

NUGENIA: Developing an 'EU Nuclear Public Engagement Toolkit'

EU08051/06/10/02
Issue 3

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EXECUTIVE SUMMARY

This report assesses the applicability in a European context of the principles for public engagement developed as part of the UK focused Nuclear Energy and Society Concordat (agreement) for Public Engagement. Case studies have been developed working in partnership between UK and European countries through National Nuclear Laboratory representatives undertaking visits to meet stakeholders in France, Finland and Germany as 'fact-finding' exercises. Stakeholders invited to participate in the study included industry communications professionals and representatives from NUGENIA, academia, Technical Safety Organisations and Non-Governmental Organisations. Meetings with stakeholders in each country have been used to discuss how the UK Concordat could be adapted for use in each country, to discuss and receive feedback on the UK Concordat from other nations and to learn about public engagement practice in each country (including good and poor practices). The output of the meetings has been used in an assessment of the applicability of the UK Concordat principles for use in a European context.

Using input from the above interactions and NNL-led internal research programmes on public engagement, guidance has been developed and is presented in the form of a toolkit which will enable NUGENIA members to enhance their engagement with the public / civil society on key nuclear issues. This toolkit focuses on five key elements, and provides guidance on how to develop and implement public engagement principles across the nuclear sector in a variety of contexts. The output has been tailored to the requirements provided by NUGENIA members at a stakeholder workshop in August 2016. The toolkit has been developed with the intention that other countries can use it as part of their public engagement strategies. Individual case studies from the UK, France, Finland and Germany provide examples of how engagement is carried out appropriate to the culture and within the legal frameworks in place. Consideration has been given to how the Concordat could be adapted to suit the needs of each country, where appropriate.

The countries considered in detail in this study have long-standing and well-established nuclear programmes. The implementation of the guidance in a country which is considering nuclear energy for the first time would need to consider various issues and would bring other factors into play (cultural, political, and historical elements, and specific issues of interest at the local level). Whilst it could reasonably be expected that the over-arching principles in the guidance would still be valid, the implementation of such principles would require very careful consideration.

Options have been assessed to identify the most appropriate platform to allow the public perception of nuclear energy in Europe to be assessed and information disseminated. An area on the NUGENIA website has been established to host the toolkit and supporting materials, and recommendations are given for other locations where the EU toolkit should be hosted and how it should be disseminated across EU nuclear nations.

The development of the toolkit builds on work previously undertaken by NNL that made detailed recommendations regarding the formation of a joint political and civil society advisory group. When the advisory group is in place, the toolkit will provide a basis on which NUGENIA members can build from, and through careful and considered adaptation of the toolkit across NUGENIA member organisations, the advisory group will have a continuous flow of information regarding public opinion across the EU, which can be used to inform the research and development carried out across the European nuclear sector.

VERIFICATION STATEMENT

This document has been verified and approved in accordance with NNL's procedures for the reporting of work.

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Glossary

ANCCLI	National Association of Local Information Committees and Commissions (l'Association Nationale des Comités et Commissions Locales d'Information)
ANDRA	French National Radioactive Waste Management Agency (Agence Nationale pour la Gestion des Déchets Radioactifs)
ASN	French Nuclear Safety Authority (L'Autorité de Sûreté Nucléaire)
CEA	French Alternative Energies and Atomic Energy Commission (Commissariat à l'énergie Atomique et aux Énergies Alternatives)
CEO	Chief Executive Officer
CLI	Local Information Committees (Commission Locale d'Information)
CNDP	National Commission for Public Debates (Commission Nationale du Débat Public)
CSFN	Strategic Committee for the French Nuclear Sector (Comité Stratégique de la Filière Nucléaire)
CSR	Corporate Social Responsibility
DAtF	German Atomic Forum (Deutsches Atomforum)
EA	Environment Agency
EdF	French utility company (Électricité de France)
EDGE	Self assessment tool 'Embryonic', 'Developing', 'Gripping' and 'Embedded' from the UK's National Co-ordinating Centre for Public Engagement
EIA	Environmental Impact Assessment
ENELA	European Nuclear Energy Leadership Academy
ENS	European Nuclear Society
EPR	European Pressurised Reactor
ESSEC	Business school in France (École Supérieure des Sciences Économiques et Commerciales)
EU	European Union
Fennovoima	Finnish nuclear power company established by a consortium of Finnish power and industrial companies.
FORATOM	European Atomic Forum
Fortum	Finnish energy company
GDA	Generic Design Assessment
GDF	Geological Disposal Facility
GDP	Gross Domestic Product
H2020	Horizon 2020
IAEA	International Atomic Energy Agency
Ifop	French Institute of Public Opinion (Institut Français d'Opinion Publique)
INB	Basic Nuclear Installation' (Installation Nucléaire de Base)
INSTN	National Institute for Nuclear Science and Technology (Institut National des Sciences et Techniques Nucléaires)
IRSN	French Radioprotection and Nuclear Safety Institute (Institut de Radioprotection et de Sûreté Nucléaire)
ITER	International Thermonuclear Experimental Reactor
NCCPE	National Co-ordinating Centre for Public Engagement

NDA	Nuclear Decommissioning Authority
NGO	Non-Governmental Organisation
NIA	Nuclear Industry Association
NIC	Nuclear Industry Council
NNL	National Nuclear Laboratory
NPP	Nuclear Power Plant
NUGENIA	Association dedicated to the research and development of nuclear fission technologies, with a focus on Generation II and III nuclear plants
ONR	Office for Nuclear Regulation
POSIVA	Finnish nuclear waste management organisation
R&D	Research and Development
RWM Ltd	Radioactive Waste Management Ltd
SEO	Search Engine Optimisation
SFEN	French Nuclear Society (Société Française d'Énergie Nucléaire)
STUK	Radiation and Nuclear Safety Authority in Finland (Säteilyturvakeskus)
SPD	Germany's Social Democratic Party (Sozialdemokratische Partei Deutschlands)
TSN Act	Transparency and Security in the Nuclear Field Act
TSO	Technical Safety Organisations
TVO	Finnish nuclear power company (Teollisuuden Voima Oyj)
UCLan	University of Central Lancashire
UK	United Kingdom
UNECE	United Nations Economic Commission for Europe
UWE	University of the West of England
VTT	Technical Research Centre of Finland (Teknologian Tutkimuskeskus)
VVER	Water-Water Energetic Reactor
WANO	World Association of Nuclear Operators
WiN	Women in Nuclear
WNA	World Nuclear Association
WP	Work Package
WWF	World Wide Fund for Nature

1. Introduction and Objectives

1.1. Background

This report forms part of an extension of Deliverable D2.7 of the Seventh Framework Programme "NUGENIA-PLUS" (Grant No. 604965). Deliverable 2.7 forms part of Work Package 2 (WP2) "Preparation for H2020 and beyond" and directly supports Task 2.2.3 of sub-WP2.2 "Governance and management". Its objective is "the establishment of an integrated joint political and civil society advisory group".

The overall objective of WP2 is to build the foundation for establishing a strong synergy between NUGENIA and H2020 to ensure the long-term beneficial impact. A key aspect of this is ensuring that the correct governance and management structures are in place to enable effective and representative choices to be made. The perception and understanding of nuclear energy by civil society is considered pivotal to this process.

The report 'Benefits and Limitations of Nuclear Fission for a low carbon economy' [1] published by Euratom sets out recommendations for the current programme of research under Euratom Fission (Horizon 2020) over the period 2014-2020. The report identifies that the nuclear fission community need to provide reliable answers to the economic, social, and environmental issues linked with energy production. The report makes specific recommendations in regard to public engagement on nuclear energy issues. Recommendation 2 states "*Following Fukushima, nuclear fission for energy has become a sensitive political issue in some Member States and the public at large expects its concerns to be properly addressed. Future fission research therefore needs to respond to those concerns, including new ways of engaging the public. This is the only way for European industry in the nuclear field to maintain its worldwide leading position.*" With a wide range of responses to Fukushima (Figure 1), it is important to recognise that each country has its own context that must be taken into account when developing public engagement strategies.

EU member states have split reactions on future of nuclear power after the Fukushima incident, affecting expansion plans

Country	Description	
Germany	<ul style="list-style-type: none"> 3 month closure of the country's nuclear power reactors that began operation in 1980 Government decision to decommission all nuclear power generation in the country by the end of 2022 	Changes vs. earlier position
Italy	<ul style="list-style-type: none"> After a referendum, new nuclear option is off the table for an undetermined period of time 	
Switzerland	<ul style="list-style-type: none"> Abandoned plans to build new nuclear reactors 	
Bulgaria	<ul style="list-style-type: none"> Plans to build unit at Kozloduy instead of Belene (current plans) because of low seismic activity 	Additional measures
Finland	<ul style="list-style-type: none"> Nuclear & radiation safety authority STUK to conduct review of nuclear facilities' emergency preparedness 	
Hungary	<ul style="list-style-type: none"> European nuclear stress tests for Paks (sole nuclear reactor) 	
Belgium	<ul style="list-style-type: none"> Lifetime extension for plants to be shut in 2015 being discussed. Existing plants undergoing stress tests 	No changes vs. earlier position
Czech Rep	<ul style="list-style-type: none"> Decision to continue with plans for nuclear new build 	
France	<ul style="list-style-type: none"> No change in policy; Construction work on the EPR at Flamanville continues 	
Lithuania	<ul style="list-style-type: none"> New tender proposals submitted for a replacement plant, Visaginas 	
Netherlands	<ul style="list-style-type: none"> Government has decided to carry on with plans for nuclear new build 	
Poland	<ul style="list-style-type: none"> No change in policy from the Polish government, referendum considered 	
Romania	<ul style="list-style-type: none"> No change in policy from the Romanian government 	
Slovakia	<ul style="list-style-type: none"> Commitment to nuclear power continues 	
Slovenia	<ul style="list-style-type: none"> No change in the nuclear policy of the Slovenian government 	
Spain	<ul style="list-style-type: none"> No change in policy from the Spanish government. First instance court confirmed closing of Garoña plant. 	
Sweden	<ul style="list-style-type: none"> No policy change, allow existing nuclear reactors to be replaced at the end of their lifetime 	
UK	<ul style="list-style-type: none"> The government is pushing ahead with plans for atomic power, confirming the 8 locations it has deemed suitable for new plants by 2025 in its first policy statement since Fukushima 	

EU stress tests will be performed on all plants during 2011

SOURCE: WNA; Team Analysis

Figure 1: How Fukushima affected EU members' nuclear expansion plans

As part of D2.7 of WP2, the National Nuclear Laboratory (NNL) has developed a report summarising a UK and EU focused perspective on public engagement in the nuclear industry [2]. The report briefly sets out the history of the UK nuclear industry, with the role of various bodies including operators, regulators, Non-Governmental Organisations (NGOs) and Government. It also considered at a high level the developments in the UK nuclear industry over time and the engagements that have occurred. Overseas experience in European countries and wider experience was also identified. The latest developments and UK position were set out including NNL current and proposed work under its internal research project on public engagement. A significant part of NNL's internal public engagement research activities through 2016 have been dedicated towards implementation of public engagement principles contained within a Concordat (see Section 1.2.1.). This Concordat, along with its supporting materials, was identified as a tool that could be adapted for use across the EU and as a way to inform the integrated joint political and civil society advisory group of the current concerns of the public with regards to nuclear energy.

The work outlined within this report had three principal objectives:

1. Testing the outworking of the UK's 'Nuclear Energy and Society Concordat for Public Engagement' in Finland, France and Germany;
2. Develop an 'EU Nuclear Public Engagement Toolkit' based on the UK's Concordat and supporting materials, which will enable NUGENIA members to engage effectively with the public/civil society on key nuclear issues;
3. Providing options for hosting and dissemination of the toolkit to allow the public perception of nuclear in Europe to be assessed.

This report is structured in the following manner:

- Section 1 provides an introduction and objectives to the report;
- Section 2 outlines the methodology for development of the EU nuclear public engagement toolkit;
- Section 3 analyses the nuclear public engagement interviews undertaken in France, Finland and Germany;
- Section 4 outlines the EU nuclear public engagement toolkit;
- Section 5 provides details on the hosting and dissemination of the toolkit; and
- Sections 6 and 7 provide conclusions and recommendations.

1.2. Public Engagement in the UK Nuclear Industry

Societal awareness, understanding and acceptance of developments in energy technologies is vital in achieving the UK's goals of ensuring secure, affordable and low carbon energy for decades to come. Effective public engagement will play a key role in enabling this future to be realised, as it provides a means of building trust and confidence between the public and the energy sector.

The past few decades have seen the division of the UK nuclear industry from a small number of larger organisations to an increasing number of separate organisations of various size and structure. This division of the industry over time, into many smaller organisations with various approaches and commitments towards public engagement, has resulted in a nuclear industry that has fragmented styles and varying approaches towards public engagement. Ultimately this may prove detrimental to the development of public confidence in nuclear energy due to a lack of consistency in approach.

Engaging with the public as a whole is not a simple task, as 'the public' consists of a diverse mix of personalities from a variety of backgrounds. What may be considered as effective public engagement for one person, may not necessarily be appropriate for another, as people interact and respond in different ways which may depend on for example their age, occupation, whether they have children or not, and gender. A strategy to enhance public engagement with nuclear energy should ensure that suitable methods of communication are developed that allow engagement with the target audiences to be carried out effectively; encompassing mutual understanding and dialogue.

In the UK, public support for nuclear energy has been slowly increasing during the last 10 to 15 years; possibly because of its good safety and reliability record and the contribution it makes to meet the UK's low carbon electricity needs. Whilst polling by Ipsos MORI [3] has shown a positive shift in public opinion over the past decade towards new nuclear power plants in Britain (see Figure 2), ultimately there is a risk to the ongoing development of public confidence in nuclear energy due to a lack of consistency in approach between nuclear industry organisations.

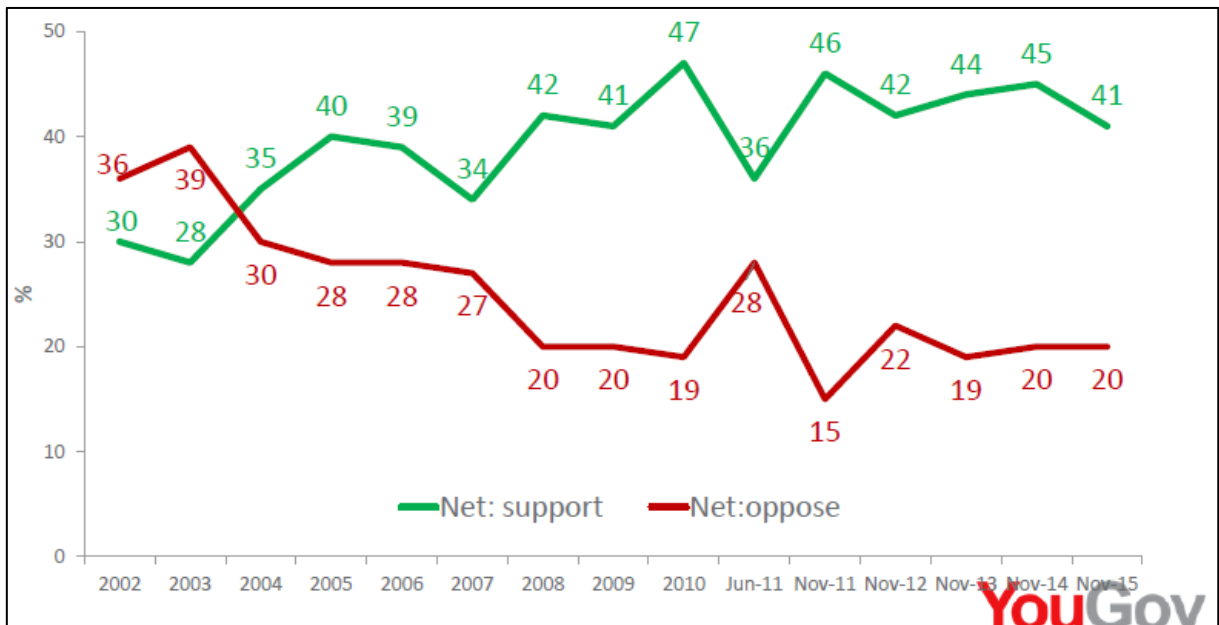


Figure 2: Public attitudes to nuclear energy in Britain: "To what extent would you support or oppose the building of new nuclear power stations in Britain to replace those that are being phased out?"

If the UK nuclear industry is to succeed in becoming a key player in the low carbon energy mix of the future, it must build a trusting relationship with the public through clear and consistent two-way dialogue, and by listening and responding to the public's views.

Evidence suggests that the public do not feel well informed about nuclear energy, particularly in comparison to other sources of energy generation such as renewables [3]. While support for new nuclear power plants in the UK is currently greater than opposition, the sector is vulnerable to declines in public support as a result of local, national and global events, as has been seen in the past. Events such as Three-Mile Island, Chernobyl and Fukushima, as well as the public's trust in Government, previous links with defence and media reporting of nuclear events all contribute towards a complex underlying mix of factors that can impact public support for nuclear energy [4]. A number of underlying concerns exist among the UK public which contributes towards an attitude of 'reluctant acceptance' [5] when taking nuclear power as part of a low carbon energy mix.

1.2.1. Nuclear Energy and Society Concordat for Public Engagement

The UK's Nuclear Industry Council (NIC) has developed a high-level strategy for public engagement; 'In the Public Eye: Nuclear Energy and Society', [6] and subsequently, the 'Nuclear Energy and Society: A Concordat for Public Engagement' (the 'Concordat') [7] which was launched in December 2015. The Concordat (agreement), signed by members of the NIC and other stakeholders, was developed with the aim of improving public understanding of nuclear energy, and now acts as a demonstration of the sector's commitment to engaging with society on nuclear energy matters. The four principles of the Concordat affirm the nuclear sector's resolve to show leadership commitment, implement best practice, communicate effectively and make a difference.

The Nuclear Industrial Strategy - The UK's Nuclear Future [8] published in 2013 set priorities for Government and the nuclear industry to work in partnership with regard to reactor operations and maintenance, waste management and decommissioning, fuel

cycle solutions, and new nuclear build. The NIC was established in February 2013 as a recommendation of the Nuclear Industrial Strategy. It represents a partnership between Government and industry with a view to providing high-level strategic co-ordination and direction to the nuclear sector and is designed to maximise the economic success of the UK's nuclear industry. The NIC oversees the implementation of the Nuclear Industrial Strategy and provides coherent direction and vision that helps to inform Government and business. Its members are senior representatives from the nuclear industry and academia, including developers, vendors, operators, key suppliers, contractors and unions.

The Nuclear Industrial Strategy included an action entitled, "public understanding of nuclear energy" with the aim to maintain and enhance public confidence in nuclear energy and identifying priorities for Government and industry to work together with others to enhance public engagement with nuclear energy. NNL Chief Scientist Professor Andrew Sherry was invited to lead a work stream on this area, and together with a number of experts and stakeholders developed a strategy, "In the Public Eye: Nuclear Energy and Society" that was published in 2014. The strategy proposed four main activities, one of which was:

"To establish a Concordat on public engagement with nuclear energy. This includes commitment to best practice, including building trust, clarity, dialogue and consultation."

A Concordat [7] for engaging with the public on nuclear energy, signed by all members of the NIC and other stakeholders, was developed by representatives from industry, Government, academia, trade unions, nuclear regulators, professional institutes, skills providers and NGO's to demonstrate the sector's commitment to engaging with society on nuclear energy matters. The Concordat affirms the sector's resolve to show leadership, implement best practice, listen effectively and make a difference. The four principles of the Concordat are:

Principle 1: Leadership Commitment

Companies working in the UK civil nuclear sector recognise the importance of public engagement:

- We take society's attitude to nuclear energy seriously and place high priority on public engagement across our organisation.
- We embed public engagement in our organisations' strategic and operational plans.
- We provide the leadership and resource needed to encourage and enable our people to engage with society.

Principle 2: Best Practice

Our engagement with the public will be characterised by:

- **Dialogue:** We value two-way communication and will listen to the public voice.
- **Trust:** We seek to build public trust by showing respect and being open and transparent about the challenges we face and the actions we are taking to address them.
- **Clarity:** We ensure that public engagement is characterised by clear, consistent and concise information written or spoken in plain language.
- **Consultation:** We listen to communities and actively consult with them, particularly when our activities impact on daily life.

Principle 3: Effective Communicators

We recognise that our people are ambassadors for the sector and that independent experts as well as industry leaders have an important role to play in public communications:

- We promote public engagement within our organisations and it is reflected in staff policies.
- We support our people to engage with the public by providing appropriate training, resource and opportunities.
- We act individually and collectively to build understanding and awareness of the positive impact of our sector on society.

Principle 4: Making a Difference

We recognise the importance of public attitudes to nuclear energy and regularly assess progress in fostering engagement with society:

- We evaluate public opinion surveys relevant to our business and seek to better understand society's attitude to civil nuclear energy.
- We review and continually improve our public engagement programmes, building on successes and learning how we can be more effective.
- We work together to collaborate in public engagement and share good practice.

A public dialogue study was undertaken in 2016 by project partners NNL, Sellafield Ltd and Welsh Government, which involved a series of public dialogue workshops that explored the UK public's views on the Concordat and resulted in a series of recommendations from the UK public (see case study in Section 4.5.1.). The next step is for the findings from the study and the recommendations to be considered by the project partners and then by wider industry to determine how to take into account the view of the public in the implementation of the Concordat. Learning from the public dialogue study has been taken into account when developing the toolkit in Section 4 of this report.

Implementation of the Concordat will adopt best practice in public engagement defined as: to ensure clarity that enhances an appreciation of energy matters; to build trust through mutual respect, openness and transparency; to enable dialogue that provides opportunities to listen and address issues in the public mind; and to facilitate consultation with local stakeholders on the practical outworking of government policy with respect to nuclear.

The strategy harnesses existing activities and resources, including the nuclear workforce, trade union members and independent experts, and remains flexible and targeted through modern channels from national, to individual levels. The strategy takes into account the diversity of target audiences, by providing a number of channels that allow effective engagement with different sections of the public. It is therefore important that appropriate communication channels are created and maintained with as many sections of society as are needed, which subsequently enhance awareness of nuclear power among the public.

Central and Welsh Government, industry, private sectors, academia and the general public all play key roles in initiating and promoting effective public engagement using the appropriate channels. The distinction between national, local and individual engagement is key, as the practical outworking of government policy can be felt more by local populations far more than it does at the national level; greater emphasis should therefore be placed on dialogue and public consultation at the local level where the outworking of policy impacts directly on peoples' lives. The range of public values and priorities must therefore be understood in the context of nuclear power developments to help develop sustainable practices that meet the needs of the people, particularly at the local level.

By signing up to the Concordat, companies commit to take society's attitude to nuclear power seriously, to carry out public engagement in an open and transparent manner, to recognise the important role the workforce plays as ambassadors and to review progress in communicating and engaging with the public. These commitments are aligned with International Atomic Energy Agency (IAEA) recommended best practice [9] on transparency, openness and engagement. The NIC strategy includes an action for the NIC to "*work with universities, research institutes and others on programmes that improve understanding of radiation and how it is used in society and managed within the nuclear industry*". The Concordat and the NIC strategy has helped to develop a consistent nuclear narrative highlighting the contribution nuclear energy makes to benefit society. The Nuclear Industry Association (NIA) has recently published a Key Messages Factbook [10] which provides a narrative.

The UK nuclear industry has made progress over recent years in engaging with the public in order to understand the important issues and concerns around proposed developments within the industry. EDF Energy has opened visitors' centres at all their nuclear reactor sites, and Sellafield Ltd has supported the development of "The Sellafield Story" at the Beacon museum in Whitehaven, West Cumbria. Initiating public consultations and entering a two-way conversation through Sciencewise dialogue projects on topics such as Generic Design Assessment (GDA) [11] for new nuclear reactors, and Geological Disposal Facility (GDF) [12], have also been important in ensuring public views are reflected with key policy elements.

Without seeking to listen and understand the public's views and concerns, the industry will be unable to address them effectively, and will find that neither the political mandate nor the industrial backing will be sufficiently robust to deliver the transformation in energy infrastructure over the extended timescales required. Engaging with civil society on nuclear matters is therefore imperative.

The EU has solid foundations in its commitment to public engagement (participation) under the provision within the United Nations Economic Commission for Europe (UNECE) Aarhus Convention on access to information, public participation in decision-making and access to justice in environmental matters. The Aarhus convention which came into force in 2001 established a number of rights of the public (for individuals and their associations) with regard to the environment, for example, the right of everyone to receive environmental information that is held by public authorities, and the right to participate in environmental decision-making. Further, it includes the right to review procedures to challenge public decisions that have been made without respecting the two rights listed in the previous sentence or environmental law in general (access to justice). The Aarhus convention also notes that public involvement must be based on two-way dialogue (top – down mainly communication, bottom – up, public participation in the decision making).

Principle 2 of the UK Concordat states that value is placed on two-way communication and that industry will listen to communities and actively consult with them, particularly when the sector's activities impact on daily life. These two characteristics of the best practice principle will help to enhance public participation in decision-making. In the EU toolkit that is presented in Section 4 of this report, principle 2 is further developed by recommending that the public should be involved in decision-making from the earliest stage possible, so they can have real influence on the way that the ultimate objectives are achieved.

2. Methodology for Development of EU Toolkit

An objective of the study was to assess the applicability in a European context of the principles for public engagement developed as part of the UK focused Nuclear Energy and Society Concordat for Public Engagement. NNL representatives visited stakeholders in France, Finland and Germany as a 'fact-finding' exercise. These countries were selected in part due to the willingness of stakeholders to participate in the study and to provide a spectrum of the involvement of nuclear as part of the energy mix. Further details of the role of nuclear in each country are provided in the following section. It is recognised that a gap in the study exists in not having direct feedback from a Central / Eastern European country. Stakeholders included industry communications professionals and representatives from NUGENIA, academia, Technical Safety Organisations (TSOs) and Non-Governmental Organisations (NGOs). Meetings held in each country were used to discuss how the UK Concordat could be adapted for use in each country, to obtain feedback on the UK Concordat from other nations and to learn about public engagement in each country. The output of the meetings has been used to assess the applicability of the UK Concordat principles for use in a European context. NNL analysed the findings from French, Finnish and German stakeholder meetings as an internal exercise, drawing also from UK experience.

Using input from the stakeholder visits and NNL-led internal research programmes on public engagement, guidance has been developed and is presented in the form of a toolkit. Adaptation and implementation of the toolkit will enable NUGENIA members to enhance their engagement with the public / civil society on key nuclear issues, which can be used as a basis for further developing public engagement strategies. This toolkit includes guidance for the nuclear industry workforce and communications professionals on implementation of the principles, instruction on how to create a supporting nuclear narrative, and highlights tools that may prove useful in implementing public engagement strategies. Individual case studies from the UK, France, Finland and Germany have provided examples of how the Concordat could be adapted to suit the needs of each country. Given the multitude of organisations with various roles and responsibilities across national nuclear sectors, it would not be appropriate to make a rigid recommendation for one individual body or organisation to act as a sole foundation or structure for a set of principles or commitments in a Concordat type agreement. Some examples of individual bodies or groups of organisations that could take part are as follows:

- Industry trade associations
- Nuclear societies
- Government departments
- Groups of reactor operators

NNL have also conducted an internal exercise to make recommendations for where the EU toolkit might best be hosted and how it could be disseminated across EU nuclear nations.

The methodology for development of the EU nuclear public engagement toolkit is shown in Figure 3.

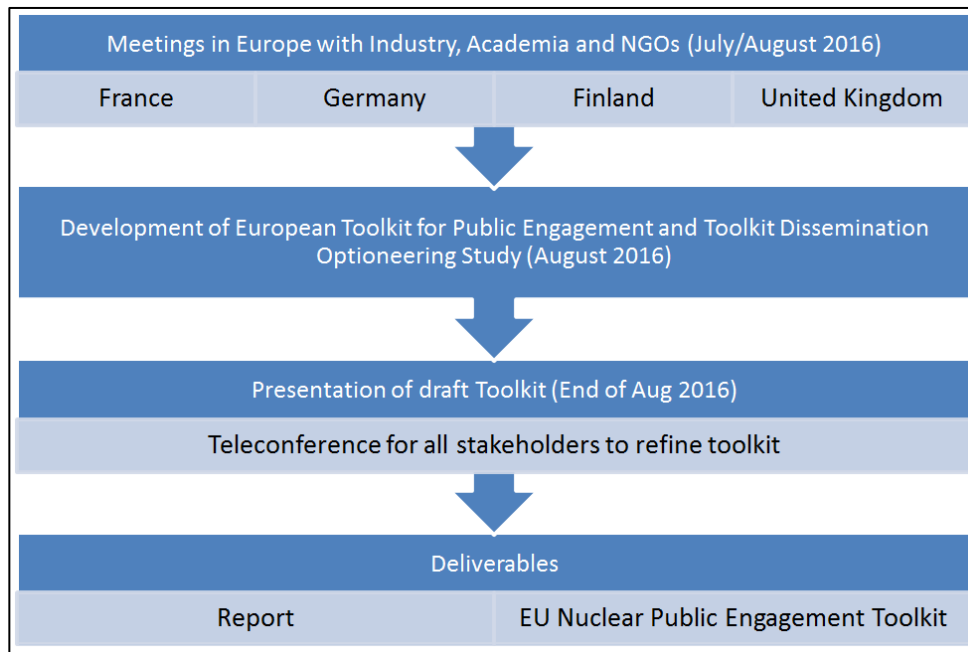


Figure 3: Methodology for development of the EU Nuclear Public Engagement Toolkit

2.1. Preparation of Meeting Materials

NNL outlined a meeting structure in advance of the stakeholder meetings to ensure the time would be utilised most effectively to capture information considered useful for developing the toolkit. A slide pack was created (see Appendix 1 – Example Interview Presentation) based on ten key topics that NNL considered particularly important; topics are listed below and form the structure of the analysis in Section 3 of this report:

1. History of Public Engagement
2. Public Support and Trust
3. The UK's 'Nuclear Energy and Society Concordat for Public Engagement'
4. Concordat Guidance Documents
5. Nuclear Narrative
6. EDGE Self-Assessment Tool
7. Tools and Approaches to Public Engagement
8. EU Nuclear Public Engagement Toolkit (including hosting and dissemination)
9. Public Engagement Case Studies
10. Further Comments

This standard structure for all stakeholder meetings allowed the information and feedback received to be easily compared. The slide pack was issued a few days in advance of the meetings to allow some reflection and thinking time for stakeholders in preparing answers. It is recognised that it would have been beneficial to allow more time for stakeholders to prepare answers, however this project was subject to challenging timescales and was unfortunately timed during the holiday period. Hard copies of the UK Concordat, NIA's 'Nuclear Factbook' and the UK's National Co-ordinating Centre for Public Engagement's (NCCPE) EDGE Self-Assessment Tool were provided for stakeholders to review during the meetings.

A number of stakeholders had produced a presentation to introduce their organisation and to provide a high-level overview of public engagement in their organisation and/or country. Meetings were scheduled to last between two and three hours, and it was not

possible to discuss all the questions in depth during that time. However, NNL representatives were familiar with the latter questions in the slide pack so were able to direct the conversation towards answering as many of the key questions as possible. All stakeholders responded to the questions with good grace and effectively translated their opinions into information that could be useful for the development of the toolkit. Stakeholders did not answer all the questions, partly due to time constraints, but also because not all of the questions were appropriate to each stakeholder.

