



## Original research article

# “Once upon a time...” Eliciting energy and behaviour change stories using a fairy tale story spine



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## ABSTRACT

The International Energy Agency's Demand-Side Management Programme's Task 24 aims to turn behaviour change theory into pilot projects. One obstacle to delivering successful behaviour change interventions concerns the silos between different stakeholders in the energy system and their limited collaboration. To facilitate multi-stakeholder collaboration and co-design of better behavioural interventions and pilots, Task 24 focuses on participatory, shared learning in facilitated workshop settings. Storytelling is used as an overarching 'translation tool' between invited stakeholders from different sectors and research disciplines. A story spine loosely based on a fairy tale structure was used to collect over 160 stories from energy experts from over 20 countries. In this paper, I focus on the *process of storytelling* using such a story spine, and, to a lesser extent, the *participants (the storytellers)* and the *product (the stories)*.

## 1. Introduction

This paper presents my personal and professional story of running a global research Task on energy behaviour change. It showcases the development and use of a fairy tale story spine, informed by anecdotes and feedback from hundreds of workshop participants and Task funders over the last five years. It is told through my perspective as trained ethologist and ecologist and energy efficiency practitioner and policy-maker.

## 1.1. What is Task 24?

Task 24 is the first global research Task on energy behaviour change (for definitions of how (widely) the Task frames *energy behaviour change*, see Ref. [1]: 4). The Task has had two distinct phases of research to date (see Refs. [2,3] for a detailed description). Its overarching goal is to “*provide a helicopter overview of best practice approaches to behaviour change interventions and practical, tailored guidelines and tools of how to best design, implement, evaluate and disseminate them in real life*”.

Task 24 has a rather unique premise, leading to some rather unique challenges which are partly addressed by the use of *storytelling* as a process to provide common language and purpose for diverse funders, participants, and audiences: it is overseen by 17 members (from 15 countries and two sponsors) of the International Energy Agency's DSM Programme and has had nine official country funders and one non-state

actor funder. It also receives in-kind support from 100's of experts from 20+ countries, spanning five continents. This in-kind support extends to providing case studies, attending workshops, reviewing reports, sharing expertise, and, what this paper describes, supplying stories following a ‘*Once upon a time*’ fairy tale story spine format borrowed from improvisational theater [4].

The Task's research outputs are aimed to be relevant to experts in government, industry, research, the third and service sectors on the international, national, and local level. This includes providing insights into various country contexts and providing cross-cultural comparisons. Its case study analyses and pilots target audiences from a wide variety of sectors including *hospitals* (US and CA); *DSOs* (NL and NZ); *smart technology in the residential sector* (SE, NL, NZ, IT, US, AT, IE); *transport* (SE); *higher education* (NL) etc.

The Task does not subscribe to a single research discipline, and uses multiple approaches to analysing, designing and evaluating behavioural interventions through the lenses of economics, psychology and sociology.

These global participants, expert audiences, and varied approaches to researching energy behaviour mean that inter-sectoral/disciplinary language barriers create particular issues that need to be addressed. Storytelling is an important process and methodology used by this Task to help deal with these challenges.

This paper does not present an academic analysis of the 160+ stories gathered in Task 24. Instead, it presents a practitioner's

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<sup>1</sup> International Energy Agency Demand-Side Management Programme's Task 24 – SEA - Sustainable Energy Advice Ltd Behaviour Change in DSM, Phase II: Helping the Behaviour Changers. [www.ieadsm.org/task/task-24-phase-2/](http://www.ieadsm.org/task/task-24-phase-2/).

perspective, focusing on how Task 24 used the *process of storytelling* using a fairy tale story spine to foster empathy, engagement, creativity and reflection with a multi-stakeholder audience during participatory workshop settings. It also describes to some extent the *participants* of the workshops (*the storytellers*), and focuses less on the *product* of the process, namely *the stories* themselves. It concludes with perceived benefits of using this approach in participatory action research settings, challenges for the process, and ways forward.

## 2. Storytelling approach

This paper builds upon the notion of personal and professional stories introduced by Sam Staddon in this special issue [5]. She makes the point that our personal and professional energy stories deserve to be considered together, as they intertwine, in theory and practice, in ways which make them inseparable.

### 2.1. Context of Task 24 in the special issue

I have used Task 24 to elicit and collect energy behaviour (change) stories in many different ways, including through the personal and professional energy stories of the Task's experts [6]. The overarching goal of this work is to get the funders and global audience of this Task to start viewing the energy system through a more 'human', reflexive and personal, rather than the more common 'technocratic', overly professional and analytical lens that energy research is usually seen through (Moezzi, Janda and Rotmann, this issue). Members of the global expert community of the Task have said that they see its place in the demand-side energy research landscape as a form of 'agitator' and catalyst to enable a more human-centered discussion of the energy system at the international policy level. Task 24 is not an academic research project but includes a combination of meta-analysis, empirical case study collection, participatory action research and piloting, and participatory narrative inquiry (see Ref. [7]).

