

International Energy Agency  
Demand-Side Management Technologies and Programmes



## Subtask 8: Storytelling from A-Z

### *Task 24 – Phase II*

Behaviour Change in DSM: Helping the Behaviour Changers

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# Storytelling from A-Z

A methodology and summary document on the use of storytelling, using the story spine, in Task 24

**KEY WORDS:** Story spine, storytelling, behaviour change research, multi-stakeholder collaboration

## ABSTRACT

*The Story of how the Story Spine came about in Task 24*

Once Upon a Time... *the International Energy Agency's Demand-Side Management Programme anointed a Kiwi as an Operating Agent of the first global research Task on behaviour change. She was not a social scientist, but was an energy efficiency practitioner and policymaker in the New Zealand Government.*

Every Day... *she and her Dutch colleague, who was a social scientist, collected case studies from experts all over the world, showing how behaviour change models worked, or didn't work, in real life. They created a 'Monster' (report) which just kept on growing, full of social science language and many case studies with weird, foreign names.*

But, One Day... *the Kiwi came across an article on how to simplify storytelling using a story spine in a magazine. A light bulb went off in her head! Why not use the story spine in the 'Monster' to summarise the many case studies? Maybe it would be easier for the readers to recall the stories than trying to remember all the dry case studies with their funny names? So they asked all their experts to also write their case studies as stories, following the story spine prompts. This worked surprisingly well and everyone enjoyed writing and reading these stories.*

Because of That... *they were emboldened by the general embrace of storytelling in their Task and so they ended up telling and eliciting other stories. It even culminated in an international meeting of all the IEA DSM countries where the entire day was based on storytelling. Important people like Treasury officials came dressed up as Bond girl Vesper Lynd to tell the story of the "Political thriller of funding DSM"! It was a great success and storytelling seemed rife to go 'mainstream' in the energy research community.*

But, One Day... *they finished their theoretical work and realised that the only way any of it mattered was if they could show how all their theoretical findings and recommendations on how to change behaviours could actually work in real life.*

Because of This... *the Kiwi invented a framework (christened 'the Magic Carpet of Behaviour Change' by a major US utility in one of her workshops) to facilitate many different Behaviour Changers from many different sectors to collaborate on many different behavioural problems. The overarching language that was used to translate the jargon between all the different Behaviour Changers, was storytelling, using this simple story spine. So, she took her 'Magic Carpet' and tested it with Behaviour Changers all over the world, collecting many great energy stories along the way.*

But then... *she realised she needed to do something with all these stories! Something scientific! An analysis of rhetoric and discourse even! She felt quite out of her depth. Collecting the stories was what she liked to do, but analysing them for a scientific publication didn't seem as much fun. She started feeling quite scared of not being able to do the right thing with the many great stories that her experts had gifted her.*

Until, finally... *her fairy godmother Katy came and sprinkled some magic dust on her, sending her off to read some social science papers on storytelling and linguistic analysis and told her that she would be OK as long as she could show why her paper and her stories would be of interest to the fine Journal of Energy Research and Social Science and its readers. In her reading, she learned that she wasn't the first to use a story spine to elicit powerful stories, although she may have been the first to do so in energy behaviour research.*

And so, forever more... *she hopes that after [reading her paper](#), many others will start using the story spine to further their research and better support their Behaviour Changers' needs as well. The End.*

## INTRODUCTION

The story above describes how this perspective on the A-Z of using a story spine in energy behaviour research came about. We have published an article (Rotmann, 2017) in a [Special Issue](#) on “Narratives and Storytelling in Energy and Climate Change Research” which delves into the process of collecting the almost 145 Task 24 stories, and their theoretical framework. The paper focused on the *process* of storytelling, and, to some extent, the *participants* (the storytellers), but not the *products* (the stories). This companion report outlines some methodologies that can be used to analyse stories, the reasoning of why the story spine works and provides some example stories and scientific literature that underpin this reasoning.

### Why use storytelling in Task 24?

The story of Task 24 has been told in Rotmann, Goodchild and Mourik (2015) and it outlines why storytelling pretty much *had* to become the overarching ‘language’ of the Task. In short, the large extent of audiences and experts from so many different sectors, disciplines and countries, made the translation of jargon very difficult. The process of storytelling can have horizontal and vertical dimensions (Davis and Dart, 2005). The horizontal dimension is between a group of participants engaged in discussing and selecting the most significant issues to focus on behavioural change (the usual, top-down approach). Vertical dialogue involves exchanges of views between groups of participants at different levels, including the *End User*, the *Conscience* and the *Middle Actor* (top-down, bottom-up and middle-out approach). This vertical dimension is very important if storytelling is to aid organisational and systemic learning, which is what we research and facilitate in Task 24.

Storytelling quickly became the unifying, uniting methodology (hence it is the shaft of the multi-tool in Fig. 1) that underpins all of Task 24’s research work. We have used many different forms of storytelling in the Task (see Rotmann, Goodchild and Mourik, 2015) from summarising case studies, to telling the story of how different models of understanding behaviour would be told from the *End User*’s perspective, to eliciting *country stories*, energy experts’ own *personal stories* on their energy ‘wins and sins’, stories from the *Behaviour Changers*’ individual perspectives and collective stories of future sustainable energy goals. Here, we only analyse those that were collected using the story spine.



Fig 1. Task 24 visualised as a Swiss Army knife. Note: ST indicates ‘Subtask’, the individual research deliverables undertaken by the Task (for description see Rotmann, 2016).

### Different ways of storytelling in the literature & how they apply to Task 24

Participatory Narrative Inquiry (PNI) has close similarities with how Task 24 uses storytelling. Unlike



its sibling *Narrative Inquiry*, PNI invites its participants to work with their own stories (Kurtz, 2014). Participation in PNI can vary in degree from simply answering questions about stories to participating in structured group sense-making activities where groups of participants ponder issues and problems. Task 24 does both in order to help the stories get to where they need to go to help the *Behaviour Changers* achieve a common goal.

The primary goal of PNI is decision support augmented by sense-making improved by narrative discourse. But in some way, all PNI projects involve somebody making some use of gathered stories to better understand some situation or issue. As Kurtz, 2014 describes it, “All of the ideas and methods in PNI focus on helping people make better decisions together, decisions everyone can live with in peace. [...] The play’s the thing. Play takes a central role in PNI, for the very serious reason that play creates the most effective decision support. The telling of stories is a form of play in human life, a partial suspension of the rules of the real which helps people resolve problems. PNI expands on this essential function of stories by incorporating play into every element of its activity, from planning projects to collecting stories to helping people make sense of them. PNI practitioners take on a trickster role in the community or organization they aim to help, to avoid the taint of authority and to increase the benefit of participation. One of the most important elements of learning how to “do PNI” well is learning how to play effectively.”

The use of a gamified version of the ‘human energy system’, our *Behaviour Changer Framework* which was dubbed “the Magic Carpet (of Behaviour Change)” by a large utility during a Task 24 workshop (see Rotmann, 2016) elicits both storytelling and play among *Behaviour Changers*. The facilitated workshops help *Behaviour Changers* tell their stories, empathise with each other and the *End User*, narrow down the most appropriate (i.e. most achievable, at minimum risk) issue they all agree to focus on, visualise the current energy system and its players, their relationships and in-built conflicts and then compromises on a common goal with specific measurements of co-benefits (asides from energy, or kWh savings) to each *Behaviour Changer* and the *End User*. Finally, storytelling is used to outline a scenario and roadmap that a real-life pilot will then follow. It will also be used during the implementation of the pilot as a form of evaluation, particularly of the all-important *perception of success* from the different *Behaviour Changer* perspectives.

Again, Kurtz (2014) in her description of PNI, identifies overlaps with Task 24’s use of storytelling: “PNI helps stories get to where they need to go to have a positive impact on the community or organization. The most important thing a PNI project does is not to collect stories for safekeeping or tell stories for enlightenment or analyse stories for proof. This distinguishes PNI from many other forms of narrative work whose goals are to preserve or persuade or study. [...] A common misconception about PNI is that its purpose is to build one common, merged, single-perspective story agreeable to all, as a kind of consensus building. Consensus-building has its merits, and methods that build consensus are worthy of respect and attention and use. But PNI does something different: it works in situations where only partial trust is in place and consensus cannot be reached. Why this focus? Unique among our forms of communication, stories do not force unity but preserve conflict and contrast at all scales.” As can be seen from the analysis of patterns in Task 24 stories below, the use of a simple story spine also prompts and preserves conflict and contrast, as does the telling of the same story from different perspectives (of the *Behaviour Changers*).

We are using storytelling in interventions to extract everyone’s different needs and goals and to co-create a common storyline that envisages the overall goal of an intervention to be designed, without losing the different perspectives, conflicts and contrasts. In this sense, we are using storytelling as a way of building scenarios and roadmaps. Finally, we use it as a way to monitor the collective impact approach process employed by Task 24, for example by monitoring alignment of views and expectations as identified in the multiple stories being told.

## Analysing stories

### Storytelling as evaluation tool vs evaluating the impacts of storytelling

There are several ways to evaluate using storytelling, and to evaluate the impacts of stories. One reason that storytelling has become such a useful tool in programme evaluation is that it accommodates diverse voices and perspectives, while making the most of the particular resources

and ways of learning readily available in a programme (the California Endowment, 2007). Unlike a traditional evaluation approach that is imposed from outside, the storytelling approach emerges organically from within an organisation, projects and participants. *Personal stories* in particular are useful for evaluation because of attributes such as aiding participatory change processes which rely on people making sense of their own experiences and environments; they can focus on particular interventions whilst reflecting on the array of contextual factors influencing their outcomes; narrative data can be analysed for emergent themes etc. (McClintock, 2004). By taking into account multiple perspectives, the collection and analysis of stories offers new and often surprising insights – more so than usually is the case with traditional monitoring and evaluation methods (Krüger and Schaffitzel, 2014). The interpretation of narratives leads away from linear cause and effect chains and opens up the space for complex and multidimensional reality, enabling a more holistic view of results-based management and evaluation.

A prominent evaluation method using stories is the *Most Significant Change* (MSC) technique (Davis and Dart, 2005). MSC stories are filtered up through the organisation, through a participatory process involving values inquiry that is systematic and transparent. *People-Centered Evaluation* (PCE) aims to help practitioners develop practical internal monitoring and evaluation and learning (MEL) frameworks for projects and programmes (Dart et al, 2011). MEL frameworks are developed through a workshop process, and the resulting framework is used by project staff to guide their own internal monitoring systems, develop sensible measures to track progress, and scope any external evaluations that may be necessary. This is very similar to the Task 24 methodology. Huebner and Betts (1999) describe another storytelling evaluation technique in a multi-stakeholder environment not dissimilar from Task 24. It is called the *Fourth Generation Evaluation* (FGE) method: “Revealed strengths of FGE include the involvement of multiple stakeholder groups, exposure to multiple perspectives, and fostering early support for later programme developments. Limitations include difficulties in defining stakeholders, and providing evidence of education and empowerment.”