Following each meeting, NNL provided a summary of stakeholder responses in the form of a table, which stakeholders promptly returned to NNL with further comments and amendments. While Section 3 of this report presents the responses from each country, a consensus between individual stakeholders from each country was not necessarily reached for each question.

2.2. Stakeholder Workshop

Following the stakeholder meetings, the records in the form of stakeholder-verified meeting notes plus the presentations and data supplied by stakeholder participants was used to create a draft toolkit as described in Section 2. The draft toolkit comprised the following elements:

- Concordat
- Guidance Documents
- Nuclear Narrative
- Assessment Tools
- Case Studies from Finland, France, and Germany

The draft toolkit was distributed to all respondents, including stakeholders who NNL had made contact with but who had been unable to meet with NNL representatives at the stakeholder meetings. All stakeholders were invited to review the toolkit and to provide comments and suggestions for improvements at a workshop-style teleconference. Those stakeholders who were unable to attend the teleconference were also invited to provide comments directly to NNL for inclusion in this report. Some stakeholders did respond in this manner and their comments have been incorporated.

The aim of inviting review and comment at this stage was to draw upon the views and expertise of the experienced communications professionals and independent academics working in a relevant field. Familiarisation with the draft toolkit was developed through the initial stakeholder meeting with NNL.

The teleconference was organised in a structured manner, with the objective of capturing specific feedback on each section of the draft toolkit. The discussion within each section focused on encouraging participants to express their views. The time allocated for the teleconference was found to be sufficient for all the participants to be able to offer their suggested amendments and comments. A copy of the agenda for the teleconference is included in Appendix 3 – NUGENIA+ Public Engagement Toolkit Review Meeting.

The suggestions and views offered by the participants were noted during the teleconference and then taken forward alongside the written feedback in the revision of the draft report into this final version of NNL's report.

2.3. Nuclear Power in Selected EU Countries

2.3.1. Nuclear Power in the UK

The UK has 15 operating nuclear reactors producing about 21% of its electricity. In addition, it has a significant range of legacy sites and facilities covering the full fuel cycle (including reprocessing) [14]. Much of this infrastructure was developed in the 1950's and 60's in support of efforts to produce energy and plutonium. Since then, public support has been mixed. At present, 41% of the British public support the replacement of existing nuclear plants, with 20% opposing (39% are undecided) [13].

The majority of UK nuclear generating capacity is due to shut down by 2025. Consequently, there is a large focus on the potential for new nuclear build proposed at existing nuclear sites at Hinkley Point, Bradwell, and Moorside (adjacent to Sellafield). The board of EDF gave the go ahead for construction of Hinkley Point C in July 2016 and the project was subsequently given final approval from the UK Government in September 2016. For further information on the development of nuclear power in the UK and public engagement activities, please see [14].

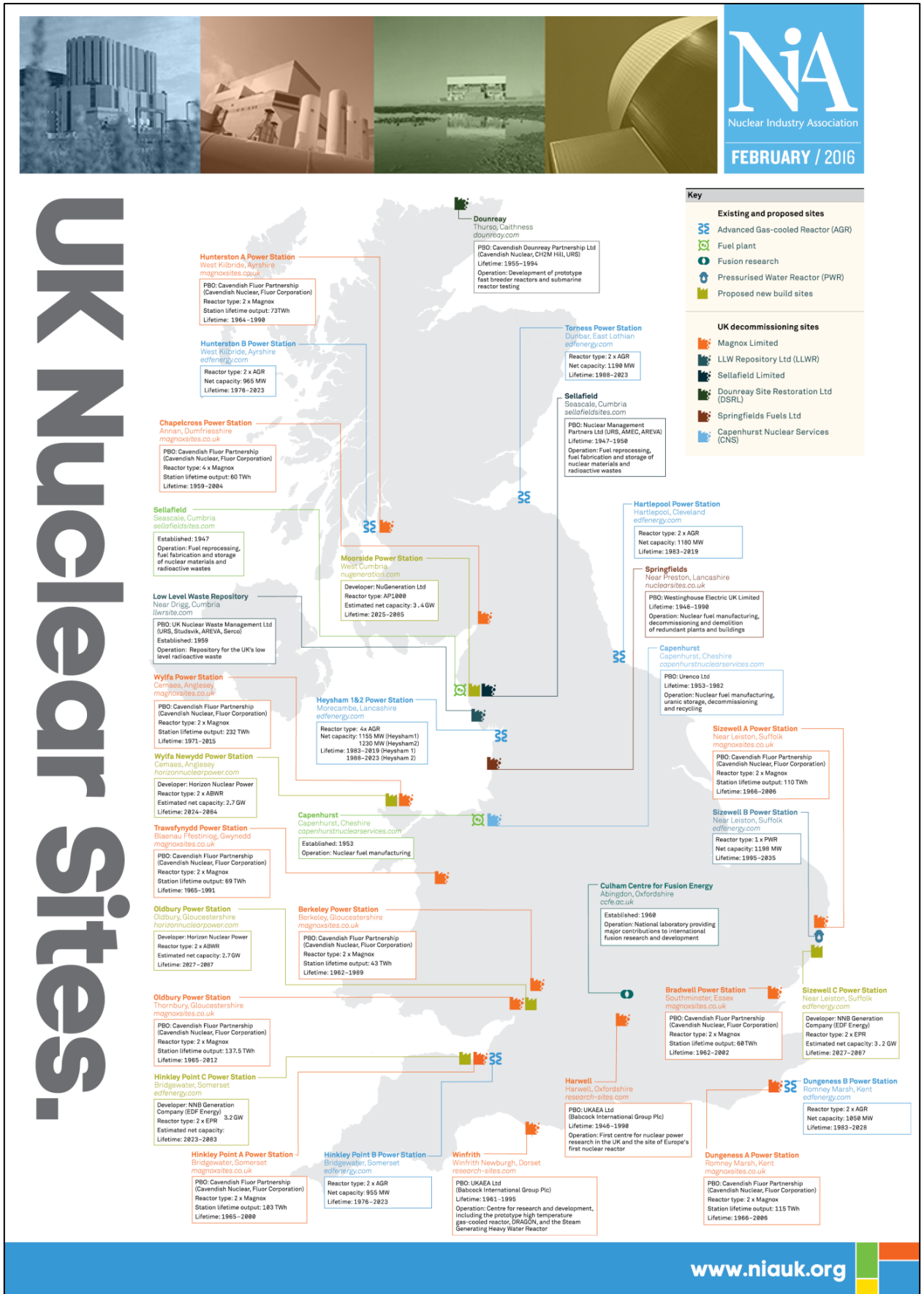


Figure 4: UK nuclear sites (NIA, February 2016)

2.3.2. Nuclear Power in France

France produces about 75% of its electricity from its 58 operating nuclear power stations. There is an expectation that this will be reduced to 50% by 2025. France exports a significant amount of electricity, earning about €3bn per year [15]. France has access to full fuel cycle capabilities. Significant restructuring of France's principal nuclear companies is ongoing, with Areva expected to be partly sold to EdF.

In 2013, despite France's prolific nuclear industry, only 36% of the public supported the use of nuclear energy, with 14% opposed (34% were hesitant and 16% had no opinion) [15]. Recent polling by Ifop found 53% of the public in favour of keeping nuclear power plants open and 47% in favour of closing them [16].



Figure 5: Nuclear power in France [15]

2.3.3. Nuclear Power in Germany

Germany's nuclear industry was strongly affected by the Fukushima event in 2011. The contribution to total generating capacity from nuclear dropped by about 9% between March 2011 and 2016, corresponding to a reduction from 17 operating reactors to just eight as a result of an immediate shutdown of reactors following a political decision in 2011 after Fukushima (see Section 3) [19]. Current German energy plans include a phase-out of nuclear power as well as limiting lignite mining and a ban on shale gas extraction. [18]

Prior to the Fukushima event, polls showed that the German public was split as to whether to phase out nuclear power, or maintain it. Polls in September 2011 after Fukushima showed that "52% of Germans thought nuclear power was dangerous and nuclear power plants should be closed as soon as possible", a stark contrast to figures from 1997 which showed 81% of Germans in support of nuclear power plants continuing to operate. [19]



Figure 6: Nuclear power in Germany [19]

2.3.4. Nuclear Power in Finland

30% of Finland's electricity is produced by its four nuclear reactors. Olkiluoto 3 (EPR) is currently under construction, though the project has experienced significant delays and cost overruns. Plans for an additional unit at Olkiluoto are still under discussion and a new unit (Russian VVER) at Hanhikivi is currently undergoing site works following the environmental permit being granted in 2016. Finland is also well advanced with its geological disposal project for radioactive waste at Olkiluoto, though at present the repository's planned size is not sufficient to store waste expected to be produced by Fennovoima's Hanhikivi plant [20].

Public support for nuclear in Finland has always been fairly positive, though a 2010 study showed the widest gap between those with a positive view (48%) and those with a negative view (17%) since polling began in 1982. Finland has also experienced some of the most positive attitudes from traditionally anti-nuclear groups, such as Green supporters and young people (15-24 year olds). Regional and local support for nuclear projects has been even more favourable towards nuclear, with around 70% of the local public supporting Hanhikivi [20].



Figure 7: Nuclear power in Finland [20]

3. Analysis of EU Nuclear Public Engagement Interviews

The following section summarises the answers that were given at stakeholder meetings in response to the slide pack presented by NNL (Appendix 1 – Example Interview Presentation). A list of stakeholders that were consulted is provided in Appendix 2 – Acknowledgements. The views and points expressed in this report reflect the various views and opinions provided by the authors and contributors and do not necessarily reflect those of the organisations to which they are affiliated. In many cases, a consensus was not reached between contributors representing the same nation, for example, not all French stakeholders held the same views on a particular topic.

The learning included in this section of the report has been used to inform the further development of an EU Nuclear Public Engagement Toolkit (see Section 4) that is based on the UK's Concordat and supporting materials.

3.1. History of Public Engagement

Q. How would you describe your country's approach to public engagement with nuclear issues?

- What infrastructure is in place?
- Is it consistent across all nuclear organisations?
- How has the approach changed over time?

Q. On a scale of 1 to 10, how effective is the current approach to nuclear public engagement in your country?

Q. How are the public involved in decision-making on nuclear issues?

France

In 2006, the Transparency and Security in the Nuclear Field Act (TSN Act) was adopted, which set out a number of principles of transparency related to the country's nuclear activities. One outcome of the TSN Act was the formalisation of France's Local Information Committees (CLI), which resulted in the legal basis for the CLI. Starting with the first French commercial nuclear power plant in 1977, France has developed a network of almost 40 CLI that are located in the vicinity of all basic nuclear installations¹ (Figure 8).

¹ A 'basic nuclear installation', or INB (Installation Nucléaire de Base), is the term used in France for a fixed nuclear facility. This is different to a mobile nuclear facility, such as a nuclear powered submarine.



Figure 8: Map of French CLIs

The duty of the CLI is the *"general follow-up, information and consultation mission in the field of nuclear safety, radioprotection and the impact of nuclear activities on persons and the environment as far as the site installations are concerned"*, and they facilitate regular updates from the facility authorities to the public regarding site activities, incidents, and release of radioactivity into the surrounding environment. CLIs are required by law to meet at least twice per year, with a minimum of one of these meetings being public. CLI representatives include at least 50% elected officials (as mayors), and at least 10% from each of the following categories: environmental protection NGOs, representatives from nuclear operators' trade unions and "qualified persons". While these are considered to be information sharing meetings, as opposed to opportunities for joint decision-making between the nuclear sector and the public, the local population do participate in emergency exercises through the CLI, which are generally viewed as a positive experience that enhances public perception of the nuclear sector. The CLI are considered to be an essential link in consultation and transparency at a local level. In 2000, the National Association of Local Information Commissions and Committees (ANCCLI) was established as a federation that would represent the CLIs at the national and European levels, while providing mutual assistance for matters of common interest across CLIs. While the CLIs facilitate public engagement among nuclear communities, there is however no formal organisation that engages with the public in non-nuclear communities.

While the approach to public engagement across France is relatively consistent through the CLI, the styles adopted by individual French nuclear organisations tend to differ. For example, IRSN launched their "Charter for Openness to Society" in 2009, which sets out IRSN's commitments to improving accessibility of information for the public concerning basic nuclear installations. While other French nuclear organisations have not developed such a charter, the larger organisations tend to have infrastructure in place to provide support and training for its workforce to engage with the public on nuclear issues, for example, EDF give information to their employees so they can talk about the nuclear industry informally, and also host public open days at their facilities and have visitors centres. Generally, severe accidents and events (e.g. Chernobyl and Fukushima) have acted as points of change in approach to public engagement for nuclear issues in France. The overall trend can be summarised as becoming increasingly open, transparent and pro-active over time. Additionally, improvements have been made in the way that

information is communicated to make it understandable to lay people and accessible to all.

On a scale of 1 to 10, the answers provided by French interviewees ranged between 5 and 9 out of 10, indicating that the French approach to public engagement with nuclear issues is perceived to be generally effective, while also indicating there is room for improvement.

In France, the authorities make major infrastructure decisions and there is historically a vertical decision-making culture. In the run-up to major infrastructure decisions there are public debates, enquiries and opinion surveys carried out, however the public do not necessarily act as key decision-makers. A 2014 survey by the National Commission for Public Debates (CNDP) indicated that 66% of the French population believe public opinion should be listened to directly. However, the public do not tend to ask for debate; instead, NGOs pro-actively seek debate and participate actively, which can lead to violent protests and interruptions in the debate.

Over time, the French public have become increasingly involved in the decision-making process for nuclear developments. At the beginning of the French nuclear sector the public had little say on the matter of constructing new nuclear facilities and it is now widely accepted that the French public should participate in decision-making. Currently the French public are directly engaged in the decision-making process through public debates. The information given to the public has also been reinforced, for example, through provision of safety reviews of the safety case via the IRSN website and inspection reports on the safety authority website. However, there is no requirement for the authorities to take public opinion into account. With on-going political ideas around rejuvenating democracy, the political situation is currently complex and changes may be made in the near future as to how heavily the public are involved in the decision-making process.

Finland

In Finland, formal public engagement on nuclear developments is largely restricted to specific stages of the four-stage licensing process, with the first step, the Environmental Impact Assessment (EIA), designated as the primary arena for public participation. The EIA process is run by the developer and coordinated by the Ministry of Employment and the Economy. Following the EIA is the Decision in Principle, which is the highest profile stage that takes place in Parliament. The last two steps are the Construction License and finally, the Operation Licence. The latter two stages are decided by government.

The role of the EIA as the primary platform for public engagement on new nuclear facilities was first established in 1994. The process was first used in Finland by Posiva in the licensing decision for the geological disposal facility, in what has since been referred to by the industry as the "EIA of the Century". During the two-year long EIA process, Posiva used a wide and comprehensive range of engagement techniques, above and beyond the minimum requirements. Posiva's EIA could be considered a success, as local acceptance of the proposed GDF was sufficiently high that the project has since proceeded to the construction phase. The EIA process has become much more standardised since these early days, and is now managed on behalf of developers by a few specialised consultancies.

In terms on ongoing engagement with the public, operators manage their communications independently, commensurate with their differing stages (for instance, TVO and Fortum are established operators, Fennovoima is a new build company, and Posiva are currently constructing the new GDF). Some coordination exists in the form of joint working groups and through the Energiategollisuus organisation, which collects and distributes industry information. Operators have reported very positive outcomes from

in-person communication, highlighting in particular the success of visitors' centres such as the one at Olkiluoto.

Public participation from outside of the industry also occurs through NGOs. In Finland, the approach of these organisations tends to be increasingly towards fact and evidence based communication. This approach appears to resonate better with Finnish society, who has been consistently described as generally sharing a practical "science and engineering mind-set", and responding better to factual information. NGOs participate actively in industry consultations and industry-led engagement processes, largely out of a sense of duty rather than in expectation of radical outcomes. Indeed, society in Finland has been described as generally rather politically passive and lacking in a radical element. At the same time, expert opinion is generally trusted in Finland, and the democratic process is well-respected. While this may mean dissent is the exception rather than the rule, it is noted that a plurality of views and voices is generally considered healthy for public debate, and should be encouraged in order to foster true engagement and discussion.

Germany

In general terms, the background in Germany is a society which is currently anti-nuclear, and in favour of renewable technologies. Historically, this has evolved with the changing political climate and world events. Until March 2011, Germany obtained a quarter of its electricity from nuclear energy from 17 operating nuclear reactors. A coalition group formed between the Social Democratic Party (SPD) and the Green Party (the 'Red-Green' coalition) after the 1998 elections had a policy for phase out of nuclear power. The phase out was cancelled in 2009 with a new Government but then implemented in 2011 following Fukushima with 8 reactors shut down immediately. German nuclear power began with research reactors in the 1950s and 1960s with the first commercial power plant online in 1969. Until the 1970s there was no public engagement on nuclear issues. During the 1970s attempts at public dialogue and engagement were made as Germany saw an increase in anti-nuclear activism followed by the rise of the Green party. These attempts yielded mixed results until the accident at Chernobyl which was a serious setback to public confidence. Communication of nuclear issues began to decline after the government changed its position on nuclear in 1998, but new engagement approaches were used successfully.

In June 2001 the leaders of the 'Red-Green' coalition government and the four main energy companies signed an agreement to limit the remaining operational lives of the reactors to an average of 32 years, and to prohibit the construction of new nuclear power plants. The communication objective shifted from increasing support for nuclear, to attempting to keep public opinion from further decline. Anti-nuclear initiatives are now focusing on decommissioning activities, but there appears to be little resonance with the public.

Since the mid-2000s, small communication campaigns have been applied in a stop-start fashion without much longer-term consistency. About a decade ago an online discussion forum failed to reach the middle-ground "undecided" members of the public and was dominated by extreme views. Public engagement focused on the 1/3 of public that had "no opinion", and the issue of climate change was used to promote nuclear energy, which had little impact. Attempts were made to gather scientists for testimonials, but not many wanted to publically speak out as pro-nuclear, so a successful campaign could not be delivered. The most recent campaign was a 'city cards' approach by Deutsches Atomforum (DAtF) that looked to reach out to younger people in bars in Berlin - the campaign was not wide-spread however. The objective of the campaign was to raise awareness and promote discussion on nuclear energy amongst members of the public.

Since the Fukushima accident in 2011, the drive to strengthen communications has significantly waned and there is now no more pro-active communication on nuclear within Germany.

Alongside anti-nuclear sentiment that political climate and nuclear accidents have created in Germany, historically many nuclear companies have held a parochial view on public communication. They often believed it was the public's duty to understand and accept, and it was not their responsibility to explain technical nuclear issues. This approach has been exploited by anti-nuclear groups, who claim the industry is arrogant.

Nuclear generation companies now keep a low profile in a predominantly anti-nuclear environment with the eventual phase out of nuclear power planned in Germany. Public engagement is focussed almost entirely on providing information and answering questions. Currently, the German nuclear industry is highly fragmented and all organisations are trying their best to survive. Nuclear operators and fuel cycle companies provide their own specific communication to the public, although each has a different remit on communication. Nuclear operators have a limited lifetime and are generally ramping down their public communication, while some have completely closed on-site communications facilities.

The Deutsches Atomforum is responsible for providing general nuclear related information to the public and has used media such as YouTube, Twitter, brochures and websites. It was founded in 1959 and its members include companies and organisations working with and involved in all areas of nuclear technology. DATF sees its role as a service provider for external and internal communication relating to nuclear energy and nuclear technology, both to the general public and to particular target groups, such as politicians and the media.

Social media is generally not considered as a trusted communications channel in Germany, and the public do not tend to proactively seek information.

The German approach to nuclear public engagement is well balanced when considering nuclear safety, with the public belief that German nuclear engineering is world class, despite some erosion of confidence after the Fukushima accident. However the issue of waste treatment is much more problematic in Germany. On a scale of 1 to 10, describing the effectiveness of the current German approach to nuclear public engagement, a figure of 2/10 was suggested as there is no consistent approach.

3.2. Public Support and Trust

Q. How has public support for nuclear energy in your country changed between the start of the nuclear sector and now?

Q. Is the level of public support/opposition different in nuclear and non-nuclear communities in your country?

Q. Who is most trusted by the public to communicate scientific information in your country?

- How well do you think the European trust profile reflects that of your country's profile and what are the obvious similarities and/or differences?

France

Public support for nuclear energy has been positive since the start of the nuclear industry in France and something that many French people are proud of. However, public support has eroded slowly over time and Figure 9 shows that since the turn of the century the

proportion of the French public that wish to see nuclear power phased out in France has gradually grown.

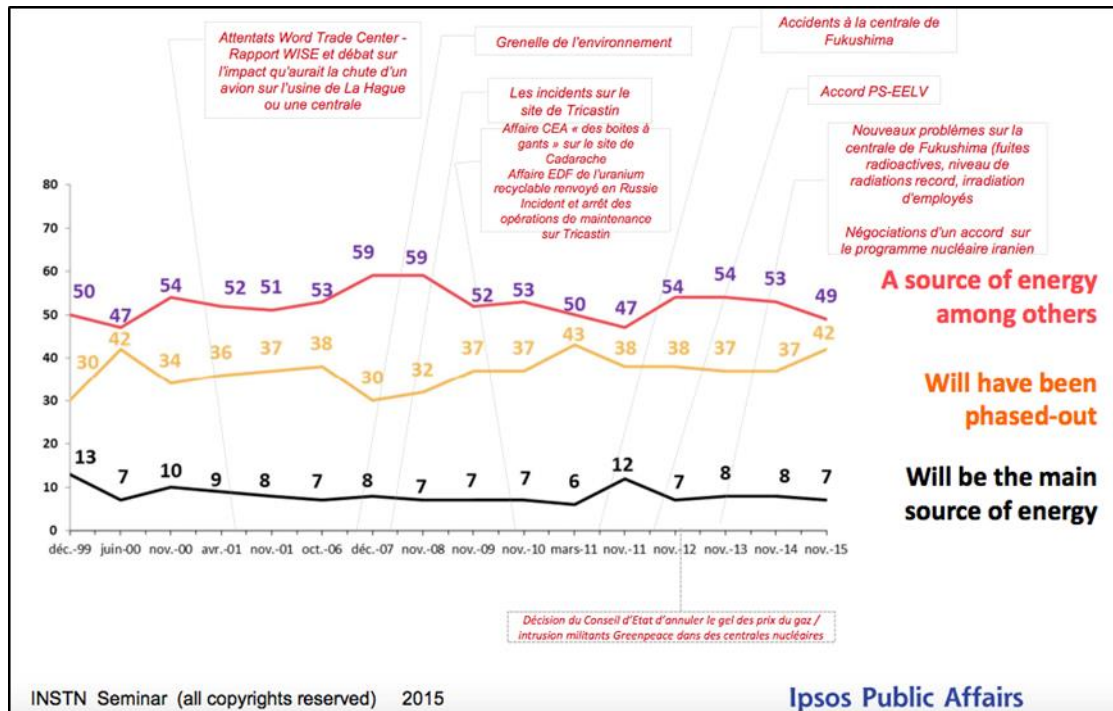


Figure 9: Ipsos Public Affairs survey – “What is your wish for the future of nuclear energy usage in France?”

Currently, strong vocal opposition to nuclear energy in France is in a minority and is focused mostly towards issues associated with waste and accidents, however, supporters of nuclear energy are not particularly vocal and their opinion is not often expressed.

Nuclear communities are strongly in favour of nuclear power in France, likely due to the financial and employment benefits that local communities receive. There is also a clear separation between civil nuclear and defence activities in France, and although they were one entity in the past, they now have separate authorities and operators. "Commissions of Information "(CI) have been established near the nuclear facilities related to defence activities, as well as a CLI for the future fusion facility ITER. There has been little opposition near defence facilities, ITER and the new nuclear build at Flammanville. Most opposition is around nuclear power plants, and the future radioactive waste geological disposal facility because of the long-term environmental consequences.

Scientists, medical professionals, teachers and opponents to nuclear energy are considered among the most trustworthy groups to give information on nuclear issues, according to the French public. The lesser-trusted groups are politicians, the government, local representatives, unions, the media, journalists and the CLIs. Figure 10 shows which groups and organisations are considered to be trustworthy and competent when providing information on nuclear issues. Organisations that are part of the French nuclear sector are considered competent on the whole, though they are considered less trustworthy than independent organisations.

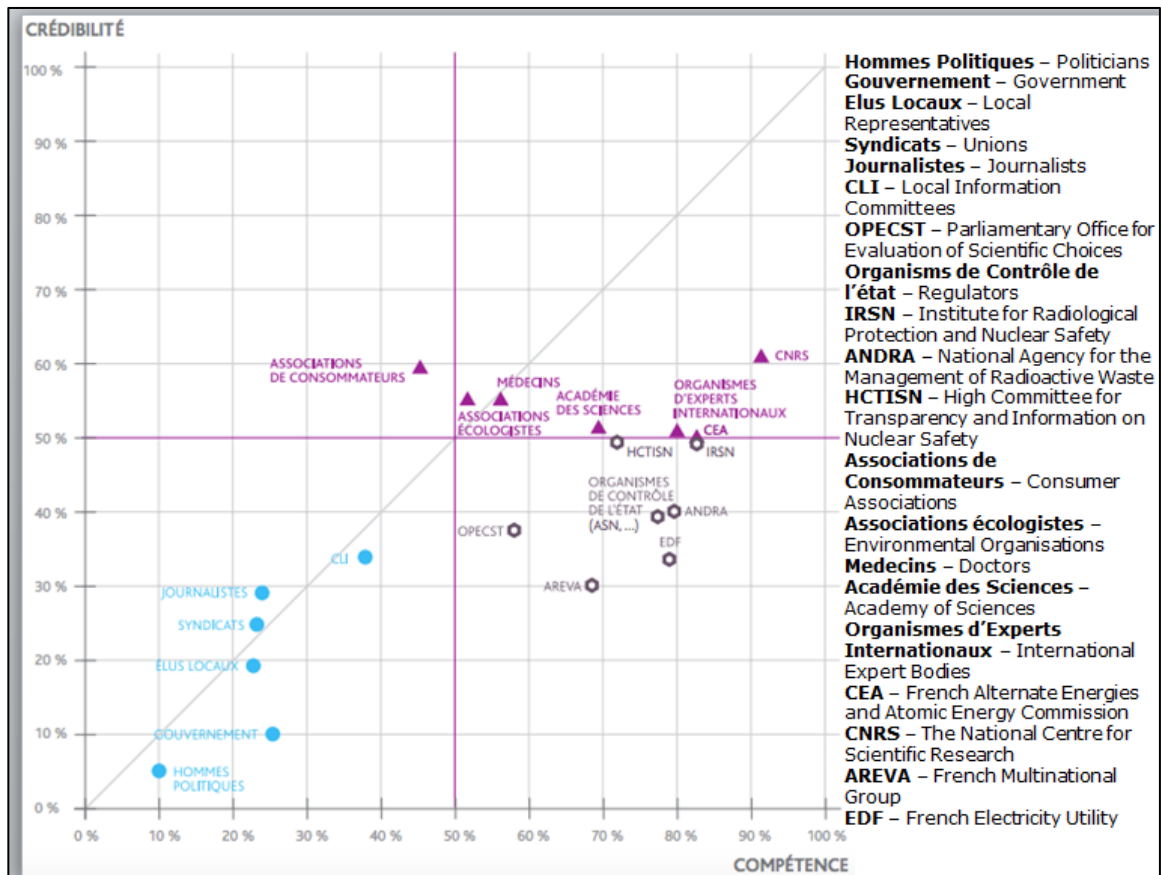


Figure 10: Illustration of the level of credibility and competence that French society places on nuclear organisations and stakeholders (IRSN Barometer 2015).

On the whole, the French profile for who the public trusts as a source of information on nuclear issues reflects the European trust profile very closely (see Slide 7 in Appendix 1).

Finland

The nuclear power industry in Finland began with a research reactor in the 1960s and a commercial reactor in the 1970s. There has been an open and honest approach to public engagement from the start of the commercial nuclear power sector, and in the early days of the industry, the public was very supportive of nuclear. Around the time of planning for a fifth reactor, some anti-nuclear sentiment began to grow. During this era, anti-nuclear groups made use of "counter-expertise", drawing support from scientists and engineers. The Chernobyl reactor disaster in 1986 did impact the acceptance of nuclear power in Finland, which experienced a sharp drop in support. Figure 11 shows this in poll data collected between 1983 and 2015. The chart shows that the sudden decline in the years immediately following the accident were followed by a general increase in acceptance to current levels, noting another decline in sentiment following Fukushima in 2011. The generally high levels of public acceptance of nuclear may in part be attributed to the market-based decisions to deploy nuclear power plants, keeping them separate from the state and independent of public funding. This is in addition to the open approach to engagement that has been adopted since the early 1970s.

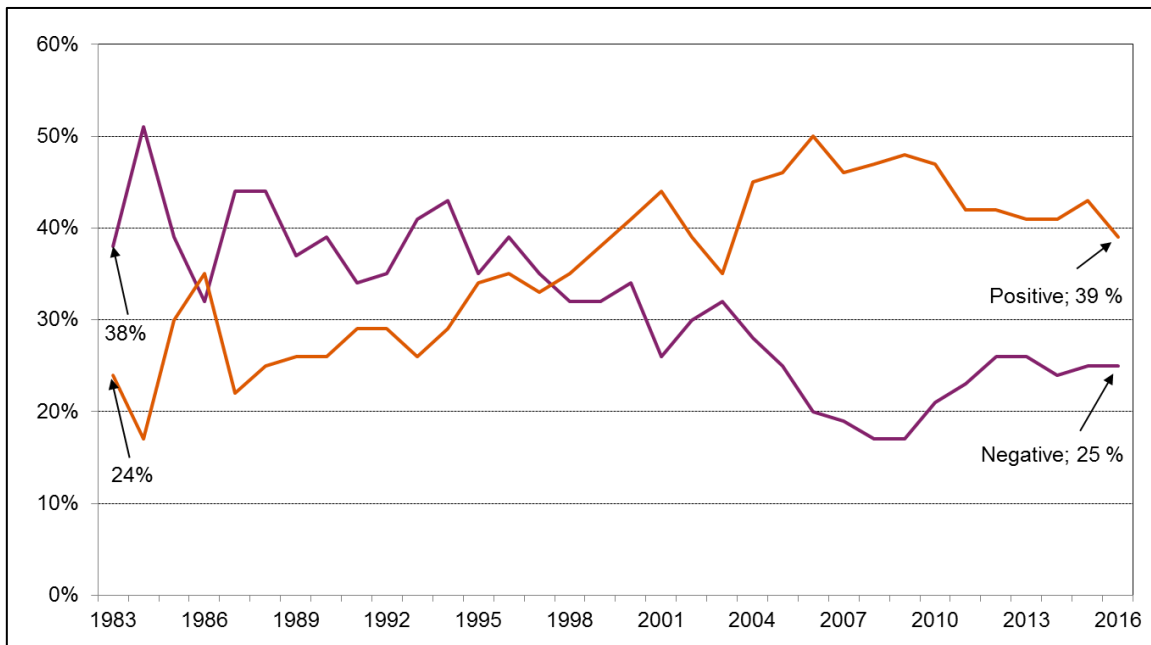


Figure 11: Development of the acceptance of nuclear power in Finland 1983 – 2015 (1983 - 2004 Gallup omnibus, 2006- telephone interview)

Public attitudes towards nuclear do differ between local communities and the wider public. Municipalities which currently host nuclear sites tend to be very pro-nuclear and in favour of new installations at these sites. In Finland, income taxes are spent in the local area, meaning that the positive economic impact of the installations is noticeable in daily life, in the form of good facilities for local residents. Furthermore, the existing nuclear sites have been in the area for a long time, and the communities have grown up alongside them. Due to the generally remote locations of NPPs, the communities surrounding them tend to be quite small, and everyone knows someone who works at the plant. This tends to promote acceptance through personal connections.

