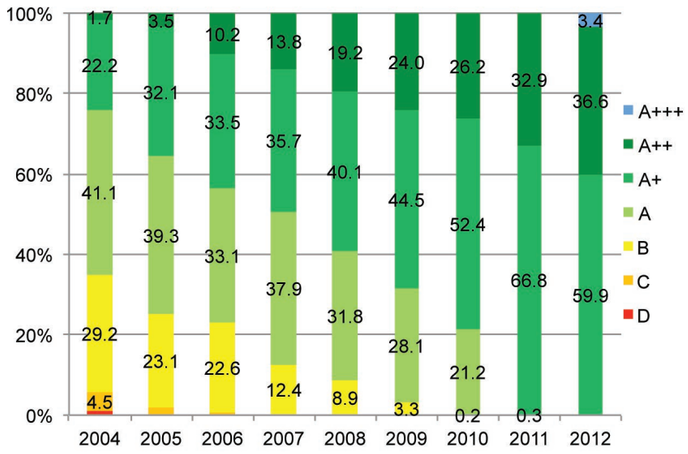


Figure 3. Sales of freezers in Switzerland

transformed over time to a high efficiency market, with a strong presence of appliances in the A++ category and above, saving energy during the service life of the freezers.

S.A.F.E., Topten.ch, FEA (2012)
www.topten.ch/uploads/images/download-files/FEA-Geraetestatistik-2004-2012-Juli-13.pdf

Nowadays, "… it is imperative to get much more out of the energy we use." WWF General Director, Jim Leape.[6]

In all countries, the average percentage of the electricity produced by home appliances and electric equipment is approximately 35%.[7] This makes it clear that a transformation to an energy-efficient market of electrical products has an enormous impact to mitigate climate change. **Switching to the best technologies available today would save at least 40% of residential electricity consumption in most appliance categories.**[8]

Rapid market transformation towards energy efficiency will not only mitigate greenhouse-gas emissions but also reduce energy prices, reduce household budgets, and lower the need of investment in new energy infrastructure to meet the energy demand.[9] In Switzerland, the sales of freezers transformed over time to a high efficiency market, with a strong presence of appliances in the A++ category and above, saving energy during the service life of the freezers.

6 Topten Annual Report 2012 www.topten.eu/uploads/File/Topten-global-annual-report-2012.pdf

7 Gadgets and Gigawats, Polices for Energy Efficiency in Electronics. IEA www.iea.org/publications/freepublications/publication/gigawatts2009.pdf

8 Gadgets and Gigawats, Polices for Energy Efficiency in Electronics. IEA www.iea.org/publications/freepublications/publication/gigawatts2009.pdf

9 World Energy Outlook 2013. Executive Summary. International Energy Agency. www.iea.org/media/executivesummaries/WEO_2013_ES_English_WEB.pdf

What others say about Topten

"TopTen USA has created a website that serves as a helpful source of additional information on ENERGY STAR products, contributing to the overall effort to improve product efficiency by catering to consumers interested in a comprehensive, pre-purchase assessment of super-efficient options."

Ann Bailey
Director, ENERGY STAR Product Labeling, U.S. Environmental Protection Agency

„Swiss Re was one of the first financial services providers to recognise the challenges posed by climate change. A climate strategy was developed to address the issue of changing weather patterns given the risk and opportunities it presents to the company. This strategy also comprises the involvement of our employees to efficiently reduce their own CO_2emissions and energy consumption, thus leading by example. Our innovative CO_{you2} programme subsidises private emission-cutting investments of our employees globally. For many of our locations, Topten provides the matching platform to best select the most energy-efficient products, and is a powerful and easy tool to keep up-to-date with technological process and inventions. That's why partnering with Topten made perfect sense for Swiss Re."

Vincent Eckert
Head Internal Environmental Management, Swiss Reinsurance Company, Switzerland

„Consumers seek value-for-money in their purchases – and respond positively to credible information on the competitive edge of latest technologies. TopTen is an extraordinarily important initiative which can significantly nudge consumers towards higher BEE-star rated devices and appliances."

Dr. Ajay Mathur
Director General, Bureau of Energy Efficiency (BEE), India

"TCO Certified is an international sustainability certification for IT products and includes a wide range of criteria ensuring that the manufacturing, use and recycling of IT products is carried out with regard to environmental and social responsibility. TCO Certified has since 1992 aimed to make it easier for organizations to meet their sustainable IT goals. TCO Development and Topten have initiated a collaboration to find synergies to achieve common goals of reducing environmental impact of products and production and to improve working conditions in production."

Gabriella Blomgren
Marketing Director, TCO Development, Stockholm, Sweden

„To advance in the energy efficiency field standards are required, but also clear and transparent information. Topten allows consumers to compare technologies and make decisions with additional information. Chile has energy efficiency labels for different appliances, but there isn't a methodology to reward the best ones. Therefore, Topten positions energy efficiency, to raise awareness and to help the market advance towards best available technology. Topten is internationally recognized and it is a methodology that evaluates various aspects that influence the final purchase decision."

Marcelo Padilla Valdés
Profesional, División de Eficiencia Energetica, Ministerio de Energía, Chile

„Romande Energie is the most important Topten partner in the French speaking part of Switzerland. The objective of our cooperation is to inform and advise the public about energy saving measures. Joint activities are implemented on a continuous basis to promote energy saving appliances with Swiss households. During the summer of 2013, Romande Energie and Topten launched a special rebate program, providing customers with a rebate of CHF 200 when purchasing an energy efficient Topten listed television"

Natacha Delessert
Spécialiste Marketing et Communication, Romande Energie Commerce SA

"Energize Connecticut has embraced our partnership with TopTenUSA to inform and educate Connecticut residents about the availability of energy-efficient appliances and consumer electronics in the retail market. The site is one of many tools used to fulfill our plans to make Connecticut the most energy-efficient state in the country."

Marissa Westbrook
Manager of Residential Energy Services, The United Illuminating Company, USA

"In mid-2013, Top10 began formulating a joint project in the field of sustainable energy city together with UNDP and CICETE. It is being expected that the upcoming project will bring together the synergy of Top10's technical expertise and UNDP's added values in an attempt to influence China's massive urbanization drive. The project will bring Swiss and EU best practices in urban energy conservation and low carbon construction to China."

Zheng Weidong
United Nations Development Program, Project Officer, China

„Top10 China devotes themselves to energy conservation and environmental protection for the public interest, always maintain a pioneering and innovative attitude that we respect and appreciate very much. We also thank Top10's trust and support and send best wishes to all of your team in the New Year 2014!"