Storytelling provides a powerful means to obtain information on an intervention’s outcomes from *Behaviour Changers’* experiences and viewpoints and meaningful information that can highlight both the strong points and weaknesses of an intervention, as well as any unintended consequences (VanDeCarr, 2013). By asking *Behaviour Changers* to provide a story on an intervention after it has been implemented, it asks them to evaluate an aspect of it, from their perspective. Thus, rather than provide information for someone else to place a value on, storytelling generally brings out memorable or momentous experiences from each of the actors involved in the behavioural intervention. The *case study stories* told by our Task 24 experts, are excellent examples of this.

Evaluators generally tend to be apprehensive about emotional messages, as they can ignore important facts, be fabrications or overlook empirical data (Krueger, 2010). However, they also make quantitative data more credible by personalising it and taking it out of the abstract into a specific situation. ‘Success’ of an intervention is often based more on perception, rather than actually-measured facts and informal story exchanges about people's experiences surrounding the project are a given (Kurtz, 2014). These informal storytellings may be more influential than the formal outputs, for better or worse, and they merit attention on their own terms. Kurtz (2014) says: “All PNI projects involve someone telling stories they would not have told before the project took place. Whether this is a stated goal of the project or not, it always happens, because the project is itself a story that takes place in the community. The return stage of the process is one project planners might be unprepared for and might prefer to sweep under the rug; but it is futile to pretend storytellers and audiences are unaffected by storytelling.” Stories, especially as told within organisations, often promote or cement certain perceptions and norms. They are thus of particular use to evaluate behavioural outcomes, from the perception of the different *Behaviour Changers* and *End Users*. The impact of stories when evaluating ‘successful’ outcomes, can thus enhance the continued behavioural changes that were attempted to be achieved in the first place.

## How to analyse a large set of stories?

Single stories give us insight but a collection of stories can help us identify trends and patterns that help us evaluate programmes and services. In this case, stories are the primary use of data and not used to illustrate evidence from other sources. In contrast to information gathered from databases

or collected using standardised surveys, stories pose a particular challenge for data collection. This is because the collection of qualitative data is not only generally more elaborate than a query in a database, but also because the interviewer takes on a crucial role in narrative research methods (Krüger and Schaffitzel, 2014): Stories do not lead to a single result, which is the very reason they are collected. They offer surprising perspectives and bring to light hidden knowledge. Quantitative methods analytically treat stories as units of measure. The simplest quantitative approaches include counting the number of collected stories, creating a list of the collected story types and doing a pattern analysis of them, then generating statistics on these findings (Dietz and Silverman, 2013). Qualitative methods, rather than treat stories as units to statistically analyse, look for the construction of group identity or community. A very important aspect of analysing stories is to let those who volunteered the data participate in the evaluation of it (see also the MSC technique by Dart and Davis, 2003). Kurtz (2014) describes one of the most useful set of questions to ask when collecting and analysing a large set of stories:

- If you are asking people to tell you stories, why not ask them what their stories mean?
- If you already do that, why not ask people what the stories other people told mean?
- If you already do that, why not ask people to build something with their stories? Why not ask them what that means?
- If you already do that, why not ask people if they can see any trends in the stories that have been told?
- If you already do that, why not ask people to design interventions based on the stories they have told and heard?
- Then, why not ask people to help you plan new projects?

### Discourse analysis

Simply speaking, discourse analysis is the study of language-in-use (Hajer and Versteeg, 2005). Discourses can be understood as coherent sets of ideas, concepts and categories that, through language, create shared understandings of the world (Dryzek, 2005). Barry et al (2008) and Cherry et al (2015) describe rhetoric analysis in discourse around wind farms and low carbon housing, respectively. There are two components: Discursive elements are basic components used to construct issues, objects and actors within the discourse; distinguishing between framing devices (influencing what is thought about an issue) and reasoning devices (justifying what should be done about an issue). These are combined within storylines and provide a “generative sort of narrative that allows actors to draw upon various discursive categories to give meaning to specific physical or social phenomena” (Hajer and Versteeg, 1995). They generally include aspects of problem definition, causation, responsibility and moral argument (Cherry et al, 2015).

### Concordant Analysis

Some basic techniques of linguistic analysis involve searching for and finding things in a text, and displaying the results in useful ways. The most popular way to display the results of a search in a corpus is in the form of a concordance (Wynne, 2008). In *corpus linguistics*, a simple concordance is a list of examples of a word as they occur in a corpus, presented so that the linguist can read them in the context in which they occur in the text. “Concordancing” thus allows a researcher to focus on the metalingual aspects of language—its patterns and paradigms (Wynne, 2008). We followed this process here, inspired by the analysis in Janda (2009). Although the stories used here were quite short, this method facilitated the process of content analysis, and provided an objective lens through which to see language as data.

### Story genres

Content analysis can also focus on the genre people use to write stories (Davis and Dart, 2005). A genre is a large-scale categorisation of experience and includes such forms as drama, tragedy, comedy, satire, farce and epic. Or, as we used it in Task 24, as ‘hero’, ‘learning’, ‘horror’ and ‘love’ stories, based on Janda and Topouzi (2013 and 2015). They describe the energy *hero story* as follows: “The energy hero story has some recognisable elements of the traditional structure. Chief among them is that most of the heroic acts occur in the special world of the future, or the imaginary world of technical potential. [...] Whether it is a silver bullet (one technology) or a silver buckshot (a combination of things), energy-efficient technologies and strategies often promise to be the magic elixir that will save us from climate change.” *Horror stories* are described as follows: “It is a story of failure, of technologies that did not perform as promised. [...] There are fears of a fallen hero, fears



of project requirements unsatisfied.” And a *learning story* is described as follows: “The learning story in energy policy lies in between the technical potential and what is achieved in practice. [...] The learning story can be difficult and contentious. It is less soothing than the hero story, as it asks for participation, reflection, and does not provide a single truth.” Finally, the *love story*, or ‘caring story’ (Janda and Topouzi, 2015) is described as follows: “In the absence of a policy regime that formally recognises the socio-technical nature, the concept of a ‘caring story’ could help create the social potential to move in this direction. [...] If these opportunities are to be grasped, then the use of hero stories will need to change, develop and alter into a myriad of learning stories, perhaps augmented by caring stories to establish new social norms of ethical conduct.” In this Task, we built on the concept of a *love story*. It is one that either concentrates on ‘soft’ co-benefits beyond energy savings, such as improvements in health, comfort, productivity etc.; or one that had a particularly ‘glowing’ outcome beyond simply a hero’s effort or hero technology.

### Story domains

MSC also promotes the use of domains (ClearHorizons, 2011). Domains are broad and often fuzzy categories of possible changes. A domain of change is not an indicator. Indicators need to be defined in such a way that everyone has the same interpretation of what they mean. On the other hand, domains of change are deliberately ‘fuzzy’, enough to allow people to have different interpretations of what constitutes a change in that area. Dividing stories up into domains can make story selection and evaluation process easier to manage. With domains, stories from each domain can be considered separately. We have divided our Task 24 stories into four domains (*personal stories*, *Behaviour Changer stories*, *case study stories* and *country stories*), which are described below.

### Narrative Networks and text visualisation

Narrative networks have been described by Pentland and Feldman (2007). A narrative network is defined by a generic storyline that defines some sphere of activity, like energy-using behaviour. A narrative network can be constructed from many different points of view, like the *Behaviour Changer stories* told here. Storytelling introduces additional degrees of freedom that need to be considered. For example, narratives can be actual (our *case study stories*), typical (*country stories*), hypothetical (some *personal stories*), or fictional (a lot of our *personal stories* collected here). They can be 1<sup>st</sup> person, 2<sup>nd</sup> person (imperative), or 3<sup>rd</sup> person. They can be past, present or future tense. Each of these ways of narrating the pattern of fragments has a very different empirical and theoretical status. For example, designers often narrate in the second person (imperative) in an effort to dictate or control what users should do (Pentland and Feldman, 2007). Their narratives are future tense and basically fictional. On the other hand, we can make detailed observations and record those observations as actual events in the past tense (*case study stories*). Once a point of view is established, we can collect data like a sample of narratives, for which any method could be used (in our case, the story spine). If a large enough sample is available, the relative number of sequential relations between fragments can be counted and the result can be visualised.

In Task 24, we did this by cataloguing the main key words for each story and displaying them visually in a word cloud. Word clouds are graphical representations of key word frequency that give greater prominence to words that appear more frequently in a source text. The larger the word in the visual, the more common the word was in the document(s). This type of visualisation can assist evaluators with exploratory textual analysis by identifying words that frequently appear in a set of any text. It can also be used for communicating the most salient points or themes in the reporting stage (Better Evaluation, 2016).

### Why use a story spine?

The story spine illustrates how events unfold in sequence with some events causing other consequences. It is widely acknowledged in the literature on storytelling what a ‘good story’ should look like (e.g. Smith, 2016). In short, the essential components of a story include: a character; a plot with beginning, middle and end; a challenge; a choice and a resolution (McAdams, 1993).

Krueger (2010) outlines the eight expert strategies of storytellers:

1. Stories are about a person, not a programme or organisation.
2. Hero, obstacle, struggle and resolution. A plot.
3. Set the stage and provide context.

4. Let the story unfold.
5. Describe emotions.
6. Add dialogue for richness.
7. Add suspense and surprise for interest.
8. Conclude with a key message which is the reason for the story.

McDonald (2010) describes another way to rephrase the story spine. It has:

- A setup that introduces the characters and the world.
- Action in the normal, status quo world that establishes the baseline of the characters' prior lives.
- An inciting incident that disrupts the status quo and poses the thematic question in the form of a decision the protagonist must make.
- A series of escalating events, triggered by the decision the protagonist makes in each preceding event, that build into a climax.
- A climax, and resolution.

A story spine is thus the easiest way to collect stories that follow the above formats and ensures that all elements of a good story (or case study, in some of our examples) are present. This is particularly important when collecting stories from an audience not used to telling stories in their professional lives (such as the policymakers, industry and research participants of Task 24 workshops). The use of metaphors is particularly powerful and automatically encouraged by the story spine and our in-built knowledge from childhood where 'Once upon a time...' invariably prompts a 'fairy tale' telling of a version of reality. Research into rhetoric and discourse analysis (e.g. Barry, Ellis and Robinson, 2008) supports this. In addition, story spine instructions, or prompts, can be modified to elicit specific stories. This has been done in the instructions to collect *case study energy stories* and *Behaviour Changer energy stories* (see below and Rotmann, 2017).

