

FINGRID'S OCCUPATIONAL SAFETY PUBLICATION FOR SERVICE PROVIDERS 2014

SAFETY ON THE LINES



OCCUPATIONAL
SAFETY CAMPAIGN
BEARS RESULTS
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SAFETY ON THE LINES

Fingrid’s occupational safety publication 2014

Editor-in-chief

Karri Koskinen | karri.koskinen@fingrid.fi

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Street address: Lökkisepäntie 21

Postal address: P.O. Box 530, 00101 Helsinki

Tel.: +358 30 395 5000

Fax: +358 30 395 5196



OCCUPATIONAL SAFETY IS A JOINT EFFORT

Service providers are a vital resource to Fingrid. The safety of all personnel working with the grid is of equal importance, regardless of whose payroll the workers are on. Last year, our service providers carried out a record 1,061,500 hours of work for Fingrid, corresponding to 639 man-years. Sadly, in 2013 a fatal accident and several other serious accidents occurred on Fingrid's worksites. It's clear that we still have a lot of work ahead of us in improving the level of safety on our worksites. We hope that each individual working on our sites reads this publication, which we hope will share the best occupational safety practices and methods.

Accidents relating to induced voltages and near misses have been a cause for Fingrid's concern in recent years. An article on the topic can be found on page 9–11 of this magazine. Every individual on our worksites, from electrical industry specialists to laymen, should be aware of the risks relating to induced voltages. They are sometimes greater than obvious operating voltage risks.

Also unfortunately common on Fingrid's sites are accidents and near misses relating to lifting work. 2014 got off to a very worrying start as several cranes on our sites fell over. Last year, the cause of the highest number of sick days was the falling of a crane at a power line site. You can find practical tips for avoiding lifting risks in this magazine. Fingrid has reviewed its instructions and requirements concerning lifting work and induced voltages. These are also dealt with in our contract terms concerning safety, which have been radically updated.

I would like to thank service providers for their cooperation in the development of occupational safety in recent years. We have implemented several safety reforms, such as MVR (land and water construction) measurements, which are in active use on our sites. The safety observation campaign resulted in numerous good observations from our service providers. The significance of safe work will become even more important in coming years as a number of investment projects are due to be under way simultaneously. Several simultaneous projects on the western coast in particular will cause challenges with regard to outage planning, for example. The significance of smooth cooperation is highlighted in challenging situations.

Safety reforms will be carried out continuously in order to meet our zero accidents target. Fingrid also invests in safety through financing and in the future will fund a separate, project-specific safety supervisor for all new 400 kilovolt power line projects. This supervisor will be continuously on site to ensure safety. The most important thing, however, is to adopt the correct attitude towards safety. Grid work is challenging, and carried out in drastically different conditions depending on the season. Risk-taking is prohibited, and now and again it's good to stop and think about the safety of the task at hand. The client's primary aim is for work to be carried out safely.

When it comes to occupational safety, attitude counts!

Kari Kuusela, Executive Vice President
Fingrid Oyj





Occupational safety campaign bears results

Text: Pia Ojala | Photographs: BBO

As part of an occupational safety development project, Fingrid organised a safety observation campaign for its service providers' personnel from November to January. The campaign aimed to activate people working on sites to report even small safety observations before accidents happen.

The campaign was fuelled by a low number of safety observations received from contractors in recent years. The campaign indicated however, that there is often a need for observations. During the campaign, site personnel were given pocket-sized observation notebooks with which each worker on the site was able to report on safety deficiencies which endanger site safety, or provide development ideas to site managers on how to improve safety. All safety observations made during the pilot campaign period were relevant and improved safety on site. The observations were dealt with in site meetings, and many observations initiated good discussion. Each observation was rewarded with a € 10 S-Group gift card.

Dangerous equipment and tools

Of the 95 safety observations received during the campaign, the majority – 31 – concerned machines, equipment, scaffolding and tools. Dangerous situations were caused by broken fibres on a line when running cables, cutters which were in poor condition, broken walkie-talkies, tools which were frozen in the winter and worn handheld tools. In these cases, regular checks, maintenance and the procurement of new tools will significantly improve occupational safety.

In some observations, the risks posed during lifting were increased by a lack of voltage monitor and sudden or erroneous moves by the operator. Various accidents relating to lifting work are regrettably common on Fingrid's sites. The observations in question can be classified as "near miss" situations. The risks of personal injury were clear and will be reduced by improving existing operating methods.