Mr. Zhongwu Jin
Deputy Chief Representative of Cleantech Switzerland, China Office

"In order to harmonize and publish energy efficiency standards that are of utmost importance for Latin America countries, we know that it Topten is working to publish and distribute the energy efficiency research being done with COPANT (Pan American Commission of Technical Standards) to a wider audience. The harmonization of technical standards among America's countries is aligned with global efforts to educate consumer to purchase products that are more and more efficient, directly contributing to a reduction for the need of new electrical energy sources."

Ing. Fabián Yaksic
Secretaría COPANT CT 152 – Eficiencia Energética y Energías Renovables (energy efficiency and renewable energy)

„Top10 is a very professional technical NGO focusing on energy efficiency, and it can contribute a lot to China's low carbon city development in practice."

Mr. Shi Dinghuan
State Council Counsellor, China

„In China there are too many green movements, campaigns, and slogans in the cloud, we do need more effective actions on the ground like Topten to help the county's sustainable development."

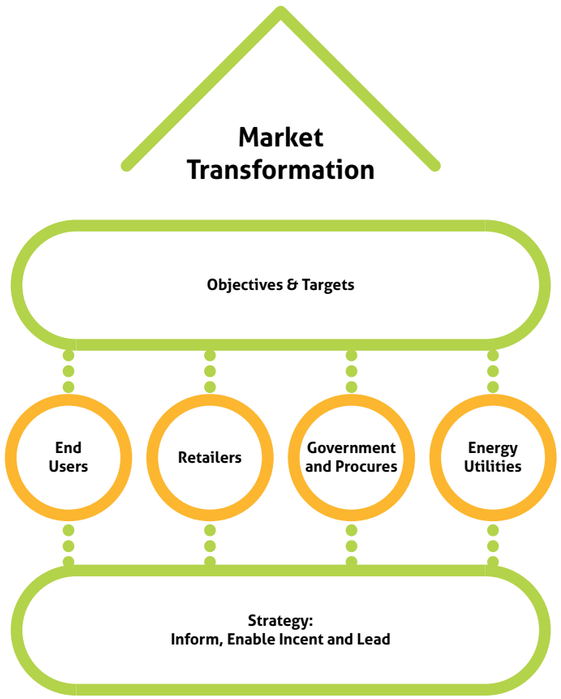
Mr. Song Jun
Chairman of JiuHanTianCheng, Founding Deputy President of Society for Entrepreneurs & Ecology, China

Strategic direction

The overall mission of Topten is to mitigate climate change through market transformation towards energy efficient consumer products. Energy consumption in the construction, transport, domestic household and office equipment sectors is reduced by making efficient products both the norm and the best choice, for consumers as well as for policy makers, large buyers, retailers, and manufacturers. Thus, the market share of these products will increase.

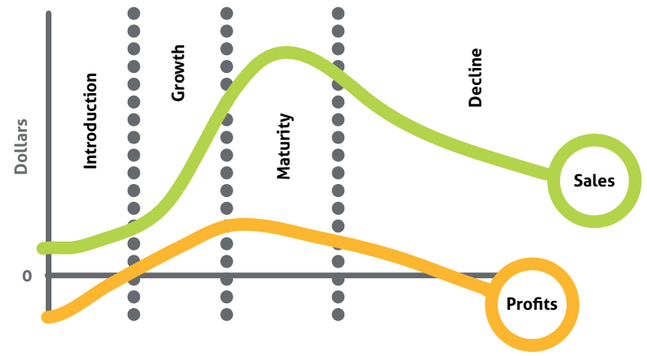
The strategic components to reach these objectives are:

- The creation and maintenance of national Topten websites. They provide up-to-date information about the most energy efficient products currently available and present it in a user-friendly format. The products are selected and ranked on the basis of sound market research and impartial tests, also considering criteria specific to the respective national legislation and relevant conditions. In all countries where Topten is active, the focus lies on four main areas: building components, mobility, electronics, and home appliances. The product categories within these four areas may differ depending on country.
- Cooperation with large public and private buyers, including public procurers and retailers, who make energy savings one of their priorities;
- Advice to public procurers, including the development of concrete procurement tools, such as templates for tender documents and product guidance sheets, www.topten.eu/professional.html;
- Cooperation with the media and civil society organizations, such as consumer and environmental groups, relaying the Topten message as part of their work;



- Communication activities targeting end consumers, such as a Topten app;
- A dialog with the manufacturing industry of consumer goods, especially on upcoming technological innovations;
- The development of partnerships with key stakeholders, such as research institutes and global programs like CLASP www.clasponline.org/ and SEAD www.superefficient.org/;
- International cooperation across the Topten network to facilitate the understanding of the global appliance market and to enable the comparison, benchmarking, and harmonization of standards;
- Focus on a product life-cycle costs, not its purchasing price, to reflect the true cost of a product during its use phase. These include purchasing price plus energy and water costs accumulating over the product's life cycle.

Product Life Cycle



Within each of these components, Topten is engaged in a whole range of various activities. Only a small part of this work is visible in the shape of the Topten national websites. Much of the market transformation efforts include ongoing market research, supporting energy label updates, standards improvement, rebate and discount options for energy efficient products in cooperation with utilities, strengthening of procurement programs, and BAT promotion with the industry. Upcoming challenges include the establishment of Topten in India, Chile, Argentina, Mexico, and Brazil.

Topten activities around the globe

Topten China

On April 18th, the Swiss Ambassador to China, Jacques de Watteville, and Topten hosted a Topten reception at the Ambassador's residence in Beijing. More than 60 high level individuals from government ministries and agencies who are key stakeholders and players in energy efficiency, renewable energy, environmental protection as well as climate mitigation participated, as we all as representatives from non-governmental organizations.

"Top10 shall be as sustainable as possible and continue to interact with Chinese governmental institutions in the future to help make energy efficiency a success story of the 12th Five Year Plan. To this purpose, we hereby encourage more intensive support from the Chinese institutions present here tonight", said Ambassador Watteville. „Topten is proud to help Chinese consumers throughout the country save energy and money. Consumers have power. By buying the most energy efficient products, you help save the climate", said Dr. Eric Bush, the President of Topten International Group.

Policy Success in China – Topten helps China get off coal

The MACEEP research report which was launched in September, was a significant milestone for Top10 China. It was well received and recognized by both Chinese policy makers and international research community (ECEEE, EEDAL 2013) and resulted in major policy progress in the country.

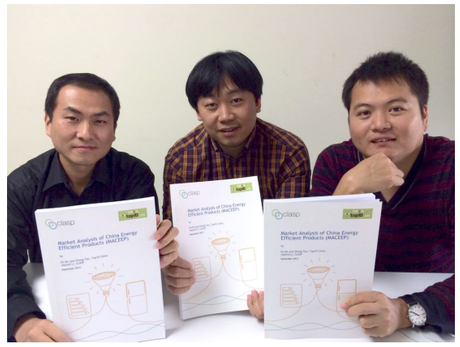
The report revealed how China could save 1,057 terawatt hours of electricity by 2030 simply by raising the energy efficiency of nine appliances to that of the most efficient model currently available on the market.