#### [Task 24 story spine instructions for collecting Behaviour Changer stories in workshop settings](#)

**Once Upon a Time...** [the background, where you outline the setting and who you are – including your mandate, your main stakeholder/s and your main restrictions]

**Every Day...** [where you outline the problem and the End Users' behaviours you/we are trying to change. It may include some of the End Users' technological, social, environmental, etc. context/s – the ones that are most important to this issue]

**But One Day...** [where you outline the idea/solution and how it is meant to change the End Users' behaviours – concentrate on your specific tools you will bring to the table]

**Because of That...** [where you outline the implementation of the intervention and the opportunities for success – think of the love hearts/good relationships in the Behaviour Changer Framework here, especially between you and the other Behaviour Changers or you and the End User]

**But Then!** [where you outline what can/will/has gone wrong and why – think of the bombs/conflicts in the Behaviour Changer Framework here, especially between you and the other Behaviour Changers or you and the End User]

**Because of That...** [where you outline how you have reiterated the intervention because of what you have learned – which new/different tools are you using to diffuse some bombs and strengthen some of the love hearts]

**Until, finally...** [where you outline how you have measured the multiple benefits that accrued to you/r organisation/sector and what the main results are]

**And, Ever Since Then...** [where you outline the wider (e.g. national) change that has occurred because of this intervention and any possible lessons going forward or future research that needs to follow]

The story spine is a fantastic sense-making device (Dervin, 1997). Dervin's work around sense-making builds on the metaphor of a person finding themselves in a certain situation where to get to

the place they want to be they have to cross a bridge. Taking a sense-making lens to the situation, gap and outcome results in particular sense-making questions like: “What brought you to this point?”, “What questions or muddles do you have?” and “What helps have you had?”. It appears, that in one fell swoop, the story spine brings this all (Rixon, 2006).

## METHODOLOGY

The story spine has been used in a variety of ways by Task 24 (see Rotmann, 2017) and we will provide some more detailed insights and analysis here. *Behaviour Changers* usually write stories by hand on pre-printed forms during Task 24 workshops. They have also been collected, using Google Forms, before some of these workshops. Stories were also collected, via email, from authors who provided Task 24 with case studies (see Mourik and Rotmann, 2013). We undertook some quantitative and qualitative analyses of the 145 story spine energy stories collected from 2013 to 2016. For the pattern analysis, we have grouped similar stories together into 4 domains (*personal story*, *Behaviour Changer story*, *case study story* and *country story*). Note that even though we collected each story with a specific instruction (or domain), in the analysis some stories were found to span more than one domain. We provide both numbers here:

- *Personal stories*: changes in people's lives based on the open-ended instruction of telling their own personal energy (behaviour change) story. This could be a straightforward recollection of an event, or a vision of the future, or following the genre of a learning, love or horror story, or a metaphor etc. All these and more personal stories have emerged in Task 24. We collected **41 stories** with this specific instruction, though **49 overall** were classified to fall into this domain.
- *Behaviour Changer stories*: changes in a specific intervention from a specific *Behaviour Changer's* perspective (c.f. Pentland and Feldman, 2007). These can be changes envisaged in future interventions, or changes in interventions that already happened, or which are currently underway. We collected **52 such stories** specifically, but **56** of these domains were classified in Task 24 stories.
- *Case study stories*: changes in programmes, policies and pilots from specific behavioural interventions. These were almost entirely reflections in hindsight. We collected **44 such case study stories** following these instructions, yet **115** of all the stories collected here describe a specific case study.
- *Country energy stories*: changes in a country's energy system (transition). We collected **8 specific stories** that focused on whole-country contexts, these were mostly future-focused. However, a grand total of **123** out of the 145 stories collected here mentioned some country- or cultural background information.

Then we coded all stories around the storytellers' demographics (age range, gender and country) and made note which *Behaviour Changer/s* perspective/s was mentioned in each of the stories, if at all. Finally, we chose what the outcomes or 'moral' of each of our stories and their journey was, using the 4 genres of energy efficiency story described by Janda and Topouzi (2013). We also used a concordant analysis tool called *AntConc 3.2* to display the keywords, sorted and arranged in a vertical plane, surrounded by the context in which they appear. “Energy” in all its forms (“energy efficiency”, “energy conservation” etc.) was excluded as it occurred in almost every story (a total of **416** times) and was thus vastly more prominent than all others. We used this to collate the most commonly-used key words and phrases to identify each story's main themes for visualising in word clouds. Finally, based on the MSC technique (Davis and Dart, 2005), we invited one set of our storytellers to evaluate and rank their favourite stories from a recent workshop, and to provide their reasoning.

## RESULTS AND DISCUSSION

### Pattern analysis

Table 1 summarises the circumstances and details of the 145 energy stories which were collected, using the story spine, in 11 different workshops from 2013 to 2016. Figures 2-7 show the main demographic patterns (age, gender, country), domains, genres and times each *Behaviour Changer* was mentioned in the 145 energy stories that were collected in Task 24. Unsurprisingly for the

sector we work in, the large majority of storytellers were between 25-50 years old (Fig. 2). There are slightly more male than female storytellers, again reflecting the reality of the energy (research) sector (Fig. 3).

The two main story domains were *case study stories* (due to the nature of Task 24 which largely collects case studies) and *country stories* (again, due to the nature of Task 24 which works in many different countries; Fig. 4). Some of the *case study* and *country stories* overlapped and were counted twice - 46 times out of 64 total times a domain was mentioned twice. 40 times stories fell into three domains and 17 times all four domains were included in a story. Only 15 of the stories fell only into one domain. However, despite the fact that many *personal stories*, for example, also described a case study or discussed a specific *country-* or *Behaviour Changer-*context, we could still divide them into the four domains based on their initial instructions and intent they were collected with.

The story genres most commonly told were *hero* and *learning stories* (Fig. 5). As expected, there were not that many *horror stories*, although there was quite a surprising amount of *love stories*. The story genres will be explored a little further in 3.1.2., below. The bulk of stories and storytellers came from two countries (New Zealand and Sweden), which reflects the background of the author and the places where most workshops have taken place to date (Fig. 6).

Finally, the most commonly mentioned *Behaviour Changers* (in all stories) were '*the Decisionmaker*' and '*the End User*', closely followed by '*the Provider*' and '*the Expert*' (Fig. 7). '*The Middle Actor*', and especially '*the Conscience*' were mentioned the least often, again reflecting the nature of energy and behaviour research and intervention design, which is still conducted largely in a top-down manner. The reason why the *End User* was mentioned so often is that the storytellers would have been instructed to identify the behaviour change the *End User* was ultimately meant to undertake, following an intervention.

**Table 1. Details of Task 24 workshops (w/s) where stories were collected**

WHERE/ WHEN?	WHY?	WHO?	WHERE FROM?	HOW?	WHEN?	WHAT FOR?	ON WHAT?	HOW MANY?
Location & time of w/s	Purpose of w/s	Participant countries	Participants' sectors	Collectively or individually written	Before/ During w/s	Instructions	Themes	Number of stories
Groningen, NL (Feb 2016)	Behaviour Changer* w/s	NL	University	Individual stories	During	The participants each wrote a story about the opportunities, risks and benefits and the desired future around ICT and energy efficiency at the University. We use these stories to determine common agendas, issues and roles of each Behaviour Changer	ICT in Higher Education, buildings, sustainability, students and professors, Uni staff and leadership	11
Wellington, NZ (Jul 2016)	Energy Cultures conference	International	Policy, research, third sector, service sector, industry	Individual stories	Before	Tell your (organisation's) own story of how you have addressed a behaviour change problem. These stories help to provide an engaging narrative about an intervention that covers all the main aspects of a case study: The what, who, why, how, how it is measured, and so what (the outcome). Summarise the final lesson/moral of the story in one sentence.	Residential, appliances, buildings, health, work place efficiency, cycling, grid network, energy system, renewables, sailing	14
Coimbra, PO (Sep 2016)	BEHAVE conference	International	Varied - but largely research	Collective stories	During	All stories were written by the different Behaviour Changers of 3 case studies (Sweden, NL, NZ). Each case study had its own story. The Swedish ones wrote before/after the BCF exercise stories (11 stories incl End User); the NZ ones only before (6 stories incl End User) and the Dutch ones wrote individual BC stories before (5, no End User) and a collective one, after.	Commercial office green leases, ICT use in Universities, neighbourhood PV sharing	26
Stockholm, SE (Oct 2016)	Behaviour Changer w/s	SE	Commercial buildings, government, research	Individual stories	During	We were going to write the stories from the perspective of each Behaviour Changer before and after doing the magic carpet exercise but ran out of time	Commercial office green leases from each BC perspective	6
Charlotte, US (Oct 2016)	Behaviour Changer w/s	US	Hospital, utility, research	Individual stories	During	Stories from the perspective of each Hospital Behaviour Changer	Getting hospital BMOs to reset the building management system after complaint has been resolved	12
Zürich, CH (Apr 2013)	Expert** w/s	International	Policy, research, third and service sector, industry	Collective stories	During	Groups were put together and asked to write the country's love, horror and learning stories, together	The 2000 Watt society, nuclear energy, Swiss relationship with USA	3
Wellington, NZ (Mar 2014)	IEA DSM conference	International	Policy, research, third and service sectors, industry	Individual stories	During	Participants were simply instructed to write their own personal energy stories using the story spine.	Personal and professional energy stories	26
Eskilstuna, SE (Oct 2014)	Expert w/s	SE	Research	Collective stories	During	We wrote together with the Swedish stakeholders, 4 country stories on the domains of transport, building retrofits, smart grid and SMEs. Note: 2 are repeated in Monster report.	Transport, building retrofits, smart meter/feedback, SMEs	4
Wellington, NZ (Mar 2016)	Behaviour Changer w/s	NZ	Policy, research, third and service sector, industry	Individual stories	During	The stories of the PowerCo 'Powering tomorrow's neighbourhoods' solar PV sharing trial was written from the perspective of each of the Behaviour Changers	Solar PV sharing	7
Stockholm, SE (Apr 2016)	Behaviour Changer w/s	SE	Commercial buildings, government, research	Individual stories	During	The stories of green office leases written from each Behaviour Changer perspective	Commercial office green leases	4
Dublin, IE (Apr 2016)	Behaviour Changer w/s	During	Policy, research, third & service sector, industry	Individual stories		The Irish stories written from each Behaviour Changer perspective	Community sector, residential efficiency, country story, collaboration	5

\*Behaviour Changer workshops relate to specifically invited Behaviour Changers in Phase 2

\*\*Expert workshops relate to invited country experts in Phase 1



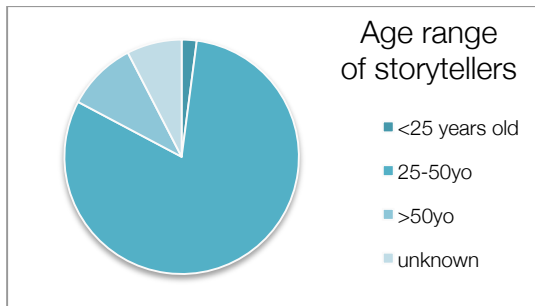


Fig. 2. Age range of storytellers (n=145)

