Appendix J: PAC 2 Feedback form

SP Energy Networks

Tealing to Kincardine Upgrade Project

Public Consultation Feedback Form

The last day for submitting feedback is Friday 20 December 2024.

Scotland is producing more clean, green energy than ever before, and we need to strengthen the transmission network so we can get it to the homes, schools and businesses that need it.

Renewable energy is replacing older fossil-fuelled power stations. At the same time, demand for electricity is growing through increased electrification of heating, industry and transport networks, and electric vehicles are replacing petrol and diesel.

The UK and Scottish Governments are committed to increasing the use of renewable energy and have targets to achieve net-zero greenhouse gas emission by 2045 in Scotland and 2050 in the UK.

This huge change means we need to upgrade Scotland's electricity transmission network, so we can get this increasing amount of energy from where it's produced to where it's needed.

To help make this happen we need to extend our substations at Westfield, near Ballingry, and Mossmorran, near Cowdenbeath, and increase the voltage of overhead lines from 275kV (275,000 volts) to 400kV, to increase network capacity and help to guarantee secure energy supplies for the future.

This is our second round of consultation. Your views will help us refine our proposals before we apply for planning permission, and for consent to alter the overhead lines and increase their voltage.

About You

*Please provide the information requested below. Fields marked with an * are compulsory.*

Title:* ..... First name:* .....

Surname:* .....

Are you responding on behalf of an organisation: ❑ Yes ❑ No

If yes, which one: .....

Address: .....

Postcode: ..... Telephone: .....

Email (if you would like to receive project updates): .....

Did you attend a public exhibition? ❑ Ballingry ❑ Auchtertool ❑ Neither

Keeping your details safe

SP Energy Networks is committed to respecting your privacy and will comply with all applicable data protection and privacy laws. We're consulting you to get your views on our plans, so we may need to share your information with certain other bodies for the purposes of the consultation and for creating reports. These are: other ScottishPower Group companies; third party service providers, contractors or advisors who provide services to us; and relevant planning authorities.

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More information

More information about the project and the consultation process can be found in the project leaflet and on the consultation website **https://www.spenergynetworks.co.uk/pages/tkup_project.aspx**

Have your say

You can submit your comments in a number of ways

1. Complete this feedback form and return it to us by post for free (just put it in an envelope and write **FREEPOST SPEN TKUP** on the envelope in a single line. Nothing else is needed); or
2. Complete the online version of the form on our website **https://www.spenergynetworks.co.uk/pages/tkup_project.aspx**
3. Email us your comments at **tkup@communityrelations.co.uk**; or
4. Call us free of charge on FREEPHONE: **0800 470 2376**

What we are consulting on

This is our second public consultation on the project. In this consultation, we'd like to know:

- Your views on our proposed substation extensions;
- Your views on our proposed changes to the overhead lines, including pylon locations and increasing the voltage;
- If you have comments about the consultation process;
- Any other factors you would like us to consider. We would particularly like to hear your views on your local area e.g. areas you use for recreation, local environmental features you would like us to consider.

We will publish a report of the second round of public consultation, and how we have taken account of feedback received when developing our plans.

Q1. Our plans to extend Westfield substation

We need to extend our existing Westfield high-voltage electricity substation to install six new transformers.

In addition to the transformers, the substation extension will include a new 400kV SF6-free Gas Insulated Switchgear (GIS) substation building, which will house electrical switchgear, plant and ancillary equipment; a double busbar to connect the switchgear to each circuit; internal access roads and vehicle parking; security fencing; drainage and landscaping.

Do you have any comments on our proposals for Westfield substation?

Q2. Overhead lines and underground cables at Westfield substation

At Westfield, we plan to put up one temporary mast so we can divert the overhead lines away from the site, removing six existing towers (pylons) and allowing us to build the new substation.

We will then need to put up two new towers and install some underground cables before removing the temporary masts and line diversion.

Please let us have any comments you may have about our proposed changes to overhead lines and underground cables at Westfield.

Q3. Our plans to extend Mossmorran substation

We need to extend our existing Mossmorran high-voltage electricity substation to install four new 400kV/132kV transformers and allow space for three more transformers in future.

In addition to the transformers, the substation extension will include a new 400kV SF6-free Gas Insulated Switchgear (GIS) substation building, which will house electrical switchgear, plant and ancillary equipment; SF6-free GIS double busbar to connect the switchgear to each circuit; internal access roads and vehicle parking; security fencing; drainage and landscaping.

Do you have any comments about our proposals for Mossmorran substation?

Q4. Overhead lines at Mossmorran substation

At Mossmorran, we plan to put up two temporary masts so we can divert the overhead lines away from the site, removing three existing towers (pylons) and allowing us to build the new substation.

We will then need to put up one new tower and install some underground cables to connect the new substation to the network before removing the temporary masts and line diversion.

Please let us have any comments you may have about our proposed changes to overhead lines at Mossmorran.

Q5. Please let us have any comments about our proposed reconductoring and increase in voltage from 275kV to 400kV of the existing overhead lines in the wider area, as identified in our consultation materials.

Q6. How did you find out about the project and the consultation?

❑ Advert ❑ Leaflet ❑ Website ❑ Media coverage ❑ Social media ❑ Word of mouth

❑ Other, please specify:

Q7. Do you have any comments about our public consultation, or any other comments you would like to make?