My specific approach to the field research of Phase 2 of the Task is a form of "behavioural socio-ecology" (e.g. see Ref. [8]). The socio-ecological framework encourages both whole-system interventions, and also the explicit understanding of how more focused interventions might depend on factors at other levels (including the various human actors in a given system) for their effectiveness, acceptability or sustainability to be achieved ([8], p1002). Here, this means first exploring the views, values and experiences (see also Ref. [9]) of the various experts and decision makers engaged in a given 'energy socio-ecosystem' (often also including the energy end user whose behaviour they are ultimately trying to change), before deciding upon, collectively, which approach or solution for change to focus on in a pilot intervention.

Howarth [10] reasons in this special issue that there is an "over-reliance on a linear flow of information where a 'problem' and 'solution' approach is adopted and where it is assumed that providing information about the issue will therefore be sufficient to lead to a solution to alleviate its impacts." She argues that knowing more about the science of an issue will not increase understanding or lead to action or behaviour change and that "people's values, the degree of trust in the messenger and the context within which decisions are made influence people's preference for certain policies." Her argument that narratives, when constructed from dialogues with a teller and a listener and more personalised communication, offer the opportunity for social change, makes inherent sense given that we are all human beings, first and foremost and that telling and listening to stories has been in our nature for millennia.

Howarth's [10] social commentary on climate change also rings true in the energy sector and I would argue (following on from Staddon [5]) that in Task 24, this need for a personal dialogue based on our own stories extends to the people in government, industry, research, the third and service sectors, who design, implement or affect behaviour change interventions. Hence, we focus on gathering the stories of our

experts and funders, instead of only those of the end users of energy whose behaviour they are trying to change. This is a different focus to e.g. the narrative workshops used with the public in Shaw [9] and Smith [11] in this special issue.

### 2.2. How has storytelling been used in Task 24?

As outlined in more detail in Ref. [6], Task 24 used many different ways to elicit *storytelling* in following initial advice from an expert workshop in Oxford in October 2012 [12]:

- The whole 2-day UKERC workshop was re-told as a cartoon and a short film.<sup>2</sup>
- The personal energy stories of almost 50 of the Task's global experts,<sup>3</sup> c.f. [5].
- One of our industry sector experts animated a cartoon of his story<sup>4</sup> and also drew satirical cartoons summarising many of our case study stories, e.g. Ref. [13].
- Sector- and country stories were elicited from our participating countries as Pecha Kuchas.<sup>5</sup>
- When analysing the 'Monster report' of case study analysis [14], the stories of the different models of understanding behaviour were re-told from the perspective of the end users, whose behaviours were meant to change according to the interventions based on these models.
- An IEA DSM Executive Committee workshop in Wellington in 2014, was based entirely on storytelling – each speaker had to present in the format of a given story: we had *love, hero, horror and learning* stories (inspired by Refs. [15,16]) and covered the genres of *Science Fiction, Fantasy, Fairytales, Political Thriller, Western* and *Sports*.<sup>6</sup> Some experts even turned up with props or in costume, like the Treasury official who told the 'political thriller of DSM' dressed as Vesper Lynd from the Bond film *Casino Royale*, or the sustainability manager from the largest fuel company in New Zealand dressed as Han Solo holding a Stormtrooper helmet.

All these processes of eliciting storytelling in Task 24 were regarded as fun, creative and engaging by our audience (based on their enthusiastic participation and workshop feedback surveys). However, they were also created in a somewhat ad hoc fashion by non-storytelling experts, leading to a wide and eclectic variety of different (types of) 'stories' which do not loan themselves easily to any form of analysis (c.f. the challenges described by Ref. [11]). The process which led to the most analysable and recognisable stories in Task 24 was using a fairy tale story spine to prompt a form of storytelling that could easily be repeated in many different settings and by many different audiences.

### 2.3. Why use a (fairy tale) story spine?

Any story spine illustrates how events unfold in sequence with some events causing other consequences. The literature on storytelling outlines what a 'good story' should look like, e.g. Refs. [17–19]. 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 [20]. The simple story generally is more successful than the complicated one [21]: 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

<sup>2</sup> [https://youtu.be/P6A\\_LIE7-qM](https://youtu.be/P6A_LIE7-qM).

<sup>3</sup> For a short summary film see: <http://youtu.be/wbe83S8Ff00>.

<sup>4</sup> Juan Pablo García: <http://www.leantricity.es/2014/03/04/the-man-with-the-hammer-joke-and-energy-efficiency-projects/>.

<sup>5</sup> E.g. see South Africa's country story told as a Western: <https://www.youtube.com/watch?v=yC-yM2ELuVw&list=PLoZ9-YO7tGnoDbnOLmu-cLGC9gezTJ0F9&index=32>.

