8th International Conference on Energy Efficiency in Domestic Appliances and Lighting - EEDAL’15
26 - 28 August 2015, Lucerne University of Applied Sciences and Arts, Lucerne-Horw, Switzerland

Programme

Parallel Session 1-4 (Wednesday 26 August 14:00-15:30)

Monitoring 1 (chair: P. Waide)

How can smart data analytics improve the way of information provision?: The trend of methods and an exploratory analysis
Hidenori Komatsu and Ken-Ichiro Nishio
(Central Research Institute of Electric Power Industry)

Whole-House Energy Use Across the Pacific Northwest
Ben Larson and Robert Davis
(Ecotope)

Lessons from a decade of efficient product market analysis
Edouard Toulouse, Sophie Attali, Eric Bush and Dietlinde Quack
(Guide Topten France)

Standards and Labels 1 (chair: C. Egan - tbc)

Top10 Sticker: A Sufficiency and Efficiency Purchase Guide
Luting Huang and Feiyan Zhao
(Top10 China)

Appliance Labelling for the 21st Century: Introducing QR code for the China Energy Label
Ye Lu, Yanyan Peng, Jianwei Tian and Jayond Li
(China National Institute of Standardization)

Consumer comprehension of China Energy Labels and household appliance-using habits in China
Yang Yu, Jayond Li and Lei Zeng (presented by J. Corry Smith)
(CLASP)
Policies and Programmes 1 (chair: B. Lebot - tbc)

Blurring Boundaries of Market Transformation activities: Linkages among Awards, Procurement, and Incentives
Debbie Karpay Weyl, Stephane de La Rue Du Can, Chad Gallinat, Michael McNeil, Jenny Corry, Nicole Kearney, Graziella Siciliano, Anand Gopal and Greg Leventis (CLASP)

Implementation of Green Public Procurement in Germany – results and conclusions from a monitoring study at the example of the city of Berlin
Eva Brommer, Dietlinde Quack and Jens Gröger (Öko-Institut e.V.)

Securing Energy Efficiency to Secure the Energy Union – How Energy Efficiency Meets the EU Climate and Energy Goals
Yamina Saheb (European Commission, JRC, Renewable Energy Unit)

Smart Homes (chair: R. Brueniger)

How much electricity can we save by using direct current circuits in homes? Understanding the potential for electricity savings and assessing feasibility of a transition towards DC powered buildings using real load data
Brock Glasgo, Ines Azevedo and Chris Hendrickson (presented by Jihoon Min) (Carnegie Mellon University)

Evaluating the long term consumer experience and future expectations for energy efficiency enabling technologies in a smart homes context: a survey in Portugal
Guillermo Ivan de Loureiro Pereira, Luisa Matos, Jorge Landeck and Basílio Simões (University of Coimbra)

Benefits and disadvantages of existing smart heating control systems: a critical survey
Vittoria Camisassi, Valentina Fabi, Fabio Luigi Bellifemine, Valter Bella and Stefano Paolo Corgnati (presented by Verena Barthelmes) (Politecnico di Torino)

Parallel Session 5-8 (Wednesday 26 August, 16:00-18:00)

Monitoring 2 (chair: K. Cooney)

A prospective study of household refrigeration and washing appliance energy use in French households to 2030
Paul Waide, Hadrien Hainaut, Christophe Beslay, Romain Gournet, Sophie Attali, Marie-Christine Zelem, Bruno Filiard and Pierre Radane (Waide Strategic Efficiency Ltd)

Projections of long-term electricity use in Germany - behavioural aspects, investment decisions and discount rates
Sibylle Braungardt and In Woo Kim (presented by Matthias Reuter)  
(Fraunhofer ISI)

**Trends for residential electrical energy use in Australia**
Paul Ryan and Murray Pavia  
(EnergyConsult Pty Ltd)

**Analysis of the Recent Trends in Residential Energy Consumption in the EU**
Paolo Bertoldi  
(European Commission, JRC, Renewable Energy Unit)

**Standards and Labels 2 (chair: G. Fuchs)**

**What’s on? Compliance of televisions with energy labelling and ecodesign regulations**
Tom Lock, **Stewart Muir**, Juraj Krivosik, Benoit Tinetti and Thibault Faninger  
(Energy Saving Trust)