Thank you

Please return the completed form to us by **no later than Friday 20 December 2024.**

You can post your completed form to **FREEPOST SPEN TKUP**, or comment online at our project website **https://www.spenergynetworks.co.uk/pages/tkup_project.aspx**

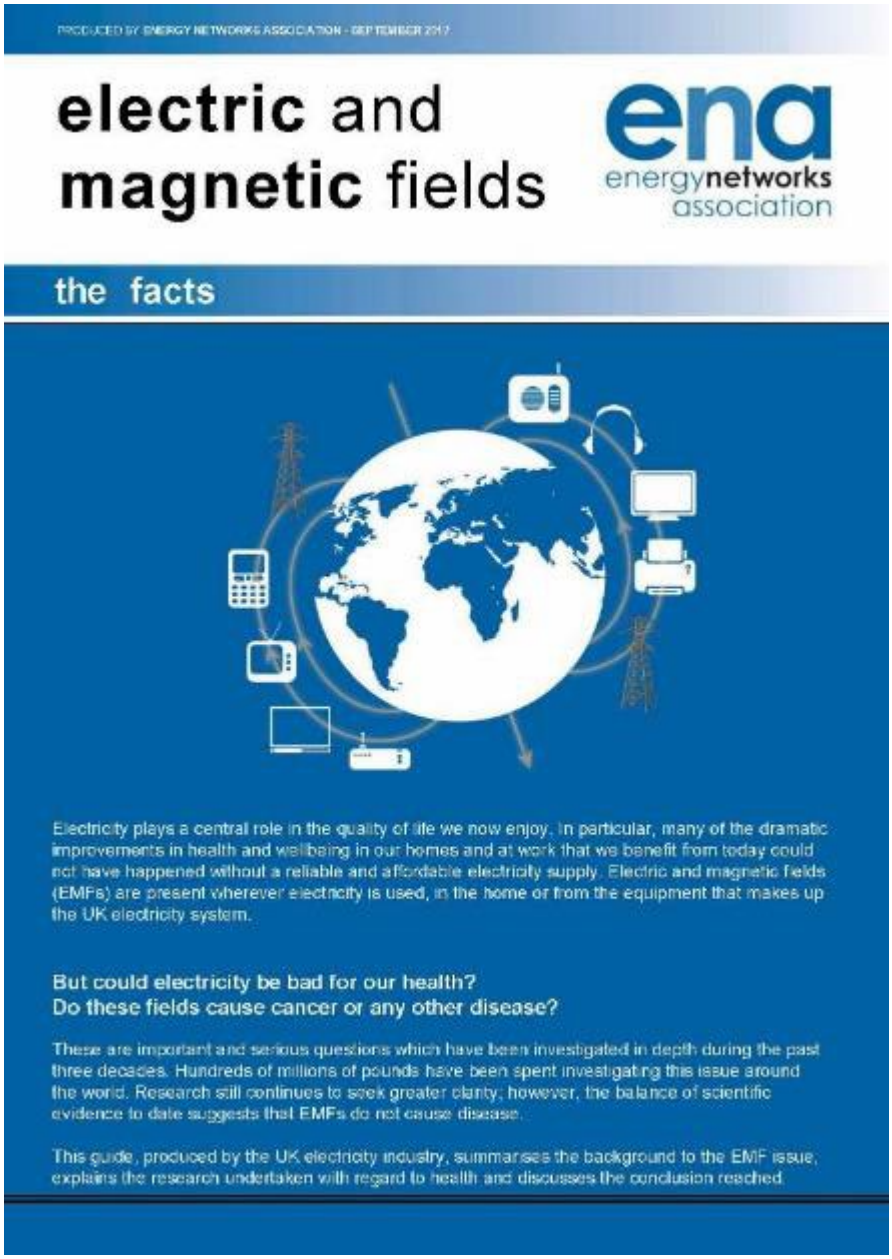
Following the second round of consultation we will refine our proposals, including locations for buildings, access routes and working areas. We will publish a report summarising the feedback received and how this has influenced our proposals.

We will carry out a detailed Environmental Impact Assessment before we finalise our proposals and submit planning applications under the Town and Country Planning (Scotland) Act 1997 (as amended) to Fife Council.

We will also need to submit applications to the Scottish Government Energy Consents Unit, under Section 37 of the Electricity Act 1989, for the proposed changes to the overhead lines and uprating in voltage.

At this stage, your comments are not representations to the planning authority or Scottish Ministers. When we make applications for development consent in the future, you will be able to make formal representations at that stage.

Appendix K: Electric and Magnetic Fields: The Facts



PRODUCED BY ENERGY NETWORKS ASSOCIATION - SEPTEMBER 2012

electric and magnetic fields

ena energynetworks association

the facts

Electricity plays a central role in the quality of life we now enjoy. In particular, many of the dramatic improvements in health and wellbeing in our homes and at work that we benefit from today could not have happened without a reliable and affordable electricity supply. Electric and magnetic fields (EMFs) are present wherever electricity is used, in the home or from the equipment that makes up the UK electricity system.

But could electricity be bad for our health?
Do these fields cause cancer or any other disease?

