

DSM Spotlight

The Newsletter of the International Energy Agency Demand-Side Management Programme

May 2014



task 24 Is Storytelling The Answer to Many of Our (Translation) Problems?

IEA DSM Task 24: Closing the Loop – Behaviour Change in DSM, from Theory to Policies and Practices, has an incredibly wide target audience and large number of experts from many different disciplines and sectors. We segment our target audience of so-called 'Behaviour Changers' into 5 sectors 1) Government decision makers ('the power'), 2) Industry providers of energy or technology ('the brawn'), 3) Research experts ('the brain'), 4) Intermediaries who are doers ('the hands') and 5) Communities and the third sector ('the heart'). Each one of these behaviour changer segments has a lot of power and influence, but each one also faces certain restrictions.

For example, the Government has power to change legislation and design policy and they often fund large DSM programmes or projects (including research). That also means that they are beholden to their shareholders (their Minister(s), political party currently in power, the taxpayers). These shareholders sometimes may have different drivers or timescales than a policymaker might need or wish for in order to create long-term, embedded, nation-wide change.

Researchers have the power of knowledge and are often looked upon for their expertise, to develop new ways, technologies and theories of how to address demand side management and are often asked to evaluate current programmes. On the other hand, their main mandate often is to publish academic, peer-reviewed papers, which often are not very user-friendly and implementable in practice. Instead, they are very

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Note from the Chairman

The Dawn of Information

The world is changing. And although that might be a constant factor throughout time, for the present occupants of the big blue rock it's changing fast. For once I won't refer to the changing climate, but rather to the way we process information. In the past, researchers wrote lengthy reports that described their results in exact detail thereby making both verification and continued research possible. But with the arrival of the internet, the availability of data has exploded making parts of reports redundant as so much more information is available with a single click.

Now we seem much smarter, but let's face it, we're not. It seems as if our ability to extract information from big piles of data is increasing, but our ability to really process all that information doesn't keep up with our ICT options.

A popular solution for information overload is the "1-pager". Anything more than that, it's rejected. Making a point using a one-liner has become an art in its own right.

In my opinion, these 1-pagers don't do justice to the work of the IEA researchers. By the sheer amount of available data, verification has become somewhat easier, but continued research needs a firm foundation in the documentation of earlier work.

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precise in their focus, disciplinary jargon and analysis, and the audience is a small sector of academics or people in that specific discipline or with similar interest.

What we found when bringing these different Behaviour Changers together is that there is often a lot of misunderstanding, miscommunication and unease about the 'others'. Some academics state that 'policymakers just need to create regulation that aims at systemic change' without a deeper understanding of how politically difficult it is to do so. Or industry can complain about researchers sitting in their 'ivory towers' and not understanding how to make their knowledge useful in the 'real world' or for policy making. And both parties, often see the people who make money from selling energy as only being interested in commercial gains without considering that it is their mandate to their shareholders and that in practice these people often face a direct conflict between energy conservation and making profits.

The most important sectors - the middle man or intermediary who actually goes into peoples' homes, sells people cars, trains them how to drive, etc. and the community 'conscience' who try hard to get bottom-up engagement with the three top layers off the ground are often forgotten or not sufficiently included when designing big DSM programmes, policies or pilots.

When each sector gets to tell their unique story in a very literal storytelling format and listen to the others' stories in a trusted environment, it becomes easier to overcome silos and understand one another and start looking for common ground. Every Behaviour Changer sector has a very important piece of the puzzle, but no one can complete the whole picture without the involvement and engagement of the other sectors.

DSM Task 24 is using storytelling to bring these sectors together. So far, we have collected different stories and case studies and analysed them (for example, in our 'Monster' report). We have even created a [little storybook teaser](#) and a film where our DSM Task 24 experts tell their own [energy stories](#), 'sins' and solutions. We have an animated story of one of our [sector experts](#) and, together with our New Zealand national expert, we even brought the storytelling concept into a [Royal Society emerging issues paper](#).

To top it off, we just ran a very successful 'translation' workshop called "Storytelling in DSM" in Wellington, before the 43rd IEA DSM Executive Committee meeting on March 17. All the invited speakers from Government, Industry, Research, Intermediaries and Community really stepped up to the plate and told some wonderful stories. And a good exchange of knowledge and increased understanding emerged. We had horror, love, learning and hero stories. We covered the genres of science fiction, fantasy, political thriller, frontier and sports tales. We had a Treasury official dressed up as a Bond girl and a Storm Trooper and Han Solo from our largest fuel retailer. Most importantly, it was a lot of fun and everyone got to write their own DSM story in the end. The presentations are all on [slideshare](#) and soon the [filmed presentations](#) will be available on our invite-only Task 24 platform.