It screened and analyzed 6,000 products within the following nine categories: refrigerators, fix and variable speed air conditioners, panel TVs, washing machines, rice cookers, induction cookers, copiers and monitors.

The report immediately generated several policy impacts in China:

- Before the final report was released, various articles on the subsidy program were published by Top10 China. The main idea for a new subsidy program is to revise the existing subsidy budget to benefit the most efficient products recommended in the report. In December, The National Development and Reform Commission (NDRC) concluded to revise the current subsidy program of €3.2 billion and outlined a timeline for this.
- The China National Institute of Standardization (CNIS) introduced new Minimum Energy Performance Standards (MEPS) and energy efficiency classifications for washing machines, panel TVs and air conditioners as of October 1, 2013. The new standards made significant improvement in the testing and energy efficiency requirements, which were indicated in report.
- In addition, the Standardization Administration of China (SAC) announced a set of new energy efficiency standards for several products including five appliances. Among these, MEPS for three were upgraded: variable frequency air conditioners, washing machines, and flat panel TVs. www.sac.gov.cn/gybzyb/bmxw/201309/t20130930_143480.htm and China Central Television: http://video.sina.com.cn/p/news/v/2013-10-02/01 2362975181.html (in Chinese)

Ambassador's reception for Top10 China on April 18th at the Ambassador's residence in Beijing (Photo: Li Jinlong)



The three main authors of the MACEEP report from left to right: Zheng Tan, Top10 China; Li Jiayang, CLASP China; Hu Bo, Top10 China (Photo: Huang Luting)

International Forum on China's Low-Carbon City Solutions, Inner Mongolia, 13–15, September, 2013 (Photo: Mr. Lei Yongsheng)

China Low Carbon City Solutions Forum

UNDP China, the Swiss Embassy in Beijing, and Top10 China co-hosted a forum on "China Low Carbon City Solutions" in a beautiful desert setting in Inner Mongolia on 14–15 September. More than 40 high level and influential individuals from Chinese ministries, municipal governments, international organizations, NGOs, and corporates participated.

Ms Salome Meyer, Deputy Head of the Swiss embassy in Beijing, gave an opening address. Representatives from UNDP China, the Ministry of Industry and Information Technology (MIIT), delegates from the governments of the Cities of Zhenjiang, Kunming, Xi'xian, and Alaxa gave presentations. Industry representatives from ABB and Schneider Electric showed great interest in sustainable development at the city level. UNDP informed Top10 China after the event that Top10 China had been selected "Implementing Partner" for their China Sustainable Energy City Pilot project, a public private partnership with cities and industry, a new format launched to actively cooperate with NGOs regarding low carbon city activities.

Conrad U. Brunner, the co-founder of the Swiss Energy City, gave a presentation on "20 years of experience with Energy Cities" where he explained the path that began in 1988 with Energiestadt in Switzerland and then led to the European Energy Award that now includes 1000 energy cities in 21 European countries. Lu Lunyan, Director of WWF China Climate & Energy Programme highlighted WWF's experience with its Low Carbon City Initiative in the two pilot cities of Baoding and Shanghai.

In September 2013, a new Greenhouse Gas Protocol tool to help Chinese cities measure and manage their greenhouse gas (GHG) emissions was launched today in Beijing. The tool, called the Greenhouse Gas Accounting Tool for Chinese Cities (Pilot Version 1.0), was developed by the World Resources Institute (WRI), the Institute for Urban and Environmental Studies of the Chinese Academy of Social Sciences (CASS), WWF China, and the Institute for Sustainable Communities (ISC). The tool will help support city officials in making decisions around low-carbon planning and development.[10]

Funding

In 2013 there were many significant fund-raising events for Top10 China such as; continued support from WWF, SECO's support for the second phase of Top10 China, ADEMEs and BigEE support for green procurement project, and CLASP which secure and materialize Top10 China's 2014 and future projects.

In 2013, Top10 China gained high acclaim by nominating six high level policy and industry leaders for our new Top10 China Honorary Board (HOB).

10 PRESS RELEASE: Launch of the First Greenhouse Gas Accounting Tool for Chinese Cities www.ghgprotocol.org/feature/release-launch-first-greenhouse-gas-accounting-tool-chinese-cities

Rolf Iten – Infras, Bella Roscher – WWF, Zheng Tan – Top10 China, Conrad U Brunner – TIS, Zaira Girbau Garcia – TIS, and Eric Bush – TIS, at the Topten Team meeting with SECO in Berne on 15th August 2013 at SECO (Photo: anonymous passer-by)

The HOB consists of influential people with an international vision , including two Counselors of the State Council, two business leaders, one renowned scholar, a former high-level official, and a NGO leader. They will advise on policy, communication, corporate partnerships, introduce Top10 China to new potential donors, and also work with influential individuals in the energy efficiency sector, building a stronger reputation for Top10 China. The first HOB meeting was successfully held in September.

The HOB members are:

- **Mr. PAN Jiahua**, Director of the Institute for Urban and Environmental Studies, Chinese Academy of Social Sciences (CASS);
- **Mr. SHI Dinghuan**, Counselor of the State Council, President of Chinese Renewable Energy Society and China Consulting Association;
- **Mr. XU Dingming**, Counselor of the State Council, the former Director General of National Energy Administration (NEA);
- **Mr. SHEN Longhai**, Leader of Energy-Conservation Guidance Committee of International Energy Conservation Environmental Protection Association (IEEPA), the former Director General of Energy Administration of the State Economic Commission;
- **Mr. LIU Xiaoguang**, Chairman of Beijing Capital Group, member of the World Economic Forum, founding President of the Alxa Society of Entrepreneurs & Ecology (SEE) Association, the largest and most influential NGO within business in China;
- **Mr. SONG Jun**, Chairman of JiuHan Tiancheng Group, founding Vice President of the Alxa Society of Entrepreneurs & Ecology (SEE) Association;
- **Dr. LI Lin**, Deputy Representative and Chief Conservation Director of WWF China.

Communications

During the year, Top10 China continued its successful collaboration with the appliances and electronics retailer Gome, with Top10 China stickers in more than 400 GOME store across China. This is a very good example of how to promote Top10's brand. Also this successful cooperation with GOME is part of the Green Consumption Week Campaign together with WWF China, China Chain-Store & Franchise Association, as well as the United Nations Environment Programme (UNEP) China.

Staff Updates

The Director, Zhao Zhonghua, left Top10 China in August. Zheng Tan was then appointed Director and Yi Shui, Deputy Director. Topten much appreciates Zhonghua's contribution to Top10 China during his stay, and his continuous support as an Advisor in the future.