The Finnish mind-set has previously been described as an "engineering mind-set", with the public responding to factual information and reasoned debate. This predisposition to technological subjects and information is seen reflected in the results of a study expressed in Figure 12, provided by VTT, which shows that a relatively large percentage of Finns are engaged in science and engineering compared to other countries. This is supported by the relatively large proportion of GDP attributed to R&D activities.

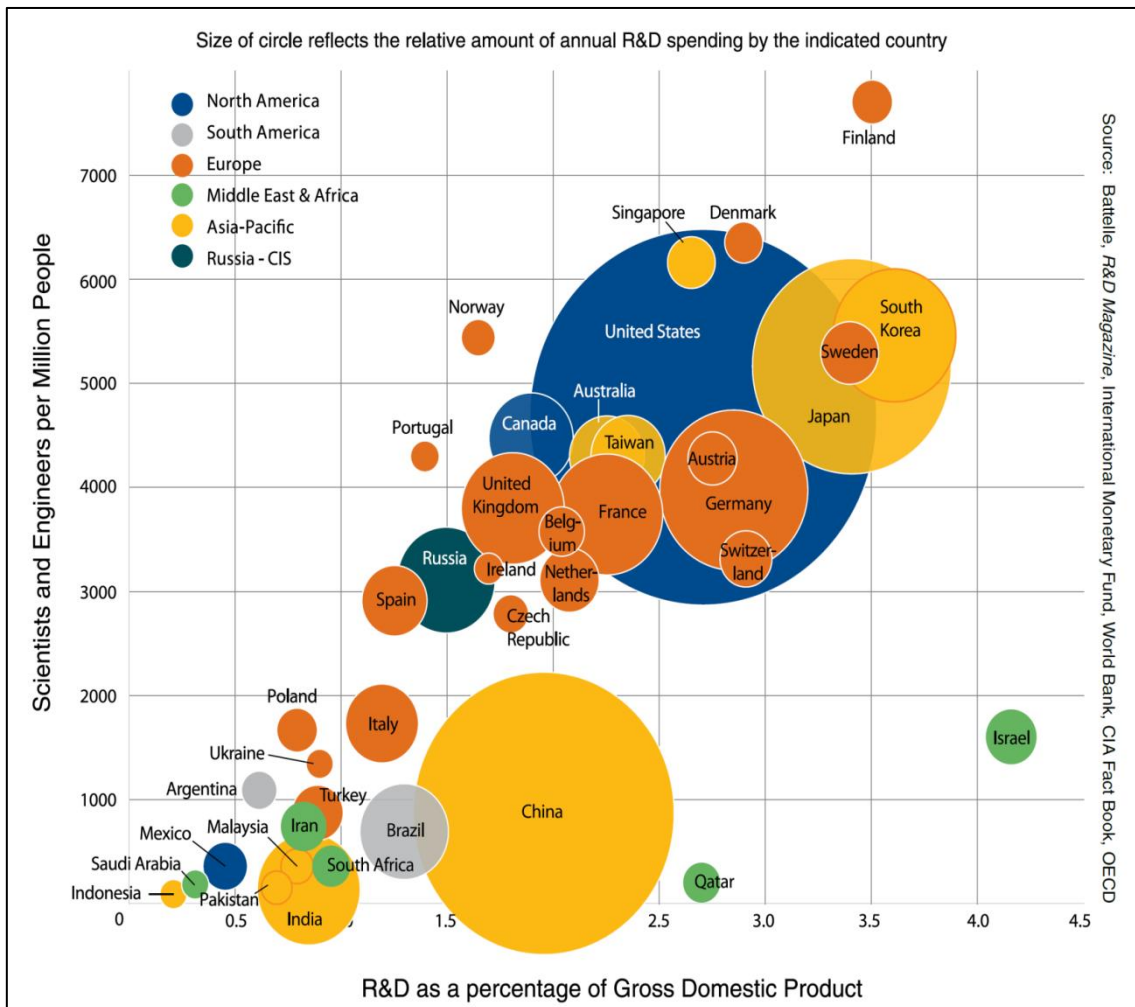


Figure 12: Science and engineering, and R&D contribution to GDP in Finland

In tandem with this technological and scientific bias, Finnish society has been described as very “open”, “highly democratic”, and characterised by a high level of trust in public institutions, such as the civil service and the courts.

In keeping with this cultural backdrop, Finnish respondents report an attitude of trust towards the nuclear regulator STUK, and energy-sector researchers / research institutes, who are rated as “very reliable” in the data presented in Figure 13 which was provided by TVO. The next three most reliable entities are The Ministry of the Environment, The Ministry of Employment and the Economy / Department of Energy, and the WWF. Compared with the European trust profile, this suggests a higher than average trust in industry scientists and government representatives. At the lower end of the index are nuclear companies, Greenpeace, and in last place, the Government and political leaders. Again, the lack of trust in an organisation such as Greenpeace differs from the overall European trust profile. However, the lack of trust in industry and in politicians is in accord with the wider European findings.

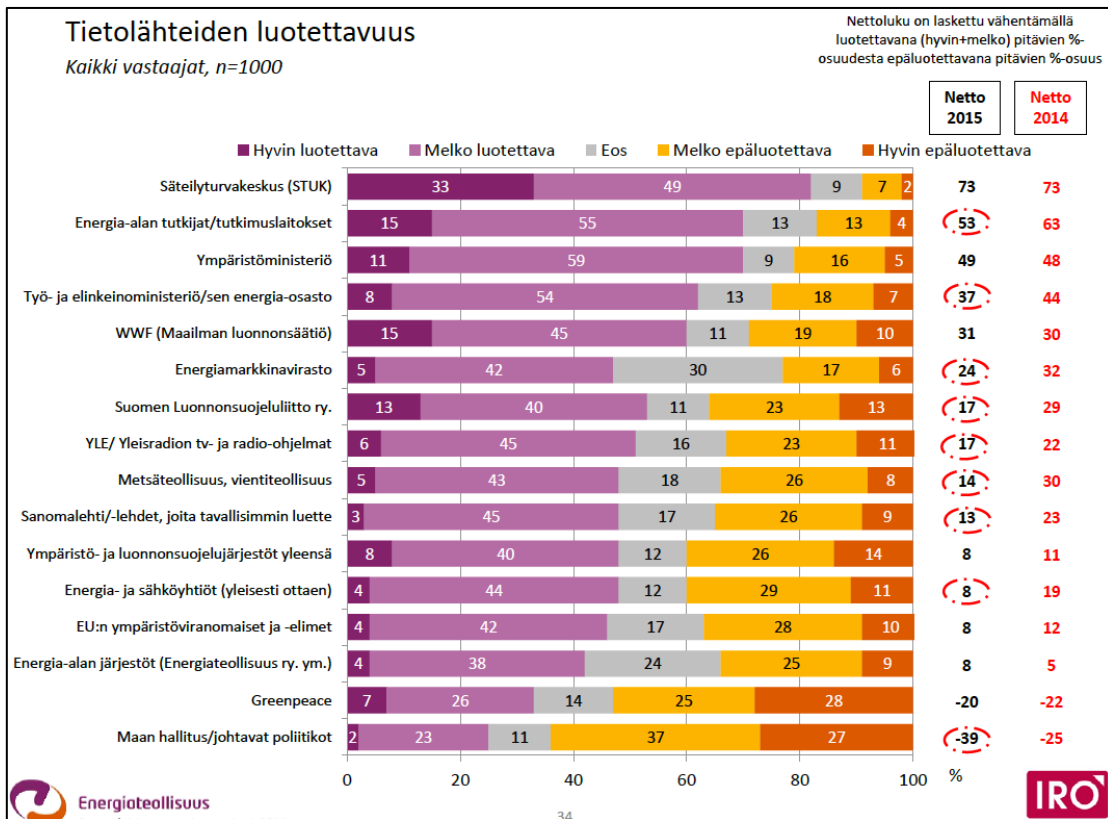


Figure 13: Who do you trust?

(in order from the top: the regulator STUK; energy-sector researchers / research institutes; The Ministry of the Environment; The Ministry of Employment and the Economy / Department of Energy; the WWF; The Energy Market Authority; Finnish Association for Nature Conservation; YLE (Finnish Broadcasting Company); the forest industry, export industry; newspapers / magazines; environmental and conservation organizations in general; energy and electricity companies (in general); EU environmental authorities and agencies; energy-sector organizations (Energy Industries Association, etc.); Greenpeace; the Government / political leaders

Overall, there are some rather significant differences between the Finnish and the European trust profiles, possibly due to Finland's high degree of trust in civil establishments, combined with a characteristic "engineering mind-set".

Germany

Since the 1970s, the public has become increasingly anti-nuclear and following the Chernobyl accident public opinion in favour towards nuclear began to decline further. Prior to the Fukushima event, 1/3 of the public was undecided about nuclear energy; after Fukushima the split became 70% against, 20% for and 10% undecided. In the 1990s 70% of journalists were anti-nuclear, with 40% of the population sharing that opinion. Now both the public and journalists are at 70% anti-nuclear. Nuclear is seen by society as being a technology of the past, with renewable energy as the future. The public are increasingly both producers and consumers (solar and wind) and do not see the need for base-load supply. The German public believe they can produce their own electricity and heat (although the opinion of German nuclear representatives is that this will cause an intermittency of supply during the winter months where there is no sunlight or wind).

Nuclear communities are more pro-nuclear, as they see the economic benefits of local nuclear plants and do not see any detrimental effects to their environment. Also having personal contacts in the industry generally increases individuals' level of trust.

Scientists are generally viewed as being "independent" as long as they are not connected to industry or Government (even if they work for organisations such as Greenpeace or NGOs). Scientists are not necessarily viewed as a source of information however. Newspaper and media journalists are viewed as being sources of advice on (scientific) information with TV journalism as the most trusted (heavily biased towards anti-nuclear), followed by NGOs and the Green Party. Writers and intellectuals are also considered trustworthy, but rarely part of public debates. Local Government is more trusted than federal Government and medical professionals and the military are less trusted. Germans trust German engineering to be safer than any other country but appear to have a tendency to trust those who draw the worst case scenarios.

The German trust profile differs significantly from the general European trust profile as public opinion is anti-nuclear and favours renewable energy.

Scientists and doctors are less trusted, as usually they are seen to work for their own or for others' interests. The exception is those scientists that are viewed as "independent", presented by NGOs.

Figure 14 shows the acceptance profile of nuclear energy in Germany from 1977 to 2014.

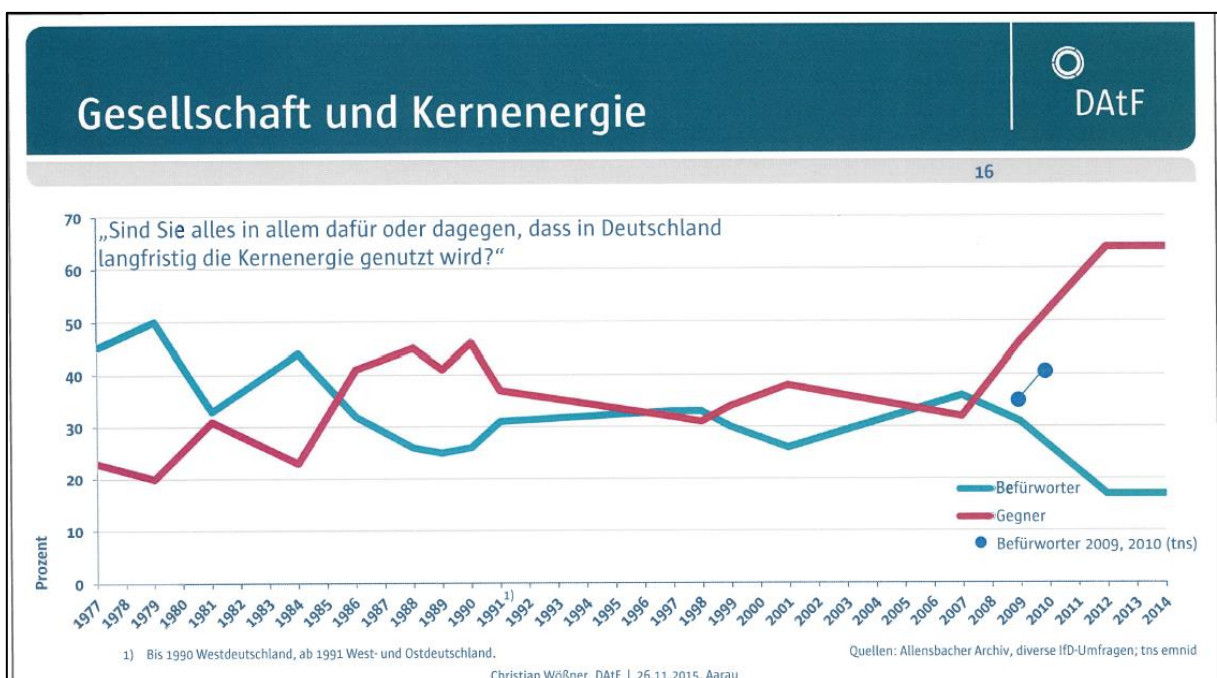


Figure 14: Acceptance of nuclear energy in Germany 1977 – 2014

Title: Society and Nuclear Energy (Gesellschaft und Kernenergie), Question: Are you for or against the long term use of nuclear energy in Germany? (Sind Sie alles in allem dafür oder dagegen, dass in Deutschland langfristig die Kernenergie genutzt wird?), Answers: Proponents (befürworter), Opponent (gegner).

3.3. The UK's 'Nuclear Energy and Society Concordat for Public Engagement'

For each of the four Concordat principles, the following questions were asked:

Q. What do you think are the flaws or negative aspects of this principle?

Q. What do you think are the positive features of this principle and its implementation?

Q. To what extent is this already applied in your country?

Q. What obstacles, if any, exist to full application of this principle and how might these obstacles be overcome in the context of your country's situation?

3.3.1. Principle 1 - Leadership Commitment

France

The feedback was mixed and it was suggested that Principle 1 could prove to be difficult to apply throughout the nuclear industry. However, it was noted that leadership commitment is important for helping the nuclear sector to recognise the benefits of public engagement, such as the role that public involvement plays in contributing towards enhancing nuclear safety.

"Engagement with civil society" forms one of the four pillars of the French nuclear sector (the others being Operators, Regulators (ASN) and TSOs (Technical Safety Organisations)), which indicates leadership commitment at the highest level. However, it is considered that this principle is applied inconsistently across the French nuclear sector.

The following potential obstacles to the implementation of this principle were noted:

- Cultural obstacles – industry leaders come from the state and the current goal is to find the best solutions in terms of continued safe operations, not to raise public acceptance of nuclear power. It is not in the history of the French nuclear sector to adopt this principle
- Facility operators may feel there is no need to engage, particularly if everything is "business as usual"
- Commercial confidentiality and security aspects regarding provision of information

It was suggested that leaders must be made aware of the benefits of public engagement for this principle to be successfully implemented, and organisations will require support from their communications department to ensure it is embedded across their organisation.

Finland

Respondents agreed that Principle 1 is important, and generally felt that there is currently good adherence to this principle within the industry. Public engagement is considered to be high on the agenda, and is understood to be a key element for industry success and was referred to as the "foundation" of the industry. Recommendations were made that a particular focus on efforts should be made at the local level, and that members of the leadership team should be available to the local community occasionally.

It was observed that NPPs and the GDF would have differing drivers for engagement, and that perhaps the need for engagement would be higher for the GDF than for NPPs due to the market base of the latter.

Some amendments were suggested to the wording, to change "we will take seriously" to "we are eager to have dialogue with the public", and to change the word "companies" to "organisations", so as not to introduce a limitation.

Barriers to implementation on the industry side might include intra-organisational priorities over time and resourcing. From the perspective of civil society, a possible barrier was identified as the previously cited political passivity and already high trust in experts and institutions perhaps limiting the appetite for debate in the public realm.

Germany

Scientists and engineers are generally not keen on participating in pro-nuclear campaigns or on giving testimonials - even pre-Fukushima this was the case. Nuclear companies tend to discourage communications between the workforce and the public, preferring centralised communications. It is sometimes considered a security risk to say that you work for the nuclear industry.

The principle can be applied very well in the UK, however in Germany it is considered best not to communicate extensively regarding the nuclear industry, as it is better simply not to invite the extreme views that such a debate would encourage.

Operators and large nuclear companies do not encourage their technical personnel to communicate externally. Testimonials were given by nuclear power plant scientists following the Chernobyl accident, but this had no measurable impact in the short term.

3.3.2. Principle 2 - Best Practice

France

The feedback was mixed for Principle 2, with dialogue, two-way communication, listening and adapting messages to the audience all highlighted as particularly important elements. Conversely, one stakeholder noted transparency as being potentially 'dangerous' because it could imply an organisation or sector is hiding something. There will always be information that cannot be shared with the public for example for security reasons, and therefore the sector is regularly open to criticism for not being transparent. It was suggested that rather than making an open pledge towards transparency, it might be more effective to work in a transparent manner but not explicitly state it as a pledge to the public.

It was suggested that principle has been applied consistently across the French nuclear sector through the CLIs, though it is recognised that there are areas where improvements can be made. There is some inconsistency with regards to how individual organisations implement the principle.

The following potential obstacles to the implementation of this principle were noted:

- Concern from the nuclear workforce about what will happen to them if they say the wrong thing
- Time for preparation is crucial in order to ensure best practice engagement – this may be seen as taking time away from the day job
- Some organisations' main remit is to be factual – it can be difficult to present complex information in a clear and meaningful way
- Listening to the real concerns of the public cannot be done from the office - this may be seen as taking time away from the day job

It was suggested that a balance of clear and factual information could be achieved by preparing material that provides the same information but with different levels of complexity, so the audience can choose what is appropriate for them.

Finland

Dialogue and two-way communication were generally recognised as very important in Finland. The importance of honesty and openness was highlighted, and for the industry to be prepared to admit when mistakes happen. Feedback from industry was that transparency and openness are already embedded values, and that dialogue is ongoing. Industry makes its targets clear and visible to the public, and ensures that it is accessible for anyone who would like to ask questions. Indeed, accessibility was stressed as another important success factor, and an opportunity to continue the dialogue. Therefore, there is a need to be available and prepared to engage with all stakeholders, from local representatives, to key decision-makers, to pro- and anti-nuclear groups.

Communications should be concise and fact-based in addition to being accessible and open, but with the ability to follow up with deeper and more detailed information if it is requested. Organisations should be responsive and rapid in their communications, ready to engage and to meet any demand for information. Respondents stressed the importance of this principle, and recommended that a philosophy of continuous improvement in this area should be maintained. The large time and effort involved is considered to be worthwhile in terms of longer-term strategy.

The use of the term "best practice" is recognised to be in terms of achieving outcomes desired by the industry. On the part of civil society, it was fed back that trust is important, but this can be elusive and that industry efforts aimed at building trust may be unintentionally counterproductive. In the Finnish context, it was observed that Finnish society is already rather trusting of industry and institutions, and that a plurality of views is needed for debate. To that end, it was recommended that care be taken to properly foster debate between opposing views to feed into decision-making processes. In doing so, respect for all viewpoints, and local and lay experience and knowledge should be encouraged in order to better listen to and act upon the views of the public.

Germany

The German representatives noted that it is important to pitch information at the right level, as oversimplification can be perceived as condescending and the public would be critical of the information. As the anti-nuclear movement is too strong to consider broad public dialogue, consultation at the local level is more effective and actively pursued. These consultations are formalised for licensing purposes and dialogue with the local community.

The German public does not understand why any other country would embark on a new nuclear build programme. Nuclear power is viewed as unsafe and redundant. The general public believe that renewable power is the best option, and anti-nuclear groups promote the vision that (large-scale) storage of energy from solar and wind power will soon be a reality.

3.3.3. Principle 3 - Effective Communicators

France

One stakeholder described this principle as very important and positive. A key issue highlighted was that individuals should not be forced to engage and that becoming an ambassador for the sector should be on a voluntary basis.

This principle is implemented well across the French nuclear sector, with a number of internal training initiatives currently ongoing within French nuclear organisations. These include training courses for employees on openness to society (IRSN) and networks of volunteers that have specific training to engage with the public (CEA).

The following potential obstacle to the implementation of this principle was noted by one stakeholder:

- Attending training courses and public engagement events can be seen as taking time away from the day job

Finland

This principle is applied to some extent in Finland. While no formal joint programme for training communicators exists across organisations, there is a general approach of seeking out technical expert employees who are also competent communicators with good interpersonal skills. When employees do show an interest or aptitude in these activities, then the organisation is prepared to support them. For example, one company offers training in social media for communications professionals and some employees as a means of engaging with the public.

Social media was highlighted as one arena for engaging with the public. The approach to dissenting views expressed through these platforms is to leave them open to allow debates to develop, rather than attempting to "moderate" or censor these discussions.

The search for effective communicators is not necessarily limited to employees. Facilitating the communication of academic work is another possible avenue in implementing this principle.

Barriers to implementation include the difficulty in balancing communication activities and the need to prioritise technical work for employee experts. In addition, it may be difficult to find individuals who are willing to step into the public space and act as communicators.

In seeking a balanced view, it was noted that "effective" applies to the industry. However, true effectiveness of communication should encompass the broader situation in order to build trust and dialogue. It was observed that if the positive impact of the sector is promoted, then so also should the negative aspects. In practical terms, this would mean acknowledging that negative issues do exist, and that they are taken seriously by the industry. Industry may consider that it does provide a balanced picture.

Germany

Some of the basic Concordat principles describing effective communication would be difficult to apply in the current climate in Germany. As nuclear companies are phasing out communications on nuclear matters, and employees are reluctant (and often discouraged by employers) to speak publicly on such matters, these principles could be difficult to apply. However, some training is provided by DATF, in small groups a couple of times per year and the German operators supported the European Nuclear Energy Leadership Academy (ENELA) before the nuclear phase-out was announced. ENELA was set up by 6 nuclear companies (Areva, Axpo AG, EnBW, E.ON Kernkraft GmbH, URENCO Ltd and Vattenfall AB) and aims to attract university graduates to the nuclear energy sector and train future leaders in this field.

3.3.4. Principle 4 - Making A Difference

France

The feedback on this principle was mixed, and a reservation was raised regarding the reliability of public opinion surveys and appropriate use of the results.

This principle is applied somewhat in France and the situation is improving, with the IRSN Risk Barometer highlighted as a key positive example. The IRSN Risk Barometer is an annual survey that assesses changes in the French public's opinion on a number of topic areas, including: 1) current concerns among French society, 2) French society's views on scientific experts, 3) risks that French society believes they currently face, 4) risks specifically from the nuclear field, and 5) risks of radon in homes. As well as examining the evolution of national public opinion, organisations ask the public to evaluate events that they attend, such as public seminars that are held to raise awareness and understanding of nuclear issues (e.g. radiological and nuclear risk). French nuclear organisations are also actively seeking to learn from other cultures and contexts to learn how better to work with the public.

The following potential obstacle to the implementation of this principle was noted:

- The culture and attitude towards the importance of surveys must change, so the results can be used constructively rather than to argue or advocate a position

Finland

This principle is regarded as important, and organisations use polls and surveys to measure their impact. The different companies agree on the importance of public attitudes to the industry, but care is taken not to create an overly united and coordinated front on this issue as this could "build a wall" between industry and the public. Instead, Energiategollisuus acts as a source of joint information.

Feedback on the use of opinion polls suggests that these should not be relied upon to the point that they displace other, better forms of engagement. There is a risk that this type of data collection can harm trust and foster suspicion regarding how the results may be used. Furthermore, because the poll data is quantitative, and misses out on more subtle, qualitative information, a recommendation was made that poll data should be supplemented with more interactive processes in order to better expose underlying values which might otherwise get buried beneath the headline figures.

Such an approach would allow the industry to go beyond merely monitoring and managing public engagement, to engaging at a more detailed level through more meaningful interaction which draws out deeper issues.

Germany

DAtF carry out a large regular opinion poll with additional smaller polls planned on current issues. Areva GmbH receives monthly reports from their Areva corporate headquarters on public communications and acknowledges there is room for improvement in intra organisation communications.

Some larger nuclear companies are poor at evaluating their own performance, and communication on schedule and on target can be difficult as the process may become cumbersome. Additionally, some supplier companies do not want to be identified as part of the nuclear industry on the grounds that it could negatively impact their reputation.

3.3.5. Concordat Principles in EU Countries

Q. To what extent do you think these principles would benefit public engagement in your country's nuclear sector?

Q. What additional principles of public engagement could be included in the context of your country's nuclear sector?

France

Feedback indicated that implementation of the Concordat principles across the French nuclear sector would be beneficial. It was noted that IRSN launched its "Charter on Openness to Society" in 2009, which outlines the following principles:

- Enhance the transparency in presenting its work
- Share its knowledge
- Help stakeholders in acquiring the skills necessary to participate actively and build risk assessment along with them
- Enhance the ability of its staff to interact with stakeholders
- Identify and mobilise resources to further stakeholders' involvement
- Carry out an internal policy on openness to society and publicly report progress achieved as well as problems encountered.

At the same time, charters were signed by other public organisations and Government agencies but not nuclear related organisations so as to avoid conflict of interest. IRSN's remit is to remain independent from the nuclear industry, while abiding by the same good practice public engagement principles as other areas of the wider nuclear sector. Trust in IRSN has increased since the launch of the charter and it has gained credibility with the public. It was suggested that a joint Concordat for French nuclear power plant operators and other industry organisations would be beneficial in France, though it may take some time to become established and IRSN would not sign such a charter since it is required to retain independence from the industry.

Awareness of the situation with nuclear energy in neighbouring countries is considered important in France, particularly because anti-nuclear movements in neighbouring countries could have an impact on public opinion in France.

Finland

Industry respondents felt that these or similar principles have been applied since the start of the Finnish nuclear industry (1960s), but have been an integral part of the way the industry works rather than having to be implicitly stated through a Concordat. While Finnish people tend to be pragmatic and prefer facts, figures and concrete information, it is recognised that there is a need to make nuclear more "human".

In terms of wider society, a need for debate on new projects and a focus on the public interest should be emphasised, with room and facility made for non-industry or minority views from under-resourced actors to attempt to correct the asymmetry between the two. The additional principle of "reversibility" was suggested in recognition that public involvement in new projects tends to end at the early stage of the licensing process.

From the perspective of society looking towards industry, recognition from industry of its own weaknesses, areas of uncertainty, and biases, would be a positive step. Additionally, commitments to continuous learning through interaction with the public, flexibility and adaptability, and recognising the context of terms such as "best practice", as well as the aforementioned principle of "reversibility", would all be valued by the public.

Other beneficial principles were cited which could be drawn upon: "FPIC: Free, Prior, and Informed Consent", an international legal concept which recognises the rights of local people affected by projects; and the banking sector's "Equator Principles", which form a framework for financial institutions to assess social and environmental risks of funded projects.

Germany

As nuclear is being phased out in Germany, the German representatives considered that there was little benefit in introducing a Concordat. However, in the context of new nuclear build it was acknowledged that the Concordat would be a useful tool. In Germany in particular, the media would need to be on-board, as this would engender more credibility from the public.

The information would need to be disseminated by the media, with consideration given to cross-border issues and engagement; new build in Europe is likely to receive opposition from anti-nuclear countries such as Germany. In an opinion poll the majority of Germans thought Germany should intervene in other countries' plans for nuclear energy, to answer the question posed; "How can Germany make sure neighbouring countries build and operate new nuclear as safely as possible?" with the objective of attempting to dissuade other countries from building new nuclear power plants, or at least ensuring they are built and operated safely.

The Concordat could also consider the need for cultivating local support in local communities and ensure continued and not just sporadic effort. The Concordat or toolkit could also make the benefits clear to Germans on a personal level.

3.4. Concordat Guidance Documents

Q. What do you think are the negative and/or positive aspects of using Concordat guidance documents?

Q. To what extent is this already applied in your country?

Q. Can you think of any other groups that would benefit from guidance with public engagement?

France

If the documents are going to be published in the public domain, care must be taken with the wording, as one stakeholder noted that it is possible for the guidance to be interpreted as the nuclear sector attempting to manipulate public opinion. There have been previous cases of this occurring in France, therefore organisations now tend to keep this type of guidance for internal use only. A specific point was raised about the use of the term 'communications' in the title of guidance for communications professionals, as 'communication' is not always interpreted as a positive word.

Guidance for public engagement is available in most French nuclear organisations, but it is not always visible to the public.

Female experts were highlighted as a specific group that might benefit from their own public engagement guidance document, particularly given that one of the missions for Women in Nuclear (WiN) focuses on promoting dialogue with the public about the nuclear industry.

Finland

As previously noted, the general principles of the Concordat are already employed within the Finnish nuclear industry without the use of formal charters. Some respondents noted that employee engagement could be improved to empower and enable individuals to act as ambassadors.

A perspective independent of the industry is that the guidance is interesting, but that care should be taken in expecting too much from employees beyond their baseline loyalty towards their employer. While providing guidance to employees who seek it out is beneficial, the individual rights of workers to their individual freedoms of speech need to be respected. In terms of engagement with the public, this could be harmful if the public feel that they are not engaging with a real person, but instead with an industry message or rhetoric.

Germany

As the German nuclear industry is phasing out nuclear, the Concordat guidance documents would not be a consideration as they would not currently be applied in Germany. It may be possible to apply these principles to activities such as decommissioning and spent fuel management programmes, with caution as the anti-nuclear sentiment in Germany is highly prevalent.

3.5. Nuclear Narrative

Q. Is there an equivalent of the NIA's 'Nuclear Energy Factbook' in your country?
(A copy of the NIA's Factbook was presented to the interviewee(s))

Q. To what extent does your country's nuclear sector provide their workforce with information on organisations and the sector as a whole?

Q. Can you provide examples of where your country's nuclear workforce could find this information if their company does not supply it?

France

A limited sub-set of the topics covered in the NIA's Factbook has been developed by CSFN (Strategic Committee for the French Nuclear Sector), but it is a relatively new organisation and currently has no communications team so it has not developed a website or much of a voice as of yet.

There are numerous examples of infographics available on the websites of French nuclear sector organisations. One example is that developed by CSFN, which is highlighted in Section 4.3 of this report (Figure 17).

French nuclear organisations provide the workforce with information on their particular organisation, though limited information is provided about the French nuclear sector as a whole, with even less information provided about the global nuclear sector.

The unions provide some literature, though not all topics are covered. It is thought that some unions may provide information that has a bias towards employment.

Finland

Industry-wide information is distributed through the Energiatieto website. In addition, organisations produce their own materials.

External to the industry, a view on the Nuclear Narrative is that true engagement could be harmed if the public perceive that they are being sold a standardised rhetoric lacking a genuine person behind it.

Germany

There is no German equivalent of the NIA's 'Nuclear Energy Facts', and apart from DATF, there are no overarching nuclear organisations in Germany and hence no nuclear narrative.

Most employees would probably not actively seek information, however the DATF website does provide this service. DATF provides objective information and viewpoints both to the general public and to particular target groups, such as politics and the media, while also offering a forum for public and expert debate.