These are important and serious questions which have been investigated in depth during the past three decades. Hundreds of millions of pounds have been spent investigating this issue around the world. Research still continues to seek greater clarity; however, the balance of scientific evidence to date suggests that EMFs do not cause disease.

This guide, produced by the UK electricity industry, summarises the background to the EMF issue, explains the research undertaken with regard to health and discusses the conclusion reached.

Electric and Magnetic Fields

Electric and magnetic fields (EMFs) are produced both naturally and as a result of human activity. The earth has both a magnetic field (produced by currents deep inside the molten core of the planet) and an electric field (produced by electrical activity in the atmosphere, such as thunderstorms).

Electric and magnetic fields are inherent in the laws of physics.

Wherever electricity is used there will also be electric and magnetic fields. This is inherent in the laws of physics - we can modify the fields to some extent, but if we are going to use electricity, then EMFs are inevitable. Like many other things that we encounter in nature, EMFs can be harmful at high-enough levels. But the fields required, for example, to start interfering with the body's nervous system are much greater than those produced by the UK electricity system.

Fields of Different Frequency

A key characteristic of a field is the frequency. The frequency indicates how rapidly the field changes direction backwards and forwards, and is measured in cycles per second or hertz (Hz).

The electricity systems in the UK and the rest of Europe produce fields of 50 hertz, in North America the frequency is 60 hertz. It is these fields produced by the electricity system (known as 'extremely low frequency' (ELF) or 'power frequency' fields) that are discussed in the rest of this guide.

This guide does not cover TV, radio, mobile phones or smart meters.

The earth's natural magnetic and electric fields do not oscillate at all. They are known as 'static fields' and have a frequency of 0 hertz. "High Voltage Direct Current", HVDC, is also used instead of alternating current in just a few places for transmission. This produces static fields similar to the earth's field, but these are not covered in this guide.

Other technologies use higher frequencies. For instance, TV and radio broadcasts operate at thousands or millions of hertz, while mobile phones transmissions and Wi-Fi are at around a billion hertz. Because these frequencies are so different and the science of the fields and their effects at those frequencies is also different, they are separate issues and this guide does not cover those technologies.

The Difference Between Electric and Magnetic Fields

The Two Components

The term 'EMFs' encompasses two different though related concepts: electric fields and magnetic fields.

Electric Fields

Electric fields are produced by voltage. Voltage is the pressure behind the flow of electricity. It can be likened to the pressure of water in a hose. Electricity in UK homes is at a voltage of 230 volts (V), but outside homes it is distributed at higher voltages, from 11,000 volts (usually written 11 kV) up to 400,000 volts (400 kV). Generally, the higher the voltage, the higher the electric field. Electric fields are measured in volts per metre (V/m).

Voltage can be likened to the pressure of water in a hose.

Magnetic Fields

Magnetic fields are produced by current, which is the flow of electricity. Current, which is measured in amperes or amps, can be likened to the flow of water in a hose when the nozzle is open. Generally, the higher the power and the current, the higher the magnetic field. Magnetic fields are measured in microteslas (μT).

Current can be likened to the flow of water when the nozzle is open.

Other Differences

One difference between electric and magnetic fields is that electric fields are very easily screened - by buildings, hedges, fences and trees. So inside a house there will be very little electric field from a power line outside. By contrast, magnetic fields pass readily through most buildings.
Another difference is that a mains appliance such as a radio or lamp does not have to be operating to produce an electric field - as long as it is plugged into a mains supply it will produce an electric field. However, it produces a magnetic field only when it is turned on and drawing a current.

EMF Units

Electric Fields	
Usually measured in volts per metre (V/m)	
Multiple used for large fields:	1 kilovolt per metre (kV/m) = 1,000 volts per metre
Magnetic Fields	
Usually measured in microteslas (μT)	
Multiple used for large fields:	1 millitesla = 1,000 microteslas
or small fields:	1 nanotesla = 0.001 microteslas
Other units sometimes used:	1 milligauss = 0.1 microteslas

Instruments that measure field levels normally give an average value called the "root mean square".

Exposure

National Guidelines for exposure to the public

The Government sets guidelines for exposure to EMFs in the UK on advice from Public Health England (PHE). In March 2004 the UK decided to adopt the 1998 guidelines published by the International Commission on Non-Ionizing Radiation Protection (ICNIRP) in the terms of a 1999 European Union Recommendation and this policy was reaffirmed by a Written Ministerial Statement in October 2009. Other guidelines have been reviewed but Government has decided to remain with ICNIRP 1998.

The ICNIRP 'reference levels' for the public are:

100 microteslas for magnetic fields

5000 volts per metre for electric fields

These are the levels above which more investigation is needed if this level of exposure is likely to occur; the permitted levels of exposure are somewhat higher, 360 microteslas and 9000 volts per metre. They apply where the time of exposure is significant. These guidelines are designed to ensure that EMFs do not interfere with nerves, but were set after examining all the evidence, including the evidence on cancer.

Reference levels are thresholds for performing detailed investigations of compliance. The permitted levels are somewhat higher.

It is the policy of the electricity industry to follow these independent exposure guidelines. A Code of Practice, published jointly by industry and the then Department for Energy and Climate Change, sets out all the practical details needed to apply the exposure limits. All exposures in homes already comply with the ICNIRP guidelines. The electricity industry designs all new equipment to comply with the Government guidelines as set out in the Code of Practice.