Preparation and protection increase safety

The second highest number of safety observations related to the condition of access and exit routes and to personal protective gear. Seventeen observations related to insufficient gritting or lighting, ramps which are too steep or floors giving out underneath workers. As a reparative measure, sufficient gritting in the winter period and pre-emptive maintenance in all operations were proposed in site meetings.

In recent years, particular attention has been paid to personnel protective gear and working at height on Fingrid's work sites. Nevertheless, in 17 observations from the campaign, workers were missing a helmet, protective footwear or high-visibility protective clothing, or were working at height without being safely attached. Luckily, the problem is easy to fix: simply attach your harness correctly and wear the appropriate protective gear.

Of course those who procure the equipment have to remember that the correct size and fit encourage the use of equipment and therefore provide more protection against knocks and serious accidents.

Avoid unnecessary risks

The campaign revealed that despite awareness of risks, risks are nevertheless taken on site. Twelve safety observations indicated that some of the dangerous situations arose due to unnecessary risk-taking. Bystanders in a residential area were put at risk when detonating cord was repeatedly used instead of a safer method during explosive work. An angle grinder was used without protective eyewear and a bolt gun was used without hearing protection. There were two people and tools inside a crane cab registered as being for one person only, there was known overloading of one truck and vehicle speeds were in excess of permitted limits. Fingrid's aim is for every worker to leave the site safe and sound every day. It is extremely important to avoid risk-taking in all situations. Risks can be reduced by developing operating methods and techniques. Fingrid's safety organisation is happy to help with the development work.

Fingrid hopes for more observations

Fingrid hopes that the safety observation practice will remain in active use even after the campaign. Safety observation booklets will be available for all Fingrid sites in the future. All observations, tips and comments can also be sent directly to Fingrid's Safety Adviser **Karri Koskinen**, whose contact details can be found on page 15 of this magazine. Everyone working on the site is obligated to intervene in dangerous work and therefore play their part in achieving our common goal. Our aim is zero accidents on all of our work sites. ■

LEARNING FROM MISTAKES



Fingrid has drawn up an operating model to support investigation into accidents and dangerous situations. The aim is for all accidents to be investigated in cooperation between Fingrid and service providers.

The goal is shared learning.

HOW TO REPORT AN EVENT TO FINGRID:

All events are to be reported to Fingrid and a short description of the event will be written up using an accident notification or safety risk notification. The reporting procedure varies according to the severity of the event.

Serious accidents, serious near misses and significant environmental accidents must be reported immediately by telephone to the main grid control centre (tel. +358 30 395 4300) and to the contract contact person as soon as possible.

Accidents which result in sick leave, minor environmental accidents and events resulting in large-scale material damage are to be reported immediately by telephone to the contract contact person. If the contract contact person cannot be reached, the event must be reported to Safety Adviser Karri

Koskinen by telephone. If neither person is reachable, the event must be reported to them by e-mail.

“0 days” accidents, safety observations and near misses must be reported using the accident notification or the safety risk notification as soon as possible but no later than within two working days from the event.

Remember that all dangerous situations and damage relating to electricity must be reported to the main grid control centre!

The service provider is responsible for the statutory reporting to authorities of serious accidents and other serious events which occur at the place of work.

In case of an emergency, first call the emergency number 112!

THIS ARTICLE DEALS WITH ACCIDENTS AND DANGEROUS SITUATIONS WHICH HAVE OCCURRED ON FINGRID'S WORK SITES.

When investigating accidents and dangerous situations, the aim is to find the causes which led to the occurrence of the event and then to define corrective actions in order to prevent similar accidents taking place in the future. Investigations will not seek to place blame. It's important to get the investigation under way as fast as possible while events are still fresh in the minds of those involved and eye-witnesses. It's also good to obtain photographs of the site of the event before damage is repaired or

cleaned away. The narration of events and learning from them becomes significantly more effective if pictures are available to aid the process. It's important to report all events to Fingrid without delay in order for the investigation process to get under way as soon as possible. Information concerning accidents, dangerous situations and lessons learnt will be distributed to Fingrid and service provider staff in the form of short bulletins. The aim is zero accidents at Fingrid's construction sites. All accidents are preventable.