**Energy efficiency standards and labelling in Latin America – the issue of alignment and harmonisation**
Wolfgang Lutz  
(Energy Strategies for Sustainable Development)

**Global Comparison of Standards and Labels**
Frank Klinckenberg and Mia Forbes Pirie (presented by Debbie Karpay Weyl)  
(The Policy Partners)

**Potential Impact of Lighting and Appliance Efficiency Standards on Peak Demand: The Case of Indonesia**
Michael Mcneil, Nihan Karali and Virginie Letschert  
(LBNL)

**Policies and Programmes 2 (chair: C. Granda)**

**The New MDA EU Energy Efficiency Labels Reaching its Limit? A Discussion**
Norbert Herzog  
(GfK)

**Accelerate the Transition to Efficient Appliances and Equipment**
Jakob Fleischmann and Gustau Manez Gomis (presented by Patrick Blake and Steve Kukoda)  
(UNEP)

**Harnessing appliance energy efficiency in South Africa: Policy gaps and recommendations to address actor-specific barriers**
Lena Tholen, **Thomas Götz**, Stefan Thomas, Thomas Adisorn and Theodore Covary  
(Wuppertal Institute)

**How and When to Increase Alignment of Appliance Policies**
**Jenny Corry Smith**, Debbie Karpay Weyl and Ari Reeves  
(CLASP)
Buildings 1 (chair: A. Meier)

Impact of appliances and lighting for Nearly Zero Energy Buildings (nZEBs) in Europe
Delia D’Agostino and Danny Parker
(European Commission, JRC, Renewable Energy Unit)

K H Tiedemann and Iris Sulyma
(BC Hydro)

Dynamic Methodology for Evaluation of Residential Energy Consumption
J. Bloem, J. Cipriano and H. Madsen
(European Commission, JRC, Renewable Energy Unit)

Measured Results of Phased Shallow and Deep Retrofits in Existing Homes in a Hot-Humid Climate
Danny Parker, Karen Sutherland and David Chasar
(Florida Solar Energy Center)

Parallel Session 9-12 (Thursday 27 August, 8:30-10:30)

Monitoring 3 (chair: S. Thomas)

Recognizing appliance and their events with the same NIALM algorithm
Marcel Mathis, Patrick Huber and Alexander Klapproth
(Hochschule Luzern iHomeLab)

Estimation of energy service demand and energy consumption in residential sector by 2050
Yuko Kanamori
(National Institute for Environmental Studies)

Using a cascading classifier to improve the recognition performance of NIALM
Marcel Mathis, Patrick Huber and Alexander Klapproth
(CEESAR-iHomeLab, Lucerne University of Applied Sciences And Arts)

The effect of age on residential energy demand: new evidence
Matthias Deutsch and Philip Timpe (Presented by Nicola Labanca)
(Agora Energiewende)

Standards and Labels 3 (chair: L. Harrington)

Eric Bush, Anette Michel, Chris Granda and Chris Wold
(Topten International Services)

Study of New Energy Efficiency Standards of VS Air-conditioners, Washing Machines and Panel-TVs
Zhao Feiyan, Huang Luting, Hu Bo and Zheng Tan
(Top10China)
How do Housing Energy Efficiency Standards in Japan affect the choice of appliance?
Suguru Mizutani, Mikiko Nakamura and Hidetoshi Nakagami
(Jyukankyo Research Institute, Inc.)

Impacts of the EU’s Ecodesign and Energy/Tyre labelling legislation on third jurisdictions
Paul Waide, Luis Janeiro, Nesen Surmeli, Ann Gardiner, Paula Fonseca, João Fong, Nuno Quaresma, Jeremy Tait and Chris Evans
(Waide Strategic Efficiency Ltd)

Consumer Electronics 1 (chair: B. Harrison)

Residential Consumer Electronics Energy Consumption in the United States
Bryan Urban, Victoria Shmakova, Brian Lim and Kurt Roth
(Fraunhofer Center for Sustainable Energy Systems (CSE))

How Much More Energy do Ultra High Definition and Smart TVs Use?
Noah Horowitz
(Natural Resources Defense Council (NRDC))

How Low Can You Go? Forecast of Game Console Energy Consumption Based on Industry Trends
Mateusz Malinowski, Bikash Acharya and Verena Radulovic
(ICF International)