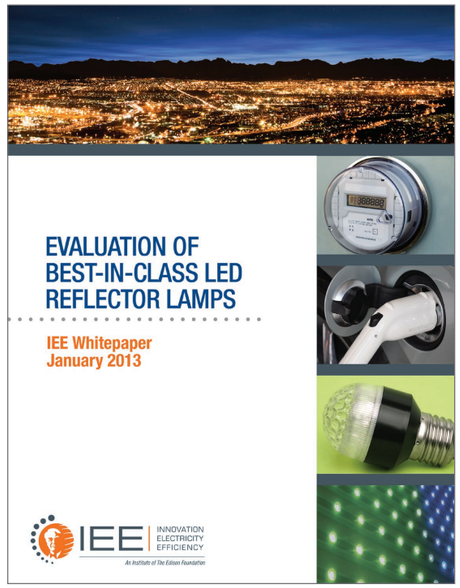
TopTen USA

LED ranking

Working with the Institute for Electric Efficiency and the lighting experts at Ecova, TopTen USA introduced its first LED rankings in January. Because many LED lights offer similar energy efficiency, the goal was to find devices that offer superior light quality and value in addition to efficiency. One of the quality tests involved inviting consumers to offer an assessment of the lighting. Since the publication, testing from the U.S. Department of Energy has also included consumer assessment. www.edisonfoundation.net/iei/Documents/IEE_Evaluation%20of%20Best-in-Class%20LED_Final.pdf

New statewide programs in Massachusetts and Rhode Island

During the year, electricity companies in the states of Massachusetts (6.6 million inhabitants) and Rhode Island (1 million habitants) began offering rebates to customers who purchase TopTen USA-ranked products. TopTen USA provided those programs with customized, geo-targeted (determining the location of a website visitor and delivering different content to the visitor) sites for their customers. The companies count the additional energy savings from TopTen-ranked products in their annual regulatory filings which states what the utilities energy savings goals.



Evaluation of Best-in-Class LED Reflector Lamp White Paper (Photo: Cover Page of IEE Report 2013)

Communications activities

TopTen USA's website had more than 1.1 million page views in 2013. More than 85 per cent of the visitors went to the TopTen's site for the first time. In addition, the Google Adwords program displayed TopTen USA to users searching for energy efficient products more than 8 million times over the course of the year, an average of 700,000 clicks per month.

Staff Updates

After many years of service, Norman Dean left Topten for other opportunities, and Seth Bauer was promoted to fill the position. Seth is thus also TopTen USA's representative as a Board Member of the TIG Board.

Topten Europe

2013 was the second year for the "Euro-Topten Max" project. The goal of this project is to reduce electricity consumption in the domestic and office sector by making efficient products the normal and best choice for consumers, retailers and manufacturers, thus raising market shares of these products.

Funded by the European Commission, the 3-year project is coordinated by the French agency ADEME and involves 21 partners throughout Europe with a total budget of €2,150,000, of which the EC contributes 75%. The project is divided into work packages, where the various partners have different responsibilities.

Achieved results

Product displayed and visitors

The number of displayed product categories constantly increases with 238 categories displayed and 577 subcategories and nearly 11,000 super-efficient models mid-2013. It is especially noteworthy that a lot of criteria have been adapted to the new European labels. Especially tighter criteria could be implemented for household appliances and TVs in nearly all countries. This means that the European market is improving in terms of energy efficiency.

Euro Topten Max – Communications Summary 2013

New websites

- The Luxembourg site was redesigned with a mobile version in January.
  The Norwegian site was re-launched in March, rebranding from "Best Products" to "Energy Smart". **www.energismart.no**
- The Topten UK site was launched on 2 September 2013. **www.top10energyefficiency.org.uk**
- The Finland site was re-launched in September 2013 with a brand new website. **www.topten-suomi.fi**
- The Croatia site was redesigned in September. **www.top-ten.com.hr**

New product categories

- France launched a "Pro" section in January 2013. **www.guidetopten.fr/home/topten_pro.html**
- Portugal launched air conditioners and a "Pro" section in the second quarter of 2013. **www.topten.pt/index.php?page=topten_pro**
- Norway launched circulation pumps and windows in October.
- Poland launched car tyres in November. **www.topten.info.pl**
- Sweden launched printers in November. **www.toptensverige.se**

Communications highlights

The table below shows the range of communications activities that took place in 2013.

Country	Communications activity
Austria (AT)	LED Lighting Guidebook for consumers (in cooperation with the IEE Project PremiumLight)
Belgium (BE)	On n'est pas des pigeons, RTBF TV: mention of Topten on consumer programme by Partner ecoconso
Czech Republic (CZ)	AdWords and text ads via google
Germany (DE)	Press release on tumble dryers together with BUND, German environmental NGO (on the occasion of IFA 2013)
Greece (EL)	Energy saving guide including TopTen products and references has been distributed by the "Direct Dialogue" team of WWF Greece
Spain (ES)	Earth hour: asking local authorities to take measures in order to reduce their energy consumption and invest to energy efficient public procurement.
Finland (FI)	Press release to mark relaunch of Topten site
France (FR)	Guide Topten was put forward on WWF France's website as the main activity to implement to save electricity in homes for Earth Hour
Croatia (HR)	TOPTEN public consultation and exhibition as part of a Sustainable Energy Finance and Investment Summit: CROENERGY 2013 in Tuhelj
Italy (IT)	Creation of a Top Ten app. Press release launch and media partnership for the launch of a "Photo Contest": requesting images of Vintage products still present in the home or office
Lithuania (LT)	Trainings of owners of multifamily houses:
Luxembourg (LU)	Motor show: environmentally friendly cars were labelled with an Oekotopten-signposting
Norway (NO)	Re-launched the site with the new name "Energismart.no".
Poland (PL)	Lectured at conferences in 5 Polish towns – Wrocław, Katowice, Kraków, Warszawa, Gdańsk
Portugal (PT)	Presented the project in school seminars
Romania (RO)	Agreement with Gorenje to feature the topten.info.ro logo on featured products online
Sweden (SE)	Participated in "Elmiamässan Fastighet", a big conference on buildings and property, energy, recycling etc
United Kingdom (UK)	Featured in a blog by 10:10, a national climate change campaigning charity

2013 total		
	Total pieces of coverage	**481**
	Total media contacts	**38,681,482**
	Total value of coverage (€)	**4,377,549**
	Unique website visitors	**1,420,675**

Topten Norway

In June of 2013, Topten Norway launched their new and improved website www.energismart.no. An article about the new website was released to promote the new and improved look and functionality. The concept change for the website was to offer more consumer friendly options such as tips and advice, not just for purchasing equipment, but also to help change consumer behavior. There is also a Facebook page promoting the website as well as provide helpful information about energy efficiency. The website is popular as also among politicians and energy agencies, and they have been using the website as their new "buzz word" when discussing matters relating to energy efficiency.