Occupational exposure

Occupational exposures are governed by Regulations introduced in 2016. These are higher than the public limits – essentially 6000 microteslas and 20,000 volts per metre.

Guidelines from other organisations

Other organisations sometimes publish guidelines (e.g. "Bioinitiative", "Salzburg Standard for Building Biology"), but these have no status in the UK and are often out of line with mainstream scientific thinking.

Typical Field Levels in the UK

Natural Sources

The earth's magnetic field, which everybody is constantly exposed to, is around 50 microteslas in the UK. The earth's electric field is usually around a hundred volts per metre, but thunderstorms can make it rise to many thousands. Both these natural fields are 0 hertz or static fields. All the other values given in this section are for 50 hertz fields.

Within the Home

Within our homes, all mains appliances produce AC fields. Appliances differ, but it is often the smaller, more compact appliances that produce the largest magnetic fields.

All electrical appliances produce magnetic fields which drop rapidly with distance.

The field is greatest close to the surface of the appliance and drops rapidly with distance, falling away substantially over the first metre from the appliance. The table below shows the range of magnetic field strengths close to the appliance. Electric fields can be a few hundred volts per metre close to appliances.

Typical Magnetic Field Levels from Some Common Mains Appliances in the Home

	Magnetic Field (microteslas)	
	Close to appliances	1 metre away
Vacuum cleaner	500	2
TV, Washing Machine, Microwave	50	0.2
Electric oven	10	0.02
Fridge	2	0.01

A line typically produces fields much less than the maximum it is capable of.

Outside the home

Overhead Lines

Outside our homes, all overhead power lines produce fields. The fields are usually greatest directly under the lines and fall rapidly with distance to the sides of the line. For small lines on wooden poles, the fields generally fall away over a few tens of metres. For larger lines on steel pylons, the distance is slightly greater. Fields vary greatly from line to line and over time, and a line typically produces fields much less than the maximum it is capable of.

Typical Ground-level UK Field Levels from Overhead Power Lines

		Magnetic Field (microteslas)	Electric Field (volts per metre)
The largest steel pylons (275 kV and 400 kV)	Maximum field (under line)	100	11,000
	Typical field (under line)	5 - 10	3,000 - 5,000
	Typical field (50 m to side)	0.4 - 0.6	50 - 100
Smaller steel pylons and largest wooden poles (132 kV)	Maximum field (under line)	40	4,000
	Typical field (under line)	0.5 - 2	500 - 3,000
	Typical field (50 m to side)	0.03 - 0.2	20 - 100
Medium wooden poles (11 kV and 33 kV)	Maximum field (under line)	15	500
	Typical field (under line)	0.4 - 1	50 - 200
	Typical field (50 m to side)	0.01 - 0.03	1 - 5
Smallest wooden poles (400 V or 230 V)	Maximum field (under line)	1	1
	Typical field (under line)	0.05 – 0.2	<1
	Typical field (50 m to side)	<0.01 - 0.02	<1

Further information is available from:

www.emfs.info/

There is no restriction in the UK on EMF grounds on how close a house can be to an overhead line.

Underground Cables

High voltage underground cables can produce higher magnetic fields directly above them than an overhead line would produce at ground level, because the physical distance from the underground cable is smaller. The field falls more rapidly with distance to the sides, and they produce no external electric field. Such cables are not normally located beneath buildings.

Substations

Small electricity distribution substations, typically one for every few hundred homes, generally produce up to 2 microteslas close to their perimeter fence (occasionally more if built into another building, usually less for pole-mounted transformers), and often no electric field at all. The fields fall rapidly with distance and, within 1 to 2 metres from a typical substation, the fields associated with it are usually indistinguishable from other fields present in homes. Larger electricity transmission substations do not produce very large fields themselves (generally less than a microtesla); the fields close by are mainly produced by power lines and cables entering them. There is no restriction on EMF grounds on how close houses can be to substations.

Average Magnetic Field Levels

In the Home

In the vast majority of homes in the UK, the magnetic field, averaged over 24 hours, is between 0.01 and 0.2 microteslas, typically half the level in some other countries. In some homes it can be higher and in less than half a percent of UK homes the average level can be greater than 0.4 microteslas. Some of these homes are near power lines, but about half are not. Although no health risk has been established in these homes, there is particular interest in them because of the results of some scientific studies. This is discussed in more detail later in this guide (see page 11).

In the vast majority of homes in the UK, the magnetic field is between 0.01 and 0.2 microteslas.

It is actually easy to experience fields greater than 0.4 microteslas for short periods, close to an appliance or passing underneath a power line, but short exposures like these do not usually contribute much to the average field over a day.

Outside the Home

The occupations where exposure to fields has been investigated in greater detail tend to be those involving power workers. For instance, a typical worker in a UK power station experiences an average field of a few microteslas during working hours, and an electrician perhaps one microtesla. By contrast a typical office worker experiences about 0.2 microteslas. Fields in roads and public areas can be a microtesla above buried cables.

Potential Health Effects

Any suggestion of a risk to health must always be taken seriously. When considering issues of diseases and what causes them, it is important to look at what the scientific research reveals.

What Conditions have been Researched?