The European Code of Conduct for Broadband Equipment and its impact on energy consumption
Paolo Bertoldi, Raffaele Bolla, Flavio Cucchietti and Andre Lejune
(European Commission, JRC, Renewable Energy Unit)

Consumer Behaviour 1 (chair: C. Fischer)

Smart Homes and Smarter Consumers: How the Internet and Home Area Networks Can Enable Energy Efficient Behavior
Stuart Schare and Erik Gilbert
(Navigant)

How to make efficient use of kettles: Understanding usage patterns
David Murray, Jing Liao, Lina Stankovic and Vladimir Stankovic
(University of Strathclyde)

Survey of behavior usage of refrigerators, light bulbs and stand-by in households
Daniel Cabrera, Jean-Luc Bertholet and Bernard Lachal
(University of Geneva)

Assisting user airing behaviour for energy saving
Viktor Grinewitschus, Tanja Lovric, Sven Kühnel and Andre Beblek
(Hochschule Ruhr West University of Applied Sciences)
Parallel Session 13-16 *(Thursday 27 August, 11:00-13:00)*

**Monitoring 4  *(chair: P. Ryan)*

**Household refrigerators: Monitoring efficiency changes in Europe and Australia over the last 10 years**
Anette Michel, Lloyd Harrington, Sophie Attali, Eric Bush and Francisco Zuloaga
(Topten International Services)

**Why, When, and How to Utilize the “Right” Methods for Evaluation of Energy Efficiency Programs**
Stuart Schare and Kevin Cooney
(Navigant)

**Major role of households’ specific electricity in total energy consumption of apartment buildings**
Muriel Dupret
(Enertech)

**Monitoring the energy consumption of refrigerators and washing machines of a sample of households in the Northern Italy**
Paolo Zangheri, Gianluca Ruggieri, Simonetta Fumagalli, Patrizia Pistochni, Maria Gabriella Villani, Vito Tarantini and Mattia Bau
(ENEA)

**Appliances 1  *(chair: P. Falcioni)*

**What is the impact of lighting on energy efficiency of domestic appliances?**
Gerhard Fuchs, Otmar Franz
(BSH Hausgeräte GmbH, Osram GmbH)

**Potential for improving energy efficiency of built-in refrigerators**
Jasmin Geppert and Rainer Stamminger
(University of Bonn)

**Cold wash – Tests on the washing performance**
Barbara Josephy, Eric Bush, Francisco R. Zuloaga, Sophie Attali, Christoph Türk, Jörg Siebolds
(Topten International Services TIS, VDE Testing and Certification Institute, Stiftung Warentest)

**A first application of the second edition of standard IEC 62552 for household refrigerating appliances energy performance measurements**
Paolo Zangheri, Maria Gabriella Villani, Simonetta Fumagalli, Giuseppe Leonardi, Vito Tarantini, Adriano Antonelli, Gianluca Ruggieri and Matteo Forni
(ENEA)

**Heating, Cooling and Water Heating 1  *(chair: H. Bloem)*

**Water Heater Technical Study to improve MEPS - South Africa**
Theo Covary, Michael McNeil and Johan Vermeulen
(Unlimited Energy)
Recommendations for an adequate policy package to support highly efficient and ultra-low emission small-scale residential biomass combustion technologies in Europe
Thomas Götz and Antoine Durand
(Wuppertal Institute for Climate, Environment and Energy)

Penetration of residential heating equipment and the energy mix: evidence from a survey on Italian installers
Mario Cirillo
(REF-E srl)

Residential Solar Water Heating - Measurement and Verification Case Studies
Shaun Chan Wing, Daniel de Canha and Jan Harm Pretorius
(University of Johannesburg)

Consumer Behaviour 2 (chair: A. Eisenberg)

Understanding domestic appliance use through their linkages to common activities
Charlie Wilson, Lina Stankovic, Vladimir Stankovic, Jing Liao, Mike Coleman and Richard Hauxwell-Baldwin
(University of East Anglia)

From consumer smart monitoring to demand response in the domestic sector: Italian case studies
Simona D’Oca, Valentina Fabi, Stefano Corgnati and Verena Barthelmess
(Politecnico di Torino)

First steps towards a deeper understanding of energy efficiency impacts in the age of systems
Nicola Labanca and Paolo Bertoldi
(DG JRC - Institute for Energy and Transport)

Absolute energy savings in the household sector – a case for public policy?
Corinna Fischer
(Oeko-Institut)

Parallel Session 17-20 (Thursday 27 August, 14:00-15:30)

Policies and Programmes 3 (chair: J. Tait)

Innovative SME Energy Efficiency Financing for Controls-Based Solutions
Jessica Stromback, Dennis Quinn, Corey Benson and Ramsay Stevens (presented by M. Plakato)
(Joule Assets Inc.)