Careful planning ensures safe lifting

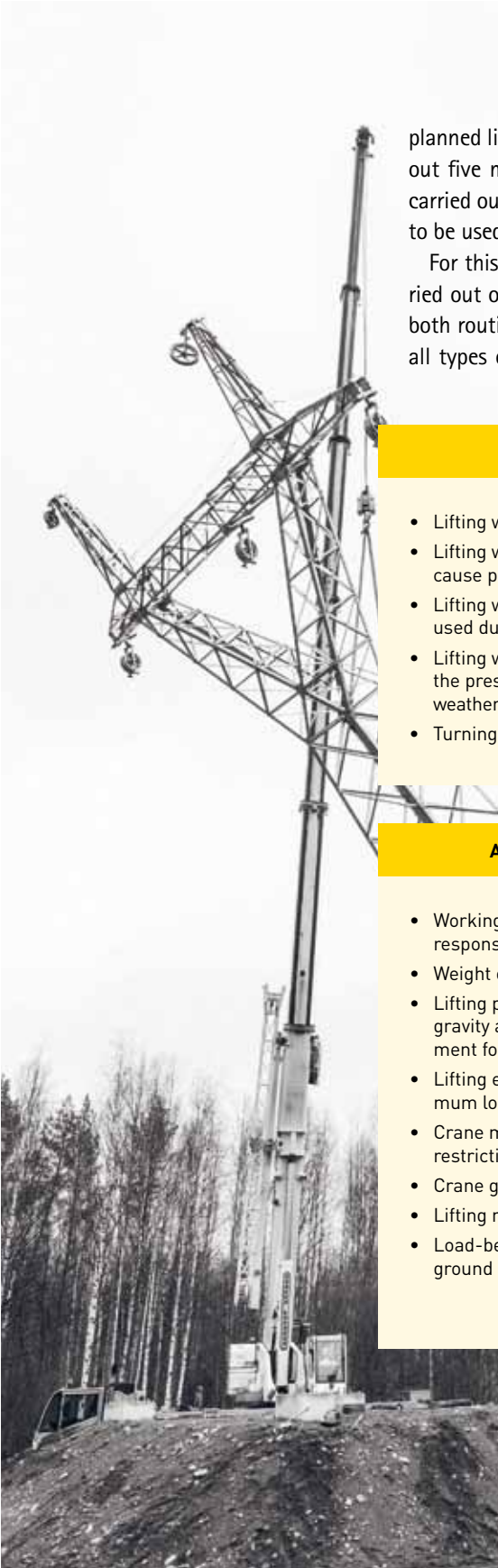
Text: Karri Koskinen | Photographs: Pentti Vänskä, iStockphoto

In 2013 a serious accident occurred on a Fingrid work site when a boom crane fell during personnel lifting when the ground gave way beneath a support. Three people were injured, of whom two were seriously injured. According to statistics, this event caused the longest periods of sick leave on Fingrid's work sites in 2013.

The year 2014 also got off to a poor start concerning lifting. At the start of the year, three dangerous situations occurred and in each situation, a crane fell. Luckily no personal injuries occurred but the risk of serious accident was real. One crane

fell during the erection of a tower, another while removing a tower and in one event a crane drove over the edge of an ice road and the ground gave way, leading the crane to fall.

In all of these events, the situation could have been avoided through careful planning and adherence to plans. The removal of a tower was carried out as a "side job" alongside erection. The work was not planned carefully and the precise weight of the load was not known by the lifting team. One reason why the crane fell when erecting a tower was a change in work: the crane could not approach the



planned lifting spot due to uneven ground, and the lifting was carried out five metres further away than planned. Changes in work to be carried out, the working environment or the machines and equipment to be used are often behind accidents and dangerous situations.

For this reason, the hazard identification and safety planning carried out on the site of work are extremely important. This applies to both routine lifting as well as individual, challenging lifting jobs and all types of lifting: installations, demolition and storage lifting. Be-

DEMANDING LIFTING INCLUDES

- Lifting which is carried out using two cranes.
- Lifting wherein the crane may reach high-voltage components or cause personal injury to those who are not participating in the lifting.
- Lifting work wherein a signaller or telephone connection has to be used due to a lack of direct line of sight to guide the lifting.
- Lifting which involves some other significant danger factor, such as the presence of a large fuel tank in the area, a significant change in weather conditions, a railway line, main road, etc.
- Turning heavy objects through lifting.