3.6. EDGE Self-Assessment Tool

Q. Using the EDGE Self-Assessment Tool as a guide, where do you think your country's nuclear sector as a whole currently stands with regards to public engagement on nuclear issues? (A copy of the NCCPE EDGE Self-Assessment Tool was presented to the interviewee(s))

Q. To what extent is the EDGE Self-Assessment Tool a useful addition to the toolkit?

France

The French nuclear sector's public engagement is inconsistent across different organisations. The 'big three' (core of the French nuclear industry) are considered quite embryonic in terms of the engagement principles highlighted in the EDGE Self-Assessment Tool (Mission, Leadership, Communication, Support, Learning, Recognition, Staff, Students and Public).

The tool was considered somewhat useful, though it was suggested that it is adapted to be 'less wordy' and more visual. It was also highlighted that presenting this tool for managers to use could have either of two opposing effects:

1. Managers could see the benefits of the tool and use it to identify areas of weakness and start to initiate culture change across the organisation and sector
2. Managers may feel threatened by the prospect of highlighting areas of weakness

Finland

In Finland, performance metrics are more based on external assessments of success and through the assessment by familiar stakeholders. Independent assessments are considered important. Indeed, the industry respondents advised that self-assessment was of limited value as it was not likely to be well-trusted. Rather, the EDGE tool or similar could be used as a starting point for stakeholders to use in their assessments.

Germany

The German nuclear industry as a whole has an embryonic approach to public engagement on nuclear issues and is not looking to improve this, as nuclear is currently being phased out.

3.7. Tools and Approaches to Public Engagement

Q. How does your country's nuclear sector currently engage with the public?

Q. What public engagement tools are currently used by your country's nuclear sector?

Q. Who is responsible for delivering public engagement strategy and implementation in your country's nuclear sector?

France

The French nuclear sector currently engages with the public through:

- Local Information Committees (CLIs)
- Visitors' centres and facility open days
- Through the CNDP (National Commission for Public Debates)

Public engagement tools currently used by the French nuclear sector are:

- IRSN Charter on Openness to Society
- IRSN Risk Barometer

CSFN and SFEN take the leading role in delivering public engagement strategy and they have a sub-group "covering" the whole sector that consists of CEOs from CEA, Areva and EdF who meet two or three times per year as a high-level strategic team, which shares information. However, it is not thought that communications with the public on nuclear issues is currently particularly high on the agenda for this group.

Management within IRSN had an important role to play in implementing IRSN's Charter on Openness to Society. IRSN held internal meetings to explain what the Charter meant for employees, and annual progress and improvements are communicated across IRSN.

Finland

The industry maintains links with universities, schools, media representatives, and local decision-makers in municipalities building new nuclear power plants. Visitors' centres are well-used, with the Olkiluoto centre attracting 15,000 people every year. A persistent theme is of two-way communication and employing principles of openness and transparency to maintain positive local support. In wider communication, for example with the media or direct contact initiated by members of the public, proactiveness, responsiveness and accessibility are key practices. Industry-wide information is disseminated through the Energiateollisuus website.

Germany

Currently engagement with the public by the industry is at a minimum and proactively kept at a low level.

3.8. EU Nuclear Public Engagement Toolkit

Q. To what extent do you support the idea of the UK's Concordat and supporting documents and tools as a basis for an EU Nuclear Public Engagement Toolkit?

Q. In your country, who would be responsible for finding, adapting and implementing such a toolkit across the nuclear sector?

Q. After the launch of a Concordat in your country's nuclear sector, how would you imagine its implementation would be carried out, and what would be the next steps?

France

It was noted that France needs to look at new ways of using social media, and work is needed for the management culture and workforce culture in embedding the importance of public engagement. Therefore, the toolkit has some support from the French nuclear sector.

SFEN and CSFN were highlighted as organisations that could lead on adapting the EU toolkit for use in the French nuclear sector.

It was suggested that such a tool should be kept as an industry tool rather than involving government, in order to maintain its credibility.

Finland

Feedback gained from respondents is that the high-level principles are universal but implementation of them will vary in other countries, due to the very different social, cultural and historical influences between different countries.

Germany

The German representatives considered that the toolkit was useful if society is open to it. Assuming the society is open to such a methodology, it would be useful to have the tools in place to provide arguments.

If such a toolkit were to be adapted and implemented in Germany, it is anticipated that DATF would lead the implementation of the toolkit.

3.9. *Hosting and Disseminating the Toolkit*

Q. Where would you expect to find such a toolkit? (e.g. European websites, company websites, somewhere other than online?)

Q. How would you spread the word about such a toolkit? What communication channels would you use?

France

At the European level it was suggested that the Foratom website would be an appropriate place to host the toolkit. At the national level it was suggested that the SFEN website might be an appropriate place to host the toolkit once the tools had been adapted for use by the French nuclear sector.

In France there is a sense of unease about public engagement tools, and about broadcasting and public discussions. From the side of industry there is the concern that public engagement initiatives would be interpreted as nuclear lobbying, so detailed strategy remains within the industry, not outside of it. Therefore, internal dissemination across the French nuclear sector would be the preferred communication channel.

IRSN's Charter on Openness to Society was noted as a tool used to form a culture of openness to society within IRSN and to improve risk assessment through better interaction with society and stakeholders. An event was organised in April 2009 by IRSN

to present the charter. Those who attended this event were given a copy of the charter and could ask questions to IRSN. Those who did not attend the event received the charter by mail afterwards. The categories of attendees were as follows: Government ministries, members of Parliament, NGOs, ANCCLI and CLI, nuclear operators, nuclear safety authorities, journalists, international institutions, public organisations and institutional partners, and other partners. Around five hundred copies of the charter were distributed at this time. During the following years, as IRSN developed the implementation of the charter, this document has been distributed to new partners. Two reviews of this implementation have been conducted: one in 2011 and one in 2014, with the participation of civil society members.

Finland

In terms of who is best to deliver such a toolkit, industry or government were suggested as possibilities.

Germany

At this stage in Germany it is unlikely that such a toolkit would be received positively if disseminated across Germany.

3.10. Case Studies

Q. Can you provide examples of when public engagement in your country's nuclear sector has been successful or unsuccessful?

Detailed case studies from the UK, France, Finland, and Germany have been included in Section 4 of this report (Toolkit).

France

ANDRA radioactive waste geological disposal process: IRSN, ANCCLI and local CLI of the site for geological disposal hosted "Technical Dialogue" seminars where experts from universities, qualified people, NGOs and industry spoke with the public. Following the first seminars, there was a public debate, which was followed by more seminars. The aim was to give the participants technical and methodological information to help them study the reports of the operators in the best possible conditions.

Germany

Surveillance cameras were installed at a waste categorisation facility to record that the waste categorisation process was carried out in accordance with regulations and meeting procedural requirements. The cameras were put in place to try to alleviate the distrust from public by showing the waste was appropriately characterised and providing evidence. However, the positive message that could be taken from this approach is that the nuclear industry being transparent.

4. Development of an EU Nuclear Public Engagement Toolkit

Since the scope of this toolkit development project was to explore the outworking of the UK's Nuclear Energy and Society Concordat for Public Engagement (referred to hereafter as *Concordat*) in Europe, one of the key questions asked of each stakeholder was (Section 3.3.5.):

"To what extent do you support the idea of the UK's Concordat and supporting documents and tools as a basis for an EU Nuclear Public Engagement Toolkit?"

In general, positive responses were received from various organisations in each country when asked this question and any criticism was constructive and provided suggestions to how the UK's tools could be adapted. The tools developed in the UK can add to the tools and arrangements already established in European countries and are not seen as a replacement, rather as a complementary addition.

Toolkit Components

Drawing from experience in Finland, France, Germany and the UK, five key components have been included in the toolkit and an overview is provided in Figure 15.

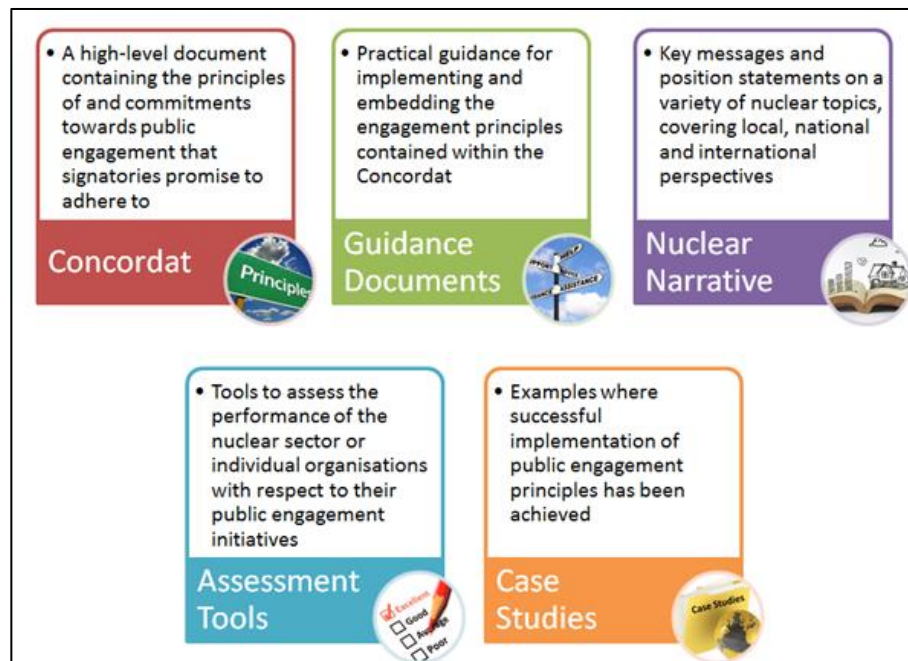


Figure 15: Key components of the EU Nuclear Public Engagement Toolkit

Sections 4.1 to 4.5 of this report provide further detail for each component of the toolkit. By drawing from the knowledge gained through meetings with stakeholders in Finland, France and Germany the toolkit provides practical guidance on how to use and adapt each of the five elements to the specific needs of an individual organisation or nuclear sector as a whole.

Who is this toolkit for?

Given the multitude of organisations with various roles and responsibilities across national nuclear sectors, it would not be appropriate to make a rigid recommendation for one individual body or organisation to act as a sole foundation or structure for a set of principles or commitments in a Concordat type agreement. Experience suggests it would be beneficial for organisations to work collaboratively in partnership to develop a co-

ordinated approach to engagement as a range of approaches may be needed (e.g. depending on audience, context, etc.). Some examples of individual bodies or groups of organisations that could take part are as follows:

- Industry trade associations (e.g. the NIA in the UK)
- Nuclear societies (e.g. SFEN in France)
- Government departments (e.g. Department for Business, Energy and Industrial Strategy in the UK)
- Groups of reactor operators (e.g. RWE Power, E.ON, EnBW and Vattenfall in Germany)

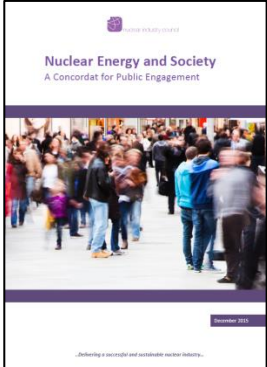


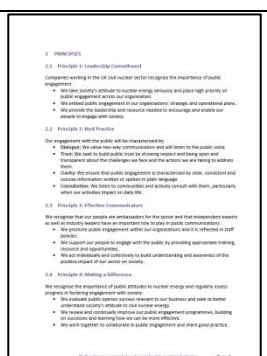
It is of particular importance to highlight the reservations expressed by IRSN representatives in France who noted their independent position has led to an increase in trust with the public. IRSN noted that a Concordat could be seen to be a nuclear industry lobby position. For TSOs, openness to the civil society is not dedicated to convincing the public or to enhancing the acceptance of nuclear energy. The objectives for TSOs are to increase transparency, to share knowledge and to help stakeholders and the civil society gain a sufficient technical level to build their own informed opinion. Recognising such issues is a first step, together with a constant willingness for organisations to question their assumptions and positions. NNL and the wider nuclear sector in the UK recognise the important role independent experts play in building trusted relationships with the public. The University of Manchester and the Nuclear Advanced Manufacturing Research Centre at the University of Sheffield are signatories to the UK's Concordat, as well as one of the nuclear regulators and trade unions. Equally this view has been expressed in discussions with other European Stakeholders during this project.

By following the high-level instructions contained within this toolkit, the user can take the first steps towards identifying the most appropriate body, or group of organisations, to put the tools in place that create an environment where public engagement can thrive.

4.1. Concordat

Concordats (agreements), or Charters, are high-level documents containing principles or commitments that their signatories pledge to abide by. Working together in collaboration as signatories facilitates the sharing of good practice and learning from experience between various organisations. Concordats serve as powerful tools to generate shared visions and values across an entire sector that is made up of different organisations, making them particularly useful for the purpose of aligning public engagement practices across the nuclear sector. This section provides guidance on how to develop a Concordat and raises key issues to take into consideration during its creation (Table 1).

Table 1: The UK's Concordat Sections

 <p style="text-align: center;">Concordat</p>	<p>A Concordat should be a relatively short document, with the main focus being on the principles and commitments contained within. The Concordat can be supplemented by a set of guidance documents and other tools that help to ensure the principles and commitments are successfully implemented and embedded.</p>
 <p style="text-align: center;">Foreword</p>	<p>The foreword provides an opportunity for a high-profile public figure to introduce the Concordat and state why it is important to the nuclear sector and the public. It is important that the individual is someone who is trusted and respected by the public.</p>
 <p style="text-align: center;">Introduction</p>	<p>The introduction provides an opportunity to set the scene for nuclear energy. It should be short and concise, and set out the current position and future goals of the sector, whether that is for new nuclear build, plant life extension, management of legacy wastes, spent fuel reprocessing, geological disposal facility location, or other contexts. It is important to emphasise why public engagement plays a vital role in achieving these goals; goals which are mutually beneficial to both the nuclear sector and the public.</p>
 <p style="text-align: center;">Principles/Commitments</p>	<p>The principles and commitments are the vital part of any Concordat or charter, as they detail exactly what the signatories are pledging to achieve. Drawing from the UK's Concordat and feedback from Finland, France and Germany, the principles have been developed as a starting point, with key questions posed to prompt the developer into considering the principles and commitments in the context of their own country, sector or organisation.</p>

Principles/Commitments for Public Engagement on Nuclear Issues

1) Leadership Commitment

- demonstrate that the importance of public engagement is recognised
- place high priority on public engagement and show eagerness to have a dialogue with the public
- embed public engagement in strategic and operational plans
- provide the leadership and resource needed to encourage and enable people to engage with society
- leaders actively seek information from their technical experts to ensure they provide relevant, accurate and sufficient information to the public
- remain visible and accessible to the public, particularly those located close to nuclear facilities
- minimise the likelihood of irreversible decisions and show willingness to reopen key questions for debate

Possible barriers and points to consider:

- it may be difficult to raise the priority of public engagement as it can be seen as taking time away from the 'day job' for technical staff
- time and budget pressures may prevent true commitment. Appropriate accountability structures between the sector and its external environment are important as a controlling function
- changes of leadership can lead to increases/decreases in the priority placed on public engagement
- there are different drivers for public engagement in different nuclear organisations, so it may be challenging to get consistency in approach across the sector
- it may not be in the history of the sector or nation to adopt this type of principle, therefore a cultural change may be necessary (which can take time)
- leaders may feel there is no need to engage if everything is "business as usual"
- in the context of strong opposition to the nuclear sector, leaders may be reluctant to speak out in public as it may invite extreme views and negative press

2) Best Practice

- recognise that best practice is context dependent, not one size fits all
- listen to the public and place value on two-way communication
- seek to build public trust by showing respect and being open and transparent about the challenges and the actions being taken to address them
- ensure public engagement is characterised by clear, consistent and concise information written or spoken in plain language
- listen to communities and actively consult with them, particularly when the sector's activities impact on daily life
- everyone's experiences count and must be considered. Priorities and the degree of relevance of each individual's experience/piece of information should be established through an open, public, transparent process
- pitch engagement according to the audience and use a variety of communication channels to include different sections of society in the dialogue
- take time to prepare for dialogue events so a meaningful conversation can be had
- dialogue at the local level should focus on face-to-face contact
- the public should be involved from the earliest stage possible, so they can have real influence on the way that the ultimate objectives are achieved
- be quick to respond to public concerns in an open and honest manner, particularly in crisis situations

Possible barriers and points to consider:

- the term 'transparent' is a key word and its interpretation is highly dependent on culture. To some it may indicate there is something to hide, whereas others tend to regard it as a crucial aspect of public engagement
- listening to the public cannot be done from the office, and there may be time/resource constraints on doing valuable field work. At a minimum: build extra time and resources into the budget and resource plans, because most likely things will not run as smoothly as predicted
- it can be difficult to pitch the information at the right level: too complex can result in confusion, too simple can come across as condescending
- there is an argument that too much trust leads to naivety: healthy suspicion is required. Trust of industry towards the citizens is an essential precondition of successful engagement
- social media can be a 'tough place' but gives a personal angle to the sector. An approach to not censor negative comments and allowing debate to develop builds trust

3) Effective Communicators

- recognise employees as ambassadors for the sector
- recognise that independent experts as well as sector leaders have an important role to play in public communications
- promote public engagement within organisations and reflect it in staff policies
- support employees by providing appropriate training, resource and opportunities
- act individually and collectively to build understanding and awareness of the positive and negative impact of the sector on society
- show a duty of care to protect people and prepare them appropriately with regards to the consequences of public engagement (e.g. insults and threats)

Possible barriers and points to consider:

- nuclear workers may be concerned that they could say the 'wrong thing'. Organisations should ensure that employees feel as free as possible to express their views
- employees should become ambassadors on a voluntary basis, as some may not want to engage or not have the interpersonal skills needed
- attending training and engagement opportunities can be viewed as taking time away from the 'day job'
- it is important to distinguish between ambassadors that have received training and the remainder of the workforce who may still be encouraged to engage
- admitting to working for the nuclear sector can sometimes be considered as a security risk by nuclear sector employees
- it may be difficult to find technical staff who are also good communicators and have good interpersonal skills, and who can make information accessible to lay people
- look to academia for people whose message could be more widely communicated. For academics, this entails a risk of losing independence, but is a choice for individual academics to make
- there may be resistance to communicating both advantages and disadvantages of the sector's impact on society. Also, the sector may not be seen as the most credible source of information on the disadvantages
- social media is usually a two-way interaction and sending a message to the public and not being able to deliver the level of response and interactions required to support such an endeavour can have negative outcomes if an organisation suddenly "goes quiet" on an issue (consider resource requirements)

4) Making A Difference

- recognise the importance of public attitudes to the nuclear sector and regularly assess progress in fostering engagement with society
- evaluate relevant public opinion surveys and seek to better understand society's attitude to the nuclear sector through both quantitative and qualitative surveys
- review and continually improve public engagement programmes, building on successes and learning how to be more effective: maintain a philosophy of continuous improvement
- show willingness to learn continuously, particularly through interaction with the public
- work with others to collaborate in public engagement and share good practice
- where appropriate, work with the public to let them take charge of situations, rather than imposing solutions
- initiate debate and early engagement to ensure new projects are in the public interest and they are involved in the framing of the problem
- demonstrate the ability to be flexible and adaptable, both at the individual and organisational level

Possible barriers and points to consider:

- do not rely solely on quantitative opinion polls; qualitative data is equally necessary
- be aware of the source of information
- use opinion surveys appropriately, otherwise it can lead to a loss of credibility (e.g. do not use it as a PR tool, to show how much the public trust the sector)
- publication of survey results is a window of opportunity to continue the dialogue with the public
- evaluating performance may be seen as cumbersome and time consuming
- evaluating performance at individual engagement events is just as important as evaluating sector-wide or an organisation's performance, and could indeed be an essential part of engagement (e.g. use interactive and participatory evaluation methods/procedures)
- consider the need for cross-border issues and engagement; building new nuclear facilities in one country may generate opposition from anti-nuclear countries
- ensure continued effort, not sporadic engagement
- consider independent validation of performance on public engagement and ask stakeholders to review performance



Signatories

The signatories are those organisations that have pledged to abide by the principles of engagement outlined within the Concordat. It is important to consider the context of each sector and nation when deciding who is responsible for developing a Concordat and who is going to sign up to the principles and commitments. For example, there may be an overarching organisation that represents all nuclear sector organisations, such as the Nuclear Industry Association (NIA) or Nuclear Industry Council (NIC) in the UK, Deutsches Atomforum e. V. (DAF) in Germany, Energiategollisuus in Finland, or the French Nuclear Society (SFEN) in France. Some different approaches are outlined below:

1) Consider who would be the equivalent of the organisations named above to develop a Concordat for all nuclear sector organisations to sign up to from a specific country, or for Europe as a whole. Signatories could include relevant facility operators, R&D organisations, universities, Government departments, employee unions, regulators, civil society organisations, NGOs, local people, etc. However, having NGOs and academics critical towards nuclear on board may be difficult and might not be credible, since these latter groups could be seen as merely "decoration", designed to legitimise industry/Government positions.

2) Some nuclear organisations may feel that signing up to a sector-wide Concordat would erode their independence from the industry part of the sector. Being seen as independent in this way can enhance levels of trust among the public, so it may be that different sections of the nuclear sector develop their own Concordats. A good example of this is in France where IRSN has developed a Charter on Openness to Society. Through the charter IRSN confirms and specifies commitments to improve the quality and visibility of its support to public decision makers and society at large. Nuclear power plant operators and other organisations in the nuclear sector could develop a Concordat or charter as a group; establishing commitments and principles similar to those in the UK Concordat and building a collaborative approach towards public engagement.

There are various examples of Concordats and charters that can be used as examples to draw from when creating a new Concordat specific to nuclear issues, a few of which are listed below:

1. Nuclear Energy and Society: A Concordat for Public Engagement (UK nuclear industry, 2015) [21]
<http://www.niauk.org/images/pdfs/publications/Public%20Engagement%20Concordat%20Dec15.pdf>
2. Concordat for Engaging the Public with Research (UK universities, 2013) [22]
<http://www.rcuk.ac.uk/documents/scisoc/concordatforengagingthepublicwithresearch-pdf/>
3. Charter on Openness to Society (IRSN, France, 2009) [23]
http://www.irsn.fr/FR/connaissances/Nucleaire_et_societe/ouverture-transparence/ouverture/Documents/IRSN_Charte_ouverture_societe.pdf

4.2. Guidance Documents

Guidance is required to provide practical advice for those responsible for implementing and embedding public engagement principles across the nuclear sector. In the UK, two key groups of the nuclear workforce were provisionally highlighted as requiring guidance on how to meet these commitments: 'Communications Professionals' and 'Informal Engagers'. The difference between the two groups was largely based upon public expectation when conversing with an individual, that is, if the individual is a member of the company executive, senior management or the communications department, the public are likely to expect a greater depth of information on the topics discussed.

Through this project, a number of other sections of the nuclear workforce were noted as possibly benefiting from specific guidance, including:

- Subject matter experts who were likely to attend public events or be present in the media (e.g. the UK's Science Media Centre [24])
- Female experts
- Young people
- Guidance to help those who use social media, so they can feel comfortable about communicating externally, without fear

The two guidance documents under development in the UK are outlined below, and demonstrate how guidance needs to be made appropriate for the audience it is intended to be used by. For example, the guidance for communications professionals is much more 'academic' than that for informal engagers, as the two groups have different responsibilities regarding implementing and embedding public engagement principles.

Guidance for Communications Professionals

The guidance for communications professionals focuses on how to ensure the Concordat principles are implemented and embedded within an organisation and consistently across the nuclear sector; by examining the Concordat principles one-by-one, the document provides ideas on how to put this into practice and ensure commitments are met. Some key elements for consideration when developing guidance documents are included below:

Principle 1 - Leadership Commitment

- How can public engagement be built into your organisation's strategy and policy?
- How can the importance of public engagement to the nuclear sector and your organisation be articulated?
- How can culture change be initiated if leaders are not supportive of public engagement?
- How can dedicated resources be made available by leaders to encourage and enable the workforce to engage with society?

Principle 2 - Best Practice

- How can a clear explanation of what is considered current best practice be communicated?
- Are there any case studies that can be used that demonstrate the use and effectiveness of good practice engagement?
- How can engagement be focused at the local level?
- How can your organisation ensure it is able to quickly respond to public concerns in an open and honest manner, particularly in crisis situations?

Principle 3 - Effective Communicators

- How can you develop a network of public engagement champions throughout your organisation?
- How can you ensure adequate resources are available for providing training and opportunities for your workforce to engage?
- How can you introduce public engagement into staff policies and reward and recognition systems?

Principle 4 - Making A Difference

- How can you construct a network for sharing good practice across the sector?
- How can you develop an effective method of evaluating your organisation's performance with regards to public engagement?
- How can you ensure public opinion surveys are used appropriately?
- How can you work with the public to ensure mutually beneficial outcomes?

The list of key elements considered above is not a comprehensive list and time must be given to working through each of the principles outlined in Section 4.1 and providing communications professionals with guidance as to how the principles can be implemented, embedded and how barriers could be overcome.

Guidance for Informal Engagers

This guidance is aimed at the entire nuclear workforce, recognising that all nuclear workers can be ambassadors for the sector, while being aware that not everyone has the interpersonal skills and/or desire to be an ambassador. Unlike the guidance for communications professionals, the informal engager's guidance is much less academic, as is intended for use by any nuclear worker. Therefore, it must be accessible and understandable to everyone, and is made so through the use of infographics and a more personal tone. The guidance is structured around the following three levels of information:

1. Basic information on what the nuclear sector does for society (standard text and infographics that all nuclear organisations can use)
2. Information on what the company does for society and the local area (inserted by each individual nuclear organisation so it is relevant for their workforce)

3. Guidance on how the workforce can approach informal conversations and feel comfortable talking about where they work and what they do

Finally, the guidance provides links to further information, including key facts about the nuclear sector and tips for myth busting when approaching informal conversations with friends, family and wider society.

Points for consideration:

- Guidance often remains for internal use only by each nuclear organisation, as there have been occasions where similar guidance materials have been made public and have been interpreted as the nuclear sector trying to 'brainwash' the public.
- It is important to provide links to further information and case studies in order to develop a network for sharing ideas of new and better ways of approaching implementation and embedding of public engagement principles.
- It is important to identify those individuals, particularly experts, who have a particular talent or enthusiasm for communicating and to support them with training and guidance.
- Examples of guidance document for NCCPE's 'Concordat for Engaging the Public with Research' can be found on the website: <http://www.rcuk.ac.uk/pe/Concordat/> [25]

4.3. Nuclear Narrative

When communicating with the public, it is important to consider how best to convey complex scientific ideas and policy, and how those ideas and policies may be interpreted and contextualised. One method to do this is via use of narrative, to form digestible and meaningful information for the public to use as they wish and inform their own opinions and thinking.

Many organisations use an internet presence, typically through a website, to engage the public and serve as a hub of information. Across the nuclear sector, there is a great spread in quality of website usage. A website that is sparse, lacking information, or poorly functioning, could be perceived as an organisation not affording proper care and attention to its online presence, or worse, the public in general. While websites are certainly a legitimate method of communication, they are not always the most appropriate method or sufficient in their own right. Effective narrative relies on the "outward facing" parts of an organisation for successful public engagement and communication.

Developing A Narrative

The approach adopted for developing a UK nuclear narrative was to take information from global/international sources and tailor it to the UK's situation, focusing on nuclear sector topics that the UK public are most interested in. In order to find out which topics the public would like to know more about, the commonly repeated questions should be identified from previous dialogue experiences, and to supplement this, attention must be given to public opinion surveys and any recent public consultations and enquiries.

Once the key topics that the public want to know more about have been identified (e.g. Waste Management, Economic Impact, Safety and Security, etc.) the next step is to establish what the national position is on each topic. This is the approach carried out by the UK's Nuclear Industry Association (NIA), which is the trade association for the UK's

civil nuclear industry. The resulting narrative is expressed through the NIA's 'Nuclear Factbook' [26].

The final step is to further focus towards the local level in order to provide the local population and nuclear workforce with information on the topics they are most interested in, and in a way that is meaningful to them. Again, local dialogue experience and opinion surveys can be used to identify the topics and communication channels that require the most attention (e.g. website, social media, brochures, leaflets, exhibition materials, etc.). Developing the local narrative is likely to be carried out by the operator of the local nuclear facility, for example, EDF Energy for the operating nuclear reactors in the UK.

It is important to regularly revise the national and local nuclear narratives so they remain consistent with the international narratives that are available, and contain the topics that the public are most interested in. Additionally, all positions should be backed up by facts, ideally provided by independent sources, so they can be considered reliable and trustworthy. Identifying the audience for the narrative is crucial as it allows the information to be pitched at the appropriate level and communicated via the relevant channels.

The following section covers some approaches to narratives at the international, national and local levels (Table 2 to Table 6). The examples presented can be examined to develop an appreciation for which organisations provide certain types of information and how they deliver it, and also to help the user of this toolkit in developing their own nuclear narrative (a list of 'key questions' to help achieve this is provided).

Global/International Narratives

Table 2: Global/International Narratives

Organisation	Role	Message Type
World Nuclear Association (WNA)	The international organisation that promotes nuclear power and supports the companies that comprise the global nuclear industry.	Homepage [27]: http://world-nuclear.org/ 'Nuclear Basics' [28]: http://world-nuclear.org/nuclear-basics.aspx 'Nuclear Footprints Narrative' [29] http://www.nuclearfootprints.org/
World Association of Nuclear Operators (WANO)	A voluntary membership organisation whose overriding priority is "the assurance of nuclear safety and excellence in operation performance".	Homepage [30]: http://www.wano.info/en-gb 'Connect with WANO' [31]: http://www.wano.info/en-gb/mediaandevents/connectwithwano
International Atomic Energy Agency (IAEA)	The world's central intergovernmental forum for scientific and technical co-operation in the nuclear field.	Homepage [32]: https://www.iaea.org/ 'IAEA Factsheets' [33]: https://www.iaea.org/publications/factsheets

European Nuclear Society (ENS)	The largest society for nuclear science, research and industry in Europe, it aims is to disseminate information within the nuclear community, to decision-makers and the public.	<p><u>Homepage [34]:</u> https://www.euronuclear.org/welcome.htm</p> <p><u>'Nuclear Glossary' [35]:</u> https://www.euronuclear.org/info/encyclopedia.htm</p>
FORATOM	A Brussels-based trade association that acts as the voice of the European nuclear industry in energy policy discussions with EU institutions and other key stakeholders.	<p><u>Homepage [36]:</u> http://www.foratom.org/</p> <p><u>'Nuclear Pocket Guide' [37]:</u> http://www.foratom.org/facts-and-figures.html</p>

FORATOM published a nuclear pocket guide in July 2016 (Figure 16) that provides high-level positions and infographics on a wide range of nuclear topics, including: security of energy supply, competitiveness, economics of nuclear, nuclear safety, nuclear liability, radioactive waste, decommissioning, nuclear transport, environment, new projects, R&D, energy mix, non-proliferation, public opinion, EURATOM treaty and emergency preparedness. This narrative is clearly presented, easy to understand and is an eye-catching publication that is accessible to most audiences.