<sup>6</sup> For all workshop videos and presentations see <http://www.leadsm.org/workshop/new-zealand-2014/>.

events in the story. A story, if broken down into the simplest form is a connection of cause and effect, which mimics how we think [22]. We think in narratives all day long and make up (short) stories in our heads for most actions and conversations (ibid). The story spine is thus also a good sensemaking device [23,24].

We used the fairy tale story spine (see box below) to collect stories that follow the above format. This ensures that all elements of a ‘good’ story (or case study, in some of our examples) are at least theoretically 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, community and research participants of Task 24 workshops).

Even though the fairy tale story spine seems to have been used systematically for the first time on such a large scale in energy behaviour research in Task 24, it is not an uncommon tool to use in many other sectors and professions. The fairy tale story spine is originally attributed to Kenn Adams, who used it for improvisational theatre [4]. It has become prominent with a booklet called “Pixar’s 22 rules of story” [21], or as “Pixar’s 4th rule of storytelling” [25]. It has also been used to help develop comics [26], creative writing [27] and in teaching [28]. There are other, more unexpected sectors that use similar story spines to yield some rather self-interested results as well. For example, it has been used in business and economics by consultants [29], salespeople [19], managers [30] and NGOs to attract funding [31]. 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 [32].

The fairy tale story spine [4] was chosen as it was the most likely to be known by all workshop participants, unrelated to their sectoral, disciplinary or cultural backgrounds. Fairy tales can be very influential as a catalyst of change in a professional setting – for example, to illustrate how executives deal with the challenges they face in their leadership roles, or as shortcut to moral lessons, providing insights into human behaviour [33]. Knowing or anticipating the familiar framework of a story means that we absorb the ‘moral’ it contains quickly; our mind is open to the message and not distracted or preoccupied by the structure of the tale [33]. Kets de Vries [33] writes: “Presenting the dilemmas of leadership in the form of fairy tales can be a very powerful catalyst to help leaders change – because, as we have seen, fairy tales always have human transformation at their core.”

#### 2.4. How the fairy tale story spine was used in Task 24

This well-known story spine can be used to elicit a variety of stories for different reasons, in a given setting. Fairy tale story spine instructions, or prompts, can be modified and adapted to different (workshop) settings and audiences (below, the generic Task 24 story spine modified from Ref. [4]).

##### Task 24 story spine instructions for collecting participants’ 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]

**But Then!** [where you outline what can/will/has gone wrong and why]

**Because of That...** [where you outline how you have reiterated the intervention because of what you have learned]

**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 fairy tale story spine has been used to elicit stories in a variety of ways in the Task. Overall, over 160 stories were collected:

- 1) Some stories were collected, individually, as part of the Phase 1 theoretical case study analysis, e.g. Ref. [14], in writing, from case study authors. The experts who provided us with case studies on transport, building retrofits, smart technology and SMEs were asked to use the story spine to outline their cases including *scene setting, problem definition, reason for change, design of intervention, unintended consequences, re-design of intervention, results and future learnings/moral of the story*.
- 2) Other stories were collected, individually and collectively, as part of the practical workshops of Phase 2 (see Table 1). In Phase 2, *Behaviour Changers*<sup>7</sup> (see Ref. [2] for detailed definition) from relevant sectors are invited to collaborate on a specific behavioural problem with the aim to design a pilot project to be tested in the field. The workshop participants usually wrote stories by hand on pre-printed forms during workshops. Some stories have been collected using Google Forms before some workshops (e.g. *Energy Cultures* workshop, Table 1). Slightly-altered story spine instructions were given during different workshops – e.g., some experts were asked to write stories of their countries, collaboratively; some of them in forms of *horror, learning, hero and love* stories (see Ref. [15]); and some were asked to write stories from their own *Behaviour Changer* perspectives (e.g. as *Decisionmaker* from the government or *Expert* from the research sector); sometimes before and after the ‘Magic Carpet’ – an energy socio-ecosystem visualisation exercise (see Ref. [2] for detailed description) – was undertaken.
- 3) Some stories were developed, collectively, in collaboration with other research groups, for example the *Energy Culture* video telling the story of their interdisciplinary research team<sup>8</sup> or the story which ended up in a *Royal Society of New Zealand* publication on green growth [34].

The stories we discuss here fall into four main domains (*Personal story, Behaviour Changer story, Case study story and Country story*). Note that even though we collected each story with a specific instruction, some stories were found to span more than one domain.

- *Personal stories*: changes in people’s lives based on the open-ended instruction of telling their own personal (or organisation’s) energy (or behaviour change) story. This could be a 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. 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. [35]). These can be changes envisaged in future interventions, or changes in interventions that already happened, or which are currently underway. We

<sup>7</sup> A Behaviour Changer is a person or agency tasked with the goal of designing, implementing, evaluating and/or disseminating interventions geared at changing energy end users behaviours.