This article was contributed by the DSM Task 24 Operating Agents, Sea Rotmann drsea@orcon.net.nz and Ruth Mourik ruth.mourik@duneworks.nl. If you are interested in finding out more, please contact Sea Rotmann.

Energy Services Stakeholder Day Wednesday 7 May 2014



BELESCO (the Belgian ESCO Association) and the *IEA DSM Programme's Task 16: Competitive Energy Services* organized two energy efficiency stakeholder workshops, on Wednesday 7 May 2014, in collaboration with two EU funded projects on Energy Performance Contracting: "EESI2020" and "Transparens".

The event took place in Brussels and covered key topics and challenges for the development of the European, national, regional and local energy efficiency in buildings initiatives, within the framework of the EU Energy Efficiency Directive.

The day's agenda:

- **How To Overcome The Barriers For Retrofitting Large Private And Public Building Stocks?**
- **How Facilitators Can Boost The Development Of The EPC Market?**

These two unique workshops brought together Belgian, European and international experts in the field of energy services, EPC projects and ESCO models with national and regional stakeholders and market actors involved in the development of programs for energy efficiency in public and private buildings.





A Task for the DSM University

The DSM University is now up and running and has held its first webinars on Energy Service Companies, Smart Grids, and Energy Efficiency Obligations. The webinars are a collaborative effort with the European Copper Alliance and their Leonardo Energy facility, which has the experience and highly professional skill to run learning and training programmes.

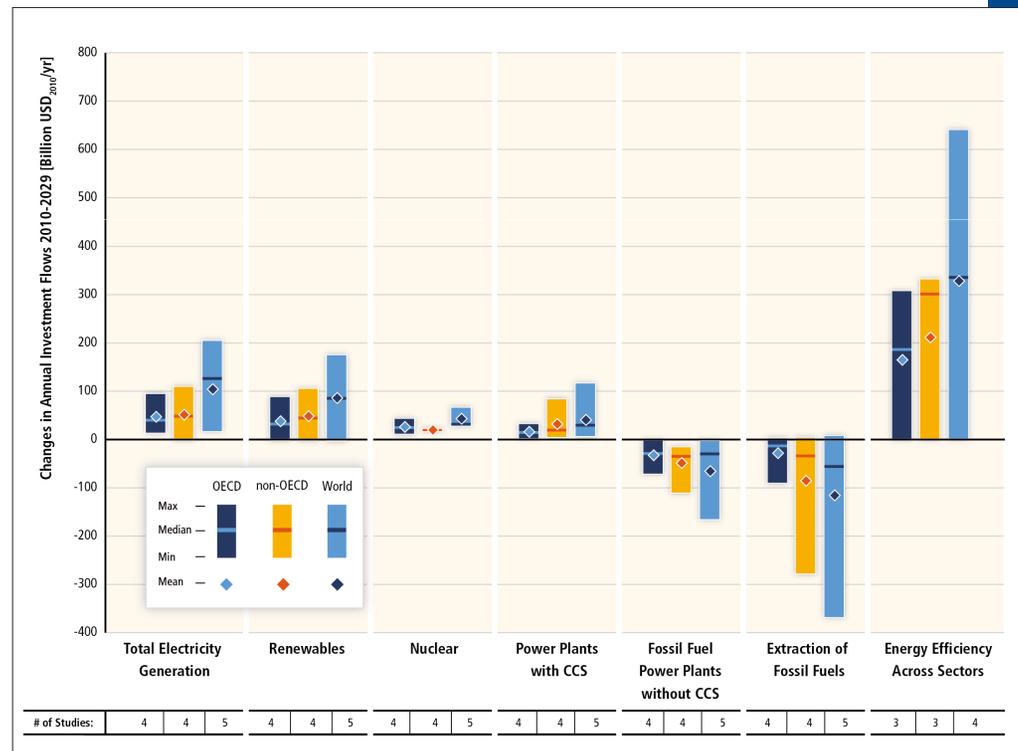
And just as the University is getting underway, the Intergovernmental Panel on Climate Change (IPCC) published its Mitigation report, which shows three important things 1) we are able to tackle global warming, 2) the vast resource to do so is energy efficiency improvements and investments in energy efficiency must be multiplied several times over, and 3) the costs to society for these changes are LOW – 0.06 percentage points per year in reduced GDP – which equals roughly 7 USD per person each year!