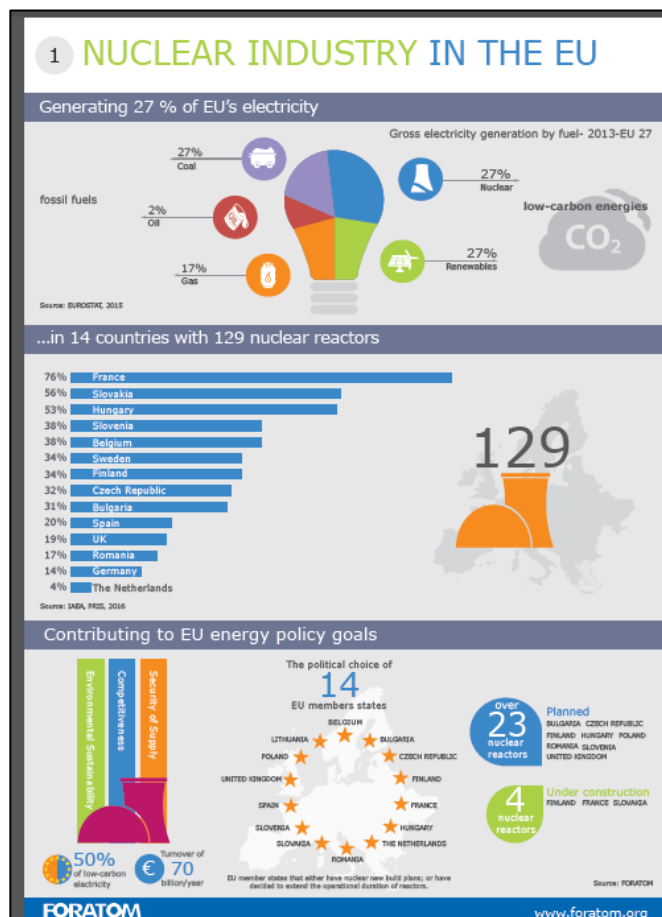


Figure 16: Section 1 of FORATOM's nuclear pocket guide

National and Local Narratives**Table 3: National and Local Narratives - France**

Organisation	Role	Message Type
L'Autorité de Sûreté Nucléaire (ASN)	The French safety regulator. Their website hosts a variety of information including videos, reports, decisions, opinions, rules and regulations, professional meetings and international commitments and events.	Homepage [38]: http://www.french-nuclear-safety.fr/ 'ASN Publications' [39]: http://www.french-nuclear-safety.fr/Information/Publications
Institut de Radioprotection et de Sûreté Nucléaire (IRSN)	The technical safety advisor to ASN. It is an independent public authority that hosts a multitude of information on its website.	Homepage [40]: http://www.irsn.fr/EN/Pages/home.aspx 'Thematic Resources' [41]: http://www.irsn.fr/EN/publications/thematic-safety/Pages/Thematic-nuclear-safety.aspx
Commissariat à l'énergie Atomique et aux Énergies Alternatives (CEA)	The French Alternative Energies and Atomic Energy Commission is a "key player" in a number of areas of research. CEA produces various handbooks, short guides on nuclear topics and materials to support education.	Homepage [42]: http://www.cea.fr/english 'Resources' [43]: http://www.cea.fr/english/Pages/resources.aspx
Agence Nationale pour la Gestion des Déchets Radioactifs (ANDRA)	A public body in charge of the long-term management of all radioactive waste.	Homepage [44]: http://www.andra.fr/international/index.html
Comité Stratégique de la Filière Nucléaire (CSFN)	The Strategic Committee for Nuclear Industry is a relatively new organisation and is yet to develop a website. CSFN has produced a limited amount of narrative and has carried out studies on employment and jobs.	'CSFN Infographic Flyer' [45]: http://www.entreprises.gouv.fr/files/files/directions_services/conseil-national-industrie/PDF/CSFN-cartographie.pdf

<p>Société Française d'Énergie Nucléaire (SFEN)</p>	<p>SFEN is the French knowledge hub for nuclear energy and provides a space where all those who are interested in nuclear energy and its applications can obtain and exchange information.</p>	<p><u>Homepage [46]:</u> http://www.sfen.org/en <u>'Nuclear for Climate Narrative' [47]:</u> http://www.sfen.org/en/nuclear-for-climate</p>
<p>l'Association Nationale des Comités et Commissions Locales d'Information (ANCCLI)</p>	<p>ANCCLI is a collection of CLIs, whose mission is to inform the public on nuclear activities and provide continuous monitoring of the impact of nuclear facilities. It hosts a selection of information on its website, as well as publishing white papers and organising campaigns on various subjects.</p>	<p><u>Homepage [48]:</u> http://www.anccli.org/ <u>'Videos' [49]:</u> http://www.anccli.org/portfolio-category/video</p>

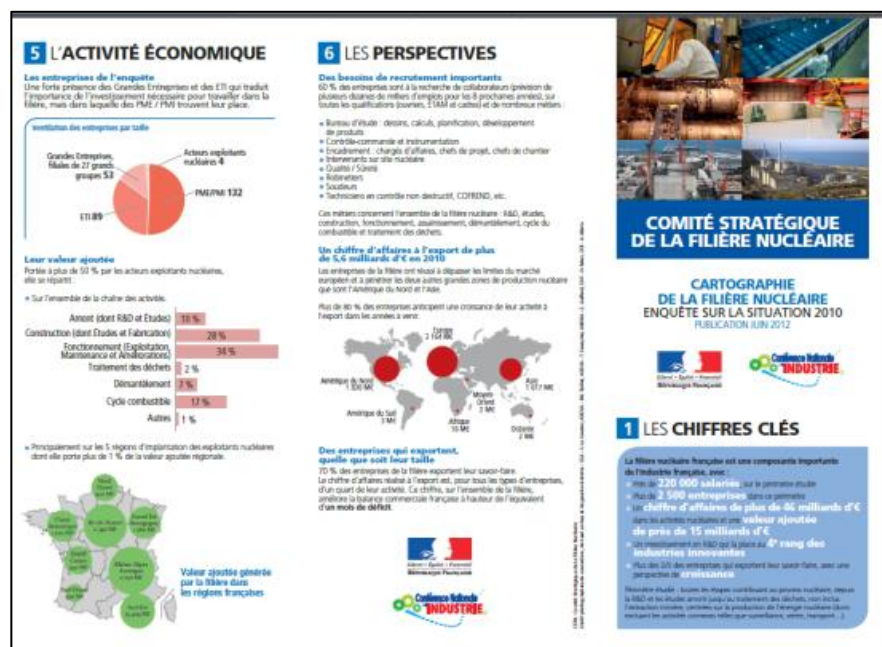


Figure 17: CSFN's infographic flyer

CFSN published a high-level position infographic flyer in 2012 for the French nuclear sector (Figure 17), which covers some of the topics that the French public are interested in. CSFN does not have a communications department however, so is yet to develop a website and has not yet established much of a voice in the French nuclear sector. Its infographic flyer, however, is eye-catching and appropriately pitched for the general public to understand.

Table 4: National and Local Narratives - Finland

Organisation	Role	Message Type
Säteilyturvakeskus (STUK)	The Radiation and Nuclear Safety Authority of Finland. The 'Topics' section holds a prominent fragment on STUK's main webpage.	Homepage [50]: http://www.stuk.fi/web/en 'Topics' [51]: http://www.stuk.fi/web/en/topics
Energiateollisuus (ET, Finnish Energy)	ET is the energy sector's organisation for industrial and labour market policy. It hosts a large amount of information on the electricity market, energy and the environment.	Homepage [52]: http://energia.fi/en 'Carbon Neutral Future' [53]: http://energia.fi/en/energy-and-environment/future
Teollisuuden Voima Oyj (TVO)	TVO is a Finnish nuclear power plant operator. TVO also has a visitors' centre at Olkiluoto, which attracts some 15,000 visitors per year, plus the Olkiluoto 3 reactor visitors' centre which attracts an additional 5,000 visitors per year.	Homepage [54]: http://tvo.fi/Home 'Communications and Visits Builds Trust' [55]: http://tvo.fi/Communciations%20and%20visits
Fennovoima	Fennovoima, one of the nuclear power plant operators in Finland, hosts a large volume of information on its website, detailing the role nuclear power plays in producing electricity in Finland.	Homepage [56]: http://www.fennovoima.fi/en 'Fennovoima Fact Sheets' [57]: http://www.fennovoima.fi/en/fennovoima
Fortum Oyj	Fortum Oyj is a Finnish energy company focusing on the Nordic and Baltic countries, Poland and Russia.	Homepage [58]: http://www.fortum.com/frontpage/com/en/?from=irene 'Nuclear Power Narrative' [59]: http://www.fortum.com/en/energy-production/nuclear-power/pages/default.aspx
VTT	VTT Technical Research Centre of Finland is the leading research and technology company in the Nordic countries.	Homepage [60]: http://www.vttresearch.com/ 'VTT's Impact' [61]: http://www.vttresearch.com/impact

Posiva	Posiva Oy is an expert organisation responsible for the final disposal of spent nuclear fuel in Finland.	<u>Homepage [62]:</u> http://www.posiva.fi/frontpage
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Fortum has a nuclear narrative on its website that provides details on a variety of key nuclear topics (Figure 18). It contains both aspects of a national narrative and high-level information on nuclear science, but also contains a local narrative for their Loviisa nuclear power plant, which covers topics such as safety, production, operations, environmental impacts and history.

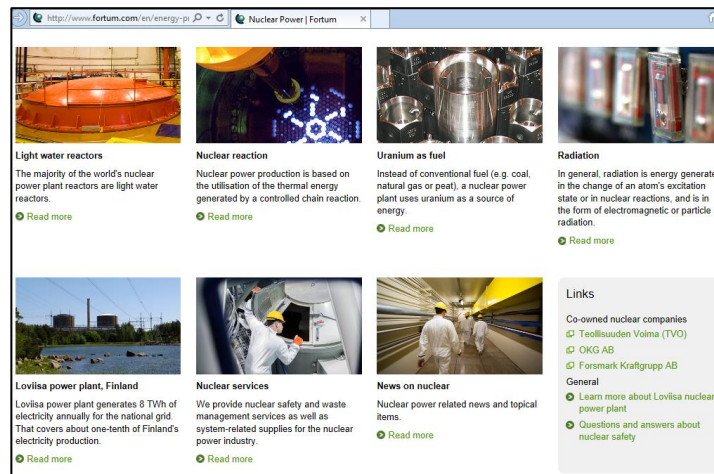


Figure 18: Fortum's online nuclear narrative with information on key topics

Table 5: National and Local Narratives - Germany

Organisation	Role	Message Type
Deutsches Atomforum (DAtF)	The DAtF (German Atomic Forum) acts as a representative for provision of nuclear information in Germany and hosts key information on its website.	<u>Homepage [63]:</u> http://www.kernenergie.de/kernenergie-en/about-us/datf/index.php <u>'Nuclear Power Plants in Germany' [64]:</u> http://www.kernenergie.de/kernenergie-en/nuclear-power/npps-germany/index.php
E.ON	E.ON is an electricity utility based in Germany that operates nuclear power plants. Its website contains basic information on nuclear energy including how it works, the different types of reactors and the issues of waste disposal and uses easy to understand graphics.	<u>Homepage [65]:</u> http://www.eon.com/en.html <u>'German Nuclear Narrative' [66]:</u> http://www.eon.com/en/business-areas/nuclear/nuclear.html

RWE Power	RWE Power is an energy production and generation company that operates nuclear power plants in Germany. Their website contains information on their nuclear power plants and the benefits they bring to the local area and national energy mix.	<p><u>Homepage [67]:</u> http://www.rwe.com/web/cms/en/55436/rwe-power-ag/</p> <p><u>'German Nuclear Power Plants' [68]:</u> http://www.rwe.com/web/cms/en/16492/rwe-power-ag/fuels/nuclear-power/biblis-nuclear-power-station/</p>
Vattenfall	Vattenfall is a Swedish electricity generator that owns nuclear power plants in Germany. Their website contains a wealth of easy to access information regarding facts about nuclear energy.	<p><u>Homepage [69]:</u> https://corporate.vattenfall.com/</p> <p><u>'Facts about Nuclear Power' [70]:</u> https://corporate.vattenfall.com/about-energy/non-renewable-energy-sources/nuclear-power/</p>
Areva-GmbH	Areva-GmbH provides technical and engineering expertise to maintain or upgrade German nuclear power plants. Their website contains a 'Values Charter' that outlines their commitment to "Transparency, sincerity and the willingness to communicate".	<p><u>Homepage [71]:</u> http://de.areva.com/EN/areva-germany-223/competence-in-nuclear-power-and-in-renewable-energies.html</p> <p><u>'Nuclear Safety Narrative [72]:</u> http://de.areva.com/EN/areva-germany-710/safety.html</p>

Figure 19 shows Vattenfall's 'Energy Triangle', which illustrates the pros and cons of nuclear power in a clear and understandable way.

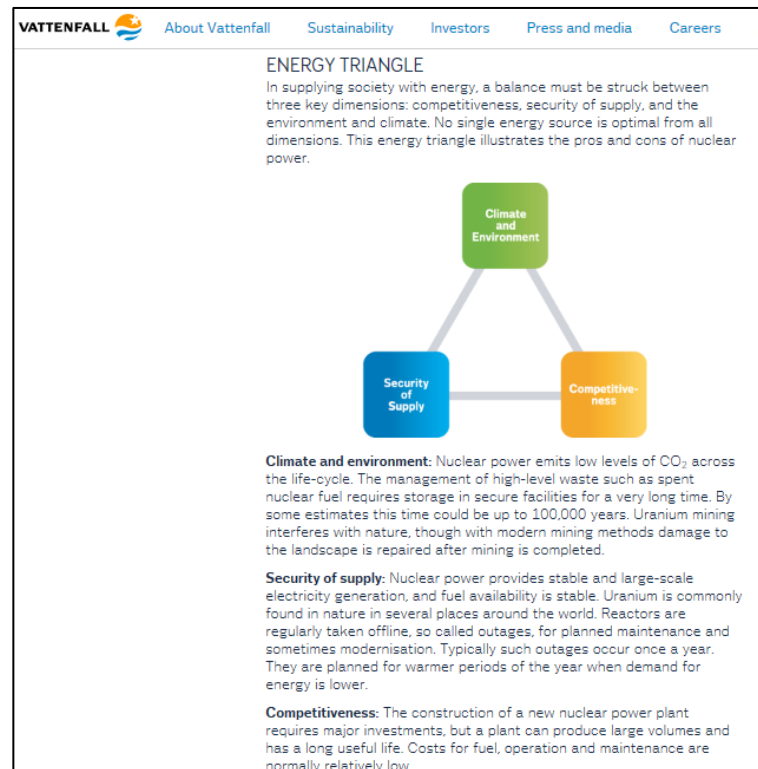


Figure 19: Vattenfall's 'Energy Triangle'

Table 6: National and Local Narratives – United Kingdom

Organisation	Role	Message Type
Nuclear Industry Association (NIA)	The NIA is the trade association for the UK's civil nuclear industry. It hosts a large volume of information on its website including books, brochures, maps and reports.	Homepage [73]: http://www.niauk.org/ 'Nuclear Energy Facts' [74]: http://www.niauk.org/facts-and-information
EdF Energy	EdF Energy, who own all operating UK nuclear power stations, host information on their website, including a section on the daily status of the plants.	Homepage [75]: https://www.edfenergy.com/ 'UK Nuclear Narrative' [76]: https://www.edfenergy.com/future-energy
NuGen	NuGen is a UK nuclear company that aims to build a new nuclear power station in England at Moorside, near Sellafield. Its website, whilst still being developed, indicates the desire for the company to	Homepage [77]: http://www.nugeneration.com/ 'Working in Partnership' narrative [78]: http://www.nugeneration.com/partnership.html

	engage with the supply chain, schools, universities, training and skills bodies and local representatives.	
Horizon	Horizon is a new nuclear build developer in the UK. Its website hosts information on nuclear power facts including technology, safety, the prospective sites, community consultation as well as community support.	Homepage [79]: http://www.horizonnuclearpower.com 'Facts about Nuclear Power' [80]: http://www.horizonnuclearpower.com/nuclear-power-facts
Office for Nuclear Regulation (ONR)	ONR regulates health, safety and security at UK nuclear sites. Their website details how they achieve this, reports and findings from their regulatory activities, active programmes of work, and intervention records. It is responsible for regulating operators against the site licence it grants.	Homepage [81]: http://www.onr.org.uk/index.htm 'Regulatory Narrative' [82]: http://www.onr.org.uk/regulation-and-licensing.htm
Environment Agency (EA)	The Environment Agency regulates discharges and disposals on nuclear power sites. It grants an environmental permit to operators for nuclear power plants and regulates operators against the limits and conditions in the permits.	Homepage [83]: https://www.gov.uk/government/organisations/environment-agency 'EA Policies' [84]: https://www.gov.uk/government/policies/energy-industry-and-infrastructure-licensing-and-regulation
Nuclear Decommissioning Authority (NDA)	The NDA is a non-departmental public body that will ensure the safe and efficient clean-up of the UK's nuclear legacy. Their website outlines the plans for each NDA site in an open and transparent format.	Homepage [85]: https://www.gov.uk/government/organisations/nuclear-decommissioning-authority/about 'Transparency Data' [86]: https://www.gov.uk/government/publications?departments%5B%5D=nuclear-decommissioning-authority&publication_type=transparency-data

Radioactive Waste Management Ltd (RWM Ltd)	RWM Ltd is a wholly-owned subsidiary of the NDA, and is tasked with delivering a geological disposal facility for the UK's higher active wastes.	<p><u>Homepage [87]:</u> https://www.gov.uk/government/organisations/radioactive-waste-management</p> <p><u>'Public Consultation' [88]</u> https://www.gov.uk/government/consultations/public-consultation-on-national-geological-screening</p>
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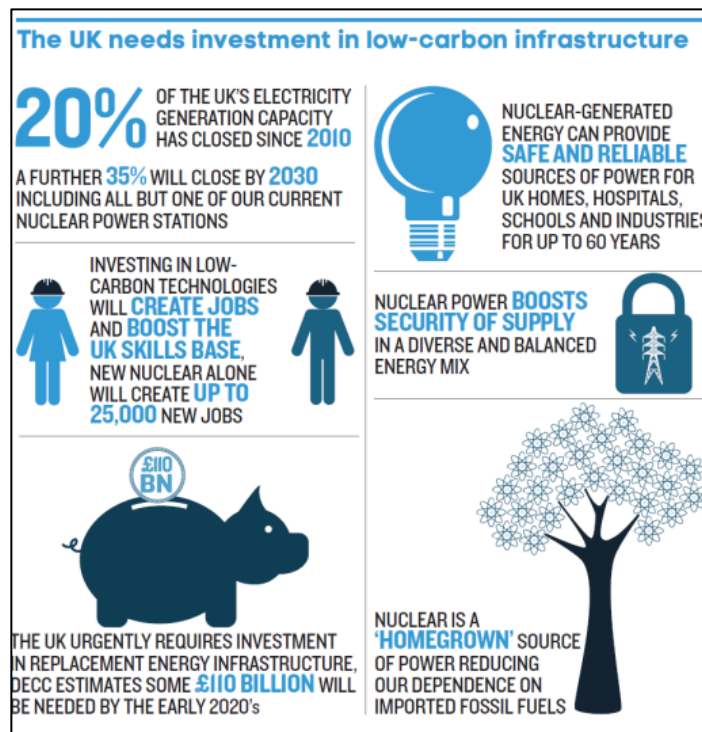


Figure 20: 'Low-carbon infrastructure' section of the NIA's nuclear fact book

Figure 20 demonstrates the use of easy to understand infographics in the NIA's nuclear fact book, which contains narrative through infographics related to twenty-four different nuclear topics.

Points for consideration:

- Information must be accessible and be of appropriate detail and technical content. Many organisations take the approach of producing multiple formats and technical levels of the same information in order to reach the broadest audience, and it is important that different levels of information are consistent with one another.
- There is a clear need to explain what the information being communicated means for the audience it is targeted at and for the topics covered to be those most relevant to the target audience.
- The internet is not the only medium for narrative and alternative forms of communicating a narrative must be considered. Face-to-face, for example, develops real conversations and provides the audience with the opportunity to ask questions and receive answers.

- A presence in schools is important, for example by providing free classroom materials to teachers that want to teach a lesson on nuclear topics.
- How the narrative is framed is a key aspect, for example, highlighting nuclear power in the broader context as a part of the energy mix or in terms of climate change.

When developing a narrative, a number of key questions should be considered to help ensure it reaches its target audience and is appropriately pitched:

1. Who is the target audience (e.g. general public, women, young people, politicians, etc.)?
2. What level of narrative is required (e.g. international, national or local)?
3. Is the narrative consistent with other narratives and are the messages backed-up by facts?
4. Who is the most publicly trusted organisation to develop, host and disseminate the narrative (e.g. regulator, professional institution, nuclear power plant operator, etc.)?
5. What type of communication channels will be used to disseminate the narrative (e.g. website, social media, public events, workshops, etc.)?
6. What is the most appropriate format (e.g. electronic file, brochure, exhibition stand, flyer, web-page, etc.)?
7. Are the messages meaningful to the audience and easy to understand?
8. Is the narrative designed for one-way communication, two-way communication, or multi-directional communication?
9. Have the key topics that the audience want to know about been identified (e.g. waste management, economic impact, safety and security, etc.)?

4.4. Assessment Tools

The UK's Concordat (2015) and IRSN's Charter (2009) both state the importance of measuring performance of the sector as a whole, and individual organisations, against their commitments. Measuring performance regarding their impact on society is also a key component of the IRSN Charter. There are a number of tools that can be adapted for use by the nuclear sector and individual organisations to aid in measuring their performance and impact on society.

EDGE Self-Assessment Tool

The UK's National Co-ordinating Centre for Public Engagement (NCCPE) has developed a tool that Universities can use to assess their performance in a number of key areas related to how they engage the public in their research. This tool can be adapted for use at a number of levels within a university, such as within a research group, department, or across the university as a whole. It allows the assessor to highlight the key areas of strength and weakness with regards to performance in public engagement; acting as a vital tool for those looking to reward success and also target areas for improvement. Figure 21 is a screen-shot of the EDGE Self-Assessment Tool, which can be found on NCCPE's website [89].

<i>The EDGE tool</i>					
	Focus	Embryonic	Developing	Gripping	Embedding
PURPOSE	Mission	There is little or no reference to public engagement in the organisational mission or in other institution-wide strategies	PE is referenced sporadically within the institutional mission documents and strategies, but is not considered a priority area	PE is clearly referenced within the institutional mission and strategies and the institution is developing an institution-wide strategic approach	PE is prioritised in the institution's official mission and in other key strategies, with success indicators identified. It is a key consideration in strategic developments in the institution
	Leadership	Few (if any) of the most influential leaders in the institution serve as champions for public engagement	Some of the institution's senior team act as informal champions for public engagement	Some of the institution's senior team act as formal champions for public engagement	The VC acts as a champion for PE and a senior leader takes formal responsibility. All senior leaders have an understanding of the importance and value of public engagement to the institution's agenda
	Communication	The institution's commitment to public engagement is rarely if ever featured in internal or external communications	Public engagement occasionally features in internal and external communications	Public engagement frequently features in internal communications, but rarely as a high profile item or with an emphasis on its strategic importance	PE appears prominently in the institution's internal communications; its strategic importance is highlighted, and resources and strategic support have been allocated to sustain this
PROCESS	Support	There is no attempt to co-ordinate public engagement activity or to network learning and expertise across the institution	There are some informal attempts being made to co-ordinate PE activities, but there is no strategic plan for this work. Some self-forming networks exist, not supported by the institution	Oversight and co-ordination of PE has been formally allocated (e.g. to a working group or committee) but there is minimal support and resource to invest in activity	The institution has a strategic plan to focus its co-ordination, a body/ies with formal responsibility for oversight of this plan, and resources available to assist the embedding of PE. There are a number of recognised and supported networks
	Learning	There is little or no opportunity for staff or students to access professional development to develop their skills & knowledge of PE	There are some opportunities for staff or students to access professional development and training in PE, but no formal or systematic support	There are some formal opportunities for staff or students to access professional development and training in PE.	Staff and students are encouraged and supported in accessing professional development, training and informal learning to develop their skills and knowledge of engagement
	Recognition	Staff are not formally rewarded or recognised for their PE activities	Some departments recognise and reward PE activity on an ad hoc basis.	The university is working towards an institution-wide policy for recognising and rewarding PE activity	The university has reviewed its processes, and developed a policy to ensure PE is rewarded & recognised in formal and informal ways
PEOPLE	Staff	Few if any opportunities exist for staff to get involved in public engagement, either informally or as part of their formal duties	There are opportunities for staff in a handful of faculties or departments to get involved in PE, either informally or as part of their formal duties	There are structured opportunities for many staff members to get involved in PE; but not in all faculties or departments. There is a drive to expand opportunities to all	All staff have the opportunity to get involved in public engagement, either informally or as part of their formal duties, and are encouraged and supported to do so
	Students	Few opportunities exist for students to get involved in PE, either informally, through volunteering programmes, or as part of the formal curriculum	There are opportunities for students to get involved, but there is no coordinated approach to promoting and supporting these opportunities across the institution	Many (but not all) students have the opportunity to get involved in PE and are encouraged and supported to do so. There is a drive to expand opportunities to all	All students have the opportunity to get involved in PE, and are encouraged and supported to do so. The institution offers both formal and informal ways to recognize and reward their involvement
	Public	Little or no attempt has been made to assess community need, or to support 'non traditional' groups in engaging with the institution	Some attempt has been made to analyse community need and interest; and to begin to tackle access issues to open up the institution and its activities to the public	The institution has committed resources to assessing community need and interests, and to using this insight and feedback to inform its strategy and plans	The institution has assessed need & committed resources to supporting a wide range of groups to access its facilities and activities, and to systematically seek their feedback and involvement.
National Co-ordinating Centre for Public Engagement		The EDGE tool		www.publicengagement.ac.uk	

Figure 21: NCCPE's EDGE Self-Assessment Tool

The UK nuclear sector plans to work with NCCPE in the near future to develop a 'Nuclear EDGE Self-Assessment Tool' through a series of workshops. This will result in a tool that can accompany the UK's Concordat for public engagement, allowing the UK nuclear sector to continuously review its performance against the Concordat principles and ensure it makes a difference to society.

Points for consideration:

- Be aware of the current culture within a sector/organisation - for some, this tool may present a perfect opportunity for improvement and to initiate culture change, whereas others may feel threatened by the thought of highlighting areas of weakness.
- The value of self-assessment - when used internally, this tool can provide a snapshot of how a sector/organisation is currently performing. In order to reduce risk of biased results, external assessment would be preferable through asking familiar stakeholders or trusted organisations to conduct an assessment on their behalf. This would facilitate the building of trust through independent evaluation.

Comparicube®² and Materiality Analysis

The Corporate Social Responsibility Group within TVO uses a tool called the "materiality matrix", which is used to identify the aspects of social responsibility with the greatest relevance for the company's stakeholders and business operations. The assessment was carried out based on discussions between the company's management, personnel and external stakeholders, and information received from attitude surveys.

This tool provides valuable insight into areas which hold the most relevance to stakeholders. For the toolkit presented here, this or similar analyses may prove

²Comparicube® is a registered trademark of National Nuclear Laboratory Ltd 2016

invaluable in terms of identifying the most important issues and topics on a country-specific basis, and therefore tailoring public engagement activities within member states. For illustration, the latest update of TVO’s materiality matrix from the end of 2014 is shown in Figure 22.

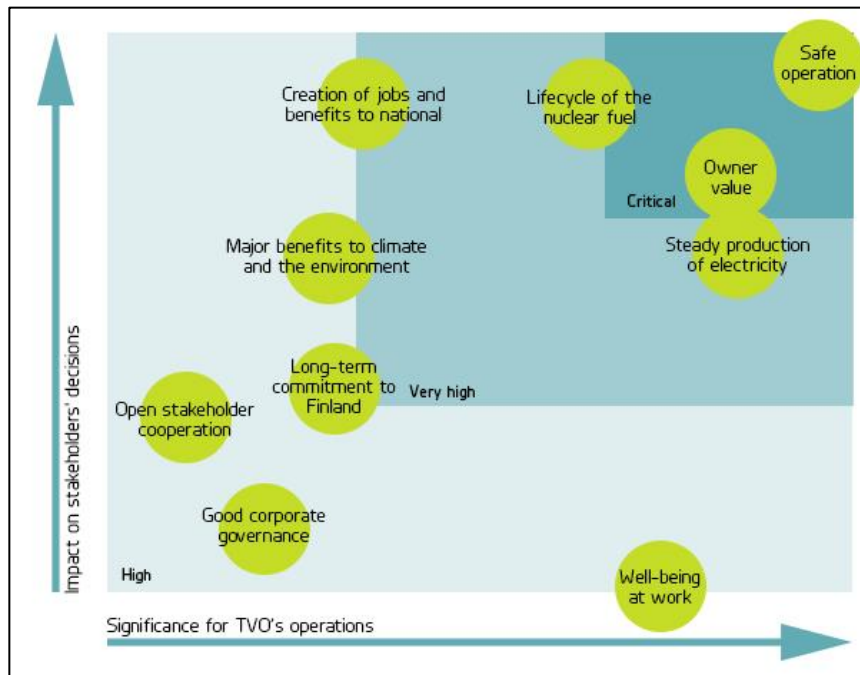


Figure 22: TVO’s Materiality Matrix for 2014

Inspired by the “materiality matrix”, the use of the proprietary NNL decision-support and stakeholder communication tool CompariCube® is proposed for the purpose of creating public-engagement specific studies which draw from the core concept of the materiality matrix in Figure 22.

An illustrative CompariCube® study for a theoretical company NuclearGENCo is shown in Figure 23. The different stakeholder groups are shown on one horizontal axis. On the other axis there is an example range of “areas of concern” which are of interest to these groups. The vertical axis shows the relative importance of these areas for each group. The taller the bars are, the more important the issue is to that group. Colour coding emphasises the differences.

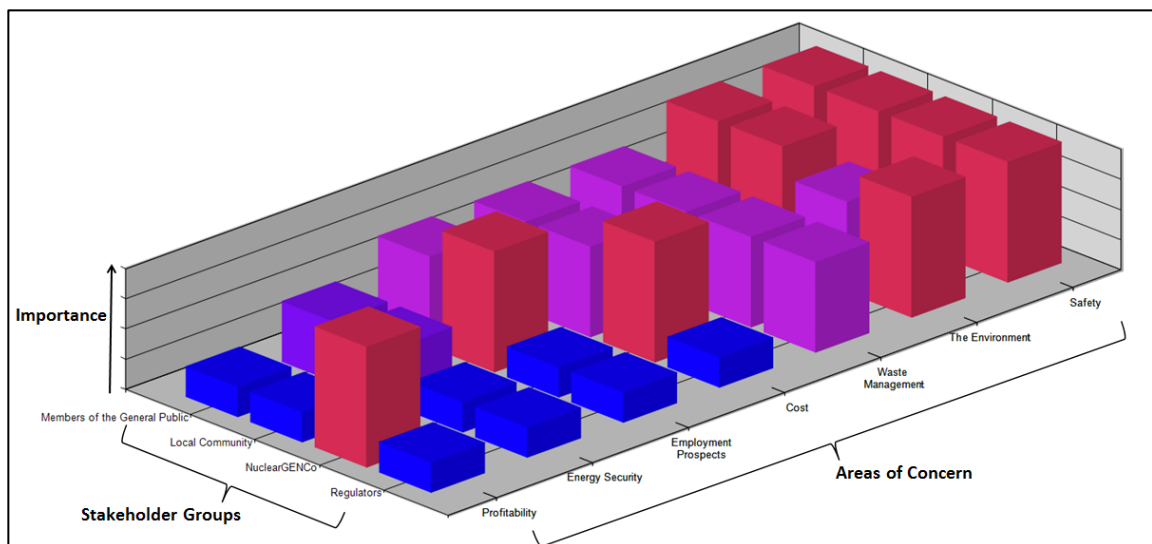


Figure 23: Illustrative CompariCube® Stakeholder Priority Study

The data underpinning the study would be gathered from questionnaires or interviews with the different stakeholder groups, which ask a set of questions for each area of concern. The flexibility of the tool means that questions can take many forms, with possible responses including any combination of formats such as “yes/no”, “none/somewhat/very”, “low/medium/high”, “scale of 1-10”, without requiring any further processing. CompariCube® will process all the results automatically to produce the intuitive visual output shown in Figure 23.