A soft and step-by-step transition towards reduction of electricity consumption and related costs
Miha Tomsic, Mihael Mirtic and Neva Jejcic
(Building and Civil Engineering Institute ZRMK)

Tapping into energy and CO2 savings in EU households through the use of building automation technology – a policy pathway to savings
Paul Waide, Jim Ure, Nadia Karagianni, Graham Smith and Bill Bordass
(Waide Strategic Efficiency Ltd)
Standards and Labels 4 (chair: Y. Saheb)

Proposal for an EU database of products regulated by the Labelling and Ecodesign Directive
Lars-Arvid Brischke and Hans Paul Siderius
(ifeu - Institut für Energie- und Umweltforschung Heidelberg GmbH)

Assessment of Compliance Scheme of China Energy Labeling Program
Pengcheng Li, Yujuan Xia, Ling Lin and Yanyan Peng
(China National Institute of Standardization)

Achieving Effective Compliance through Regional Coordination: Transferring the Lessons Learned in Europe to the APEC region
Elisa Lai, Nicole Kearney and Ari Reeves
(CLASP)

Consumer Electronics 2 (chair: D. Johnson)

European Digital Signage Markets - GfK Monitoring of Energy Efficiency via Standards and Labels
Beate Diga and Juergen Boyny
(GfK Retail and Technology GmbH)

Creating a clear view: setting ecodesign and energy labeling measures for displays
Hans-Paul Siderius and Bob Harrison
(Netherlands Enterprise Agency)

Technical considerations in achieving greater international alignment in television test methods and performance requirements
Catriona Mcalister, Nicole Kearney and Jeremy Tait
(Sea Green Tree)

Buildings 2 (chair: H. Nakagami)

Builder-Installed Electrical Loads in New Homes
Alan Meier
(Lawrence Berkeley National Laboratory)

Smart home – good things come to those who wait?
Eva Harms
(GfK)

A Survey of Power Supply and Lighting Pattern in North Central Nigeria
Iorkyaa Ahemen and Amah Alexander
(University of Agriculture Makurdi Nigeria)

Parallel Session 21-24 (Thursday 27 August, 16:00-18:00)

Test Methods (chair: N. Labanca)
Laboratory Measurements and Diagnostics of Residential HVAC Installation and Maintenance Faults
Robert Mowris, Ean Jones and Robert Eshom
(Robert Mowris & Associates, Inc.)

Upgrading energy efficiency testing capacity in Turkey: Laboratory Investment, Staff Training, Testing Programme
Necmettin Tokur and Bilal Düzgün
(United Nations Development Programme)

New challenges in standardization of household appliances
Gerhard Fuchs and Alain Roux
(CENELEC TC 59X)

The Evolution of the Certification of Heat Pumps
Arnaud Lacourt, Sandrine Marinhias and Nadia Cherr
(EUROVENT CERTITA CERTIFICATION)

Appliances 2 (chair: H-P. Siderius)

Interaction between Home Energy Management and Smart Appliances
Josef Baumeister and Gerhard Fuchs
(BSH Hausgeräte GmbH)

Too smart for our own good: Why intelligent appliances seem as far away as ever
George Wilkenfeld and Lloyd Harrington
(George Wilkenfeld and Associates)

Energy Efficiency Appliances for the Low-income Households
Edith Holländer and Annette Roser
(IREES GmbH)

Market Transformation through Emerging Technology: Lessons learned from the introduction of hybrid heat pump clothes dryers into the North America market
Christopher Wold, Chris Granda, Eric Bush, My Ton, Chris Badger and Rebecca Foster
(CLASP)

Heating, Cooling and Water Heating 2 (chair: J. Stromback)