In addition, collaboration is under way between Topten Norway and retailers to link their websites.

Source: Screenshot of energismart home page (http://energismart.no/)

Topten Portugal

Topten featured on Radio Program in Portugal

The radio program „One Minute for the Earth" mentioning www.topten.pt was used in a national 9th Grade Portuguese language exam held in February 2014.

The program, broadcast in October of 2013 by Antena 1 (national radio), gave advice on how to save energy and money when printing documents and introduced www.topten.pt as a website where consumers can select energy efficient printers and multifunctional devices. After hearing the programme the students had to answer a list of questions where the reference „Topten.pt" appeared once again.

The NGO Quercus is responsible for the program „One Minute for the Earth" since 2007 and its mission is to raise awareness on environmental issues. It is broadcast on the radio by Antena 1 every Friday (three times during the day) and offers simple advice that citizens can put into practice in their daily lives in energy efficiency, water, air, waste, noise or nature conservation.

Topten in other countries

Latin America

In March of 2013 a meeting was held in São Paolo, Brazil to discuss the feasibility of Topten in Latin America. Many Latin American countries have highly developed government policies for energy efficiency already in place. Speed and intensity of governmental efficiency programs vary from country to country. Many policies are "voluntary" and compliance is not yet enforced and there is little testing capacity available. The 42 participants from 9 countries revealed there is great interest in pursuing Topten in the region. Thus, this is the focus for Topten in 2014.

India

As for India, the feasibility study has been finalized, and Topten India is expected to be launched in 2014.

Russia

The work in Russia has stalled, as it is politically not possible to pursue Topten efforts there now.

Partners

Topten has 246 partnerships with various entities, such as research institutions, power utilities, and NGOs. They support Topten in its basic research activities and with communications. The partners also assist in keeping the information on the Topten websites up-to-date and accurate.

Facts and figures

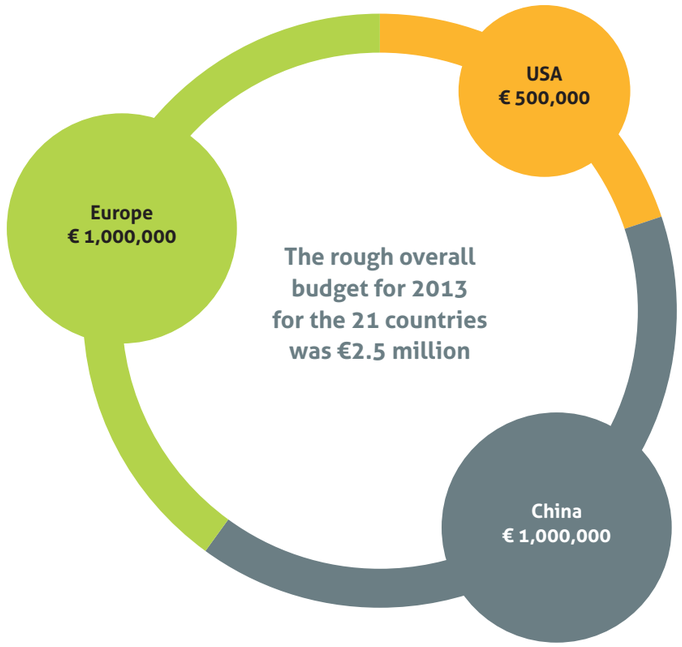
The total number of Topten websites grew to 22 in 2013 – 21 national websites plus two overview websites (www.topten.info/ and „Best of Europe“ www.topten.eu/).

The rough overall budget for 2013 for the 21 countries was €2.5 million, shared among China, USA, and Europe.

In addition, various stakeholders and partners made considerable in-kind contributions.

Together, these websites list 351 product categories (sub-categories not included). They recorded around 1.45 million visits throughout the year.

With Topten online in the leading markets China, USA, and Europe, roughly two billion consumers have access to information about the most energy efficient products currently available in these markets. The 21 countries together are responsible for 55 per cent of global CO_2 emissions.



List of board members and addresses

Board Members:

Sophie Attali, Vice President
sophie.attali@topten.info

Conrad U. Brunner, Treasurer
cub@cub.ch

Eric Bush, President
eric.bush@topten.info

Seth Bauer, TopTen USA
seth@toptenusa.org

Bella Roscher, WWF
bella.roscher@wwf.ch

Zheng Tan, Top10 China
zheng.tan@top10.cn

Addresses:

Topten International Group
Gessnerallee 38a
8001 Zurich Switzerland
www.topten.info

Top10 China
Room 2705
No 6 Wanda Plaza, 93, Jianguo Avenue
Chaoyang District, Beijing, 100022
www.top10.cn

TopTen USA
529 14th St., NW
Suite 600
Washington, DC 20045
www.toptenusa.org

Research and Publications

Abstracts and Links for EEDAL Papers 2013

1.1 What is an energy efficient TV? Trying to find the best TV in China and in Europe

Anette Michel, Eric Bush, Conrad U. Brunner, Diane Damino | Topten International Services
Hu Bo | Topten China
Link: http://www.topten.eu/uploads/File/EEDAL13_Anette_Michel_TV.pdf

Abstract
Topten International launched a test project in order to find out whether there are large differences in energy efficiency between the TVs on the Chinese and the European market. For the test, the most energy efficient 46-inch TV models were selected from the lists of Topten Europe and Topten China. The TVs were tested and classified according to the Energy Labels and standards of Europe and China by three participating testing institutes. Apart from verifying the declarations and compliance with minimum efficiency requirements the main results support the initial theses: the On-mode power of the European TV model is considerably lower than that of the Chinese model. The question which of the two TVs is more efficient however is not easy to answer: according to the European Union (EU) Energy Label, the EU TV is the more efficient of the two test TVs. On the Chinese Energy Label however, the Chinese TV reaches a better efficiency grade than the EU TV. Different efficiency definitions on the two Energy Labels make this possible: while an efficient TV in Europe is one with low power in On-mode compared to a reference model of the same screen size, an efficient TV in China is bright relative to its power.

The results show that details of policy instruments can strongly influence product design. These instruments must therefore be carefully defined in line with their primary aim. The present project allows identifying aspects of the applied Labels and standards that could be improved.