<sup>8</sup> <https://www.youtube.com/watch?v=Xr4JBNOyInI&feature=youtu.beShort%20film>.

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

Where/when? Location & time of w/s	Why? Purpose of w/s	Who? Participant countries	Where from? Participants' sectors	How? Collectively or individually written	When? Before/ During w/s	What for? Instructions	On what? Themes	How many? Number of stories
Groningen, NL (Feb 2016)	Behaviour Changer <sup>a</sup> 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 <sup>b</sup> 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 W 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
Ekstuna, 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

<sup>a</sup> Behaviour Changer workshops relate to specifically invited *Behaviour Changers* in Phase 2.

<sup>b</sup> Expert workshops relate to invited country experts in Phase 1.



collected 63 such stories specifically, but 67 of these domains were classified in Task 24 stories.

- *Case study stories*: changes in programmes, policies and pilots that followed 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 and collectively written. However, a grand total of 123 out of stories collected here mentioned some country- or cultural background information.

Table 1 summarises the circumstances and details of the 160+ energy stories which were collected, using the story spine, in 11 different workshops from 2013 to 2016. The fairy tale story spine is a very flexible instrument, which has been used here in a wide variety of settings, for a variety of purposes. The instructions can be specific, for example, to outline how each *Behaviour Changer* perceives the current situation of a given case study (e.g. used in Phase 2 when visualising the current energy system before designing pilot interventions in Sweden, Ireland, US, New Zealand and the Netherlands). Or the story spine can be given with no instructions other than that people should write their own (or their organisation's) energy (behaviour change) story (see e.g. IEA DSM conference in Table 1). In both these cases, the story spine was used to elicit a story from a certain point of view.

On the other hand, the fairy tale story spine has also been used to prompt the re-telling and summarising of specific case studies, with different instructions, without (necessarily) providing a certain point of view [14]: it sets the scene including main actors (*Once upon a time; Every day*), defines the problem (*But, one day*) and outlines the development of the solution/intervention including 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*).

We did not just use different ways of collecting the stories, but also different ways of telling/disseminating them. The *Case Study* stories collected in Phase 1 are published e.g. in 'the little Monster storybook' [13]. Most *Behaviour Changer* stories collected during workshop settings in Phase 2 are read out, sometimes in full by the storytellers and sometimes by getting each storyteller to read out only one line of the spine, going around a circle (see also Ref. [29]). Some form of 'magic' seems to take place by the *process* of creating the stories, then telling and listening to them, and often also, discussing them in a group setting (*Participative Narrative Inquiry* [7]). This will be discussed in more detail below.

### 3. Insights and some caution

#### 3.1. Insights from the storytelling process in Task 24

The strength of storytelling is that the narrative itself has a stronger logic and is likely to remain in our memory longer than any constituent detail [36]. Narratives gain their strength from their plausibility, rather than their explanatory power. Others [37] also used stories to summarise case studies, as Task 24 has [14]. 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 significant part of the reported data.

##### 3.1.1. Individual vs collective stories

There is also a difference between writing *individual stories* (also if it is done in a workshop setting under more time pressure compared with via email or Google form, where there is more time to think about and revise a story before submitting it) versus *collective stories* (either by

collaboration during workshops or via email iterations. At the BEHAVE conference Task 24 workshop (Table 1), it was collectively agreed by workshop participants that the Swedish *Behaviour Changer stories* became more aligned with each other after we undertook the system visualisation 'magic carpet' exercise. The stories changed from a more personal ("what's in it for me, from my perspective or mandate, what are my conflicts that I need to overcome?") to a more collective voice with a common goal ("what can we all do, together, to achieve this goal we agree on?").

##### 3.1.2. Country stories

Collectively-written stories – usually, *Country stories* – were also often more fantastical and elaborate than individual stories, as storytellers encouraged each other to be more creative or expansive (often also more humorous) than when left to their own devices of writing the story. 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, individual thought [38]. Marshall [39] researched just how important and powerful narratives are that appeal to national values. The study found that the information was only more compelling in a narrative form when that narrative was 'congruent' with the cultural values of the group. Malone [40] also found that pairing technological transformations with national narratives facilitated the successful development and implementation of three major technologies – nuclear power in the US, sugar cane ethanol in Brazil and biomass energy in Sweden. Letting workshop participants tell and discuss their own country stories, collaboratively, helps to uncover some of these important cultural values and national narratives. That is of particular importance to Task 24 and its global audience. *Country stories* can help us quickly identify important contexts which help us compare and contrast between different audiences and case studies and provide relevant feedback to our country funders.