The reception of this report by the media has been interesting. The report received a positive response, but it also was apparent that the issue of energy efficiency is complicated for the media to report on. They comment on energy supply issues such as nuclear and gas, but do not have a clue on what energy efficiency means. The size of energy efficiency investments required outpaces all investments in supply side measures by far, as illustrated in the graph from the IPCC report.

"There is a tremendous knowledge deficit concerning how energy efficiency comes about. The technology is not that complex and most people have at least heard about different energy efficiency technologies, but how to get the technology in place, in the right amount, at the right time, and by whom are questions that need clear answers for many people.

All these issues are familiar to DSM practitioners and we have the obligation to tell and to teach how it should be done. A task for the DSM University!"

HANS NILSSON
IEA DSM PROGRAMME ADVISOR



Change in annual investment flows from the average baseline level over the next two decades (2010 to 2029) for mitigation scenarios that stabilize concentrations within the range of approximately 430–530 ppm CO₂eq by 2100.

Source: IPCC WG III Mitigation. Summary for Policy Makers

task 21

Harmonisation of Energy Savings Calculations

After five years of work, *IEA DSM Task 21: Harmonisation of Energy Savings Calculations* recently concluded. This project answered questions, such as

- How are ex-post energy savings calculations conducted?
- What are the most important elements for the quantitative evaluation of the energy savings impacts of policies and measures?
- Is a broader agreement on the basic concepts, rules and system borders in IEA member countries possible? And, can such agreement stimulate and improve regional/worldwide comparability of energy saving calculations?

While many policies and measures for improving energy efficiency exist and continue to be improved upon, they often are missing an evaluation component, which in the end prevents them from realizing their full potential and makes it difficult to quantify the total energy efficiency savings. Both of which are crucial from the government perspective.

The challenge is to be as practical as possible – striving not for a universal harmonised protocol, but for sound procedures to help countries increase the efficiency of their energy savings calculations and evaluations and to create a solid base that standardisation organisations can use to take the next step. Evaluation is an essential component of any compliance process and an essential aspect of sound policy implementation.

To answer the questions noted above, as well as others, the participants in IEA DSM Task 21 concentrated their work in three areas:

- 1) Summarization and comparison of current methods and standards used to determine energy use, energy demand and energy and emissions savings from energy efficiency actions and policies;
- 2) Preparation of recommendations on how existing methods, standards and resources can be expanded and/or used for comparing different countries and international efficiency policies and actions; and
- 3) Identification of organizations that are and could be responsible for use and maintenance of such methods and standards.

Some Highlights

Country Reports

The *Country Reports* (France, Republic of Korea, The Netherlands, Norway, Spain and the USA) as well as the report, *Harmonised Energy Savings Calculations for Selected End-use Technologies, Key Elements and Practical Formulas*, show the availability and use of default values for the selected case applications and illustrate the required learning over time of energy savings calculation parameters. Most of the information required for the key information on energy savings calculations had to be generated by the experts using different sources and/or expert opinions. These reports hold information experts should refer to when they are preparing energy savings calculations, especially when related to these technologies — variable speed drive and high efficient motors, heat pumps, heating systems in commercial buildings, air conditioning, residential insulation and lighting.

Work being conducted by other organisations and agencies include:

- **CEN:** Introductory element, Energy Efficiency and Savings Calculation, Top-down and Bottom-up Methods Complementary element, CEN standard EN16212:2012.
- **ISO:** Task Committee, ISO/TC 257 dealing with general technical rules for determination of energy savings in renovation projects, industrial enterprises and regions.
- **US DOE:** Under the Uniform Methods Project, DOE is developing a framework and a set of protocols for determining the energy savings from specific energy efficiency measures and programs.

ESC Template

Through in-depth discussions amongst the Task experts, it was possible to develop a *template* (with key elements) to document the energy savings calculations and related GHG emission reduction, as well as the relation to the demand response impact. This template was tested and used to collect information on six technologies in six countries (results are presented in the Country Reports). This template provides a structure to present information in four groups 1) summary of the programme (context), 2) formula for calculation of annual energy savings, 3) input data and calculations of energy savings, and 4) greenhouse gas savings.