1.2 Systematic market monitoring: a pilot project on TVs demonstrates the value for policy design

Sophie Attali, Anette Michel, Eric Bush | Topten International Services

Link: http://www.topten.eu/uploads/File/EEDAL13_Sophie_Attali_Market_Monitoring.pdf

Abstract
The Ecodesign and Energy Labelling regulations, covering a long list of energy u sing products, can have a strong influence on the market towards higher efficiency. But several decisions on minimum requirements and labelling scales have been taken based on weak and outdated market data. Some of the regulations are assumed to have been missing their targeted energy savings because the policy instruments had not been appropriately designed. A systematic monitoring of the market evolution based on quality data – which does exist – would allow evaluating the effects of policies and serve as a basis for future policy design.

Using GfK market data and in collaboration with WWF Switzerland, Topten has undertaken a monitoring of the TV market in Europe. Market data from 2007 to 2012, covering the entire EU and at the country-level for six countries, has been analysed regarding developments in sales, screen size, price and On-mode power. For the 2012 data also the crucial information on the energy efficiency class is included. The results show the market trends towards larger screen size and higher energy efficiency and how the Label and Ecodesign implementing measures (in combination with the new measurement standard) have influenced the TV market.

The results of the TV market monitoring provide a sound basis for decisions in the framework of the Ecodesign regulation for TVs' revision. In addition the project's results demonstrate the value of a systematic market monitoring, when it is based on sound data.

1.3 Cold Wash – Do Prejudices Impede High Energy Savings?

Barbara Josephy, Eric Bush, Jürg Nipkow | Topten International Services
Karin Kleeli | Mibelle Group
Sandro Glanzmann | Federation of Migros Cooperatives
Link: http://www.topten.eu/uploads/File/EEDAL13_Barbara_Josephy_Cold_Wash.pdf

Abstract
The main share of washing machine electricity consumption is used for heating cold tap water to 30°C, 40°C, 60°C or even 90°/95°C. Washing at lower temperatures (max. 20°C) uses 70% less electricity compared to a 60°C cycle. The EU Eco-design regulation accounts for the high energy savings potential and requires that «from 1 December 2013 household washing machines shall offer to end-users a cycle at 20°C».

Appropriate washing machines and detergents for «cold wash» are already available to residential consumers. Therefore this paper will first give an overview on best-performing washing machines (Best Available Technology BAT) available on the European market according to www.topten.eu. Detergents designed for «cold wash» are available as well. Washing performance at low temperatures is crucial. Based on the experiences of a Swiss detergent manufacturer, it can be said that in cases of slightly and normally soiled laundry «cold wash» is effective.

In practice, it is consumers who opt for the washing temperature and thus determine by their behaviour the amount of energy that can be saved. Although for slightly and normally soiled laundry the washing performance at low wash temperatures is absolutely perfect, most consumers still wash at higher temperatures. Prejudices, which impede high energy savings, will be discussed in the following pages.

The paper also illustrates the experience of a large Swiss retailer, who promoted «cold wash» in 2008 as one of the first through a large Swiss-wide marketing campaign.

We conclude with recommendations for various stakeholders such as EU policies, producers, retailers, NGOs, science and test institutes, how to strengthen the implementation of «cold wash».

1.4 Heat Pump TumbleDriers: New EU Energy Label and Ecodesign requirements in Europe, MEPS in Switzerland, Initiatives in North America

Eric Bush, Diane Damino, Barbara Josephy | Topten International Services
Christopher Granda | Grasteu Associates
Link: http://www.topten.eu/uploads/File/EEDAL13_Eric_Bush_Heat_Pump_Driers.pdf

Abstract
Electric laundry drying is becoming increasingly popular in European households. Therefore, promoting efficient tumble driers1 is essential to limit the increase in household energy consumption. Tumble driers with an integrated heat pump use only 50% of the energy a conventional electric condensing tumble drier uses. This year the European Union (EU) has introduced efficiency measures for tumble driers: since June 2013 the new EU energy label for driers is mandatory, and from November 2013 the Ecodesign regulation will apply, which contains requirements on the energy efficiency and condensation.

This paper will give an overview on Best Available Technology (BAT) in Europe according to the online search tool www.topten.eu for the most efficient drier products. This will allow for interesting conclusions including: Have the top classes of the EU energy labelling scale been designed appropriately? Will the label continue to exert an incentive for the manufacturers to develop more efficient tumble driers? Are the Ecodesign requirements stringent enough?

The market share of heat pump driers in the EU varies between countries but has been steadily increasing. In Switzerland heat pump driers are a success story! In January 2012 Switzerland imposed a minimum performance requirement that effectively allows the purchase of only heat pump driers.

The United States (U.S.) is also introducing new policies to promote efficient driers, and energy efficient technologies are poised to change tumble drier market. The article will conclude with recommendations for EU and US policies.

1.5 Best available technology of plug-in refrigerated cabinets, beverage coolers and ice cream freezers and the challenges of measuring and comparing energy efficiency

Eva Geilinger, Eric Bush | Topten International Services
Martien Janssen | PedersenRe/genT BV
Per Henrik | Danish Technological Institute
Paul Huggins | The Carbon Trust
Link: http://www.topten.eu/uploads/File/EEDAL13_Eva_Geilinger_BAT_Professional_Refrigerators.pdf

Abstract
Energy efficiency potentials for plug-in refrigerated cabinets, beverage coolers and ice cream freezers are shown by comparing typical and best models available on the market. A research project demonstrates efficiency potential when applying commercially available measures, and it investigates technologies for future improvements. This paper identifies the lack of a unified test methodology and energy efficiency rating system as challenges for energy saving initiatives in Europe. National and regional programmes for efficient refrigeration are portrayed. Their experiences can help the design of planned EU regulations. The programmes make implementing minimum requirements and energy labels faster and easier; for years they have raised awareness and supported manufacturers / importers to market high-efficiency products. One lesson to be learned from them is that market surveillance and verification tests are needed to ensure good data quality and fair product comparisons.

1.6 Office Luminaires: Voluntary Labels Can Pave the Way to the Next Level In Energy Saving

Eva Geilinger, Eric Bush | Topten International Services
Stefan Gasser | eLight GmbH
Tobias Schleicher | Öko-Institut e.V.
Link: http://www.topten.eu/uploads/File/EEDAL13_Eva_Geilinger_Office_Luminaires.pdf

Abstract
Energy savings in lighting can be taken to a new level by introducing mandatory EU minimum requirements and an energy label considering the luminaire efficiency factor (LEF).

We look back on EU policies introduced during the last 15 years regarding luminous efficacy of light sources and ballast efficiency. The third parameter however, the light output ratio that defines the efficiency of a luminaire, has not yet been addressed by labelling or Ecodesign measures. High energy saving potential is left to tap here.