##### 3.1.3. Perceptions on storytelling from Task 24 workshops

Perceptions of the usefulness of the fairy tale story spine (from survey feedback and discussions during workshops) range from it being a "fun ice-breaker", to "encouraging thinking about the energy system more creatively", "pushing us all out of our comfort zone so that it doesn't matter if you are the CEO or the janitor", "encouraging collaboration and visioning by writing collective stories imagining our country's future", "improving empathy for other's points of view when listening to different *Behaviour Changer's* views of the same problem" and "telling me something about my colleague/s I didn't know before".

Some of the most memorable anecdotes of the 'magic' that can happen when using the fairy tale story spine came from the CHS hospital case study in North Carolina (Table 1), where stories were told by building operators and facility managers during the first workshop, before a pilot intervention for hospital building operators was co-designed by participants. Moezzi et al. [41] also ran a storytelling workshop with building operators and facility managers of commercial buildings in California. They describe how "building operators use anecdotes in talking with colleagues to convey problems and lessons, to commiserate about stubborn issues, to try to convince occupants to behave in a certain way, etc. The stories represent 'versions of reality' rather than necessarily ground truths." This is a good insight to keep in mind when reading about the anecdotes from hospital building operators and facility managers, below.

The story below was told by a hospital senior manager and it was voted the favourite by the other participants (c.f. *Most Significant Change* technique by Ref. [42]).

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**"The maintenance man hero"** – told in first person by a 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 it 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 CEOs 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. She 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, could 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. *The End.*

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Comments from participants on why this story was chosen as their 'winner' were: it showed that maintenance people are heroes and their actions can impact on patients' lives by educated hospital staff on the importance of their work; and leadership was humbled when they saw how the maintenance man stood up for what he knew was right instead of just doing as told.

**3.1.3.1. Multiple benefits uncovered by storytelling.** It is, of course, unclear if energy efficiency interventions like changing light bulbs would ever actually lead to saving babies' lives – an issue often lamented by policymakers and evaluators of energy demand interventions (e.g. Refs. [43,44]): how can we prove a causal relationship exists between such interventions and actual impact (or change in behaviour)? The point this story seems to make, and the reason why it was repeatedly told and referred to on the day of the workshop, was not that such impact could be proven. Rather, that the perception of its possibility to positively affect patient care was a powerful mechanism to convince an audience otherwise utterly uninterested in energy efficiency, that it was a great idea which to then convey to their peers. This is why there now seems to be more and more interest in the "multiple benefits of energy efficiency" (e.g. Ref. [43]), including the 'soft' benefits which cannot be as easily quantified.

During the Task 24 workshop in a hospital setting, every stakeholder's primary mandate was patient care. If greater resources for sustainable energy improvements were required, they had a much better chance of being signed off if the benefits could be explained in terms of improved patient care, rather than e.g. reduced kWh. Being able to determine the link between different benefits and how to clearly communicate them to each of their different stakeholders (including hospital administration, patients, doctors, nurses and patients' families), was an important issue for the workshop participants. Storytelling, using this simple process, was a first step to enable these stakeholders to think of such links and how to convey them as powerful messages (c.f. [10]). 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 [45]. This creates a common base to enter into dialogue about what is desirable in terms of expected and unexpected outcomes. Boje [46] 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.

Conventional quantitative monitoring of predetermined indicators tells us about what we think we need to know, not what we don't realise we need to know [47]. One 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 [47].

**3.1.3.2. How the story spine 'feels' more like storytelling.** The storytelling process was received particularly enthusiastically in the aforementioned hospital workshop. One storyteller was so happy with their stories that they refused to give their hard copy back saying: "I'm going to show this to my wife and kids tonight! This is the first time I have ever told a story like that in my work." When asked at a follow-up workshop six months later how this went, he exclaimed "Oh, my wife and my kids were so proud of their dad when I showed them my story, it still hangs on the fridge. Now they finally understand what I do all day!". This is an indication of how much the fairy tale story spine invokes the *feeling* of doing *storytelling*. Of course, this participant, as well as all others, frequently tells stories, both in his work (c.f. [41]) and in his private life. These 'natural' stories just weren't brought to the forefront of his attention in the same way the fairy tale story spine did [33].

**3.1.3.3. The creative 'magic' that happens with the fairy tale story spine.** Another favourite story that was told in the hospital workshop was a (*Dungeon & Dragons*-inspired?) tale of powerful energy data wizards. It was the story that invoked the most mirth during the day, particularly as it was told by an engineer who wasn't expected to come up with such an inventive tale. One 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". Six months after he told his story at the initial workshop, the engineer was now good-naturedly called 'the Data Wizard' by many of the hospital facility managers and building operators. When discussing solutions to getting building operators to re-set setpoints in the building automation system after a patient complaint (e.g. around room temperature) was resolved, everyone now knew that the 'Data Wizard' and his team was the person to go to for questions and technical solutions. The workshop participants generally acknowledged that their relationships were closer and more friendly, and that the stories had helped create more buy-in for the behaviour change pilot. One can even measure storytelling's impact on forming and cementing relationships and sustaining those relationships over time and distance [48]. They have shown that in high-performing teams, one can track how stories are used to help transfer knowledge amongst team members.