AN EXAMPLE OF THE CONTENT OF A LIFTING PLAN

- Working group and responsibilities.
- Weight of load.
- Lifting picture: load centre of gravity and points of attachment for lifting equipment.
- Lifting equipment, their maximum loads and restrictions.
- Crane maximum load and restrictions.
- Crane grounding.
- Lifting methods.
- Load-bearing capacity of the ground and reinforcements.
- A layout image of the lifting site marked with danger areas, lifting directions and point where load is to be placed.
- The lifting work by phase, danger factors of the phases, risk assessment and preparedness procedures to avoid danger.
- Orientation and confirmation of those participating in lifting work.
- Weather conditions, such as wind restrictions, taken into account.
- Checklist for erection inspection.
- Cordoning off of the danger area, guarding and distribution of information.

fore beginning lifting work, lifting instructions for repeated lifting, or a lifting plan for demanding or individual lifting must be drawn up. A lifting plan for demanding lifting must always be drawn up in writing.

If it is observed that work cannot be carried out according to plans, the work must be stopped and carefully planned again. Each person has the right and obligation to stop work should they observe a change or condition which could pose a danger to the lifting and to occupational safety.

The planning of lifting work is a team effort in which all those involved in the lifting must participate. The employer responsible for the lifting must also be convinced that all persons participating in the lifting are familiar with the lifting plan. Machines and lifting equipment to be used must also be inspected and sufficient with regard to lifting capacity. Lifting equipment must always be checked

visually before lifting. It is also important to familiarise users of lifting equipment with the correct use of the equipment and grounds on which to refuse to use the equipment. ■

THINGS WE'VE LEARNT FROM EVENTS:

- Responsibilities should always be clear.
- Lifting work should always be carefully planned.
- The person responsible for the work must always ensure compliance with plans.
- The weight of the load to be lifted must always be known.
- A new plan and risk assessment must be carried out if changes occur.
- An erection protocol must always be drawn up for cranes.
- Good practice: ensuring safe lifting with a checklist.

Induced voltage – a significant danger factor on Fingrid's work sites

Text: Pasi Lehtonen | Photograph: Pentti Vänskä

What is induced voltage? In the grid, induced voltage refers to all unintended voltages which occur as a result of electric and magnetic fields in a metal wire or cable. Induced voltage can exceed 20 kilovolts and can fluctuate greatly even during a short period of time at the same site. The voltage, distance and current of the nearest component with operating voltage all have a significant effect on the size of the induced voltage. The worst case scenario occurs when the line under construction runs parallel to an adjacent, operational high-current line.

Why is induced voltage especially dangerous? The dangers caused by induced voltage can be described through comparison with the 20 kilovolt

overhead lines in the countryside. If a person receives an electric shock, the voltages which affect a person are, at worst, equally as great. In an electric shock caused by induced voltage, the life-threatening current is often smaller than in the comparison, but nevertheless many times greater than what a person can withstand. Shocks caused by induced voltage are especially dangerous because protection does not disconnect the induced voltage. In an overhead line with operating voltage, protection opens breakers and both the operating voltage and its current are rapidly removed from the accident site. The current caused by induced voltage however, continues to flow until the person is detached from the line or the line is grounded for work next to the person. In

such circumstances, the person is unable to detach themselves from the circuit due to muscle spasms, and the current's longer period of effect significantly increases the danger to life.

What accidents has induced voltage caused in grid work? Dangerous situations and accidents caused by induced voltage have increased significantly in recent years. On average, there has been one accident per year. Despite induced voltages forming a significant risk to work carried out both at electrical substations and power lines, all reported accidents were caused by induced voltage from power lines.

The most serious events were two fatal accidents. Of these, the first occurred in 2010 when, during measurements to establish grounding for work, current between the measurement device and a low-voltage extension cord travelled through a person. The second accident took place in 2013 when induced current flowed through an electrician after additional grounding for work became detached during work. Two occurrences of smaller-scale accidents caused by induced voltage also took place during the same period. In the worst case scenario, these could also have resulted in serious injury since the person was unable to detach himself from the current circuit due to muscle spasms.

How could we have prevented electric shocks from induced voltage? In almost all of the aforementioned cases, injury and dangerous situations could have been avoided if grounding during work had been carried out in accordance with instructions valid at the time of the event. Only one case highlighted a new issue when, despite expectations, metal guide wheels did not discharge induced voltage. It was only possible to prepare for this risk after the dangerous situation was encountered, and requirements concerning additional grounding for work in these work phases were added to guidelines as a result.