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As this project concentrated on how energy savings calculations are done, we put additional effort in to finding a common structure for such calculations. Our recommended structure is presented in a formula for the calculation of Annual Energy Savings (group two noted above) that consists of six key elements:

1. Formula used for the calculation of annual energy savings
2. Specification of the parameters in the calculation
3. Specification of the unit for the calculation
4. Baseline issues
5. Normalisation
6. Energy savings corrections including gross-net corrections and corrections due to data collection problems

These six key elements for energy savings calculations are a practical step-by-step approach that moves from inherent independent technical elements in a country to more situation specific elements. By clearly distinguishing these elements, it will be easier for others to understand the reasons behind different outcomes in comparable projects. In addition, this step-by-step approach allows for improved comparisons on the reporting of evaluation of energy savings.

Harmonised Energy Savings Calculations

The report, *Harmonised Energy Savings Calculations for Selected End-use Technologies, Key Elements and Practical Formulas*, summarises the experiences gained using the ESC Template. For the selected technologies – variable speed drive and high efficient motors, heat pumps, heating systems in commercial buildings, air conditioning, residential insulation and lighting – the six key elements are presented for each country's case application. In addition, the report presents the conclusions on harmonised formulas, greenhouse gas reductions and demand response savings, as well as recommendations for further improvements.

Download the full reports at www.ieadsm.org

- Energy Savings Calculations for Selected End-Use Technologies and Existing Evaluation Practices in [France, Republic of Korea, The Netherlands, Norway, Spain or the USA]
- Harmonised Energy Savings Calculations for Selected End-use Technologies, Key Elements and Practical Formulas
- Guidelines for Harmonised Energy Savings Calculations
- Roadmaps for improved Harmonised Energy Savings Calculations

Guidelines for Harmonised Energy Savings Calculations

In almost all of the researched sources, most or all of the key elements were included in the energy savings calculations. As outlined in the report, *Guidelines for Harmonised Energy Savings Calculations*, baselines proved to be the most critical common element. Unitary saving is still often a 'new' start point for savings, and saving lifetime is not a major topic, but when used, it is often treated in different ways. GHG emission reduction is typically not included in reports on impacts from energy savings projects. Currently, there are a large number of definitions, which are often slightly different and primarily reference national circumstances and regulations. But common terminology is increasing and this is due to the work of the standardisation organisations CEN and ISO, interstate co-operation between US states, and EU Directives. These organisations continue to produce reports, standards, recommendations, etc. so for the most up to date information consult their websites.

Roadmaps for Improved Harmonised Energy Savings Calculations

Based on the developments to harmonise energy savings calculations in recent years in Europe, the USA and worldwide, the outlook is bright. Outside this IEA

work, the international standardisation organizations CEN and ISO continue to work on improved energy related standards and the European Commission as well as the US Department of Energy are actively working to harmonise energy savings calculations. The report, *Roadmaps for improved Harmonised Energy Savings Calculations*, contains an overview of these developments. And, ideas for future work within the IEA DSM Agreement include production of more comparable case applications and development of a levelled, 'tiered' approach, however, at this time there are no concrete proposals for new work within the IEA DSM Agreement.

In conclusion, this timely DSM Task provided important input to the development of international standards, generated global agreement and understanding between experts on the key elements of energy savings, and provided unique comparable information on the energy savings calculations for a number of technologies in countries all over the world.

This article was contributed by Harry Vreuls, the DSM Task 21 Operating Agent, harry.vreuls@rvo.nl.

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The Energy Conference 2014

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As I said in my introduction to this conference on the website:

It has long been recognised that energy efficiency can and should play a major role in our drive to achieve a more sustainable energy system. The IEA's World Energy Outlook 2012, amongst many other significant reports, highlights the importance of, and opportunity presented by, improved energy efficiency:

Efficiency in energy use is just as important to the future energy balance as unconstrained energy supply. Despite years of persistent pursuit, the potential of energy efficiency remains largely untapped. (World Energy Outlook, IEA, 2012)

Whilst the IEA report makes a very convincing case for greater uptake of efficiency measures, the goal of realising these has remained surprisingly and frustratingly elusive. The report provides a wealth of data that demonstrates the potential to save energy equivalent to 18% of global energy consumption in 2010 by 2035. Similar statistics are available for New Zealand but, again, the potential is not matched by the reality.

The Energy Conference 2014 takes efficiency out of the shadows and presents it as a new fuel. The conference aims to share new findings, initiatives and innovations that can improve productivity and wellbeing by making energy go further.