#### 3.1.4. The story is also in the telling, not just the stories

Even though simple anecdotes like this should not be over-emphasised, it certainly seems that participatory workshops foster cross-cultural learning and empathy across an organisation where groups at different levels wouldn't normally speak to each other. The storytelling process can function as an important social lubricant. It is important to highlight that this can be more about storytelling as *process* rather than just the stories as *product* and in getting the *participants*, the storytellers, engaging in the process. There does seem to be something special that happens to people when discussing energy interventions as fairy tales – where the story becomes the signifier (i.e. the potential of an intervention leading to something great) versus the signified (an actual change in kWh).

### 3.2. Some caution

The strength of the story spine, namely its simplicity, can also be its weakness as it is too simple for many uses [21]. The use of a fairy tale story spine prompting the various story aspects has simplified the storytelling process more than if the stories were collected in free-form. The trade-off when using the story spine is that the stories are also less 'natural' than if they were collected in free-form. Stories alone will not be acceptable for evaluation of successful outcomes of an intervention even though they can usefully complement the process.

There is also a difference between using a story spine (e.g. Ref. [18]) and a fairy tale story spine, as described here. I would argue that the specific form of 'magic' I eluded to that occurred in some of our workshops – of eliciting very creative and evocative tales, encouraging engagement, empathy and collaboration – is somewhat related to the fairy tale setting (see also Ref. [33] and discussion in 4.3 below). However, stories can be complex and require care in how they represent experiences – which means they take a lot of time to do well, something the workshop settings described here do not really allow. Thus, our stories can easily be dismissed as mere anecdotes or not truthful (see also Ref. [17]).

## 4. Discussion and ways forward

### 4.1. Discussion

Broadly speaking, we can think about the functions of storytelling as being to learn, empathise, educate, reflect and advocate—and thereby affect change in attitudes, behaviour, culture, and policy [49]. We thus learn that in stories – as well as in everyday life – things are connected, one thing leads to another, and actions have consequences [27]. Storytelling helps us to think in terms of sequences, and progressions of events which helps us to recognise patterns of behaviours and actions.

Some stories are crafted to motivate people, and others to share knowledge [50]. Both are important in energy research, depending on a call for action versus a tale of caution. Denning [50] realised that the purpose of telling a story might determine its form. For instance, if negative, cautioning 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 [50] [41]. When people tell stories, a different set of social dynamics and cognitive processes compared with how people usually engage in professional settings takes place [7]. Instead of either accepting or opposing a story, listeners are encouraged to try to understand a story and its multiple interpretations.

Utilising a storytelling method, especially following the fairy tale story spine prompts, is a simple and less confrontational way to elicit different stakeholder's stories of their different mandates, goals and inherent conflicts than, say, 'free-form' discussions among them. Reading these stories out loud in the workshops often led to open discussions. The stories generally helped set a lighter tone and may have reduced the perception of siloes or status hierarchies in a workshop setting. Storytelling can thus be an important method to break down barriers, highlight conflicts safely and elicit complex conversations and scenarios.

The story spine can be used to elicit ideas about possible futures that an organisation might face and then constructing possible stories, events, and management strategies leading up to those futures (e.g. Ref. [30]). 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 [30]. Task 24 sometimes also uses storytelling to extract the different stakeholder needs and mandates and

help co-create a common goal of an intervention to be designed.

In summary, storytelling using the fairy tale story spine is useful in energy and behaviour change research because:

- It can be easily explained to a wide range of audiences from different cultures, disciplines and sectors.
- It is a flexible process of eliciting stories that can be adapted to different audiences and purposes.
- It can help summarise complex case studies quickly and memorably.
- It can describe different cultural or country values, especially when told collectively by country experts.
- It is engaging, creative and fun and can help foster empathy, team work and collaboration.
- It helps groups think about the future and its connection to the present.

### 4.2. Ways forward

A new EU platform program called 'Shape Energy' (<http://shapeenergy.eu/>) is using storytelling, based on the Task 24 work. A recent *Shape Energy* workshop used a form of story spine to elicit 'stories' from the participants, but the 'fairy tale' aspect had been removed from the story prompts (instead, they were, for example on inter-disciplinary working: "*We dream of more and more effective collaboration between disciplines and sectors...; So far this has been a struggle because...; There are some disciplines and sectors that seem to work well together, such as...; Their successful collaboration lies in...; One big challenge however, is that differences need to be acknowledged, and we can go about this as follows...; What we need to do next is...*"). This initiative may produce a useful opportunity to compare storytelling approaches with and without the use of a "*Once upon a time...*" story spine. It will also be interesting to see how the stories collected during these workshops will be analysed by the Shape Energy team.