How can we achieve the zero accidents target in the future with regard to induced voltage? Fingrid has made the decision to increase equipment for additional grounding for work which are connected at grid worksites. This new method aims at removing the induced voltage risk caused by power lines. At the same time, dangers posed by electrical storms or intersecting lines are also reduced.

The basis of the new method is to connect additional grounding for work equipment so that the failure or detachment of one piece of equipment will no longer cause induced voltage which can induce muscle spasms and life-threatening electric shocks. The existing requirement is the connection of at least one piece of equipment for additional grounding for work at a maximum of one kilometre away from the work site. From now on, a second, back-up piece of equipment must also be connected in the same area. However, the addition of one piece of back-up equipment alone is not enough to achieve the zero accidents target with regard to induced voltage. In addition to methodical planning, emphasis must also be placed on the appropriate connection of equipment and reliable attachment.

The aim of the new method is not for two pieces of equipment for additional grounding for work to be systematically connected side-by-side at each work site, but instead the providers' responsible persons must plan and decide on the details of additional grounding for work in accordance with the new principle. When planning the connection points for equipment and when connecting the equipment, it's worth taking into account, for example, that one false move by a crane must not break two pieces of equipment at once. Attention should also be paid to ensure that the increased amount of equipment does not cause a tripping hazard when working at height, for example.

When it comes to electrical work, safety is a sum of many factors. Anticipate risks and act methodically. Carry out each individual procedure as if it were the only procedure. This helps to ensure your own safety and the safety of your colleagues. ■

A CHECKLIST OF THE MOST IMPORTANT PROCEDURES TO HELP AVOID ELECTRICAL ACCIDENTS

WORK PLANNING

Carry out – and require from others – good advance planning and risk assessment.

BEFORE POWER LINE WORK BEGINS

Ensure that you are at the correct work site and that the necessary equipment is in good condition.

Carry out a mental risk assessment before climbing a tower or touching a line on the ground. Consider the sufficiency and distance of grounding for work and ask, if necessary. Remember that the amount of induced voltage is not essential information; it is always life-threatening.

Use a voltage detector to ensure that there is no operating voltage in a site which requires grounding for work.

Connect any missing additional grounding for work in line with instructions and near the worksite so that they cause minimal complication to the work. Remember that only by using equipment carefully and correctly will you ensure your own safety and the safety of your colleagues.

AS WORK PROGRESSES

Ensure that the additional grounding for work at the site is in good condition and remains attached.

It must always be ensured that the worksite remains dead, especially before work resumes, such as in the mornings. You can best ensure that the site is dead by checking the groundings for work, which should be clearly visible from the site.

If surprising changes occur, safety must always be re-ensured through new planning and risk assessment. If necessary, contact site management.

If for some reason, the grounding for work on the site is damaged or detached while you are working on current lines, do not touch anything which could possibly be connected conductively to the ground. Wait for your colleagues to connect new equipment to ensure your safety.

If you have to rescue a person stuck in a circuit, remember that you too are in danger. Carefully consider your actions. The safest thing to do is to quickly connect additional grounding for work to bypass the current flow. If this is not possible, use insulating equipment to remove the person.

Stop work if you have even the slightest doubt that something is putting the safety of you or your colleague in danger.

Remember that induced voltage can move from the line to insufficiently grounded machinery, another line or, during rescue work, to another metal component such as the cab of a vehicle.

WHEN WORK ENDS

The last task should be to remove grounding equipment which may be removed in accordance with the plan. Do not remove equipment which ensures the safety of others when connected.

Ensure the operational condition of work site equipment you will leave connected.

Ensure that the work site remains in the state agreed on in advance.

Report all dangerous situations in order to improve safety.

Fingrid has updated its contract terms concerning safety

Text: Karri Koskinen | Photograph: Pentti Vänskä

Fingrid updated its contract terms concerning safety in February 2014. This update saw more changes made to the terms than ever before. The new terms will come into effect in all new investment projects and maintenance contracts drawn up.

Much time and effort was put into fine-tuning the content of the contract terms. The aim is to ensure a high level of occupational safety at all sites and in each individual task. Fingrid will also update its contract terms concerning safety in the future. Service providers' comments and experiences of the contract terms and the clarity of the terms are vital to the development work. The update, published in February, was proposed in Fingrid's autumn 2013 safety seminar. After the seminar, the contract terms were sent in their entirety to service providers for commenting. We would like to thank the service providers for their numerous and concrete comments, which were of great help in developing the terms.