Most attention has focused on childhood cancer and leukaemia in particular. But other diseases including adult cancers, heart disease, Alzheimer's disease and depression have been examined, as has the incidence of suicide and miscarriage. "Electrosensitivity" is a term used to describe symptoms some people attribute to EMFs.

There are three main types of research scientists do to try and find out whether EMFs cause disease.

Epidemiology

Epidemiology is the study of patterns of disease in populations. It searches for any statistical link or association between exposure to EMFs and disease in actual human populations. It was through such studies that concerns about EMFs were first raised in 1979.

The strength of epidemiology is that it looks directly at human populations. However, all it can ever do is observe statistical associations. It can never completely eliminate all the many other factors that determine whether people develop diseases or not, and so it can never prove whether a particular disease is caused by EMFs or not.

Around 20 epidemiological studies have been performed looking at a possible link between childhood leukaemia and EMFs.

Over 20 epidemiological studies have now been performed looking just at a possible link between childhood leukaemia and magnetic fields. Numerous other studies have looked at other diseases. Some of those studies found no association with magnetic fields, but some have found associations, and consequently research continues until a clearer picture can be achieved.

With electric fields, the position is clearer: there is very little evidence suggesting they are a cause of childhood cancer.

All these studies have been reviewed by Public Health England and its predecessors and the conclusions are considered later in this guide (see page 13).

Theoretical

Theoretical research looks for a plausible mechanism from physics that can demonstrate how the fields could interact with living systems. Many theories have been put forward over the years, but no such mechanism has been established that would operate at the levels of field found in homes or near power lines, and this casts doubt on the existence of health effects.

Biological

An important test of any proposed health risk is biological research: laboratory research actually to observe the effects of EMFs on cells and tissue.

There have been many hundreds of these studies reported, and scientists examine them for robust results, which can be successfully repeated in different laboratories.

In over 30 years of research there have been no such reproducible results.

In over 30 years of research there have been no such reproducible results. The evidence from the laboratory is that low level EMFs of the type experienced by the public do not cause the diseases that have been claimed.

In particular, virtually every agent that is known to cause cancer in humans also causes cancer in mice or rats. But, for EMFs, tests on mice and rats have not identified any effects.

Some Important UK Research Results

There have been two big epidemiological studies of childhood cancer and EMFs in the UK.

The United Kingdom Childhood Cancer Study (UKCCS)

The UKCCS was conducted during the 1990s. It looked at a number of suggested causes of childhood cancer including EMFs. Its particularly large study population - over 2000 cases of cancer in total, every case occurring in the UK over roughly a four-year period - made it very powerful.

In December 1999, the UKCCS published its first report, on exposure to magnetic fields, and concluded:

"This study provides no evidence that exposure to magnetic fields associated with the electricity supply in the UK increases the risk for childhood leukaemia, cancers of the nervous system, or any other childhood cancer."

Subsequent UKCCS papers in 2000 and 2002 looked at children living close to power lines and at electric fields, in both cases reporting finding "no evidence" or "no support".

The Childhood Cancer Research Group (CCRG)

This 2005 study, also known as the "Draper" study, looked at 33,000 cases of childhood cancer from 1962 to 1995 and the distance of their address at birth from the nearest 275 kV and 400 kV power line. It found an association between childhood leukaemia and these power lines (1.7-fold increase close to the lines, less further away).

But this association extended too far (600 m) from the lines to be caused by magnetic fields, which fall below background levels at much smaller distances. Then a later study from the same group in 2014 looked at more recent cases and found that the association seemed to have diminished over the years and is no longer present today.

There is no simple explanation for these findings, and the original paper concluded:

"We have no satisfactory explanation for our results in terms of causation by magnetic fields or association with other factors."

'Pooled' Analysis

In 2000, an international group, led by Professor Anders Ahlbom from Sweden, took all the separate better-quality epidemiological studies of childhood leukaemia and magnetic fields and pooled the results, so that they could perform one single re-analysis of all the available data. They found that, statistically, there was no significant evidence of any increased risk at the levels of magnetic field to which the overwhelming majority of children are exposed.

The study did, however, find that in the category of homes with a field, averaged over 24 hours, of greater than 0.4 microteslas (which applies to fewer than half a percent of children in the UK), there is a statistical suggestion of a two-fold increased risk. Some of those homes are near power lines, but many are not.

A subsequent study in 2010 pooled the relevant papers published since then in the same way, and found a similar result.

A statistical finding like this may or may not reflect a real cause-and-effect relationship. It is unlikely to be due to chance, but it could be an artefact of the studies.

The authors themselves concluded: "The explanation for the elevated risk is unknown, but selection bias may have accounted for some of the increase."

A statistical finding like this may or may not reflect a real cause-and-effect relationship.

Conclusion

The UKCCS did not support EMFs causing cancer, but the pooled analysis did suggest an increased risk for the highest fields. The CCRG study reinforces a link between power lines and leukaemia in the past, but suggests it may not be caused by EMFs. Evidence from other research such as laboratory studies argues against any link.

Looking at the totality of the evidence, scientists recognise the possibility of a risk for the relatively few children who receive the highest exposure to magnetic fields, but it is no more than a possibility.