Heat Pump Water Heaters: Controlled Field Demonstration of Impact on Space Conditioning and Demand Response Characteristics
Graham Parker, Sarah Widder, Joe Petersen, Ken Ecklund and Greg Sullivan
(Pacific Northwest National Laboratory)

Balancing Real-Time Supply and Demand with High Penetration of Renewable Energy: The Case for Grid-Interactive Water Heaters
Stuart Schare
(Navigant)

Utilising Smart Home data to support the reduction of energy demand from space heating – insights from a UK field study
Michael Coleman, Tom Kane, Vanda Dimitriou, Steven Firth, Tarek Hassan, Richard Hauxwell-Baldwin, Tom Hargreaves, Charlie Wilson, Lina Stankovic, Vladimir Stankovic, David Murray and Jing Liao
(Loughborough University)

Enhanced self-consumption of electricity generated by micro-CHP plants in residential buildings using home automation
Viktor Grinewitschus, Sven Kühnel, Tanja Lovric and Andre Beblek
(Hochschule Ruhr West)

**Lighting 1 (chair: C. Kafod)**

Sustainable and energy-efficient lighting systems which puts human needs in the foreground: Guiding Light and iNSPiRe
Markus Laner, Robert Weitlaner, Wilfried Pohl and M. Fusco
(Bartenbach GmbH)

Luminaire efficiency: what mandatory and voluntary labels achieve, and what they should achieve in the future
Eva Geilinger, Patrik Janett, Stefan Gasser, Stamatis Sivitos, Francisco Zuloaga, Eric Bush
(Topten International Services, HTW Chur, elight GmbH, ECOS)

The Next Wave in Residential Lighting Market Transformation: The Role of LEDs and LED Fixtures
K H Tiedemann and Iris Sulyma
(BC Hydro)

Static Scalar Swarm Algorithms for Lighting
Andreas Rumsch, Lukas Kaufmann, Aliaksei Andrushevich, Martin Weber, Rainer Kyburz and Alexander Klapproth
(Hochschule Luzern - Technik & Architektur, CEESAR – iHomeLab)

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**Parallel Session 25-28 (Friday 28 August, 8:30-10:30)**

**Smart Meters and Feedback Systems (chair: A. Andrushevich)**

Identifying the opportunities for ICT based energy demand reduction in family homes
Richard Buswell and Paula Jorda-Cosar
(Loughborough University)

USmartConsumer: real-time smart meter feedback to kick-start consumer interest
Henk van Elburg
(Netherlands Enterprise Agency)

A data management platform for personalised real-time energy feedback
David Murray, Jing Liao, Lina Stankovic, Vladimir Stankovic, Richard Hauxwell-Baldwin, Charlie Wilson, Michael Coleman, Tome Kane and Steven Firth
(University of Strathclyde)
Rich Internet Application with Local Database Storage for Residential Energy Auditing and Consumer Education
Hendrik Vermeulen and Katrien Du Preez
(Stellenbosch University)

**Demand Response 1 (chair: R. Kyburz)**

A Methodology for the design of offer curves in the future Capacity Markets through Energy Efficiency
Antonio Gabaldón, Carlos Alvarez Bel, Antonio Paredes, Alejandro Marín Parra, Sergio Valero and Carolina Senabre
(Universidad Politecnica de Cartagena)

Developing a modelling framework to quantify the demand response potential of domestic appliances in the UK homes
Selin Yilmaz, Steven K. Firth and David Allinson
(Loughborough University)

Demand Response and Energy Storage for Zero Energy Residential Buildings
Pedro Moura, Filomeno Vieira, Gregorio López, José Moreno and Aníbal de Almeida
(Institute of Systems and Robotics - University of Coimbra)

Optimisation of small customer network tariffs for smart grids
Simon Moser
(Energy Institute at the Johannes Kepler University of Linz)

**Policies and Programmes 4 (chair: S. Kukoda)**

Using PAMS to estimate savings potential from increased energy efficiency – a case study
Ari Reeves and Ana Maria Carreno
(CLASP)

Appliance Early Replacement And Recycling Programs
Robert McArver
(Association of Home Appliance Manufacturers)

A new frontier in residential appliance & electronics programs: bringing closed-loop marketing to energy efficient shopping
Alex Katzman, Matthias Kurwig and Seth Bauer (presented by A. Arquit Niederberger)
(Enervee)