Four voluntary labels and initiatives (*Minergie, Der Blaue Engel, Energy Star, Topten.eu*) guide to the current best available technology. They can be an inspiration to EU labelling and Ecodesign measures. This paper portrays the four labels and discusses their different approach to set LEF requirements. Most ambitious requirements are specified for ceiling-mounted luminaires and pendant luminaires with minimum LEF of 75 lm/W at 3000 lumens (requirements ease with lower luminous flux, increase with higher luminous flux). It could be useful to base future LEF requirements on the formula described in the new regulations (EU) No 874/2012 and (EU) No 1194/2012. This would mean capped LEF requirements for luminaires above 1300 lumens.

1.7 Study of the Energy Related Properties' Impacts on the Price of Appliances on the Chinese Market

HU Bo, ZHENG Tan, LI Jiayang, ZHAO Feiyan | Top10 China and CLASP China
Link: http://www.topten.info/uploads/File/044_HuBo_finalpaper_EEDAL13.pdf

Topics: Lifestyles and Consume Behaviour
Key words: *Price, Technologies, Energy Efficiency Tier, Energy Efficiency Indicator, Appliances*

Abstract
The price of the household appliances is affected by many factors, such as brand, design, dimension, quality, technology, and capacity, etc. The Chinese government implemented several rebate programs to promote the high energy efficient products, which is based on the assumption that high efficient products have higher price. The subsidy criteria are based on the technologies, capacities, energy efficiency tier and energy efficiency indicators, which are called energy related properties in this paper.

Six products are selected for the analysis, which are: air conditioner, refrigerator, panel TV, washing machine, rice cooker and monitor. All products are from the project named "Market Analysis for China Energy Efficient Products" (MACEEP) jointly conducted by Top10 China and Collaborative Labeling and Appliance and Standards Program (CLASP).

The analysis shows that the price of the appliances has very close correlation with the energy related properties mentioned above. It is strongly affected by the technologies, capacities and energy efficiency tiers. The technologies bring oblivious price differences for the air conditioners and washing machines. The price goes higher when the capacity increases. The price of better energy efficiency tier products is also higher than the lower tier products. However, the energy efficiency indicator has very weak correlation with the price of the products under the same technology, capacity and efficiency tier.

1.8 Study of China Variable Speed Air Conditioner: Energy Efficiency, Life-cycle Cost and Impacts of Subsidy Program

ZHAO Feiyan, HU Bo, ZHENG Tan, LI Jiayang, ZENG Lei
Link: http://www.topten.info/uploads/File/043_Zhao_finalpaper_EEDAL13.pdf

Abstract
Sales of variable speed room air conditioners (AC) in China reached 25 million in 2011, expanding from 10% to 42% of all the ACs in only 5 years.

This development was supported by a series of national policies: a MEPS (Minimum Energy Performance Standard) for variable speed ACs was implemented in 2008, followed by an energy label in 2009, and the national energy efficient product subsidy program since June 2012.

This paper is based on retail market data gathered in the framework of the MACEEP study ("Market Analysis of China Energy Efficient Products" study led by Top10 China and CLASP (Collaborative Labeling & Appliance Standards Program). The data cover the ACs' energy related properties such as SEER (seasonal energy efficiency ratio), cooling and heating capacity and power, cooling season consumption and purchase price for end-consumers.

The cooling capacity is the crucial property, which influences also the heating capacity, the SEER, energy efficiency tier and retail price. The energy efficiency tier is the key element regarding the MEPS, label and subsidy. The market shares according to tiers show that revising MEPS and label is urgently needed to promote the market transformation.

Based on the retail price and electricity consumption, the life cycle cost and payback time of the high efficient products can be calculated. The results show that the subsidy program and other incentive policies should be improved to help the expansion of the high efficient conditioners.

1.9 An Investigation of China's Subsidy Program for Energy-saving Products

ZHENG Tan, HU Bo, LI Jiayang, ZENG Lei | Top10 China and CLASP China
Link: http://www.topten.info/uploads/File/063_Zheng_finalpaper_EEDAL13.pdf

Abstract
Subsidy is used in many countries as an important instrument to promote energy-saving products. China started subsidizing energy-saving products, including light bulbs and automobiles, in 2009. The subsidized product groups quickly expanded to major home appliances such as air conditioners, flat-panel TVs, refrigerators, washing machines and water heaters. The latest subsidies for purchasing the five types of energy-saving products reached 26.5 billion RMB since June 2012. It is expected that even larger financial budgets from the Chinese government will be allocated to support the wide deployment of high energy efficient products according to the national 12th Five-Year-Plan, which adopted the "energy conservation and emission reduction" as the national long-term development strategy.

In this paper, the policy framework of China's Subsidy Program for Energy-saving Products is reviewed. The recent subsidy schemes for air conditioners, flat-panel TVs, refrigerators, washing machines and water heaters are introduced. Based on retail market data, an investigation of the market status for the five types of products is conducted. The subsidy schemes are analyzed in terms of products' properties such as type, size, energy efficiency tiers, price, functional capacities etc. This paper concludes with suggested options to improve the subsidy program.

ECEEE Abstracts and Links 2013

2.1 Finding the most energy efficient TV in China and in Europe: not such an easy job...

Anette Michel, Eric Bush, Hu Bo | Topten International Services
Link: http://www.topten.eu/uploads/File/172-13_Michel_eceee.pdf

Abstract
Judging from the declared On-mode power found on Topten China and Topten Europe, the most energy efficient TVs on the European market seem to be far more efficient than those on the Chinese market. Topten International wanted to find out whether this finding is a fact or whether different measurement protocols and methods caused the difference.

An international testing project was launched: three testing institutes, CVC and NIM from China and VDE from Germany, each tested the most efficient 46-inch-TV from Topten China and from Topten Europe according to the Chinese and the European Energy labels and the relevant measurement procedures. The TV models selected for the test were the A++-Philips 46PFL6806K (Europe) and the Hisense LED46K200 (China). The results were used to verify the values declared by the manufacturers and to check the products' compliance with relevant minimum requirements.

The results show that the On-mode power of the European TV model is indeed considerably lower than that of the Chinese model. Whether this makes the European model a more energy efficient TV than the Chinese model however depends on the perspective: while according to the EU Energy Label the European TV model is more energy efficient than the Chinese model, on the Chinese Energy Label the latter reaches a better grade than the EU-TV. The reason is to be found in the different definitions of TV energy efficiency: the EU Energy Label defines TV efficiency as a low power input for a given screen size, while in China the most energy efficient TVs are those with the highest brightness for a given power input.

This testing project provides detail insights of strengths and weaknesses of the different measurement standards, which can be used to conclude on specific improvements. The results show that the definition of efficiency and the specificities of measurement methods obviously have a very strong influence on product design.