Since the views of each stakeholder group can be captured through a wide range of questions, a good picture could be built up of current commonalities and differences in stakeholder priorities. The benefits of using CompariCube® are a clear visible output so stakeholder issues and priorities can be readily compared.

This approach is proposed as a means of moving away from a “one size fits all” approach by using data to steer engagement activities. The strength of this approach is that by investing some additional effort into the data gathering process, public engagement activities can be tailored to the groups depending on the importance they place on key issues of importance/relevance to them. We envisage that this personalised way of working could lead to more effective and efficient engagement practices.

Points for consideration:

- The Materiality Analysis could be a useful way to identify and track areas of concern to inform a narrative.
- Using a highly visual tool is valuable for developing an understanding of the effectiveness of engagement processes.

IRSN Barometer

Since France’s first commercial nuclear power plant opened at Fessenheim in 1977, IRSN have conducted an annual survey to monitor risk perception among the French population, which acts as a tool for understanding and assessing public opinion (not for assessing the impact of specific initiatives, such as the IRSN charter). The survey covers a number of topic areas, including: 1) current concerns among French society, 2) French society’s views on scientific experts, 3) risks that French society believes they currently face, 4) risks specifically from the nuclear field, and 5) risks of radon in homes. Figure 24 illustrates just one of the many results included in the 2015 survey, with this example highlighting the level of competence and credibility that nuclear organisations and stakeholders have among French society [90].

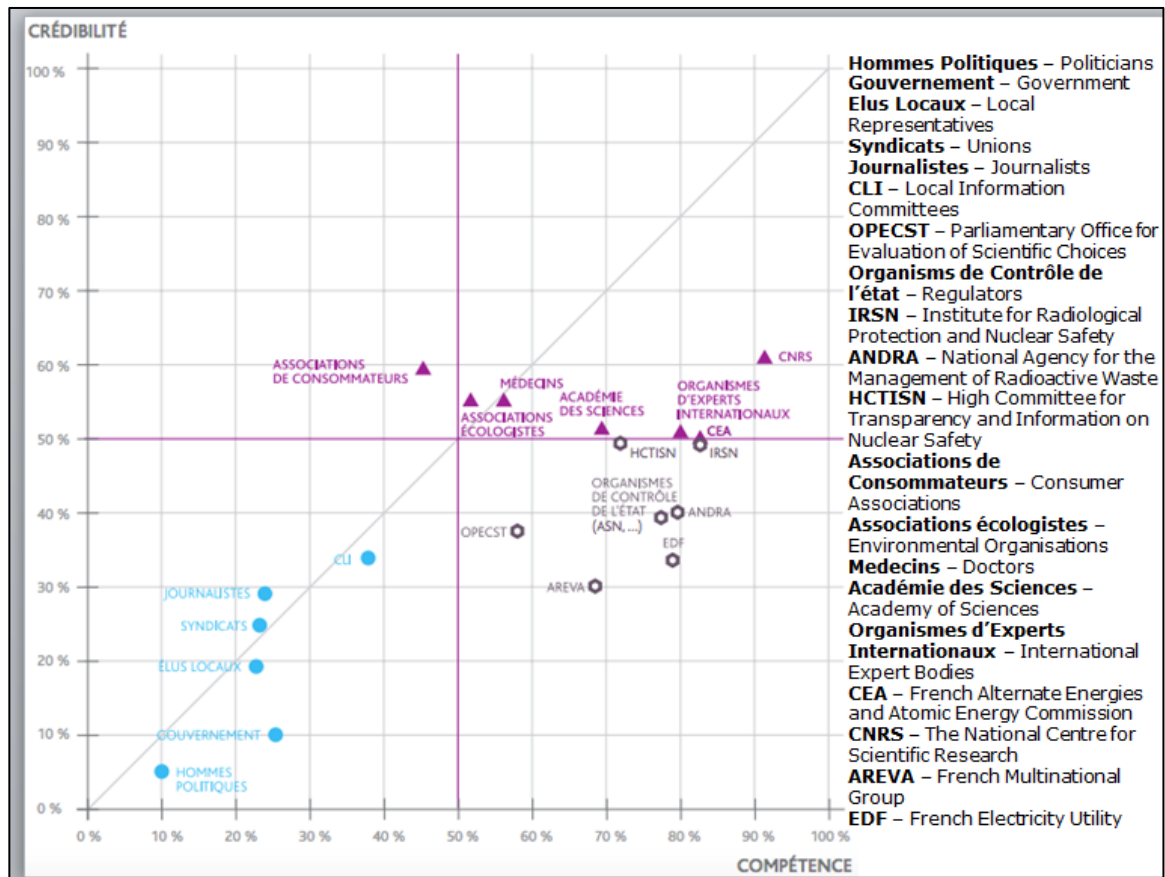


Figure 24: Illustration of the level of credibility and competence that French society places on nuclear organisations and stakeholders (IRSN Barometer 2015).

These types of surveys can provide a wealth of data for the nuclear sector to draw from and provide regular updates of the public's perceptions of the nuclear sector and its activities, as well as a tool for identifying factors that impact public perception.

Some additional examples of surveys can be found at the following links:

- 'Europeans and Nuclear Safety Report', Special Eurobarometer 324, European Commission [91]

http://ec.europa.eu/public_opinion/archives/ebs/ebs_324_en.pdf

- 'Public Attitudes Tracking Survey', Department of Energy and Climate Change (UK) [92]

<https://www.gov.uk/government/statistics/public-attitudes-tracking-survey-wave-17>

Points for consideration:

- Credibility of source – the results of public opinion surveys can be misleading, so it is important to pay attention to the source of the information.
- Use information appropriately - there is the risk of a sector/organisation losing credibility if it responds in an inappropriate way to public opinion surveys. For example, it is important not to use the results to argue or advocate a position.
- Quantitative emphasis - it is important to not rely solely on quantitative data obtained from an opinion survey. Public engagement should be fostered through both quantitative and qualitative data, and most importantly, acting on it.

- Window of opportunity - publication of opinion surveys introduce an opportunity to have dialogue with the public, and sectors/organisations must be prepared for these occasions to ensure messages are clear and consistent, as well as being accessible to a wide range of audiences.
- Tools, such as those presented in this section, coupled with an understanding of who the public trust within industry, could be used to inform who would be an appropriate group of organisations to develop a Concordat.
- Acquiring data for these methods relies on the design of the dialogue and the questions used to inform the study. An element is simply asking people what they want to be informed about. The questions asked must be clearly defined in order to decide which tool would be most appropriate for collecting the responses to the questions.

4.5. Case Studies

Case studies form a vital part of this toolkit as they provide real demonstrations of how the Concordat's principles for public engagement have been successfully implemented. However, it must be emphasised that the majority of these examples have originated as points of learning from previous attempts at public engagement, and have been a direct development where an initial failure or challenge was understood and a successful follow up was implemented.

The case studies have been grouped according to the public engagement principle that they demonstrate most strongly and should be used to generate ideas of how to implement and embed the Concordat principles across an organisation and nuclear sector.

4.5.1. Principle 1 – Leadership Commitment

NNL study in partnership with Welsh Government and Sellafield Ltd to examine the principles and commitments in the Nuclear Concordat in dialogue with the public

The UK's Concordat, 'Nuclear Energy and Society: a Concordat for Public Engagement' (the 'Concordat'), was developed with the aim of improving public understanding of nuclear energy, and also acts as a demonstration of the sector's commitment to engaging with society on nuclear energy matters.

Giving the public a voice in the Concordat's development will ensure it contains principles that both industry and the public have discussed and agreed to, and acts as a transparent and open approach toward developing good practice in public engagement. A public dialogue project on the Concordat launched in April 2016 and deliberative public dialogue events took place in May and July 2016 (Figure 25).



Figure 25: Public dialogue workshop in Wrexham, UK

The project was managed by the UK's National Nuclear Laboratory and involves collaborative working with partners from Welsh Government and Sellafield Ltd. Oversight of the dialogue process was provided by a group of independent expert advisers from pro- and anti-nuclear NGOs, industry/local government, the Government-owned Radioactive Waste Management (RWM) and academia representing a range of views.

The objectives of the public dialogue study were to:

- Inform and if needed, update the Concordat through public dialogue
- Gain and use insights into public expectations of how public engagement might be demonstrated
- Identify and where appropriate take account of the implications of implementing the Concordat within the nuclear sector
- Understand and take account of what is regarded by sections of the public as respectful methods of engagement
- Work with participants to determine how public views can be best accommodated within any public engagement learning and review process.

The feedback from the public who participated in the dialogue workshops has given the nuclear industry some guidance on how it must act to demonstrate that the sector takes society's views on nuclear energy seriously, and will result in a Concordat that is a product of industry, Government and the public.

More information can be found at: [94],

<http://www.niauk.org/news/2284-nuclear-industry-commits-to-public-engagement-nuclear-industry-commits-to-public-engagement> [93]

IRSN's Openness to Society Charter

IRSN is a French public institution engaged in study and research to assess nuclear and radiological risks and ways of reducing them. It acts as the Technical Safety Organisation for the National Regulatory Authority in France including the provision of information to the public on nuclear safety issues. For example information on background levels of radioactivity around nuclear sites. Openness to society is one of the four key themes IRSN endorse in a formal agreement with the French Government. In addition to technical expertise, independence and avoidance of conflict-of-interest are of high importance to IRSN, which relies on these factors to support the quality and transparency of its work. In undertaking risk assessment, the institution approaches stakeholder engagement as integral to the performance of its work, rather than solely as a way of communicating it. In the Openness to Society Charter published in 2009, IRSN made the following commitments to improve risk assessment through better interactions with society:

- Increase transparency in presenting its results
- Share its knowledge
- Help stakeholders acquiring the skills necessary to actively participate in and build risk assessment along with them

Leadership commitment resulted in the establishment of an internal Openness to Society Department, with the goal of leading a change in process within IRSN in support of the Charter. More information can be found at:

http://www.irsn.fr/FR/connaissances/Nucleaire_et_societe/ouverture-transparence/ouverture/Pages/1-Charte-ouverture-a-la-societe.aspx?dId=37527b12-e4e1-40de-aca0-d2c08e7b0d0c&dwId=dd75846b-9be7-4230-9e4b-ac0ecce2dd72#.V63rD9RwYdV [95]

4.5.2. Principle 2 – Best Practice

Decommissioning Trawsfynydd Nuclear Site in Consultation with the Public

The Trawsfynydd nuclear site, formerly a Magnox reactor site and now undergoing decommissioning, is located in a UK National Park of outstanding national beauty. When the nuclear plant shut down in 1993, the owner Nuclear Electric (NE) did not yet have a clearly defined strategy for decommissioning the plant. NE presented its preferred decommissioning strategy to the public before decommissioning commenced, alongside three other possible alternatives by means of touring exhibitions to 13 local venues. The public were invited to respond by means of questionnaires offered at the touring exhibition and at the visitors' centre, in addition to the formal feedback from local authorities, and the responses from staff. The local population expressed a preference for a strategy which minimised the aesthetic impact of the decommissioning operation and maximised employment opportunities. This exercise resulted in a change to NE's original strategy. As part of the consultation, interested parties were kept abreast of developments through a feedback process, which is likely to have maintained public support. The engagement with the public enabled the company to proceed with decommissioning in a way which did not draw public criticism at later stages in the process. More information can be found at: [96]

The Olkiluoto Visitors' Centre

Visitors' centres at nuclear sites in Finland have been notable areas of successful public engagement. The visitors' centre run by the nuclear operator TVO at the operating reactor site Olkiluoto, also home to the EPR new-build OL3 and the future GDF which is currently under construction, is one such example. Hosting the "Electricity from Uranium Exhibition", the centre is open daily to the public, and since its opening in February 2006, visitor numbers have averaged 15,000 people each year. More in-depth half-day tours at the site are available by arrangement for groups, and these include a visit to the repository for low and intermediate-level waste, and a tour to the ONKALO Research Gallery located in the research section of the repository. Amongst the visitors of all ages are children on field trips from schools. Indeed, school children from the local area may visit Olkiluoto several times during their time at school, and therefore become quite familiar with the site and the developments underway there. This type of physical interaction with the site, and face-to-face engagement has been reported by the company to be well received by the public. For illustration from stakeholder discussions in August 2016, it is understood that the Editor-in-Chief of a prominent Green periodical attended the tour, and as a result has since approved publications of adverts for the visitors' centre in the periodical. More information can be found at:

<http://www.tvo.fi/visitorcentre> [97]

Public Involvement in Emergency Preparedness

In France, the CLIs (Local Commissions of Information) are involved in emergency preparedness exercises for nuclear facilities. This participatory approach improves the quality of vulnerability analyses, highlights concerns of citizens and allows people to react appropriately in the case of an accident. Society is viewed as an essential actor in terms of nuclear safety, with a need for trust, information, and transparency. Through the CLI system in France, the aim has been to involve the public in emergency planning by keeping them up-to-date on changes to emergency plans and including members of CLIs in planning exercises. The philosophy behind this involvement is to educate the population in terms of risk (for instance, a study found that members of the public had an exaggerated perception of the size of a post-event exclusion zone), and to build confidence in "peace time" which will benefit society under the more challenging conditions of potential crises. Indeed, the Council of the European Union on Off-Site Nuclear Emergency Preparedness and Response has concluded there are benefits in involving civil society in these activities and exercises, increasing transparency and public participation, and improving public confidence in emergency arrangements. More information can be found at:

http://www.bvsabr.be/js/tinymce/plugins/moxiemanager/data/files/20160304/25_ANCC_LI.pdf [98]

CEA's Development of Information Materials

France's CEA has an active communications department committed to producing a wide variety of information materials on scientific subjects aligned to the organisation's work, including nuclear. Amongst the authors are CEA's own subject matter experts who are able to present technical information in a clear and accessible way. Amongst the wide variety of publications covering a wide range of subjects are a set of booklets, leaflets, and posters on topics related to nuclear. The publications offered are high quality and attractive, and are aimed at providing information to school children, teachers, and

young people as well as the general interested public. In addition to the hard copy formats, many are available in electronic form online and many are also available translated into English. More information can be found at:

<http://www.cea.fr/multimedia/> [99]

City Cards

In 2009, DATF (German Atomic Forum, who act as a representative for provision of nuclear information in Germany) launched a campaign aimed at reaching out to younger people in bars in Berlin with the purpose of promoting the benefits of nuclear energy. A series of colourful postcards (Figure 26) with engaging phrases were spread across Berlin's bars, and continued the conversation on the rear of the post card.



Figure 26: A selection of DATF's "City Cards"
Top left: "Do you really want to break up with me?"
Top right: "You must go over 17 bridges ..."
Bottom left: "We need to talk!"
Bottom right: "Thank you for last night"

An example of the conversation that continues on the back of the postcard is:

Front: "Thank you for last night"

Rear: "...and thank you for the crispy stone-baked oven pizza, for the cool white wine and for the enthralling film. Thanks oven, thanks refrigerator, thanks TV. Thanks nuclear power!"

"A German nuclear power plant produces enough electricity each year to continuously run 28 million ovens, 50 million fridges and 50 million TVs. Thus, the German nuclear power plants provide energy for many gorgeous evenings and prevent over 150 million tonnes of CO₂ from entering the atmosphere - and now we are set to end..."

"Let us talk about it. Please visit www.kernenergie.de"

This campaign provides a good example of pro-active public engagement that is targeted at a certain demographic and is appropriately pitched. There was not a targeted impact study carried out for this campaign, though polling results in the period concerned were positive. Unfortunately, the campaign was cut short due to the announcement to abolish nuclear power in Germany, and it is therefore not possible to ascertain whether the City Cards campaign had an impact.

4.5.3. Principle 3 – Effective Communicators

NNL Corporate Social Responsibility (CSR) Report 2015

“NNL Corporate Social Responsibility Report 2015” - In 2015, NNL launched its first Corporate Social Responsibility (CSR) report. It presents NNL’s CSR focus over 2015 and covers six sections highlighting areas that include community engagement, ethics, employee engagement, compliance, quality and services. This report is a reflection of a more structured approach and strategy to CSR activities and events that has been implemented by NNL.

The report demonstrates how NNL is taking its responsibilities as a member of local communities seriously, and shows how volunteers from within NNL are enabled to go into local communities through educational schemes and science festivals and engage with children and adults on science, engineering, and nuclear topics. Leadership commitment, one of the Concordat principles, is also evident through a quote from NNL’s managing director, where there is direct mention of NNL’s aims to foster a corporate culture that values CSR. More information can be found at:

<http://www.nnl.co.uk/news-media-centre/news-archive/nnl-launches-its-first-corporate-social-responsibility-report/> [100]



Figure 27: NNL's CSR Report 2015

INSTN Seminar with Polish Students

In November 2015, the National Institute for Nuclear Science and Technology (INSTN), which is part of the French Atomic Energy Commission (CEA), held a workshop for Polish students that aimed to train them in how to develop trust between the nuclear industry and the public in order to secure the future of a nation’s proposed nuclear new build programme. The workshop commenced with a series of lectures (Figure 28) on topics such as ‘communication with the public’, ‘best practices’, ‘different publics’, and ‘how to communicate scientific information in an understandable way’. Lectures were followed by a communications workshop, where groups of students worked together on hypothetical case studies to develop a collective reflection on the case and present their strategic proposals as to how the case could be effectively undertaken with respect to communications and public engagement.

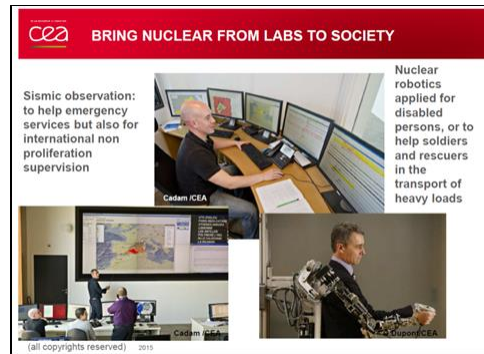


Figure 28: A slide from one of the INSTN lectures

This case study is a positive example of an organisation sharing their knowledge and understanding of good practice with other nations. It also demonstrates how training can be provided to scientists and engineers, allowing them to recognise the importance of public engagement and build it into the way they work.

The programme was co-funded by the European Union - European Social Fund and Operational Programme Human Capital. Please contact CEA directly for more information.

4.5.4. Principle 4 – Make a Difference

Public Consultation as part of the Generic Design Assessment Process

The Generic Design Assessment (GDA) process is a pre-licensing step undertaken in the UK for proposed new reactor build. GDA involves a structured review of the safety, security, environmental and waste management aspects for new reactors. The process was jointly developed by the Office for Nuclear Regulation (ONR) and the Environment Agency in response to the UK Government's 2006 Energy Review. GDA includes a comments process, where interested parties and members of the public can ask questions and make comments on the reactor designs which are openly published. The reactor vendors are responsible for developing responses and answers for the public working in liaison with the regulators. This public comment process can be used to inform the regulators' assessments of reactor designs. In addition there is a formal consultation stage as part of the Environment Agency process during GDA where the public have the opportunity to raise comments on various aspects, from management arrangements to spent fuel management. The aim of stakeholder and public engagement as part of the GDA process is to be transparent and to share information regarding the process and its progress. It is also to build understanding of the decision-making process and the role of the regulators, and to encourage, enable, and consider stakeholder input. There is a stakeholder engagement plan on the Joint Regulators website which sets out how the regulators will engage. In 2015, a series of dialogue workshops took place with members of the public, to determine how the GDA process could better serve the needs of the public in terms of involvement in reactor design assessment, specifically to review and improve public involvement in reactor assessments. The findings are being used to inform the regulators of how the GDA process can be improved in terms of public involvement. More information can be found at:

<http://www.onr.org.uk/new-reactors/reports/public-and-stakeholder-engagement-june-2014.pdf> [101]

<http://www.sciencewise-erc.org.uk/cms/new-nuclear-power-stations-reviewing-how-to-engage-with-members-of-the-public-in-reactor-design-assessments-known-as-the-generic-design-assessment-or-gda> [102]

Environmental Impact Assessment for ONKALO

The Environmental Impact Assessment (EIA) is the first of the four-stage licensing process for new nuclear sites in Finland, and has involved public consultation since the 1990s with the aim of increasing public involvement. Posiva is a company co-founded by nuclear operators TVO and Fortum for the purposes of researching and implementing a method for geological disposal for Finnish spent fuel. The EIA carried out by Posiva for the licensing of ONKALO, a site for final geological disposal of spent fuel at Olkiluoto (a site also home to Finland's current nuclear new build of the EPR OL3, and also to two of the four currently operating reactors in Finland), is informally referred to as "the EIA of the Century" by the nuclear sector for the large amount of effort that was put into public consultation over a period of years. Geological disposal of spent fuel presents a new set of challenges with public acceptance that don't exist in nuclear new build, which is an established process with precedent from the earlier generation reactors. Therefore, Posiva engaged with the EIA process in innovative ways, going "above and beyond" the usual levels of public communication. The project gained local public acceptance, making it easier for Parliament to approve the project and a Decision in Principle for the final disposal of spent fuel was subsequently granted in 2001. Excavation and construction of the Geological Disposal Facility (GDF) site commenced in 2004. More information can be found at:

[https://www.iaea.org/NuclearPower/Downloadable/Meetings/2015/2015-15-06-17-06-NIDS/5.3 SI with Siting and EIAs - Posiva \(Jalonen\).pdf](https://www.iaea.org/NuclearPower/Downloadable/Meetings/2015/2015-15-06-17-06-NIDS/5.3%20SI%20with%20Siting%20and%20EIAs%20-%20Posiva%20(Jalonen).pdf) [103]

4.6. Summary

In this section, the five key components of the EU Nuclear Public Engagement Toolkit have been examined and guidance provided so the tools contained within can be used as an aid for adapting the UK's approach to a variety of contexts. The following bullet points summarise the recommended steps that the user of this toolkit should take to develop public engagement tools for use in their own nuclear sector:

1. Concordat – using the principles outlined in Section 4.1, the user should consider adapting the principles to the context of their nuclear sector, taking account of the potential barriers to implementation of each principle.
2. Guidance Documents – using the examples of 'Communications Professionals' and 'Informal Engagers' provided in Section 4.2, the user should identify the key groups that will require guidance and then develop specific guidance for these groups, taking into consideration the type of engagement these groups are likely to have and the questions they may face by the public.
3. Nuclear Narrative – using the examples of national and local narratives provided in Section 4.3, the user should pay attention to the key questions that are highlighted when developing the nuclear narrative, and draw ideas from the examples provided in Table 2 to Table 6.
4. Assessment Tools – the user should consider using and further developing the tools detailed in Section 4.4, along with other tools not specified, to gather insight into the public's opinions and to measure performance of public engagement initiatives.
5. Case Studies – the user should draw inspiration from the case studies detailed in Section 4.5 as they provide real examples of how the public engagement principles can be used effectively.

5. Hosting and Dissemination of the EU Toolkit

The dissemination activity has been aimed at building awareness around the project and its achievements. To reach this goal, the following channels are suggested with the purpose of optimal coverage. The dissemination activity has been split into two distinct sections, dissemination and hosting, with additional sub sections. Dissemination is emphasised in order to encourage uptake and routine use.

5.1. Dissemination

Digital

The Internet represents one of the main communication media, allowing the dissemination of any kind of information to a wide audience in a fast and accessible manner.

Website

The website represents an immediate and accessible entry point which is open to all relevant stakeholders. It provides the ability to create awareness and interest in the project by making the most important information publicly available in a concise manner. To increase dissemination potential, all publications should be available to download through the NUGENIA website. Another area that could be used to host the toolkit is the FORATOM website. There is a designated section for 'publications' and a 'facts and figures' section which holds infographics about all aspects of the nuclear industry such as Nuclear and Climate, Nuclear Industry in the EU and Nuclear and Health. The European Commission is another website which could also be used. There is a section on 'Policies, Information and Services' which hosts an area on Energy.

Social Media

Facebook and Twitter are the two main social media channels. Campaigns can be set up which create awareness and engage users to 'tweet' or 'like' posts. It is a platform to start discussion. LinkedIn is primarily a network of professionals; articles would be well suited in this domain and the reach can be wide ranging in terms of key people within organisations. All content created or uploaded to a website can be linked into social media to direct people to the correct documents.

Mailing Lists

The creation of a mailing list allows a variety of e-materials to be sent in a rapid and efficient manner. These can take the form of updates, newsletters, press releases, etc. Once the mailing lists are collated, they provide valuable information which can be used to categorise a target audience and develop key relationships. Figure 29 shows the main contact email addresses for the organisations that may form the basis for a project mailing list. The organisations below may be used to build a key contact database.

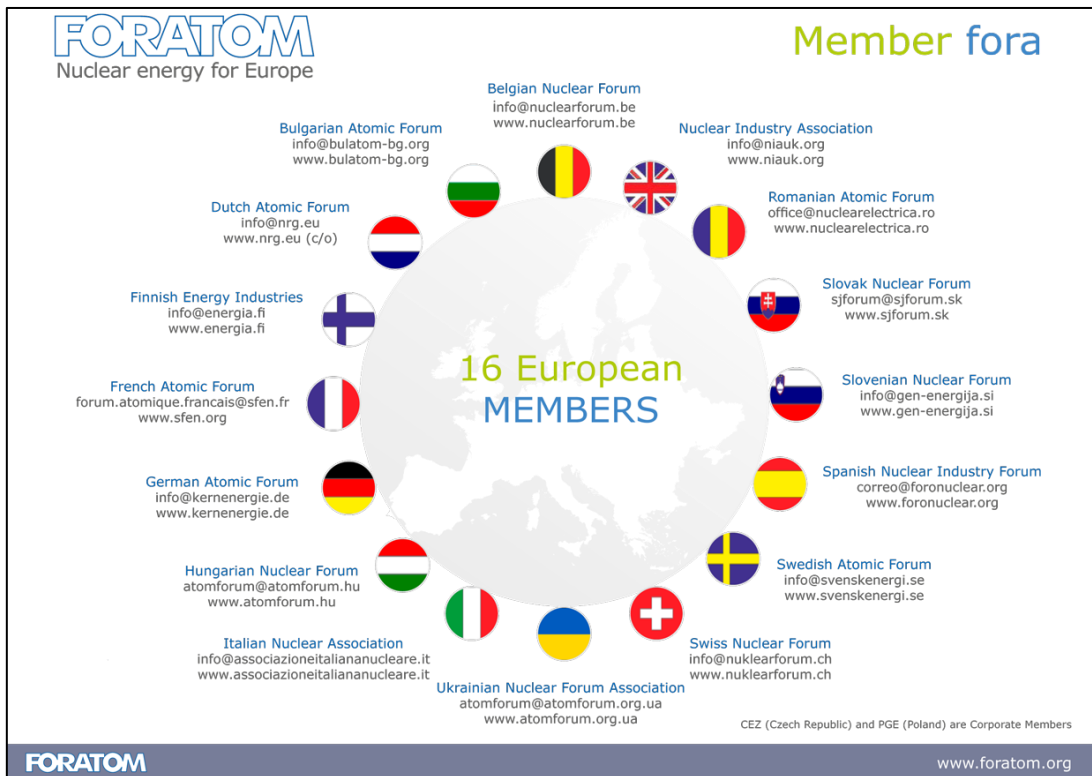


Figure 29: FORATOM European members

Search Engines

The effectiveness of the project website as a dissemination tool strongly depends on its visibility through the main internet search engines, (i.e. Google, Yahoo, Bing, etc.). Therefore it is important that NUGENIA considers investing effort into ensuring that it is displayed within the very first results when key words are entered into a search engine; this is called Search Engine Optimisation (SEO). Selected key words for the search engines relevant for the content of the project includes, for instance, the short name of the project, and terms like "public engagement", "Andrew Sherry", "Concordat" and "NUGENIA-PLUS". As more information is published on the internet, the keywords related to the NUGENIA-PLUS project will also need amending, so it is important to note that it is not a one-time effort and will require monitoring and adapting.

SEO companies can be brought in to help organise this area of a campaign, but there are also various tools which can be used such as Google Analytics which provide data collection and reporting about visitors to the NUGENIA website.

Google Adwords is a tool which advertises on search engines, allowing you to reach the right audience at the right time. This service requires payment; however payment is only required once visitors click to visit your website.

The purpose of these tools is to increase awareness. If after a keyword search, a company or project appears too far down the list or on the second page of Google the less likely it is to be seen or to encourage people to visit the page.

Web Statistics

Web statistics enable a rich insight into who is visiting a website, the country where access is made to the website, how long they spend on that particular area, etc. This will allow informed decisions to be made based on actual data. If the data for visiting the website is low, then alternatives can be looked into, such as hosting the project somewhere else, making it available on the front page, ensuring there are no technical

problems, etc. These are all important points to note in ensuring information reaches people in a timely manner.

Blogs/Forums

Blogs and forums are used to create a platform for discussion and debates. It is an open space for people to express views and opinions and allows discussions to occur with a diverse range of individuals. Utilising this accessible channel of communication would enable a better understanding the views of the public, especially when developing a way to engage with the public. Setting up a designated area where the public and the industry can talk openly could provide another portal to obtain key information for the analysis of approaches to engagement. However it is important to understand that using a public forum or blog could also welcome a surge of hostile comments due to the nature of the topic. There are measures in place to restrict and delete unwanted comments, but awareness around the nature of blogs for potentially controversial issues should be noted.

Data Archiving

It is important to make sure the learning is stored (archived) in such a way as to be findable in the future. All experience (positive and negative) should be captured and lessons learned recorded. This promotes the right culture for people to embark on a search for pre-existing learning before starting out on a new communications or engagement project. Archiving information also provides a timeline or log of events highlighting the journey of production.

Knowledge Management

Across the multitude of organisations involved in this project, knowledge is continually gained, lost and then sought again. Managing and sharing the knowledge in regard to this project both openly and progressively will be important. It will allow feedback to be contributed, maintained and for further refined.

Seminar/Workshop

To ensure findings reach their intended audience, and are of practical use, it is recommended that regular public workshops or seminars are held to discuss the project, progress and to agree a forward plan. This also provides regular insight into changing perceptions.

Building a Project Image

Due to the scale of the project and its projected impact, building a strong project image and style would enable easy recognition. The image / statement could be used to create consistency, especially if the Concordat is translated into different languages. Building a strong image will brand the project which will in turn provide an identity for all future work that is developed. Promotional material would also link into the project image.

Literature

The purpose of the following literature is to provide a user friendly overview of activities and achievements. It also serves as channels to continually update, create a sense of community and channel new ideas which are needed to continue progression and implementation.