Commercial and Professional Refrigeration Products: Promoting Energy Efficiency with Legislation, Empowered Stakeholders and Rebates
Eva Geilinger and Eric Bush
(Topten International Services)
Lighting 2 (*chair: P. Bennich*)

*Testing High Quality LED lamps for Residential Lighting in European Market: Results from PremiumLight project*
Georges Zissis, Bernd Schäppi, Johannes Brundin and Ingemar Svensson (presented by P. Dupuis)
(Université Toulouse 3)

*The Role of Financial Incentives, Tax Incentives, Information and Minimum Energy Performance Standards in Transforming a Residential Lighting Market*
K H Tiedemann and Iris Sulyma
(BC Hydro)

*Analysis of Consumer Preferences for Residential Lighting through Consumer Panel Data*
Jihoon Min, Ines Azevedo and Jeremy Michalek
(Carnegie Mellon University)

*Is smart lighting energy smart?*
Casper Kofod

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Parallel Session 29-32 (*Friday 28 August, 11:00-13:00*)

Consumer Behaviour 3 (*chair: C. Granda*)

*Consumers importance on sustainable laundry care. Results of an online-survey in Germany*
Katharina Ellmer, Monika Fuchs, Thomas Schneider and Paul Uwe Thamsen
(Hochschule für Technik und Wirtschaft Berlin, Bekleidungstechnik/Konfektion)

*Energy consumption pattern of low income households in Thailand*
Pan Piyasil and Milou Beerepoot
(The Joint Graduate School of Energy and Environment (JGSEE))

*Efficiency categories for household electricity consumption as a new approach to initiate reduction measures in German households*
Dietlinde Quack, Sebastian Metzger, Corinna Fischer, Eva Brommer and Immanuel Stiess
(Öko-Insitut e.V. Institute for Applied Ecology)

Demand Response 2 (*chair: P. Bertoldi*)

*Development and Implementation of tools to improve the possibilities of Demand Response on residential customer segments*
Alejandro Marín, Antonio Gabaldon, Mario Ortiz, Sergio Valero and Maricarmen Ruiz Abellón
(Universidad Politécnica de Cartagena)

*Load Shift Potential Analysis Using Various Demand Response Tariff Models on Swiss Service Sector Buildings*
Daniel Bolliger, Edith Birrer, Rainer Kyburz, Alexander Klapproth and Samuel Summermatter
(Lucerne University of Applied Sciences and Arts / iHomeLab)

How to improve households’ participation in Demand Response programs: contribution of predictive control
Sinziana Carloganu, Bruno Duplessis and Jérôme Adnot
(Ecole des Mines de Paris, Centre for Energy efficiency of Systems)

The Status of Demand Response: Empowering the consumers in Europe today
Jessica Stromback
(Smart Energy Demand Coalition)

Lighting 3 (chair: P. Pistochini)
Large Area Solid State Intelligent Efficient luminaires
Rolando Ferrini, Oscar Fernandez, Stephan Junger, Peter Evanschitzky, Kimmo Keränen, Thierry Dreyfus,
Adrian von Mühlener, Leire Barruetabeña, Davide Pestilli and Anezka Palkova
(CSEM SA)

The performance of and energy savings of domestic lighting in a low energy housing development
David Whaley, Stephen Berry and Wasim Saman
(University of South Australia)

High Quality Super-Efficient Lighting Products: the SEAD Global Efficiency Medal
Chad Gallinat, Debbie Karpay Weyl, Peter Bennich, Michael Scholand, Nils Borg, Mike Walker, David Boughey, Christofer Silfvenius and Jonas Pettersson
(US Department of Energy)

Nigeria Lighting Compliance Study
Etiosa Uyigue, Jason Yapp, Muyiwa Odele and Benoit Lebot
(UNDP)

Monitoring 5 (chair: E. Bush)
A baseline methodology for residential mass roll-out projects
Yannick Mvudi, Jan-Harm Pretorius, Mubesa Muamba and Shaun Chan Wing
(University of Johannesburg)

EU Energy Label on Vacuum Cleaners: evaluation and market changes
Pierre Geismar
(GfK)

Monitoring the washing machines market in Europe
Anette Michel, Barbara Josephy, Eric Bush, Sophie Attali and Francisco Zuloaga
(Topten International Services)