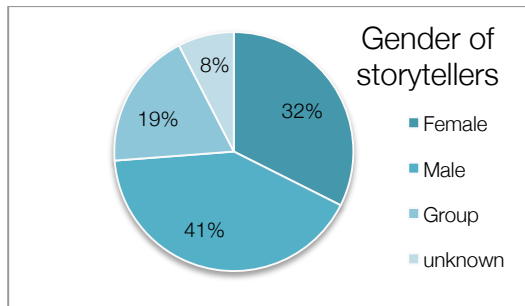


Fig. 3 Gender of storytellers (where known)

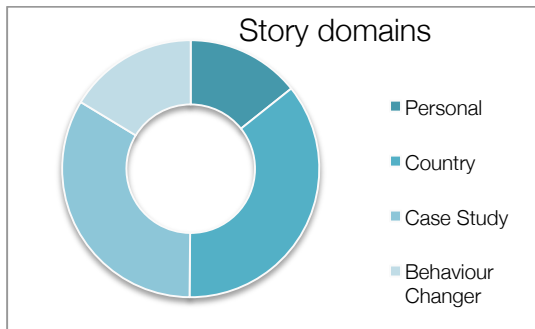


Fig. 4 Story domains, (total numbers)

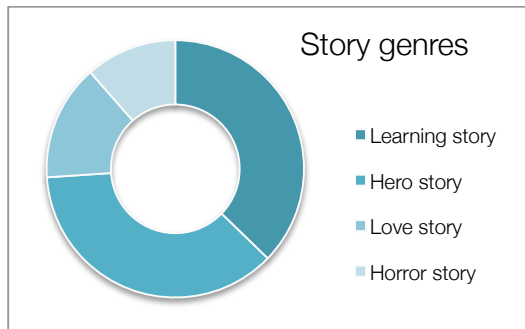


Fig. 5 Number of story genres

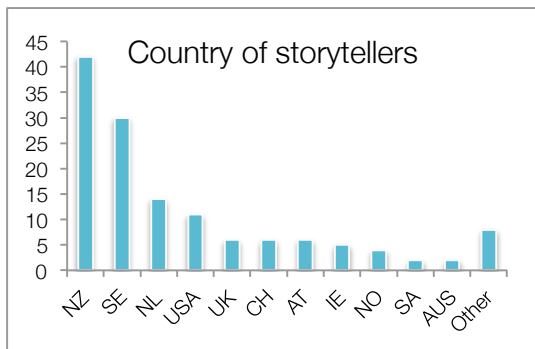


Fig. 6 Number of stories told from different countries

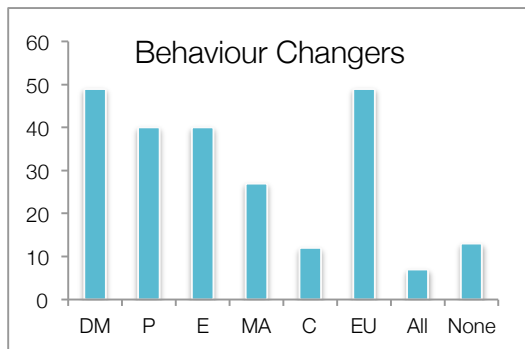


Fig. 7 Number of times different Behaviour Changers were mentioned (DM = Decisionmaker, P = Provider, E = Expert, MA = Middle Actor, C = Conscience, EU = End User)

## Story genres – Hero, Learning, Horror and Love Stories

We have built on Janda and Topouzi's (2013) descriptions of energy efficiency story genres and used them for pattern analysis of the collection of stories here. It was rare that only one story genre came up (9 stories). Most stories straddled three (71 stories) or two (60 stories) genres, with 5 stories covering all four. The genres most commonly told together were *hero* and *learning stories* (53 times); *hero*, *learning* and *love stories* (43 times); *hero*, *learning* and *horror stories* (22 times) and the more rare *hero*, *horror* and *love story* (4 times). The *hero story* was most commonly mentioned in stories with only one genre (5 times).

It is unsurprising that the *hero* and *learning stories* occur so often, as Janda and Topouzi (2015) describe that most energy efficiency tales originate as a hero's tale, only then to commonly find themselves in the more realistic learning story. In addition, the story spine's use of "But then!" also prompts a *learning story*, by asking for unintended consequences after initial evaluation, for example. It needs to be noted that not all story spines collected here included this step. Some only had five steps, for brevity ("Once upon a time", "Every Day", "Because of That", "Until, Finally" and "Ever Since Then"). However, it is unfortunately also the general nature of energy efficiency being 'the greatest market failure of all time' that means that most (usually, top-down interventions) end in a less-than-heroic outcome.

More interesting are the key words most commonly associated with the *love* and *horror stories*.

Almost all *love stories* (i.e. stories that had highly positive outcomes, often associated with ‘soft’ benefits such as happiness, warmth, health, comfort, productivity etc. improvements) included the key words “co-benefits”, “co-creation” and/or “collaboration”. Most *horror stories* (i.e. stories that described, but didn’t necessarily end in, some form of total failure of the initial intervention) mentioned one or more of the keywords “misunderstanding end user needs”, “unintended consequences”, “conflicting mandates” and “neoclassical economics”. It needs to be said that Task 24 workshop discussions and especially the *magic carpet* multi-stakeholder exercise prompt both collaboration and discussions around which co-benefits applied to each of the *Behaviour Changers*, which is why they most likely show up in their *love stories*. However, it is still a positive testament that the issues regarded as most important by the Task to consider when designing behavioural interventions, are taken up by the *Behaviour Changers* in their storytelling of particularly positive outcomes. “Task 24” was also often associated with *love stories*.

The *horror story* keywords are also indicative of current failings of behavioural energy interventions. The still most commonly used, top-down approach of one *Behaviour Changer* sector designing, in a silo, behavioural interventions based on the neoclassic ideal of the ‘Homo economicus’ often lead to failed outcomes (see Mourik and Rotmann, 2013). It encompasses both “misunderstanding end user needs” and “unintended consequences” and is an important lesson for proponents of the *deficit model* which assumes money and information deficits to be the main barrier to behaviour change. Seeing Task 24 promotes multi-stakeholder collaboration it is important to keep in mind that “conflicting mandates” of different *Behaviour Changers* or sectors working together can lead to failed outcomes as well (in terms of how often this issue has been mentioned in *horror stories*). In the Task, we counter this by using a *collective impact approach* (based on Kania and Kramer, 2011), as well as tools like storytelling and the *magic carpet* which promotes empathy and understanding between the *Behaviour Changers*, with a goal to overcoming, collectively, competing mandates by finding specific solutions that address them (Rotmann, 2016).

Lastly, there were some other story genres that came up in the keyword analysis (described above): Participation in *Task 24* was mentioned 17 times in stories; there were 13 *fables*; three *metaphors*; and two *children's book* retellings and two *visions*. There even was one *poem* (see [Example 1](#), below).

## Keyword analysis

We used the *AntConc 3.2* software to list the most commonly-used keywords in the stories and the key phrases surrounding them. We then developed a word cloud, visualising the main themes in the stories (Fig. 8). The two most prominent words (seeing “energy” was excluded) were “collaboration” and “co-benefits” (also the most common words denoting *love stories*). Less prominent but also common were the *horror story* phrases “misunderstanding end user needs”, “unintended consequences”, and “waste”. This was followed by words that describe Task 24 case study domains, e.g. “smart technology”, “feedback” and specific case study interventions such as “Green Lease”. Certain sectors (“renewables”, “residential”) were as prominent as Task 24 language denoting the different “Behaviour Changers”, especially the “Expert”, with the “Conscience” again in the least prominent place. The most commonly mentioned model of understanding behaviour was “neoclassical economics”, also the most prominent in *horror stories*. Also of note were other terms often associated with *love stories* and *hero stories*, namely “international best practice”, co-creation”, “community” and “pilot”.



babies' lives). One comment on why this story was chosen as their winner was: "seeing the LIGHT from your own high-seated position leads to better economic and sustainable management practices!". This fits with the general discussion during the day that the most important issue would be to "change the behaviour of the *Decisionmakers*", which was then discounted as being too difficult and risky to start as a pilot. But, *the Decisionmaker's* powerful story of learning from the maintenance man or the *End User*, obviously had a strong impact on the whole group.

The second most favoured story (chosen by four participants but twice in the top spot) was a very fun and creative metaphor of 'powerful data wizards' descending from their 'control towers' to educate hospital users face to face in their 'magicks' (see [Example 7](#)). It was the story that invoked the most laughter and applause during the day, particularly as it was told by an engineer (*the Provider*) who wasn't expected to come up with such an inventive tale. The best comment illustrating why this story was chosen was: "It was the most creative and fun and it entertained me, yet it still conveyed the right message".

One story that received two top marks as well was the story told from the Task 24 perspective. The comments were: "It provided the most informative overview of the experience thus far" and "it paints a big picture of the issue, reason for the behavioural programme, challenges that obstruct the path to success, and how the success was achieved." Other comments on various other stories fell along the lines of "it was patient centred" or "it was staff centred"; "it was inspirational", "it was from the *End User's* perspective whose behaviour we are trying to change" and "it is from a perspective I understand and sympathise with".

## Summary Points – Storytelling from A-Z

In [Rotmann, Goodchild and Mourik](#) (2015) and Rotmann (2017) we have outlined the many different stories and genres of stories we have collected as part of Task 24, since 2012. In this paper, we concentrate on the stories that were collected using the story spine only. The stories were collected from experts from many different sectors, disciplines and professions and from many different countries. They were collected with different instructions and for different reasons. But they all have these points in common:

- A) **They are fun and engaging, and invoke creativity in people not usually used to being, or allowed to be, overly creative in their jobs** (scientists, policymakers, industry etc.). Dart and Davis (2003) who invented the 'Most Significant Change Technique' (MSC) which uses storytelling as evaluation tool, describe how much their funders visibly enjoyed the storytelling and selecting process and asked to participate in future rounds. After conducting over twenty-five Task 24 workshops where the story spine was used, feedback from attendees consistently ranked it in or near the top spot of what they most enjoyed about the day. To date, we have not yet received any bad feedback on the use of the story spine, and only two out of almost 220 stories were unusable for the analysis in Rotmann (2017) - one because it was a modified retelling of the children's tale "The Little Engine that could" (Piper, 1930) which did not follow the prompts in the story spine and the other because the writer had ignored the instructions and just created a list of behaviour change intervention tools they were using in their research. The story below ([Example 1](#)) is arguably one of the more creative telling of a utility's case study on a solar PV and demand response trial.

**Example 1 - "John and Jane"** – a story told as a poem by one of the 'Providers' from a NZ utility.

*Once upon a time...* John and Jane were home again, using all their power.  
*Every Day...* John had all the heaters on and Jane took too long in the shower.  
*But One Day...* John said, "Look at that we should buy some solar power! It will look real cool, we will save the earth and save ourselves a dollar!"  
*Because of That...* Jane went out and bought some kit and a white van man installed it.  
*But Then!* John couldn't work out for the life of him exactly how to use it!  
*Because of That...* A lines man said, "Use our system! We'll help you make the most of it!"  
*Until, Finally...* John was pleased with his pre-heat remote and Jane with her solar shower. The lines man said, "You've done real well, it's WHEN you use your power."  
*And, Ever Since Then...* Whenever someone got excited about all the new toys and the shower, the lines man was there to make sure that their use was done right by sharing and redistributing power. The End.