- **Posters**
- **Case Studies** – to encourage uptake by others.
- **Timeline** – similar to the NIA timeline of the nuclear fuel cycle (see Figure 30). This could show idea conception through to execution. This would allow people to understand the growth of the project through various phases.
- **Brochures** – these can be used when making international relationships.
- **Presentations**
- **Newsletters** - The main purpose of the newsletter is to provide up-to-date information to interested parties about activities related to the project. The newsletter can present current achievements and the 'news/events' feed from the website. It can be made available in print or in electronic formats.

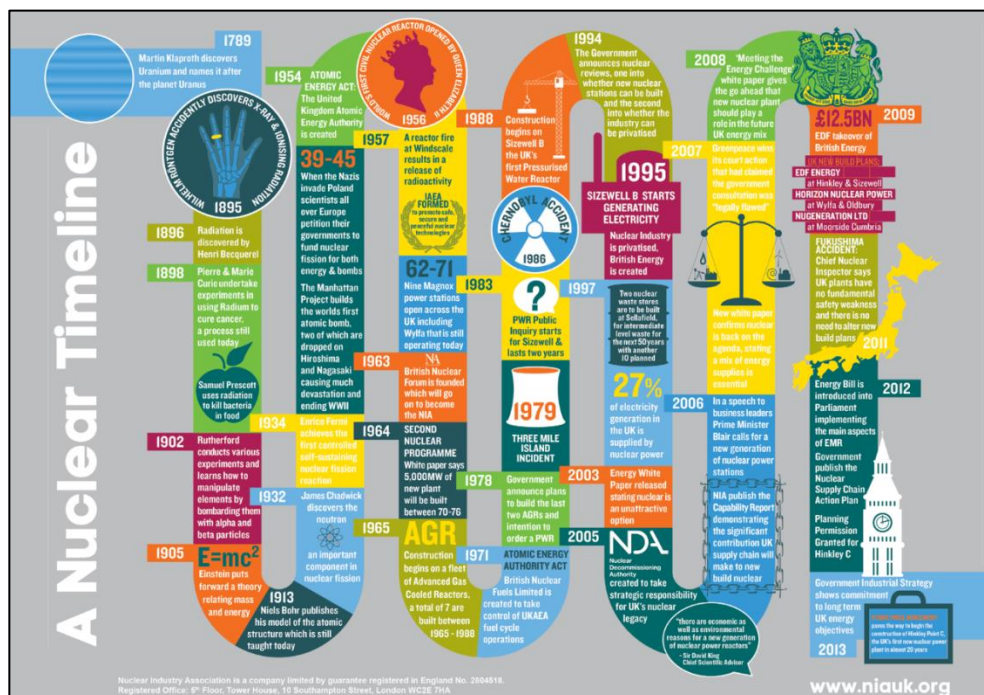


Figure 30: Nuclear Industry Association – A Nuclear Timeline

Diversity

Although English is the official language of the project, consideration should be given to making information concerning the project widely available in various languages.

Evaluation

As outlined in the sections on Data Archiving and Knowledge Management, all experience, both positive and negative, should be recorded. Feedback should be captured in order to establish lessons learned. This evaluation data should be recorded in order that subsequent activities draw from the experience of the past, and such that a culture of capturing, sharing, and progressing from learning is established.

Press Release

A press release would be an announcement for an event and its frequency would depend upon activity and news. It is proposed that this document would sit on the 'news' section of the NUGENIA website and could be linked and posted on social media to provide much wider coverage. Press releases also appear in search engines when key words are searched again moving traffic to the main website. This is a good channel to use to keep activity high around the project.

5.2. Hosting

It is anticipated that this toolkit report and all supporting documentation will be hosted on the NUGENIA website. A dedicated area will be used which can also be fed into the website with live updates to promote further. Once the report and all supporting documents are hosted in one place they can be then disseminated on social media. This will allow industry-wide organisations to link to these documents. It is likely that these organisations will then engage in internal promotion. As mentioned earlier, data archiving is important in order to provide one place where all information relating to the project can be stored.

On 29th August 2016, an area on the NUGENIA website was established to host the toolkit and other information related to the project (Figure 31). This webpage can be assessed directly from the NUGENIA homepage, meaning it is visible to all who enter the NUGENIA website. The information on the project webpage outlines the objectives of the project and a description of the work, as well as providing web-links to the UK Concordat. Relevant supporting information will be added when it becomes available.

The screenshot shows the NUGENIA website interface. At the top, the NUGENIA logo is displayed with the tagline 'NUclear GENeration II & III Association'. Below the logo is a navigation menu with links: Home, About NUGENIA, Project Portfolio, NUGENIA+, Events, News, Library, Links, Members area, NOIP, and Contact. The main heading of the page is 'NUGENIA+: EU Nuclear Public Engagement Toolkit', with a sub-link 'Work Package 2 highlight'. A breadcrumb trail shows 'Home / NUGENIA+: EU Nuclear Public Engagement Toolkit'. The page content is organized into several sections:

- About the NUGENIA+ project**: A button to explore more about the project.
- OBJECTIVES**: A section stating that the task under Work Package 2 has three principal objectives:
 - Testing the outworking of the UK's 'Nuclear Energy and Society Concordat for Public Engagement' in Finland, France and Germany;
 - Develop an 'EU Nuclear Public Engagement Toolkit' based on the UK's Concordat and supporting materials, which will enable NUGENIA members to engage effectively with the public/civil society on key nuclear issues;
 - Providing options for hosting and dissemination of the toolkit to allow the public perception of nuclear in Europe to be assessed.
- DESCRIPTION OF WORK**: A section describing the project's aim to assess the applicability of public engagement principles developed as part of the UK focused Nuclear Energy and Society Concordat for Public Engagement in a European context. It mentions working in partnership between UK and selected European countries through UK National Nuclear Laboratory representatives.
- MAIN RESULTS / HIGHLIGHTS**: A section stating that two reports will be published in September 2018:
 - 'Public Engagement in the Nuclear Sector: A UK and EU Perspective'
 - 'Developing an EU Nuclear Public Engagement Toolkit'
- FOR DOWNLOAD**: A section with a button to download the toolkit, accompanied by a brief list of contents:
 - Engagement Principles
 - Guidance Documents
 - Nuclear Narrative
 - Assessment Tools
 - Case Studies

Figure 31: NUGENIA webpage dedicated to the EU toolkit

Publications and various other documents can also be stored in the Publications section of the website. Press releases can also be featured on the 'Recent News' section of the NUGENIA Website.

In uploading content, the website is managed by LGI Consulting.

5.3. Recommendations

For Hosting:

The NUGENIA website and the FORATOM websites have been suggested as appropriate places to host the toolkit. Both websites have been reviewed and provide designated areas where the toolkit could sit. The NUGENIA website is preferred as it is user friendly and provides easy navigation. A dedicated webpage has already been created on the NUGENIA website and it is recommended that NUGENIA assigns a representative to ensure this webpage is kept up-to-date as new relevant information becomes available.

For Dissemination:

The website, social media, press releases and literature are the main avenues for dissemination due to their wide ranging reach.

The website provides an archive for all the information which can then be linked to various channels. Press releases and social media allow people to be informed whilst also creating a community around the project. Brochures and posters allow an opportunity to evidence achievements in a format which can be used at events and when addressing the public. The creation of brochures and posters will support the project image maximising visibility.

6. Conclusions

This work has highlighted that there is a great deal of good practice in the area of public and stakeholder engagement on nuclear matters which is common across different countries within the EU. Equally, a number of important differences have been observed which must be borne in mind when the guidance and toolkit outlined in this report are being adopted in a specific context.

In general, there was widespread recognition that the high-level principles identified within the UK Concordat can usefully be adopted by any country when it has been agreed that communication and engagement is appropriate. However this study has shown that the details of a successful implementation approach will vary significantly from country to country – and even within the same country, either regionally or between different audiences – according to a number of factors. These include:

- The extent to which the country's nuclear industry is recognised as being safe and secure, whilst adding value in terms of energy security and economic growth. This essentially determines whether engagement is generally being undertaken from a neutral or positive standpoint or if it being done "on the back foot" to counter negative pre-conceptions.
- Whether the national culture is to be more convinced by factual or emotion based considerations.
- Who the public and other stakeholders naturally feel they can trust. In particular, the extent of public trust in industry and in scientists.
- The perceived linkage between civil nuclear power and nuclear weapons.
- Whether or not the country has an active new nuclear build programme. Such programmes tend to dominate the communications activity on nuclear matters within a country whilst they are ongoing.
- The level of familiarity with nuclear matters – at both a national and a local / regional level. In this context it is important to recognise that both too much detail and too little detail in communication can be significant barriers to effective engagement. Too much detail can be an obstacle to understanding, whilst a message which is overly simplistic can be perceived as patronising and condescending.
- The different roles of government, industry, independent experts and others in the overall nuclear communications landscape, and the extent to which these different perspectives are delivered within a co-ordinated national approach.
- The balance between different communication channels preferred by target audiences. In particular the balance between traditional "one-way" channels, such as press statements and websites, and "two-way" channels such as face-to-face contact and social media. In general this work has shown that the latter means of engagement are more effective, however they are inevitably more labour-intensive and can give rise to more challenging discussions.

All of the countries considered in detail in this work already have long-standing and well-established nuclear programmes. The implementation of the guidance in a country which is looking into nuclear energy for the first time would need to consider other issues and would bring other factors into play, for example, cultural, political, and historical elements, and specific issues of concern at the local level. Whilst it could reasonably be expected that the over-arching principles would still be valid, their implementation would require very careful consideration.

A further finding from the work is that it should not be assumed that more engagement will necessarily deliver a beneficial outcome. In much of the German input to the work – and in certain situations in other countries – it was stressed that it is important to consider the underlying context before undertaking a programme of engagement.

There are situations where an unexpected programme of engagement, however well-structured and well-intentioned, could leave the stakeholders or public feeling more concerned and anxious. Paradoxically, this may even be the case if they are also better informed as a result of the engagement.

There should not be a presumption that new – or more, or better – communication will always be helpful to either the industry or to the audience. A not-uncommon consequence of engagement with the public on nuclear matters is an increase in their level of anxiety and distrust. This is particularly the case when the communication is unsolicited or overly emphasises matters of safety and risk.

Considering the sole objective of increasing public acceptance of nuclear power is not a position that is compatible with the role of public bodies such as Safety Authorities or public Technical Safety Organisations supporting them. The Concordat could be seen to be a nuclear industry lobby position. For TSOs, openness to the civil society is not dedicated to convincing the public or to enhancing the acceptance of nuclear energy. The objectives for TSOs are to increase transparency, to share knowledge and to help stakeholders and the civil society gain a sufficient technical level to build their own informed opinion. Indeed, the involvement of stakeholders will enable them to enhance their understanding of the technical issues but also to develop their technical awareness in order to develop their own judgment on technical bases.

The ultimate aim of this package of work was to develop the basis for a public engagement platform that will benefit NUGENIA members long after NUGENIA+ has finished. In order to successfully achieve this, NUGENIA plans to form an integrated joint political and civil society advisory group that will aim to understand key nuclear issues concerning civil society. The development of the toolkit outlined within this report builds on work previously undertaken by NNL that made detailed recommendations regarding the formation of the joint political and civil society advisory group [2]. The terms of reference for this advisory group have been developed taking into account not only the work undertaken by NNL, but also a number of H2020 projects (SITEX, PREPARE, CONCERT). When the advisory group is in place, the toolkit will provide a basis on which NUGENIA members can build from, and through careful and considered adaptation of the toolkit across NUGENIA member organisations, the advisory group will have a continuous flow of information regarding public opinion across the EU, which can be used to inform the research and development carried out across the European nuclear sector.

7. Recommendations

The findings of this work are insightful and lead to some recommendations – both for the nuclear industry and joint political and civil society advisory group, and in respect of additional work.

It is recommended that when planning specific communication activity the nuclear industry should:

- Consider carefully before embarking on any programme of communication or engagement whether there is a risk of having the opposite effect from that intended, by raising anxiety among the target audience.
- Use the high-level principles and guidance from the UK Concordat as a checklist when preparing or delivering a programme of nuclear engagement.
- Reflect carefully on the specific circumstances of:
 - The national / regional landscape of nuclear communications,
 - The corresponding culture and expectations in terms of who is trusted and what channels of communication are preferred,
 - The nature and aims of the specific engagement in question, and
 - Opportunities to create an open dialogue or consultation rather than a one-way communication channel.
- At a national level, seek to identify countries with similar cultural characteristics and similar experiences in nuclear communication, within or beyond Europe, so that these countries can more readily identify and share good practice amongst themselves.

In terms of additional work, it is recommended that:

- The findings of this work and the resultant guidance and toolkit should be shared as widely as possible amongst the nuclear community in order to inform and improve future communications and stakeholder engagement.
- Consideration should be given to extending this work to a wider range of European countries, including some which have no, or only limited early stage, experience of public communications on nuclear matters.
- Consideration should be given to extending this work to identify possible synergies with other sectors beyond the nuclear industry, where public and stakeholder communication is considered a complex and challenging area.

Recommendations for the joint political and civil society advisory group:

- The group should encourage NUGENIA member organisations and EU member states to use the toolkit and adapt it for use across their country's nuclear sector.
- The group should consider using the Concordat section of the toolkit as a good practice checklist when planning communications.
- The group should familiarise themselves with the learning from this report as it builds on the knowledge contained within the previous NNL report [2].

8. References

1. European Commission, 2012 Interdisciplinary Study - Benefits and Limitations of Nuclear Fission for a Low-Carbon Economy – Defining priorities for Euratom fission research & training (Horizon 2020), Synthesis Report, EUR 25817, February 2013.
2. National Nuclear Laboratory, Public Engagement in the Nuclear Industry: A UK and EU Perspective, EU08051/06/10/01 Issue 2, September 2016.
3. Ipsos MORI (2013) British Public Split on Nuclear Power, [Online], Available: <https://www.ipsos-mori.com/researchpublications/researcharchive/3284/British-public-split-on-nuclear-power.aspx> [25 August 2016], EU08051/06/48/39.
4. N F Pidgeon et al. (2008) Climate Change of Nuclear power–No Thanks! A Qualitative Study of Public Perception and Risk Framing in Britain. *Global Environmental Change*, Vol. 18, pp. 69–85.
5. K Bickerstaff et al. (2008) Reframing nuclear power in the UK energy debate: nuclear power, climate change mitigation and radioactive waste. *Public Understanding of Science*, Vol. 17, No. 2, pp. 145-169.
6. Nuclear Industry Council (2014) In the Public Eye: Nuclear Energy and Society, Issue no. 1, [Online], Available: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/360669/In_the_Public_Eye_-_Nuclear_Energy_and_Society_-_NICJuly2014.pdf [8th September 2016], EU08051/06/48/130.
7. Nuclear Industry Council (2015) Nuclear Energy and Society: A Concordat for Public Engagement, December 2015, [Online], Available: <http://www.niauk.org/images/pdfs/publications/Public%20Engagement%20Concordat%20Dec15.pdf> [8th September 2016], EU08051/06/48/131.
8. HM Government (2013) Nuclear Industrial Strategy: the UK's Nuclear Future, BIS/13/627, [Online], Available: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/168048/bis-13-627-nuclear-industrial-strategy-the-uks-nuclear-future.pdf [8th September 2016], EU08051/06/48/132.
9. International Atomic Energy Agency (2011), Stakeholder Involvement Throughout the Life Cycle of Nuclear Facilities, Nuclear Energy Series Technical Report No. NG-T-1.4, [Online], Available: http://www-pub.iaea.org/MTCD/publications/PDF/Pub1520_web.pdf [8th September 2016], EU08051/06/48/133.
10. Nuclear Industry Association, Nuclear Energy Facts [Online], Available: https://issuu.com/nuclear_industry_association/docs/nia_facts_book_for_web/1?e=6190736/34699528 [25 August 2016], EU08051/06/48/40.
11. 3KQ Publication (August 2015) New nuclear power stations: Improving public involvement in reactor design assessments, Dialogue Report [Online], Available: <http://www.sciencewise-erc.org.uk/cms/assets/Uploads/GDA-dialogue-report-August-2015-FINAL.pdf> [8th September 2016], EU08051/06/48/134.
12. Department of Energy and Climate Change, Review of the Siting Process for a Geological Disposal Facility, Summary of Responses, February 2014, URN 14D/060, [Online], Available: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/285444/2014-02-07_Summary___Consultation_on_Review_of_the_Siting_Process_for_a_Geological_Disposal_Facility_-_Final.pdf [8th September 2016], EU08051/06/48/135.
13. Nuclear Industry Association, UK Public Opinion Facts (January 2016), [Online], Available: http://www.niauk.org/images/graphics/facts_enlargements/public_op2015.pdf [23 August 2016], EU08051/06/48/41.

14. World Nuclear Association, Nuclear Power in the United Kingdom (Updated 10 August 2016), [Online], Available: <http://www.world-nuclear.org/information-library/country-profiles/countries-t-z/united-kingdom.aspx> [23 August 2016], EU08051/06/48/42.
15. World Nuclear Association, Nuclear Power in France (Updated July 2016), [Online], Available: <http://www.world-nuclear.org/information-library/country-profiles/countries-a-f/france.aspx> [23 August 2016], EU08051/06/48/44.
16. World Nuclear News, Growing support for nuclear France (24 June 2013), [Online], Available: http://www.world-nuclear-news.org/NP-Growing_support_for_nuclear_France-2406137.html [23 August 2016], EU08051/06/48/45
17. IFOP, Les Français et l'énergie nucléaire (25th April 2016), [Online], Available: http://www.ifop.com/?option=com_publication&type=poll&id=3370 [23 August 2016], EU08051/06/48/46.
18. FORATOM, What people really think about nuclear energy (September 2014), [Online], Available: <http://www.foratom.org/public/topical-publications/8596-opinion-poll/file.html> [23 August 2016], EU08051/06/43/129
19. World Nuclear Association, Nuclear Power in Germany (Updated 12 August 2016), [Online], Available: <http://www.world-nuclear.org/information-library/country-profiles/countries-g-n/germany.aspx> [23 August 2016], EU08051/06/48/47.
20. World Nuclear Association, Nuclear Power in Finland (Updated June 2016), [Online], Available: <http://www.world-nuclear.org/information-library/country-profiles/countries-a-f/finland.aspx> [23 August 2016], EU08051/06/48/48.
21. Nuclear Energy and Society: A Concordat for Public Engagement, UK nuclear industry, 2015, [online], Available: <http://www.niauk.org/images/pdfs/publications/Public%20Engagement%20Concordat%20Dec15.pdf> [8th September 2016], EU08051/06/48/52
22. Concordat for Engaging the Public with Research (UK universities, 2013), [online], Available: <http://www.rcuk.ac.uk/documents/scisoc/concordatforengagingthepublicwithresearch-pdf/> [8th September 2016], EU08051/06/48/53
23. Charter on Openness to Society (IRSN, France, 2009), [online], Available: http://www.irsn.fr/FR/connaissances/Nucleaire_et_societe/ouverture-transparence/ouverture/Documents/IRSN_Charte_ouverture_societe.pdf [8th September 2016], EU08051/06/48/54
24. www.sciencemediacentre.org [23 August 2016], EU08051/06/48/49.
25. RCUK's Concordat for Engaging the Public with Research, [online], Available: <http://www.rcuk.ac.uk/pe/Concordat/> [8th September 2016], EU08051/06/48/55
26. Nuclear Industry Association, Facts and Information for Nuclear Energy, [Online], Available: <http://www.niauk.org/facts-and-information-for-nuclear-energy#worldwide> [23 August 2016], EU08051/06/48/50.
27. World Nuclear Association Homepage, [online], Available: <http://world-nuclear.org/> [8th September 2016], EU08051/06/48/56
28. WNA Nuclear Basics, [online], Available: <http://world-nuclear.org/nuclear-basics.aspx> [8th September 2016], EU08051/06/48/57
29. WNA Nuclear Footprints Narrative, [online], Available: <http://www.nuclearfootprints.org/> [8th September 2016], EU08051/06/48/58
30. WANO homepage, [online], Available: <http://www.wano.info/en-gb> [8th September 2016], EU08051/06/48/59
31. "Connect with WANO", [online], Available: <http://www.wano.info/en-gb/mediaandevents/connectwithwano> [8th September 2016], EU08051/06/48/60
32. <https://www.iaea.org/> [8th September 2016], EU08051/06/48/61

33. IAEA factsheets, [online], Available: <https://www.iaea.org/publications/factsheets> [8th September 2016], EU08051/06/48/62
34. ENS homepage , [online], Available: <https://www.euronuclear.org/welcome.htm> [8th September 2016], EU08051/06/48/63
35. ENS Nuclear Glossary, [online], Available: <https://www.euronuclear.org/info/encyclopedia.htm> [8th September 2016], EU08051/06/48/64
36. Foratom homepage, [online], Available: <http://www.foratom.org/> [8th September 2016], EU08051/06/48/65
37. Foratom Nuclear Pocket Guide, [online], Available: <http://www.foratom.org/facts-and-figures.html> [8th September 2016], EU08051/06/48/66
38. ASN homepage, [online], Available: <http://www.french-nuclear-safety.fr/> [8th September 2016] EU08051/06/48/67
39. ASN Publications, [online], Available: <http://www.french-nuclear-safety.fr/Information/Publications> [8th September 2016], EU08051/06/48/68
40. IRSN homepage, [online], Available: <http://www.irsn.fr/EN/Pages/home.aspx> [8th September 2016], EU08051/06/48/69
41. IRSN Thematic resources, [online], Available: <http://www.irsn.fr/EN/publications/thematic-safety/Pages/Thematic-nuclear-safety.aspx> [8th September 2016], EU08051/06/48/70
42. CEA homepage , [online], Available: <http://www.cea.fr/english> [8th September 2016], EU08051/06/48/71
43. CEA resources, [online], Available: <http://www.cea.fr/english/Pages/resources.aspx> [8th September 2016], EU08051/06/48/72
44. ANDRA homepage, [online], Available: <http://www.andra.fr/international/index.html> [8th September 2016], EU08051/06/48/73
45. CSFN infographic flyer, [online], Available: http://www.entreprises.gouv.fr/files/files/directions_services/conseil-national-industrie/PDF/CSFN-cartographie.pdf [8th September 2016], EU08051/06/48/74
46. SFEN homepage, [online], Available: <http://www.sfen.org/en> [8th September 2016], EU08051/06/48/75
47. SFEN's 'Nuclear for Climate' narrative, [online], Available: <http://www.sfen.org/en/nuclear-for-climate> [8th September 2016], EU08051/06/48/76
48. ANCCLI homepage, [online], Available: <http://www.anccli.org/> [8th September 2016], EU08051/06/48/77
49. ANCCLI videos, [online], Available: <http://www.anccli.org/portfolio-category/video> [8th September 2016], 2016], EU08051/06/48/78
50. STUK homepage, [online], Available: <http://www.stuk.fi/web/en> [8th September 2016], EU08051/06/48/79
51. STUK 'Topics', [online], Available: <http://www.stuk.fi/web/en/topics> [8th September 2016], EU08051/06/48/80
52. Energia homepage, [online], Available: <http://energia.fi/en> [8th September 2016], EU08051/06/48/81
53. Energia's 'Carbon-neutral future', [online], Available: <http://energia.fi/en/energy-and-environment/future> [8th September 2016], EU08051/06/48/82
54. TVO homepage, [online], Available: <http://tvo.fi/Home> [8th September 2016], EU08051/06/48/83

55. TVO 'Communications and Visits Builds Trust', [online], Available: <http://tvo.fi/Communications%20and%20visits> [8th September 2016], EU08051/06/48/84
56. Fennovoima homepage, [online], Available: <http://www.fennovoima.fi/en> [8th September 2016], EU08051/06/48/85
57. Fennovoima fact sheets, [online], Available: <http://www.fennovoima.fi/en/fennovoima> [8th September 2016], EU08051/06/48/86
58. Fortum homepage, [online], Available: <http://www.fortum.com/frontpage/com/en/?from=irene> [8th September 2016], EU08051/06/48/87
59. Fortum nuclear power narrative, [online], Available: <http://www.fortum.com/en/energy-production/nuclear-power/pages/default.aspx> [8th September 2016], EU08051/06/48/88
60. VTT homepage, [online], Available: <http://www.vttresearch.com/> [8th September 2016], EU08051/06/48/89
61. 'VTT's Impact', [online], Available: <http://www.vttresearch.com/impact> [8th September 2016], EU08051/06/48/90
62. Posiva homepage, [online], Available: <http://www.posiva.fi/frontpage> [8th September 2016], EU08051/06/48/91
63. DATF homepage, [online], Available: <http://www.kernenergie.de/kernenergie-en/about-us/datf/index.php> [8th September 2016], EU08051/06/48/92
64. DATF 'Nuclear power plants in Germany', [online], Available: <http://www.kernenergie.de/kernenergie-en/nuclear-power/npps-germany/index.php> [8th September 2016], EU08051/06/48/93
65. EON homepage, [online], Available: <http://www.eon.com/en.html> [8th September 2016], EU08051/06/48/94
66. EON 'German Nuclear Narrative', [online], Available: <http://www.eon.com/en/business-areas/nuclear/nuclear.html> [8th September 2016], EU08051/06/48/95
67. RWE homepage, [online], Available: <http://www.rwe.com/web/cms/en/55436/rwe-power-ag/> [8th September 2016], EU08051/06/48/96
68. RWE 'German nuclear power plants', [online], Available: <http://www.rwe.com/web/cms/en/16492/rwe-power-ag/fuels/nuclear-power/biblis-nuclear-power-station/> [8th September 2016], EU08051/06/48/97
69. Vattenfall homepage, [online], Available: <https://corporate.vattenfall.com/> [8th September 2016], EU08051/06/48/98
70. Vattenfall 'facts about nuclear power', [online], Available: <https://corporate.vattenfall.com/about-energy/non-renewable-energy-sources/nuclear-power/> [8th September 2016], EU08051/06/48/99
71. Areva-GmbH homepage, [online], Available: <http://de.areva.com/EN/areva-germany-223/competence-in-nuclear-power-and-in-renewable-energies.html> [8th September 2016], EU08051/06/48/100
72. Areva-GmbH nuclear safety narrative, [online], Available: <http://de.areva.com/EN/areva-germany-710/safety.html> [8th September 2016], EU08051/06/48/101
73. NIA homepage, [online], Available: <http://www.niauk.org/> [8th September 2016], EU08051/06/48/102
74. NIA Nuclear Energy Facts, [online], Available: <http://www.niauk.org/facts-and-information> [8th September 2016], EU08051/06/48/103
75. EDF Energy homepage, [online], Available: <https://www.edfenergy.com/> [8th September 2016], EU08051/06/48/104

76. EDF Energy nuclear narrative, [online], Available: <https://www.edfenergy.com/future-energy> [8th September 2016], EU08051/06/48/105
77. NuGen homepage, [online], Available: <http://www.nugeneration.com/> [8th September 2016], EU08051/06/48/106
78. NuGen 'Working in Partnership', [online], Available: <http://www.nugeneration.com/partnership.html> [8th September 2016], EU08051/06/48/107
79. Horizon homepage, [online], Available: <http://www.horizonnuclearpower.com> [8th September 2016], EU08051/06/48/108
80. Horizon 'Facts about Nuclear Power', [online], Available: <http://www.horizonnuclearpower.com/nuclear-power-facts> [8th September 2016], EU08051/06/48/109
81. ONR homepage, [online], Available: <http://www.onr.org.uk/index.htm> [8th September 2016], EU08051/06/48/110
82. ONR regulatory narrative, [online], Available: <http://www.onr.org.uk/regulation-and-licensing.htm> [8th September 2016], EU08051/06/48/111
83. Environment Agency homepage, [online], Available: <https://www.gov.uk/government/organisations/environment-agency> [8th September 2016], EU08051/06/48/112
84. Environment Agency policies, [online], Available: <https://www.gov.uk/government/policies/energy-industry-and-infrastructure-licensing-and-regulation> [8th September 2016], EU08051/06/48/113
85. NDA homepage, [online], Available: <https://www.gov.uk/government/organisations/nuclear-decommissioning-authority/about> [8th September 2016], EU08051/06/48/114
86. NDA transparency data, [online], Available: https://www.gov.uk/government/publications?departments%5B%5D=nuclear-decommissioning-authority&publication_type=transparency-data [8th September 2016], EU08051/06/48/115
87. RWM homepage, [online], Available: <https://www.gov.uk/government/organisations/radioactive-waste-management> [8th September 2016], EU08051/06/48/116
88. RWM public consultation, [online], Available: <https://www.gov.uk/government/consultations/public-consultation-on-national-geological-screening> [8th September 2016], EU08051/06/48/117
89. National Co-ordinating Centre for Public Engagement, Self Assess with the EDGE Tool, [Online], Available: <https://www.publicengagement.ac.uk/support-it/self-assess-with-edge-tool> [23 August 2016], EU08051/06/48/51.
90. l'Institut de radioprotection et de sûreté nucléaire (IRSN), Barometre, La perception des risques et de la sécurité par les Français, Résultats d'ensemble, ISSN: 2116-9179, (July 2015).
91. 'Europeans and Nuclear Safety Report', Special Eurobarometer 324, European Commission, [online], Available: http://ec.europa.eu/public_opinion/archives/ebs/ebs_324_en.pdf [8th September 2016], EU08051/06/48/118
92. 'Public Attitudes Tracking Survey', Department of Energy and Climate Change (UK), [online], Available: <https://www.gov.uk/government/statistics/public-attitudes-tracking-survey-wave-17> [8th September 2016], EU08051/06/48/119
93. NIA 'Nuclear Industry Commits to Public Engagement', [online], Available: <http://www.niauk.org/news/2284-nuclear-industry-commits-to-public-engagement-nuclear-industry-commits-to-public-engagement> [8th September 2016], EU08051/06/48/120

94. C Grundy, A Bull, C J Holmes, M Cormack, J Scott, R Holmes (forthcoming 2016), Engaging with Society on Nuclear Energy Matters – A Public Dialogue on the UK’s “Nuclear Energy and Society: A Concordat for Public Engagement”, Paper for oral presentation at European Nuclear Conference, October 2016
95. IRSN Openness to Society Charter, [online], Available: http://www.irsn.fr/FR/connaissances/Nucleaire_et_societe/ouverture-transparence/ouverture/Pages/1-Charte-ouverture-a-la-societe.aspx?dId=37527b12-e4e1-40de-aca0-d2c08e7b0d0c&dwId=dd75846b-9be7-4230-9e4b-ac0ecce2dd72#.V63rD9RwYdV [8th September 2016], EU08051/06/48/121
96. Bond et al, (2004) Public participation in EIA of nuclear power plant decommissioning projects: a case study analysis, Environmental Impact Assessment Review, Vol. 24, pp 617–64
97. TVO visitors’ centre, [online], Available: <http://www.tvo.fi/visitorcentre> [8th September 2016], EU08051/06/48/122
98. ANCCLI, Public involvement on emergency measures; French experiences, [online], Available: http://www.bvsabr.be/js/tinymce/plugins/moxiemanager/data/files/20160304/25_ANCCLI.pdf [8th September 2016], EU08051/06/48/123
99. CEA Information materials, [online], Available: <http://www.cea.fr/multimedia/> [8th September 2016], EU08051/06/48/124
100. NNL Corporate Social Responsibility Report, [online], Available: <http://www.nnl.co.uk/news-media-centre/news-archive/nnl-launches-its-first-corporate-social-responsibility-report/> [8th September 2016], EU08051/06/48/125
101. ONR Public and Stakeholder Engagement Report, June 2014, [online], Available: <http://www.onr.org.uk/new-reactors/reports/public-and-stakeholder-engagement-june-2014.pdf> [8th September 2016], EU08051/06/48/126
102. Sciencewise GDA review, [online], Available: <http://www.sciencewise-erc.org.uk/cms/new-nuclear-power-stations-reviewing-how-to-engage-with-members-of-the-public-in-reactor-design-assessments-known-as-the-generic-design-assessment-or-gda> [8th September 2016], EU08051/06/48/127
103. Posiva EIA presentation, [online], Available: [https://www.iaea.org/NuclearPower/Downloadable/Meetings/2015/2015-15-06-17-06-NIDS/5.3_SI_with_Siting_and_EIAs_-_Posiva_\(Jalonen\).pdf](https://www.iaea.org/NuclearPower/Downloadable/Meetings/2015/2015-15-06-17-06-NIDS/5.3_SI_with_Siting_and_EIAs_-_Posiva_(Jalonen).pdf) [8th September 2016], EU08051/06/48/128