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### References

- [1] R.M. Mourik, L.F.M. van Summeren, S. Breukers, S. Rotmann, IEA DSM Task 24, Subtask 3 Deliverable 3A. Did You Behave as We Designed You To? A Positioning Paper on Monitoring & Evaluation, IEA DSM, Eindhoven, NL and Wellington, NZ, 2015 <http://www.ieadsm.org/wp/files/Subtask-3-Deliverable-3A-Final-Report.pdf>.
- [2] S. Rotmann, How to create a 'magic carpet' for behaviour change, ACEEE Summer Study on Energy Efficiency in Buildings (2016) 12 pp..
- [3] S. Rotmann, Task 24: co-creating behaviour change insights with behaviour changers from around the world, Proceedings of the ECEEE Summer Study, European Council for an Energy-Efficient Economy, Presqu'île de Giens, France, 2017.
- [4] K. Adams, How to Improvize a Full-Length Play—The Art of Spontaneous Theater, Kenn Adams Allworth Press, 2007 208 pp..
- [5] S. Staddon, Reflecting on personal and professional energy stories in energy demand research (this issue).
- [6] S. Rotmann, B. Goodchild, R.M. Mourik, Once upon a time. How to tell a good energy efficiency story that 'sticks', Proceedings of ECEEE Summer Study, European