- B) They provide a common language without (too much) jargon, which is so commonly used in the different sectors and disciplines of the energy and research world. When people tell stories, an entirely different set of social dynamics and cognitive processes takes place. Kurtz (2014) found that when narrative is taken out of the equation, there may be sense-making and opinion gathering, but the magic of storytelling as a translation tool is lost. “The closer one can get to natural story exchange the more powerful the magic is, but even a spoonful of narrative is worth more than oceans of opinion, data and facts.” Language profoundly shapes one’s view of the world and reality and the use of metaphors is a case in point (Hajer and Versteeg, 2005). The use of metaphors is particularly powerful and automatically encouraged by the story spine and our in-built knowledge from childhood where ‘Once upon a time...’ invariably prompts a ‘fairy tale’ telling of a version of reality. Research into rhetoric and discourse analysis (e.g. Barry, Ellis and Robinson, 2008) supports this. **Example 2** below shows a good use of common language and metaphors to illustrate a complex topic (green leasing in office buildings).

**Example 2 - “Two Swedish girls”** – as told by the ‘Conscience’ during a workshop in Sweden.

*Once upon a time...* there was a girl who had two friends: one who had a really cool, super green house who needed a roommate and one who loved eco issues and needed a place to live.

*Every day...* the girl in the super green house longed for someone who loved green houses as much as she did, to come live with her, and the other girl dreamt of living in a super green home. So, their common friend introduced them to each other and they moved in together.

*But, one day...* the girl who owned the super green house turned the temperature down to 19C and gave her new roommate a bill for green electricity, which was much more costly than conventional fuels. They also got into an argument over which cleaning chemicals to use. So, their common friend suggested that they should come up with some house rules and made a contract they could both agree on.

*Because of that...* the girls found that they were both much happier and lived well together because they both knew the rules and stuck to them. Their friends saw how happy they were and asked them for their contract.

*Until, finally...* they started an instagram account (#happygreenlease) showing all of the happy moments in the house. The contract and hashtag was copied all the around the world.

*And, ever since then...* they lived happily ever after. The End.

- C) They can be a circuit breaker and help ‘equalise’ any perceived imbalance in a multi-stakeholder environment. The process of storytelling can have horizontal and vertical dimensions (Davis and Dart, 2005). The horizontal dimension is between a group of participants engaged in discussing and selecting the most significant issues to focus on behavioural change (the usual, top-down approach). Vertical dialogue involves exchanges of views between participants at different levels, including the *End User* (top-down, bottom-up and middle-out approach). The vertical dimension is very important if storytelling is to aid organisational and systemic learning. Star and Griesemer (1989) also describe the importance to reduce managerial or hierarchical bias. The stories used here could almost be described as ‘boundary objects’ (ibid) with different meanings in different social worlds but their structure is common enough to more than one world to make them a recognisable means of translation. The creation and management of boundary objects (in this case, stories) is a key process in developing and maintaining coherence across intersecting social worlds. Storytelling, especially when using story spines, is a non-threatening way to make sure everyone gets a voice and levels the playing field (Rohrig and Clarke, 2008). People quickly realise that no contribution is more important than another and that people have to build on each other’s ideas to make a story work.

In Task 24 workshops, the *Decisionmaker’s* story doesn’t hold more weight than the *End User’s* whose behaviour s/he wants to change. Every story has value and listening to each other’s stories and laughing together often provides an important moment of levity which levels any hierarchical perceptions that can hinder collaboration or bottom-up engagement. **Example 3** below was one of the stories most commonly picked as favourite by workshop participants following the ‘Most Significant Change’ technique (Dart and Davis, 2003; Rotmann, 2017). Reasons given were that “It is the one that most clearly shows behaviour change, and *End User* empowerment”, “It provided a unique perspective of responsibility”, “it’s an inspiring story that focuses on the underdog hero” and “It offered the opportunity to show how employees have the power to execute change”.



**Example 3 - “The maintenance man hero”** - told in first person by a US hospital ‘Decisionmaker’

*Once upon a time...* I was sitting in the outer office waiting room of a hospital CEO.  
*Every day...* Maintenance people were labouring hard to repair, maintain and upgrade hospital energy-using technology. No one much cared about what they did unless something broke, or was too hot or too cold.  
*But, this one day...* I observed a maintenance man changing the fluorescent ceiling light in the admin suite.  
*Because of that...* the CEO's Executive Assistant started complaining to him about these new lights he was putting in and that they weren't as bright as what they were used to. They wanted him to stop.  
*But then!* The maintenance man started telling the Executive Assistant about how much money these new lights saved per year and that this money, worth millions of dollars of savings across the hospital network, would now go into buying more intensive care basins in the neonatal unit.  
*Because of that...* the Executive Assistance was happy to let him continue his work and finish installing the new, energy-efficient lights.  
*So, finally...* after the maintenance man left the suite, the Executive Assistant began repeating what she had just learned to the other assistants in the large suite: “These new lights save babies’ lives!”  
*And, ever since then...* the word spread like wild fire and admin assistants all over the hospital network now feel proud when they look at their new lights. Some have even asked to have their old lights changed over so they could also send dollar savings to the neonatal unit.

**D) They promote empathy among Behaviour Changers.** Empathy is an essential element for learning, and storytelling promotes active listening. Empathy, imitation, and imagination are important processes when it comes to people and stories (Miller, 2012). People project themselves into story characters. They identify with the characters. They empathise with the characters because of the use of the listener’s imagination. The listener may then imitate the character. Researchers found that character-driven stories consistently cause oxytocin synthesis (Zak, 2012). There is a virtuous cycle in which we first engage with others emotionally that leads to helping behaviours which make us happier. The Task 24 ‘magic carpet of behaviour change’ (Rotmann, 2016) is used in workshop settings to facilitate and promote a deeper understanding of different *Behaviour Changers’* mandates, stakeholder influences, restrictions, tools and co-benefits. The *Behaviour Changers* are assisted when defining issues of importance, and how to pick which one issue would be the most realistic and least risky to choose for a real-life behaviour change intervention. The stories of the agreed-upon intervention design are then told from the perspective of each *Behaviour Changer*, showing unique insights into their professional (and sometimes personal) lives and struggles. **Example 4** below is a good illustration where this exercise led to much greater empathy and understanding between different *Behaviour Changers*, and this was reflected in the before/after stories they told. On the other hand, following on from our argument in point C) above, we believe that the stories themselves function as empathy-enhancers.

**E) They promote shared, double-loop learning and reflexive governance.** Stories are effective learning tools as they facilitate the following cognitive processes: i) concretising, ii) assimilation, and iii) structuring (Evans and Evans, 1989). The individual *Behaviour Changer* stories are often read out during the workshops and then discussed as a group. *Double-loop learning* is about questioning goals and practices and the prevailing norms and rules underlying these goals and practices (Mourik et al, 2015). In addition, double-loop learning is focused on interactions, the quality of interactions, learning by doing and doing by learning, aligning expectations, i.e. it is about reflexive governance. Double-loop learning is seen as a process in which learning is an important precondition for systematic transitions to take place. The stories can help illustrate this kind of learning. With the growing awareness of the need for reflection within learning, and the recognition that meaningful links need to be created between theory and practice, the potential for learning through storytelling is beginning to be recognised (e.g. Alterio and McDrury, 2002). **Example 4** below has been created by 15 global scientists at the 2016 BEHAVE conference. They were roleplaying the different *Behaviour Changers* of the Task 24 Swedish case study on how to improve green leasing in commercial office buildings (also a good way to promote empathy). The collectively-written story clearly improved after the ‘magic carpet’ exercise was undertaken and shared learning and reflexions had taken place. It is also a good example for helping to set shared goals (Point F).

#### Example 4 - Before and after stories of the Swedish Decisionmakers (group story roleplay)

##### Before the 'magic carpet' group exercise

*Once upon a time...* Energy efficiency of buildings was good but tenants were poorly behaved.

*Every day...* Energy was wasted because building occupants saw no or insufficient benefit in changing their ways.

*But, one day...* it was suggested that landlords get tenants to sign Green Leases. But no one understood the benefits to anyone or what the role of the landlord was in controlling the behaviour of their tenants!

*Because of that...* The full benefits of 'good behaviour' were explained to the tenants (and possibly some regulatory or other controls/drivers were placed on them to improve) and therefore landlords didn't need to force anyone to do it right.

*And, ever since then...* Tenants wanted (or had to) improve their behaviour and they thus valued landlords who supported them in behaving better (including monitoring their multiple benefits). Thus, landlords could charge higher rents and they helped occupants improve their behaviour.

##### After the 'magic carpet' group exercise

*Once upon a time...* Energy efficiency of buildings was good (but could be better) and tenants were poorly behaved.

*Every day...* There was little or no data on Green Lease compliance and benefits and no one understood the benefits for the other people/Behaviour Changers involved.

*But, one day...* We all worked together in a multi-disciplinary/sectoral environment to better understand the perspectives/benefits of each of the audiences involved.

*Because of that...* We designed a new Green Lease and the supporting policy/guidance that everyone was happy with. We also funded R&D to gather data and monitoring and evaluation tools to identify what aspects relied on technology vs behaviour. We even created jobs with the new role of 'Green Lease Monitor'.

*And, ever since then...* We all decided to co-create a Green Lease system that benefits everyone, where the multiple benefits to all can be clearly shown and will contribute to Sweden's office buildings becoming carbon neutral.

F) **They help setting a shared vision and common goals.** In this way, storytelling helps diverse groups of people to make sense of the myriad effects that their interventions cause, and to define what it is that they want to achieve. Unlike a vision statement, the shared vision and goals that accompanies storytelling is dynamic and can respond to changing contexts and times (Davis and Dart, 2005). Part of the '*magic carpet*' exercise is to visualise the relationships between all *Behaviour Changers*, and between each of them and the *End Users*, by using arrows (see Rotmann, 2016 for description). The final step is to lay cartoon bombs or love hearts onto relationship arrows where either an in-built systemic conflict arises (e.g. due to differing mandates) or where the system promotes very strong relationships between actors (e.g. where stakeholder goals overlap). Sometimes each *Behaviour Changer's* stories are told before and after the 'magic carpet' exercise, to provide context and perspective. Usually, the stories change from a more personal ("what's in it for me, my perspective, what are my conflicts that I need to overcome?") to a collective voice with a common goal ("what can we all do, together, to achieve this goal we agree on?") once the magic carpet exercise was undertaken. The story spine can illustrate how such a change took place, especially when getting each *Behaviour Changer* to read out only one line of the spine, going around a circle (see also Rohrig and Clarke, 2008). Persuasive storytelling is well known as an exercise in building consensus (Throgmorton, 2003). But the approach is never just about connecting or teaching or persuading people with stories (Kurtz, 2014). Usually, something happens because somebody found a new way to look at something. It is not just about telling stories (at least not all by itself), or about listening simply for the sake of listening. The likelihood of achieving shared goals that were set by many different stakeholders in collaboration, is greater than anyone's ability to change behaviour (or the system, or world) on their own.