Appendix 1 – Example Interview Presentation




NUGENIA: Developing an
'EU Nuclear Public Engagement Toolkit'

Project Background



NUGENIA:

"NUGENIA is set up to be the starting point of a more ambitious and united community to advance the reliable and efficient operation of nuclear power plants." www.nugenia.org



NNL Position Paper (March 2016):

1. History of public engagement in the UK
2. **Current UK activities in nuclear public engagement**
3. Other public engagement initiatives (energy, academia, others)

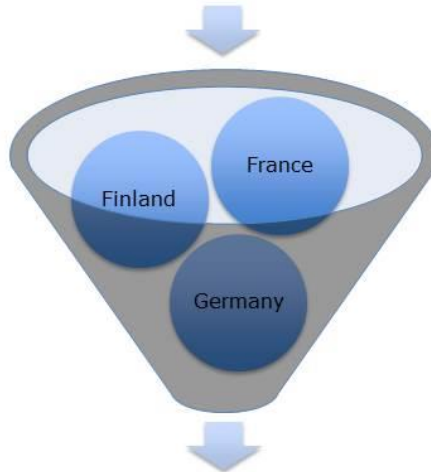
Further Work:

EU Nuclear Public Engagement Toolkit (April – August 2016)

Project Overview and Aims

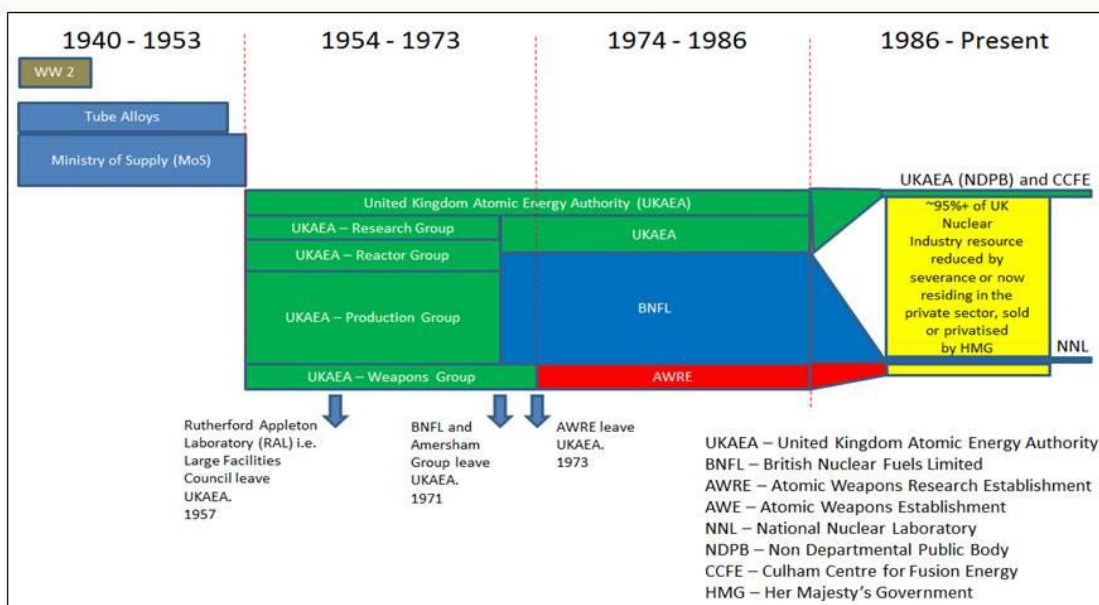


UK Tools for Nuclear Public Engagement



EU Nuclear Public Engagement Toolkit

UK Nuclear History, Including Approach to Public Engagement



Decide-Announce-Defend → Engage-Deliberate-Decide

History of Public Engagement in France - Key Questions



Q1. How would you describe the French approach to public engagement with nuclear issues?

- What infrastructure is in place?
- Is it consistent across all nuclear organisations?
- How are the French public involved in decision-making on nuclear issues? (locally and nationally)
- On a scale of 1 to 10, how effective is the current French approach to nuclear public engagement?

Q2. How has the approach in France changed over time?

- Over the past ~60 years?
- Over recent years?
- Ongoing changes?

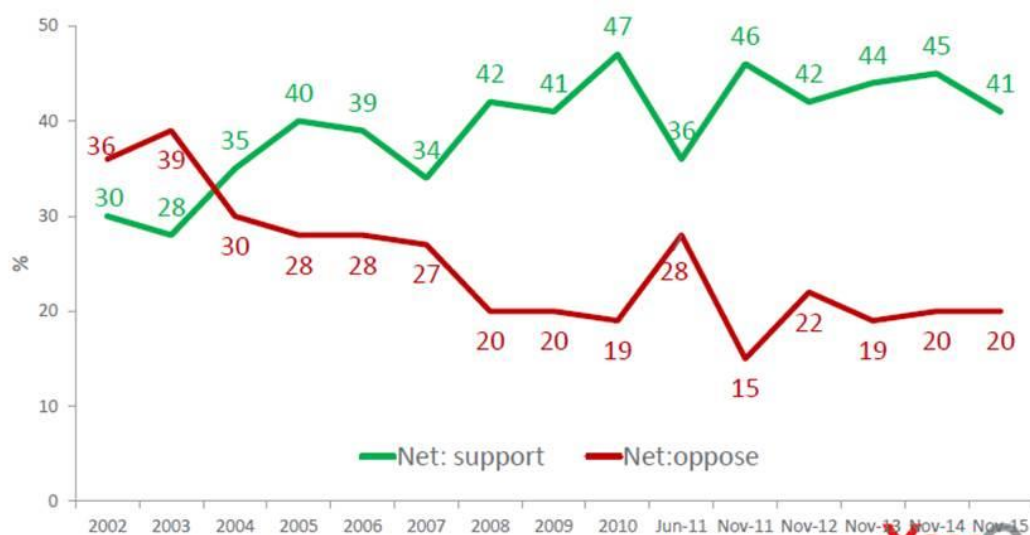
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Public Support in the UK



To what extent would you support or oppose the building of new nuclear power stations in Britain to REPLACE those that are being phased out over the next few years? This would ensure the same proportion of nuclear energy is retained.

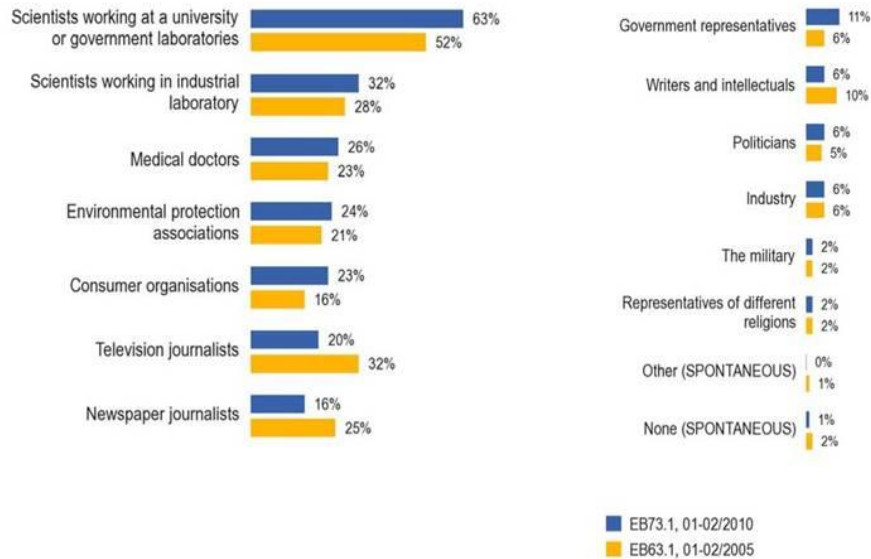


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Public Trust Across Europe

QC5. Among the following categories of people and organisations working in (OUR COUNTRY), which are the best qualified to explain the impact of scientific and technological developments on society?



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Public Support and Trust – Key Questions

Q3. How has public support for nuclear energy in France changed between the start of the nuclear industry and now?

Q4. Is the level of public support/opposition different in nuclear and non-nuclear communities in France?

Q5. Who is most trusted by the public to communicate scientific information in France?

- How well do you think the European trust profile reflects that of the French profile?
- What are the obvious similarities and/or differences?

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UK Tools for Public Engagement

UK Toolkit:

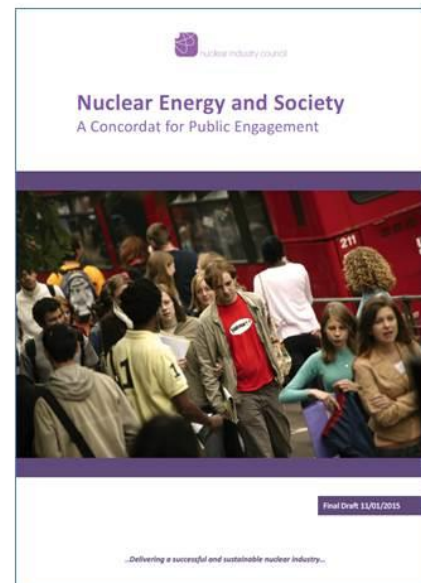
- Concordat
- Guidance Documents
- Nuclear Narrative
- EDGE Assessment Tool

Roles:

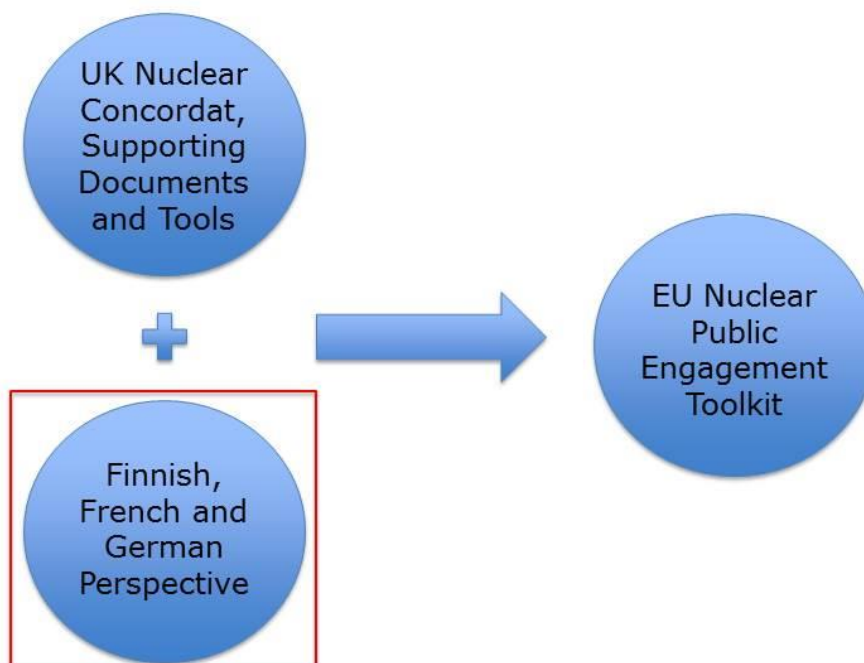
- Nuclear Industry Council (NIC)
- Nuclear Industry Association (NIA)
- National Nuclear Laboratory (NNL)
- National Coordinating Centre for Public Engagement (NCCPE)
- Academia

[Nuclear Energy and Society Concordat for Public Engagement](#)

[Andrew Sherry Video - Concordat](#)



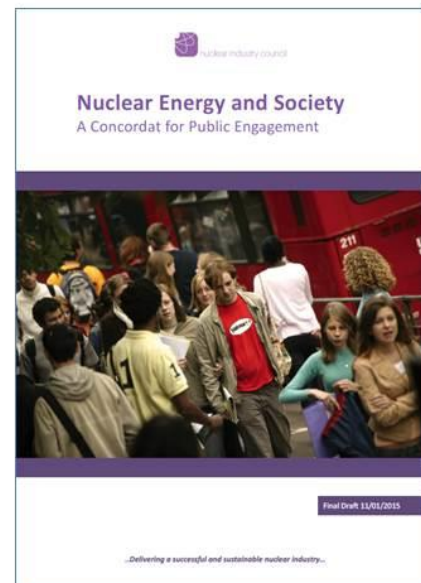
EU Nuclear Public Engagement Toolkit



UK Nuclear Concordat Principles



- 1. Leadership Commitment**
- 2. Best Practice**
- 3. Effective Communicators**
- 4. Making a Difference**



Concordat Principle 1



Principle 1: Leadership Commitment

Companies working in the UK civil nuclear sector recognise the importance of public engagement:

- We take society's attitude to nuclear energy seriously and place a high priority on public engagement across our organisation.
- We embed public engagement in our organisation's strategic and operational plans.
- We provide the leadership and resource needed to encourage and enable our people to engage with society.

Leadership Commitment – Key Questions

Q6. What do you think are the flaws or negative aspects of this principle?

Q7. What do you think are the positive features of this principle and its implementation?

Q8. To what extent is this already applied in France?
- A huge amount, a lot, somewhat, a little, not at all

Q9. What obstacles, if any, exist to full application of this principle?
a) How might these obstacles be overcome in the context of the French situation?



Concordat Principle 2

Principle 2: Best Practice

Our engagement with the public will be characterised by:

- **Dialogue:** We value two-way communication and will listen to the public voice.
- **Trust:** We seek to build public trust by showing respect and being open and transparent about the challenges we face and the actions we are taking to address them.
- **Clarity:** We ensure that public engagement is characterised by clear, consistent and concise information written or spoken in plain language.
- **Consultation:** We listen to communities and actively consult with them, particularly when our activities impact on daily life.

Best Practice – Key Questions

Q10. What do you think are the flaws or negative aspects of this principle?

Q11. What do you think are the positive features of this principle and its implementation?

Q12. To what extent is this already applied in France?

- A huge amount, a lot, somewhat, a little, not at all



Q13. What obstacles, if any, exist to full application of this principle?

- a) How might these obstacles be overcome in the context of the French situation?

Concordat Principle 3

Principle 3: Effective Communicators

We recognise that our people are ambassadors for the sector and that independent experts as well as industry leaders have an important role to play in public communications:

- We promote public engagement within our organisations and it is reflected in staff policies.
- We support our people to engage with the public by providing appropriate training, resource and opportunities.
- We act individually and collectively to build understanding and awareness of the positive impact of our sector on society.

Effective Communicators – Key Questions

Q14. What do you think are the flaws or negative aspects of this principle?

Q15. What do you think are the positive features of this principle and its implementation?

Q16. To what extent is this already applied in France?

- A huge amount, a lot, somewhat, a little, not at all

Q17. What obstacles, if any, exist to full application of this principle?

- a) How might these obstacles be overcome in the context of the French situation?



Concordat Principle 4

Principle 4: Making a Difference

We recognise the importance of public attitudes to nuclear energy and regularly assess progress in fostering engagement with society:

- We evaluate public opinion surveys relevant to our business and seek to better understand society's attitude to civil nuclear energy.
- We review and continually improve our public engagement programmes, building on successes and learning how we can be more effective.
- We work together to collaborate in public engagement and share good practice.

Making a Difference – Key Questions

Q18. What do you think are the flaws or negative aspects of this principle?

Q19. What do you think are the positive features of this principle and its implementation?

Q20. To what extent is this already applied in France?

- A huge amount, a lot, somewhat, a little, not at all

Q21. What obstacles, if any, exist to full application of this principle?

a) How might these obstacles be overcome in the context of the French situation?



Concordat Principles – Key Questions

Q22. To what extent do you think these principles would benefit public engagement in the French nuclear industry?

a) In Your Organisation:

- A huge amount, a lot, somewhat, a little, not at all

b) Across the French Nuclear Industry:

- A huge amount, a lot, somewhat, a little, not at all

Q23. What other principles of public engagement could be included in the context of the French situation?

UK Concordat Guidance Documents



Two guidance documents are currently under development through an NIA working group:

1. **Guidance for communications professionals**
 - Ideas and advice on how to implement and embed the Concordat principles across your organisation.

2. **Guidance for the nuclear workforce**
 - Advice on how to talk about your job and the nuclear sector in an informal setting, such as conversations with friends and family.
 - Directions to further information, such as the nuclear narrative.

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UK Concordat Guidance Documents – Key Questions



Q24. What do you think are the flaws or negative aspects of this approach?

Q25. What do you think are the positive features of this approach?

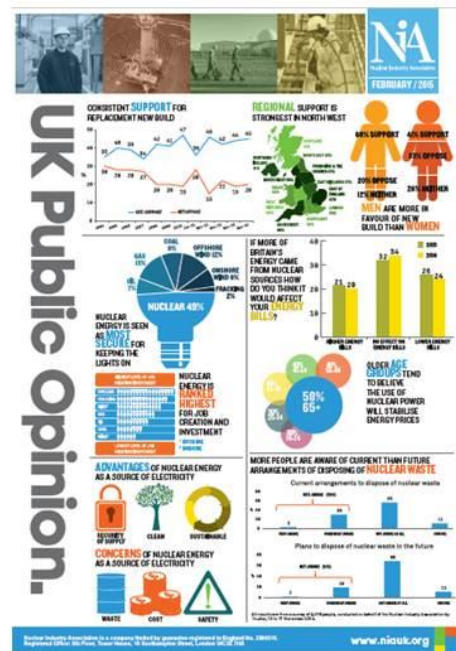
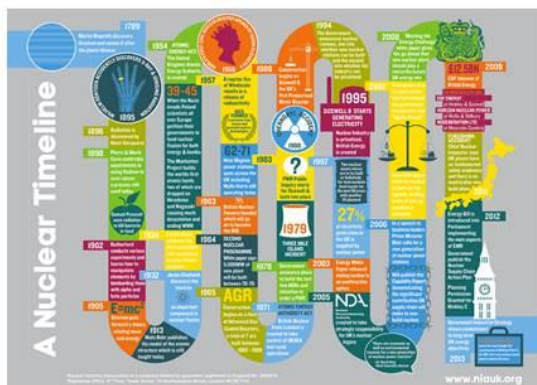
Q26. To what extent is this already applied in France?

Q27. Can you think of any other groups that would benefit from guidance with public engagement?

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UK Nuclear Narrative



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UK Nuclear Narrative – Key Question

Q28. Is there a French equivalent of the NIA's 'Nuclear Energy Facts'?

Q29. To what extent does the French nuclear industry provide their workforce with information on organisations and the industry as a whole?

- Nuclear Organisations:**
- A huge amount, a lot, somewhat, a little, not at all?
- French Nuclear Industry:**
- A huge amount, a lot, somewhat, a little, not at all?
- Global Nuclear Industry:**
- A huge amount, a lot, somewhat, a little, not at all?

Q30. Can you give specific examples of how this is achieved?

Q31. Can you provide examples of where the French nuclear workforce could find this information if their company does not supply it?

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EDGE Assessment Tool

The EDGE tool


	Focus	Embryonic	Developing	Gripping	Embedding
PURPOSE	Mission	There is little or no reference to public engagement in the organisational mission or in other institution-wide strategies	PE is referenced sporadically within the institutional mission documents and strategies, but is not considered a priority area	PE is clearly referenced within the institutional mission and strategies and the institution is developing an institution-wide strategic approach	PE is prioritised in the institution's official mission and in other key strategies, with success indicators identified. It is a key consideration in strategic developments in the institution
	Leadership	Few (if any) of the most influential leaders in the institution serve as champions for public engagement	Some of the institution's senior team act as informal champions for public engagement	Some of the institution's senior team act as formal champions for public engagement	The VC acts as a champion for PE and a senior leader takes formal responsibility. All senior leaders have an understanding of the importance and value of public engagement to the institution's agenda
	Communication	The institution's commitment to public engagement is rarely if ever featured in internal or external communications	Public engagement occasionally features in internal and external communications	Public engagement frequently features in internal communications, but rarely as a high profile item or with an emphasis on its strategic importance	PE appears prominently in the institution's internal communications; its strategic importance is highlighted, and resources and strategic support have been allocated to sustain this
PROCESS	Support	There is no attempt to co-ordinate public engagement activity or to network learning and expertise across the institution	There are some informal attempts being made to co-ordinate PE activities, but there is no strategic plan for this work. Some self-forming networks exist, not supported by the institution	Oversight and co-ordination of PE has been formally allocated (e.g. to a working group or committee) but there is minimal support and resource to invest in activity	The institution has a strategic plan to focus its co-ordination, a body/ies with formal responsibility for oversight of this plan, and resources available to assist the embedding of PE. There are a number of recognised and supported networks
	Learning	There is little or no opportunity for staff or students to access professional development to develop their skills & knowledge of PE	There are some opportunities for staff or students to access professional development and training in PE, but no formal or systematic support	There are some formal opportunities for staff or students to access professional development and training in PE.	Staff and students are encouraged and supported in accessing professional development, training and informal learning to develop their skills and knowledge of engagement
	Recognition	Staff are not formally rewarded or recognised for their PE activities	Some departments recognise and reward PE activity on an ad hoc basis.	The university is working towards an institution-wide policy for recognising and rewarding PE activity	The university has reviewed its processes, and developed a policy to ensure PE is rewarded & recognised in formal and informal ways
PEOPLE	Staff	Few if any opportunities exist for staff to get involved in public engagement, either informally or as part of their formal duties	There are opportunities for staff in a handful of faculties or departments to get involved in PE, either informally or as part of their formal duties	There are structured opportunities for many staff members to get involved in PE; but not in all faculties or departments. There is a drive to expand opportunities to all	All staff have the opportunity to get involved in public engagement, either informally or as part of their formal duties, and are encouraged and supported to do so
	Students	Few opportunities exist for students to get involved in PE, either informally, through volunteering programmes, or as part of the formal curriculum	There are opportunities for students to get involved, but there is no coordinated approach to promoting and supporting these opportunities across the institution	Many (but not all) students have the opportunity to get involved in PE and are encouraged and supported to do so. There is a drive to expand opportunities to all	All students have the opportunity to get involved in PE, and are encouraged and supported to do so. The institution offers both formal and informal ways to recognize and reward their involvement
	Public	Little or no attempt has been made to assess community need, or to support 'non traditional' groups in engaging with the institution	Some attempt has been made to analyse community need and interest; and to begin to tackle access issues to open up the institution and its activities to the public	The institution has committed resources to assessing community need and interests, and to using this insight and feedback to inform its strategy and plans	The institution has assessed need & committed resources to supporting a wide range of groups to access its facilities and activities, and to systematically seek their feedback and involvement.

EDGE Assessment Tool

Q32. Where do you think French nuclear industry as a whole currently stands with regards to public engagement on nuclear issues?

Let's do a self assessment right now:

[EDGE Self Assessment Tool](#)

UK example 
(current position, before full implementation and embedding of the Concordat principles)

Your overall rating:
You assessed your support as developing here:
Mission
Leadership
Learning
Recognition
Staff
You saw evidence of the challenges being gripping here:
Communication
Support
Students
Public

EDGE Assessment Tool - Key Questions

Q33. To what extent is this a useful addition to the toolkit?

a) For French Nuclear Companies:

- A huge amount, a lot, somewhat, a little, not at all?

b) For the French Nuclear Industry:

- A huge amount, a lot, somewhat, a little, not at all?

French Tools and Approaches to Public Engagement - Key Questions

Q34. How does the French nuclear industry currently engage with the public?

Q35. What public engagement tools are currently used by the French nuclear industry?

Q36. Who is responsible for delivering public engagement strategy and implementation in the French nuclear industry?

EU Nuclear Public Engagement Toolkit – Key Questions



Q37. To what extent do you support the idea of the UK's Concordat and supporting documents and tools as a basis for an EU Nuclear Public Engagement Toolkit?

- A huge amount, a lot, somewhat, a little, not at all?

Q38. In France, who would be responsible for finding, adapting and implementing such a toolkit across the French nuclear industry?

Q39. How would you get wider buy-in across the French nuclear supply chain and smaller organisations that work in nuclear?

Q40. After the launch of a Concordat in France, how would you imagine its implementation would be carried out, and what would be the next steps?

Hosting and Disseminating the Toolkit - Key Questions



Q41. Where would you expect to find such a toolkit? (e.g. European websites, company websites, somewhere other than online?)

Q42. How would you spread the word about such a toolkit? What communication channels would you use?

Case Studies

Q43. Can you provide examples of when public engagement in the French nuclear industry has been successful?

Q44. Can you provide examples of when public engagement in the French nuclear industry has been unsuccessful?

Any Other Comments

Q45. Do you have any other comments to input into this project?

Next Steps



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10/08/2016

Thank you

Thank you for hosting NNL and for taking the time and consideration to contribute towards this project.

Merci Beaucoup

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10/08/2016

Appendix 2 – Acknowledgements

The views and judgements expressed in this report reflect the various views and opinions provided by the authors and contributors and do not necessarily reflect those of the organisations to which they are affiliated. In some cases, a consensus was not reached between contributors representing the same nation, for example, not all French stakeholders held the same views on a particular topic. The names of stakeholders who took part in the meetings with NNL from Finland, France and Germany are listed below.

Organisation	Contact(s)	Role	Location/Date
CEA (France)	Nathalie Guillaume	Communications Division - Deputy Director	Saclay, France, 19 th July 2016
	François Legrand	Communications Manager	
IRSN (France)	Bruno Autrusson	Deputy Director for International Affairs	Fontenay-aux-Roses, France, 28 th July 2016
	Francine Blardat	Responsible for International Relations	
	Marie-Catherine Poirier	Openness to Society Department	
Deutsches Atomforum (Germany)	Nicolas Wendler	Head of Media Relations and Political Affairs	Berlin, Germany, 21 st July 2016
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Fortum (Finland)	Pia Fast	Communications Manager	Espoo, Finland, 2 nd August 2016
	Kim Fyhr	Public Affairs and Corporate Relations Manager	
Fennovoima (Finland)	Hanna Vanhatalo	Public Affairs Manager	Helsinki, Finland, 3 rd August 2016
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	Juha Honkatukia	Chief Scientist	
TVO (Finland)	Pasi Tuohimaa	Head of Communications	Helsinki, Finland, 4 th August 2016
	Juha Poikola	Public Relations and Responsibility Manager	
	Sini Gahmberg	CSR Manager	
Posiva (Finland)	Susan Pietilä	Communications Manager	
L'École des Hautes Etudes en Sciences Sociales (France)	Dr Markku Lehtonen	Researcher	Helsinki, Finland, 4 th August 2016

Appendix 3 – NUGENIA+ Public Engagement Toolkit Review Meeting

Tuesday 16th August 2016, 12:00-16:00 British Standard Time

Time	Agenda item	Lead
12:00	Introductions & Apologies General Welcome and Introduction from NNL and all participants to make introductions	Maria Cormack + ALL
12:10	Progress since European meetings, and introduction to the draft Toolkit A toolkit has been developed following meetings in Finland, France, and Germany for use in the EU as a whole. This meeting will review the draft toolkit, and will incorporate feedback from participants.	Maria Cormack
12:15	Review of Draft Toolkit Section 1.1 – Concordat - NNL to introduce Section 1 of the toolkit -Comments from Finnish, French, and German Stakeholders -Any further comments from the group	ALL
12:45	Review of Draft Toolkit Section 1.2 – Guidance Documents - NNL to introduce Section 2 of the toolkit -Comments from Finnish, French, and German Stakeholders -Any further comments from the group	ALL
13:15	Review of Draft Toolkit Section 1.3 – Nuclear Narrative - NNL to introduce Section 3 of the toolkit -Comments from Finnish, French, and German Stakeholders -Any further comments from the group	ALL
13:45	Comfort Break	
14:00	Review of Draft Toolkit Section 1.4 – Assessment Tools - NNL to introduce Section 4 of the toolkit -Comments from Finnish, French, and German Stakeholders -Any further comments from the group	ALL
14:30	Review of Draft Toolkit Section 1.5 – Case Studies - NNL to introduce Section 5 of the toolkit -Comments from Finnish, French, and German Stakeholders -Any further comments from the group	ALL
15:00	General review comments from ALL on the draft toolkit approach Opportunity to raise comments not captured in the structured discussion. Please note there is also an opportunity to feedback comments offline if a participant prefers not to raise any issues directly such as for reasons of confidentiality	ALL
15:15	Review of comments and Actions Agreement of actions taken for NNL from the review	Maria Cormack
15:25	AOB and next steps	Maria Cormack
15:30	Close	Maria Cormack

Distribution list for Toolkit Review Meeting on 16th August 2016*** Attended the toolkit review meeting****† Provided feedback by email**

<p><u>UK Invitees</u></p> <p>Maria Cormack (NNL)* Reuben Holmes (NNL)* Colette Grundy (NNL) Chris Holmes (NNL)* Jonathan Scott (NNL)* Gemma Mathers (NNL) David Ritson (NNL) Andrew Sherry (NNL) Adrian Bull (NNL)* Ozma Taylor (NNL) Ioan Parry (UCLan)* John Whitton (UCLan) Sara Crane (NIA) Sophie Duncan (UWE)</p> <p><u>Germany Invitees</u></p> <p>Nicolas Wendler (Deutsches Atomforum)* Viktor Frank (Deutsches Atomforum) Arnulf Noeding (AREVA-GmbH) Mathias Schuch (AREVA-GmbH) Stefan Pursche (AREVA-GmbH) Elisabeth Keim (AREVA-GmbH) Ertugrul Karabaki (E.ON) Bruno Merk (University of Liverpool)</p>	<p><u>Finland Invitees</u></p> <p>Pasi Tuohimaa (TVO) Juha Poikola (TVO) Sini Gahmberg (TVO) Susan Pietila (Posiva) Pia Fast (Fortum)* Kim Fyhr (Fortum) Olli Ernvall (VTT) Juha Honkatukia (VTT) Sirpa Posti (VTT) Eija-Karita Puska (VTT)* Anna Nieminen (VTT)* Milka Lahnalammii-Vesivalo (VTT)† Markku Lehtonen (ESSEC Business School) Heli Nikula (Fennovoima) Maira Kettunen (Fennovoima) Heli Haikola (Fennovoima) Hanna Vanhatalo (Fennovoima)</p> <p><u>France Invitees</u></p> <p>Bruno Autrusson (IRSN) Francine Blardat (IRSN) Bernard Chaumont (IRSN) Marc-Gerard Albert (IRSN) Abderrahim Al-Mazouzi (EDF France) Christian Taillebois (EDF France) Nathalie Guillaume (CEA) Francois Legrand (CEA) Anonymous stakeholder†</p>
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