Fingrid's own personnel were trained in the requirements of the contract terms during spring 2014. The requirements will be examined together with service providers in connection with both projects and maintenance contracts. The aim is for each person working on Fingrid's sites to be aware of the rules and to act safely in all situations.

The greatest changes to the contract terms apply

to electrical work and its specifications, site safety monitoring and risk assessment. Site safety monitoring will be carried out in a consistent manner using MVR (land and water construction) measurements on power line sites and electrical substations. The MVR measurement indicator is designed to monitor the site's safety and cleanliness levels. MVR measurement practices are under development for adaptation so that they can be applied to maintenance management. Several requirements concerning individual areas were also clarified. These include lifting work, work carried out at height, excavation work and personal protection. Together with other safety-related documents and legislation, the contract terms form a minimum requirement level for occupational safety at Fingrid's sites.

Occupational safety to be taken into account in the tender phase

The contract terms concerning safety bring risk assessment closer to practical work. Safety management begins with the systematic identification of danger and hazard factors and an assessment of



SANCTIONS WILL BE GIVEN FOR BREACHING THE FOLLOWING SAFETY REGULATIONS:

- ▶ Lack of high-visibility clothing
- ▶ Lack of safety helmet
- ▶ Lack of safety shoes
- ▶ Lack of ID card containing a tax number and photo of the cardholder
- ▶ Neglect of the "Always attached" method for safety harnesses
- ▶ Actions which are in breach of guidelines and which endanger site safety

A written complaint and penalty of EUR 1,000 will be issued to the supplier for each individual breach.

their impact on employees' health and safety. This work begins with the client even before the selection of a supplier in the form of safety documentation. Suppliers should also pay attention to safety issues during the tender phase. Before work begins, a supplier should draw up a safety plan whose content requirements should come from risk assessment, legislation, safety documentation, operating and electrical occupational safety instructions and the contract terms concerning safety. In addition, phase-specific risks should also be assessed, and procedures to ensure safe work should be in place.

When planning procedures, it's well worth remembering that hazards and danger factors should primarily be removed. In practice, it's not always possible to remove all risks, but we can put procedures into place to lower the risks to an acceptable level. The contract terms include the section "On-site safety planning by the team", with the aim of directing the working group to think about the work's risks before work begins. In this phase, the working group evaluates whether the work can be carried out in accordance with existing guidelines and whether changes to the work, working environment, ma-

chines or equipment have taken place. If changes are observed, the work should be re-planned and risks should be re-assessed.

The aim of the contract terms concerning safety is to achieve a positive impact on people's methods of working, and this applies to both planning and work carried out. The goal is not simply to create rules, but instead to genuinely improve occupational safety and strive towards the zero accidents target.

Carrot and stick

Achieving the goal requires commitment to occupational safety, firm management and intervention in hazardous activities. The contract terms concerning safety include sanctions for neglecting to wear personal protective gear and engaging in hazardous activity on Fingrid's sites. However, action which promotes safety is rewarded. A good example of this is Fingrid's safety observation campaign which was put into place on Fingrid's sites. In addition, taking care of safety issues is a key factor in ongoing incentive models in both investment projects and maintenance. ■

Working to improve occupational safety

Text: Pia Ojala | Photograph: Eija Eskelinen

Fingrid has long carried out cooperation with its service providers in order to develop a safe working environment. Members of Fingrid's safety organisation introduce themselves and explain how their tasks increase safety on worksites.

► **PASI LEHTONEN**, Health and Safety Manager, Supervisor of Electrical Operations

Pasi Lehtonen is responsible for the development and monitoring of occupational safety when working with electricity. He investigates incidents and also takes responsibility for other occupational safety with regard to reserve power plants. In practice, his work involves drawing up instructions, training and statements for various situations or work phases. As Supervisor of Electrical Operations, he is also responsible for ensuring that electrical equipment is safe to use and that it is used safely.

Accidents at work are often a result of risk-taking or carelessness. Deliberate risk-taking includes insufficient advance planning and insufficient occupational safety risk checks before work begins. Methodical planning and anticipation of risks are also required when considering work procedures in situations of change which require rapid decisions.