G) **They help overcoming (systemic) conflicts.** Rhetoric discourse analysis in energy research e.g. on the language used by wind farm objectors, clearly shows the common use of a language of war, conflict and defense, promoting an 'us vs them' narrative (Barry, Ellis and Robinson, 2008). Stories are particularly apt at identifying 'heroes' and 'villains', conflicts and opportunities, from the perspective of the different *Behaviour Changers*. Very often, especially in the *personal stories*, but also in the *Behaviour Changer stories* (for descriptions see Rotmann, 2017) a clear theme of 'good vs evil' emerges. The Irish example below is a good yarn that illustrates this. It also illustrates a country's identity story very well (see point N).

**Example 5 - “The luck of the Irish”** – told by ‘Middle Actors’ during workshop

*Once Upon a Time...* There were a lot of cold and draughty homes on a beautiful island called Ireland. They were inhabited by many sad but musical people. They wished their government would do something to help them because they didn't know how to help themselves anymore.

*Every Day...* Their own fuel supplies dwindled and they imported more and more to satisfy their ever-increasing thirst for energy. Little did they know that if they changed the way that they used this fuel, they could not only save money, but also be warmer, healthier and increase the value of their homes.

*But one day...* Along came a woman, with beautiful flowing hair. She encouraged the most engaged and enthusiastic energy ambassadors in the region to band people together, train them and tackle the problem.

*Because of that...* The whole land banded together to help each other understand what they needed to do to keep warm. Everybody supported each other using their strengths, knowledge, skills and resources to achieve a warmer and more comfortable energy-efficient community.

*But then!* The Vikings came and offered them free ‘snake oil’ energy in return for their fair land and commitment of their future to them.

*Because of that...* The community leads banded together with the help of Saint Ruth to drive the snake-oil merchants out of the land, never to return (see St Patrick for reference!)

*Until, finally...* They had a clean, warm and once again fair land, where the inhabitants could breathe freely and live comfortably.

*And, ever since then...* The flowers grow, the sun shines (but never too brightly), the rain falls softly and the people live happily ever after. The End.

**H) They include and empower the End User whose behaviour is meant to change.**

Storytelling is also used to elicit a deeper context of the *End User's* life, their needs and conflicts and why a current habit or behaviour is ingrained or makes sense. It helps them find their own voice and developing and organising their story may help them feel more empowered to become part of the solution (Touch Network, 2015). The story spine sets the context and is particularly good at distinguishing the past from the present, the future from the present, or the distant from the close (Rotmann et al, 2015). The nature of the story spine to start in the past and with a problem definition but to end with a future vision of improvement or common goal, is a very powerful way to empower the *End User* and draw up a roadmap for a behaviour change to take place. In a way, the classic story spine structure is a template delivered with a twist: we are using it to tell the story of a plausible event that hasn't happened yet, but could (Koppett, 2012).

**I) They aid recall and improve readability by different audiences.** The first time Task 24 used the story spine was to improve legibility in *‘the Monster’* report on 40+ case studies (Mourik and Rotmann, 2013). The length of the report (160pp) and the nature of analysis (dense social science jargon) and naming of the case studies (often in the country experts' language) reduced readability for the many different audiences of Task 24 (*Behaviour Changers* in policy, industry, different research disciplines and the third sector). The story spines summarised each case study and its main findings, often in flowery language or by using metaphors, as illustrated in the example stories here. Very often they were quite amusing or tongue-in-cheek. Most stories were also accompanied by a simple, yet pertinent cartoon drawn that usually picked up on the most salient or critical fact in a case study (Rotmann and Mourik, 2013). The story spine is memorable and ‘pre-digests’ facts and the overall ‘moral’ of the case studies in a format we all know well from childhood. We did not do an analysis testing recall of our stories vs our case study analyses (but see the research by e.g. Oaks (1995)) but the anecdotal evidence from feedback from our audience was highly supportive of using the story spine as a way to improve ease of reading.

**J) They can help easily summarise scientific case studies.** In a typical case study approach, an expert researcher will decide which information is presented in the case study and which is not. They will describe the methods used to capture the data and the process of interpreting the data, but the success criteria that underpin their interpretations are generally not transparent. With many case studies, it is difficult to tell if they were purposively selected (and if so, on what basis) or randomly selected. Without this information, it is difficult for a reader to know what value to put on the events describing behavioural change in the case study (Davis and Dart, 2005). The story spine used in *‘The Monster’* described above prompted a short, pithy retelling of the case study without missing any of the main aspects: it set the scene including main actors (*once upon a time; every day*), defined the problem (*but, one day*) and outlined the development of

the solution/intervention (*because of that*), described initial results (*because of that*), followed (usually) by an unexpected consequence or learning (*but then!*), leading to a reiteration of the solution/intervention (*because of that*), then final evaluation of results (*until, finally*), and future learning/research (*and, ever since then*). The stories were given as introduction to each case study analysis in Mourik and Rotmann (2013). The moral of a story (or case study) thus became clear before delving into the factual and scientific detail and analysis of it. The strength of storytelling is that the narrative itself has a stronger logic and is likely to remain in the memory longer than any constituent detail (Bruner, 1991). Narratives gain their strength from their plausibility, rather than their explanatory power. Costantino & Greene (2003) also used stories to summarise case studies. In this way they were able to portray a much richer picture of the programme and of relationships among participants and staff, and they were able to use stories as a significant part of the reported data.

**K) They can uncover ‘horror stories’ that often get glossed over.** The energy efficiency ‘hero’, ‘learning’, ‘love’ and ‘horror’ stories described by Janda and Tapouzi (2013 and 2015) have been used by Task 24 to compare and contrast the effect and insight from these different story arcs (Rotmann et al, 2015). The story spine is adaptable to all of these. It seems particularly popular in accounts of technological change where the reader is invited to consider a future, better world. However, the most powerful stories are often the ‘horror’ stories of failed interventions, unintended consequences or perverse outcomes (see [Example 6](#), below). These are also often the stories that most commonly get suppressed, or ‘greenwashed’ by *Behaviour Changers*. Dart and Davis (2003) were told about the need for more stories about lessons learned—or not learned—because stories about negative outcomes tended to generate a high level of discussion and learning. Their *Most Significant Change (MSC)* technique aims to capture significant instances of success or failure, with the purpose being to learn from these extreme stories, and ultimately to change practices to move away from failure towards success. Thus, the strategy selects those stories from which most can be learned. The story spine prompted an abundant telling of horror stories (see Rotmann, 2017), most of which were based on some real-life example, and they always contained an important insight or grain of truth. However, by far the most prevalent type of story in Task 24, as predicted by Janda and Tapouzi (2013), was the ‘learning story’ (Rotmann, *ibid*).

**L) They are never wrong, even seemingly silly or boring stories have their place.** Stories can serve different purposes: Some stories are crafted to motivate people, and some are designed to share knowledge. Some stories might describe how and why a team failed to accomplish an objective, with the aim of helping others avoid the same mistakes. Denning (2000) realised that the purpose of telling a story might determine its form. For instance, if negative stories have their place, so do “boring” ones. Why seemingly boring or highly-technical stories are compelling to a limited audience is because they are driven by a detailed explanation of the cause-and-effect relationship between an action and its consequence.

**M) They can also prompt powerful insights into personal struggles and tribulations,** which can aid learning and leadership. 76 women scientists, including the author, went on a leadership expedition to Antarctica in December 2016. Over 50 of their personal leadership stories were collected before the trip, to illustrate key leadership issues and challenges each of these women scientists faced in their personal lives and careers. Word clouds (see methodology description above) were used to illustrate positive and negative descriptions of the women’s leadership stories. These visualisations prompted powerful discussions about leadership which informed the faculty programme on the expedition. Then, personal leadership stories were collected from young women students at the Wellington University of Victoria International Leadership programme (VILP). When contrasting the word clouds of the older, more professionally established women from *Homeward Bound* (Fig 10) with the young students from VILP (Fig 11) it was interesting – if somewhat expectable - how much more harrowing the choice of words and topics were in the more accomplished women science leaders’ stories, as opposed to the students at the beginning of their science careers. Ironically, the actual expedition led to [more abuse and bullying, including sexual harassment](#), with the victims’ stories being suppressed by threatening with lawyers and “slut shaming”. We clearly still have a long way to go battling sexism in science.



Fig 10. Word clouds from keywords on leadership challenges collected from 50 women scientists going on the 'Homeward Bound' leadership expedition to Antarctica.



Fig 11. Word clouds from keywords on leadership challenges collected from 14 women students from Victoria University's International Leadership Programme.

- N) They help provide a shortcut to understand different countries' national identity and contexts. Some of the most fun stories were the ones that depict national identities of the different countries participating in Task 24 (e.g. see **Example 5**, above). When asked to write a country story, usually as a group, *Behaviour Changers* often became more flowery in their language than, for example, when describing case studies. However, the use of *Once upon a time* in case studies usually elicited a colourful description of national identity, such as: "Once upon a time... there was a beautiful country called New Zealand, which had very cold and damp houses. Some of them - often student houses - were so cold that the inside of the fridge was warmer than the living room! Every day... people in New Zealand shivered and coughed, but they just told each other to 'stop being a sissy' and 'put on another jumper'. So they did." (*Warm Up New Zealand* case study, Rotmann and Mourik 2013).
- O) They aid self-reflection and provide disciplinary/sectoral insights, including vulnerabilities. Stories can communicate the competencies and commitments of oneself and others. Revealing personal stories can expose one's own competence and commitment to issues, as well as signal one's trust in and willingness to be vulnerable to others (Sole and Wilson, 2002). Denning (2000) notes that stories have the inherent capacity to engage our emotions because they are about the irregularities in our lives, about things and situations that catch our attention by being



different from what is expected. Stories of the unexpected prompt emotional responses because they suggest the potential threat of not being in control of our lives, but simultaneously offer a way of understanding and responding to our futures. **Example 6**, below, illustrates perfectly the power of storytelling from a personal, and a *Behaviour Changer* (the 'Expert', in this case a scientist studying feedback technology) perspective. It uses an exaggerated, personal story to illustrate the unintended consequences of an over-reliance on technology and further scientific inquiry, when common sense may have been the more appropriate response.