- Council for an Energy-Efficient Economy, Presqu'île de Giens, France, 2015.
- [7] C.F. Kurtz, Working with Stories in Your Community or Organisation, Kurtz-Fernhout Publishing, 2014 684 pp..
  - [8] L. Moore, A. de Silva-Sanigorski, S.N. Moore, A socio-ecological perspective on behavioural interventions to influence food choice in schools: alternative, complementary or synergistic? *Public Health Nutr.* 16 (6) (2013) 1000–1005, <http://dx.doi.org/10.1017/s1368980012005605> (Published online 2013 March 4).
  - [9] C. Shaw, Using Narrative Workshops to socialise the climate debate: lessons from two case studies – centre-right audiences and the Scottish public (this issue).
  - [10] C. Howarth, Informing decision making on climate change and low carbon futures: Framing narratives around the United Kingdom's fifth Carbon Budget (this issue).
  - [11] J. Smith, Gathering around stories: Interdisciplinary experiments in support of energy system transitions (this issue).
  - [12] T. Churchouse, L. Mahoney, S. Rotmann, Closing the Loop—Behaviour Change in Demand Side Management, UKERC The Meeting Place, Workshop report, London, 2015 37 pp..
  - [13] S. Rotmann, R.M. Mourik, The Little Monster Storybook, IEA DSM Task 24, 2013, 41 pp.
  - [14] R.M. Mourik, S. Rotmann, Most of the Time what we do is what we do most of the time. And sometimes we do something new, Analysis of Case-studies IEA DSM Task 24, Deliverable 2, 2013, 161 pp.
  - [15] K.B. Janda, M. Topouzi, Closing the loop: using hero stories and learning stories to remake energy policy, Proceedings of ECEEE Summer Study, European Council for an Energy-Efficient Economy, Presqu'île de Giens, France, 2013.
  - [16] K.B. Janda, M. Topouzi, Telling tales: using stories to remake energy policy, *Build. Res. Inf.* 43 (4) (2015) 516–533, <http://dx.doi.org/10.1080/09613218.2015.1020217>.
  - [17] R. Krueger, Using stories in evaluation, Chapter 18. in: Joseph S. Wholey, Harry P. Hatry, Kathryn E. Newcomer (Eds.), *Handbook of practical program evaluation*, 3rd ed., 2010, 745 pp.
  - [18] B. McDonald, *Invisible Ink: A Practical Guide to Building Stories That Resonate*, Libratory Co, 2010 180 pp..
  - [19] P. Smith, *Sell With a Story: How to Capture Attention, Build Trust, and Close the Sale*, Amacom, NY, 2006 300 pp..
  - [20] D.P. McAdams, *The Stories We Live By: Personal Myths and the Making of the Self*, Guilford Press, 1993 336 pp..
  - [21] S.V. Bugaj, *PIXAR'S 22 RULES OF STORY (That Aren't Really Pixar's) ANALYZED*, E-book, 2013 75 pp..
  - [22] P.C. Neuhauser, *Corporate Legends and Lore: The Power of Storytelling As a Management Tool*, McGraw-Hill, Austin, Texas, 1993 234 pp..
  - [23] B. Dervin, Sense-making theory and practice: an overview of user interests in knowledge seeking and use, *J. Knowl. Manag.* 2 (2) (1998) 36–46.
  - [24] A. Rixon, Story spines for sensemaking, 2006. <http://www.anecdote.com/2006/07/story-spines-for-sensemaking/> [Accessed 13, November 2016].
  - [25] Aerogramme Studio. The Story Spine: Pixar's 4th rule of storytelling, 2013. <http://www.aerogrammestudio.com/2013/03/22/the-story-spine-pixars-4th-rule-of-storytelling/> [Accessed 12 November 2016].
  - [26] M. Kneese, *The Art of Comic Book Writing: The Definitive Guide to Outlining, Scripting, and Pitching Your Sequential Art Stories*, Potter/TenSpeed/Harmony, 2015 192 pp..
  - [27] E. Miller, *Creative Writing*, Essay for Storytelling Institute.org, July 2012, 6 pp.
  - [28] J.B. Ohler, *Digital Storytelling in the Classroom: New Media Pathways to Literacy, Learning, and Creativity*, Corwin Press, 2013 304 pp..
  - [29] P. Rohrig, J. Clarke, 57 SF Activities for Facilitators and Consultants: Putting Solutions Focus Into Action, Solutions Books, 2008 318 pp..
  - [30] K. Koppett, *Training to Imagine: Practical Improvisational Theatre Techniques to Enhance Creativity, Teamwork, Leadership and Learning*, 1st ed., Stylus Publishing, 2001 224 pp..
  - [31] Capacity Waterloo Region, (CWR), *Stories Worth Telling: A guide to storytelling for Non-Profits*, (2013) 41 pp..
  - [32] S.L. Brodsky, *Principles and Practice of Trial Consultation, Story and Narrative*, Guilford Press, 2009, pp. 20–24 226 pp..
  - [33] M.F.R. Kets de Vries, *Fairy Tales for Executives: Story Telling as a Catalyst for Change*, INSEAD The Business School for the World: Working Paper Series, 2015/22/EFE.
  - [34] G. Carrington, G. Austin, S. Rotmann, R. Sims, J. Stephenson, J. Boys, L. Oxley, A. Salmond, Royal Society of New Zealand, *Emerging Issues: Facing the future: towards a green economy for New Zealand*, March 2014, 13 pp.
  - [35] B.T. Pentland, M.S. Feldman, Narrative networks: patterns of technology and organization, *Org. Sci.* & #8232; 18 (September–October (5)) (2007) 781–795.
  - [36] J. Bruner, The narrative construction of reality, *Crit. Inq.* 18 (1) (1991) 1–21.
  - [37] T.E. Costantino, J.C. Greene, Reflections on the use of narrative in evaluation, *Am. J. Eval.* 24 (March (1)) (2003) 35–49.
  - [38] C. McClintock, Using narrative methods to link program evaluation and organization development, *The Evaluation Exchange* Volume 9, Number 4, Winter 2003/2004.
  - [39] G. Marshall, *Hearth and Hiraeth: Constructing Climate Change Narratives around National Identity*, Climate Change Outreach and Information Network, Oxford, June 2014, 20 pp.
  - [40] E. Malone, *Stories about Ourselves: How National Narratives Influence the Diffusion of Large-Scale Energy Technologies*, this issue.
  - [41] M. Moezzi, C. Hammer, J. Goins, *Occupants/Buildings/Operators/Energy (OBOE) Stories Workshop Report*, Technical Report, March 2013, Ghoulam Research, California: <https://www.researchgate.net/publication/280571148>.
  - [42] J. Dart, R. Davis, A dialogical, story-based evaluation tool: the most significant change technique, *Am. J. Eval.* 24 (2) (2003) 137–155.
  - [43] IEA (International Energy Agency), *Capturing the Multiple Benefits of Energy Efficiency*, June 2014, Paris.
  - [44] B. Karlin, R. Ford, *Beyond kWh: A New Tool for Assessing Behavior-Based Energy Interventions*. Subtask 3 Report Prepared for the International Energy Agency Demand Side Management Program (IEA DSM) Task 24 Behaviour Change in DSM, IEA DSM, Los Angeles, USA, 2015.
  - [45] G. Shaw, R. Brown, P. Bromiley, Strategic stories: how 3M is rewriting business planning, *Harv. Bus. Rev.* 76 (May–June (3)) (1998) 41–42 44, 46–50..
  - [46] D.M. Boje, The storytelling organization: a study of story performance in an office—supply firm, *Adm. Sci. Q.* 36 (March (1)) (1991) 106–126.
  - [47] R. Davies, J. Dart, *Most Significant Change (MSC) Technique: A Guide to Its Use*, (2005) 104 pp..
  - [48] K. Dietz, L.L. Silverman, *Business Storytelling for Dummies*, 1st ed., For Dummies, 2013, 384 pp.
  - [49] P. VanDeCarr, *Storytelling and Social Change: A Strategy Guide for Grantmakers, Working Narratives*, 1st ed., 2013, 48 pp.
  - [50] S. Denning, *Telling tales*, *Harv. Bus. Rev.* 82 (5) (2000) 122–209.