The Words 'Risk' and 'Possible'

Nothing can ever be said to be '100% safe' or 'risk free'. Everything we do from the moment we get up to when we go to sleep has a 'risk' attached to it. Most of the risks we encounter in our day-to-day lives or we hear talked about are established or proven risks, where scientific evidence has reached firm conclusions. This enables us to decide, either as individuals or together as a society, on what actions to take in response to the risks.

Any suggestion of a possible health risk is always taken seriously by the electricity industry. For this reason, the industry will continue to support high quality research.

With EMFs and risk the situation is different; no risk has been proven. Instead, EMFs are sometimes described as 'possibly' a cause of cancer or a 'possible carcinogen'. The word 'possible' is used about all sorts of things in our lives. It does not mean that exposure to EMFs actually does pose a risk. It simply means that there is some evidence and scientists have not been able to rule out the possibility of a risk, which on the basis of present evidence would be small.

However, any suggestion of a possible health risk is always taken seriously by the electricity industry. For this reason the industry will continue to support high quality research to help to gain a clearer picture of EMFs and to move closer to a final answer.

Corona Ions and Electric Fields

Scientists at Bristol University in the UK have suggested an alternative mechanism for health effects, involving tiny airborne "corona ions" produced by high-voltage power lines, and their interaction with existing airborne pollutants. These corona ions are indeed produced, but in 2004 Public Health England's forerunner concluded:

"...it seems unlikely that corona ions would have more than a small effect on the long-term health risks associated with particulate air pollutants, even in the individuals who are most affected."

Microshocks

The electric field beneath a power line charges up objects, and sometimes, if you touch a metal object, you can receive a small one-off "microshock", similar to the shock you sometimes get after walking on a nylon carpet. This can be disconcerting but has no known long-term effect and is not regarded as harmful.

Pacemakers

It is theoretically possible for power lines to cause interference with pacemakers, defibrillators or other active implanted medical devices. This is, however, very rare as the immunity of individual devices is usually higher, and there is no recorded instance of a patient coming to any harm this way in the UK. If in doubt you should consult your doctor.

The National and International View

In the UK it is to Public Health England (PHE), and their forerunners the National Radiological Protection Board (NRPB) and the Health Protection Agency, that both Government and industry look for advice. In March 2004 the NRPB published a comprehensive review of the science on EMFs. For the key issue of childhood leukaemia they talk about the difficulties with some of the studies and say: **"The epidemiological evidence is currently not strong enough to justify a firm conclusion..."**, but also: **"Nevertheless, the possibility remains that intense and prolonged exposures to magnetic fields can increase the risk of leukaemia in children..."**

Another key conclusion is: **"There is little evidence to suggest...that raised cancer risks of other types, in children and adults, might arise as a result of exposure to ELF [extremely low frequency] magnetic fields...The findings from studies of health outcomes other than cancer have generally been inconsistent or difficult to interpret."**

The results of epidemiological studies cannot be used as a basis for quantitative restrictions on exposure to EMFs.

They then note: **"The results of epidemiological studies...cannot be used as a basis for the derivation of quantitative restrictions on exposure to EMFs."**

These views echo the international consensus. In June 2001 the International Agency for Research on Cancer, IARC, which is an agency of the World Health Organization, published an authoritative opinion on the carcinogenicity of EMFs. IARC classified extremely low frequency magnetic fields as 'possibly' a cause of cancer, on the basis of 'inadequate' epidemiological evidence for most types of cancer and 'inadequate' evidence in animals, but 'limited' epidemiological evidence for childhood leukaemia. For electric fields IARC said all the evidence was 'inadequate'. In 2005 WHO confirmed this classification, but also looked at other effects on health, and said the evidence for any of these being produced by EMFs was "much weaker". More recent reports by the relevant EU scientific committee in 2007, 2009 and 2015 confirm that these are still a correct summary of the science.

Some scientists hold other views, and sometimes reports are published saying the evidence is stronger (for example, a 2002 report from California and the 2007 BioInitiative report). But such assessments are clearly out of line with the international consensus and with authoritative bodies.

The UK Electricity Industry Policy

Health

The electricity industry has dedicated EMF resources to assist the public.

The UK electricity industry takes any suggestion of a risk to health extremely seriously. The industry believes that the final decision about what constitutes a safe level of exposure should be made by an independent body. It is committed to follow the guidance given by the Government, advised by Public Health England, on safe levels of exposure, and carries out all its operations within the relevant exposure levels.

Because the electricity industry takes public concern seriously, it has dedicated EMF resources to assist the public and to provide further information, including, if appropriate, home visits and measurement of fields.

Research

The electricity industry is committed to supporting high-quality research to help get closer to a final answer on the EMF issue. For example, the UK Childhood Cancer Study received over £4 million from the industry to enable it to look at EMFs in their study, though the conduct of the study was rigorously independent of the industry. Similarly, one of the electricity companies, National Grid, has given over £5 million to an independent Research Trust to support the very best quality biological research.

It is a condition of all the research supported by the industry that the results should be published openly.

In addition, the industry has supported and continues to support numerous other studies, and its own staff carry out research into aspects of exposure to EMFs. National Grid provided the data on power lines that made the CCRG study possible. It is a condition of all the research supported by the industry that the results should be published openly in reputable peer-reviewed, scientific journals.