**Example 6 - "The hapless scientist"** – told by an 'Expert' at the IEA DSM storytelling workshop in NZ.

*Once upon a time...* a scientist created a tool that was supposed to visualise the peoples' energy consumption on a big screen. The scientist strongly believed that such a tool would help people control their energy usage.  
*Every day...* he used the tool himself and watched his energy consumption on the big screen.  
*But, one day...* he realised that he didn't use any less energy but even a little more energy than before!  
*Because of that...* he decided to take a hot shower only once a week and to remember to close the curtains etc.  
*But then!* he realised that all these measures didn't help much to reduce his consumption either!  
*Because of that...* he decided to apply for a big research project because he realised that the issue of soaring energy consumption was more complicated than he thought.  
*So, finally...* he got the funding for doing some research and after many years of studies he found out that it was actually the big screen displaying his energy usage that used up all his energy!  
*And, ever since then...* nobody developed such a stupid feedback tool again but instead tried to save energy simply by using more common sense. The End.

**P) They can help others come up with your idea.** Instead of us giving suggestions on how to change behaviour or which goals to focus on, we exchange that for everyone telling their stories from their perspectives first. It is a lot easier getting people on board with complex projects and ideas by getting them to collectively tell a cohesive story where the outcome often happens to be quite similar to what we may have had in mind. It is important that a *Facilitator* like Task 24's Operating Agent does not affect outcomes, especially on such important aspects as which issue to concentrate on when designing a real-life intervention, or what the common goals and outcomes would be. However, it has been shown anecdotally that storytelling often helped giving the group the 'break' that was needed to come to a final decision, collectively, that everyone was happy with. Telling the stories also helped cement this common vision or goal (see Point F).

**Q) They can aid organisational behaviour change and foster or even heal relationships.** When we look at the big picture, or the story arc over the long term, patterns can emerge through the stories we tell. It's these patterns that will make an organisation's stories more effective in building relationships with its audience. An individual story is like a fragment of data that provides a perspective from a specific point of view. Personal stories often provide qualitative information that is not easily classified, categorised, calculated or analysed, but this narrative and anecdotal information is highly valid when assessing an organisation's patterns of perception. As explained by Sole and Wilson (2002), the tacit, experience-based knowledge that comes up more easily in stories, can be more important in problem-solving than information coming through more formal options. Stories are used to provide insights into programme processes, to show impact, to demonstrate innovation and to support numerical data. They have been used to identify issues, support project development, and facilitate reflection on experiences.

Stories about the impact of interventions can infiltrate the collective memory of an organisation, helping programme staff to gain and retain a more deeply shared understanding of what is being achieved (Shaw, Brown and Bromiley, 1998). This creates a common base to enter into dialogue about what is desirable in terms of expected and unexpected outcomes. Boje (1991) contends that, in complex organisations, part of the reason for storytelling (in casual conversation) is the working out of value differences at the interface of individual and collective memory. Storytelling has the potential to influence what can be called the 'population of values' held by staff within an organisation, and maybe even within its associated stakeholders (Davis and Dart, 2005). In virtual workspaces where work teams are flung far and wide, one can measure storytelling's impact on forming and cementing relationships and sustaining those relationships over time and distance (Dietz and Silverman, 2013). In high-performing teams, one can track how stories are used to help

transfer knowledge amongst team members and the speed at which they cycle through failures while achieving successes. Stories can also help heal relationships and alleviate stress (Stone, 1996). Research in a branch of psychiatry called “narrative therapy” demonstrates how the telling and listening to our individual stories, as well as the stories of others, can repair trust and commitments (Sole and Wilson, 2002).

- R) They foster simplicity of language which can activate, and help our brains work better.** The simple story is more successful than the complicated one (Bugaj, 2013). Using simple language as well as low complexity is the best way to activate the brain regions that make us truly relate to the situation and events in the story. Peg Neuhauser (1993) describes how stories allow a person to feel and see the information, as well as factually understand it. Because you ‘hear’ the information factually, visually and emotionally, it is more likely to be imprinted on your brain in a way that it sticks with you longer, with very little effort on your part (Neuhauser 1993, p.4). A story, if broken down into the simplest form is a connection of cause and effect, which is exactly how we think. We think in narratives all day long and make up (short) stories in our heads for every action and conversation. Whenever we hear a story, we want to relate it to one of our existing experiences. That is why metaphors work so well with us. Whilst we are busy searching for a similar experience in our brains, we activate a part called insula, which helps us relate to that same experience of pain, joy, disgust or else (Touch Network, 2015). While facts and figures engage a small area of the brain, stories engage multiple brain regions that work together to build colourful, rich, three-dimensional images and emotional responses. The story told in **Example 7** below was met with great mirth and applause during a workshop at a large hospital in South Carolina (it is also a great example for Point A). Even weeks later, people were still remembering the story and chose it as their favourite story of the day (see Rotmann, 2017).

**Example 7 - The powerful energy data wizards** – told by a hospital ‘Provider’, an engineer.

*Once upon a time...* a powerful group of energy data wizards sat in a command tower at the hospital, sending pigeons out to carry new energy solutions to the hospital workers, but the people either ignored or didn't understand their missives.

*Every day...* the wizards would scry for new and better solutions to more powerfully help the people running the hospital, who were still unable to help themselves.

*But, one day...* the wizards realised that their solutions created in the control tower, were not really helping the people, and their messages sat in the mud, or were returned with no response or change.

*Because of that...* the wizards left their control tower and showed the people in person how they could work these energy-saving magicks, both through words and deeds.

*Until, finally...* the people became wizards themselves, working their own magicks in addition to the energy spells they had been taught, and sharing these lessons to other hospitals beyond their city.

*And, ever since then...* all the people achieved their own wizardry in accordance with their desire and talents, seeking out the control tower whenever they needed help to work more and more powerful energy spells. The End.

- S) They can help build scenarios and roadmaps.** Koppett (2012) used the story spine for scenario planning as a simple way to introduce teams to this discipline. It means using the story spine to define possible futures that an organisation might face and then constructing possible stories, events, and management strategies leading up to those futures. An important feature is that even though the story describes a possible future, it is told in the past tense because it begins with once upon a time, thus people will tell the story as if the events had already passed. It is a powerful effect for an event that hasn't happened yet. By telling the future story as if it had already happened and been resolved, it invokes the reality in the mind. People can visualise themselves taking action as protagonists in the story. We are using storytelling in Task 24 to extract everyone's different needs, goals and co-create a common storyline that envisages the overall goal or vision of an intervention to be designed. In this sense, storytelling using the story spine is a simple way to help build scenarios and roadmaps for the different case study pilots in Task 24.

- T) They are universal and unifying and can help socialise new or marginalised members.** The most excluded social groups often fail to have their voice adequately represented owing to lack of knowledge, poor English language skills or other factors like organisational hierarchies. But everyone can tell stories, and all stories are valid. When new members enter into a

group, organisation or culture, stories are effective ways of communicating guiding values and principles (Sole and Wilson, 2002). Storytelling allows for multiple perspectives and creates a deeper appreciation for the fact that there is not one truth but that multiple interpretations can exist depending on the perspective of the storyteller. Instead of either accepting or opposing a story, users are encouraged to try to understand a story and its multiple interpretations. This then helps writing a unifying story that everyone has bought into.

- U) **They can help enact policy recommendations.** If the narrative can be presented as a learning story that provides a narrative of ordinary people struggling with real problems, involving a combination of technical and social analysis and commonly open to ambiguous or multiple policy interpretations. **Storytelling can move decision-makers in ways that hard numbers, statistics and reports often can't.** When policymakers write policy briefs that incorporate vignettes of their most compelling stories along with salient facts and figures, it is a very powerful way of promoting policies for funders and politicians (the California Endowment, 2007). An excellent example is the *Warm Up New Zealand: Heat Smart* story (Mourik and Rotmann, 2013; Rotmann, Goodchild and Mourik, 2015) which can be described as a 'love story'. The original neoclassical economic approach of simply providing an insulation subsidy to elicit energy efficiency improvements and create jobs, has now changed to largely being told – including by Ministers of the New Zealand right-wing government - around the more 'human' lens of improving health, comfort and productivity of some of the most vulnerable members of the community. The International Energy Agency (2014) has used it as one of the main stories illustrating the multiple benefits of energy efficiency and recommended its focus on health and comfort to be used as a driver for energy efficiency improvements elsewhere.
- V) **They reassure us of our place.** They provide a means of coping with uncertainty, with multiple perspectives and the absence of any single solution or 'silver bullet' to tackle problems as and when they arise. Equally, these same uncertainties mean that the lessons of a story cannot be final. Each story is likely to trigger a further round of story and, if framed correctly and with appropriate evidence, a further round of learning. We are all aware of the almost inherited right of stories to have multiple interpretations depending on the reader, so instead of either accepting or opposing a story, readers are encouraged to try to understand a story and its multiple interpretations. Through the telling of stories the listeners and presenters learn, not only about negative or unintended consequences. But they also learn to experience bad experiences as part of learning and turning points in a story, with the aim to do better next time. In short, they share wisdom. "One reason we may love fiction, is that it enables us to find our bearings in possible future realities, or to make better sense of our own past experiences. What stories give us, in the end, is *reassurance*. And as childish as it may seem, that sense of security – that coherent sense of self – is essential to our survival." (Gots, 2015).
- W) **They can help monitor and evaluate impact.** One reason that storytelling has become such a useful tool in programme evaluation is that it accommodates diverse voices and perspectives, while making the most of the particular resources and ways of learning readily available in a programme (the California Endowment, 2007). Unlike a traditional evaluation approach that is imposed from outside, the storytelling approach emerges organically from within an organisation, projects and participants. Personal stories in particular are useful for evaluation because of attributes such as aiding participatory change processes which relies on people making sense of their own experiences and environments; they can focus on particular interventions whilst reflecting on the array of contextual factors influencing their outcomes; narrative data can be analysed for emergent themes etc. (McClintock, 2004). Stories can be shaped for different audiences and the use of success stories can help communicate programme achievement to funders and stakeholders (Tobin, Fischman and Sukop, 2013). Conventional quantitative monitoring of predetermined indicators only tells us about what we think we need to know (Davis and Dart, 2005). It does not lead us into the realm of what we don't realise we need to know. The difference here is between deductive and inductive approaches. Indicators are often derived from some prior conception, or theory, of what is supposed to happen (deductive). In contrast, storytelling uses an inductive approach, through participants making sense of events after they have happened. Storytelling helps us to monitor the 'messy' impacts of our work – including the unexpected results, the intangible and the indirect consequences of our work (Davis and Dart, 2005). Storytelling can

be used as a way to monitor the collective impact approach process employed by Task 24, for example by monitoring alignment of views and expectations as identified in the multiple stories being told. As described by Dart and Davies (2003), one of the most important results of the *Most Significant Change Technique (MSC)* was that the story selection process surfaced differing values and desired outcomes for the programme. The evaluation storytelling process was at least as important as the evaluation data in the stories. In addition, a follow-up case study of MSC revealed that it had increased involvement and interest in evaluation, caused participants at all levels to understand better the programme outcomes and the dynamics that influence them, and facilitated strategic planning and resource allocation toward the most highly valued directions.