Fingrid's safety organisation: Antti Linna, Karri Koskinen and Pasi Lehtonen.

Pasi Lehtonen believes that deliberate risk-taking can also lower awareness of the true scope of risks. "The prevention of accidents begins with anticipation, monitoring and the active exchange of information. An effective method of removing risks is to distribute information on observations made on site and on good practices," explains Pasi. The direction in which the development of occupational safety is headed is good, he adds, but there's still some way to go towards the zero accidents target. As one idea for development he mentions targeted orientation based on occupational safety observations and safety negotiations, which would be held between Fingrid's and service providers' responsible persons.

► **ANTTI LINNA**, Project Manager, Liability Supervisor

Antti Linna acts as Project Manager for Fingrid's transmission line projects. In addition, he is responsible for monitoring client liability and occupational safety issues on all Fingrid sites and in large renovation projects. He is also responsible for



CONTACT US

We are continuously striving to improve our actions with regard to occupational safety. Occupational safety is a common issue which we aim to develop in cooperation with our service providers. As such, all your feedback is important to us. Tips, ideas on how to improve occupational safety and feedback on the magazine can be sent to Safety Adviser Karri Koskinen. Please don't hesitate to contact us if you have any questions about occupational safety.

► **Fingrid Oyj | Safety Adviser Karri Koskinen**
tel. +358 40 631 2152 | karri.koskinen@fingrid.fi

the harmonisation of site liability practices. The position was created because Fingrid wanted to increase worksite safety.

In his role as Liability Supervisor, Antti Linna is often found on worksites carrying out liability audits. Antti's target is to carry out audits on all Fingrid's investment worksites at least once per year. Worksites encounter situations wherein work is insufficiently planned or for some reasons plans are not complied with. Dangerous situations can occur when a working method which was pre-planned is suddenly changed and plans are not updated before work begins. "Always think before doing," says Antti.

► **KARRI KOSKINEN**, Safety Adviser

Karri Koskinen started work as Fingrid's Safety Adviser six months ago. He has six years of experience in occupational safety tasks, most recently at the Finnish Institute of Occupational Health, where he trained occupational safety personnel and supervisors.

Karri's main tasks are to support and guide Fingrid's personnel and service providers in occupa-

tional safety matters, to investigate accidents and near misses, to lead an occupational safety development project, to monitor legislation relating to occupational safety and to hold MVR training. He is also responsible for contract terms concerning safety. In practice, the work includes the development and steering of operating models, training, distribution of information and information retrieval.

Karri Koskinen's - and indeed Fingrid's - target is zero accidents. The point of departure is that occupational accidents are not accepted and all accidents are preventable. "In my opinion, the majority of accidents happen because the danger factor which caused the accident was not recognised, and for this reason it was not possible to plan the work safely," says Karri. "Changes in work, the working environment or plans can cause accidents if the new danger factors which the changes pose are not taken into account." Human action is usually a factor in accidents. For this reason, everyone must work safely and comply with valid instructions.

In preventing accidents, it is of vital importance to have everyone commit to safe working methods. To ensure safe work, danger factors must be recognised and the necessary procedures to reduce the risk must be undertaken. Planning must consist of risk assessment, personnel must be familiarised with plans and the employer must supervise compliance with instructions.

Karri would like to say to all sites: "It's important to us that every worker leaves the site safe and sound every day. Work safely and remember that everyone has the right and obligation to intervene in work they deem unsafe." ■

FINGRID OYJ

Läkkisepäntie 21, P.O. Box 530, FI-00101 Helsinki
Tel. +358 30 395 5000 • Fax +358 30 395 5196 • www.fingrid.fi

Helsinki

P.O. Box 530
FI-00101 Helsinki
Finland
Tel. +358 30 395 5000
Fax +358 30 395 5196

Hämeenlinna

Valvomotie 11
FI-13110 Hämeenlinna
Finland
Tel. +358 30 395 5000
Fax +358 30 395 5336

Oulu

Lentokatu 2
FI-90460 Oulunsalo
Finland
Tel. +358 30 395 5000
Fax + 358 30 395 5711

Petäjävesi

Sähkötie 24
FI-41900 Petäjävesi
Finland
Tel. +358 30 395 5000
Fax +358 30 395 5524

Varkaus

Wredenkatu 2
FI-78250 Varkaus
Finland
Tel. +358 30 395 5000
Fax +358 30 395 5611