2.2 Market Transformation for Clothes Dryers: Lessons Learned from the European Experience

Christopher Granda | Grasteu Associates (for CLASP)
Christopher Wold | CLASP
Eric Bush | Topten International Services
Link: http://www.topten.eu/uploads/File/CGranda418_13%2012032013.pdf

Abstract
The European residential clothes dryer market is undergoing a transformation driven by highly efficient heat pump dryer technology. In 2012, over 80 residential heat pump dryer models from 18 different manufacturers were available on the European market. Additionally, Switzerland implemented a new minimum energy performance standard (MEPS) that effectively allowed only heat pump dryers to be sold in that country. The Super Efficient Dryer Initiative (SEDI) was formed in the US to support improvements in dryer energy efficiency based on the European experience and to bring together utility energy efficiency programme providers, dryer manufactures, government agencies and other stakeholders to repeat the European success in the US and Canada.

Heat pump dryers have substantial energy saving potential in North America. Recent testing indicates that European heat pump dryers are 50-60% more energy efficient than existing North American conventional electric dryers. In 2012, SEDI supported the US Environmental Protection Agency (EPA) decision to offer an ENERGY STAR Emerging Technology Award (ETA) for efficient dryers. The ETA for Advanced Clothes Dryers is designed to support the introduction of efficient technology through recognition and promotion. Several manufacturers are now ready to introduce a significantly more energy efficient clothes dryer into the North American market and the announcement of an ETA recipient is expected soon.

This paper describes the actions dryer stakeholders have taken on both sides of the Atlantic to promote efficiency and identifies lessons from the European market transformation experience that can be applied in North America.

2.3 Can Europe continue deciding on product policies (MEPS, labels, etc.) without monitoring the market?

Sophie Attali, Eric Bush, Anette Michel, Edouard Toulouse | Topten International Services
Link: http://www.topten.eu/uploads/File/6-301-13_Attali.pdf

Abstract
The EU Ecodesign and Energy Labelling Directives are driving important changes for appliances, office equipment, lighting, consumer electronics, motors, etc.

During the preparation of product-specific implementing measures, final decisions were sometimes taken based on outdated and/or partial market data, i.e. without having a clear and recent picture of the distribution of market shares between different levels of energy performance and often using relatively theoretical assumptions for stock models, scenarios and policy impacts.

Beyond uncertainties for policy results, this procedure is not cost effective to formulate policy: experts dedicate time to dig for often scattered and poorly comparable data, then group for establishing baselines and forecasts that may remain mostly hypothetical and are not confronted to recent market evolutions. Besides, the problem is likely to surface again each time one of these implementing measure undergoes a review or revision: a time-consuming and uncertain data collection exercise will have to be started all over again on the spot, without guarantee that sufficient market knowledge will be gathered to support decision.

This gap could be filled-in: comprehensive market data does exist – or could – and is not so expensive that Europe is doomed to do without.

In order to guide market transformation towards energy efficient end-consumer goods through effective policy design, Topten proposes a pragmatic and straightforward approach: a systematic European-scale monitoring of sales, i.e. a regular analysis based on up-to-date market data covering all countries and key products.

A recent Swiss market monitoring on household appliances (S.A.F.E., FEA, 2012) shows that with just a few information on market shares/energy class, appliances' size & prices, it is possible to evaluate the implemented policy tools, to see when a product needs a regulation update, the impact on industry, etc.

Such an exercise implemented at the EU level would help anticipating and delivering evidence for the regular update of energy labelling scales and the necessary lifting of minimum energy performance standard thresholds. It would also allow for the comparison of different national developments contributing to the definition of optimal policy paths. It may not seem revolutionary, but it would ease the work of the whole energy efficiency community and pay back the initial investment in staff hours saved, provided the monitoring specifications are well designed – simple and basic aggregated data, based on the same methodology, for the main product groups, for the European market as a whole and for each country in order to account for regional differences, for a yearly publication.

2.4 Evaluation of Best-in-class LED Reflector Lamps

IEE Whitepaper – January 2013
Prepared by Ecova
Link: http://www.toptenusa.org/How-We-Evaluate/TopTen-LED-Lighting

Executive summary
This project identifies sets of LED reflector lamps that not only save energy, but also are likely to meet or exceed residential consumer expectations in their overall performance. In the case of lighting, to be "best-in-class", the lamp must excel in visual parameters, be compatible with common controls, and deliver energy savings cost-effectively. In the near term, these lists will have the effect of pushing the market toward increased energy efficiency.

We began the evaluation with ENERGY STAR's Qualified Bulbs list for PAR38 LED reflector lamps and PAR30 LED reflector lamps and developed multiple screening and testing methodologies to narrow down the list to a subset of top performers.

The overall evaluation consisted of five phases:

- Phase 1: Lamp selection,
- Phase 2: Laboratory evaluations,
- Phase 3: Human factors testing,
- Phase 4: scoring and ranking lamps, and
- Phase 5: Generating two lists of the ten best-in-class LED PAR30s and PAR38s

Results of this research include two lamp lists and a pioneering and robust methodology developed by the research team, with considerable input by funding organizations and lighting efficiency stakeholders. This methodology enables relatively straightforward updates to the best-in-class lists of PAR30s and PAR38s LED reflector lamps. It also lays the groundwork to expand into a multitude of other lamp shapes, sizes, and technologies.

We found, under a wide variety of scoring scenarios, that certain LED reflector lamps consistently rise to the top, for a few very good reasons:

- *They save a significant amount of energy relative to their incremental cost*, so they provide a relatively short payback time to their purchaser and a cost effective efficiency resource to the utility that supports them.
- *Their light beam is controlled, uniform, and free of shadowing or color aberrations.* In other words, it does not call attention to itself in unexpected ways, but rather, delivers its light cleanly and unobtrusively into space, whether operating at full brightness or when dimmed.

Utilities can utilize these findings to provide a greater degree of certainty when promoting, incentivizing, and educating consumers about these bulbs than they would normally have with other LED lamps that bear the ENERGY STAR label because the selected lamps exceed ENERGY STAR's efficiency specifications, operate well on common LED-specific dimmers, produce beams of light preferred by participants in a human factors evaluation, and provide fast paybacks relative to other LED reflector lamps. Selecting best-in-class LED reflector lamps is not simply a matter of choosing the most energy efficient models in each lamp size. It is no longer sufficient to publish only numbers on specification sheets. Metrics like efficiency, CRI, and CCT measure only a portion of what people buying light bulbs really care about; numerical charts do not tell consumers the complete story about what they will see.

While the ultimate goal of lighting efficiency programs is to save energy, the best strategy to achieve energy savings is to highlight high quality, efficient products that everyday consumers will enjoy using and readily adopt. This study, which identifies best-in-class LED reflector lamps through a rigorous series of laboratory and human evaluations, is an important step in the transformation of the residential lighting market toward high quality, highly efficient technologies.