Amenity

All power lines comply with the Government's requirements. However, it is worth noting that normal good practice in planning new high-voltage lines ensures that they are kept as far away from existing homes as possible, simply on grounds of amenity. Subsequent new housebuilding, however, may bring homes into closer proximity to these lines.

Power lines and property

The UK Government policy is that there are no restrictions on EMF grounds on building homes close to power lines. Clearly the statutory high-voltage safety clearance distances must be followed, but the only EMF requirement is compliance with the exposure guidelines, which all power lines in the UK meet.

This policy was scrutinised and reviewed in the 2000s through a process called SAGE, the Stakeholder Advisory Group on ELF EMFs. SAGE was created in 2004 to provide a forum in which all stakeholders, citizen groups alongside industry, Government and professional bodies, could discuss possible precautionary measures and make recommendations. SAGE published its First Interim Assessment in 2007, containing recommendations on power lines, house wiring and appliances, and Government formally responded in October 2009.

That Government response adopted a measure recommended by SAGE called "optimum phasing" which applies to the design of some power lines of 132 kV and above and can result in lower fields, and the electricity industry volunteered to implement this. It also agreed with a proposal for more information to be provided to the public. It noted that some of the recommendations on house wiring are happening anyway for other reasons. But Government said clearly that it will not be introducing "corridors" along power lines where building would be restricted, because this would be disproportionate to the scientific evidence. It also says that this is a matter for central Government policy, not local decision making.

The Electricity Industry View

The electricity industry considers that the question of possible measures to reduce fields should be resolved in the best interests of society as whole, and that a forum like SAGE where all the different views and opinions were represented and discussed sensibly is greatly preferable to the alternative of confrontation and argument. We therefore welcome the clarity that the SAGE process and the Government response to it has brought.

We are committed to building and operating our systems in compliance with Government policy. They already comply with the exposure guidelines. Where there are relatively easy and low-cost ways of reducing fields, it makes sense to adopt these. But it is in the interests of society as a whole that any measures are proportionate and that they balance risk and cost to society, and that is the reason why Government has decided not to introduce "corridors" in the UK.

The electricity industry was instrumental in setting up SAGE and we have supported it throughout.

Further Information

For further information you can contact

- The Energy Networks Association website:
  www.energynetworks.org

- National Grid information site on EMFs:
  www.emfs.info

- The EMF Unit Public Information Line can be contacted on
  0845 702 3270 or 01926 653382 or:

  emfhelpline@nationalgrid.com

- Your local electricity distribution company

- The PHE website:
  https://www.gov.uk/government/collections/electromagnetic-fields
  or telephone them on **01235 831 600**

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Appendix L: SPT Schedule 9 Statement

Schedule 9 Statement

SP TRANSMISSION LIMITED

**Statement on Preservation of Amenity
in accordance with Schedule 9
of the Electricity Act 1989**

Statement on Preservation of Amenity & Fisheries in Scotland in Accordance with Schedule 9 of the Electricity Act 1989

1 Introduction

SP Transmission Limited ("SP Transmission") has a duty under Schedule 9 of the Electricity Act 1989 ("the Act") to have regard to the preservation of amenity.

This requires the relevant licence holder, when formulating proposals relating to the construction or extension of electric lines or the carrying out of other works in connection with the transmission or supply of electricity, to take account of the effects the proposals would have on the natural beauty of the countryside, on any flora, fauna, buildings or objects of historical interest and sites and structures of archaeological interest. It is also required to take reasonable actions to mitigate the effects of its proposals on amenity.

This Statement sets out how SP Transmission will carry out these duties in developing and maintaining its network.

2 Background

SP Transmission Limited is a wholly owned subsidiary of Scottish Power UK plc and holds an electricity transmission licence for Central and Southern Scotland. Its transmission network includes around 4000 circuit kilometres, both overhead and underground, and is operated at voltages of 132 kV and above.

Its authorised area include sites of national and international nature conservation, and many protected historic and archaeological sites and buildings, as well as dense housing and some heavily industrialised areas, particularly bordering on the Firth of Forth and the River Clyde.

SP Transmission has a statutory duty to develop and maintain an efficient, co-ordinated and economical system of electricity transmission. It needs to take this and other statutory duties into account, including those relating to preservation of amenity, when developing and carrying out investment projects.

This statement deals only with those environmental obligations falling under Schedule 9 of the Act. SP Transmission has a number of other environmental requirements and has a range of policies and procedures to meet these that are not covered here. Additional information on the environmental performance of the businesses in the ScottishPower group is reported annually within its corporate environmental report.

3 Statutory Requirements

The Act says that a licence holder, when formulating 'relevant proposals':

> "(a) shall have regard to the desirability of preserving natural beauty, of conserving flora, fauna and geographical or physiographical features of special interest and of protecting sites, buildings and objects of architectural, historic or archaeological interest; and
>
> (b) shall do what he reasonably can to mitigate any effect which the proposals would have on the natural beauty of the countryside or any such flora, fauna, features, sites, buildings or objects." (Schedule 9, 1(1))

'Relevant proposals' mean any proposals:

> "... (b) for the installation (whether above or below ground) of an electric line; or
>
> (c) for the execution of any other works for or in connection with the transmission or supply of electricity." (Schedule 9, 1(3))

In addition, in respect of Scotland, the Act prescribes that:

> "... A licence holder... shall avoid, so far as is possible, causing injury to fisheries or to the stock of fish in any waters." (Schedule 9, 3(3))

SP Transmission's guidelines for meeting its Schedule 9 obligations are set out overleaf.