- X) They are used by many different sectors and professions.** Even though we are relatively sure that the story spine has been used systematically for the first time on such a large scale in energy behaviour research (and maybe research in general?) in Task 24, it is not an uncommon tool to use in many other sectors and professions. The story spine is originally attributed to Kenn Adams, who used it for improv theatre (2007). It has become prominent in a booklet called “Pixar’s 22 rules of story” (Bugaj, 2013), or as “Pixar’s 4<sup>th</sup> rule of storytelling” (e.g. Aerogramme Studio, 2013). It has also been successfully used to develop comics (Kneece, 2015), creative writing (Miller, 2012) and in teaching (Ohler, 2013). Even though these sectors of theatre, movie script-, creative- and comic book-writing and even education may be rather obvious ones to utilise the story spine, there are others, more unexpected sectors. For example, it has successfully been used in business and economics by consultants and facilitators (Rohrig and Clarke, 2008), salespeople (Smith, 2016), managers (Koppett, 2012) and NGOs to attract funding (CWR, 2013). It has even been promoted as a useful tool in trial consultation, as story organisation of evidence influenced juror’s decisions and their evaluation of the credibility of evidence (Brodsky, 2009). When causal stories were connected to the case materials, the evaluation of evidence shifted in the direction of the story. A narrative story sequence using the story spine was effective in leading to a sense of proof in juror judgements. Our successful use of the story spine in energy behaviour research and DSM pilots and programmes with a highly varied audience, plus its use in eliciting leadership stories from female scientists at different levels of their careers to inform leadership faculty (see Point M, above), is further proof that the story spine is highly adaptable and universally applicable.
- Y) They can be used in many different ways and are a legitimate way of telling stories in energy research.** Several examples are given in Rotmann (2017) and Rotmann et al (2015) of how pliable and easy the story spine is to use in many different situations and ways. For example, our NZ Expert’s *Energy Cultures* research project is also told as an [animated story](#) using the story spine on its website. We even brought the storytelling concept into a Royal Society of New Zealand emerging issues expert advice paper on our future green economy ([Carrington et al, 2014](#), p10). Several Task 24 experts have since used the story spine format to tell their stories, in both professional and personal settings. The story spine inspires creativity and offers a different way of simplifying complex concepts.
- Z) They make us appreciate the human aspect of energy use.** When undertaking a discourse analysis of media reporting on zero carbon housing in the UK, Cherry et al (2015) clearly showed a bias towards technology, with a number of important concepts being largely absent from the media discourse: “Despite the technical paradigm that dominates the discourse, certain concepts that challenge these storylines are excluded, in particular the importance of embodied emissions and difficulties surrounding achievability of modeled emissions reductions. Other concepts largely excluded from the discourse include individual behaviour change, cultural expectations and social norms. Although there is continuing debate surrounding the adoption of particular theoretical frameworks, there is nevertheless broad agreement that substantial reductions in domestic emissions will require fundamental shifts in these aspects, perhaps leading to considerable social upheaval. While Sustainable living clearly depicts changes in behaviour and social practices within low carbon homes, these practices are nevertheless normalised, and not explicitly advocated in the media.” Cherry et al (2015) found the absence of these social aspects to be strange as one might expect media norms, such as personalisation, to highlight them. They suggested that these omissions stem from the implicit assumptions and blind spots to behaviour change currently found within the dominant technological paradigm of broader decarbonisation

strategies. Task 24 also exists in a highly technocratic world. The International Energy Agency, and its partnering country agencies who fund the Task, usually approach energy efficiency strictly from a technology, policy, market and/or supply change perspective. Even though behaviour change has recently become a more *du jour* topic, it still is seen as a 'nice-to-have' as witnessed by the inordinate difference in funding for research, policy and market instruments concentrating on the technological, vs the human aspect of energy use (see e.g. NKS Energy, 2015). Even most demand-side management (DSM) interventions are largely technocratic in nature. Individual energy stories, especially very personal ones, humanise our energy use. They elicit visions of system change and a transition to a sustainable energy system as told through the human lens, often by using a 'hero' as proxy. But also the group stories which are collaboratively created to tell a common narrative about a future, successful behavioural intervention, are useful to expose the more human element of energy use. Group storytelling is a means of getting at experiences an individual is often reluctant to claim or at material that might not be accessible to conscious thought (McClintock, 2004). Out of all the tools and instruments that Task 24 uses to foster collaborative, multi-stakeholder development of better behaviour change interventions, storytelling is by far the most powerful one.

## CONCLUSIONS

We hope to have provided a solid argument as to why storytelling using the story spine is a highly valid form of supporting energy and behaviour research inquiry, as well as intervention and pilot design, evaluation of outcomes and setting of shared goals and roadmaps. To summarise:

### **What is so great about stories that are told using the story spine?**

- A) They're fun and invoke creativity
- B) They promote a common language and reduce jargon
- C) They're a great equaliser in hierarchical environments
- D) They promote empathy among *Behaviour Changers*
- E) They promote shared, double-loop learning
- F) They help set shared visions and common goals
- G) They help overcome (systemic) conflicts
- H) They include and empower the *End User* whose behaviour is meant to change
- I) They aid recall and improve readability
- J) They can help easily summarise scientific case studies
- K) They uncover the horror stories no one wants to share
- L) They are never wrong
- M) They provide powerful insights into personal struggles
- N) They provide a shortcut to understand different country contexts
- O) They aid self-reflection and provide sectoral/disciplinary insights
- P) They can help others come up with your idea
- Q) They help organisational behaviour change and foster and heal relationships
- R) They help our brains work better
- S) They can help built scenarios and roadmaps
- T) They are universal and unifying and help socialise new or marginalised members
- U) They can help enact policy recommendations
- V) They reassure us of our place
- W) They can help monitor and evaluate impact
- X) They can be used by many different sectors and professions
- Y) They can be used in many different ways in energy research
- Z) They make us appreciate the human aspect of energy use

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## IEA Demand Side Management Energy Technology Initiative

The Demand-Side Management (DSM) Energy Technology Initiative is one of more than 40 Co-operative Energy Technology Initiatives within the framework of the International Energy Agency (IEA). The Demand-Side Management (DSM) Energy Technology Initiative, which was initiated in 1993, deals with a variety of strategies to reduce energy demand. The following member countries and sponsors have been working to identify and promote opportunities for DSM:

Austria	Norway
Belgium	Spain
Canada	Ireland
Finland	Sweden
India	Switzerland
Italy	United Kingdom
Republic of Korea	United States
Netherlands	ECI (sponsor)
New Zealand	RAP (sponsor)

**Programme Vision:** Demand side activities should be active elements and the first choice in all energy policy decisions designed to create more reliable and more sustainable energy systems

**Programme Mission:** Deliver to its stakeholders, materials that are readily applicable for them in crafting and implementing policies and measures. The Programme should also deliver technology and applications that either facilitate operations of energy systems or facilitate necessary market transformations

The DSM Energy Technology Initiative's work is organized into two clusters: The [load shape](#) cluster, and the [load level](#) cluster.

The 'load shape' cluster will include Tasks that seek to impact the shape of the load curve over very short (minutes-hours-day) to longer (days-week-season) time periods. Work within this cluster primarily increases the reliability of systems. The 'load level' will include Tasks that seek to shift the load curve to lower demand levels or shift between loads from one energy system to another. Work within this cluster primarily targets the reduction of emissions.

A total of 24 projects or "Tasks" have been initiated since the beginning of the DSM Programme. The overall program is monitored by an Executive Committee consisting of representatives from each contracting party to the DSM Energy Technology Initiative. The leadership and management of the individual Tasks are the responsibility of Operating Agents. These Tasks and their respective

### *Operating Agents are:*

Task 1 International Database on Demand-Side Management & Evaluation Guidebook on the Impact of DSM and EE for Kyoto's GHG Targets – *Completed* Harry Vreuls, NOVEM, the Netherlands

Task 2 Communications Technologies for Demand-Side Management – *Completed* Richard Formby, EA Technology, United Kingdom

Task 3 Cooperative Procurement of Innovative Technologies for Demand-Side Management – *Completed* Hans Westling, Promandat AB, Sweden

Task 4 Development of Improved Methods for Integrating Demand-Side Management into Resource Planning – *Completed* Grayson Heffner, EPRI, United States

Task 5 Techniques for Implementation of Demand-Side Management Technology in the Marketplace – *Completed* Juan Comas, FECSA, Spain

Task 6 DSM and Energy Efficiency in Changing Electricity Business Environments – *Completed* David Crossley, Energy Futures, Australia Pty. Ltd., Australia

Task 7 International Collaboration on Market Transformation – *Completed* Verney Ryan, BRE, United Kingdom

Task 8 Demand-Side Bidding in a Competitive Electricity Market – *Completed* Linda Hull, EA Technology Ltd, United Kingdom

Task 9 The Role of Municipalities in a Liberalised System – *Completed* Martin Cahn, Energie Cites, France

Task 10 Performance Contracting – *Completed* Hans Westling, Promandat AB, Sweden

Task 11 Time of Use Pricing and Energy Use for Demand Management Delivery- *Completed*  
Richard Formby, EA Technology Ltd, United Kingdom

Task 12 Energy Standards To be determined

Task 13 Demand Response Resources - *Completed* Ross Malme, RETX, United States

Task 14 White Certificates – *Completed* Antonio Capozza, CESI, Italy

Task 15 Network-Driven DSM - *Completed* David Crossley, Energy Futures Australia Pty. Ltd, Australia

Task 16 Competitive Energy Services  
Jan W. Bleyl, Graz Energy Agency, Austria / Seppo Silvonen/Pertti Koski, Motiva, Finland

Task 17 Integration of Demand Side Management, Distributed Generation, Renewable Energy Sources and  
Energy Storages Seppo Kärkkäinen, Elektraflex Oy, Finland

Task 18 Demand Side Management and Climate Change - *Completed*  
David Crossley, Energy Futures Australia Pty. Ltd, Australia

Task 19 Micro Demand Response and Energy Saving - *Completed*  
Linda Hull, EA Technology Ltd, United Kingdom

Task 20 Branding of Energy Efficiency - *Completed*  
Balawant Joshi, ABPS Infrastructure Private Limited, India

Task 21 Standardisation of Energy Savings Calculations - *Completed*  
Harry Vreuls, SenterNovem, Netherlands

Task 22 Energy Efficiency Portfolio Standards - *Completed*  
Balawant Joshi, ABPS Infrastructure Private Limited, India

Task 23 The Role of Customers in Delivering Effective Smart Grids - *Completed*  
Linda Hull, EA Technology Ltd, United Kingdom

Task 24 Phase 1: Closing the Loop: Behaviour Change in DSM – From theory to practice  
Dr Sea Rotmann, SEA – Sustainable Energy Advice Ltd, NZ and Dr Ruth Mourik, Duneworks, NL – *Completed*

Task 24 Phase 2: Behaviour Change in DSM - Helping the Behaviour Changers  
Dr Sea Rotmann, SEA – Sustainable Energy Advice Ltd, New Zealand

Task 25 Business Models for a more Effective Market Uptake of DSM Energy Services  
Ruth Mourik, DuneWorks, The Netherlands

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