And what a way to consider the topic: 100 delegates

from across all aspects of the energy sector and from a range of different countries with different contexts and challenges, engaging in an all-plenary structured event affording maximum opportunity for dialogue and discussion as well as learning from a large number of outstanding presentations.

Following formal welcomes to Wellington on behalf of the tangata whenua (the Maori peoples of the region) and from the Mayor of Wellington, the conference programme started with three stimulating keynote presentations, which really set the atmosphere for the whole conference.

The Minister of Energy and Resources outlined the government's "balanced and mixed approach" to energy resources, touching on all forms of energy as well as the need for energy efficiency and conservation.



Keynote speaker, Honorable Simon Bridges, Minister of Energy and Resources

He was followed by the Chief Executive of the Energy Efficiency and Conservation Authority who presented some excellent data regarding energy consumption across all forms and uses, going on to point-up transport and heat as the glaringly obvious areas where efficiency could and should have the greatest and most immediate impact. The third keynote for the morning was presented by John

"Skip" Laitner who gave a fascinating account of some of the work he has been doing centred on the USA, with some challenging questions, such as:

Question: Other than population, what may be the single largest contributor to environmental degradation?

Answer: The large-scale and inefficient use of energy.

Fact: The United States wastes ~86 percent of all the energy consumed within the economic process. New Zealand may have a similar level of inefficiency!

Conclusion: Perhaps the most immediate opportunity to ensure a more robust and sustainable economy is to quadruple or better our current 14% level of energy (in)efficiency.



Keynote speaker, John "Skip" Laitner, resource economist, Economic and Human Dimensions Research Associates, Tucson, Arizona.

With the scene firmly and provocatively set, the conference programme went on to consider energy efficiency in transport, energy supply and demand

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response, energy in buildings, and the economy and policy. Further keynote addresses were received from other outstanding presenters, and a range of formats were enjoyed from keynote talks to Pecha Kucha-style (20 slides, 20 seconds each) presentations and, of course, panel discussions.



Rather than attempting to describe each presentation, or to summarise the sessions, I urge you to have a look at the [conference website](#) where all the presentations are available plus videos of the keynote addresses.

As always, the question now is “what next”? If I were to summarise the mood of the conference it would be in terms of the general collective agreement that action is needed, and in the near term, and that whilst technology is and will remain important, we must focus on the demand side and behaviour change. There was also a strong sense of collective responsibility – we will only solve the problems/rise to the challenges by acting together – a multi-stakeholder approach.

We know a lot; we certainly know enough to be able to act upon it; so let’s form whatever collectives are required and get on with making a change.

This article was contributed by Paul Atkins, CEO of the National Energy Research Institute, Energy Conference 2014 convener, and New Zealand’s DSM Executive Committee member.

Chairman's Note from page 1

This is not a plea to return to the old ways. The world needs to keep changing, if only to deliver the energy results necessary to stay as close as possible to the IEA’s 2 Degree Scenario. Plus, we need to explore new ways to share the development of methodologies, results, and the final bridge to cross, implementation.

The IEA DSM Programme is doing just this. We are looking at change, both in behaviour and organisations. We are up scaling our outreach “toolbox”. Yes, we do use the 1-pager from time to time, especially when we want to inform policymakers of our work. But, we’re not stopping there. We’re organising DSM days in our member countries. In the past, these days were only linked to our Executive Committee meetings, but now we are organizing “stand alone” events as a way to bring researchers and implementers together to discuss the best possible options to profit from the results of the IEA DSM work.

The next DSM day will be June 10th in Belgium and institutes, policy makers, and local and regional players (including industry) will meet to discuss the benefits of IEA DSM research. We are willing to help other countries organise a similar DSM day.

Yes, there is more. Of course we don’t want to go back to the days where reports were partly measured by their number of pages. We have discovered so many technologies to bring us together that it would be foolish to ignore them, which brings me to our latest outreach tool – webinars to bring people together to discuss a specific topic.

We invite you to use all our outreach venues. And, if you know of better and newer methods then challenge us so we can keep changing too.

Rob Kool
Chair, IEA DSM Programme

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The DSM Spotlight is published several times a year to keep readers abreast of recent results of the IEA Demand Side Management Programme and of related DSM issues. IEA DSM, also known as the IEA Implementing Agreement on Demand Side Management, functions within a framework created by the International Energy Agency (IEA). Views, findings and publications produced by IEA DSM do not necessarily represent the views or policies of the IEA Secretariat or of the IEA's individual member countries.

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