SP TRANSMISSION'S SCHEDULE 9 GUIDELINES

Where any of our operations or any proposed developments or projects comprise a "relevant proposal" we will observe the following guidelines:

1. Established Need

We will seek to construct new lines or substations only where the existing infrastructure cannot be upgraded to meet security of supply requirements, or where an increase in demand for electricity transportation capacity is foreseen which cannot be satisfied by other means or where new connections to customers are required.

2. Designated Areas for Amenity

We will pay due regard to the need to preserve and maintain amenity, particularly within the areas of the greatest landscape, wildlife or cultural amenity, such as National Parks, National Scenic Areas, Sites of Special Scientific Interest, Scheduled Ancient Monuments and other national or international designated areas.

For new transmission infrastructure we will investigate the possibility of alternative routes or sites outwith the designated area. For existing networks and where there is a requirement for infrastructure inside the designated area we will seek to minimise the impact of its presence through the sensitive routing and siting of structures. In such cases we will consult with those groups most likely to be affected at an early stage.

3. Seek to Minimise the Impact of New Infrastructure

We will seek to minimise the effects of new transmission infrastructure at or near both designated sites and also other sites valued for their general amenity, such as areas of archaeological interest, battlefields, local nature reserves, playing fields and water bodies. We will take into account the significance of sites valued for their amenity through consultation with statutory bodies and local authorities.

4. Mitigate the Adverse Effects of Works

Where works are likely to have an adverse effect on amenity, we will carry out our activities in such a way as to reduce the impact of these activities to the practicable minimum.

Where planned works would have a high impact on amenity, we will consult with statutory bodies, local authorities and relevant landowners to help us identify,assess and carry out measures to mitigate the impact so far as is reasonably practicable.

5. Environmental Assessments

We will carry out environmental assessments in accordance with relevant legislation prior to developing proposals for new lines or plant.

6. Protection of Fisheries

In the preparation of plans and programmes we will seek to avoid, so far as is possible, causing injury to fisheries or to the stock of fish in any waters within our licensed area.

7. Training and Awareness

We will promote environmental awareness amongst staff through appropriate training and dissemination of information. We will also make contractors aware of the relevant parts of this statement, and take steps to audit their compliance with it

8. Review of the Schedule 9 statement

We intend to review our Schedule 9 statement at least every 5 years.

Appendix M: PAC 1 email to community councils

Good afternoon,
On behalf of our client, Scottish Power Energy Network (SPEN), please find attached a Proposal of Application Notice (PAN) in relation to the 'Tealing to Kincardine Upgrade Project', which has been submitted to Fife Council.
The following first round of consultation events are to be held in relation to the proposals:

- Tuesday 30th July, 2pm to 7pm: Benarty Centre, Flockhouse Avenue, Ballingry, KY5 8JH;
- Wednesday 31st July, 2pm to 7pm: Crossgates Royal British Legion, 60 Main Street, Crossgates, KY4 8DY; and
- Thursday 1st August, 2pm to 7pm: Balgeddie House Hotel, Balgeddie Way, Glenrothes, KY6 3QA.

Please see the attachment for further information, which includes the PAN in addition to a cover letter and site location plan.
We look forward to meeting you at the consultation events to discuss the proposals and respond to any queries. In the meantime, please do not hesitate to contact me should you wish to discuss matters further.

Appendix N: Stakeholder email for political representatives

Dear Mark

Further to the email below, SP Energy Networks (SPEN) are holding a second round of public consultation on plans to extend Westfield and Mossmorran substations and increase the voltage of overhead transmission lines in Fife.

SPEN need to extend their substations at Westfield, near Ballingry, and Mossmorran, near Cowdenbeath, so they can increase the voltage of overhead lines between Tealing (near Dundee) and Kincardine in Fife from 275,000 volts (275kV) to 400,000 volts (400kV).

Together this will increase the capacity of the electricity transmission network and help to guarantee secure energy supplies for the future.

In July and August 2024, SPEN asked local people and stakeholders for their views on the initial plans. They are now holding a second round of public consultation on the updated plans, until Friday 20 December 2024. The consultation is being advertised in local newspapers, and leaflets which outline the plans are being sent to homes and businesses in the local area.

We are hosting two drop in events:

- Westfield Substation - Tuesday 26 November, 2pm to 7pm: Benarty Centre, Flockhouse Avenue, Ballingry, KY5 8JH
- Mossmorran Substation - Thursday 28 November, 2pm to 7pm: Auchtertool Village Hall, KY2 5XW

Feedback received during this public consultation will help SPEN develop detailed plans before we submit planning applications to Fife Council. We will also need to submit Section 37 applications to the Scottish Government Energy Consents Unit for the proposed changes to the overhead lines and uprating in voltage. At this stage, comments received are not representations to the planning authorities. When we make an application for development consent in future, you will be able to make formal representations at that stage.

We would be happy to meet with you to talk you through the project and hear about any feedback you may have received from constituents.

Please do not hesitate to contact us if you require any further information.